

Riverbend Estates



Environmental Information Document



KELLER
associates

Project #: 205079

October 2011

RIVERBEND ESTATES

ENVIRONMENTAL INFORMATION DOCUMENT



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I. PROJECT IDENTIFICATION

A. **Utility:** Riverbend Estates Home Owners Association

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B. **Project No.:** Keller Associates Project No. 205079-000

Project Costs and Funding Sources

Anticipated Funding: Riverbend Estates Home Owners Association

The Association has been offered a \$200,000 DEQ SRF Loan for 30 years at 0% interest with a \$23,012 subsidy.

Total Eligible Cost¹:

Project 1 – Regulatory Compliance	\$106,000
Household Cost	\$9/month
Project 1 + Bid Additive 1	\$135,000
Household Cost	\$12/month
Project 1 + Bid Additive 1 & 2	\$197,000
Household Cost	\$17/month
Project 1 + Bid Additive 1 & 3	\$201,000
Household Cost	\$18/month

C. **User Costs:**

At the beginning of the study process, the Riverbend Estates (RBE) subdivision was being scrutinized for their arsenic levels exceeding the MCL of 10 ppb. Through the study process, it was discovered that the water system was experiencing many other

¹ Total project costs exceeding the awarded DEQ SRF Loan will be funded using Riverbend Estates’ capital reserve. The scope of Project 1 and each of the Bid Additives are described in Table 1 and Section III of this EID.

issues that needed to be addressed as well. At this time, the average arsenic levels (average for 4 consecutive tests) for the water system is below the MCL, and therefore the Compliance Agreement Schedule (CAS) with DEQ has been terminated. A copy of the letter terminating the CAS is included in Appendix C.

However, it was determined through a public hearing (see Appendix F) that if the arsenic levels again rise above the MCL, the Riverbend Estates HOA will be required to have a Point of Usage (POU) treatment unit installed in each home at the drinking water tap, as described below in the Proposed System Improvements. The capital costs will be distributed between the 27 households, with the expected household expense being \$1,914. This amount could vary as the project proceeds. The costs involved to operate these devices include electric bills, component replacements, repairs, arsenic sampling, etc.

RBE Home Owners Association has been placed on the SRF Intended Use Plan for a potential DEQ loan of \$200,000 at 0% for 30 years with \$23,012 subsidized. This loan is expected to cover the necessary improvements to the RBE water system to make it meet all of DEQ’s and the Health Department’s requirements for small public water systems.

The Association held an annual meeting on January 12th, 2011 to determine which project they would like to pursue. The Board asked for the items included in the Project plus Bid Additive 1 to be completed and Bid Additive 2 considered to help minimize loss of power concerns. The residents voted unanimously to continue with the Project plus Bid Additive 1 to be the main project. Bid Additive 2 was authorized by the residents for design and bidding at which time an association meeting will be held and Bid Additive 2 will be reconsidered.

As approved in previous meetings, POU systems will be installed should arsenic levels rise above the MCL. If arsenic levels rise before or during the project, the system will complete the Project plus Bid Additive 1 and 3. Please see Appendix F for the meeting minutes. If the levels rise after project completion then RBE will use funds accrued through their rates and saved in their capital improvements fund. If additional monies are necessary, a onetime assessment fee can also be implemented if the funding insufficiency is small or apply for a secondary loan if it is too large to cover the purchase and installation costs. RBE recently increased their user rates to begin building their capital improvements fund to cover future operating costs. See Table 1 for the project breakdown. (Note: The estimated project costs in Table 1 are estimates. Actual bid costs can vary significantly from these estimates.

TABLE 1 – PROPOSED PROJECT COSTS

Project	Additive 1	Additive 2	Additive 3
Flushing hydrant	VFDs on pumps & pump controls	Natural Gas Generator	POU System
Backflow prevention devices			
Chlorination facility			
Well casing extensions			
Flowmeter			
\$106,000	\$29,000	\$62,000	\$66,000
\$9/month/household	\$3/month/household	\$5/month/household	\$6/month/household

Project + Additive 1 = \$135,000 --- \$12/household/month
 Project + Additive 2 = \$168,000 --- \$14/household/month
 Project + Additive 1 & 2 = \$197,000 --- \$17/household/month
 Project + Additive 1 & 3 = \$201,000 --- \$18/household/month

The existing user charge for operation and maintenance is \$45 per month, with a debt service of \$0 per month. The operator is paid a salary each month and the remainder of the user charge pays for the remaining operation and maintenance costs. Operation and maintenance is not expected to increase with the implementation of the proposed improvements. Therefore, the new user charge for operation and maintenance will continue to be \$45 per month, and the new debt service charge will be \$12 per month (Project 1 plus Bid Additive 1), creating a total service charge of \$57 per month. The board decided to increase the current user charge to \$65 per month to help build a capital reserve, beginning January 2011. The accumulated reserve could be used to fund project costs surpassing the DEQ SRF Loan amount of \$200,000.

D. Proposed System Improvements Abstract:

Within the following body of this stand-alone Environmental Information Document (EID), one will find that the proposed improvements will mitigate the water quality issues that RBE faces. Potential environmental impacts are discussed within this EID for all of the alternatives and chosen improvements presented.

The Environmental Protection Agency (EPA) adopted a new standard for arsenic levels in drinking water. The new standard lowered the limit from 50 parts per billion (ppb) to 10 ppb. In 2006 RBE had levels of 14 ppb, which was over the MCL. Because of the elevated levels, RBE entered into a Compliance Agreement Schedule (CAS) with DEQ. They were given time to complete a water study and select an alternative to mitigate this issue. In the study and outlined in this EID several different methods are proposed to lower the arsenic levels to meet the MCL as well as mitigate their distribution system deficiencies. It has been preliminarily determined that the improvements will not cause adverse environmental effects and all proposed system improvements will be contained within the boundaries of the following maps and figures. See Figures 1 and 2 for a Vicinity Map and Project Location Map.

During the arsenic mitigation study process, many other significant deficiencies were encountered throughout the system. In this EID, several proposed alternatives and their corresponding potential for environmental impacts are discussed. The recommended alternative involves installing point-of-use treatment units to mitigate the high arsenic levels. Well casing extensions, a totalizing flow meter, a flushing hydrant, backflow prevention devices, a disinfection system, a variable frequency drive (VFD), and a natural gas generator will also be installed in order to address system deficiencies discussed in Riverbend Estates’ Sanitary Survey. As discussed in the previous section, the HOA held an annual meeting on January 12th, 2011, during which the implementation of the project and the three bid additives were discussed and voted on by both the Association Board and the residents. See Figures 5 and 6 for the Existing System Map and the Proposed System Improvements Map, respectively.

II. PURPOSE & NEED FOR THE PROPOSED PROJECT

Riverbend Estates is a small subdivision in rural American Falls, Idaho. In 2005 the Association was alerted by DEQ that their arsenic levels were above the MCL of 10 ppb. The Association hired Keller Associates to complete an arsenic mitigation study to determine the best course of action to resolve the issues; these options are discussed in the following sections. However, during the investigations it was discovered that there were several other system deficiencies that deviated from IDAPA Regulations. Many of these items identified were addressed by the Association.

In 2009, DEQ informed the Association that their average arsenic levels (4 consecutive tests) were below the MCL and were therefore relieved of their Compliance Agreement Schedule (CAS). A copy of the letter terminating the CAS is provided in Appendix C. However, they were to select a preferred alternative of how to mitigate the issue should the levels rise again. The Association held their annual meeting and selected to install Point of Use systems in each home if levels rose again.

The water system was deficient in several areas, and due to many system failures, the need for improvement was evident. Both of the well pumps had to be replaced within the same summer and it was identified that none of the households had backflow prevention devices, which poses a large threat to the community’s health during power outages that affect the area. The homes in the upper half of the subdivision were below the regulated minimum pressure during these power outages, which requires disinfection and line flushing. By installing a VFD and additional pump controls on the system, the two wells will be cycled frequently to prevent water stagnation and extend the life of the pumps, and when the system pressure drops below 20 psi the system can be easily disinfected and flushed.

The system’s most recent sanitary survey revealed the absence of a totalizing flowmeter and that the well casings needed to be extended 18” above the ground surface. It also suggested that the community look into providing a backup generator that will service the system during power outages. This has been included as bid additive #2.

III. PROPOSED SYSTEM IMPROVEMENTS

Existing System Conditions

A critical part of any study is the anticipation of future demands. In order to predict future conditions, it is essential to estimate population trends for the study area. The Riverbend Estates (RBE) subdivision consists of 30 lots, two of which are still undeveloped. Currently, there are 27 homes that have been built in the subdivision, with one home occupying two lots. It is very likely that the remainder of the lots will be developed within the next ten years. Using an average of four people per household, with 29 households, the population of the subdivision is estimated at 116 residents. This population represents full build-out of the subdivision.

The potable water system for RBE is classified as a Public Water System (PWS) # 6390018. The system was constructed in 1978 and consists mainly of 4-inch PVC. The distribution system is fed by two wells that are constructed to a depth of 216 feet. Pressure within the system is maintained by six 50-gallon hydro-pneumatic tanks. The pressure in the system ranges from 45 – 60 psi. RBE currently holds the Idaho Water Right # 29-8015, which has a diversion rate of 0.25 CFS (112.2 GPM).

In addition to the potable water system, the subdivision also has a separate irrigation system. The irrigation water is obtained from Falls Irrigation Company and is used to fulfill the majority of the irrigation needs for the subdivision. The pump for the irrigation system is located near the well house and feeds an 8-inch distribution system. This distribution system runs throughout the subdivision, with connections at each lot.

Past reports and sampling results have shown several violations of the total coliform rule throughout the history of the PWS as well as arsenic levels in the mid-teens. Due to the recently implemented EPA arsenic standard, these levels of arsenic were higher than the MCL (10 ppb). In order to continue to serve water, RBE entered into a Compliance Agreement Schedule (CAS) with Idaho DEQ. This afforded the system with the required time to complete this study and implement appropriate measures to mitigate the arsenic in the system.

A nearby irrigation pond was being used in the early 2000’s for the adjacent farming property. There were occasional coliform hits during this time that led RBE to believe that there was a hydraulic connection. Coincidentally the coliform reports went away for a short period of time after the pond was drained (RBE estimates that the pond was drained in 2006) when the property to the NE was platted as a new subdivision. Since that time, there have been occasional coliform hits that suggest that the total coliform positive samples are likely due to sampling errors and that there is not a hydraulic connection between the abandoned pond and the RBE wells. The abandoned pond is located approximately 200 feet to the northeast of the wells. The property where the abandoned pond is located is not owned by the new subdivision owner or RBE. It is owned by the developer of RBE. The board members of RBE can only speculate that it did not make a usable lot and was therefore left out of the subdivision plat. Had the pond been the source of total coliform contamination a contamination pattern that is consistent

with the ponds use should be prevalent. Upon further review of the data the positive samples have occurred randomly at times when the pond was in use as well as while the pond was dry.

Irrigation water is provided by a connection to the irrigation line located along Neeley Road. The adjacent property has now been platted as a subdivision and board members of RBE have stated that the pond will no longer be used for water storage. All septic systems are located downstream and northwest of the wells. The closest septic system exists directly north of the wells. The exact location of this septic system is unknown, but is at least 100 feet away from the wells. According to Table 1 provided in the Idaho Rules for Public Drinking Water Systems (IDAPA 58.01.08.900), both the septic systems and the pond meet the minimum required distance of 100 feet and 50 feet, respectively, from the wells.

Arsenic is an odorless and tasteless semi-metal element. It occurs naturally in the environment and is a by-product of some agricultural and industrial activities. It can enter drinking water through the ground or as runoff into surface water sources. Long term exposure to arsenic has been linked to cancer of the bladder, lungs, skin, kidneys, nasal passages, liver, and prostate.²

A. Development of Arsenic Mitigation Alternatives

For small water systems, there are three primary approaches to reducing the levels of arsenic in drinking water: connection to a municipal water system, construction of a new well, or installation of water treatment. Water treatment can be accomplished either in a central location, at the Point-Of-Use, or at the Point-Of-Entry. “No action” in the case where arsenic levels rise above the MCL is not an option for this particular scenario as DEQ requires that the system be in compliance with the EPA maximum arsenic levels. If arsenic levels rise above the MCL, one of the alternatives discussed below will need to be employed and pilot tested. In an effort to save Riverbend Estates from unnecessary costs, arsenic mitigation will not be implemented if the system continues to adhere to EPA arsenic regulations. Additionally, items identified in the system’s sanitary survey need to be addressed to meet current small water system regulations. Therefore, these items are recommended to be completed no matter which alternative is selected for arsenic mitigation.

Each of the various alternatives is discussed below along with advantages and disadvantages of each. In addition, the amortized costs of each of the alternatives are presented in Table 3. The costs provided in this table include both capital and operation and maintenance (O&M) costs. A more detailed summary of costs can be found in the Development of Alternatives section in the study. Many of the listed technologies will require a pilot study in order to ensure the desired results.

² <http://www.epa.gov/safewater/arsenic/basicinformation.html#one>

1. Alternative 1 – Connection to a Municipal Water System

One non-treatment alternative to consider for RBE would be to connect to the American Falls Water System. In order to accomplish this, RBE would need to obtain approval from the City of American Falls. Once approval is obtained, an adequate connection location would need to be established in the City water system. In discussions with City personnel, it appears that the closest location, that would support the demand, would be to connect to the 12” water main located in front of the American Falls High School; approximately three miles from RBE, shown in Figure 3. Once a connection location is established, a new transmission line would need to be installed from American Falls to RBE. Once RBE connects to the City water system, they would be required to install meters and to pay monthly user fees to the City.

There are several advantages in connecting to the City water system. By connecting to the City water system, the responsibility of treating and testing the drinking water would be shifted to the City. RBE would obtain a reliable, treated source of water and a cost savings could be achieved through the reduction of testing requirements. Another advantage to this alternative is that the transmission line could be adequately sized to provide fire flow capability to the subdivision. It would still require that the water mains within RBE be increased to a minimum of 6-inches in diameter and fire hydrants be installed. It is very likely that the property values of RBE would increase once fire flow protection is provided and the homeowner’s insurance rates would decrease. Since it is not a DEQ requirement that fire flow be provided, for this study the cost estimates do not include the upgrades to the RBE water system to support fire flow. It is assumed that these 6-inch upgrades would be made later as it is not a requirement to meet the arsenic MCL.

There are also some disadvantages to this alternative. This option is one of the more costly options. RBE will be required to install a master meter or individual meters and will be required to pay a hook-up fee as well as monthly water rates. The disadvantage to a master meter is that it is difficult to divide the costs fairly between residents. However, it would be more expensive to install individual meters.

This alternative assumes that all of the potable water in the subdivision will be obtained from the American Falls water system. The existing wells would be abandoned or utilized for irrigation purposes only. Any other uses of these wells would require further analysis and design.

Environmental Impacts

This project would be constructed in the existing Right of Way (ROW) of the City/County road extending from the American Falls High School to Riverbend Estates. The ROW has been previously disturbed during the

construction of the road and therefore does not create any long-term environmental impacts. Temporary impacts include erosion, dust, noise, etc.

2. Alternative 2 - Drill New Well or Deepening of Existing Wells

A second non-treatment alternative would be potentially drilling another well. Many times if an alternative aquifer can be located, it will not have the same contaminant levels. Another option would be to drill one of the existing wells deeper in an attempt to reach another aquifer.

These two alternatives are risky as there are no guarantees that a deeper aquifer will be located, and if one is located, there are no guarantees that it will not also be contaminated. Many of the other wells in proximity to RBE are affected by arsenic, leading one to believe that the problem is typical throughout the region.

Besides the two wells utilized by RBE, there are four other private wells in close proximity to RBE. In order to determine if these private wells were also affected by arsenic, the HOA had the arsenic levels in these wells tested. Figure 4 shows the well locations and the levels of arsenic which were reported. Table 2 lists the well owners, well depths, and the arsenic test results.

TABLE 2 – ARSENIC RESULTS IN ADJACENT WELLS

Well Owner	Well Depth (ft)	Arsenic Level (ppb)
Breding	175	9
Sherburne	UNK	8
Laggis	218	8
Lindauer	278	5

The current arsenic results for RBE are blended water from the existing wells. Due to the proximity of the two RBE wells to one another and the fact that they are both drilled to approximately the same depth, it is very likely that they draw from the same aquifer and have similar arsenic concentrations. The Lindauer well, the closest well to the RBE wells, had an arsenic concentration of 5 ppb which is below the MCL. It has a depth of 278 feet, 58 feet deeper than the RBE wells. One option to consider would be to drill one of the RBE wells to that depth and see if a different aquifer is encountered. A detailed well log of the Lindauer well is not available to determine if it is in a different aquifer. If the extended well satisfies all MCL and other requirements for a public drinking water source, then it would become the primary RBE well, with the unmodified well becoming a blending or emergency well.

This procedure is risky in that it is unknown how stable the existing well is and how it will react to the disturbance of drilling. There is the possibility of potential collapse, well contamination, or failure to find a zone with reduced arsenic levels. A new screen must be purchased, which is quite expensive,

approximately 25% of the total cost of drilling a new well and 45% of the total cost of rehabilitating a well. The old screen must be pulled from the well and there are many things that can happen between the bottom of the well and the surface including; the screen getting stuck, damage to the well casing, or deforming the screen enough at the bottom so the well cannot be reused or rehabilitated. It was reported by the water operator in 2005 that the existing wells are PVC-cased, not steel-cased as reported in the original well logs. If the wells are cased with PVC the risk of damaging the well while trying to deepen it is significant. With the high risk it is recommended that new wells be drilled.

No hydrologic analysis was performed in order to determine the likelihood of success associated with deepening or drilling new wells. Although the wells listed above in Table 2 have arsenic concentrations below the MCL, there is no guarantee that these two alternatives would result in a reduction in arsenic concentrations. Therefore, due to the high costs of these alternatives, high risk potential, and the possibility of not having success, these two alternatives were not considered further as viable alternatives.

Environmental Impacts

Environmental impacts will be contained within the project area. The well is located near the entrance of RBE and the county road. Thus, a small portion of County property is located between the wells and Neeley Road, within the project area. Other than minor clean-up from construction within the proximity of the wells, these areas should not be impacted.

Any impact to the area will be on either RBE property or on County property. All of the potentially impacted property has been previously disturbed and will therefore not create any long-term environmental issues. Temporary environmental impacts include erosion, dust, noise, etc.

3. Alternative 3 – Point-of-Use or Point-of-Entry Treatment

The first treatment option considered was treatment at Point-of-Use (POU) or Point-of-Entry (POE). The two POU treatment technologies accepted by EPA are activated alumina and reverse osmosis, both of which can also be used in central treatment plants. POE treatment is more similar to central treatment and consequently has more alternatives including ion exchange, adsorptive media (e.g. activated alumina), and reverse osmosis.³ The main difference between POU/POE and a central treatment plant, which treats all of the water distributed to its consumers, is POU/POE treatment devices are designed to treat only a portion of the flow. Through selective treatment a cost savings can be realized, making these devices a very affordable alternative for small communities. Because POU and POE devices are installed on the owner’s property, all residents must provide written permission for workers to install and maintain these devices.

³ <http://cfpub.epa.gov/safewater/arsenic/arsenictradeshows/arsenic.cfm?action=Point-of-Use>

POE devices are installed where the water enters the house and treats all of the water used within the house. For this study, POE devices will not be considered for various reasons. Although the POE devices treat all of the water entering the house, there is a substantial increase in cost involved in treating all water and not just the water being consumed. In addition, the POE treatment equipment requires more space, and the treated water tends to be corrosive to the copper plumbing commonly installed in houses.

POU devices are small and are typically installed under the kitchen sink and treat only the water intended for direct consumption (drinking and cooking), typically from a single tap. It is a requirement of DEQ that the units be equipped with a shut-off or alarm device that signals when the filters within the unit are saturated with arsenic.

Environmental Impacts

Environmental impacts associated with this alternative are not within the project planning area. The filter used in the POU is discarded when full, which goes to the landfill.

4. Alternative 4 – Central Treatment

The fourth treatment alternative to consider is central treatment. This will involve treatment of all of the water that is pumped from the well. This can be accomplished at either a central treatment plant or directly at the well head. Typically, this treatment is accomplished in one of five ways: adsorption, ion exchange, coagulation, co-precipitation, or reverse osmosis.

Central treatment treats all of the water provided to the residents. However, much like POE devices, the additional treatment of all water, consumed or not, results in a significant increase in costs. Due to the technical complexity and monitoring requirements of central treatment, it is likely that a Class 3 operations license for water treatment would be required for the system. This would require hiring an operator with the appropriate qualifications for the system, which is a substantial cost and disadvantage over the other alternatives. Central treatment would also result in increased O&M costs.

Environmental Impacts

Environmental impacts associated with this alternative are not within the project planning area. The filters used in a central treatment system, upon passage of the Toxicity Characteristic Leaching Procedure (TCLP) test, are discarded into the landfill when full. The Power County landfill will not accept these filters. However, the Pocatello and Burley landfills have been contacted and will accept them. This alternative will not have liquid residuals.

TABLE 3 – AMORTIZED COSTS OF ARSENIC MITIGATION ALTERNATIVES

ALTERNATIVE	TOTAL ANNUAL COST	ANNUAL COST PER HOUSEHOLD
Connection to City	\$38,781	\$1,437
Connection to City w/Fire Flow	\$56,390	\$2,089
Drilling New Well	\$4,331	\$161
Rehabilitation of Existing Well	\$2,964	\$110
POU Treatment	\$2,107	\$78
Central Treatment	\$18,002	\$667

B. Development of Water System Alternatives

The water system is experiencing several system deficiencies, as indicated by the sanitary survey. Some of these are required to be implemented by the sanitary survey: well casing extensions, totalizing flow meter, a flushing hydrant, and backflow prevention devices. The flushing hydrant will be flushed using an approved energy dissipation device, such as a hydrant nozzle and is not anticipated to cause any significant amount of erosion. No viable alternatives to the aforementioned items exist. Possible environmental impacts from the installation and use of the listed items include dust, noise, erosion, etc. However, these are only expected to be temporary impacts.

Several alternatives to additional improvements to the system are discussed below. Furthermore, the “No Action” alternative is not an option as it would fail to ensure that the system meets regulations.

1. Disinfection

Disinfection of the system when the pressure drops below 20 psi is a regulatory requirement, and because the system’s operator is not full time, the Association is asking for an automatic disinfection system to manage these scenarios.

There are several ways to disinfect the system’s water: calcium hypochlorite (dry chlorine tablets), sodium hypochlorite (liquid chlorine), and ultraviolet (UV) are the most popular choices. Ultraviolet, however, does not provide disinfection of the entire distribution system and therefore has been removed from further consideration. Calcium hypochlorite and sodium hypochlorite are used to disinfect drinking water sources. There are two approaches to disinfecting distribution systems. The first is continuous disinfection to achieve a log credit in compliance with the Safe Drinking Water Act as it applies to the use of surface water as a potable water source. The second is for use in maintaining distribution system piping and may be on an intermittent basis. This second approach is how RBE will operate their disinfection system. The disinfection system will only be used when bacteriological sampling indicates it is necessary. If the samples do not pass microbial contaminant requirements, the process is repeated until requirements are satisfied. The operator will initiate the disinfection process.

Because the system does not require constant disinfection, there are concerns with storage and shelf life of chlorine. Sodium hypochlorite solutions have a shelf life which can vary from 30 to 60 days with a significant loss of available free chlorine. Due to this long-term storage requirement for intermittent use of liquid chlorine is not recommended. To help mitigate this issue, the system would purchase and dose chlorine on an as-needed basis.

Calcium hypochlorite, which comes in powder, granular, and tablet forms, retains its concentration of free chlorine longer than sodium hypochlorite, but it also has a shelf life. The solid form of calcium hypochlorite has a longer shelf life and some safety advantages. The solution form can be made by mixing powdered or granular calcium hypochlorite with water. However, the feed equipment for all calcium hypochlorite forms is much more extensive and comes at a considerable expense.

Because of the nature of this small system, sodium hypochlorite is the preferred alternative for intermittent disinfection through a disinfection port inside the well house. The majority of the drops in pressure are related to power outages and could be greatly reduced through the addition of a back-up generator. A back-up generator has been approved as Bid Alternate 2 for the Proposed Project by the Association (see Appendix F for meeting minutes).

Environmental Impacts

Impacts are relatively low for sodium hypochlorite use because the chemical is stored in spill-proof containers, and the system will be equipped with a spill deck to contain any spilled liquids. The spill-proof containers consist of a secondary containment for the primary chemical storage drums in case of a leak. Dechlorinating the water prior to discharges will prevent impacts resulting from the discharge of chlorinated water flushed from lines or dumped into septic systems.

2. Variable Frequency Drives (VFDs)

With the addition of VFDs on the well pumps, lower power consumption is realized by reducing pump start-up, electrical requirements, constant pressure and extended life for the pumps.

Environmental Impacts

VFDs are a green project component due to their ability to increase efficiency, pump life, and reduce energy consumption. Their only disadvantage is that they tend to send harmonics onto the power grid. This can be reduced dramatically or even removed by the use of harmonic filters, which typically are required by power companies.

3. Diesel versus Natural Gas Generator

The sanitary survey suggested that the Association look into the installation of an onsite power generator to furnish water when the power is out. After

considering the two primary types of generators, diesel and natural gas, natural gas was selected. A diesel generator would require routine start-ups, fuel storage, and careful watch of the fuel to prevent gelling in the winter months and algae growth during the summer. There is a natural gas line that runs next to the well house that could continuously provide fuel for the generator, even during power outages. Routine start-up and engine maintenance would be the primary O&M. The price is initially higher for natural gas generators, but with no fuel storage required, it is the preliminary preferred alternative for the Association. Additionally, diesel generators typically produce a greater amount of noise than natural gas generators, and the larger the engine size, the greater this difference in noise level becomes. However, more stringent research will be conducted during design to ensure the correct selection.

Environmental Impacts

Both generators have an impact on air and noise quality. However, natural gas burns cleaner, doesn’t require a storage tank that has potential for leaking into the aquifer, and creates less noise.

Final Recommendations

Keller Associates recommends that the Point of Use treatment system be used for RBE if or when the Arsenic levels require it. Due to this option being the least expensive with minimal environmental impacts it is also the most feasible and rational choice due to the circumstances of the area.

Connecting to the Municipal System would be ideal but is not financially feasible for the homeowners of RBE. Drilling a new well or deepening the old wells are not definite solutions that could result in money spent with no results. It is not a risk that Keller Associates nor RBE are willing to take. Providing a central treatment system is not economically feasible for such a small system. This is why a smaller version of central treatment was the logical solution.

POU provides a definitive solution to the RBE arsenic problem at an affordable rate unlike the other available options. As aforementioned, because POU devices are installed on the owner’s property, all residents must provide written permission for workers to install and maintain these devices.

Along with the final arsenic mediation recommendation, several system deficiencies will be addressed that were discussed in RBE’s Sanitary Survey and voiced by several concerned residents. Table 4 describes these items and their associated costs.

TABLE 4 – TOTAL PROJECT DISTRIBUTION SYSTEM IMPROVEMENTS⁴

ITEM	UNIT	QUANTITY	UNIT PRICE	AMOUNT
Flushing hydrants	EA	2	\$3,850.00	\$7,700
Backflow prevention devices	EA	28	\$750.00	\$21,000
Disinfection system	LS	1	\$12,000.00	\$12,000
Well casing extensions	EA	2	\$1,500.00	\$3,000
Flowmeter	EA	1	\$3,500.00	\$3,500
VFDs on pumps	LS	1	\$15,000.00	\$15,000
Update pump controls	LS	1	\$5,000.00	\$5,000
Natural Gas Generator	EA	1	\$43,000.00	\$43,000
Mob/Demob	LS	1	\$30,000.00	\$30,000
Construction Sub Total				\$136,350
Contractor Overhead and Profit			10.0%	\$13,700
Contingency			10.0%	\$13,700
Construction Total				\$163,750
Engineering and Design			12.0%	\$19,700
Construction Administration			6.0%	\$9,900
Legal, Advertizing, and Misc.			2.0%	\$3,300
Estimated Project Cost				\$197,000

To complete all of these improvements, each household’s water bill would experience an estimated increase of \$17 per month utilizing the DEQ offered funding package.

IV. AFFECTED ENVIRONMENT

RBE is a small rural subdivision located approximately 3 miles southwest of American Falls, Idaho along the banks of the Snake River (Figure 1). The subdivision was constructed in 1978 and consists of 30 lots, 27 of which have been developed (Figures 2 & 5). The subdivision is not within the city limits of American Falls and therefore does not rely on the City for any of its services.

The City of American Falls, Idaho is the county seat of Power County and is located approximately 25 miles west of Pocatello. The area was first settled as a supply stop along the Oregon Trail. It now serves as a valuable commercial center, with access to US Interstate 86 and the Union Pacific Railroad.

The City of American Falls lies along the banks of the Snake River and American Falls Reservoir. It is also known as the first City in the United States to have been moved entirely from one place to another. This was accomplished to facilitate the construction of the American Falls Reservoir, which now covers the old town site.

Today, the City of American Falls is a thriving community of approximately 4,100 residents. The City provides water and sewer services to its residents. Garbage service is contracted through a private entity.

⁴ Figures are based on 2010 construction dollars. Costs associated with installing POU devices (Bid Additive 3) are not included.

The RBE HOA has undertaken the water study to evaluate the status of its current system and to evaluate its facilities’ capacity in light of future conditions. The HOA currently owns and operates its own water supply and distribution facilities. The HOA is committed to providing the community with quality water for all its residents.

Proposed Project Planning Area

The Proposed Project Planning Area (PPPA) is the same as the Study Planning Area outlined in Figure 2. All of the PPPA is contained within the Riverbend Estates subdivision. The Area of Potential Effects (APE) is the same as the PPPA. The system improvements within the PPPA are those identified in the final recommendations. The contents of Section IV Affected Environment apply to the selected improvements to Riverbend Estates’ water system.

Major Project Features

If average arsenic levels rise above the MCL a project will have to be undertaken to install POU systems in each household. Along with these systems, many items listed on the sanitary survey will also be addressed with the DEQ funding package. These have been outlined in previous sections of the report and the Facilities Planning Study. The remaining items will be installed in the future with available funds collected from monthly user fees.

Each of the proposed system improvement items will be addressed within the existing well house, on the existing 1” service lines, or on the existing 8” transmission line.

Riverbend Estates desires to begin construction in spring to early summer of 2011. The improvements are noninvasive and are expected to be completed quickly and without delay.

Population

A critical part of any study is the anticipation of future demands. In order to predict future conditions, it is essential to estimate population trends for the study area. The Riverbend Estates (RBE) subdivision consists of 30 lots, two of which are still undeveloped. Currently, there are 27 homes that have been built in the subdivision, with one home occupying two lots. It is very likely that the remainder of the lots will be developed within the next ten years. Lots in Riverbend Estates are not allowed to be subdivided. Using an average of four people per household, with 29 households, the full build-out population of the subdivision is estimated at 116 residents.

Flow Projection and Water Consumption

RBE holds the Idaho Water Right # 29-8015, which has a diversion rate of 0.25 CFS (112.2 GPM). The water for the potable system is obtained from two wells, which are located near the entrance to the subdivision. Both Well #1 and Well #2 are 216 feet deep with a static water level at 145 feet. They are six inch wells and were pump-tested at 50 GPM with a drawdown of 160 feet (see Appendix A). Well #1 is located on the east side of the pump house and Well #2 is on the west side of the pump house (Figure 5).

The subdivision does not currently meter their water usage; therefore an assumption must be made regarding the amount of water being utilized by the residents. Utilizing the electric bills from the well house and the power rating from the pumps, a total monthly volume pumped has been calculated. Table 5 shows the monthly pumped volumes. The irrigation pump is on the same power meter as the well pumps, this explains the large increase during the irrigation months. These values are shaded in Table 5.

TABLE 5 – 2006 WATER USAGE DATA

Month	Power Used (KWH)	# of Hours Used	Water Used (Gallons)	Gallons/day
January	570	101.9	362,575.3	11,696.0
February	531	94.9	337,767.5	12,063.1
March	533	95.3	339,039.7	10,936.8
April	575	102.8	365,755.8	12,191.9
May	5,313	950.0	3,379,583.6	109,018.8
June	9,972	1,783.0	6,343,159.8	211,438.7
July	11,543	2,063.9	7,342,468.2	236,853.8
August	11,610	2,075.9	7,385,086.7	238,228.6
September	10,481	1,874.0	6,666,933.2	222,231.1
October	3,786	676.9	2,408,263.4	77,685.9
November	924	165.2	587,753.7	19,591.8
December	506	90.5	321,865.1	10,382.7

Utilizing this data, a monthly average of 12,810 gallons/day can be calculated. Using a population estimate of 27 homes with four people per home, it is estimated that daily water use is 118 gallons per capita per day (gpcd). Using the full build-out population estimate, the average day use will be approximately 13,759 gallons. Using peaking factors of 1.7 and 2.5 respectively, the maximum day demand is estimated at 23,390 gallons and the peak hour demand is estimated at 1,433 gallons. It is not likely that these values will vary substantially as this estimate is used at full build out of the subdivision.

These flows will not change drastically with the implementation of the proposed improvements as they do not correspond with system flows but with regulative measures. Operation and maintenance will not be improved by the reduction of these flows. However, the estimated daily usage of 118 gpcd is not too far from the general design standard of 150 gpcd. Therefore, the design flows are more than adequate for the necessary water supply of the subdivision at full build-out.

Environmental Features & Impacts

Topography

The planning area is located along the south bank of the Snake River just three miles West of American Falls along I-86. To the north of American Falls beyond the river lie the high desert Snake River Plains and the town of Aberdeen. To the south lies the Deep Creek Mountains situated between the Sawtooth National Forest and the Caribou National Forest. Also to the south lies the small town of Rockland. Pocatello is 20 miles

to the east and Raft River is the nearest town to the southwest. The elevation of the planning area is 4,406 ft.

Riverbend Estates is characterized by natural slopes less than 10% in grade. Land surrounding the subdivision is more significantly sloped, especially to the southwest where hills are located. These hills separate the subdivision from the Snake River.

Due to limited construction outside the existing facilities, the topography and geologic features of the area will not be negatively impacted due to the proposed project.

Soils and Geology

The majority of the soils in the Riverbend Estates area are composed of a silty loam topsoil with a deep basalt layer. The land in and around the planning area is predominantly classified as Neeley silt loam with slopes ranging from 2-8%. Portions of land directly surrounding the planning area are classified as Wheeler silt loam with slopes ranging from 12-30%. These soils are somewhat susceptible to water erosion with K-factors of 0.43 and 0.49, respectively. Both soils are well drained with moderately high permeability and a topsoil thickness of at least 80 inches.⁵

Due to limited construction outside the existing facilities, the soils will not be negatively impacted by the proposed project.

Climate

Climatic data for American Falls, which is the nearest reporting point, is found in Table 6. Precipitation averages 11.17 inches per year, of which only 2.02 inches falls during the summer (June through August). There is a 90% probability that 102 days in the year will be above freezing.⁶

TABLE 6 – CLIMATIC DATA FOR AMERICAN FALLS, IDAHO

Month	Average Maximum Temp, °F	Average Minimum Temp, °F	Average Precipitation, inches	Average Snowfall, inches
January	32.8	16.5	1.06	9.4
February	38.4	20.4	0.84	5.2
March	48.1	27.1	1.06	3.2
April	59.2	33.9	1.12	1.4
May	68.5	41.4	1.49	0.4
June	77.8	48.0	0.93	0.0
July	87.2	54.2	0.50	0.0
August	86.2	52.9	0.59	0.0
September	76.2	44.5	0.71	0.0
October	62.8	35.3	0.82	1.2
November	45.7	26.8	1.03	2.7
December	34.9	19.3	1.02	7.2

There are no unusual or special meteorological constraints in the planning area that may result in an air quality problem or the feasibility of the proposed system improvements.

⁵ NRCS Web Soil Survey, <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>

⁶ Western Regional Climate Center, <http://www.wrcc.dri.edu/summary/climsmid.html>

Economics and Social Profile

American Falls, the nearest reported demographics, is a working community. Most of its residents are local farmers or work for Lamb Weston (a potato processing plant). The remaining residents either commute to Pocatello for work or have local businesses. According to the 2000 US Census, the median household income in American Falls was \$30,955, below both the Idaho median of \$37,572 and the national median of \$41,994.

The economics of RBE is higher than most other sections of the valley. The homes have prices ranging from the low \$200,000 to well over \$500,000. By implementing the improvements, the land and home values will remain consistent.

The improvements to RBE will not affect the economics of the area nor will it affect the social profile in any negative way. Based on the community input at the annual meeting on January 12th, 2011, the project will not have a significant impact on the water rates with an increase of \$12 per month per household. The costs and benefits will be equally distributed among the residents, and low-income or minority populations will not be adversely affected by project.

Land Use

Land use will not be affected with the proposed Water System Improvements. Riverbend Estates will remain a residential area and will not cause any change in land use of the neighboring areas. As discussed, the arsenic improvements will be attached at the point of water use within each house. The improvements to address the sanitary survey concerns will be located in the well house or very minor locations along the existing water lines. This removes all concerns with soil disruption issues.

Flood Plains

FEMA does not list any flood plain maps for Power County in which RBE exists, only that for the City.⁷ It is not referenced that the property is in the 100-year flood plain, and although the Snake River is just west of the property, RBE is well above natural water levels.

Wetlands

The U.S. Fish and Wildlife Service do not list any wetlands in the proposed project area. The proposed improvements lie in an upland area where wetlands are not present.

Wild and Scenic Rivers

None of the proposed Water System Improvements will disturb defined wild and/or scenic rivers.⁸

Surface and Groundwater Hydrology

The Riverbend Estates subdivision is located close to three bodies of surface water. The Snake River is the largest of these bodies and lies just to the west of the subdivision. A

⁷ FEMA Flood Maps, <http://www.fema.gov/hazard/flood/info.shtm>

⁸ Wild and Scenic Rivers of Idaho, <http://www.rivers.gov/>

small creek can be found just to the south, and a larger creek, Warm Creek, sits further south.

The groundwater level within the subdivision lies at 145 feet below the ground surface. RBE sits directly above the Eastern Snake River Plain Sole Source Aquifer. The proposed improvements will not have any negative impacts on the Snake River, either creek, or the Eastern Snake River Plain Aquifer.

Cultural Resources

The proposed Water System Improvements are not anticipated to disturb or adversely affect the local cultural resources since the proposed improvements are contained within privately owned property. SHPO asked that additional information be provided should the alternative to drill or deepen the wells be selected. As this alternative is not going to be further developed, there are no impacts.

Local tribes were contacted and did not submit a response. Follow-up phone calls were made, and the tribes did not have any comments. However, as indicated in the response from SHPO, because all land disturbances associated with the chosen improvements will be in land that has already been disturbed, cultural and historical artifacts will not likely be affected or encountered. See Appendix E for Agency letters and their responses.

Flora and Fauna

According to the Idaho endangered/threatened species list, the Greater Sage Grouse is a candidate for designated and proposed critical habitats in Power County. The subdivision does not include critical habitats, as only developed lots are included in the project planning area. Department of Fish and Game wrote in their response letter that with adherence to the applicable BMPs, the project will incur only minimal impacts to fish and wildlife.

See Appendix D for the most recent endangered/threatened species list⁹ and Appendix E for the response letter from the Department of Fish and Game.

Recreation and Open Spaces

American Falls is known for having outdoor recreational advantages. They are the home of the American Falls Reservoir where most boaters from Power, Bingham, and Bannock Counties come to spend summer days. North of the subdivision the Snake River runs swiftly and many jet boaters use the boat ramps to enjoy fishing from the American Falls Dam to Massacre Rocks State Park. To the south are the Deep Creek Mountains surrounded by the Sawtooth National Forest and the Caribou National Forest.

The proposed improvements will not modify or eliminate recreational open space, parks, or areas of recognized scenic or recreational value.

⁹ Fish and Wildlife Service, <http://www.fws.gov/idaho/species/IdahoSpeciesList.pdf>

Agricultural Lands

RBE once was prime farmland before its construction in the early 1970’s. The subdivision’s boundaries have not expanded since its original development into neighboring farmlands. Due to the nature of the improvements, adjacent agricultural lands will not be adversely affected.

Air Quality and Noise

The proposed improvements will not cause any direct air emissions that will not meet federal and state emission standards. The project is not located in an area with an approved or conditionally approved state implementation plan (SIP).¹⁰ The new facility updates will not cause excessive odor or noise problems during its construction. The possible addition of a generator will increase noise levels during occasional power outages. Power outages typically have a relatively short duration, and the number and total duration of power outages that occur per year can greatly deviate from year to year. The Mountain area of the United States experiences approximately 117 total minutes of power outages per year, excluding outages occurring as a result of extreme weather and fires.¹¹ Conservatively, assuming a total of 20 incidents caused by weather and fire per year lasting for an average of 1 hour per incident, an additional 20 hours of power outages per year will occur. Therefore, allowing for 10 hours of yearly run-time required for maintenance of the generator, it is unlikely that the generator will be required to run for more than about 30 hours per year. However, these conditions can vary substantially.

Energy Production and Consumption

The project area is served by Idaho Power for all of its electrical power. Some power is generated hydroelectrically at the American Falls Dam and industrious residents of the area.

The community will install VFD’s on their well pumps to help maintain constant pressure. The option of adding a generator for power outages will increase energy consumption; however, this energy demand will be infrequent.

Regionalization

The proposed Water System Improvement does not include regionalization with neighboring communities. As discussed in previous sections, RBE considered connecting to the City’s water system but the costs were too high to make this option feasible. The farmland adjacent to the community has now been developed into large 5 acre parcels by a separate entity. Each of those lots will have its own well and they did not approach RBE about joining water systems.

Existing Water System

The potable water system for RBE is classified as Public Water System (PWS) # 6390018. It was constructed in 1978 and is mainly constructed of 4-inch PVC pipe. The distribution system is fed by two wells that are constructed to a depth of 216 feet. The well logs are located in Appendix B. Pressure within the system is maintained by six 50-

¹⁰ Idaho’s SIP, http://www.deq.idaho.gov/air/data_reports/planning/sip.cfm#sip

¹¹ <http://www.cnn.com/2010/TECH/innovation/08/09/smart.grid/index.html>

gallon hydro-pneumatic tanks. The pressure in the system ranges from 45 – 60 PSI. Currently, the residents of RBE are paying a monthly rate of \$65. This rate includes culinary water, garbage, and irrigation water use.

In addition to the potable water system, the subdivision also has a separate irrigation system. The irrigation water is obtained from Falls Irrigation Company and is used to fulfill the majority of the irrigation needs for the subdivision. The pump for the irrigation system is located near the well house and feeds an 8-inch distribution system. This distribution system runs throughout the subdivision, with connections at each lot.

Fire Protection Demand

Fire protection is an important factor for any homeowner to consider. The RBE water distribution system does not currently provide any fire protection for the subdivision. The residents rely on the county fire district for fire protection. DEQ does not currently require that fire flow be provided by the public water system and it is not economical to upgrade the water system to provide such flows.

Water Quality

Water quality is based on EPA Safe Drinking Water Standards, which include primary standards (legally enforceable) and secondary standards (non-enforceable guidelines). The intent of the primary standards is to protect public health, while secondary standards serve as guidelines for maximum levels of contaminants that pose no health risk, but may cause corrosion, odor, unpleasant taste, or staining (cosmetic and aesthetic effects).

RBE PWS is monitored by the Southeastern District Health Department and Idaho Department of Environmental Quality (DEQ). In order to determine the water quality certain contaminants are required to be tested for. It is required that the PWS be tested for total coliform every month. Total coliforms are a group of closely related, mostly harmless bacteria that live in soils and water as well as the intestines of mammals. The presence of total coliforms in source water serves as an indicator of general water quality as well as the potential of the water being fecally contaminated. According to DEQ standards, a positive coliform sample requires that the sample also be tested for E-coli. Also, once a sample has tested positive for coliform, it is a requirement that four additional samples be taken within 24 hours of notification by DEQ. In addition to the required four samples within 24 hours of notification, it is also a requirement that five samples be taken the following month rather than just one.

Currently, RBE is required to test for arsenic levels in their source water on a quarterly basis. On January 22, 2001, EPA adopted a new standard for arsenic levels in drinking water. The new standard lowered the limit from 50 parts per billion (ppb) to 10 ppb. The effective date for the new rule was February 22, 2002 with a compliance date of January 23, 2006. Prior to 2006, systems were required to test for arsenic once every three years. Any systems not below the new level are required to enter into a Compliance Agreement Schedules (CAS) with DEQ and must monitor for arsenic quarterly.

In addition to total coliform and arsenic monitoring, Riverbend Estates is required to collect the following: five samples every three years for lead and copper, one sample every three years for volatile organic compounds (VOC), one sample every nine years for synthetic organic compounds (SOC), and one sample every year for nitrate. The District Health Department also requires that a Consumer Confidence Report (CCR) be completed every year. Keller Associates analyzed the CCRs along with the water test results for the past three years to determine the general quality of the drinking water.

In 2004, the required monthly water samples were taken to test for total coliform. There were 12 samples taken to monitor for total coliform, none of which came back positive for Fecal Coliform. The required annual test for nitrate level was performed with a resulting 0.76 mg/L which is below the Maximum Contaminant Level (MCL) of 10 mg/L. The arsenic level was tested and was reported at 14 parts per billion (ppb), below the MCL of 50 ppb in 2004. The requirement of five samples every three years to test for lead and copper levels was completed in 2004 with levels below the MCLs. The requirement of sampling once every three years for Dibromochloropropane (DBCP), Ethylene Dibromide (EDB), and a series of Volatile Organic Contaminants (VOC) was also completed in 2004. These samples also came back with levels lower than the MCLs.

In 2005, the required monthly water samples were taken to test for total coliform. There were 30 samples taken to monitor for total coliform, three of which came back with positive results. The required annual test for nitrate levels was performed with a resulting 1.47 mg/L which is below the MCL of 10 mg/L. In addition, the arsenic levels were tested and were reported at 14 ppb, which is below the MCL, at that time, of 50 ppb in 2005.

In 2006, monthly water samples were taken to test for total coliform as required by the Health Department. There were 12 samples taken, none of which came back with positive contaminants. In addition, the required annual test for nitrate levels was performed with a resulting 1.69 mg/L, which is below the MCL of 10 mg/L. The required quarterly testing for arsenic was completed with the following results: 1st Quarter = 13 ppb, 2nd Quarter = 12 ppb, 3rd Quarter = 11 ppb, 4th Quarter = missed. All levels were above the mandated MCL of 10 ppb.

In 2008, quarterly samples were taken to test for arsenic levels. The results were as follows: 1st Quarter = 9 ppb, 2nd Quarter = 11 ppb, 3rd Quarter = 7 ppb, 4th Quarter = 9 ppb. The running average was below the MCL at 9 ppb.

Past reports and sampling results have shown coliform hits and elevated arsenic levels throughout the history of the PWS. Due to the recently implemented EPA arsenic standard, levels of arsenic are occasionally higher than the MCL. In order to continue to serve water, the HOA had entered into a Compliance Agreement Schedule (CAS) with the Idaho Department of Environmental Quality (DEQ) (see Appendix C). This allowed the subdivision time to complete this report to determine the best alternative to address its arsenic problem. Since the natural reduction of arsenic in the RBE source water, the water association has been released of their CAS.

If arsenic levels again rise, the water association has voted to install POU systems in each household. These systems will not adversely affect the quality or quantity of the groundwater but will improve its quality to the end users.

The aquifer in use is the Eastern Snake River Basin Aquifer and the minute amount of water pulled from this sole source is not an adverse affect. The system does not exceed its water right and does not plan on increasing its production.

The construction of the proposed improvements will not result in nonpoint water quality problems such as sedimentation, storm water, etc.

Sewer System

Like many rural subdivisions throughout Southeast Idaho, the residents of RBE currently utilize conventional gravity-flow septic systems to dispose of their wastewater. These conventional septic systems consist of an underground septic tank and a drain field. These septic systems are privately owned and located on the individual’s property. The responsibility for maintenance and replacement of these systems lies with the individual property owner.

V. ENVIRONMENTAL IMPACTS OF PROPOSED PROJECT

The proposed improvements are fairly simple and will not cause significant environmental or community impacts. The proposed improvements primarily beneficially impact the long-term health of the community and help maintain the public water system to Idaho Codes and Regulations.

All of the proposed improvements have been discussed and there are no further impact areas that are worthy of discussion in this EID.

VI. MEANS TO MITIGATE ADVERSE ENVIRONMENTAL IMPACTS

Several agencies were contacted in order to obtain comments with respect to potential environmental impacts. Response letters can be found in Appendix E. Based on these responses and information presented previously, the following mitigation measures or precautions should take place during the construction process.

1. Contact SHPO if any archeological artifacts are discovered during excavations.
2. Inform the Idaho State Historical Society if Alternative 3 is chosen for arsenic mitigation and new land is disturbed.
3. Replace any grasses that are removed with native grasses.
4. Adhere to applicable BMPs to will reduce the potential for impacts to local fish and wildlife.
5. Contact Fish and Game if threatened or endangered species, such as the Greater Sage Grouse, are encountered during construction processes.

6. Mitigate fugitive dust and potential storm water runoff during construction of the project.

VII. PUBLIC PARTICIPATION

Keller Associates presented the preliminary findings of this study at a meeting with the RBE Homeowners Association January 27, 2008. The majority agreed that the POU treatment system would be the most logical and economical choice. On January 13, 2009 a public hearing was held and the RBE HOA decided that POU would be their selected alternative. On March 16, 2010 the annual public meeting was held, and Keller Associates presented the DEQ loan offer and the necessary improvements to update their PWS to meet current DEQ regulations. The Association held several other public meetings, in which Keller Associates was not involved, where they decided to accept DEQ’s loan offer and proceed with a project, to be determined through another public meeting. The public was given 30 days to comment, and no comments were received. The board decided to move forward with additional improvements, which led to the second public meeting on January 12, 2011. The public was presented the new project alternatives and voted to complete project 1 plus additive 1. A 30 day comment period was given, and no comments were received.

A preliminary review of the Study has been completed by IDEQ and it has been presented to the Association for their review and comments. The final study was sent to DEQ in July 2010 and comments have yet to be received.

A copy of the presentations from the January 27, 2008, January 13, 2009, and March 16, 2010 meetings can be found in Appendix F. Also, a cost proposal presented to the board by Keller Associates, October 4, 2010 and January 12, 2011 of their selected projects to present to the homeowner’s association can be viewed in Appendix F.

VIII. REFERENCE DOCUMENTS

The Water Facilities Planning Study (WFPS) produced by Keller Associates in September 2006 was used in preparing this Environmental Information Document (EID). This EID is a supplement to the referenced Planning Study. The following sources were also used in determining conclusions and representing information throughout this document:

- Western Regional Climate Center [cited January 4, 2011],
<http://www.wrcc.dri.edu/summary/climsmid.html>
- FEMA Flood Maps [cited December 21, 2010],
<http://www.fema.gov/hazard/flood/info.shtm>
- Wild and Scenic Rivers of Idaho [cited December 21, 2010],
<http://www.rivers.gov/>

- Idaho’s SIP [cited January 7, 2011],
http://www.deq.idaho.gov/air/data_reports/planning/sip.cfm#sip
- Idaho Department of Fish and Game [cited January 7, 2011],
<http://fishandgame.idaho.gov/cms/tech/CDC/t&e.cfm>

IX. AGENCIES CONSULTED

Keller Associates contacted several local, State, and Federal agencies, which provided information for the conclusions presented above, all of which are shown below. Most of the Agencies have responded to this information request. Those Agencies that chose not to respond have been contacted both by the original Project Abstract and Environmental Information Request as well as several follow up phone calls. The following Agencies were contacted to provide their comments. A copy of the letter sent to these agencies and the Agency responses are contained in Appendix F.

TABLE 7 – AGENCIES CONSULTED¹²

Agency	Responses	Date of Response
U.S. Fish and Wildlife Service	x	May 20, 2008
Idaho Dept. of Fish and Game	x	June 16, 2008
Shoshone-Bannock Tribes		
Shoshone-Paiute Tribe		
State Historical Preservation Office	x	June 12, 2008
Corps of Engineers		
Idaho Dept. of Parks and Recreation	x	June 3, 2008
Department of Environmental Quality	x	June 6, 2008
EPA Region 10		
USDA-NRCS	x	June 30, 2008
Idaho Department of Water Resources		
Idaho Department of Agriculture	x	June 5, 2008
Idaho Dept. of Commerce		
Department of Land	x	May 16, 2008
USDA-RD		
US Forest Service		

IX. MAILING LIST

The Environmental Information Document used a mailing list for the above referenced agencies and the affected homeowners of the RBE subdivision. These mailing lists along with other contact information are supplied in Appendix G.

¹² Agencies that did not submit a response were contacted over the phone, and they did not express any concerns.

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APPENDIX E – AGENCY LETTERS & RESPONSES

APPENDIX F – PUBLIC PARTICIPATION

APPENDIX G – GROUP CONTACT INFORMATION

APPENDIX A

FIGURES



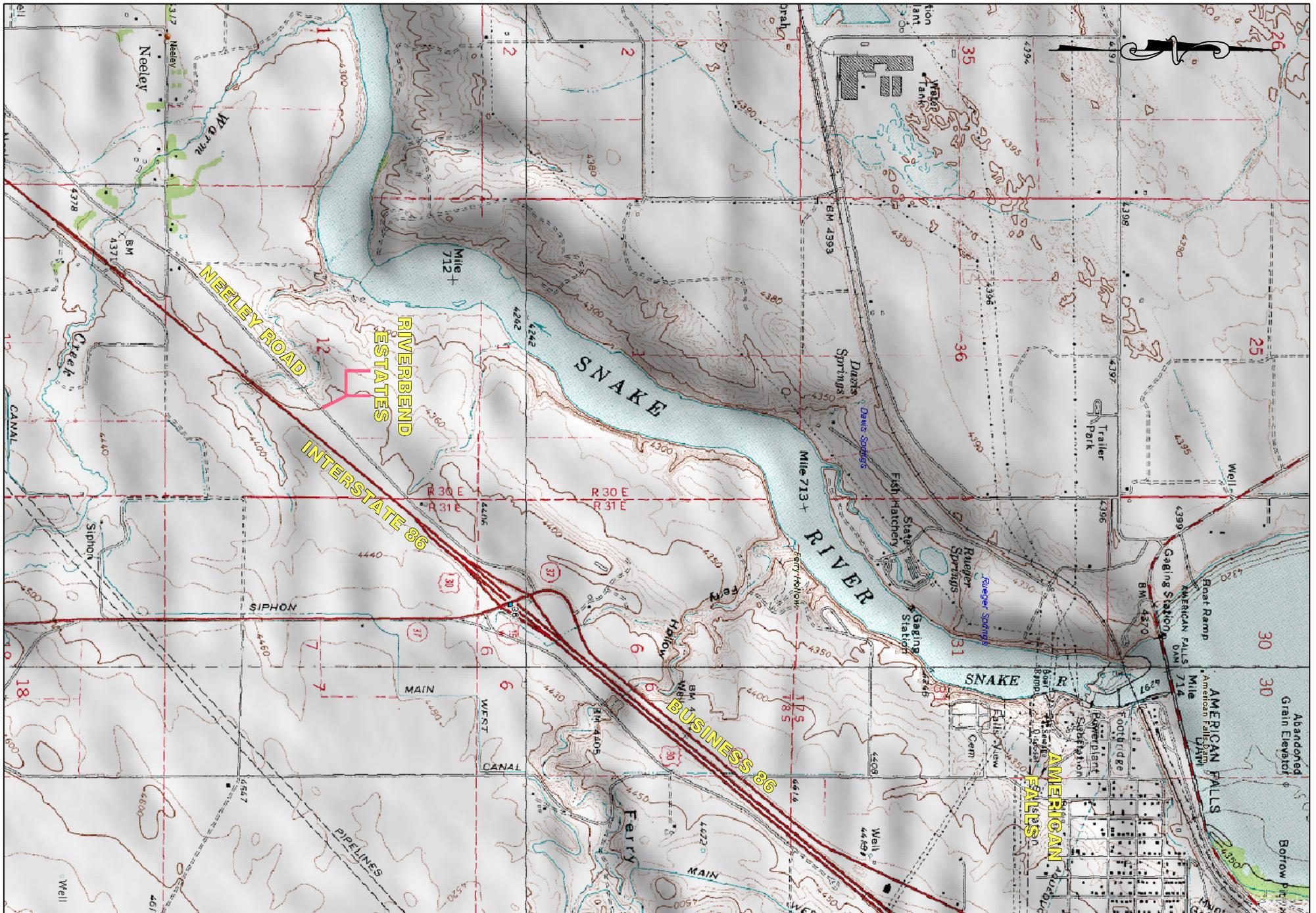


FIGURE NO. 1
WATER FACILITIES PLANNING STUDY
VICINITY MAP

**RIVERBEND
 ESTATES**

KELLER
associates
 412 W Center, Suite 330
 Pocatello, Idaho 83204
 (208) 238-2146

PROJECT NO.	105079
FILENAME	FIG 1





3
FIGURE NO.

WATER FACILITIES PLANNING STUDY
ALTERNATIVE 1A

**RIVERBEND
ESTATES**



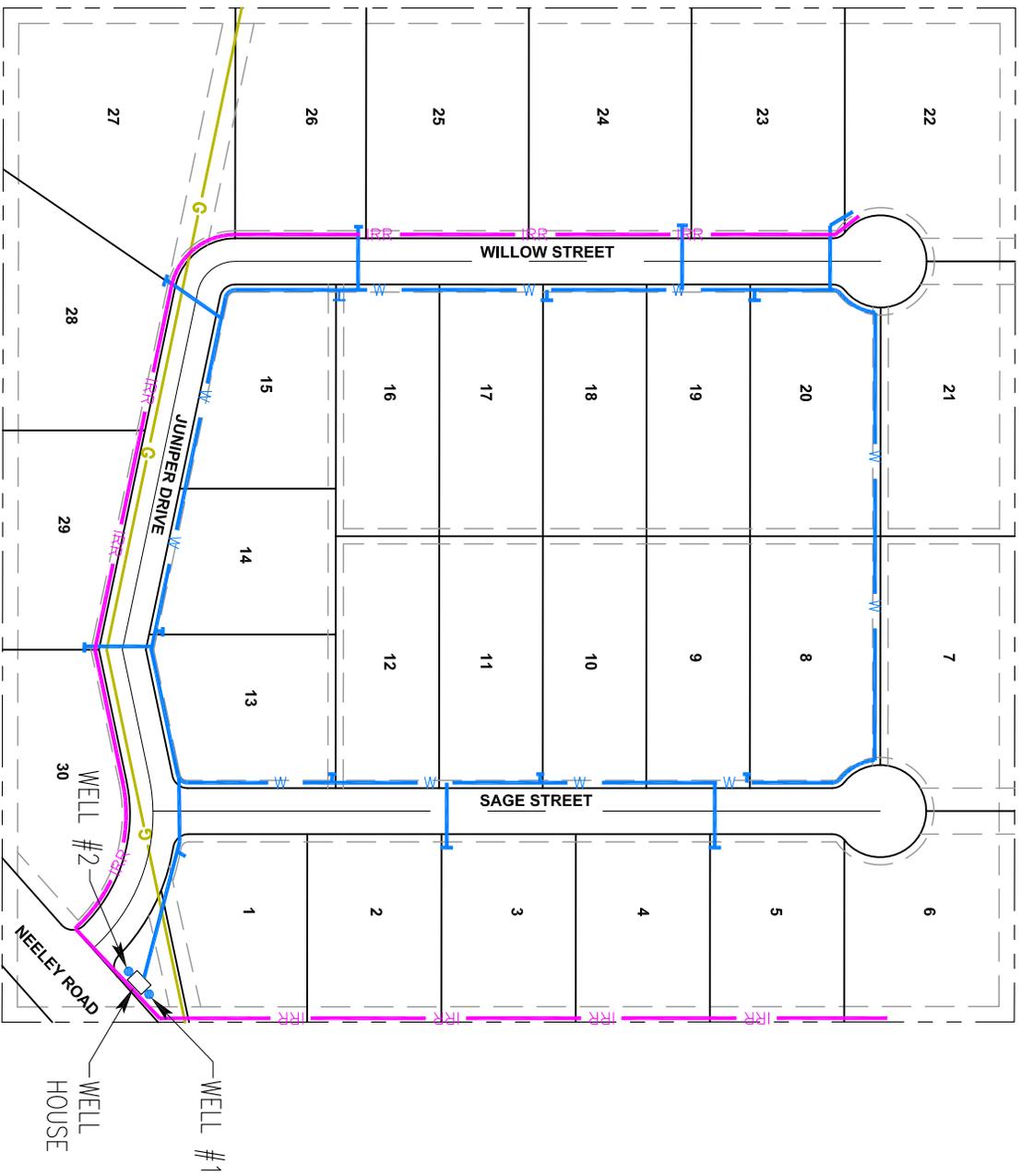
412 W Center, Suite 330
Pocatello, Idaho 83204
(208) 238-2146

PROJECT NO. 105079
FILENAME FIG 3





RIVERBEND ESTATES



- LEGEND**
- W — WATER LINE
 - IRR — IRRIGATION LINE
 - - - - - EASEMENT

PROJECT NO.	105079
FILENAME	FIG 5

412 W Center, Suite 330
 Pocatello, Idaho 83204
 (208) 238-2146

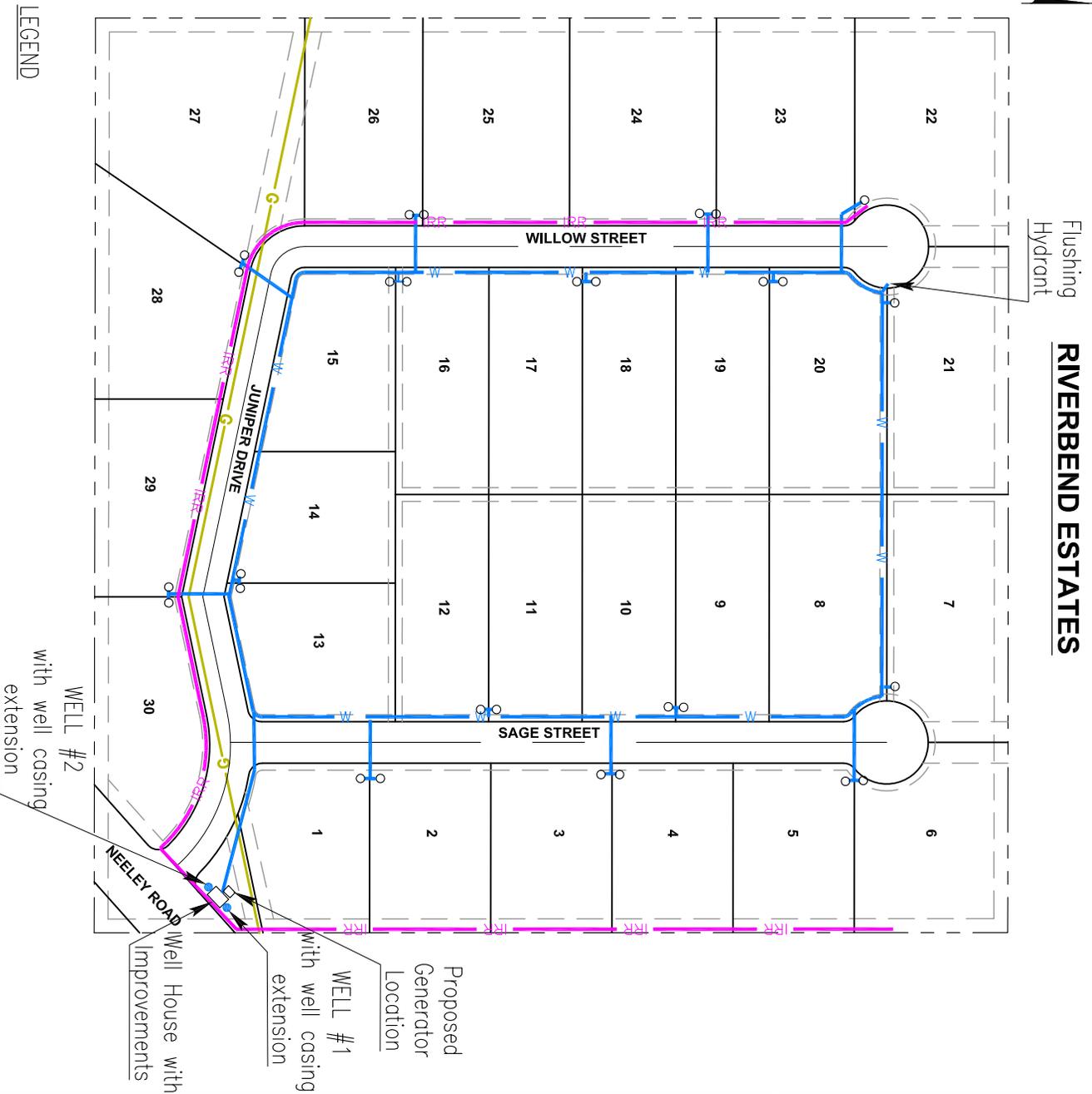


RIVERBEND ESTATES

Environmental Information Document
EXISTING SYSTEM



RIVERBEND ESTATES



- LEGEND**
- W — WATER LINE
 - IRR — IRRIGATION LINE
 - EASEMENT
 - BACKFLOW PREVENTION DEVICES

PROJECT NO.	105079
FILENAME	FIG 6

412 W Center, Suite 330
 Pocatello, Idaho 83204
 (208) 238-2146



RIVERBEND ESTATES

Environmental Information Document
Proposed System Improvements

APPENDIX B

WELL LOGS & WATER RIGHTS



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

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

1. WELL OWNER #1
Name RICHARD OLSON
Address RIVERBEND ESTATES
PO BOX 2497
Owner's Permit No. POC 2497, Idaho

7. WATER LEVEL
Static water level 145 feet below land surface
Flowing? Yes No G.P.M. 50
Artesian closed-in pressure _____ p.s.i.
Controlled by: Valve Cap Plug
Temperature 51 °F. Quality GOOD

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

8. WELL TEST DATA
 Pump Bailer Air Other
Discharge G.P.M. 50 Pumping Level 160' Hours Pumped 2 HRS.

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

9. LITHOLOGIC LOG

Hole Diam.	Depth		Material	Water Yes/No
	From	To		
6"	0	15'	CLAY	
	15'	138'	STREAMS OF HARD	
			TAN HARD BASALT	
	138'	145'	CLAY	
	145'	216'	RED GRAVEL + SAND	X

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

5. WELL CONSTRUCTION
Casing schedule: Steel Concrete Other
Thickness 250 inches Diameter 6" inches From 18" feet To 216 feet
Was casing drive shoe used? Yes No
Was a packer or seal used? Yes No
Perforated? Yes No
How perforated? Factory Knife Torch
Size of perforation _____ inches by _____ inches
Number _____ From _____ feet To _____ feet
Well screen installed? Yes No
Manufacturer's name HOUSTON
Type STAINLESS Model No. _____
Diameter 4" Slot size 180 Set from _____ feet to _____ feet
Diameter _____ Slot size _____ Set from _____ feet to _____ feet
Gravel packed? Yes No Size of gravel _____
Placed from 216' feet to 218' feet
Surface seal depth _____ Material used in seal: Cement grout
 Puddling clay Well cuttings
Sealing procedure used: Slurry pit Temp. surface casing
 Overbore to seal depth
Method of joining casing: Threaded Welded Solvent
 Cemented between strata
Describe access port

6. LOCATION OF WELL
Sketch map location must agree with written location.
Subdivision Name Riverbend
Estate:
Lot No. Well Site Block No. _____
County Power
SW NE 1/4 Sec. 12 T. 8 S. R. 3 E

10. Work started 6/2/78 finished 6/5/78

11. DRILLERS CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Firm Name JACK CUSHMAN DRILLING Firm No. 94
Address 1405 So. Broadway Date 6/5/78
Blackfoot, ID.
Signed by (Firm Official) Jack Cushman
and
(Operator) Mike Shuman

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER
BALLPOINT PEN

WELL DRILLER'S REPORT

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

1. WELL OWNER
 Name RICHARD OLSON #2
 Address RIVERVIEW ESTATES
 Owner's Permit No. P.O. Box 2497
POCATELLO

7. WATER LEVEL
 Static water level 145 feet below land surface.
 Flowing? Yes No G.P.M. flow _____
 Artesian closed-in pressure _____ p.s.i.
 Controlled by: Valve Cap Plug
 Temperature 51 °F. Quality GOOD

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

8. WELL TEST DATA
 Pump Bailer Air Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
<u>50</u>	<u>160'</u>	<u>2 HRS.</u>

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

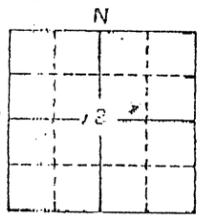
9. LITHOLOGIC LOG

Hole Diam.	Depth		Material	Water Yes/No
	From	To		
<u>6"</u>	<u>0'</u>	<u>12'</u>	<u>CLAY</u>	
	<u>12'</u>	<u>135'</u>	<u>STREAKS OF HARD</u>	
			<u>TO 177' HARD BASALT</u>	
	<u>135'</u>	<u>142'</u>	<u>CLAY</u>	
	<u>142'</u>	<u>216'</u>	<u>1/2" GRAVEL & SAND</u>	<input checked="" type="checkbox"/>

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

5. WELL CONSTRUCTION
 Casing schedule: Steel Concrete Other _____
 Thickness 2.50 inches Diameter 6" inches + 18" feet 216' feet
 _____ inches _____ inches _____ feet _____ feet
 _____ inches _____ inches _____ feet _____ feet
 _____ inches _____ inches _____ feet _____ feet
 Was casing drive shoe used? Yes No
 Was a packer or seal used? Yes No
 Perforated? Yes No
 How perforated? Factory Knife Torch
 Size of perforation _____ inches by _____ inches
 Number _____ From _____ To _____
 _____ perforations _____ feet _____ feet
 _____ perforations _____ feet _____ feet
 _____ perforations _____ feet _____ feet
 Well screen installed? Yes No
 Manufacturer's name HOUSTON
 Type STAINLESS Model No. _____
 Diameter 4" Slot size 100 Set from 216' feet to 218' feet
 Diameter _____ Slot size _____ Set from _____ feet to _____ feet
 Gravel packed? Yes No Size of gravel _____
 Placed from _____ feet to _____ feet
 Surface seal depth 18' Material used in seal: Cement grout
 Puddling clay Well cuttings
 Sealing procedure used: Slurry pit Temp. surface casing
 Overbore to seal depth
 Method of joining casing: Threaded Welded Solvent
 Weld
 Cemented between strata
 Describe access port _____

10. Work started 6/3/78 finished 6/6/78

6. LOCATION OF WELL
 Sketch map location must agree with written location.

 Subdivision Name Riverbend
Estates
 Lot No. well site Block No. _____
 County Power
SW & NE 1/4 Sec. 12 T. 8 S. R. 39 E. EDR

11. DRILLERS CERTIFICATION
 I/We certify that all minimum well construction standards were
 complied with at the time the rig was removed.
 Firm Name Jack Cushman Drilling Firm No. 94
 Address 1405 So. Broadway Date 6/6/78
Blackfoot ID
 Signed by (Firm Official) Jack Cushman
 and
 (Operator) Michael Skomski

Close

IDAHO DEPARTMENT OF WATER RESOURCES
Water Right Report

01/24/2007

WATER RIGHT NO. 29-8015

Owner Type	Name and Address
Current Owner	RIVERBEND ESTATES C/O SHEILA FUNK SEC 3140 WILLOW AMERICAN FALLS, ID 83211

Priority Date: 06/22/1990

Basis: License

Status: Active

Source	Tributary
GROUND WATER	

Beneficial Use	From	To	Diversion Rate	Volume
DOMESTIC	1/01	12/31	0.25 CFS	36 AFA
Total Diversion			0.25 CFS	

Location of Point(s) of Diversion:

GROUND WATER	SWNE	Sec. 12	Township 08S	Range 30E	POWER County
--------------	------	---------	--------------	-----------	--------------

Licensed Diversion Capacity: 0.26

Place(s) of use:

Place of Use Legal Description: DOMESTIC BANNOCK County

--	--	--	--	--	--	--	--	--	--	--	--

Township	Range	Section	Lot	Tract	Acres									
08S	30E	12		SWNE										

Conditions of Approval:

1.	049	The Director retains jurisdiction of the right to incorporate the use into a water district, require streamflow augmentation or other action needed to protect prior surface water and groundwater rights.
2.		Domestic use is for 30 homes. Place of use known as Lots 1-30, Riverbend Estates.
3.	048	The use of water under this right shall not give rise to any claim against the holder of a senior water right based upon the theories of forfeiture, abandonment, adverse possession, waiver, equitable estoppel, estoppel by laches or customary preference.

Dates:

Licensed Date: 01/31/1997

Decreed Date:

Permit Proof Due Date: 12/1/1991

Permit Proof Made Date: 11/29/1991

Permit Approved Date: 12/6/1990

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: 06/22/1990

Protest Deadline Date:

Number of Protests: 0

Other Information:

State or Federal:

Owner Name Connector:

Water District Number:

Generic Max Rate per Acre:

Generic Max Volume per Acre:

Civil Case Number:

Old Case Number:

Decree Plaintiff:

Decree Defendant:

Swan Falls Trust or Nontrust:

Swan Falls Dismissed:

DLE Act Number:

Cary Act Number:

Mitigation Plan: False

Close

APPENDIX C

CAS





STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1410 North Hilton • Boise, Idaho 83706 • (208) 373-0502

Dirk Kempthorne, Governor
Toni Hardesty, Director

January 8, 2006

RECEIVED
JAN 29 2006

IDAHO DEPARTMENT OF
ENVIRONMENTAL QUALITY

CERTIFIED MAIL: 7099 3220 0006 2680 7768
RETURN RECEIPT REQUESTED

Wayne Thomas
Riverbend Estates
3040 Juniper Drive
American Falls, Idaho 83211

RE: Fully Executed Compliance Agreement Schedule for Riverbend Estates

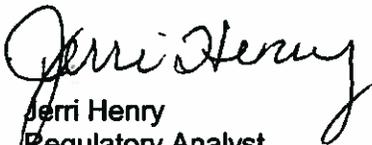
Dear Mr. Thomas:

Enclosed is a fully executed copy of the Compliance Agreement Schedule (CAS) signed by Idaho Department of Environmental Quality's Director, Toni Hardesty. Also enclosed is an abbreviated outline of the requirements in paragraph 4 of the Agreement for your records. The staff at Idaho DEQ's Pocatello regional office will be tracking compliance with the deadlines set forth in the CAS. Please send required communications to:

John Kirkpatrick, Regional Drinking Water Manager
Department of Environmental Quality
Pocatello Regional Office
444 Hospital Way #300
Pocatello, Idaho 83201

Thank you for working with the Department to resolve these issues.

Sincerely,


Jerri Henry
Regulatory Analyst

Enclosures

cc: Stephanie Ebright, Deputy Attorney General
Steve Knudson, 3141 Sage, American Falls, ID 83211
John Kirkpatrick, Pocatello Regional Office
Barbara Jones, Pocatello Regional Office
Craig Madson, Southeastern Health District
File
COF

**Riverbend Estates
Compliance Agreement Schedule
Paragraph 4 Requirements**

4a, b	Provide Public Notice to consumers and a copy to the Department	Quarterly (begin Jan-Mar 06)
4c	Monitor for arsenic	Quarterly (begin Jan-Mar 06)
4k	Submit written progress reports to the Department	Quarterly (begin Jan-Mar 06)
4l	Attend annual progress meeting with the Department	Annually (begin during 2006)
4d	Attend pre-design meeting	By October 15, 2006
4e	Submit preliminary engineering report	By December 1, 2006
4f	Send notification to consumers for public hearing to review & comment.	14 days after Department approval of 4e
4g	Hold public hearing & record comments	60 days after Department approval of 4e
4h	Submit pertinent written/verbal comments and Revised Draft Engineering Report.	21 days after 4g
4i	Incorporation by reference all completion dates from Department approval letter	NA
4j	Submit as constructed plans to Department	30 days of completion of work outlined in 4i

d. No later than October 15, 2006, Riverbend and its Idaho licensed professional engineer shall schedule and attend a treatment pre-design meeting with the Department. The purpose of the pre-design meeting is to discuss the planning study and treatment options and to obtain additional information that should be included in the Preliminary Engineering Report.

e. No later than December 1, 2006, Riverbend shall submit to the Department a Preliminary Engineering Report, prepared by an Idaho licensed professional engineer, for Department approval. The Department shall review, comment on and/or approve the Preliminary Engineering Report as specified in Paragraph 5 of this Compliance Agreement Schedule. When the Department approves the Preliminary Engineering Report it becomes the Draft Engineering Report Approved for Community Comment. The Preliminary Engineering Report shall delineate the steps that must be taken to bring Riverbend into full compliance with IDAPA 58.01.08.050.01, including the following:

- i. Recommendations for actions to be taken to enable Riverbend to meet the maximum contaminant level requirements for arsenic and address other issues including: resolution of existing and future pressure and capacity problems; documentation and/or prediction of water quantity requirements per dwelling unit and other uses; any necessary revised technical, financial, and managerial documents as needed to control such factors as irrigation; additional sources as needed to meet the water quantity requirements for existing and proposed dwelling units and other uses; and any treatment needed to meet all requirements of IDAPA 58.01.08.
- ii. A funding plan to implement the recommendations selected under the provisions of Paragraph 4.e.i. The plan shall include: amount of funding needed, sources of funding, procedures and program requirements to secure funding from those sources, and a schedule with milestones to obtain all funding in a coordinated effort to implement the project.
- iii. A proposed project implementation schedule for the recommendations selected under the provisions of Paragraph 4.e.i. The schedule shall include: plans and specifications, preparation of bidding documents, supervision of bid openings and bid awards, pre-construction meetings, construction schedules, construction inspection, and record drawings.
- iv. A written plan to notify potential customers of proposed developments and service connections with pertinent information regarding the system's arsenic levels including a copy of the public notification.

f. No later than fourteen (14) days after the Department approves the Draft Engineering Report Approved for Community Comment, Riverbend shall send a notification to each consumer on the water system. The notification shall specify where the Draft Engineering Report Approved for Community Comment can be reviewed, invite written comments, and schedule a public hearing no later than sixty (60) calendar days after the Department's approval of the Draft Engineering Report Approved for Community Comment. Riverbend shall provide the Department with copies of the above notification within ten (10) days of completion.

g. Within sixty (60) calendar days of the Department's approval of the Draft Engineering Report Approved for Community Comment, Riverbend shall hold a public hearing and record all comments. Riverbend's engineer, a Department representative, and representatives of Riverbend's association shall be present to answer questions.

h. Within twenty-one (21) calendar days of the public hearing, Riverbend's engineer shall submit to the Department a summary of the pertinent verbal and written comments, how they were addressed, and a Revised Draft Engineering Report that incorporates pertinent comments. The Department shall review, comment on, and/or approve the Revised Draft Engineering Report as specified in Paragraph 5 of this Compliance Agreement Schedule. The Department will advise Riverbend and their engineer that a Final Engineering Report may be submitted for approval.

i. The conditions and completion dates in the Department approval letter for the Final Engineering Report, including the detailed financial plans described in Paragraph 4.e.ii., and the project implementation schedule described in Paragraph 4.e.iii. of this Compliance Agreement Schedule, shall be incorporated by reference into this Compliance Agreement Schedule and shall be enforceable as provided by applicable law.

j. Within 30 days of completion of the items described in the project implementation schedule of the Final Engineering Report incorporated by reference in Paragraph 3.i., Riverbend shall submit as constructed plans and specifications to the Department in accordance with Idaho Code §39-118 and IDAPA 58.01.08.551.

k. Beginning the quarter of January 1, 2006 and March 31, 2006, Riverbend shall submit quarterly written progress reports to the Department until such a time as the Department provides written notice of termination of this Compliance Agreement Schedule.

l. Beginning in the year 2006, Riverbend and its licensed professional engineer shall schedule and attend annual meetings with the Department to assess progress and evaluate whether the schedule and other terms of this Compliance Agreement Schedule are appropriate.

5. Department Submittal Review Process. Unless otherwise set forth specifically herein, the following document submittal and review process (Submittal Review Process) shall be followed regarding submittals required by paragraphs 4.e. and 4.h. of this Compliance Agreement Schedule. This process shall be followed until the Department approves the document or the document review time frame has expired.

a. Within thirty (30) calendar days of receipt of Riverbend's submittal, the Department shall 1) notify Riverbend in writing the document is approved; 2) notify Riverbend in writing of any deficiencies in the document; or, 3) notify Riverbend of the Department's extension of the Department's review and comment period. If the Department notifies Riverbend of deficiencies in the document, Riverbend shall submit a revised document to resolve those deficiencies within thirty (30) calendar days of receipt of the Department's notice.

b. The Submittal Review Process shall be repeated until the Department notifies Riverbend the document is approved. However, the submittal must meet the Department's approval within sixty (60) days from the due date for the first submittal of the document, unless the Department provides Riverbend with a written extension of the sixty (60) day time frame. Riverbend's failure to obtain Department approval of a submittal within such time frames shall constitute a violation of this Compliance Agreement Schedule.

c. If the Department extends its review and comment period beyond the initial thirty (30) day period described above, the time frames within which Riverbend documents shall meet the requirements of this Compliance Agreement Schedule shall be extended by an equivalent number of days. Once the Department approves documents, they shall be incorporated herein and enforceable as a part of this Compliance Agreement Schedule.

6. All communications required of Riverbend by this Compliance Agreement Schedule shall be addressed to:

John Kirkpatrick, Drinking Water Manager
Department of Environmental Quality
444 Hospital Way #300
Pocatello, Idaho 83201

7. All notices, reports and submittals required of the Department by this Compliance Agreement Schedule shall be addressed to:

Wayne Thomas
Riverbend Estates
3040 Juniper Drive
American Falls, Idaho 83211

8. This Compliance Agreement Schedule shall not in any way relieve Riverbend from any obligation to comply with any provision of the Idaho Rules for Public Drinking Water Systems, or any applicable local, state, or federal laws.

9. If Riverbend fails to comply with the terms specified in this Compliance Agreement Schedule, Riverbend may be subject to Administrative Enforcement Action or other remedies available under Idaho Code §39-108.

10. This Compliance Agreement Schedule shall remain in full force and effect until the Department acknowledges in writing that the Compliance Agreement Schedule is terminated and that Riverbend has fulfilled the requirements of this Compliance Agreement Schedule to the satisfaction of the Department.

11. This Compliance Agreement Schedule shall bind Riverbend, its successors and assigns, until terminated in writing by the Department.

12. Each undersigned representative to this Compliance Agreement Schedule certifies that he or she is fully authorized to enter into the terms and conditions of this Compliance Agreement Schedule, and to execute and legally bind such party to this document.

13. The effective date of this Compliance Agreement Schedule shall be the date of signature by the Director of the Idaho Department of Environmental Quality.

DATED this 12th day of January, 2005.

By: 
Toni Hardesty, Director
Department of Environmental Quality

DATED this 2nd day of January, 2005 ^{CO HT}

By: 
Wayne Thomas
Riverbend Estates

Riverbend Estates CAS

Riverbend Estates entered into a CAS on January 12, 2006. They contracted with Keller Engineering in 2006 to complete a water system study. DEQ awarded Riverbend Estates a study grant and an arsenic mitigation study was submitted to DEQ in October 2007.

The study provided several treatment alternatives with the recommended treatment being POU. A public hearing was scheduled for January 13, 2009. It was noted that the arsenic level appeared to be staying just below the MCL in past quarterly monitoring. DEQ contacted the laboratory in regards to the 4th quarter 2008 arsenic result and determined that the Running Annual Average for arsenic was 0.009 mg/l. An analysis of the quarterly arsenic data from January 2006 – December 2008 showed results as low as 0.007 mg/l to a high of 0.013 mg/l (Sept. 2007). An average of all results for the past two years shows the arsenic level at 10 mg/l.

Because the running annual average is below the MCL and the average of all results is at the MCL but not exceeding, we are requesting that the CAS be closed. The water system has agreed to remain on quarterly monitoring. After another year results have been evaluated, we will determine if the monitoring can be reduced to annually in the quarter that show the highest result.

Correspondence to the water system in regards to the closure of this CAS should be sent to:

Rod Garner
Riverbend Estates
PO Box 684
American Falls, Idaho 83211



STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1410 North Hilton • Boise, Idaho 83706 • (208) 373-0502

C.L. "Butch" Otter, Governor
Toni Hardesty, Director

JAN 23 2009

**CERTIFIED MAIL:
RETURN RECEIPT REQUESTED**

Mr. Rod Garner
Riverbend Estates
P.O. Box 684
American Falls, ID 83211

Subject: Termination of Riverbend Estates Compliance Agreement Schedule

Dear Mr. Garner:

The Department of Environmental Quality (Department) entered into a Compliance Agreement Schedule with Riverbend Estates, PWS ID#6390018, on January 12, 2006 for violations of the Idaho Rules for Public Water Systems, IDAPA 58.01.08.

The Compliance Agreement Schedule was intended to develop timelines for compliance with the arsenic maximum contaminant level (MCL), in accordance with 40 CFR 141.11 and 141.62, incorporated by reference in Idaho Rules for Public Water Systems, IDAPA 58.01.08.050.01. The system was placed on quarterly sampling in 2006 and has since demonstrated reliable and consistent arsenic sample results at or below the MCL of 10 parts per billion, which provides evidence to support termination of the Compliance Agreement Schedule at this time.

Please be advised that violating the MCL in the future will result in a requirement to enter into a consent order with the Department. Please be further advised that quarterly sampling for arsenic shall continue to be required until notified by the Department that quarterly sampling is no longer required. The Compliance Agreement Schedule termination, signed by the Department Director, is enclosed.

Your cooperation is greatly appreciated.

Sincerely,

A handwritten signature in blue ink that reads "Barry N. Burnell".

Barry N. Burnell
Water Quality Division Administrator

BNB:jt

Enclosure

c: Courtney E. Beebe, Deputy Attorney General
Bruce Olenick, Pocatello Regional Administrator
Tom Hepworth, Regional Engineering Manager
Barbara Jones, Regional Drinking Water Coordinator
Enforcement File

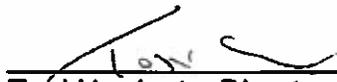
IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

In the matter of:)
Riverbend Estates)
)
)
)
)

TERMINATION OF
Compliance Agreement Schedule
Idaho Code § 39-116A

1. Pursuant to Idaho Code § 39-101 through 39-130, the Idaho Environmental Protection and Health Act (EPHA), the Idaho Department of Environmental Quality (Department) entered into a Compliance Agreement Schedule with Wayne Thomas, representing Riverbend Estates public drinking water system, PWS #ID6390018, which was effective January 12, 2006.
2. The Department finds that the system is currently in compliance with the arsenic maximum contaminant level and therefore not subject to the terms and conditions of the Compliance Agreement Schedule.
3. Termination of the Compliance Agreement Schedule shall not relieve the responsible parties from any obligation to comply with the provisions of the Idaho Rules for Public Drinking Water Systems or any other applicable local, state, or federal laws.
4. The effective date of this Termination of Compliance Agreement Schedule shall be the date of signature by the Director of the Idaho Department of Environmental Quality.

Dated this 20th day of January, 2009.



Toni Hardesty, Director
Department of Environmental Quality

APPENDIX D

ENDANGERED SPECIES





United States Department of the Interior

IDAHO FISH AND WILDLIFE OFFICE

1387 S. Vinnell Way, Room 368

Boise, Idaho 83709

Telephone (208) 378-5243

<http://www.fws.gov/idaho>



U.S. Fish and Wildlife Service - Idaho Fish and Wildlife Office **Endangered, Threatened, Proposed, and Candidate Species** **With Associated Proposed and Critical Habitats** *(Updated Cwi w/39, '2011)*

Federal Agency Assistance and Consultation

Section 7(c) of the Endangered Species Act directs the U.S. Fish and Wildlife Service to consult with federal agencies on any proposed actions (direct or indirect) on federal lands that may potentially affect listed, proposed or candidate species or their habitat.

It is the responsibility of federal "action agencies" (or their designated representatives) to obtain an official table ("Species List") of listed, proposed and candidate species that may be present where the proposed activity is to occur. If the project potentially affects the species or its habitat, the federal agency is required to consult with the Service.

To assist agencies with this task, the Service prepares and regularly updates Species Lists by county. The lists are valid for up to 180 days. Species List areas may be larger than the footprint of the proposed activity. Status changes, such as listings, delistings or critical habitat designations, will be updated immediately by the Service so the action agency will always have access to the most current information for project planning.

For comprehensive information specific to federal agency assistance and consultation, go to: <http://www.fws.gov/idaho/agencies.htm>

Obtaining Species Lists for Proposed Federal Actions

The Fish and Wildlife Service is developing a web-based system that will allow Action Agencies to generate project-specific Species Lists. We will provide instructions when the new web-based species list system is launched.

Until then, please obtain an official "T&E Species List" directly from the Service's Idaho FWS website, which is organized by county for your proposed activity consultation.

This list will ensure that your project records contain the most current species information. Please print and retain a copy of this list with your project records. Should your project plans expand or change to include additional counties, you will need to check the website for an updated list, and reprint a new species list for your files.

To obtain the most current County Species List (PDF file for download), click on the link under "Obtaining an Official T&E Species List for Proposed Federal Actions" - www.fws.gov/idaho/species/IdahoSpeciesList.pdf.

Before initiating an action, a federal action agency (or their designated representative) that is planning an activity must obtain a list of species that may be present in the proposed project area. (Please note that the area for which this list is being generated may encompass a larger area than the footprint of the construction.) The area includes any effects of the action (direct and indirect) that may potentially affect species or habitats.

This species/county table meets the Fish and Wildlife Services' regulatory obligation under Section 7(c) of the Endangered Species Act (Act) to provide federal agencies with a species list. Please print and retain a copy of this table and this information sheet with your project records.

Use this information to verify the habitats and/or species present in the area affected by the projects you are developing. Any project-specific species list generated from this table is valid for up to 180 days. Because the information in this table may change without notice, you are advised to visit our website frequently.

When you submit a request for Section 7 Consultation, please include a copy of your downloaded Species List marked with the date that it was downloaded. This will document your compliance with 50 CFR 402.12(c).

If the area affected by the proposed project extends beyond the boundary of the State of Idaho, please contact the appropriate U.S. Fish and Wildlife Service office listed below to obtain a Species List for their area of jurisdiction.

U.S. Fish and Wildlife Service Contacts

Idaho – Bob Kibler, bob_kibler@fws.gov (208) 378-5255
Montana – Montana Ecological Services Field Office (406) 449-5225
Nevada – Nevada Fish & Wildlife Office (775) 861-6300
Oregon – La Grande Field Office (541) 962-8584
Utah – Utah Ecological Service Field Office (801) 975-3330
Washington – Spokane Field Office (509) 891-6839
Wyoming – Wyoming Ecological Services Field Office (307) 772-2374

Candidate Species Conservation

Though candidate species have no protection under the Act, they are included in the table for early planning consideration. Candidate species could be proposed or listed during the project planning period. The Service advises you to evaluate potential effects to candidate species that may occur in the project area. Should the species be listed, this may expedite section 7 consultation under the Act.

NOAA Fisheries Species

Listed or proposed species that are under [National Marine Fisheries Service's \(NOAA Fisheries\)](#) jurisdiction do NOT appear on the Service's Species Lists. In Idaho, please contact NOAA Fisheries at (208) 378-5696 or visit [NOAA Fisheries'](#) webpage at <http://www.nwr.noaa.gov/Species-Lists.cfm> for consultation information.

Rev 5/10/11
IFWO

Grouping	Amphibian	Bird	
	Columbia spotted frog - Great Basin population	Greater Sage-Grouse	Yellow-billed cuckoo
Common Name			
Scientific Name	<i>Rana luteiventris</i>	<i>Centrocercus urophasianus</i>	<i>Coccyzus americanus</i>
Status	[C]	[C]	[C]
Ada		x	x
Adams		x	
Bannock		x	x
Bear Lake		x	
Benewah			
Bingham		x	x
Blaine		x	x
Boise			x
Bonner			
Bonneville		x	x
Boundary			
Butte		x	
Camas		x	
Canyon			x
Caribou		x	
Cassia		x	x
Clark		x	x
Clearwater			
Custer		x	x
Elmore		x	x
Franklin		x	
Fremont		x	x
Gem		x	
Gooding		x	
Idaho			x
Jefferson		x	x
Jerome		x	
Kootenai			x
Latah			x
Lemhi		x	x
Lewis			x
Lincoln		x	
Madison		x	x
Minidoka		x	x
Nez Perce			
Oneida		x	
Owyhee	x	x	x
Payette		x	
Power		x	
Shoshone			
Teton			
Twin Falls	x	x	x
Valley			
Washington		x	

[C] Candidate

[P] Proposed

[T] Threatened

[E] Endangered

[CH] Designated Critical Habitat

[PCH] Proposed Critical Habitat

Grouping	Mammal			
	Canada lynx	Grizzly bear	Northern Idaho ground squirrel	Selkirk Mountain caribou
Common Name				
Scientific Name	<i>Lynx canadensis</i>	<i>Ursus arctos horribilis</i>	<i>Spermophilus brunneus brunneus</i>	<i>Rangifer tarandus caribou</i>
Status	[T]	[CH]	[T]	[E]
Ada				
Adams	x		x	
Bannock				
Bear Lake	x			
Benewah	x			
Bingham				
Blaine	x			
Boise	x			
Bonner	x		x	x
Bonneville	x		x	
Boundary	x	x	x	x
Butte	x			
Camas	x			
Canyon				
Caribou	x			
Cassia				
Clark	x		x	
Clearwater	x			
Custer	x			
Elmore	x			
Franklin	x			
Fremont	x		x	
Gem				
Gooding				
Idaho	x			
Jefferson	x			
Jerome				
Kootenai	x			
Latah	x			
Lemhi	x			
Lewis				
Lincoln				
Madison	x			
Minidoka				
Nez Perce	x			
Oneida				
Owyhee				
Payette				
Power				
Shoshone	x			
Teton	x		x	
Twin Falls				
Valley	x		x	
Washington			x	

[C] Candidate

[P] Proposed

[T] Threatened

[E] Endangered

[CH] Designated Critical Habitat

[PCH] Proposed Critical Habitat

Grouping	Mammal	
Common Name	Southern Idaho ground squirrel	Wolverine
Scientific Name	<i>Spermophilus brunneus enemicus</i>	<i>Gulo gulo</i>
Status	[C]	[C]
Ada		X
Adams	X	X
Bannock		X
Bear Lake		X
Benewah		X
Bingham		X
Blaine		X
Boise		X
Bonner		X
Bonneville		X
Boundary		X
Butte		X
Camas		X
Canyon		X
Caribou		X
Cassia		
Clark		X
Clearwater		X
Custer		X
Elmore		X
Franklin		X
Fremont		X
Gem	X	X
Gooding		X
Idaho		X
Jefferson		X
Jerome		
Kootenai		X
Latah		X
Lemhi		X
Lewis		X
Lincoln		X
Madison		X
Minidoka		
Nez Perce		X
Oneida		
Owyhee		
Payette	X	
Power		
Shoshone		X
Teton		X
Twin Falls		X
Valley		X
Washington	X	X

[C] Candidate

[P] Proposed

[T] Threatened

[E] Endangered

[CH] Designated Critical Habitat

[PCH] Proposed Critical Habitat

Grouping	Fish				Mollusk			
	Bull trout		Kootenai River white sturgeon		Banbury Springs lanx	Bliss Rapids snail	Bruneau hot springsnail	Snake River physa snail
Common Name								
Scientific Name	<i>Salvelinus confluentus</i>		<i>Acipenser transmontanus</i>		<i>Lanx sp.</i>	<i>Talorconcha serpenticola</i>	<i>Pyrgolopsis bruneauensis</i>	<i>Haitia (Physa) natricinia</i>
Status	[T]	[CH]	[E]	[CH]	[E]	[T]	[E]	[E]
Ada	x							x
Adams	x	x						
Bannock								
Bear Lake								
Benewah	x	x						
Bingham								
Blaine	x	x						
Boise	x	x						
Bonner	x	x						
Bonneville								
Boundary	x	x	x	x				
Butte	x	x						
Camas	x	x						
Canyon								x
Caribou								
Cassia								x
Clark								
Clearwater	x	x						
Custer	x	x						
Elmore	x	x				x		x
Franklin								
Fremont								
Gem	x	x						
Gooding					x	x		x
Idaho	x	x						
Jefferson								
Jerome						x		x
Kootenai	x	x						
Latah								
Lemhi	x	x						
Lewis	x	x						
Lincoln								
Madison								
Minidoka								x
Nez Perce	x	x						
Oneida								
Owyhee	x	x					x	x
Payette	x							x
Power								
Shoshone	x	x						
Teton								
Twin Falls					x	x		x
Valley	x	x						
Washington	x	x						x

[C] Candidate

[P] Proposed

[T] Threatened

[E] Endangered

[CH] Designated Critical Habitat

[PCH] Proposed Critical Habitat

Grouping	Plant						
	Common Name	Christ's paintbrush	Goose Creek milkvetch	Macfarlane's four-o'clock	Packard's Milkvetch	Slickspot peppergrass	
Scientific Name	<i>Castilleja christii</i>	<i>Astragalus anserrinus</i>	<i>Mirabilis macfarlanei</i>	<i>Astragalus cusickii</i> var. <i>parkardiae</i>	<i>Lepidium papilliferum</i>		
Status	[C]	[C]	[T]	[C]	[T]	[PCH]	
Ada					X	X	
Adams							
Bannock							
Bear Lake							
Benewah							
Bingham							
Blaine							
Boise							
Bonner							
Bonneville							
Boundary							
Butte							
Camas							
Canyon					X	X	
Caribou							
Cassia	X	X					
Clark							
Clearwater							
Custer							
Elmore					X	X	
Franklin							
Fremont							
Gem					X	X	
Gooding							
Idaho			X				
Jefferson							
Jerome							
Kootenai							
Latah							
Lemhi							
Lewis							
Lincoln							
Madison							
Minidoka							
Nez Perce							
Oneida							
Owyhee					X	X	
Payette					X	X	X
Power							
Shoshone							
Teton							
Twin Falls							
Valley							
Washington							

[C] Candidate
[P] Proposed

[T] Threatened
[E] Endangered

[CH] Designated Critical Habitat
[PCH] Proposed Critical Habitat

Grouping	Plant			
	Spalding's catchfly	Ute ladies'-tresses	Water Howellia	Whitebark Pine
Common Name				
Scientific Name	<i>Silene spaldingii</i>	<i>Spiranthese diluvialis</i>	<i>Howellia aquatilis</i>	<i>Pinus albicaulis</i>
Status	[T]	[T]	[T]	[C]
Ada				
Adams				x
Bannock				
Bear Lake				x
Benewah	x		x	
Bingham		x		
Blaine				x
Boise				x
Bonner				x
Bonneville		x		x
Boundary				x
Butte				x
Camas				x
Canyon				
Caribou				x
Cassia				
Clark				x
Clearwater				x
Custer				x
Elmore				x
Franklin				
Fremont		x		x
Gem				x
Gooding				
Idaho	x			x
Jefferson		x		
Jerome				
Kootenai	x		x	
Latah	x		x	
Lemhi				
Lewis	x			
Lincoln				
Madison		x		
Minidoka				
Nez Perce	x			
Oneida				
Owyhee				
Payette				
Power				
Shoshone	x		x	x
Teton				x
Twin Falls				
Valley				x
Washington				x

[C] Candidate

[P] Proposed

[T] Threatened

[E] Endangered

[CH] Designated Critical Habitat

[PCH] Proposed Critical Habitat

APPENDIX E
AGENCY LETTERS & RESPONSES



Agency Mailing List

Mr. Rob Brochu
Corps of Engineers
900 N. Skyline Dr., Suite A
Idaho Falls, ID 83402-1718

Ms. Suzi Neitzel
Idaho State Historical Society
210 Main Street
Boise, ID 83702-7264

Mr. Damien Miller
US Fish and Wildlife Service
4425 Burley Dr., Suite A
Chubbuck, ID 83202

Ms. Mary Lucachick
Idaho Dept. of Parks and Recreation
P.O. Box 83720
Boise, ID 83720-0065

Mr. Chuck Ketterman
Department of Environmental Quality
444 Hospital Way #300
Pocatello, ID 83201

Mr. Mike Cox
EPA Region 10
1200 6th Ave OW-130
Seattle, WA 98101

Mr. Elliot Traher
USDA-NRCS
1551 Baldy Ave., Ste 2
Pocatello, ID 83201-7117

Mr. Dennis Dunn
Idaho Department of Water Resources
900 N. Skyline, Ste. A
Idaho Falls, ID 83402

Mr. Jim Mindy
Idaho Dept. of Fish and Game, SE Region
1435 Barton Road
Pocatello, ID 83204

Mr. Gary Bahr
Idaho Department of Agriculture
P.O. Box 790
Boise, ID 83701

Ms. Andrea Lindberg
Idaho Dept. of Commerce
P.O. Box 83720
Boise, ID 83720-0093

Ms. Julie Neff
USDA-RD
725 Jensen Grove Dr., Suite No. 1
Blackfoot, ID 83221

Mr. Chris Randolph
Idaho Power Company
P.O. Box 70
Boise, ID 83707

Mr. Patrick Brown
Department of Land
3563 Ririe Hwy
Idaho Falls, ID 83401

Mr. Ted Howard
Shoshone-Paiute Tribe
P.O. Box 219
Owyhee, NV 89932

Ms. LaRae Buckskin
Shoshone-Bannock Tribes
P.O. Box 306
Fort Hall, ID 83203

Ms. Carol Lyle
Forest Service
1405 Hollipark
Idaho Falls, ID 83402

May 15, 2008

Julie Neff
USDA-RD
725 Jensen Grove Dr., Suite 1
Blackfoot, ID 83221

**RE: Environmental Information Document
Arsenic Mitigation Study – Riverbend Estates, American Falls, ID**

Dear Ms. Neff:

Riverbend Estates is in the process of completing an Arsenic Mitigation Study (AMS) that sites the problems with their arsenic levels and provides several different options to address this issue. The AMS results have provided several effective ways to achieve Idaho Department of Environmental Quality (IDEQ) arsenic level standards in the potable water. Each option will achieve the desired outcome of potable water delivery to each property located in the Riverbend Estates Subdivision below the established arsenic MCL. Before the AMS can be considered complete IDEQ requires that an Environmental Information Document (EID) be completed. This EID will assess the environmental impacts of the various proposed priority improvements.

Riverbend Estates is requesting your comments concerning these priority improvements and the associated environmental impacts. Enclosed with this letter is a description of the proposed priority improvements including a detailed vicinity and project location map. Please review these enclosures and forward your comments to:

Hailey G. Barnes, E.I.T.
Keller Associates, Inc.
412 W. Center Street, Suite 330
Pocatello, ID 83204

or email hbarnes@kellerassociates.com
or fax (208) 238-2162

Your comments and required mitigation measures will be addressed in the final copy of the EID which will be submitted to the IDEQ for their review and approval.

In the interest of timeliness, we would appreciate your comments being returned to us prior to June 16th, 2008. This will allow IDEQ to review the EID and make final recommendations.

Thank you for your consideration of these much needed improvements.

Sincerely,

KELLER ASSOCIATES, INC.

Hailey G. Barnes, E.I.T.
Project Engineer

Bryan Phinney, P.E., D.WRE.
Project Manager

A. PROJECT IDENTIFICATION

A. **Applicant:** Riverbend Estates Home Owners Association

Contact: Gary Aldous
3126 Sage
American Falls, ID 83211

B. **Project No.:** Keller Associates Project No. 105079-000

C. **Project Costs and Funding Sources**

Anticipated Funding: Riverbend Estates Home Owners Association

**Final Project funding will be determined prior to Engineering Design

Total Eligible Cost:

Equipment & Installation	\$32,248
Initial Arsenic Testing	\$ 783
Legal, Advertising, Misc.	\$ 661
Contingency	\$ 4,955
Engineering	<u>\$10,000</u>
<i>TOTAL PROJECT COST</i>	<i>\$48,647</i>

D. **Current User System and Associated Costs:**

Riverbend Estates (RBE) is located three miles west of American Falls. It is comprised of 30 lots, two of which are occupied by one resident, and 27 homes have been built. The remaining lots are expected to be developed within the next five years. With an average of four people per household, the population of the subdivision is estimated at 116 residents.

The distribution system is fed by two wells that are constructed to a depth of 216 feet. Pressure within the system is maintained by six 50-gallon hydro-pneumatic tanks. The pressure in the system ranges from 45-60 psi. Currently, the residents of RBE are paying a monthly rate of \$40. This rate includes potable water and garbage. This estimate excludes irrigation and assumes RBE will continue to use and maintain their raw water irrigation system.

In addition to the potable water system, the subdivision also has a separate irrigation system. The irrigation water is obtained from Falls Irrigation Company and is used to fulfill the majority of the irrigation needs for the subdivision. The pump for the irrigation system is located near the well house and feeds an 8-inch distribution system. The distribution system runs throughout the subdivision, with connections at each lot.

E. Necessity of Project:

Within the body of this information document, one will find that the proposed improvements will mitigate the water quality issues that RBE faces. The Environmental Protection Agency (EPA) adopted a new standard for arsenic levels in drinking water. The new standard lowered the limit from 50 parts per billion (ppb) to 10 ppb. RBE currently has levels of 14 ppb, which is over the MCL. There are several different methods proposed to lower the arsenic levels that will meet the MCL. It has been preliminarily determined that the improvements will not cause adverse effects and all proposed system improvements will be contained within the boundaries of the following maps and figures. See Figures 1 and 2 for a Vicinity and Project Location Map.

B. PROPOSED SYSTEM IMPROVEMENTS

A. Alternative 1 - Drill New Well or Deepening of Existing Wells

A non-treatment alternative would be the exploration of potentially drilling another well. Many times if an alternative aquifer can be located, it will not have the same contaminant levels. Another option would be to drill one of the existing wells deeper in an attempt to reach another aquifer.

This alternative is risky as there are no guarantees that a deeper aquifer will be located and if one is located, there are no guarantees that it will not also be contaminated. Many of the other wells in proximity to RBE are affected by arsenic, leading one to believe that the problem is typical throughout the region. In addition, getting approval to drill a new well can sometimes be very difficult.

Besides the two wells utilized by RBE, there are four other private wells in close proximity to RBE. In order to determine if these private wells were also affected by arsenic, the HOA had the arsenic levels in these wells tested. Figure 3 shows the well locations and the levels of arsenic which were reported. Table 1 lists the well owners, well depths, and the arsenic test results.

**TABLE 1
ARSENIC RESULTS ADJACENT WELLS**

Well Owner	Well Depth (ft)	Arsenic Level (ppb)
Breding	175	9
Sherburne	UNK	8
Laggis	218	8
Lindauer	278	5

The current arsenic results for RBE are blended water from the existing wells. Due to the proximity of the two RBE wells and the fact that they are both drilled

to approximately the same depth, it is very likely that they draw from the same aquifer and have similar arsenic concentrations. The Lindauer well, the closest well to the RBE wells, had an arsenic concentration of 5 ppb which is below the MCL and has a depth of 280 feet, 60 feet deeper than the RBE wells.

One option to consider would be to drill one of the RBE wells to that depth and see if a different aquifer is encountered. If the extended well satisfies all MCL and other requirements for a public drinking water source, then it would become the primary RBE well, with the unmodified well either blending or becoming an emergency well.

There are many unknowns with this alternative such as type of soils, required depths, and quality of the aquifers. There are many unknowns that a driller may encounter while completing this project that could easily escalate the costs but an estimate has been presented in Tables 2 and 3.

**TABLE 2
DRILL NEW WELL**

Alternative 2a - Drill New Well		
Item	Total	Per House
Drilling Costs	\$98,000	\$3,380
Screen, setting costs, resetting pump	\$35,000	\$1,207
Pump Rehabilitation	\$10,000	\$345
Total Cost	\$143,000	\$4,932
Estimated Total Cost Per Month	\$11,917	\$411

**TABLE 3
DEEPENING OF EXISTING WELL**

Alternative 2b - Deepening of Existing Well		
Item	Total	Per House
Drilling Costs	\$42,000	\$1,448
Screen, setting costs, resetting pump	\$35,000	\$1,207
Screen and Pump Removal	\$15,000	\$517
Total Cost	\$92,000	\$3,172
Estimated Total Cost Per Month	\$7,667	\$265

Table 2 describes the costs associated with drilling a new well. The target depth of the proposed well is 280 feet. This is the same depth as the Lindauer well, a close neighbor of Riverbend, who is experiencing arsenic levels of 5 ppb, which is below the Arsenic MCL.

As Riverbend Estates already has two existing wells, there is the possibility of drilling one of the wells deeper in hopes of reaching a less affected zone, a cost estimate has been included in Table 3. This procedure is risky in that it is unknown how stable the existing well is and how it will react to the disturbance. There is the possibility of potential collapse, well contamination, or failure to find a zone with reduced arsenic levels. A new screen must be purchased, to replace the old screen which must be pulled from the well. There are many things that can happen between the bottom of the well and the surface including; the screen getting stuck, damage to the well casing, or deforming the screen enough at the bottom so the well cannot be reused or rehabilitated.

Due to the high costs of these alternatives and high risk potential, these two alternatives were not considered further as viable alternatives.

Environmental Impacts

Environmental impacts will be contained within the project area. The well is located near the entrance of RBE and the county road. Other than minor clean-up the area would not be impacted.

Any impact to the area will be on either RBE property or on County property. All of this property has been previously disturbed and will therefore not create any environmental issues.

B. Alternative 2 – Point-of-Use or Point-of-Entry Treatment

The first treatment option considered was treatment at Point-of-Use (POU) or Point-of-Entry (POE). POU and POE treatment devices rely on many of the same treatment technologies that have been used in central treatment approaches. POU and POE treatment devices can utilize either Activated Alumina or Reverse Osmosis technology. The main difference between a POU/POE and a central treatment plant which treats all of the water distributed to its consumers is POU and POE treatment devices are designed to treat only a portion of the flow. Through selective treatment a cost saving can be realized making these devices a very affordable alternative for small communities.

POE devices are installed where the water enters the house and treats all of the water used within the house. For this study, POE devices will not be considered for various reasons. The additional cost of treating all of the water in the house rather than just that used for consumption, make this treatment alternative much more costly. In addition, the POE treatment equipment requires more space and the treated water tends to be corrosive to the copper plumbing commonly installed in houses.

POU devices are small and are typically installed under the kitchen sink and treat only the water intended for direct consumption (drinking and cooking), typically from a single tap. According to IDAPA 58.01.08, Idaho Rules for Public Drinking Water Systems (IRPDWS), it is a requirement that the POU units be equipped with mechanical devices to ensure that customers are automatically notified of operational problems.

According to the EPA guidelines, the POU devices must be owned, controlled, and maintained by the water utility or by an agency under contract with the water utility. The responsibility of operating and maintaining the devices cannot be passed to the customer. This will generally require increased administrative and monitoring costs to make sure the units are functioning correctly. IDEQ requires 100% customer participation in order to implement and manage POU devices as a compliance strategy. To ensure participation, each member of the community must sign an access agreement, allowing water system personnel or representatives into the home to install and maintain the POU units and to collect water samples. This access agreement should not be used without first obtaining the services of an attorney to review and revise this document as needed.

In order to ensure participation of any future homeowners, disclosure of the POU treatment devices and access agreement will be necessary during any real estate transactions, including both the sale of the public water system and/or the sale of individual homes. Ultimately, the homeowners are responsible for disclosure of the POU treatment information, but education materials should be made available to the homeowners of RBE. This information should include purpose and use of the POU treatment units as well as the cost and responsibilities that will be incurred by the homeowner. Any new homeowner must be provided with an access agreement to sign prior to closing on a residence.

TABLE 5
POU RO ANNUALIZED COSTS

Alternative 3 – POU RO Annualized Costs		
Item	Total	Per House
Annualized Capital Construction Costs*	\$6,927	\$239
Annual Component Replacement	\$4,234	\$146
O&M		
Electric Bills	\$720	\$25
Water Testing (Excluding Arsenic)	\$435	\$15
Certified Water Operator	\$450	\$16
Maintenance	\$867	\$30
Misc. Repairs	\$1,147	\$40
Well Repairs	\$1,259	\$43
Uncategorized Expenses	\$817	\$28
Arsenic Sample Analysis	\$261	\$9
Total Annual Cost	\$17,118	\$590
Estimated Total Cost Per Month	\$1,426	\$49

* Based on a 10 Year Amortization Period At 7% APR

The costs presented in Table 5 have been obtained from a local Kinetico Dealer and are for a typical under the sink POU installation. These costs include any pilot testing that would be required. Additional charges may be incurred for non-typical installations, refrigerator connections, and for quick flow storage tanks. If this alternative is selected, additional research may need to be completed for alternate vendors.

The treated water from each POU treatment device must be sampled for arsenic within 30 days of installation. Thereafter, every household on the system will need to be tested once every three years. It is recommended that 1/3 of the households be tested every year. RBE will also be required to provide on-going education and outreach to their customers regarding the operation of the POU system and the health effects of the contaminants of concern. This could be effectively accomplished through a newsletter that could be included with the monthly billing statements.

As it is required that the POU devices be owned by the water system, the owners of RBE should consider obtaining liability insurance to cover potential damage to property during installation or due to a malfunction or leak from the POU device. An attorney should be consulted regarding the liability of the system in this matter and a waiver of liability might need to be considered.

Implementation of a POU treatment solution will require the submittal of a POU management plan to DEQ. This plan must address the issues discussed above as well as details on the sampling procedures and the selected POU devices, which must be ANSI/NSF certified. The requirements for this plan are included in

IDAPA 58.01.08.450. The installation of the POU devices cannot be accomplished until written approval is obtained from DEQ. Failure to achieve compliance with MCLs or to operate and maintain the POU system may necessitate the implementation of another alternative.

Environmental Impacts

There are no environmental impacts associated with this alternative. All that is required for this alternative to be effective is a system underneath the kitchen sink. Therefore there is no impact to the environment.

C. **PROJECT CONCLUSION**

Keller Associates recommends RBE use the POU treatment system as the recommended alternative. Not only does it have significant financial savings for the HOA, but it is also cost effective to install the systems in the present homes and future homes of this small subdivision. By using this system, the homeowners will have a small increase in water costs from \$40 to \$49. This is an estimate shown in Table 5.

By using the POU treatment system we are avoiding connection to the American Falls system three miles away and connection fees, eliminating the risk of drilling a new well or rehabilitating an existing well, and we do not have to install a large central treatment system with costs exceeding its results. POU is the most economical and sensible option for this particular small subdivision of 29 households. When development begins to connect RBE with the City of American Falls, RBE will be able to more economically and sensibly tie into City lines for added fire protection.



STATE OF IDAHO

DEPARTMENT OF AGRICULTURE DIVISION OF AGRICULTURAL RESOURCES

C.L. "BUTCH" OTTER
Governor
CELIA R. GOULD
Director

June 5, 2008

Hailey Barnes, E.I.T.
Keller Associates, Inc.
412 W. Center, Suite 330
Pocatello, Idaho 83204

Dear Ms. Barnes:

Thank you for inquiring with the Idaho State Department of Agriculture (ISDA) with regards to your work with the Riverbend Estates near American Falls. The improvement work being proposed will be an important public works projects for the citizens served by the project.

We have reviewed the environmental documents provided to us. Your documents appear to be professional and complete. At this time we do not have comments or questions related to these projects.

Thank you for contacting our agency. Feel free to contact us in the future (main number - 208-332-8500, my number - 208-332-8597).

Sincerely,

A handwritten signature in cursive script that reads "Gary Bahr".

Gary Bahr

Agricultural Section Manager
Water Quality Programs

JUN 09 2008

PC: Water Program File



JUN 19 2008

IDAHO DEPARTMENT OF FISH AND GAME

SOUTHEAST REGION

1345 Barton Road
Pocatello, Idaho 83204

C.L. "Butch" Otter / Governor
Cal Groen / Director

June 16, 2008

Hailey G. Barnes, E.I.T., Project Engineer
Keller Associates
412 W. Center, Suite 330
Pocatello, ID 83204

**RE: Environmental Information Document (EID)
Arsenic Mitigation Study (AMS) – Riverbed Estates, American Falls, ID**

Dear Ms. Hailey;

Departmental personnel have reviewed the proposed water system improvements depicted in the EID alternates 1 or 2

We feel that with adherence to the applicable BMP's either alternate would have minimal impact on fish or wildlife species or any associated critical habitat.

Thank you for the opportunity to review this proposed activity.

Sincerely,

A handwritten signature in blue ink that reads "Mark Gamblin".

Mark Gamblin
Regional Supervisor

MG/jjm

Keeping Idaho's Wildlife Heritage

Hailey Barnes

From: Mary Lucachick [mlucachi@idpr.idaho.gov]
Sent: Tuesday, June 03, 2008 3:37 PM
To: hbarnes@kellerassociates.com
Subject: Environmental Information Document Comments
Attachments: Arsenic Riverbend Estates.doc

Riverbend Estates, American Falls, ID

The attached are the comments of the IDPR.

Mary Lucachick
Idaho Dept. of Parks and Recreation
Water Recreation Analyst
5657 Warm Springs Avenue
Boise, ID 83712
wk - 514-2482
mlucachick@idpr.idaho.gov



STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

444 Hospital Way, #300 • Pocatello, Idaho 83201 • (208) 236-6160

C.L. "Butch" Otter, Governor
Toni Hardesty, Director

Friday, June 06, 2008

Hailey G. Barnes, E.I.T. – Bryan Phinney, P.E.
Keller Associates
412 W. Center Street, Suite 330
Pocatello, ID 83204

RE: Environmental Assessment for Arsenic Mitigation Study - Riverbend Estates, American Falls, IDy

Dear Ms. Barnes,

The Idaho Department of Environmental Quality (Department) has reviewed the Environmental Information Document concerning potential environmental impacts associated with the subject project.

We believe this project is necessary for the safe and efficient operation of the drinking water system serving Riverbend Estates, therefore, we are in full support. We do not believe there will be deleterious environmental effects as a result of the system improvements.

Once you compile comments received as a result of your May 15, 2008 solicitation, a final copy of the EID is to be submitted to IDEQ for purposes of our ongoing review of the Arsenic Mitigation Study for Riverbend Estates.

In accordance with Idaho Code 39-118 and IDAPA 58.01.08, "Idaho Rules for Public Drinking Water System, construction plans & specifications prepared by a professional engineer are required for DEQ review and approval prior to construction for a public water system. The Department requires that a public drinking water system is constructed and operated in compliance with the drinking water rules.

If you have questions or comments, please contact me at 236-6160 or via email at tom.hepworth@deq.idaho.gov.

Sincerely,

A handwritten signature in black ink that reads "Tom Hepworth".

Tom Hepworth

Engineering Regional Manager

Route file copy: Bruce Olenick, Regional Administrator, Pocatello Regional Office

File: DW #39-07-04

JUN 11 2008

**EASTERN IDAHO
SUPERVISORY AREA**
3563 Ririe Highway
Idaho Falls ID 83401
Phone (208) 525-7167
Fax (208) 525-7178
E-mail: pbrown@idl.idaho.gov



GEORGE B. BACON, DIRECTOR
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Donna M. Jones, State Controller
Tom Luna, Sup't of Public Instruction

May 16, 2008

Hailey G. Barnes, EIT
Keller Associates, Inc.
412 West Center, Suite 330
Pocatello, Id 83204

Re: Arsenic Mitigation Study – Riverbend Estates

Dear Hailey:

The Department of Lands has no regulatory or other oversight responsibility in regard to the above project and, therefore, we have no comments.

Sincerely,

A handwritten signature in blue ink, appearing to read "Patrick A. Brown", is written over the word "Sincerely".

Patrick A. Brown
Area Supervisor

PB/pb

MAY 19 2008



June 12, 2008

JUN 16 2008

Hailey G Barnes
Keller Associates
412 West Center
Suite 330
Pocatello, Id 83204

"The History and Preservation People"

Our mission: to educate
through the identification,
preservation, and interpretation
of Idaho's cultural heritage.

www.idahohistory.net

C.L. "Butch" Otter
Governor of Idaho

RE: Arsenic Mitigation Project, Riverbend Estates, American Falls, Idaho

Dear Ms. Barnes:

Thank you for requesting our views on the proposed arsenic mitigation project for the Riverbend Estates in American Falls, Idaho. We understand this project is still in the preliminary planning stages and therefore project specifics, plans and locations are still being determined.

You have informed our office of three proposed mitigation measures for the reduction in arsenic levels within the Riverbend Estates Subdivision. Alternative #1, involving installation of a POE devise where the waterline enters each house, is not likely to have any potential effect on historic properties. Alternative #2, deeper drilling of existing wells, is also, not likely to affect any historic properties. Alternative #3 however, drilling of new wells and subsequent construction of new water lines, is an activity which is likely to affect historic resources, should they be present in the project area. Therefore, our office may recommend an archaeological survey of the project areas prior to any ground disturbing activities. If alternative three is chosen, and as project plans become available, please provide the following information for any areas of new wells and new water lines:

1. Description of project and construction activities that will occur.
2. Map showing the location of the project area.
3. Photos of the project area.
4. Description of the current condition of the ground (i.e. previous farmland, adjacent to gravel road, etc.).

Please contact our office again, as the plans for this project are finalized. At that time, we will provide a formal recommendation for the project. More information on the Section 106 review process can be found on our website at www.idahohistory.net (go to State Historic Preservation Office, then to Federal Project Review).



The Idaho State Historical Society is an Equal Opportunity Employer.

Administration

2205 Old Penitentiary Road
Boise, Idaho 83712-8250
Office: (208) 334-2682
Fax: (208) 334-2774

Archaeological Survey of Idaho

210 Main Street
Boise, Idaho 83702-7264
Office: (208) 334-3847
Fax: (208) 334-2775

**Historical Museum and
Education Programs**

610 North Julia Davis Drive
Boise, Idaho 83702-7695
Office: (208) 334-2120
Fax: (208) 334-4059

Historic Preservation Office

210 Main Street
Boise, Idaho 83702-7264
Office: (208) 334-3861
Fax: (208) 334-2775

Historic Sites Office

2445 Old Penitentiary Road
Boise, Idaho 83712-8254
Office: (208) 334-2844
Fax: (208) 334-3225

**Public Archives and
Research Library**

2205 Old Penitentiary Road
Boise, Idaho 83712-8250

Public Archives

Office: (208) 334-2620
Fax: (208) 334-2626

Research Library

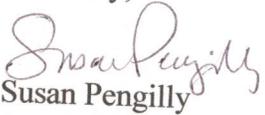
Office: (208) 334-3356
Fax: (208) 334-3198

Oral History

Office: (208) 334-3863
Fax: (208) 334-3198

We look forward to receiving the additional information so we can continue with our review process. If you have any questions, please feel free to contact me at 208-334-3847, ext. 107 or Shelby Day at ext. 109

Sincerely,

A handwritten signature in cursive script that reads "Susan Pengilly".

Susan Pengilly
Deputy SHPO and
Compliance Coordinator



C. L. "Butch" Otter
governor

Robert L. Meinen
director

Dean Sangrey, Administrator
operations division

David M. Ricks, Administrator
management services division

.....
IDAHO PARK AND
RECREATION BOARD
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region six

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IDAHO DEPARTMENT OF
PARKS AND RECREATION
.....

p.o. box 83720
boise, idaho 83720-0065

(208) 334-4199

fax (208) 334-3741

tdd 1-800-377-3529

street address
5657 warm springs avenue

www.parksandrecreation.idaho.gov

August 1, 2011

Hailey G. Barnes
Project Engineer
Keller Associates, Inc.
412 West Center, Suite 330
Pocatello, ID 83204

Dear Mr. Barnes:

Re: Arsenic Mitigation Study – Riverbend Estates, American Falls, ID

We have reviewed the maps and documents associated with this project, and have determined that no lands receiving federal or state grant money administered by this agency will be impacted by this project.

If you have any questions, please contact me directly at 208-514-2482, or at my email address: mlucachick@idpr.idaho.gov.

Sincerely,

Mary Lucachick
Water Recreation Analyst



JOB NO.: 105079 DATE: 6/30/08 TIME: 12:35 pm

JOB NAME: RBE LENGTH OF CALL: _____

TO: NRCS - Elliot Traher

TELEPHONE: _____

FROM: HeB

SUBJECT: RBE - EID

- As long as the correct grass is planted
there are no endangered species nearby

- Just make sure to replace any grasses with those
that are native and flourishing

- Otherwise → no comment



United States Department of the Interior
FISH AND WILDLIFE SERVICE

Eastern Idaho Field Office
4425 Burley Dr., Suite A
Chubbuck, Idaho 83202
Telephone (208) 237-6975
<http://IdahoES.fws.gov>



MAY 20 2008

Hailey G. Barnes
Keller Associates
412 West Center, Suite 330
Pocatello, Idaho 83204

Subject: Proposed Arsenic Mitigation Study – Riverbend Estates in American Falls, Power County, Idaho. SL# 08-0392

Dear Ms. Barnes:

The U.S. Fish and Wildlife Service (Service) is writing in response to your request for information about the potential impacts to endangered, threatened, proposed, and/or candidate species from the proposed arsenic mitigation study at Riverbend Estates in American Falls, Power County, Idaho. The Service has not identified any issues that indicate that consultation under section 7 of the Endangered Species Act of 1973, as amended, is needed for this project. This finding is based on our understanding of the nature of the project, local conditions, and/or current information indicating that no listed species are present. If you determine otherwise or require further assistance, please contact Sandi Arena of this office at (208)237-6975 ext 34.

Also, please be aware that the Fish and Wildlife Service appointed Damien Miller as supervisor of the Eastern Idaho Ecological Services Field Office in Chubbuck, Idaho replacing Deb Mignogno. In the future, please address all correspondence to Mr. Miller.

Thank you for your interest in endangered species conservation.

Sincerely,

Damien Miller
Supervisor, Eastern Idaho Field Office

MAY 21 2008

**EASTERN IDAHO
SUPERVISORY AREA**
3563 Ririe Highway
Idaho Falls ID 83401
Phone (208) 525-7167
Fax (208) 525-7178
E-mail: pbrown@idl.idaho.gov



GEORGE B. BACON, DIRECTOR
EQUAL OPPORTUNITY EMPLOYER

STATE BOARD OF LAND COMMISSIONERS
C. L. "Butch" Otter, Governor
Ben Ysursa, Secretary of State
Lawrence G. Wasden, Attorney General
Donna M. Jones, State Controller
Tom Luna, Sup't of Public Instruction

May 16, 2008

Hailey G. Barnes, EIT
Keller Associates, Inc.
412 West Center, Suite 330
Pocatello, Id 83204

Re: Arsenic Mitigation Study – Riverbend Estates

Dear Hailey:

The Department of Lands has no regulatory or other oversight responsibility in regard to the above project and, therefore, we have no comments.

Sincerely,

A handwritten signature in blue ink, appearing to read "Patrick A. Brown".

Patrick A. Brown
Area Supervisor

PB/pb

MAY 19 2008

APPENDIX F

PUBLIC PARTICIPATION



PUBLIC HEARING NOTICE!

Date: January 13th, 2008

Regarding:

Riverbend Estates Arsenic Mitigation Study

In keeping with an agreement entered into between Riverbend Estates (RBE) and the Idaho Department of Environmental Quality (IDEQ). You are invited to attend a public hearing regarding the Arsenic Study Engineering Report, date, time and location shown below. This meeting is a follow-up to the arsenic information meeting we held on January 27, 2008 at the American Falls High School.

Our engineers at Keller Associates will be there to present the findings of the study and will present the viable solutions to the arsenic problem in the subdivision's drinking water. In addition, DEQ has been invited to attend the meeting to answer any questions that you might have. At this time, a vote will take place to select which alternative shall be implemented.

If you want to review and provide written comments on the study, a copy of the study is available through the RBE Homeowner Association President (Gary Aldous) at 3126 Sage St. during daytime hours. Please submit your written comments to Keller Associates at 412 W. Center St., Suite 330, Pocatello, ID 83204.

DATE: Tuesday, January 13, 2008

TIME: 7:00 PM

**LOCATION: American Falls High School
(look for signs on the outside doors for room #)**

Thank you for your interest and we look forward to seeing you there.

RBE Homeowner Association Board

Hailey Barnes

From: Hailey Barnes
Sent: Wednesday, January 07, 2009 11:54 AM
To: 'Chuck.Ketterman@deq.idaho.gov'; 'Tom.Hepworth@deq.idaho.gov'; 'cmadson@phd6.idaho.gov'
Cc: Jeffrey Mansfield; Bryan Phinney
Subject: Riverbend Estates Public Hearing
Attachments: 2008 ARSENIC PUBLIC HEARING NOTICE-community flyer.doc

Tracking:	Recipient	Delivery
	'Chuck.Ketterman@deq.idaho.gov'	
	'Tom.Hepworth@deq.idaho.gov'	
	'cmadson@phd6.idaho.gov'	
	Jeffrey Mansfield	Delivered: 1/7/2009 11:59 AM
	Bryan Phinney	Delivered: 1/7/2009 11:59 AM

Good afternoon gentlemen,

We are planning to hold a public hearing for the Riverbend Estates Arsenic Mitigation project on January 13th, 2009. Please see the attached flyer. Under the compliance agreement schedule, it is required that a member from DEQ is present to answer questions. We would appreciate your presence. Please let us know if you will be able to attend.

Thank you,

HAILEY G. BARNES, E.I.T.

Keller Associates, Inc.
412 W Center, Suite 330
Pocatello, Idaho 83204
Office (208) 238-2146
hbarnes@kellerassociates.com

**Riverbend Estates
Arsenic Mitigation Study
Public Information Meeting - January 27, 2008**

Name	Representing	Address	Phone Number
Jeff + Karen Trappett		3040 Juniper	637-0177
Bret + Sherri Timmons		3134 Sage	226-9979
Carol Sparks		3138 Sage	226-5579
Amanda Allston		3126 Sage	226-2259
Wynn Thomas	Nette	3129 Willow	226 5536
Haley Campbell		3141 Sage	420-9624
Debra + Candy Brewer		3135 Sage	226-3175
Kathy Spindauer		3142 Sage	226-2404
Mike Hoverson		3135 Willow	226-5103
Ermond Warkman		3132 Sage	226-2448
Chris Meryan		3141 Sage	226-2600
Steve Johnson + Kerry		3037 Juniper	226-7866
Robin Garra		3140 Sage	226-5996
Gay Odgers		3126 Sage	226-2259
Debra Wilcox		3139 Willow	226-7274 226-8125



Keller Associates, Inc.
Pocatello Office: 208-238-2146

PUBLIC INFORMATION MEETING

Riverbend **E**states

**ARSENIC
MITIGATION
STUDY**



 **JANUARY 27, 2008**

Introduction

- Arsenic is a naturally-occurring element in the periodic table
- Arsenic is odorless and tasteless
- Long term exposure to Arsenic has been linked to cancer of the:
 - Bladder
 - Skin
 - Kidneys
 - Nasal passages
 - Liver
 - Prostate
- EPA adopted new arsenic standard -January 22, 2001
 - MCL from 50 ppb to 10 ppb
 - Compliance Deadline of January 23, 2006
- Arsenic levels in LME typically in the mid-teens



Introduction Continued

- **Authorization:**
 - Facilities Planning Study initiated in 2006
 - Study partially funded by Department of Environment Quality Grant
- **About Riverbend Estates:**
 - Small rural subdivision
 - Construction began in 1978
 - Private water system w/ separate irrigation





Existing System Conditions

- **Population**
 - 30 lots, 27 developed, potential for 29 homes
 - Estimated build out population = 116 residents
- **Water Use**
 - Estimated using electric bills.
 - Estimated average day demand = 13,759 gallons (build out)
 - Estimated Peak day = 23,390 gallons (build out)
 - Current system does not support fire protection
- **Water Quality**
 - Water is tested regularly
 - Past test results show:
 - Total Coliform – Positive Samples
 - Arsenic above MCL
 - Study Focus: Regulatory compliance and system longevity



Study Area

5



System Needs Summary

- **Most Pressing Need**
 - Reduce the levels of arsenic in the water
 - MCL Compliance
 - Provide consistent, safe water supply

- **Additional Issues**
 - Listed Issues - not a cause for non-compliance
 - Lack of individual meters and master meter
 - Lack of emergency standby power
 - Provide additional storage capacity (fire protection)
 - Install fire hydrants and larger water mains
 - Lack of Cross-Connection Control Program
 - Lack of Sampling Plan

6



Development of Alternatives

- **Three alternatives to reduce the levels of arsenic:**
 - Connection to a municipal water system
 - Construction of a new well
 - Installation of water treatment

- **Considerations:**
 - **Treatment Technology Considerations:**
 - Arsenic Speciation: As(III) or As(V)
 - **Other considerations:**
 - Fe Concentration
 - Silica Content

7



Alternative 1 – Connect to a Municipal Water System

- **Connect to the American Falls System**
 - Requires City approval
 - An adequate connection location
 - A new transmission line would need to be installed

- **Advantages**
 - The City would take over responsibility of source water compliance
 - Possibility of fire protection in the future
 - Connection would be available for future growth

- **Disadvantages**
 - Costly alternative
 - Construction Costs
 - City water rate fluctuations

8



Waterline Alignment

9



Alternative 2 – Drill New Well or Deepen Existing Well

- Why consider this alternative?
 - Many times, an alternative aquifer will not have the same contaminant levels
 - Lindauer Well, closest to RBE wells, has 5ppb arsenic
- Disadvantages
 - No guarantees
 - Other wells in the area affected by arsenic
 - Difficult to estimate a cost

Due to high cost and high risk potential, this alternative was not considered further.

10



Adjacent Wells

11



Alternative 3 – Point-of-Use or Point-of-Entry Treatment

- Why consider this alternative?
 - POU/POE treatment can achieve compliance with certain MCLs, including arsenic
 - POU is installed on single faucet for drinking/cooking
 - POE devices are installed where the water enters the house
- Disadvantages
 - POE devices treat all of the water entering the house
 - By law, operation and maintenance of POE and POU devices cannot be passed to the customer
 - 100% Homeowner participation is required for compliance

12



Alternative 4 – Central Treatment

- Description of this alternative:
 - Involves treatment of all of the water that is delivered to the consumer
 - Typically, this treatment is accomplished in one of four ways:
 - Adsorption
 - Ion Exchange
 - Coagulation
 - Co-Precipitation

13



Alternative 4 – Central Treatment (Cont.)

- Why consider this alternative?
 - All the water is treated
 - No access agreements required
- Disadvantages
 - Higher Cost than POU
 - Increased technical complexity and monitoring requirements
 - Requires advanced operations licensing
 - Increased O&M costs

14



Recommendation & Implementation

■ Cost Summary:

DESCRIPTION	TOTAL PROJECT COSTS	TOTAL ESTIMATED COST PER MONTH *	ESTIMATED COST PER HOUSE PER MONTH *
Alt. 1a – Municipal Connection	\$1,176,494	\$14,274	\$492
Alt. 1b – Municipal Connection	\$1,704,788	\$20,543	\$708
Alt. 2 – New Well	N/A	N/A	N/A
Alt. 3 – POU Treatment	\$48,646	\$1,426	\$49
Alt. 4 – Central Treatment	\$532,897	\$8,010	\$276

* Costs based on a 10 year Amortization Period at 7% APR

15



Preferred Alternative

- Considerations:
 - Cost
 - Treatment
 - Testing/Operation
 - Overall quality of water

The overall best alternative for RBE would be POU

16



What Next?

- Completion of Study
- Public Meetings
- Vendor Selection
- Funding
- Installation



17



Questions and Answers

Thank You!

18



PUBLIC INFORMATION MEETING
JANUARY 13, 2009

Riverbend **E**states

**ARSENIC
MITIGATION
STUDY**



KA #105079-000

Introduction

- EPA adopted a new arsenic standard - January 22, 2001
 - MCL from 50 ppb to 10 ppb
 - Compliance Deadline of January 23, 2006
- Arsenic levels in RBE typically in the mid-teens
- Authorization:
 - Facilities Planning Study initiated in 2006
 - Study partially funded by Department of Environment Quality Grant
 - Compliance Agreement Schedule (CAS) with DEQ



Historic Arsenic Levels

COLLECTION DATE	LEVEL (ppb)
Annual - 6/8/2004	14
Annual - 5/20/2005	14
1 st Quarter - 1/2006	13
2 nd Quarter - 6/2006	12
3 rd Quarter - 9/2006	11
4 th Quarter - 2006	Missed
1 st Quarter - 1/8/2007	10
2 nd Quarter - 4/9/2007	12
3 rd Quarter - 8/13/2007	10
4 th Quarter - 12/6/2007	9
1 st Quarter - 3/28/2008	9
2 nd Quarter - 6/27/2008	11
3 rd Quarter - 9/25/2008	7
4 th Quarter - 12/31/2008	9

- Recent Arsenic Levels
 - Some samples below MCL
 - Average of Last 4 Samples
 - Current Average = 9 ppb
- Required Actions
 - DEQ Approval
 - Terminate CAS
 - Continued Sampling
 - Monitor Future Levels
- Future Requirements
 - Elevated levels will drive actions
 - Alternative Selection
 - Project Completion



Future Treatment Alternatives

Three alternatives to reduce the levels of arsenic:

- Connection to a municipal water system
- Construct a new well or rehab existing wells
- Installation of water treatment (Central, POU, or POE)



Recommendation & Implementation

■ Cost Summary:

DESCRIPTION	TOTAL PROJECT COSTS	TOTAL ESTIMATED COST PER MONTH *	ESTIMATED COST PER HOUSE PER MONTH *
Alt. 1a – Municipal Connection	\$1,176,494	\$14,274	\$492
Alt. 1b – Municipal Connection	\$1,704,788	\$20,543	\$708
Alt. 2a – New Well	\$143,000	\$4,932	\$411
Alt. 2b – Rehab Existing Wells	\$92,000	\$7,667	\$265
Alt. 3 – POU Treatment	\$48,646	\$1,426	\$49
Alt. 4 – Central Treatment	\$532,897	\$8,010	\$276

* Costs based on a 10 year Amortization Period at 7% APR



Preferred Alternative

■ Considerations:

- Cost
- Treatment
- Testing/Operation
- Overall quality of water

The overall best treatment alternative for RBE would be POU



What Next?

- DEQ Approval
- Completion of Study
- Continued Sampling



Questions and Answers

Thank You!



PUBLIC INFORMATION MEETING
MARCH 16TH, 2010

Riverbend Estates

WATER SYSTEM
IMPROVEMENTS



KA #105079-000

Problems with Current System

- Arsenic varies 7-14 ppb
- No Cross-Connection Control Program
- No Backflow Prevention Devices on the System
- Frequent Power Outages
- Older Pipes (installed in 1978) – possible leaks
- No flow meter in well house
- Contaminants detected in lower subdivision
- No way of disinfecting the system when pressure drops below 20 psi.



Solutions

1. Backflow Prevention Devices (Protects against contamination from residents)
2. Update well house electrical/controls (Protect the source, reduce O&M costs, prevent pressure loss)
3. Replace distribution lines and install flushing hydrants
4. Miscellaneous upgrades as funding allows



Funding

- DEQ State Revolving Fund (SRF) Loan
 - Riverbend Estates ranked 3rd on the State funding list
 - **\$200,000 Loan, 30 Year Repayment, 0% Interest, \$43,626 Subsidy**
- **Most of the present issues can be solved and begin building a Capital Improvements Fund**
- Excellent Construction Prices – Competitive Bidding



What Next

- Vote as a Board to Proceed with Funding
- Complete DEQ Loan Application
- Design Project
- Bid Project
- Select Contractor
- Construction



Questions and Answers

Thank You!





KELLER
associates

ESTIMATED PROJECT COSTS: Phase 1 - Regulatory

PROJECT: Riverbend Estates Water Improvements Project
 OWNER: Riverbend Estates HOA
 SEGMENT: Well & Distribution Upgrade

PROJECT NO.: 105079 DATE: _____
 ESTIMATED BY: HGB 10/4/2010
 CHECKED BY: BRP

ITEM NO.	ITEM	UNIT	QUANTITY	UNIT PRICE	AMOUNT	Notes
	Flushing hydrants	EA	2	\$3,850.00	\$7,700	
	Backflow prevention devices	EA	28	\$750.00	\$21,000	per Weston Ph
	Chlorination Facility	LS	1	\$12,000.00	\$12,000	quote from Pur
	Well casing extensions	EA	2	\$1,500.00	\$3,000	assumption
	Flow Meter	EA	1	\$3,500.00	\$3,500	assumption
					\$0	
	Mob/Demob	LS	1	\$30,000.00	\$30,000	
Construction Sub Total					\$77,200	
				Contractor Overhead and Profit	10.0%	\$7,700
				Contingency	10.0%	\$7,700
Construction Total					\$92,600	
				Engineering and Design	12.0%	\$11,100
				Construction Administration	6.0%	\$5,600
				Legal, Advertizing, and Misc.	2.0%	\$1,900
Estimated Project Cost					\$111,000	

Based on 2010 construction dollars

Item	Total	Per House
Construction & Materials	\$77,200	\$2,662
Contractor Bonding O&P (10%)	\$7,720	\$266
Contingency (10%)	\$7,720	\$266
Construction Total	\$92,640	\$3,194
Legal, Advertizing, Misc. (2%)	\$1,853	\$64
Construction Administration (6%)	\$5,558	\$192
Engineering and Design (12 %)	\$11,117	\$383
Total	\$111,168	\$3,833
Total minus subsidy	\$67,542	\$2,329

Item	Total	Per House
Annualized Capital Costs*	\$2,251	\$78
Water Testing	\$50	\$2
Total	\$2,301	\$79

* 30 Year Amortization Period at 0% APR
 with \$43,626 subsidy

Cost Per Month

\$192	\$7
--------------	------------

Riverbend Estates Water Improvement Project

1/12/2011

Project	Additive 1	Additive 2
Flushing hydrants	VFDs on pumps & pump controls	Natural Gas Generator
Backflow prevention devices		
Chlorination Facility		
Well casing extensions		
Flow Meter		
\$111,000	\$29,000	\$62,000
\$9/month/household	\$3/month/household	\$5/month/household

Project + Additive 1 = \$140,000 --- \$12/household/month
 Project + Additive 2 = \$173,000 --- \$14/household/month
 Project + Additive 1 & 2 = \$202,000 --- \$17/household/month





ESTIMATED PROJECT COSTS: Phase 2

PROJECT: Riverbend Estates Water Improvements Project
 OWNER: Riverbend Estates HOA
 SEGMENT: Well & Distribution Upgrade

PROJECT NO.: 105079 DATE: 10/4/2010
 ESTIMATED BY: HGB
 CHECKED BY: BRP

ITEM NO.	ITEM	UNIT	QUANTITY	*UNIT PRICE	AMOUNT
	VFDs on pumps	LS	1	\$15,000.00	\$15,000
	**Update pump controls	LS	1	\$5,000.00	\$5,000
	Flushing hydrants	EA	2	\$3,850.00	\$7,700
	Backflow prevention devices	EA	28	\$750.00	\$21,000
	Chlorination Facility	LS	1	\$12,000.00	\$12,000
	Well casing extensions	EA	2	\$1,500.00	\$3,000
	Flow Meter	EA	1	\$3,500.00	\$3,500
					\$0
	Mob/Demob	LS	1	\$30,000.00	\$30,000
Construction Sub Total					\$97,200
	Contractor Overhead and Profit			10.0%	\$9,700
	Contingency			10.0%	\$9,700
Construction Total					\$116,600
	Engineering and Design			12.0%	\$14,000
	Construction Administration			6.0%	\$7,000
	Legal, Advertizing, and Misc.			2.0%	\$2,300
Estimated Project Cost					\$140,000

Notes
 quote from Pumpco
 per Fremont County W
 per Weston Phase 2
 quote from Pumpco
 assumption
 assumption

Based on 2010 construction dollars

* Quotes include labor

** Pump Controls: Ability to monitor and communicate with pumps from an outside source.

Item	Total	Per House
Construction & Materials	\$97,200	\$3,352
Contractor Bonding O&P (10%)	\$9,720	\$335
Contingency (10%)	\$9,720	\$335
Construction Total	\$116,640	\$4,022
Legal, Advertizing, Misc. (2%)	\$2,333	\$80
Construction Administration (6%)	\$6,998	\$241
Engineering and Design (12 %)	\$13,997	\$483
Total	\$139,968	\$4,826
Total minus subsidy	\$96,342	\$3,322

Item	Total	Per House
Annualized Capital Costs	\$3,211	\$111
Water Testing	\$100	\$3
Total	\$3,311	\$114

* 30 Year Amortization Period at 0% APR
 with \$43,626 subsidy

Cost Per Month	\$276	\$10
----------------	-------	------



ESTIMATED PROJECT COSTS

PROJECT: Riverbend Estates Water Improvements Project
 OWNER: Riverbend Estates HOA
 SEGMENT: Well & Distribution Upgrade

PROJECT NO.: 105079 DATE:
 ESTIMATED BY: HGB 10/4/2010
 CHECKED BY: BRP

ITEM NO.	ITEM	UNIT	QUANTITY	UNIT PRICE	AMOUNT	
	VFDs on pumps	LS	1	\$15,000.00	\$15,000	
	Update pump controls	LS	1	\$5,000.00	\$5,000	
	Flushing hydrants	EA	2	\$3,850.00	\$7,700	
	Backflow prevention devices	EA	28	\$750.00	\$21,000	
	Chlorination Facility	LS	1	\$12,000.00	\$12,000	
	Well casing extensions	EA	2	\$1,500.00	\$3,000	
	Natural Gas Generator	EA	1	\$43,000.00	\$43,000	
	Flow Meter	EA	1	\$3,500.00	\$3,500	
					\$0	
	Mob/Demob	LS	1	\$30,000.00	\$30,000	
Construction Sub Total					\$140,200	
				Contractor Overhead and Profit	10.0%	\$14,000
				Contingency	10.0%	\$14,000
Construction Total					\$168,200	
				Engineering and Design	12.0%	\$20,200
				Construction Administration	6.0%	\$10,100
				Legal, Advertizing, and Misc.	2.0%	\$3,400
Estimated Project Cost					\$202,000	

Notes
 quote from Pumpco
 per Fremont County WW project
 per Weston Phase 2
 quote from Pumpco
 assumption
 assumption
 per Caribou Acres water project

Based on 2010 construction dollars

** Pump Controls: Ability to monitor and communicate with pumps from an outside source.

Item	Total	Per House
Construction & Materials	\$140,200	\$4,834
Contractor Bonding O&P (10%)	\$14,020	\$483
Contingency (10%)	\$14,020	\$483
Construction Total	\$168,240	\$5,801
Legal, Advertizing, Misc. (2%)	\$3,365	\$116
Construction Administration (6%)	\$10,094	\$348
Engineering and Design (12 %)	\$20,189	\$696
Total	\$201,888	\$6,962
Total minus subsidy	\$158,262	\$5,457

Item	Total	Per House
Annualized Capital Costs	\$5,275	\$182
Water Testing	\$100	\$3
Total	\$5,375	\$185

* 30 Year Amortization Period at 0% APR
 with \$43,626 subsidy

Cost Per Month	\$448	\$15
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RIVERBEND ESTATES ANNUAL MEETING

Wednesday, January 12, 2011

American Falls Library Community Room

All residents of Riverbend Estates are encouraged to attend the annual meeting of the Association to be held Wednesday, January 12, 2011 at 7:30 p.m. at the American Falls Library Community Room.

The tentative agenda includes:

Discussion and vote on the proposed DEQ 30-year loan for the well and distribution upgrade.

Vote on increase of annual fee

Lawn mowing position

Watermaster position

Election of two board members for three year terms

Power line update

If you are unable to attend the meeting, please give your proxy to a resident that will be attending the meeting.

If you have any questions about any of the agenda items or if there is an item you wish to have on the agenda, please contact Kathy Lindauer or Ray Workman.

GENERAL MEETING OF RIVERBEND ESTATES
JANUARY 12, 2011

The meeting was called to order by Ray Workman. Board members present were Ray Workman Rod Tucker & Chris Wride.

Water Project:

The floor was turned over to Keller Associates to explain the water system situation. Keller Associates handed out a table of the necessary and possible improvements with their associated costs. (See attached table) They talked about the Water Improvements that are required to be in compliance with DEQ, and the health department. (See attached Sanitary Survey) We have been offered a \$200,000.00 interest free loan for 30 years with \$43,626.00 forgiven. This amount forgiven is pro-rated according to the amount of the loan we decide to take.

Note -- one member asked if any of these improvements will help our arsenic problem & it was noted that it will not. However, the arsenic levels have been consistently below the MCL.

These improvements will mitigate all sanitary concerns such as backflow prevention and chlorination in the event of system pressure loss. The board was asked if anyone was still irrigating off the culinary system. Ray Workman responded that they don't know of any more residents hooked up but if anyone is aware of any household that is still hooked up to both irrigation & culinary to water their lawn, please let Rod Garner or Ray Workman know as action will be taken immediately.

Discussions followed regarding the benefits of a VFD on the pumps. System pressures will be maintained, less operation & maintenance on the water operator, be able to tell what the problem was instead of guessing, will automatically disinfect the system when pressures drop, and will alert the operator when there is a problem.

A motion was made by Gary Aldous to approve project 1 plus additive 1. It was seconded by Larry Hunter. There was a unanimous yes vote.

Keller will coordinate with the board regarding the contract, complete the design, and bid the project with the generator being a bid additive. Once the project is bid, the board will have another meeting with the residents to determine if they will accept the bid additive and inform them what the final rate increase will be. Construction is expected to commence in the spring of 2011. The Contractor will be required to inform each resident in advance, 24-48 hours, before conducting work on their service line or turning off water. The projects should be complete in about 90-120 days after the start date, according to Keller.

Water Master Position: Rod Garner will help as much as possible with our water but as many of you know, the Garners will be moving out of our neighborhood

soon, and we are looking for help with the system. Chris Wride will be getting his water license to do water collecting but the board would appreciate anyone willing to help out with this tough job to see any board member if you are willing to help.

New Board Members: Rod Tucker & Brock Kelsey's terms on the board are both up. Cherrie Timmons & Brock Kelsey were both nominated to fill these positions. A vote was taken and both voted on unanimously.

Members Present: Ray Workman, Rod Tucker, Gary & Shawna Aldous, Devon Bowcutt, Rod Garner, Kerrie Tolman, Carol Sparks, Rick Bauer, Chris & Lynett Merrigan, Chris Wride, Dale Fehringer, Hailey Barnes, Larry & Kathy Hunter, Mike Hovorka, & Bret Timmons.

Proxy votes were sent by: Bill Lasley, Wayne Thomas (2 votes), Kathy Lindauer, Victor Rayboy, and Robert Schreiber.

Meeting was adjourned.

APPENDIX G

GROUP CONTACT INFORMATION



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