ENVIRONMENTAL INFORMATION DOCUMENT
FOR
CITY OF LAVA HOT SPRINGS

WATER SYSTEM IMPROVEMENTS

PROFESSIONAL ENGINEER
LICENSED
15381
5/13/2016
STATE OF IDAHO
MATTHEW B. HILL

MAY 2016

KA PROJECT #: 213093-000

CIVIL ENGINEER:

KELLER associates

KELLER ASSOCIATES, INC.
305 NORTH 3RD AVE., SUITE A
POCATELLO, ID 83201
(T) 208.238-2146
(F) 208.238-2162

OWNER:

CITY OF LAVA HOT SPRINGS
115 WEST ELM ST.
P.O. BOX 187
LAVA HOT SPRINGS, ID 83246
(T) 208.776.5820
(F) 208.776.5130

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AUTHORIZATION

In October 2013, the City of Lava Hot Springs, Idaho contracted with Keller Associates to prepare a Water Facilities Planning Study and Environmental Information Document in accordance with IDAPA 58.01.22 to evaluate the City's water supply and distribution system and develop a plan to meet future system demands. The study was funded by a 50/50 grant through the Idaho Department of Environmental Quality (Grant Number DWG-148-2014-5).

CHAPTER 1. PROJECT IDENTIFICATION

1.1 GENERAL INFORMATION

Utility:	City of Lava Hot Springs	
Contact:	Mayor T. Paul Davids, III 115 Elm St Lava Hot Springs, ID 83246 (208) 776-5820	Bryan R. Phinney, P.E., D.WRE. Matthew B. Hill, P.E., Environmental Contact Keller Associates, Inc. 305 N. 3rd Ave., Suite A Pocatello, ID 83201 (208) 238-2146 bphinney@kellerassociates.com mhill@kellerassociates.com

Estimated Project Costs:	
Transmission Line & Distribution System Improvements	$3,555,000
New Well	$785,000
Miscellaneous Improvements	$49,000
Total Estimated Construction Cost	**$4,389,000**

Funding:	
DEQ Funding	**$4,400,000**

1.2 USER COSTS

In order to complete the proposed project, Lava Hot Springs will need to raise monthly user rates about $82.19 per month. A breakdown of the increase is shown in the following table.

A.	Current Average Monthly User Charge per EDU	$20.00
B.	Change in Operation & Maintenance Monthly Charge per EDU	$9.25
C.	Change in Debt Service Monthly Charge per EDU	$52.75
D.	Future Average Monthly User Charge per EDU (A + B + C)	$82.00

1.3 ABSTRACT

This Environmental Information Document is a stand-alone document associated with the City of Lava Hot Springs Water Facilities Planning Study (WFPS) (Keller Associates, Inc., 2015) completed by Keller Associates. The WFPS evaluated water distribution, treatment, and storage options in an effort to rehabilitate aging infrastructure, reduce operating costs, improve system water flow and production, and meet recommended storage requirements. As a result, the preferred alternatives are to drill a new well and replace the transmission line from the springs, replace problematic sections of the distribution system, replace water meters and implement miscellaneous improvements needed by the water system to address sanitary survey items. This document addresses environmental issues that may be associated with the preferred alternatives.

CHAPTER 2. PURPOSE AND NEED FOR PROPOSED PROJECT

A Water Facility Planning Study (WFPS) (Keller Associates, Inc., 2015) was conducted to identify existing system deficiencies, determine future needs, and develop a vision of the future water system with an implementation strategy for Lava Hot Springs.

During the course of this study, it was found that there are several public health and/or water quality concerns as well as other system deficiencies. Deficiencies noted in the sanitary survey include the following:

- Lack of a pressure gauge on the Well #2 discharge line as required by IDAPA 58.01.08.511.03
- Lack of a pressure relief valve on Well #2 for all pumps connected directly to the distribution system as required by IDAPA 58.01.08.542.03
- Ensure that all fire hydrants are connected to water mains not smaller than six (6) inches in diameter as required by IDAPA 58.01.08.542.06
- Lack of an eye wash station in Well House #1 as required by IDAPA 58.01.08.531.05.c.ii
- Lack of a flow sensor to control the chemical feeder to ensure the injection of the chemical is discontinued with discontinued flow and chemical feed rates are proportional to the flow as required by IDAPA 58.01.08.531.02.b.ii

2.1 TRANSMISSION LINE

The transmission line that carries water from the spring to the storage tanks is primarily 8-inch cast iron line with lead joints. The pipe spans a length of approximately 14,300 feet. It is reported that the City repaired 10 or more leaks in the line in 2012. The transmission line crosses Fish Creek three times in addition to crossing a canal. The pipeline is exposed in two of the three stream crossings. The exposed pipelines in Fish Creek are susceptible to damage and vandalism and represent a serious threat to public health.

The transmission line flows by gravity and experiences significant relief. The third crossing of Fish Creek occurs near the lowest elevation of the transmission line. Pressures at this location can reach as high as 150 psi. Pressures at this level can cause excessive leaking or even catastrophic failure. Failure and leaking of the transmission line not only pose a public health threat but an environmental threat through the release of chlorinated water.

Closer to the City, the transmission line is located along the edge of a steep hillside. There is at least one section where the hillside has sluffed off nearly exposing the pipeline. There is the danger of continued erosion and exposure of the transmission line which could lead to failure of the pipeline.

2.2 WATER STORAGE

It is noted in the WFPS that the outlet height in the new tank is very high. Tank outlets are typically four to six inches above the floor of the tank. The outlet of the new tank owned by Lava Hot Springs is three feet above the floor of the tank. The high outlet of the new tank reduces the amount of usable storage volume in the tank by 21% of the total volume.

2.3 DISTRIBUTION SYSTEM

2.3.1 SYSTEM PRESSURE & FLOW

A hydraulic analysis was performed for the distribution as part of the WFPS. The model predicts that several locations in the distribution system are not capable of producing the required Maximum Day Demand plus Fire Flow Demand while maintaining a pressure above 25 psi.

The current distribution has a single pressure zone. Pressure typically ranges from 50 psi to 110 psi. The hydraulic model predicts that pressures could potentially rise as high as 115 psi.

2.3.2 WATER METERS

There are 303 metered connections to the distribution system which were installed in 2003. The meters will reach the end of their useful life around 2018. The meters, which are of the touch read type, are beginning to exhibit signs of advanced wear.

The existing meters were manufactured and installed prior to the "Zero Lead" requirement issued by the EPA. As a result, the meters cannot be serviced and placed back into service. They must be completely replaced.

2.3.3 FIRE HYDRANTS

Many of the City's fire hydrants were installed in 1987 and are in need of replacement.

2.3.4 WATER VALVES

There are isolation valves at crosses and tees throughout the system to allow isolation of portions of the system to allow work to be completed as needed. There were 48 valves identified on the existing plans and by the system operators. The water system operator reports that many of the valves are either not operable or do not fully seat when closed. There are no air relief valves or pressure reducing valves (PRVs) in the water system.

2.3.5 GROUND WATER SOURCE REDUNDANCY

Community water systems served by ground water and constructed after July 1, 1985, or existing community water served by ground water that are substantially modified after July, 2002, shall have a minimum of two (2) sources if they are intended to serve more than twenty-five (25) homes or equivalent. With any source out of service, the remaining source or sources shall be capable of providing the peak hour demand of the system or maximum daily pumping demand plus equalization storage[1].

If the transmission line from the springs and Well #1 was damaged and became inoperable, Well #2, which produces 80 gpm, does not have sufficient capacity to provide water to the City by itself. It would be prudent for the City to develop an additional well that could provide water in the event of an emergency.

[1] IDAPA 58.01.08 – Idaho Rules for Public Drinking Water Systems, § 501.17

2.4 WATER SUPPLY VERSUS FUTURE DEMAND

Currently, maximum production from all of the sources is 385 gpm with no redundancy. Source capacity needs to equal or exceed the MDD or there is the risk of running out of water. The current MDD is equal to the max production. Table 2-1 below compares current production with future MDD.

Table 2-1: Future Water Production Needs

	Year 2014	Year 2034 (20-year design)	Year 2054 (40-year design)
Maximum Day Demand (gpm)	385	470	574
2014 Water Production Capacity (gpm)	385	385	385
Production Excess/(Shortage)	**0**	**(85)**	**(189)**

The table shows that sources with an additional minimum capacity of 85 gpm need to be developed within the 20-year planning period and an additional capacity of 189 gpm need to be developed within the 40-year planning period. If an existing well is purchased, acquiring additional water rights would be a benefit to the City. If new wells are drilled, a closer evaluation of water rights would be required to determine if the excess capacity of existing rights and production capability of the existing wells would be sufficient to combine them.

CHAPTER 3. ALTERNATIVES

The City of Lava Hot Springs is in need of several upgrades to their water system. Upgrades will improve the operation of the system, increase reliability, protect water quality, reach compliance with all State and Federal standards, and meet the future demands of the residents. In order to do this, a thorough discussion of system improvements, estimated costs including available grant monies, timelines, and evaluation of all upgrades is required. Improvements should address excessive water use, system losses and inefficiencies, compliance with State and Federal standards, efficient system operation, and recommendations to improve the health and safety of the water system.

Per the Idaho DEQ facility planning study requirements, each of the design alternatives are planned to meet the needs for a 20-year minimum period for facilities (i.e. well houses, pump stations, etc.), and a 40-year minimum period for the piping in the distribution system, or an equivalent development benchmark for the discussed growth rate. It is important to note that the 40-year and 20-year design horizons rely on the assumptions that were made for the demands and populations within each time period. These timing assumptions for populations and demands are only projections which may or may not be accurate due to the unpredictable nature of development. Equivalent development benchmarks could reasonably occur earlier or later than the proposed time periods, however, the information presented meets the industry standard for these types of predictions.

With supporting data from population projections presented in Chapter 4 of the WFPS and the computerized hydraulic analysis in Section 3.11 of the WFPS, it is anticipated that the water system would be out of compliance with public drinking water standards including deficiencies in available fire flow protection, deficiencies in reliability and emergency operation standards, deficiencies in water supply and, possibly, water rights. A typical consequence of this type of non-compliance would be the City's inability to approve any additional new water connections until these issues are resolved. This type of compliance mandate is enforced by DEQ through a moratorium on building within the City similar to what was experienced by McCammon in the early 2000's. Furthermore, the City could be subject to various enforcement actions by the Department of Environmental Quality.

Various alternatives exist to correct the identified system problems and deficiencies. The alternatives presented in the following chapter are evaluated on their ability to resolve the City's need, cost, environmental impacts, and operation and maintenance requirements. The presented estimated capital costs are concept level cost estimates which are used to provide enough accuracy for planning purposes. These estimates include costs associated with engineering services, contractor overhead and profit, and contingency to compensate for changes in the cost of construction and unexpected conditions.

3.1 OPTIMUM OPERATION OF EXISTING FACILITIES

The existing system operation strategy is efficient given the physical constraints of the existing infrastructure. The existing springs and wells convey water to the tanks which supply the distribution system by gravity thereby eliminating continuous pumping. The operation of the wells is manually controlled. The two wells operate during summer months when demand is high. The problems and deficiencies that Lava Hot Springs is experiencing cannot be corrected by operational changes. <u>This alternative by itself will not be considered further</u>. With proposed

improvements, optimization of facilities will be a goal, but it will not correct any of the identified deficiencies by itself.

Environmental Impacts: This alternative would have no impacts on the surrounding environment.

3.2 REGIONALIZATION

The closest municipal water system to Lava Hot Springs is McCammon located 12 miles to the west along Highway 30. Costs to connect the systems would be extremely high. There are two smaller water systems in the area: the KOA campground on the east end of Lava Hot Springs and Thunder Canyon Estates located up Dempsey Creek. Connecting with these systems would not correct the City's deficiencies. This alternative will not be considered further.

Environmental Impacts: Construction of this alternative would affect a significant amount of property to connect the two water systems. Most of the improvements would be along Highway 30 in previously disturbed property. Lava Hot Springs is located higher in elevation than McCammon so pumping would be required to provide water to Lava Hot Springs. It would not be an energy conserving or cost effective approach.

3.3 WATER SUPPLY ALTERNATIVES

A water supply and distribution system must be designed to meet the Peak Hour Demand (PHD) or the Maximum Day Demand (MDD) with Fire Flow Demand (FFD) requirements, whichever is greater. The entire water volume can be delivered to the system directly from the source during peak demand or it can be delivered from a combination of supply sources and storage. Under existing conditions, the MDD is equal to current production capabilities. In an emergency situation, without the springs or the transmission line, Well #2 is not capable of meeting even the Average Day Demand (ADD).

The Fish Creek transmission line carrying water from the springs and Well #1 will be addressed as part of the supply alternatives.

One consideration in water supply alternatives is potential pollution sources. Proximity to wastewater treatment facilities, highways, and industry should be taken into account. The wastewater treatment plant is located between the Portneuf River and Highway 30 approximately 0.5 miles west of town.

3.3.1 NO ACTION ALTERNATIVE

In the near future, MDD is predicted to exceed the current supply capabilities. The tank levels will drop and the available sources will not be able to refill them leading to water shortages and restrictions. In the event of contamination at the springs or if the transmission line were damaged, Well #2 does not provide sufficient supply to meet system demands. The transmission line is currently in very poor condition and requires regular repairs. The potential for a failure and subsequent contamination of the water system is high. The no action alternative is not recommended in regard to Lava Hot Springs's water supply.

Environmental Impacts: This alternative could affect water usage and quality if restrictions were imposed and could endanger public health if a fire were to occur and there was not sufficient water to fight the fire or through contamination due to a failure of

the spring line. If a pipe break occurred there is also the potential to discharge chlorinated water to Fish Creek since chlorination occurs at Well #1.

3.3.2 Increase Capacities of Existing Sources

One alternative to increase supply without developing new sources is to increase the capacity of existing sources. This can be accomplished by increasing the size of the pump or rehabilitating an existing well by cleaning or drilling deeper. Enlarging existing wells to increase their capacity is very unpredictable and is not commonly practiced due to its high probability of failure. Changes in operation and maintenance associated with this alternative are expected to be negligible.

The springs are already producing approximately what is permitted under the water right. In recent years, Well #1 and Well #2 have had the pumps downsized because of the drawdown which was occurring within each well. Increasing the production capacity of existing sources is not a viable option and will not be considered further.

Environmental Impacts: Increasing pumping capacity of the existing wells would negatively impact groundwater levels due to the increased drawdown. This approach would likely lead to well failure due to over-pumping.

3.3.3 Drill New Well

It would be in the best interest of the City to develop additional water sources. It would be beneficial to locate additional sources that would not be dependent on the transmission line from the springs and Well #1. A well located to the south or west of the city would be ideal. There are no additional springs which could be developed or purchased so the new source will need to be a groundwater well source. To drill a new well, an extensive investigation would be required by a hydrogeologist to locate a likely source of water, which would include research of wells in the area and the possible drilling of test wells before drilling a production well. Several potential well sites have been identified by the City. Operation and maintenance changes associated with this alternative will include the maintenance of the well, pumping equipment, well house and appurtenances.

A water right transfer filed with Idaho Department of Water Resources (IDWR) would allow the City's existing groundwater rights to be combined and operated through multiple points of diversion. Table 3-1 illustrates the difference in production capacity and available water rights for Lava Hot Springs groundwater sources.

Table 3-1: Water Production Capacity

Source	Pumping Capacity (gpm)	Water Rights (gpm)
Well #1	35	79.9
Well #2	80	278.3
Church Well	200	251.3
Total	**315**	**609.5**

Environmental Impacts: Drilling a new well would have minor impacts to land use, existing vegetation, and groundwater.

3.3.4 REPLACEMENT OF FISH CREEK TRANSMISSION LINE

Because the system is dependent on the transmission line to provide water from the springs and Well #1, comprising 80% of the City's supply, it is a critical component to the water system. Replacement of the 14,300 ft transmission line is recommended. Some modifications to the alignment would be beneficial to improve access for maintenance and operation and to reduce vulnerability of the pipeline. The new transmission line will likely require less maintenance and fewer repairs.

Environmental Impacts: There would be some impacts during construction. Portions of the pipeline run adjacent to Fish Creek with several creek crossings. Some riparian areas and portions of the stream bed will be disturbed during construction. It will not be possible to bore under the creek because of the large number of large rocks/boulders in the stream bed. There will be no permanent impacts to the floodplain as no development will be above ground. Impacts to local flora and fauna will be minor. There will be no long term adverse impacts to recreation opportunities from construction. Public health and confidence in the water supply will be positively impacted. Careful consideration of environmental impacts should be made when selecting the new transmission line alignment.

Table 3-2: Cursory Environmental Impacts – Water Supply Alternatives

Environmental Criteria	Alternative 1 No Action	Alternative 2 Increase Capacity of Existing Sources	Alternative 3 Drill A New Well	Alternative 4 Replace Fish Creek Transmission Line
Physical Aspects (topography, geology, and soils)	No Impact	May cause increased ground water drawdown	Localized groundwater drawdown	No Impact
Climate	No Impact	No Impact	No Impact	No Impact
Population, Economic, and Social Profile	Population growth could be limited by lack of water supply	Increased user rate	Increased user rate	Increased user rate
Land Use	No Impact	No Impact	Minor impact	No Impact
Floodplain Development	No Impact	No Impact	No Impact	No Impact
Wetlands	No Impact	No Impact	No Impact	No Impact
Wild & Scenic Rivers	No Impact	No Impact	No Impact	No Impact
Cultural Resources	No Impact	No Impact	No Impact	No Impact
Flora and Fauna	No Impact	No Impact	Minor impact to surrounding vegetation	Short term impacts
Recreation/Open Space	No Impact	No Impact	No Impact	Short term impacts
Agricultural Lands	No Impact	No Impact	Possible minor impact to surrounding agricultural land	No Impact
Air Quality	No Impact	No Impact	No Impact	No Impact
Energy	No Impact	More energy use over time	More energy use over time	Decrease in consumptive energy for pumping
Water Quality	Could adversely impact water quality if a water shortage occurs or the spring line fails	No Impact	No Impact	No Impact
Public Health	Could adversely impact public health if a water shortage occurs or the spring line fails	No Impact	No Impact	Removal of lead sealed pipelines and risk of surface water contamination will positively affect public health

3.4 WATER STORAGE ALTERNATIVES

Water storage is needed when the source does not meet the system demand. In addition, water storage typically provides water for fire protection and emergency needs. Because wells are expensive to construct compared to their relative capacity, storage helps meet PHD and fire flow demands without needing to develop additional expensive water sources. The existing storage tanks in Lava Hot Springs have a combined storage capacity of 716,000 gallons. The tanks were inspected recently and they were found to be in good operating condition.

3.4.1 NO ACTION ALTERNATIVE

The available storage for the City is sufficient for current needs and should be adequate for the 40-yr planning period. The no action alternative is a viable option for storage. This alternative will not result in changes to operation and maintenance requirements.

Environmental Impacts: This alternative would not have any direct environmental impacts.

3.4.2 RECONFIGURE NEW TANK

Due to the configuration of the outlet piping structure inside the tank, when the tank was constructed, approximately 90,000 gallons of stored water is not accessible. By reconfiguring the piping and valves at the tanks, the outlet of the new tank could be modified to allow the tank to access a portion of the dead storage that is currently unavailable. This modification could be scheduled for a time when the new tank is taken off-line for repairs or cleaning to reduce the impact of the modifications to normal operation. This alternative will not result in changes to operation and maintenance requirements.

Environmental Impacts: This alternative would not have any adverse environmental impacts. Any improvements would take place in areas which were previously disturbed.

Table 3-3: Cursory Environmental Impacts – Water Storage Alternatives

Environmental Criteria	Alternative 1 No Action	Alternative 2 Reconfigure New Tank
Physical Aspects (topography, geology, and soils)	No Impact	No Impact
Climate	No Impact	No Impact
Population, Economic, and Social Profile	No Impact	No Impact
Land Use	No Impact	No Impact
Floodplain Development	No Impact	No Impact
Wetlands	No Impact	No Impact
Wild & Scenic Rivers	No Impact	No Impact
Cultural Resources	No Impact	No Impact
Flora and Fauna	No Impact	No Impact
Recreation/Open Space	No Impact	No Impact
Agricultural Lands	No Impact	No Impact
Air Quality	No Impact	No Impact
Energy	No Impact	No Impact
Water Quality	No Impact	No Impact
Public Health	No Impact	No Impact

3.5 DISTRIBUTION SYSTEM IMPROVEMENTS

Improvements needed to the distribution system were identified by consulting with the operators, onsite observations during fire flow testing, and from scenario results generated by the computerized hydraulic model. There are areas within the distribution system that would greatly benefit from either increasing line sizes or adding additional pipe to loop the system to allow for better circulation. Some sections of pipe are thin walled steel and are approaching or exceeding their design life. Future conditions for development were also considered and presented.

3.5.1 NO ACTION ALTERNATIVE

The distribution system operates sufficiently during normal operation but is not able to meet fire flow requirements at several locations, as previously discussed. If the City were to do nothing to improve the FFD in the system, the points not currently meeting the FFD design criteria will continue to be an issue. As the City grows in population and more demand is added to the system, the condition will worsen and some of the areas that are adequate now may not meet the normal operating conditions of the system. The potential result of doing nothing is that in the event of a fire at any of these locations, the full specified FFD would not be available from the system and the fire fighters would have to rely on other means. Additionally, where FFD is not provided, DEQ requires that the affected parties be notified. Not looping dead end distribution lines limits fire flow capacity and prevents circulation in the distribution system. Additionally, the current distribution system contains fire hydrants that are connected to 4-inch laterals. This was a common practice when the system was constructed; however current fire flow requirements typically cannot be served through 4-inch hydrant laterals. These small laterals and smaller diameter distribution piping should be replaced to comply with current levels of service for fire protection and to be able to support modern firefighting pumping equipment. The no action alternative will not be considered further because it cannot provide the flows required to meet IDAPA regulations.

Numerous locations in the water system experience pressures over 80 psi. These areas have dealt with high pressures for many years. No new risk is being introduced to the system by leaving the system as it is today. The City has opted to recommend pressure regulators for pressures over 80 psi, but to ultimately allow residents and businesses to choose if they will individually install pressure regulators as they deem appropriate. Operating a water distribution system that is exhibiting leaks due to high pressure leads to loss of water and increased maintenance due to leaking pipes and fittings. The no action alternative is viable in regards to pressure management although it may lead to increased operating costs.

Environmental Impacts: This alternative would not have any direct environmental impacts.

3.5.2 DISTRIBUTION IMPROVEMENTS

Because of the hydrants being served off of 4-inch mains, there are numerous locations with in the distribution system which cannot provide the required ISRB fire flow. Upsizing these sections of piping is a needed improvement. Sections of old pipe that have a history of leaks have also been identified to be replaced. There is also one section of pipe rom 1st E. to Center St. through a hotel and hot pool area that is difficult to access.

This section is proposed to be rerouted. Future growth will also drive some piping improvements. In addition to the piping improvements discussed, numerous valves and hydrants are in need of repair/replacement. This alternative will not result in changes to operation and maintenance requirements.

Environmental Impacts: Impacts from this alternative would be minor since all of the work would take place where the ground has been previously disturbed.

3.5.3 Create Pressure Zones

Areas with high pressures could be eliminated through the creation of pressure zones using pressure reducing valves. Installing PRV stations on the three lines running north and south between Booth St. and Elm St. would maintain 80 psi in the upper zone and reduce the pressure in the lower zone from over 100 psi to closer to 80 psi. However, creating new pressure zones adds complexity and increased maintenance demands to the water system. Operation and maintenance will be required for the valves and equipment used to create pressure zones.

Environmental Impacts: Impacts from this alternative would be minor since all of the work would take place where the ground has been previously disturbed.

Table 3-4: Cursory Environmental Impacts – Distribution System Alternatives

Environmental Criteria	Alternative 1 No Action	Alternative 2 Distribution Improvements	Alternative 3 Create Pressure Zones
Physical Aspects (topography, geology, and soils)	No Impact	No Impact	No Impact
Climate	No Impact	No Impact	No Impact
Population, Economic, and Social Profile	No Impact	Potential User Rate Increase	Potential User Rate Increase
Land Use	No Impact	No Impact	No Impact
Floodplain Development	No Impact	No Impact	No Impact
Wetlands	No Impact	No Impact	No Impact
Wild & Scenic Rivers	No Impact	No Impact	No Impact
Cultural Resources	No Impact	No Impact	No Impact
Flora and Fauna	No Impact	No Impact	No Impact
Recreation/Open Space	No Impact	No Impact	No Impact
Agricultural Lands	No Impact	No Impact	No Impact
Air Quality	No Impact	No Impact	No Impact
Energy	No Impact	No Impact	No Impact
Water Quality	No Impact	No Impact	No Impact
Public Health	No Impact	Improved protection in the event of a fire	No Impact

3.6 WATER METER REPLACEMENT

A plan for replacing the City's water meters and registers is recommended as they will be nearing their design life in the next few years. There are 303 meters in the City. They were all installed roughly at the same time. Because the meters do not meet the new "Zero Lead" requirements they cannot be repaired and put back into service. All of the meters will have to be replaced eventually. The meter pits and setters are reported to be in good condition so only the meters will need to be replaced.

There are two basic types of high quality municipal service water meters: positive displacement (nutating disc or reciprocating piston) and magnetic. The meter body has historically been made of bronze but with recent regulations to decrease the amount of lead in drinking water, some manufacturers have developed composite alloy materials that have no lead in them. The final component to a flow meter is the register which reports the amount of water measured by a flow meter. The register can be a direct read (the numbers have to be read by sight), or configured to touch read (a meter reader wand is used), or radio read (the information is sent by radio signal to a receiver). Direct read meters have the lowest capital cost but are more time intensive to read because personnel have to open each meter pit and write down the reading. Touch read is faster than direct read because each meter pit lid does not have to be opened, just touched, but each meter still has to be physically visited. These two types of registers are difficult to read in winter months due to snow. Radio read meters have some additional capital cost for the radio equipment, but time requirements to read the meters each month are much less than the other two types. Reading can be accomplished by driving down each street with the receiver.

3.6.1 NO ACTION ALTERNATIVE

As water meters approach and exceed their design life, their accuracy decreases. This results in lost revenue to the City. Meters can also fail resulting in a month's (or several months' over the winter) worth of lost usage data. Not replacing the meters and having an unmetered user rate structure typically promote increased water usage. <u>This alternative will not be considered further.</u>

Environmental Impacts: Impacts from this alternative would be minor since all of the work would take place where the ground has been previously disturbed.

3.6.2 REPLACE ALL METERS AT ONCE

One approach to replacing the water meters is to replace all of them at once under one project. If funding is available, this approach is the simplest as it requires the least amount of coordination and planning. All of the meters would be identified and replaced. Replacing this number of meters in one season may be difficult for the City personnel to accomplish with the many other responsibilities that they have. This alternative may require hiring a contractor to accomplish this task. No additional operation and maintenance is expected with this alternative.

A decision on the type of meter, meter body materials, and register would need to be made all of which affect the capital cost as well as the operation and maintenance costs.

Environmental Impacts: Impacts from this alternative would be minor since all of the work would take place where the ground has been previously disturbed and/or inside of existing meter boxes.

3.6.3 PHASED METER REPLACEMENT

Another approach to meter replacement is a phased approach. To replace all 303 meters in five years, 50 meters per year could be purchased and installed. This could be accomplished using reserves set aside by the City. Installation could be accomplished by City personnel or through a contractor if desired. No additional operation and maintenance is expected with this alternative.

A decision on the type of meter, meter body materials, and register would need to be made all of which affect the capital cost as well as the operation and maintenance costs.

Environmental Impacts: Impacts from this alternative would be minor since all of the work would take place where the ground has been previously disturbed and/or inside the existing meter boxes.

Table 3-5: Cursory Environmental Impacts – Water Meter Replacement

Environmental Criteria	Alternative 1 No Action	Alternative 2 Replace All Meters At Once	Alternative 3 Phased Meter Replacement
Physical Aspects (topography, geology, and soils)	No Impact	No Impact	No Impact
Climate	No Impact	No Impact	No Impact
Population, Economic, and Social Profile	Improperly calibrated meters can skew user's water bills	Increased user rate	Increased user rate
Land Use	No Impact	No Impact	No Impact
Floodplain Development	No Impact	No Impact	No Impact
Wetlands	No Impact	No Impact	No Impact
Wild & Scenic Rivers	No Impact	No Impact	No Impact
Cultural Resources	No Impact	No Impact	No Impact
Flora and Fauna	No Impact	No Impact	No Impact
Recreation/Open Space	No Impact	No Impact	No Impact
Agricultural Lands	No Impact	No Impact	No Impact
Air Quality	No Impact	No Impact	No Impact
Energy	No Impact	No Impact	No Impact
Water Quality	No Impact	No Impact	No Impact
Public Health	No Impact	No Impact	No Impact

3.7 MISC. SYSTEM IMPROVEMENTS

There are several other improvements to be considered by the City that would affect the quality and safety of the water delivered to Lava's residents. The most recent DEQ sanitary survey identified a number of deficiencies, as discussed below.

3.7.1 NO ACTION ALTERNATIVE

Deficiencies noted by DEQ in the sanitary survey need to be addressed to avoid non-compliance issues. Significant deficiencies have the potential to cause risk to health and safety or could affect the reliable delivery of safe drinking water. The no action alternative is not recommended.

Environmental Impacts: This alternative has the potential to negatively impact public health.

3.7.2 MISC. ITEMS

From the DEQ sanitary survey and discussions with operations personnel, the following items have been identified:

- Install a check valve on the discharge line between the pump on Well #1 and the shut-off valve.
- Install a flow meter with 4-20 mA outputs and a new chemical metering pump capable of being flow paced in the Well #1 building
- Install an eye wash station in Well #1 building
- Install a pressure gauge on the Well #2 discharge line
- Install a pressure relief valve on Well #2
- Replace the screen on the Well #2 pump-to-waste line
- Install a non-corrodible #24 mesh screen or an expanded metal screen within the overflow pipe for the water storage reservoirs and maintain an air gap (or install a weighted flapper valve or check valve).
- Update Source Water Protection Study
- Install chain link fencing around springs
- Install chain link fencing around storage tanks

Environmental Impacts: These improvements would minimize risk to public health with little or no impacts to the environment.

Table 3-6: Cursory Environmental Impacts – Miscellaneous Improvements

Environmental Criteria	Alternative 1 No Action	Alternative 2 Misc. Items
Physical Aspects (topography, geology, and soils)	No Impact	No Impact
Climate	No Impact	No Impact
Population, Economic, and Social Profile	No Impact	No Impact
Land Use	No Impact	No Impact
Floodplain Development	No Impact	No Impact
Wetlands	No Impact	No Impact
Wild & Scenic Rivers	No Impact	No Impact
Cultural Resources	No Impact	No Impact
Flora and Fauna	No Impact	No Impact
Recreation/Open Space	No Impact	No Impact
Agricultural Lands	No Impact	No Impact
Air Quality	No Impact	No Impact
Energy	No Impact	No Impact
Water Quality	Vulnerable to potential risks	Minimized vulnerability
Public Health	Vulnerable to potential risks	Minimized vulnerability

3.8 ON-SITE ENERGY GENERATION

As part of the planning grant from DEQ, the City was committed to evaluate the possibility for on-site energy generation.

3.8.1 NO ACTION ALTERNATIVE

As part of the planning grant agreement it is not required to install on-site energy generation, but to evaluate it. The payback period and required operation and maintenance costs must be carefully considered.

Environmental Impacts: This alternative would have no adverse impacts on existing environmental conditions.

3.8.2 MICRO-TURBINE

Two potential locations for power generation using a micro-turbine were considered in this alternative. The first is at the tank overflow pipeline to the Portneuf River and the second would be on the pipeline from the springs to the tanks. Location, flow, and head characteristics of each location will be compared.

The first option could be located where Center Street crosses the Portneuf River. This site has good access and close proximity to the power grid. Flows at this location would be highly variable as it is the overflow from the tank. During the winter months the overflow averages up to 200 gpm, while in the summer months, there is little or no overflow. The available head at this location would be 270 ft. A 2.8 kW/hr turbine would be the proposed size for this location.

The second location would be located near Bristol Park. It also provides good access and close proximity to connect to the power grid. Flows at this location would be fairly constant around 270-290 gpm from the spring and Well #1. The available head would be about 140 ft. This site would have the potential to impact the flow rate from the springs to the tanks. A 2.8 kW/hr turbine would also work for this location.

There are 2 options for interconnection with Rocky Mountain Power: 1) Net Metering, which involves feeding the power back into the grid through an existing meter, and 2) Small Power Production Non-firm Energy, which involves the sale of power generated. The City currently has a net metering agreement for the solar project completed at the wastewater winter storage lagoon.

Environmental Impacts: This alternative would have a positive impact in offsetting energy consumption with energy generation.

Table 3-7: Cursory Environmental Impacts – Miscellaneous Improvements

Environmental Criteria	Alternative 1 No Action	Alternative 2 Micro-Turbine
Physical Aspects (topography, geology, and soils)	No Impact	No Impact
Climate	No Impact	No Impact
Population, Economic, and Social Profile	No Impact	No Impact
Land Use	No Impact	No Impact
Floodplain Development	No Impact	No Impact
Wetlands	No Impact	No Impact
Wild & Scenic Rivers	No Impact	No Impact
Cultural Resources	No Impact	No Impact
Flora and Fauna	No Impact	No Impact
Recreation/Open Space	No Impact	No Impact
Agricultural Lands	No Impact	No Impact
Air Quality	No Impact	No Impact
Energy	No Impact	Provides electricity generation
Water Quality	No Impact	No Impact
Public Health	No Impact	No Impact

3.9 SYSTEM CLASSIFICATION & OPERATOR LICENSURE

DEQ classifies drinking water systems on two levels: treatment and distribution. The complexity of each system is evaluated separately. The classification worksheets can be found on DEQ's website (Idaho Dept. of Environmental Quality, 2011). The distribution system is evaluated based on the population served by the system. The breakdown of population is shown in Table 3-8.

Table 3-8: DEQ Distribution System Classification

Classification	Population
Very Small Public Drinking Water System	* See definition below
Class I	1,500 or less
Class II	1,501 to 15,000
Class III	15,001 to 50,000
Class IV	50,001 and greater

*** Very Small Public Drinking Water System –** A Community or Non-transient Non-community Public Water System that serves five hundred (500) persons or less and has no treatment other than disinfection** or has only treatment which does not require any chemical treatment, process adjustment, backwashing or media regeneration by an operator (e.g. calcium carbonate filters, granular activated carbon filters, cartridge filters, ion exchangers.) (IDAPA 58.01.08.003.79)

**** Disinfection –** Introduction of chlorine or other agent or process approved by the Department of Environmental Quality, in sufficient concentration and for the time required to kill or inactivate pathogenic and indicator organisms. (IDAPA 58.01.08.003.22)

The treatment system classification is based on the following eight criteria:

- System Size
- Water Supply Source
- Average Raw Water Quality
- Treatment Process
- Disinfection
- Sludge / Backwash Water Disposal
- Bacteriological / Biological Laboratory Control
- Chemical / Physical Laboratory Control

Alternatives not screened out should be compared to the potential effect they may have on system classification. For distribution system classification, the population is not projected to exceed 1,500 so there will be no change in classification. For the treatment system, no changes were evaluated which would change the treatment classification. Since none of the alternatives will impact system classification and required operator licensure, no additional consideration will be given in comparing the proposed alternatives for system classification.

3.10 FINAL SCREENING & PREFERRED ALTERNATIVES

Alternatives that were not initially screened as unsuitable were further evaluated. Capital costs, O&M costs, public input, and environmental effects are used to compare alternatives for system improvements and to select the preferred alternatives. Cost breakdowns for each of the considered alternatives are discussed in detail in the WFPS. Table 3-9 shows the cost estimates of each alternative. Costs include contingency and professional fees.

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

3.10.1 FINAL SCREENING OF WATER SUPPLY ALTERNATIVES

Wells

Three potential new well sites were identified and evaluated. The cost estimates take into account the distance and route to connect to the water system as well as costs to provide electrical service. No costs were included for land purchase or any easements that may be needed.

***Potential Well Site #1*:** This well site is located directly west of the tanks on the west side of Dempsey Creek Rd as seen below in Figure 3-1. This location has the potential to expand the service area of the water system by providing additional water supply and pressure along Dempsey Creek Road if development occurred in this area in the future.

Figure 3-1: Potential Well Site #1

The planning level cost for this site is estimated to be $785,000. This cost includes a test hole, development of the production well, running power to the site, building and electrical components, well pump, and 8-inch transmission line to the tanks, and contingency.

***Potential Well Site #2*:** This well site is located west of the City on Maughan Road as can be seen on Figure 3-2.

Figure 3-2: Potential Well Site #2

The planning level cost for this site is estimated to be $832,000. This cost includes a test hole, development of the production well, running power to the site, building and electrical components, well pump, and 8-inch transmission line to connect to the end of the existing line on Maughan Road, and contingency.

***Potential Well Site #3*:** This well site is located west of Lava Mobile Estates on the north side of Highway 30, as can be seen on Figure 3-3.

Figure 3-3: Potential Well Site #3

The planning level cost for this site is estimated to be $679,000. This cost includes a test hole, development of the production well, running power to the site, building and electrical components, well pump, and 8-inch transmission line to connect to the end of the existing line that services Lava Mobile Estates, and contingency.

Of the three options, Site #3 disturbs the least amount of ground having the shortest route to connect to the system. It also has the highest potential for contamination being located near Highway 30, the railroad tracks, and the gas station. Some wells in the immediate vicinity have high nitrates. Site #1 would have one canal crossing which would have only minor short term impacts to the ditch. Site #2 and #3 would have to pump against a high pressure near 100 psi requiring more power.

Transmission Line Replacement

The no action alternative option for the transmission line was not a viable option. It was proposed to reroute one section of the transmission line along the road to improve access for maintenance purposes. Pipe material costs will vary as the material price of ductile iron is typically $8-10 more per foot than PVC. Installation costs are essentially the same for either pipe material.

The planning level cost to replace the transmission line is estimated to be $1.78 million.

3.10.2 Final Screening of Storage Alternatives

The viable storage alternatives include the no action alternative and reconfiguring the new tank. The no action alternative is the least cost alternative which meets the City's needs.

If, after verifying elevations of the two tanks, the outlet from the new tank was modified, City personnel could remove the bolts in the gooseneck outlet structure and remove it. Performing this work when the tank was drained for routine maintenance would have essentially no cost.

3.10.3 Final Screening of Distribution Alternatives

Piping Improvements

Because the no action alternative was not a viable alternative, several distribution system improvements were identified. All of the identified improvements are shown on Figure 3-4. Planning level costs for all of these improvements are summarized in Table 3-9. Costs include replacing the pipe, valves, and hydrants, and surface restoration. The next step is to prioritize these improvements in the capital improvement plan.

Table 3-9: Distribution Improvement Costs

Description	Cost
E. Main St.	$232,000
E. Portneuf St. and 2nd Avenue E.	$78,000
S. 1st Avenue E. and alley	$65,000
W. Portneuf and 1st Avenue W.	$85,000
Condos and Pool	$189,000
Merle St. and S. 2nd West	$129,000
5th W. and 6th W.	$156,000
E. Elm St. and 2nd Avenue E.	$168,000
E. Fife St.	$43,000
S. 3rd Avenue E.	$33,000
River St. and Spring St.	$124,000
Maughan Rd	$243,000
Total	**$1,545,000**

PRV Stations

The installation of PRV stations to reduce the pressure in the lower parts of the system is an alternative. Because of the configuration of the system, three PRV stations would be required. Planning level costs for these three stations are estimated to total $65,000.

3.10.4 Final Screening of Water Meter Replacement Alternatives

Because the investment in water meters has been made and the user rate is structured toward billing for metered usage, the no action alternative was not considered further and a replacement program should be put into place. The City has previously used the manufacturer Sensus, which has three meter bodies to choose between:

- SRII – brass body, piston displacement type
- AccuStream – composite body, piston displacement type
- iPERL – improved composite body, magnetic flow meter

Any of these meters can utilize the touch read or radio read systems. Switching to radio read would require the purchase of the radio for each meter and some upgrade modules for the reader that the City currently uses. Table 3-10 compares capital costs, installation, and operation and maintenance costs and computes the present worth for the three meter options with replacing all the water meters at once. Assuming a life of 20 years and an interest rate of 1.75% (from DEQ's loan offer) each of the three meters was compared for the touch read vs. radio read option.

Table 3-10: Meter Replacement – All at Once

	Meter		
Description	**SRII**	**AccuStream**	**iPERL**
Touch Read Option			
Capital Cost	$113,625	$98,475	$107,565
Annual O&M ($/yr)	$2,880	$2,880	$2,880
Present Worth	**-$161,873**	**-$146,723**	**-$155,813**
Radio Read Option			
Capital Cost	$162,100	$146,950	$156,040
Annual O&M ($/yr)	$180	$180	$180
Present Worth	**-$165,116**	**-$149,966**	**-$159,056**

The benefit to upgrading to the radio read is saving the City one day's worth of time for the operator to walk to all of the meters within the City once per month. This analysis shows that the present worth of the touch read vs. radio read alternatives are within $3,200 of each other. This equates to a difference of $0.04 per month per user. This means that neither option has a significant cost advantage over the other. The City should also consider that the iPERL has no moving parts to repair, whereas both of the other meters could need internal components replaced in the 10-15 year range.

A second, phased approach was also considered for this alternative. In the phased approach the City would purchase 61 meters per year for 5 years and replace them using City personnel. The meter reader would have to be upgraded in the first year allowing it to read both types of meters (touch and radio). This eliminates the assumed installation costs and factors in a 2% inflation on the cost of the meters per year. While the meters would cost slightly more to be purchased this way due to inflation, the City would save an assumed installation cost of $45,450 ($150 per meter). A present worth analysis of touch read vs. radio read would yield similar results to the previous replacement approach with neither option having a large economic advantage. For comparison between the annual costs for this option, the iPerl meter would cost about $13,000 per year to purchase 61 meters using the touch read system. For a radio read iPerl meter system, the cost would be $22,000 per year for 61 meters.

3.10.5 MISC. IMPROVEMENTS

Planning level costs for these improvements are estimated to total $155,000. The majority of the cost is related to the chain link fencing around the springs and storage tanks. It was assumed that the City could accomplish many of the smaller items with no need for construction or engineering fees.

3.10.6 ON-SITE ENERGY GENERATION

Planning level cost estimates for both locations are essentially the same. The turbine, bypass, service interconnect, permits, and vault are estimated to cost $34,000. The main difference between the two locations is the amount of power generated which affects the payback period. The location above the tank would generate power 24 hours per day all year and should be able to pay back its investment in 17.3 years. On the tank overflow, the turbine would only generate power approximately 60% of the time resulting in a payback period of 28.9 years.

3.11 PREFERRED ALTERNATIVES

Lava Hot Springs selected the following alternatives for improvements to their system. These decisions were made after the April 21, 2015 open house and following accepted public participation requirements as discussed in Section 4.1. No change in operator licensing will be required with the implementation of the selected improvements. A map showing the location of the proposed improvements is shown in Figure 3-4.

3.11.1 PREFERRED SUPPLY ALTERNATIVE

The selected supply alternatives include drilling a new well and replacing the transmission line from the springs. Two well sites will be evaluated during design. The two sites will be evaluated from a hydrogeologic standpoint and from a coordination/property negotiation with the property owners. The existing 8-inch transmission line from the springs to the tanks will be replaced to improve operation and reliability.

3.11.2 PREFERRED STORAGE ALTERNATIVE

The alternative selected for storage was the no action alternative. Only minor modification to the City's existing storage is required at this time. This is the lowest cost alternative to meet storage needs.

3.11.3 PREFERRED DISTRIBUTION SYSTEM IMPROVEMENTS

All of the identified pipelines were selected to be replaced to help improve current and future water distribution operation from the storage tanks to the end users. These improvements will address fire flow deficiencies and maintenance issues. These are shown in Table 3-9 and Figure 3-4.

3.11.4 PREFERRED WATER METER REPLACEMENT ALTERNATIVE

To aid in the improvement of the accuracy of billing, quality of data collected, and to reduce demands on the operators, the aging water meters will be replaced. The existing meters will be replaced with meters that have radio read capabilities.

3.11.5 MISC. IMPROVEMENTS

To bring the system into compliance with IDAPA rules, the City selected to complete the required miscellaneous improvements that have been identified in the most recent sanitary survey completed by IDEQ. These items include:

- Install a check valve on the discharge line between the pump on Well #1 and the shut-off valve.
- Install a flow meter with 4-20 mA outputs and a new chemical metering pump capable of being flow paced in the Well #1 building
- Install an eye wash station in Well #1 building
- Install a pressure gauge on the Well #2 discharge line
- Install a pressure relief valve on Well #2
- Replace the screen on the Well #2 pump-to-waste line
- Install a non-corrodible #24 mesh screen or an expanded metal screen within the overflow pipe for the water storage reservoirs and maintain an air gap (or install a weighted flapper valve or check valve).
- Update Source Water Protection Study
- Install chain link fencing around springs
- Install chain link fencing around storage tanks

PROJECT NO. 213093-000

FILENAME System Imp.mxd

305 N. 3rd Avenue
Pocatello, ID 83201
208.238.2146
www.kellerassociates.com
KELLER ASSOCIATES

CITY OF LAVA HOT SPRINGS

Environmental Information Document

System Improvements

FIGURE NO.
3-4

CHAPTER 4. PUBLIC PARTICIPATION

4.1 PUBLIC PARTICIPATION

40 CFR Part 25 discusses objectives and requirements for public participation. The public refers to, in the broadest sense, the general populace. This may include any special interest groups. This process helps responsible officials become aware of public attitudes by allowing the public to communicate their views.

As part of this Water Facilities Planning Study a Technical Review Committee (TRC) was established consisting of the mayor, clerk, and system operators. The purpose of the committee was to provide technical information on the water system and to voice the concerns of the community.

Keller Associates met with the City Council at a work session on November 24, 2014 to review the draft planning study and evaluate the developed alternatives. An open house was conducted on April 21, 2015 at City Hall to present the findings of the study and proposed alternatives to the public. Flyers were mailed out with water bills. A sign in sheet was maintained at the meeting and comment forms were provided for the public to use. No comments were received at the open house. The sign in sheet is included in Appendix A.

A public meeting was conducted on May 14, 2015 at City Hall to again present the findings of the study, proposed alternatives, and potential environmental impacts of the proposed alternatives. The meeting was advertised in the newspaper, flyers were mailed out with water bills, and additional flyers posted around town. The advertisement, proof of publication, flyer, and presentation are included in Appendix A. A sign in sheet was maintained at the meeting and comment forms were provided for the public to use. No comments were received at the public meeting or the following 14-day comment period. The sign in sheet is included in Appendix A.

When the bond election held on May 19, 2015 failed, the City decided to pursue funding through the judicial confirmation process. Part of the process is to conduct a public hearing to consider a resolution authorizing the filing of a petition for judicial confirmation. Notice of the hearing was published in the newspaper prior to the hearing on July 9, 2015. A sign in sheet was maintained at the meeting held at City Hall. The published notice, sign in sheet, and meeting minutes are included in Appendix A.

A mailing list of persons who attended public meetings, affected local residents, relevant environmental groups, DEQ and local officials, and agencies that were consulted or who provided information regarding the proposed project is included in Appendix B.

CHAPTER 5. AFFECTED ENVIRONMENT

This portion of the report presents a general overview of existing environmental conditions within the study area. The EID contains descriptions of environmental conditions in the planning area, with the intent of identifying potential environmental impacts that may arise when implementing the proposed improvements.

5.1 PROPOSED PROJECT PLANNING AREA IDENTIFICATION

The City of Lava Hot Springs is located in Bannock County, Idaho along State Highway 30 in southeastern Idaho approximately 12 miles east of McCammon and I-15. The City is located within Township 9 South, Range 38 East, Boise Meridian. Figure 5-1 shows a map of the vicinity.

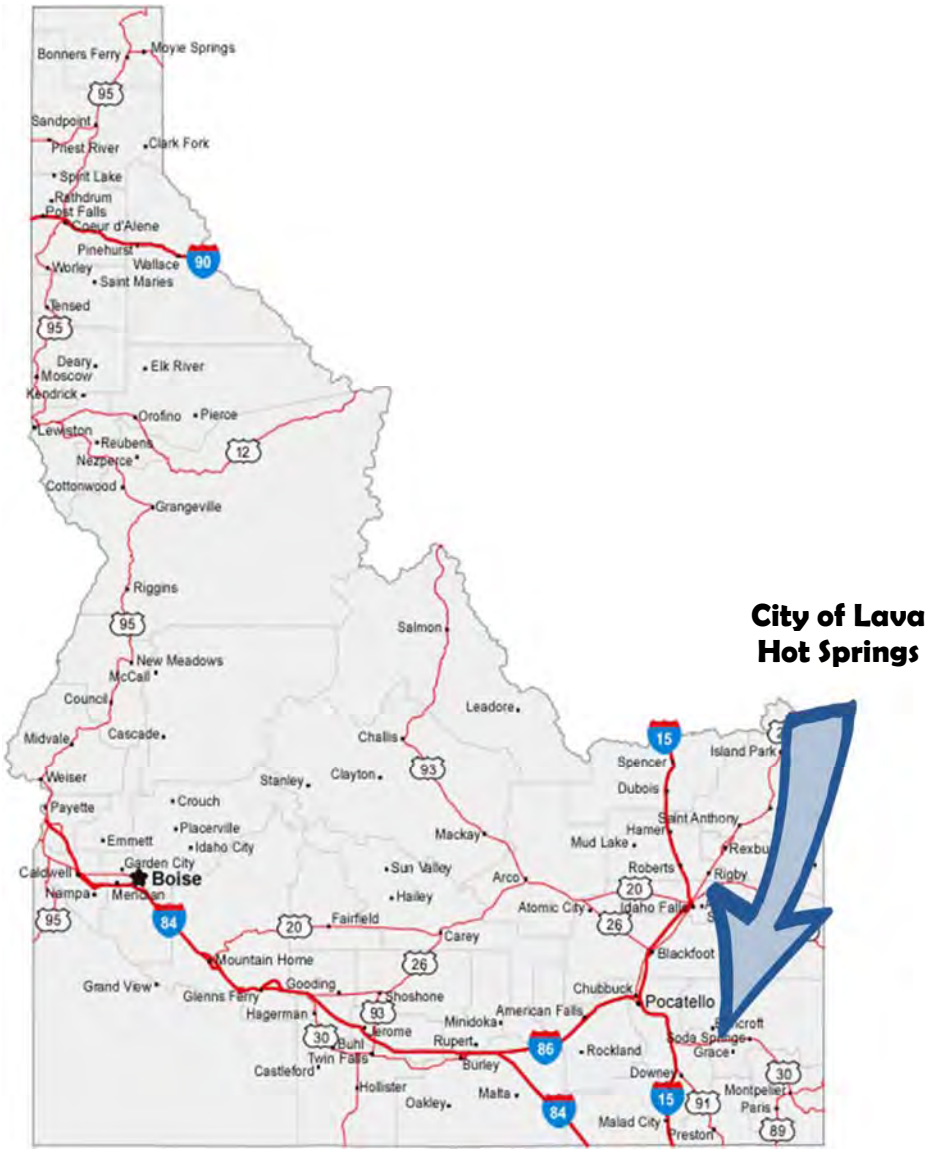

Figure 5-1: Vicinity Map

This EID is based on a specific proposed project planning area which incorporates the area and population which the water system could reasonably be expected to serve for the 20-yr planning period (from 2014 to 2034).

The proposed project planning area (PPPA) is shown in Figure 5-3. The delineation of this planning area boundary is developed based on current city limits, existing water system piping, recent and planned developments, land use regulations (zoning), and topography. In discussions with the City, areas anticipated to be developed and a potential resort area increased the size of the planning area to that shown on the maps. The area of potential effect (APE) is not expected to differ from the PPPA.

5.2 PHYSIOGRAPHY, TOPOGRAPHY, GEOLOGY, AND SOILS

Lava Hot Springs is situated in the mountainous valley of the Portneuf River. Numerous hot springs have made the City a popular resort destination. The City generally slopes to the north toward the Portneuf River. A topographic map of the area is shown on Figure 5-4.

The State of Idaho is ranked 5th in the Nation for earthquake hazard. The probability earthquake map in Figure 5-5 shows a 60-80% probability of an earthquake with a magnitude greater than 5.0 in the next 50 years (U.S. Geological Survey, 2010).

Southeastern Idaho is seismically active. Most remembered is the 7.2, Mount Borah earthquake in October of 1983, which resulted in serious damage and loss of life. Figure 5-6 shows the Class A Quaternary Faults, divided by age of last known movement and their corresponding color:

- *Historic* are the most recent, known movement less than about 150 years. (*Red*)
- *Holocene-Latest Pleistocene* is younger than 15,000 years. (*Yellow*)
- *Late Quaternary* is younger than 130,000 years. (*Green*)
- *Mid to Late Quaternary* is younger than 750,000 years. (*Blue*)
- *Quaternary* are younger than 1,600,000 years. (*Black*)
- *Class B* is defined as geologic evidence demonstrates the existence of Quaternary deformation, but either (1) the fault might not extend deeply enough to be a potential source of significant earthquakes, or (2) the currently available geologic evidence is too strong to confidently assign the feature to Class C but not strong enough to assign it to Class A.

According to the United States Geological Survey (USGS), the Quaternary faults are believed to be the sources of earthquakes larger than 6.0 in magnitudes. The Quaternary faults shown on the included map have the most potential for future large earthquakes and provide a fairly accurate picture of earthquake hazards (U.S. Geological Society, 2004).

The City of Lava Hot Springs is located west of the East Gem Valley fault. This fault is classified as Major late Quaternary which is known to have moved more than 700 meters in the last 130,000 years (Idaho Geological Survey, n.d.). Sufficient emergency power and a diversified water supply system are necessary to mitigate potential disaster hardships for municipalities like Lava Hot Springs.

The primary soil units in the Lava Hot Springs project area include Ririe silt loam with 1 to 4 and 4 to 12 percent slopes. Downata-Bear Lake complex can be considered prime farmland if

irrigated and either protected from flooding or not frequently flooded during the growing season. See Figure 5-10. The NRCS soil report is included in Appendix D.

All the soils in the study area pose a low to medium risk of corrosion to concrete and low to high risk of corrosion to steel. Care will be taken to ensure buried steel and iron pipe, fittings, and valves are coated with an appropriate coating to prevent damage from external corrosion. The shallow excavations ratings indicate that the majority of the soil in the area is “somewhat limited” or “very limited” for shallow excavations. Special planning, design and installation will be adopted to minimize specified limitations (Natural Resources Conservation Service, 2013).

5.3 CLIMATE

The climate summary (August 1949 through February 2013) for McCammon, the closest station with similar weather, shows average minimum temperatures ranging from 14.1°F to 50.3°F and average maximum temperature ranging from 32.7°F to 88.2°F. Over the same period, the total annual precipitation averaged 15.7 inches with an average snowfall of 47.8 inches. The coldest month is January, the wettest month is May, and the hottest and driest month is July. (Western Regional Climate Center, 2013). See Table 5-1. The prevailing wind direction is from the west as reported by local residents.

Table 5-1: Climate Data

Month	Average Maximum Temp (°F)	Average Minimum Temp (°F)	Average Precipitation (inches)	Average Total Snowfall (inches)
January	32.7	14.1	1.8	15.4
February	37.5	17.9	1.4	8.6
March	47.6	25.1	1.4	5.1
April	59.0	31.6	1.2	1.0
May	68.4	38.2	1.8	0.1
June	77.9	44.5	1.3	0.0
July	88.2	50.3	0.7	0.0
August	86.6	48.9	1.1	0.0
September	77.3	40.4	0.9	0.0
October	63.2	31.5	1.1	1.0
November	45.9	23.1	1.2	3.8
December	34.5	16.5	1.8	12.8
Annual	**59.9**	**31.8**	**15.7**	**47.8**

5.4 POPULATION

Based on the 2010 census, the population of Lava Hot Springs is equal to 407 people; the latest estimate is reported at 410 people. Historical and projected populations are found in Section 4.3 of the WFPS. The median age is 50.9 with 83.3% of the population being 18 years and over.

The number of housing units, 317, exceeds the anticipated number based on the reported population and the national average household occupancy of 2.5 persons per house. The resort status of the City attracts seasonal residents during certain times of the year and explains this occurrence.

A population projection was created as part of the Water Facility Planning Study to evaluate the capabilities of the existing water system to supply future water demands. The population in Lava Hot Springs has been in a steady decline since 1940. However, it is unwise to design water system improvements using a declining population lest an unexpected period of growth overwhelms the water supply and distribution system. Therefore, a modest growth rate of 1% was used for the 20-year and 40-year design periods. Figure 5-2 shows the projected population of Lava Hot Springs using a growth rate of 1%.

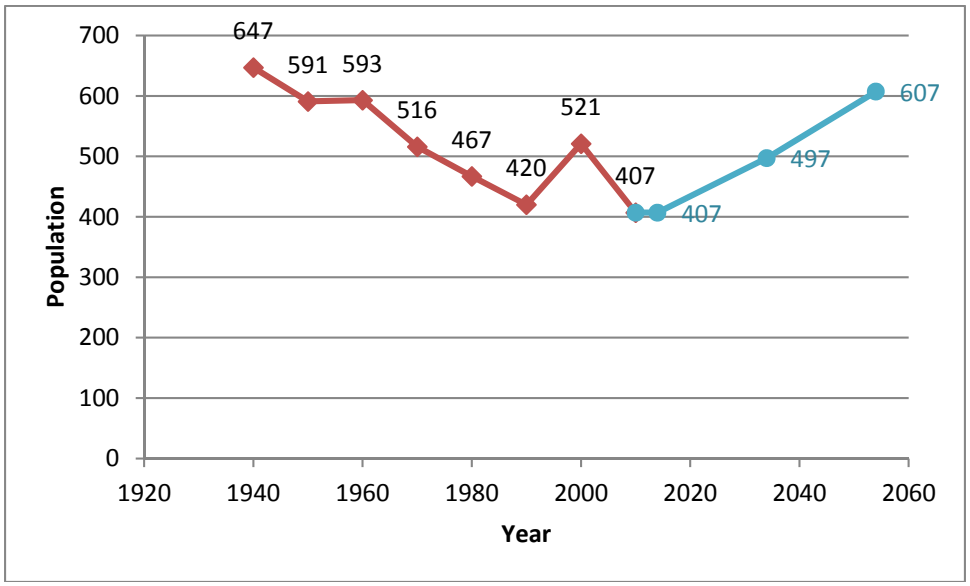

Figure 5-2 Lava Hot Springs Population Projection

5.5 ECONOMICS & SOCIAL PROFILE

The median household income is estimated at $34,792 (U.S. Census Bureau, 2011). The population below the poverty level is equal to 8.1%. Educational attainment is defined as the population of high school graduates or higher and is equivalent to 89.9%. Socioeconomic and population information is included in Appendix E.

The community is mostly residential housing. A growing number of residences are being converted to vacation rentals. There are several church buildings, multiple hotels and motels, restaurants as well as several other small businesses. See also Section 2.13 of the WFPS.

Because the transmission line and distribution system improvements are replacement projects, no landowners will benefit substantially from development of land due to the improvements. Depending on the location of the new well, there could potentially be some benefit to landowners along the pipeline from the new well.

Proposed improvements will not adversely affect land values. No low-income or minority groups will be adversely affected by the proposed project.

Agency consultation regarding the impacts of the proposed project on public health was provided by Jesse Anglesey with Southeastern Idaho Public Health. No public health concerns were addressed in regards to the proposed project.

5.6 LAND USE

The majority of the land use in the area is ranching and some farming. Considering the resort status of the study area, the City will continue to grow expanding both land use and development. The City's zoning map is included in Figure 5-12. Most of the City is zoned Residential (Low Density, Medium Density, and High Density). There are also Commercial, Open Space and Park areas zoned.

Inhabited areas will not be adversely impacted by the project. Proposed improvements will affect previously developed areas with the exception of the new well site potentially. No changes in land use are anticipated due to the project.

Agency consultation regarding land use was provided by Dennis Dunn from the Idaho Department of Water Resources. There were no concerns with the proposed project in regards to land use development.

5.7 FLOODPLAIN DEVELOPMENT

A Flood Insurance Rate Map (FIRM) from FEMA for Lava Hot Springs is shown in Figure 5-8. The potential for flooding is attributed to the Portneuf River and Fish Creek that flow through the project area.

Portions of the transmission line run adjacent to Fish Creek with several creek crossings which are located in the 100-yr floodplain. It will not be possible to bore under the creek because of the large number of large rocks/boulders in the stream bed. The stream crossings will require consultation with the U.S. Army Corps of Engineers and the Idaho Department of Water Resources to obtain nationwide 404 permits. There will be no permanent impacts to the floodplain as no development will be above ground; once the pipeline is installed the site will be restored to its original condition.

Agency consultation regarding floodplain development was received from Aaron Skinner with the Idaho Department of Water Resources. Portions of the project are located within the Special Flood Hazard Area with a 1% chance of annual recurrence. A floodplain development permit is required from the City of Lava Hot Springs. Due to the intersection of the proposed transmission line with Fish Creek, a Stream Channel Alteration permit is required from the Idaho Department of Water Resources Stream Channel Protection Program.

5.8 WETLANDS

For regulatory purposes under the Clean Water Act, the term wetlands means "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas" (U.S. Environmental Protection Agency, 2013).

Several types of wetlands have been identified within the proposed project planning area. See Figure 5-9. Northwest of the City there are two Freshwater Emergent Wetlands (52.48 acres and 19.14 acres) and a 2.59-acre Freshwater Pond. In the southwest direction of the City two other Freshwater Emergent Wetlands (34.02 and 82.69 acres) as well as two Freshwater Forested/Shrub Wetlands of 5.71 and 2.29 acres were identified. There is also a 1.33-acre Riverine east of the City and an 11.03-acre Riverine northeast of the City. Another Freshwater Emergent Wetland of 17.0 acres is located northeast of the City (U.S. Fish & Wildlife Service, 2014).

No wetlands are currently mapped along Fish Creek where the transmission line will be installed. Because the springs supply the transmission line by gravity, alternate routes for the pipeline are limited in the upper reaches.

For any projects that involve disturbances to jurisdictional wetlands, formal consultation with the U.S. Army Corps of Engineers and the Idaho Department of Water Resources will be required to obtain nationwide 404 permits for stream crossings or wetland alteration.

Agency consultation regarding wetlands was received from Cyndi Grafe with the United States Environmental Protection Agency and from James Joyner with the United States Army Corps of Engineers (USACE). No impacts to surface waters or wetlands were identified through EPA's assessment of the proposed project. The USACE issued a preliminary jurisdictional determination that Fish Creek and the Portneuf River are traditional navigable waters of the United States and are subject to the requirements of the Clean Water Act.

5.9 WILD & SCENIC RIVERS

The Wild and Scenic Rivers Act of 1968 serves to protect designated free-flowing rivers that have "outstanding remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural and other similar values." The act states these rivers "shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations" (U.S. Fish & Wildlife Service, 2014).

There are no designated or proposed wild and scenic rivers in Lava Hot Springs or within the vicinity of the proposed projects.

5.10 CULTURAL RESOURCES

There are three buildings listed on the National Register of Historic Places in Idaho: Lava High School Gymnasium, Riverside Inn, and Whitestone Hotel. An addendum to listings also includes the LDS Ward Building located on Second Avenue. Water system upgrades proposed in this study are not expected to make any negative impacts on these historical landmarks. Special care will be taken to protect the buildings during construction of any proposed improvements (National Park Service, 2012).

Agency consultation regarding cultural resources was provided by Ethan Morton with the State Historic Preservation Office (SHPO). It is recommended that a limited survey or evaluation be performed for the existing structures and areas that will be impacted by the proposed project.

As requested by SHPO, a survey of the areas proposed to be affected by construction was conducted in April 2016 (Larsen, 2016). A copy of the report is included in Appendix D. Findings of the survey indicate the Dempsey-Topaz Canal and the Fish Creek Canal are the only two

cultural resources that would be affected. The transmission line will cross each of these. Either open cut or bore method would result in no impacts on the integrity of the location, function, and design of the canal and no additional mitigation work was recommended.

As part of the cultural resources evaluation, the Shoshone-Bannock Tribes and the Shoshone-Paiute Tribe were contacted by DEQ. No response was received from the Shoshone-Paiute Tribe. The Shoshone-Bannock Tribes responded and requests the following stipulations be followed during all ground disturbance in the Lava Hot Springs area:

- All construction personnel are required to receive Tribal cultural awareness training.
- A cultural resources monitor will be present during any ground disturbance.
- In the event of subsurface discovery of any pre-contact, historical, or paleontological resources, all ground disturbing activities shall cease. Notification to the Shoshone-Bannock Tribe's HETO shall be made.
- Information regarding the discovery of cultural material or burials shall not be made public and the media shall not be informed. All construction personnel shall not touch or pick discovered items.
- Construction personnel shall keep the discovery confidential to prevent looting.
- Work in the immediate area may not resume until after the area of discovery has been cleared by a qualified archaeologist who meets the Secretary of Interior's Standards.

5.11 FLORA & FAUNA

The area to the west of Lava Hot Springs is primarily farmland for pasture and hay. Baldy Mountain is located south of the City; Northeast of Lava Hot Springs is the Fish Creek Range, named after Fish Creek, a tributary of the Portneuf River (Summitpost, 2013). A landcover map is shown in Figure 5-7.

Agency consultation regarding flora and fauna was provided by the US Fish and Wildlife Service and Jim Mende with Idaho Fish and Game. With the implementation of Best Management Practices (BMPs), the proposed project will have minimal impact on resident fish and wildlife species or their respective habitats. It is of particular importance to implement Best Management Practices in the three locations where the proposed transmission line intersects Fish Creek.

5.12 RECREATION & OPEN SPACE

None of the proposed project improvements will permanently impact recreation in the community. Recreation may be temporarily impacted during construction. Increased sediment in Fish Creek and the Portneuf River may be generated during construction of the transmission line where it crosses these streams. The use of Best Management Practices including the use of sediment traps downstream of construction will help mitigate any adverse impacts.

The proposed project will not have any effect on open spaces within the community. Most improvements will be constructed below the ground surface. The well house which will be installed with the proposed well will not significantly impact open spaces within the community.

5.13 AGRICULTURAL LANDS

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland,

or other land, but it is not urban or built-up land or water areas. Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of the Nation's prime farmland. (U.S. Dept. of Agriculture, 2013)

Less than half, 41%, of the land in the Lava Hot Springs study area is designated prime farmland by National Resources Conservation Services (NRCS). Most improvements are anticipated to be located within existing or future right-of-ways, not affecting farmland. See Figure 5-10.

Agency consultation regarding agricultural lands within the proposed project area was provided by Gary Bahr of the Idaho Department of Agriculture and by Trudy Pink with the United States Department of Agriculture. The agencies did not have any comments or questions in regard to the proposed project.

5.14 AIR QUALITY

Idaho is among the states that have delegated authority by EPA to issue air quality permits and enforce air quality regulations. DEQ's air protection efforts are designed to assure compliance with federal and state health-based air quality regulations. The Clean Air Act of 1970 identified six common air pollutants of concern, called "criteria pollutants." These criteria pollutants are carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide. Fugitive dust is closely regulated as it contributes to particulate matter.

Idaho DEQ monitors air quality and publishes air quality information for areas with populations over 350,000 (Idaho Dept. of Environmental Quality, 2013b). No air quality data are available for the City of Lava Hot Springs and no noise issues have been identified for the area. The closest area of non-attainment is Cache Valley which has problems with particulate matter, specifically PM2.5. A map of areas with sensitive air quality is shown on Figure 5-13.

There are no anticipated long-term adverse impacts to the air quality and noise levels from any proposed improvements. Proposed improvements may have a temporary local impact on noise and air quality (dust) during construction. Best Management Practices during construction can mitigate against airborne dust during construction.

Agency consultation regarding air quality caused by the proposed project was received from Tom Hepworth with the Idaho Department of Environmental Quality. A summary of comments is provided below. See Appendix C for copies of consultation responses. Throughout construction of the proposed project, all reasonable precautions shall be taken to prevent the generation of fugitive dust. Reasonable precautions may include, but are not limited to the following:

1. Use of water or chemicals
2. Application of dust suppressants
3. Use of control equipment
4. Covering of trucks
5. Paving
6. Removal of materials

5.15 ENERGY

Culinary water is provided to the residents of Lava Hot Springs primarily by springs which flow by gravity into the storage reservoirs. The Lava Hot Springs planning area is served by Rocky Mountain Power for all of its electrical needs. Minimizing electrical consumption is an important consideration when considering system upgrades or expansion. In cases where it is necessary to utilize electrical power (i.e. pumping) it is important to consider efficient components as well as ensure proper design so all components are operating as efficiently as possible.

All of the systems water connections are metered. The meters are typically read during the months May through October due to the significant snowfall that prevents consistent water meter readings.

The City of Lava Hot Springs currently has minimal utility usage due to the supply of water obtained from the springs. Water flows from the springs to the tanks by gravity and the distribution system is fed by gravity from the tanks. During periods of higher demand the 1 HP Well #1 and the 15 HP Well #2 are used as needed.

EPA recommended consideration of cost effective, environmentally sound, and sustainable approaches in developing improvements on the water system.

5.16 REGIONALIZATION

The closest municipal water system to Lava Hot Springs is McCammon located 12 miles to the west along Highway 30. Costs to connect the systems would be extremely high. There are two smaller water systems in the area: the KOA campground on the east end of Lava Hot Springs and Thunder Canyon Estates located up Dempsey Creek. Connecting with these systems would not correct the City's deficiencies.

5.17 WATER QUALITY

A sole source aquifer is an aquifer that has been designated by EPA as the sole or principal source of drinking water for an area. As such, a designated sole source aquifer receives special protection. EPA designates an aquifer as a sole source based upon a petition from an individual, company, association, or government entity. Three of Idaho's aquifers—the Eastern Snake River Plain Aquifer, the Spokane Valley-Rathdrum Prairie Aquifer, and the Lewiston Basin Aquifer—are classified as sole source aquifers (Idaho Dept. of Environmental Quality, 2013a).

Lava Hot Springs is not located over the Eastern Snake River Plain Aquifer; however, the City is in the streamflow source area for the aquifer. The aquifer boundary is located 30 miles to the northwest. See Figure 5-11. The proposed project will not have any adverse impacts to the streamflow source area.

The City's main source of water is the springs located east of the City of Lava Hot Springs, near Fish Creek. Water from the springs is disinfected with liquid chlorine prior to entering buried, concrete storage reservoirs located on a hillside south of town.

Well #1 is also located along Fish Creek, east of Lava Hot Springs. Well #2 is located west of town. The proposed well locations will not adversely affect the quality or quantity of groundwater.

Agency consultation regarding impacts to ground water quality was received from Edward Hagan with the Idaho Department of Environmental Quality. Based on comments provided, the proposed project does not appear to pose potential adverse impacts to ground water quality. Additionally, no sources of contamination are being created by the project. It was recommended to implement Source Water Protection strategies to protect water quality.

Agency consultation regarding wetlands was received from James Joyner with the United States Army Corps of Engineers (USACE). No impacts to surface waters or wetlands were identified through EPA's assessment of the proposed project. The USACE issued a preliminary jurisdictional determination that Fish Creek and the Portneuf River are traditional navigable waters of the United States and are subject to the requirements of the Clean Water Act.

EPA responded stating that applicable permitting and a Construction General Permit would be required.

Agency consultation regarding various impacts on water created by the proposed project was received from Tom Hepworth with the Idaho Department of Environmental Quality. A summary of comments is provided below. See Appendix C for copies of consultation responses.

> **Surface Water:** Laying the new transmission pipeline next to the existing line, as currently planned, which crosses Fish Creek in three separate locations would disturb fully supported cold water aquatic life which is considered a Tier 2 water for which anti-degradation considerations apply. It is suggested that the water line be installed closer to the roadway to avoid impacting the stream. Construction by boring should be used where possible to avoid unnecessarily impacting the stream.
>
> **Storm Water:** Land disturbance activities associated with the project can potentially impact nearby Fish Creek and the Portneuf River. Impacts to these aquatic systems can potentially be generated by increased erosion, sediment and related contaminants. Best Management Practices (BMPs) and/or Best Available Technology (BAT) should be used during construction to minimize impacts from contaminated storm water.
>
> **Hazardous Waste:** Accidental spills of hazardous waste should be reported to the proper authorities when necessary and promptly cleaned up.
>
> **Ground Water:** Proposed well locations are located within the designated Grace Nitrate Priority Area. DEQ recommends water quality and quantity be carefully assessed as part of the Well Site Approval process. Two of the well sites are near the former recycled water land application site used by the City.

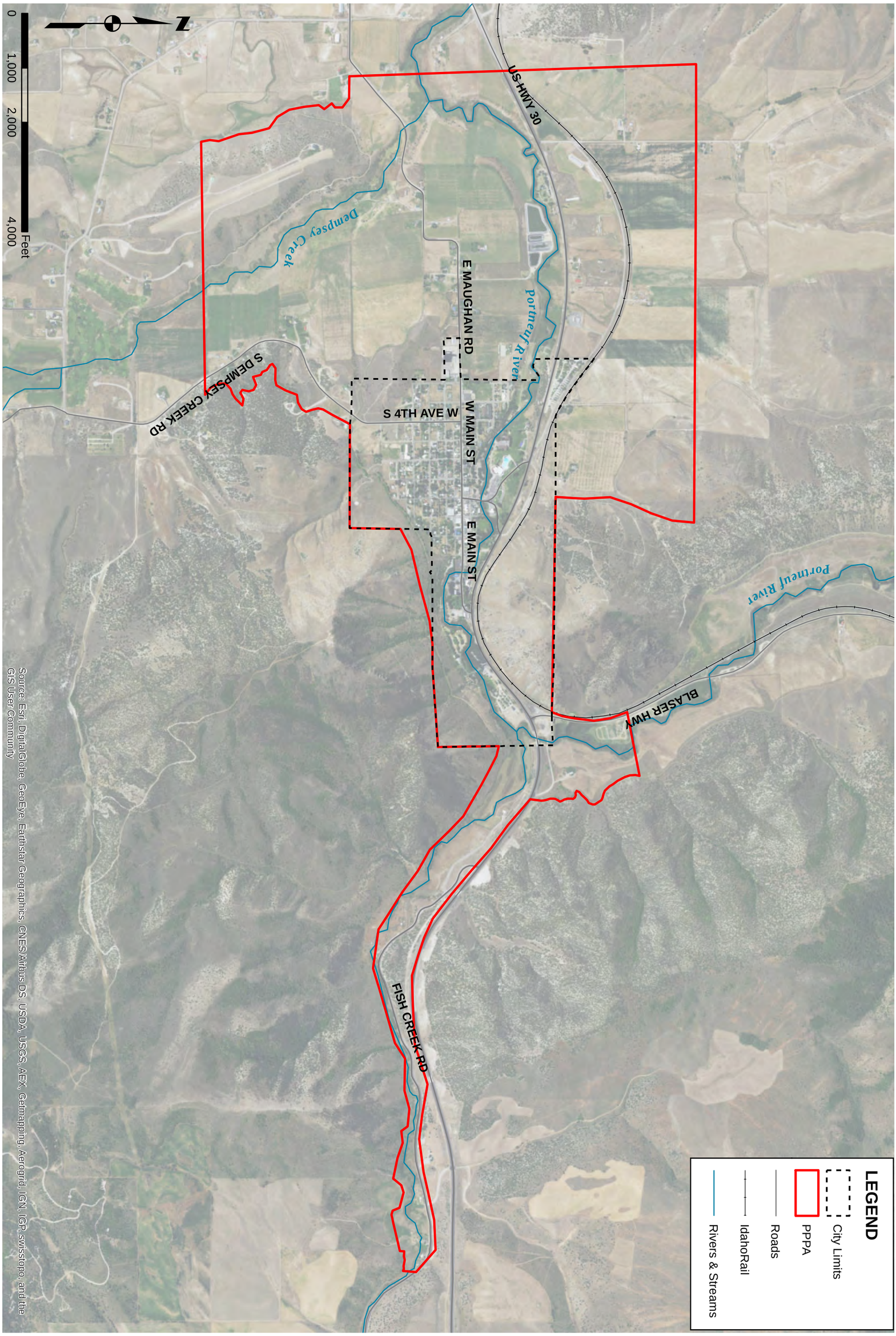

FIGURE NO. 5-3	Environmental Information Document	CITY OF LAVA HOT SPRINGS	KELLER associates 305 N. 3rd Avenue Pocatello, ID 83201 208.238.2146 www.kellerassociates.com	PROJECT NO. 213093-000
	Proposed Project Planning Area			FILENAME 5-3 PPPA.mxd

PROJECT NO. 213093-000

FILENAME Topo.mxd

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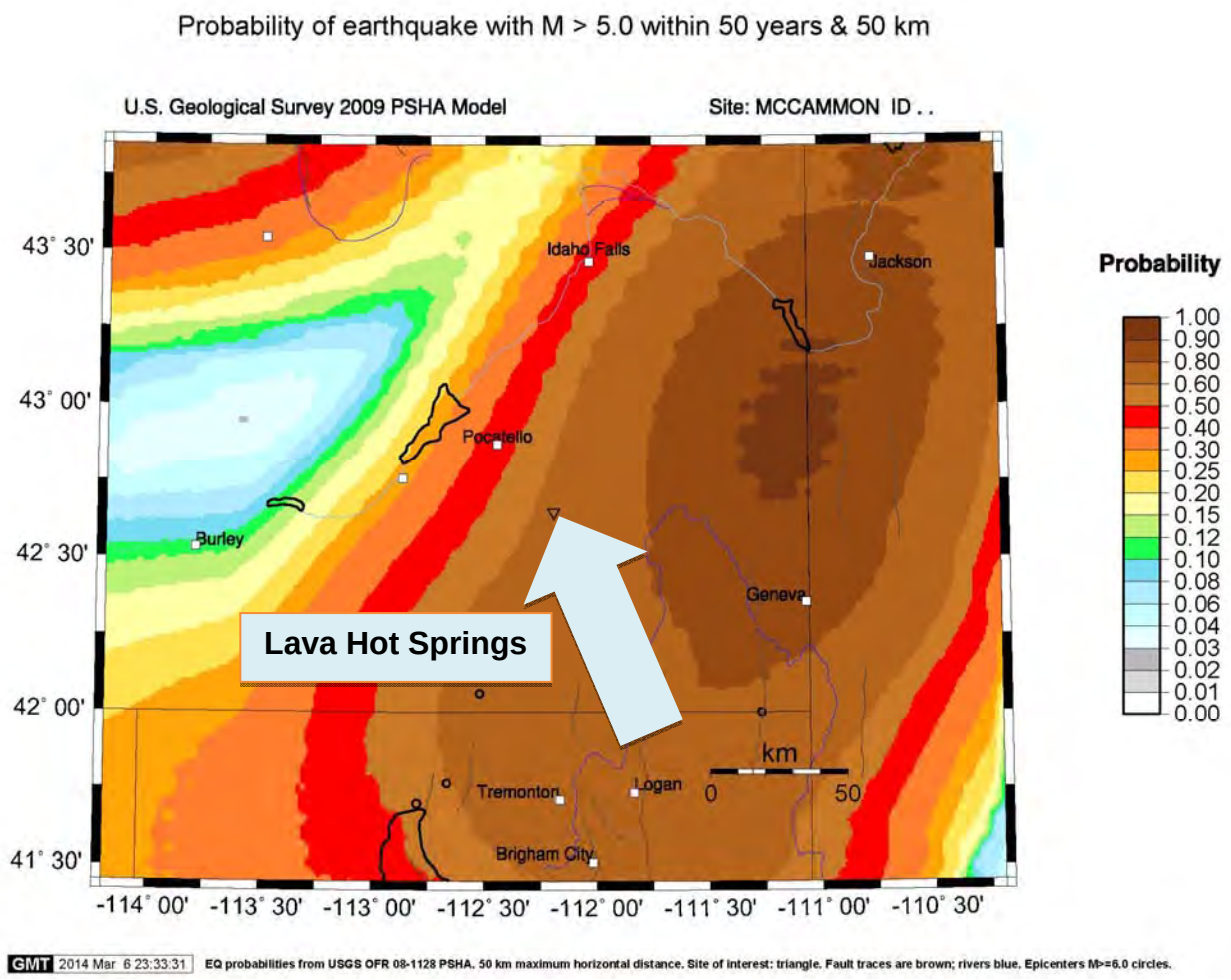
CITY OF LAVA HOT SPRINGS

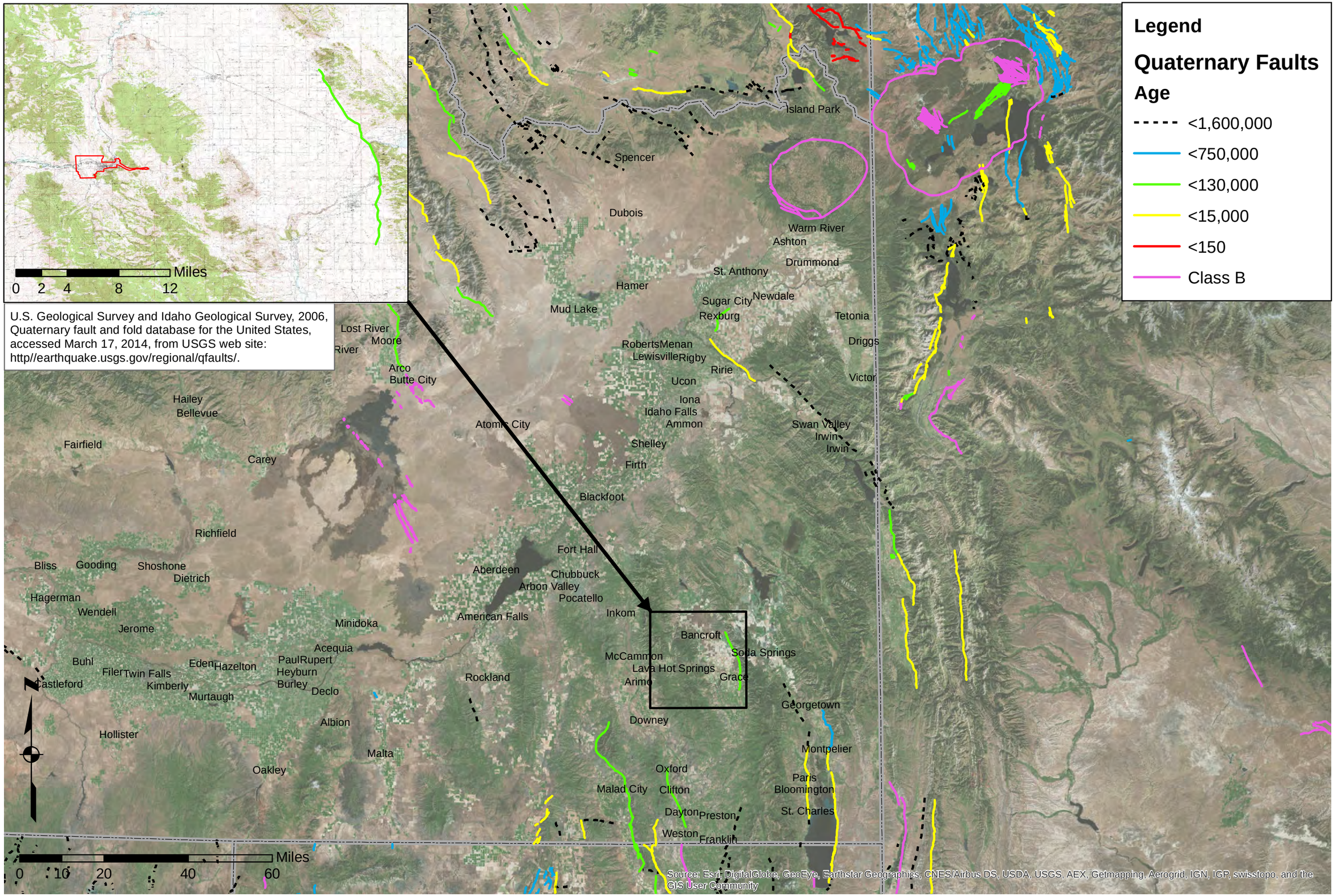
Environmental Information Document

Topographic Map

FIGURE NO.
5-4

Figure 5-5: Earthquake Probability Mapping





PROJECT NO. 213093-000

FILENAME Faults.mxd

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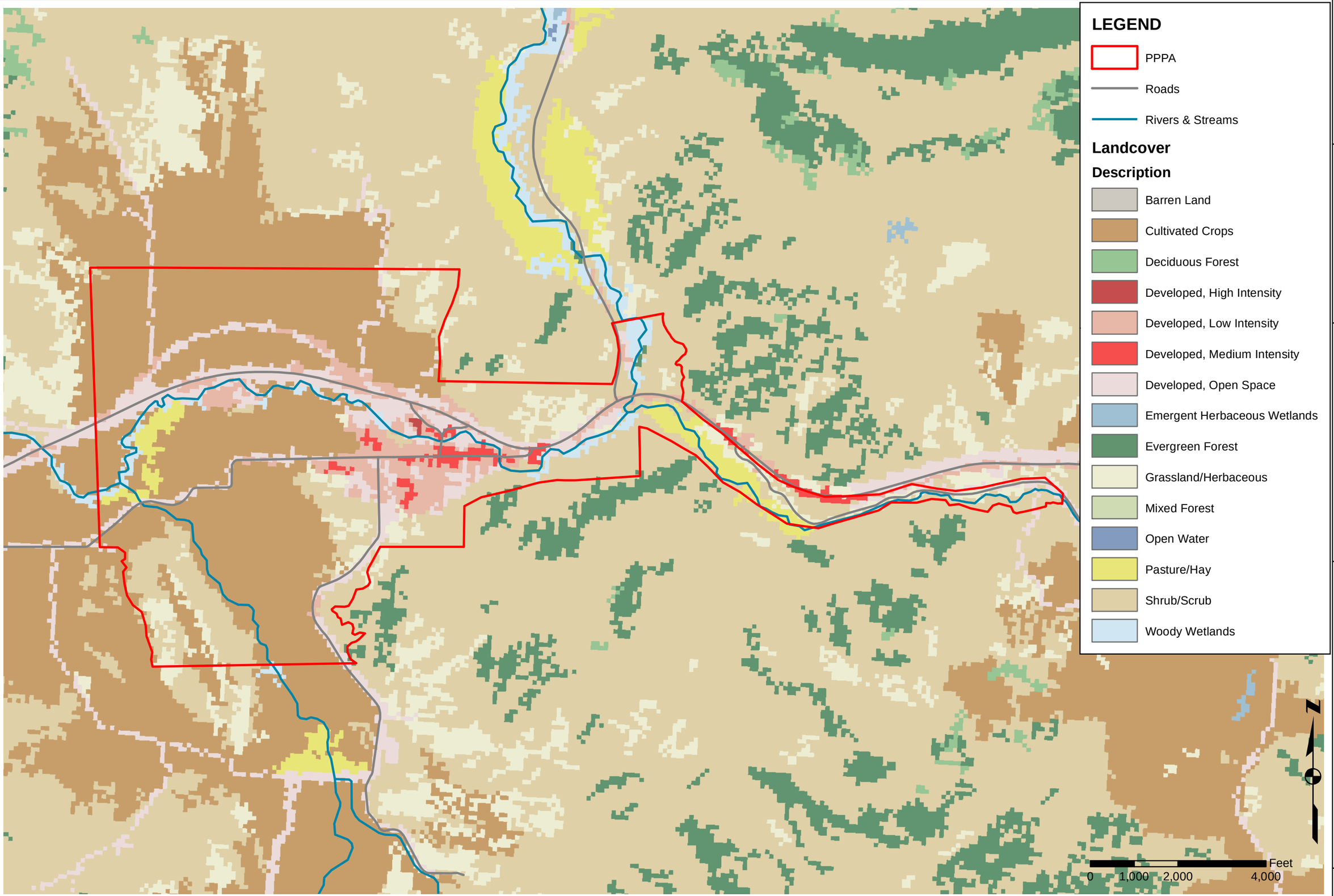
Environmental Information Document

Fault Map

FIGURE NO.
5-6

Print Date: 4/25/2016



PROJECT NO. 213093-000

FILENAME 5-7 Landcover.mxd

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CITY OF LAVA HOT SPRINGS

Environmental Information Document

Landcover Map

FIGURE NO. 5-7

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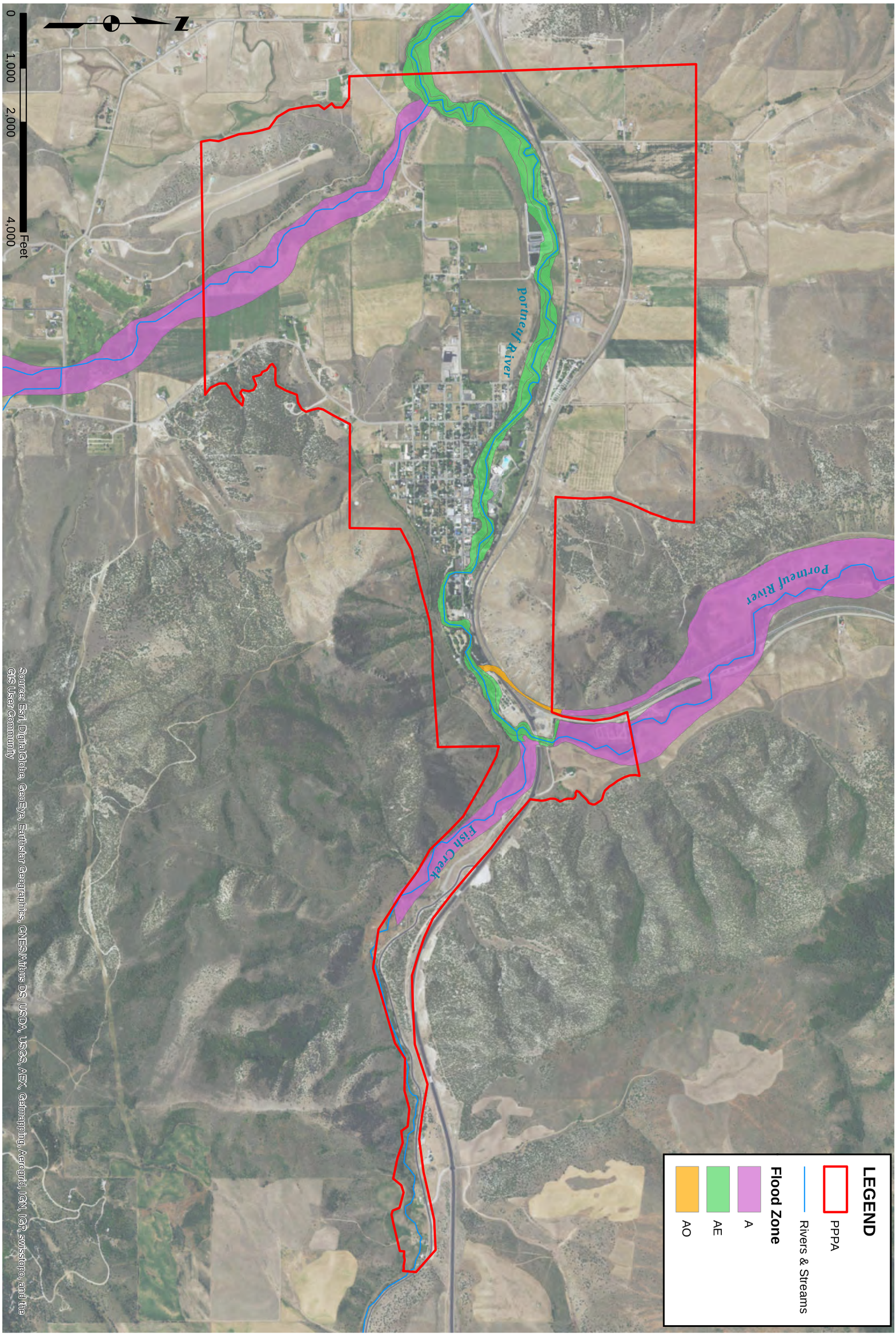
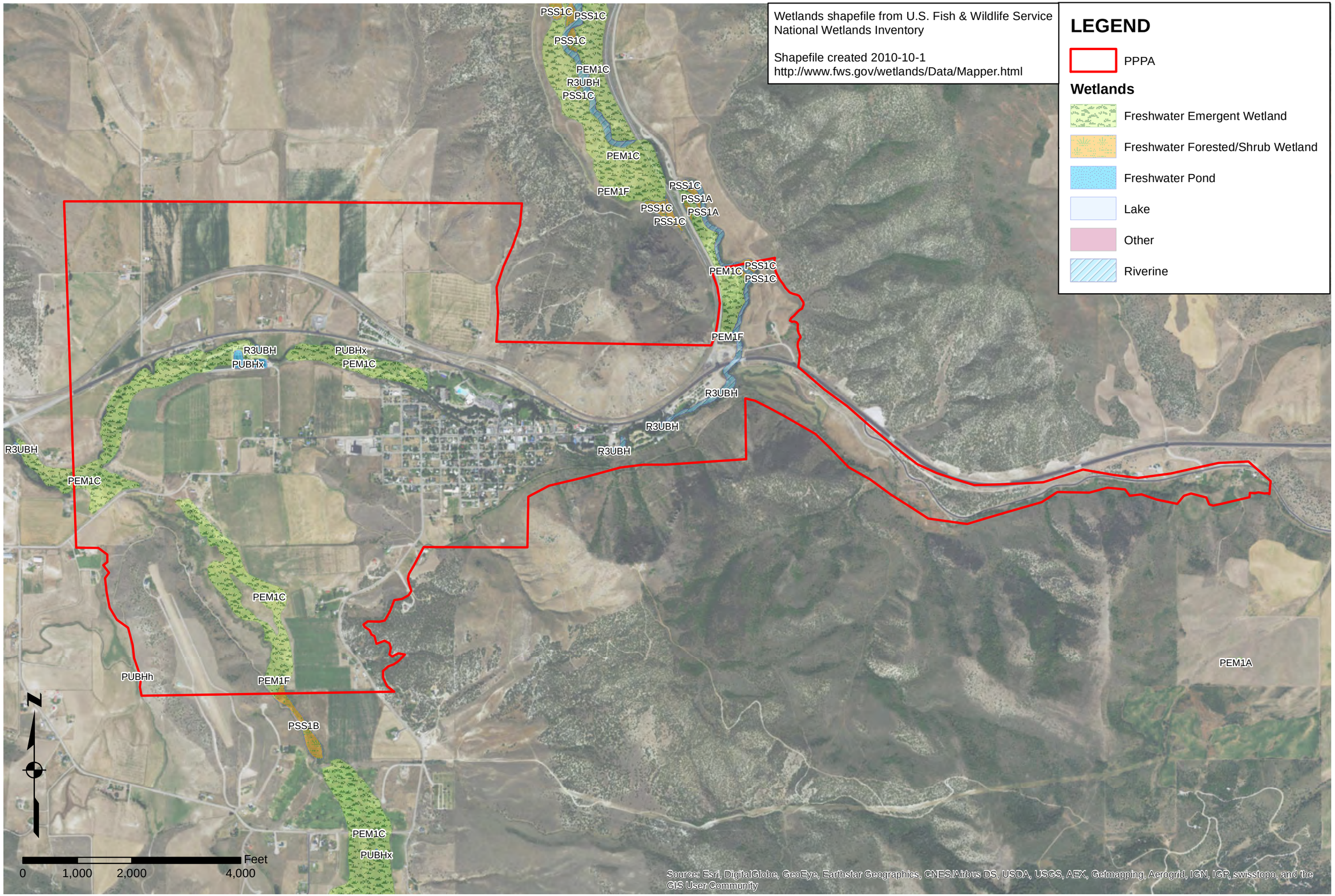


FIGURE NO. 5-8	Environmental Information Document	CITY OF LAVA HOT SPRINGS	KELLER associates 305 N. 3rd Avenue Pocatello, ID 83201 208.238.2146 www.kellerassociates.com	PROJECT NO. 213093-000
	Floodplain Map			FILENAME 5-8 Floodplain.mxd



PROJECT NO. 213093-000

FILENAME Wetlands.mxd

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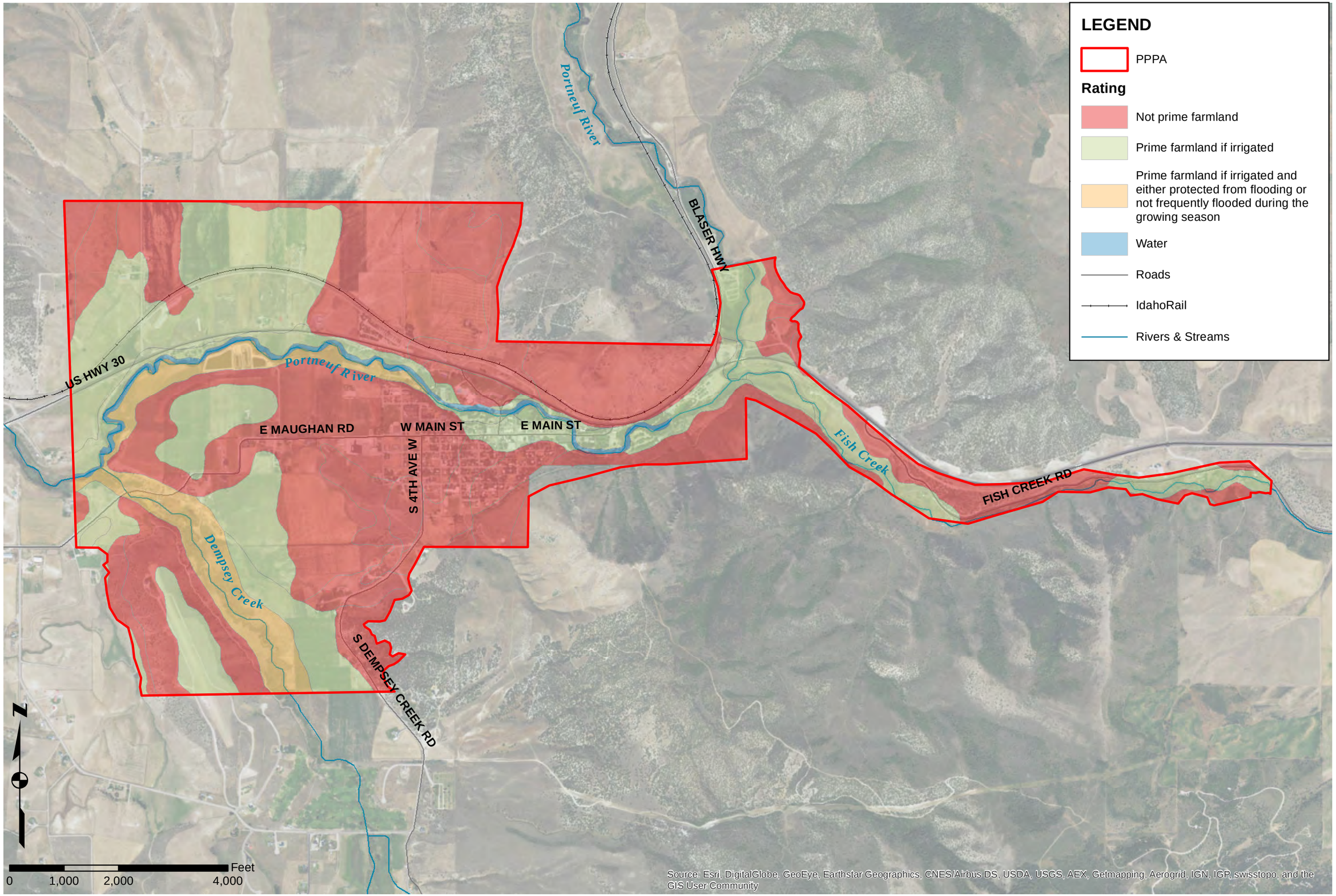
Environmental Information Document

Wetlands Map

FIGURE NO.
5-9

Print Date: 4/25/2016



PROJECT NO. 213093-000

FILENAME 5-10 Farmland.mxd

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Environmental Information Document

Prime Farmland Map

FIGURE NO. 5-10

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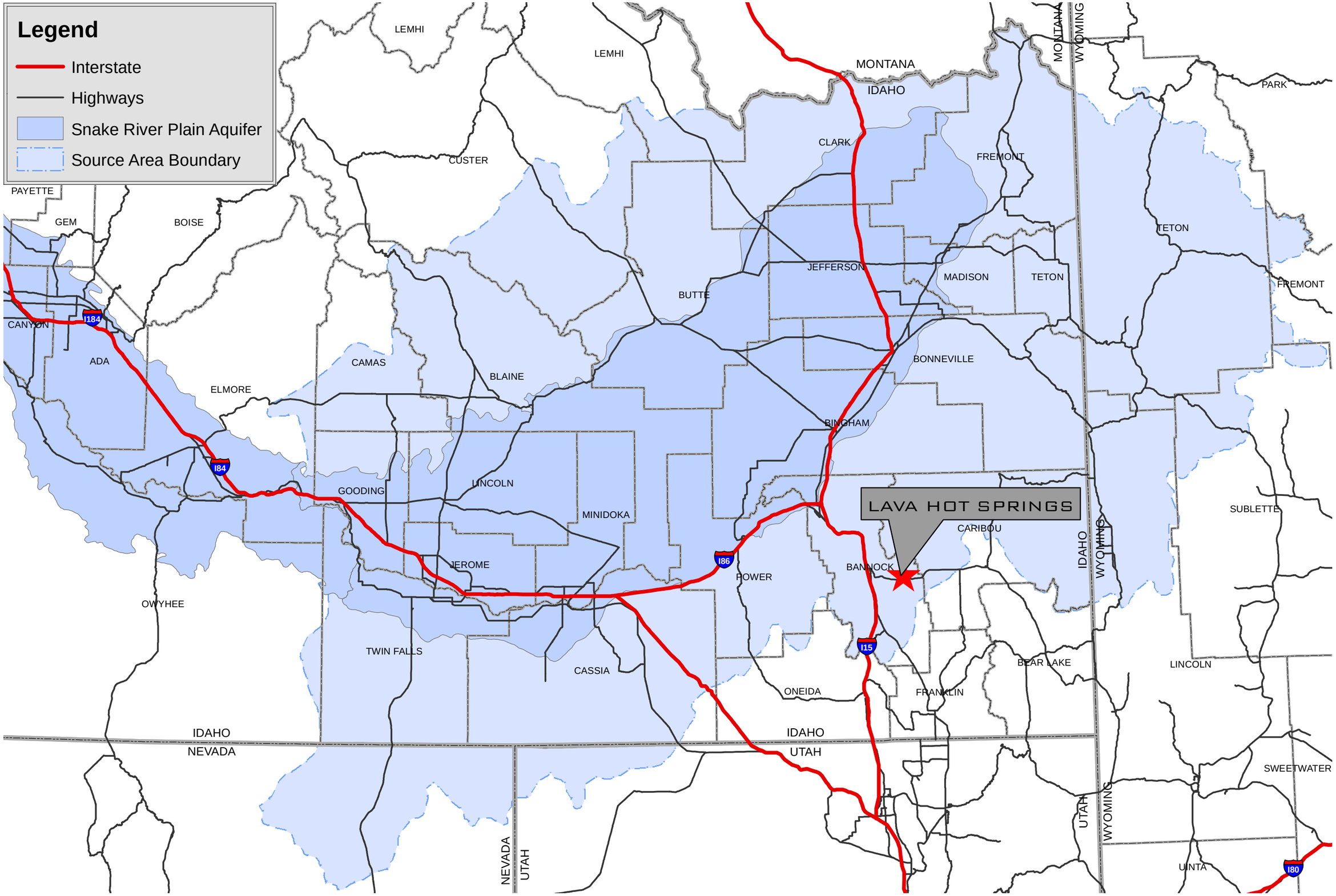

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PROJECT NO. 213093-000

FILENAME Aquifer & Source Area.mxd

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CITY OF LAVA HOT SPRINGS

Environmental Information Document

Eastern Snake River Plain Aquifer

FIGURE NO.
5-11

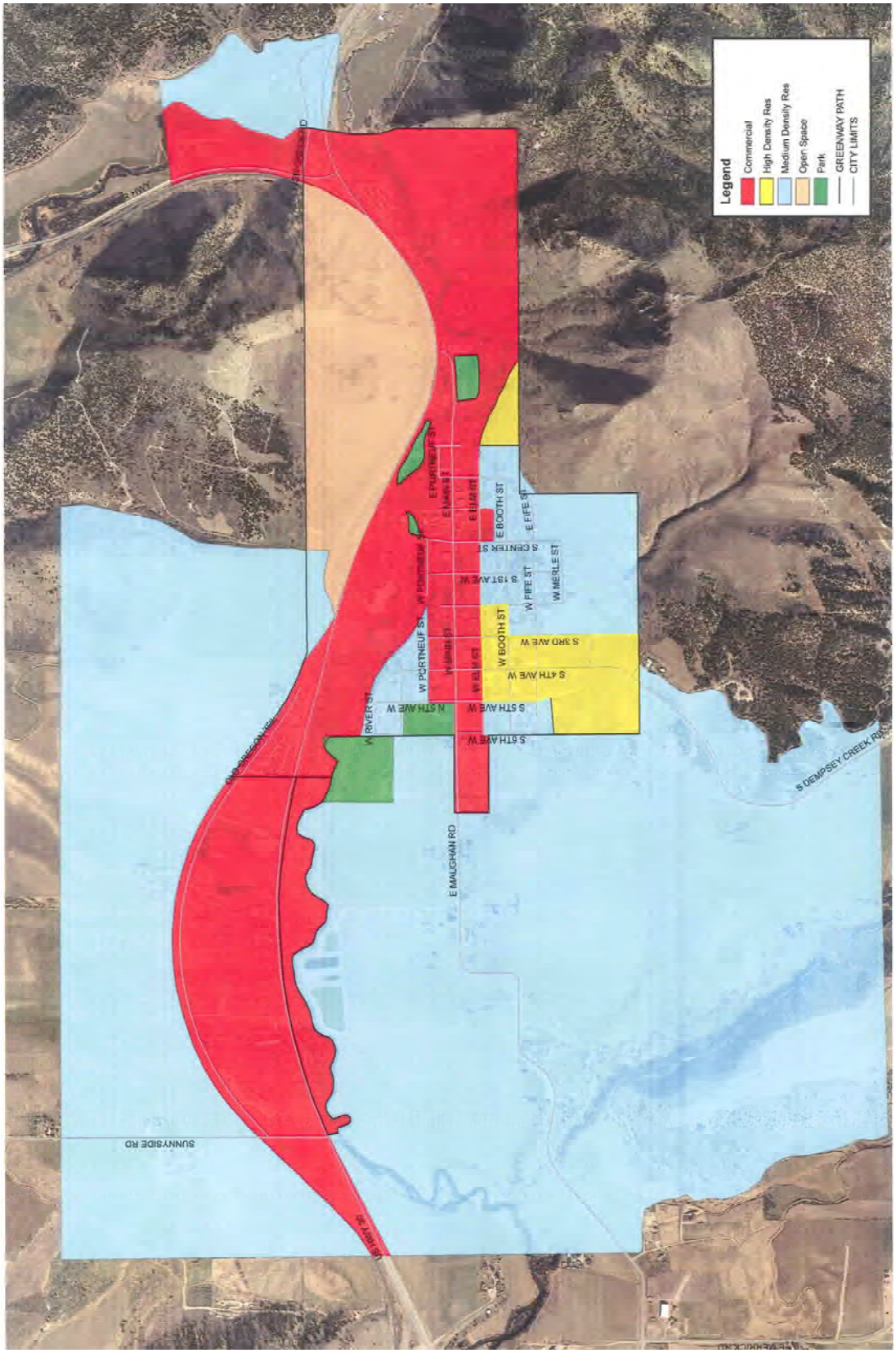

Figure 5-12: Zoning Map

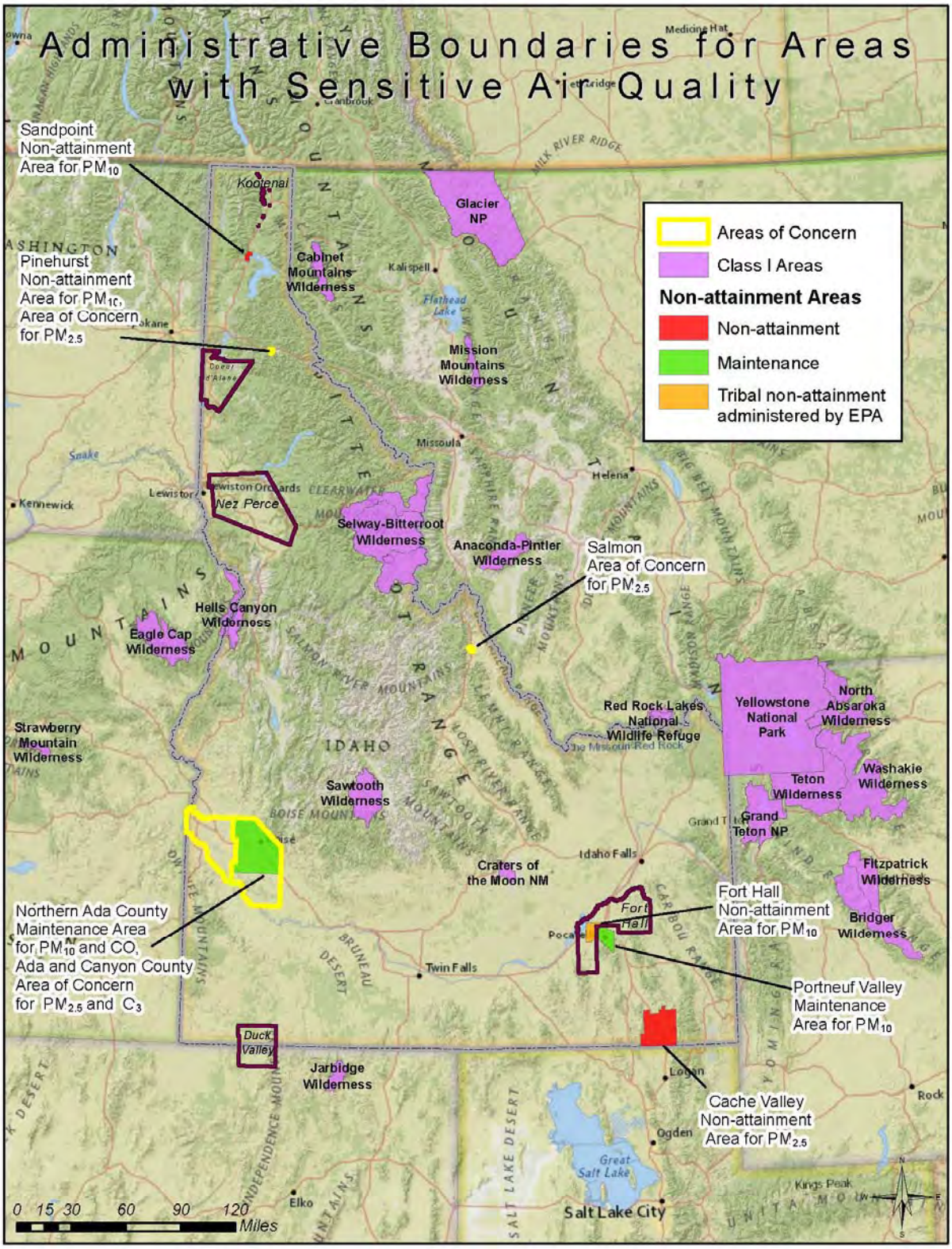

Figure 5-13: Administrative Boundaries for Areas with Sensitive Air Quality

CHAPTER 6. ENVIRONMENTAL IMPACTS & MITIGATION

Impacts that may occur as a result of the project may be either beneficial or adverse to the human population and the surrounding environment. The following sections discuss the direct, indirect, short term, long term, and cumulative impacts that will result from completion of the preferred alternative. These impacts are summarized in this chapter along with mitigation measures. The various types of impacts are discussed below:

- **Direct Impacts** – Caused by the actual construction of the preferred alternative and occur at the same time and place as construction.
- **Indirect Impacts** – Caused by the construction of the proposed project and occur at a later, foreseeable time.
- **Short Term Impacts** – Those that affect the project area for a brief amount of time after the project's completion.
- **Long Term Impacts** – Those that affect the project area for an extended amount of time after the project's completion.
- **Cumulative Impacts** – The sum of past, present, and reasonably foreseeable actions in the project area.

6.1 ENVIRONMENTAL IMPACTS OF THE PROPOSED PROJECT

The following impacts have been identified for the proposed project:

1. For construction of the new well a small amount of land will be converted to that which is necessary for the accommodation of the well house and the required 50-foot minimum easement. This is a long-term impact to potential land use. Vegetation, if present in the construction zone, will experience direct, short term impacts during construction. Ground water level near the well will be lowered while the well is in operation.
2. Reconstructing the transmission line will have a direct, short term impacts on vegetation, riparian vegetation and stream bedding along the pipe alignment. Increased introduction of sediment to the stream during construction may have a short term impact on fish populations and recreation.
3. Generation of fugitive dust will likely take place during construction.

6.2 MITIGATION OF ADVERSE IMPACTS

Based on agency consultation and information presented previously, the following mitigation measures or precautions should take place during the construction process.

1. If clearing, grading, and excavation activities disturb one acre or more, a National Pollutant Discharge Elimination System (NPDES) permit will be obtained according to section 402 of the Clean Water Act.
2. Contractor shall provide and enforce a Stormwater Pollution Prevention Plan (SWPPP).
3. Proper steps need to be taken to contain all runoff during any type of construction. Best Management Practice examples would be silt fence, a mulch or vegetative cover, and temporary berms.
4. When reseeding the areas of disturbance, Contractor to ensure the seeding plans are site specific to surrounding vegetation.
5. All reasonable precautions shall be taken to prevent the generation of fugitive dust. Consideration will be given to factors such as the proximity of dust emitting operations to human habitations and/or activities and atmospheric conditions which might affect the

movement of particulate matter. Some of the reasonable precautions may include, but are not limited to, the following:

a. Use of water or chemicals
b. Application of dust suppressants
c. Use of control equipment
d. Covering of trucks
e. Paving
f. Removal of materials

6. Accidental surface spills of petroleum hydrocarbon products (i.e. fuel, oil, and similar products) are most commonly associated with the transportation and delivery of fuel to work sites or facilities. The Idaho Release, Reporting, and Corrective Action Regulations (IDAPA 58.01 .02.851 and .852), require notification within 24 hours of any spill of petroleum product greater than 25 gallons and notification for the release of lesser amounts if they cannot be cleaned up within twenty-four (24) hours. The cleanup requirements are also contained in those regulations. Both federal and Idaho regulations require the cleanup of any spill or release of used oil. [IDAPA 58.01.05.015; 40 CFR 279.22(d)(3)].
7. Contact Fish and Game if threatened or endangered species are encountered during the construction process.
8. If wetlands are affected or streams crossed, a Joint 404 Permit/Stream Alteration Permit will be required detailing how the work completed and how the area will be restored. Regarding comments on the transmission line alignment and potential impacts to surface water, previous attempts to bore under a creek in Lava Hot Springs were unsuccessful due to the large cobbles and boulders. Because of this and the limited space where the creek has a bend against the roadway, the stream crossings are unavoidable. Permitting requirements will be addressed in the design and construction process. The open cut method of construction is proposed for the creek crossings.
9. Contact the State Historical Preservation Office if any archeological artifacts are discovered during excavations. In association with common practice, the Shoshone-Paiute Tribe or Shoshone-Bannock Tribe will be contacted if any Native American artifacts are discovered in the project area in the process of constructing the selected alternative.
10. Have an approved water right transfer that adds the proposed well to the City's system before obtaining a drilling permit.
11. Implement Source Water Protection strategies to protect the new well.

CHAPTER 7. AGENCY CONSULTATION

The agencies contacted during preparation of this EID are listed in Table 7-1. These agencies are included in the mailing list for the project in Appendix B. Letters were sent out on August 18, 2015. A follow-up email was sent on September 18, 2015. A copy of the consultation letter can be found in Appendix C.

Table 7-1: Agencies Consulted

Agency	Date Response Received
DEQ-Pocatello Regional Office	8/25/2015
DEQ-State Office	9/11/2015
EPA, Idaho Operations Office	9/21/2015
Idaho Dept. of Agriculture	8/26/2015
Idaho Dept. of Fish and Game, SE Region	9/19/2015
Idaho Dept. of Lands	No Response
Idaho Dept. of Water Resources	8/25/2015
Idaho State Historical Society	8/24/2015
Shoshone-Bannock Tribes	10/9/2015
Shoshone-Paiute Tribe	No Response
Southeast District Health Dept.	8/25/2015
US Army Corps of Engineers	9/9/2015
US Fish and Wildlife Service	10/29/2015
USDA-NRCS	9/15/2015

Of the numerous agencies that were consulted, several provided responses to the request for consultation. Agency responses can be found in Appendix C. Summaries of agency responses, including any remedial action required and/or work completed as requested by the respective agency, are included in the discussion for each environmental aspect in Section 3.11. They are also summarized in Chapter 6 which discusses environmental impacts and mitigation measures for the proposed project.

One attempt was made to follow-up with the Idaho Dept. of Lands by email. A copy of the sent email is included in Appendix C. No response was received to the consultation letter or follow-up email.

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The following references were used in preparation of this Environmental Information Document.

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Appendix A. PUBLIC PARTICIPATION

Lava Hot Springs

WATER FACILITIES PLANNING STUDY – PUBLIC MEETING

APRIL 21, 2015 – 5:30 PM

Name: (Please Print)	Address:	Phone:
1. Greg H. Stevens	490 W. Fife	801-884-3898
2. Holly Batter	214 E. Center St. Poc	208-233-4535 x 2
3. Kathleen Lewis	214 E. Center Poc	208-233-4535 x 4
4. Tanny Davids	118 S. 5th W	(208)317-5555
5. Marshall Bangin	65 West Elm Lava Hot Spg	208-776-5570
6. Curtis Walsath	224 S 3rd W	776-5447
7. George Linford	583 W. Elm	776 5244
8.		
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10.		
11.		
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18.		

KELLER associates

LAVA HOT SPRINGS

Water Facilities Planning Study & EID

Public Meeting

5/14/2015

KELLER associates

CITY OF LAVA HOT SPRINGS

Purpose of Study

- Evaluate water system:
  - Water Usage (current and future)
  - Water Sources (quantity and quality)
  - Water Rights
  - Water Storage (condition and quantity)
  - Distribution System (condition and performance)
  - Compliance with State & Federal regulations
- Identify issues
- Develop alternatives to address issues
- EID evaluates environmental impacts of alternatives

Problems Identified

- Fish Creek transmission line
- Insufficient source capacity redundancy
- Distribution system shortcomings
- DEQ Sanitary Survey deficiencies
- Security concerns
- Water meter replacement needed

Fish Creek Transmission Line

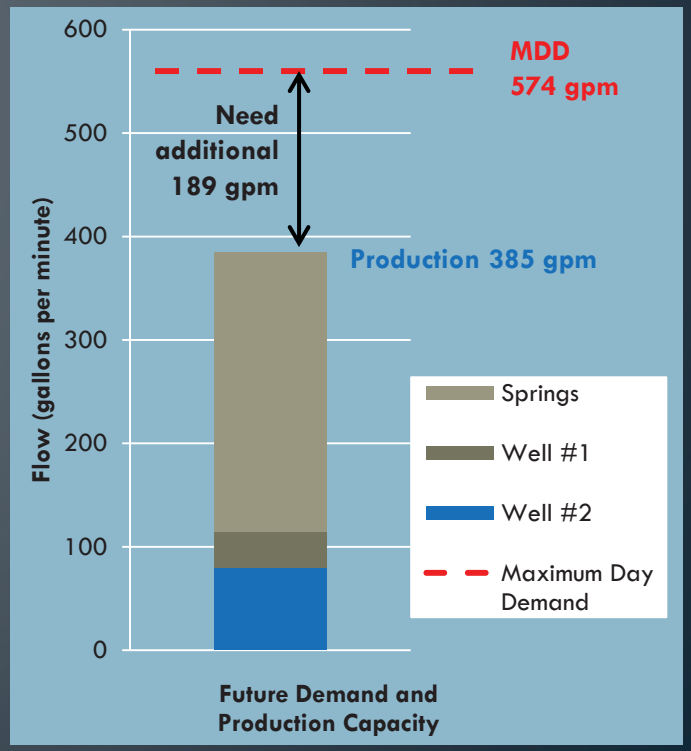
- Poor Condition
  - Installed in the 1940's
  - Cast iron pipe with lead joints
  - Numerous repairs (5-10 per year)
- Susceptibility
  - Pipe is exposed in 2 of the 3 creek crossings
  - Portions located on steep slopes
- Critical
  - Conveys nearly **80%** of the City's water to the tanks
  - Springs & Well #1

Portneuf River
BLACKFOOT HWY
Portneuf River
Well #2
E McAUGHAN RD
W MAIN ST
E MAIN ST
N CENTER ST
W 4TH ST S
Transmission line on steep hillside.
Exact location unknown.
Water Tanks
Dempsey Creek
S DEMPSEY CREEK RD
THUNDER MTN RD
Crossing #3
Fish Creek
FISH CREEK RD
US HWY 30
Well #1
Fish Creek Springs
Crossing #2
Crossing #1
N
0 500 1,000 2,000 Feet
Lava Hot Springs Water System
KELLER associates
305 N. 3rd Avenue
Pocatello, ID 83201
208.238.2146
www.kellerassociates.com

Wells

- Insufficient capacity if the transmission line were inoperable
  - Well #2 = 80 gpm
  - Avg. Day Demand = 110 gpm
    - Shortfall of 30 gpm
- Need additional capacity for future demands
  - Total Capacity = 385 gpm
  - Future Avg. Day Demand = 165 gpm
  - Future Max Day Demand = 574 gpm
    - Shortfall of 189 gpm
- Need new well for redundant water supply – DEQ requirement

Source	Production (gpm)
Springs	270
Well #1	35
Well #2	80
Total	**385**

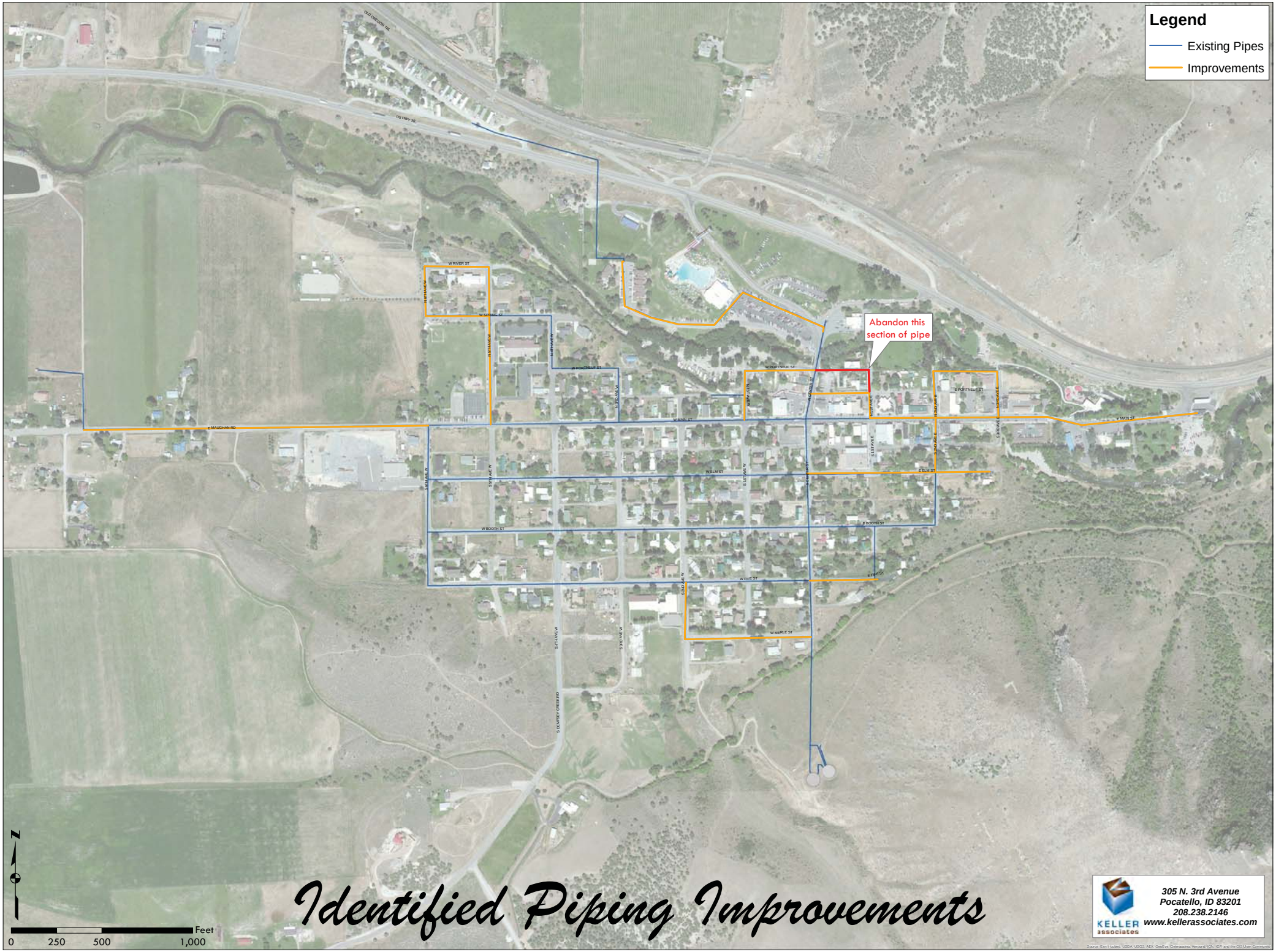


Water Supply Alternatives

- Alternatives
  - No action
  - Drill new well not dependent on Fish Creek Transmission Line
    - Provide redundancy
  - Replace Fish Creek Transmission Line
    - Primary water source

Distribution System

- Condition
  - Old thin-walled steel pipe failing
  - High pressure (>100 psi) and maintenance problems
- Fire flow requirements
  - Numerous 4” mains
  - Current code requires fire hydrants to be served by 6” mains
  - Required fire flow and minimum pressure of 20 psi
- Identified sections are the minimum recommended improvements



Identified Piping Improvements

KELLER associates
305 N. 3rd Avenue
Pocatello, ID 83201
208.238.2146
www.kellerassociates.com

Source: Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Distribution System Alternatives

- Alternatives
  - No action
  - Distribution improvements
    - Address maintenance problems
    - Bring the system up to current code
    - Resolve fire flow deficiencies

DEQ Sanitary Survey Deficiencies

- Flow paced chlorination system
  - Well #1/Spring
  - Metering pump has been upgraded
  - Need a compatible flow meter
- Check valve for Well #1
- Eye wash for Well #1/Chlorination Building
- Pressure gauge for Well #2
- Pressure relief valve for Well #2
- Screen/flapper for tank overflow

Security

- Fencing around springs
  - City has already completed a portion of the fencing
- Fencing around storage tanks
  - Barbed wire fence existing
  - Have had people on the tanks in the past
  - Upgrade to chain link fence

Water Meters

- Meters need to be replaced every 10-15 years
- Installed in 2003
  - In service 12 years
- Old water meters don't read accurately
- City has started replacing some already as they fail

Misc. System Improvements

- Alternatives
  - No action
  - Address DEQ Sanitary Survey deficiencies
    - Compliance with State and Federal requirements
  - Chain link fencing at springs and tanks
    - Improve security and safety
  - Replace water meters
    - Improve accuracy

Cursory Environmental Impacts

Environmental Criteria	Drill Well	Replace Transmission Line	Distribution Improvements	Misc. Improvements
Physical Aspects	No impact	No impact	No impact	No impact
Climate	No impact	No impact	No impact	No impact
Population	No impact	No impact	No impact	No impact
Economics & Social Profile	No impact	No impact	No impact	No impact
Land Use	Small area affected	No impact	No impact	No impact
Floodplain	No impact	No adverse impact	No adverse impact	No impact
Wetlands	No impact	Minimal adverse impacts	No impact	No impact
Wild & Scenic Rivers	No impact	No impact	No impact	No impact
Cultural Resources	No impact	No impact	No impact	No impact
Flora & Fauna	No impact	No long term adverse impacts	No impact	No impact
Recreation & Open Space	No impact	No impact	No impact	No impact
Agricultural Lands	Small area affected	No impact	No impact	No impact
Air Quality	No impact	No impact	No impact	No impact
Energy	Minimal impact	Positive impact in reducing pumping costs	No impact	No impact
Regionalization	No impact	No impact	No impact	No impact
Water Quality	No impact	Positive impact	No impact	Positive impact

Estimated Costs

Improvement	Cost
• Drill New Well & Connect to System	$785,000
• Fish Creek Transmission Line Replacement	$1,776,000
• Distribution System Improvements	$1,550,000
• Misc. items, Sanitary Survey Items & Meters	$278,000
Total Recommended Improvements	$4,389,000

Costs include Construction Contingency, Engineering, & Funding Administration

Impact to User Rates

- Draft Loan Offer from DEQ
  - $4.4 million
  - 30 years at 1.75%
  - $300,386 of principal forgiveness (grant)

A.	Current Average Monthly User Charge per EDU	$20.00
B.	Change in Operation & Maintenance Monthly Charge per EDU	$0
C.	Change in Debt Service Monthly Charge per EDU	$62.93
D.	Future Average Monthly User Charge per EDU (A + B + C)	$82.93

Bond Election

- Scheduled for May 19, 2015
- Need to pass a bond to secure funding
- Need funding to complete improvements

Questions?

Call us at

(208) 238-2146

Bryan Phinney, PE, D.WRE

bphinney@kellerassociates.com

Matthew Hill, PE

mhill@kellerassociates.com

Oksana Roth, EI

oroth@kellerassociates.com

KELLER associates

Lava Hot Springs

WATER FACILITIES PLANNING STUDY – PUBLIC MEETING

MAY 14, 2015 – 5:30 PM

Name: (Please Print)	Address:	Phone:
1. Matthew Hill	Keller Associates. 305 N. 3rd Ave, Pocatello, ID	238-2146
2. Oksana Roth	— " —	— " —
3. Holly Batten	214 E. Center St. Pocatello, ID	233-4535 x2
4. Kathleen Lewis	214 E. Center Pocatello, Id	233-4535 x4
5. BOB BERGENDORF	200 WEST MAIN, LAVA	776-5297
6. FRED HINZ	588 SPRING ST. LAVA Hot Springs	776.5242
7. MARY HINZ	"	"
8. Amantha Sierra	186 W Elm Lava Hot Springs	208-220-0952
9. Kenneth Fagnant	Fire Chief: 9431 E. Merrick, Lava	208-776-5933
10. CARL BROWN	P.O. Box 302 LAVA	801 5559443
11. [illegible]	PO Box 23 Lava	801 776 5244
12. [illegible]	Box 114 Lava	208-776-5580
13. Tamara Davids	P.O. Box 692 - 118 S. 5th W Lava	(208) 317-5555
14. Kent Lowe	Box 344 Lava	776 5605
15.		
16.		
17.		
18.		

KELLER associates

PROOF OF PUBLICATION

STATE OF IDAHO
County of Bannock

LN 22438 **KAREN MASON**

being first duly sworn on oath deposes and says: that SHE was at all times herein mention a citizen of the United States of America more than 21 years of age, and the Principal Clerk of the Idaho State Journal, a daily newspaper, printed and published at Pocatello, Bannock County Idaho and having a general circulation therein.
That the document or notice, a true copy of which is attached, was published in the said IDAHO STATE JOURNAL, on the following dates, to-wit:

_Apr_30____2015__Apr _____2015
_____2015__Apr_____2015
_____2015__Apr_____2015
_____2015__Apr_____2015

That said paper has been continuously and uninterruptedly published in said County for a period of seventy-eight weeks prior to the publication of said notice of advertisement and is a newspaper within the meaning of the laws of Idaho.

PUBLIC MEETING

The City of Lava Hot Springs will hold a public meeting on 5/14/2015 at Lava Hot Springs City Hall, 115 West Elm St. at 5:30 PM. The purpose of the public hearing is to present the Lava Hot Springs Water Facility Planning Study. The main purposes of the meeting are to:

1. Explain the alternatives considered in the facility plan including potential environmental impacts of each alternative,
2. Explain funding options available to the City and the potential financial impact on the public, and
3. Solicit verbal and written comments regarding the alternatives under consideration.

A copy of the facility plan is available at City Hall beginning 5/14/2015 for review. Written comments will be accepted for a period of 14 days minimum following this date, ending on 5/29/2015.

After considering and addressing comments, the City Council will select an alternative and document the selection. A detailed environmental evaluation will be performed on the selected alternative.

April 30, 2015

LN22438

STATE OF IDAHO KMason
COUNTY OF BANNOCK
On this 30th of Apr. in the year of 2015, before me, a Notary Public, personally appeared KAREN MASON Known or identified to me to be the person whose name subscribed to the within instrument, and being by me first duly sworn declared that the statements therein are true, and acknowledge to me that he executed the same.

Notary of Public
Lori A. Sekot
Residing at Arimo exp. 3/3/2021

LORI A. SEKOT NOTARY PUBLIC STATE OF IDAHO

Open House for Lava Hot Springs Water System

You are invited and encouraged to attend an open house to discuss the findings of the Water Facilities Planning Study. Keller Associates will be in attendance to answer questions and present alternatives to address deficiencies that have been identified in the water system. Potential impacts to users will also be discussed. A bond election is set for May 19, 2015 to vote on securing funding for the proposed projects. Please come and learn the facts to support the City in improving our water system. Water rates will have to increase to fund the project. Please attend the open house so that you can make an informative vote at the election.

The open house is scheduled for **Thursday May 14, 2015** from **5:30 to 6:30 PM at Lava City Hall**.

100th Birthday Celebration – Schedule of Events

May 16, 2015 Carp Derby
May 30, 2015 Kids Mini Tri – Lava Hot Springs Foundation Swimming Pool Complex
May 30, 2015 Wellness Festival – Application on back of this page.
May 30, 2015 Off Road Vehicle Poker Run – Start & Finish @ Buddy Campbell Memorial Park
June 13, 2015 Color Run
July 24, 2015 Birthday Celebration @ Buddy Campbell Memorial Park 1 PM

Centennial T-shirts, hoodies and coffee mugs are on sale at Lava City Hall and at events.

Lava Hot Springs

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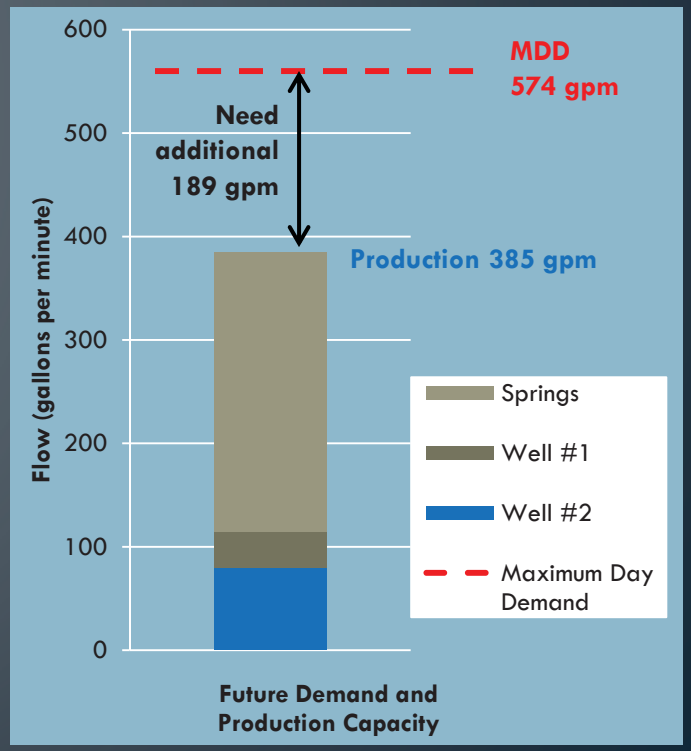

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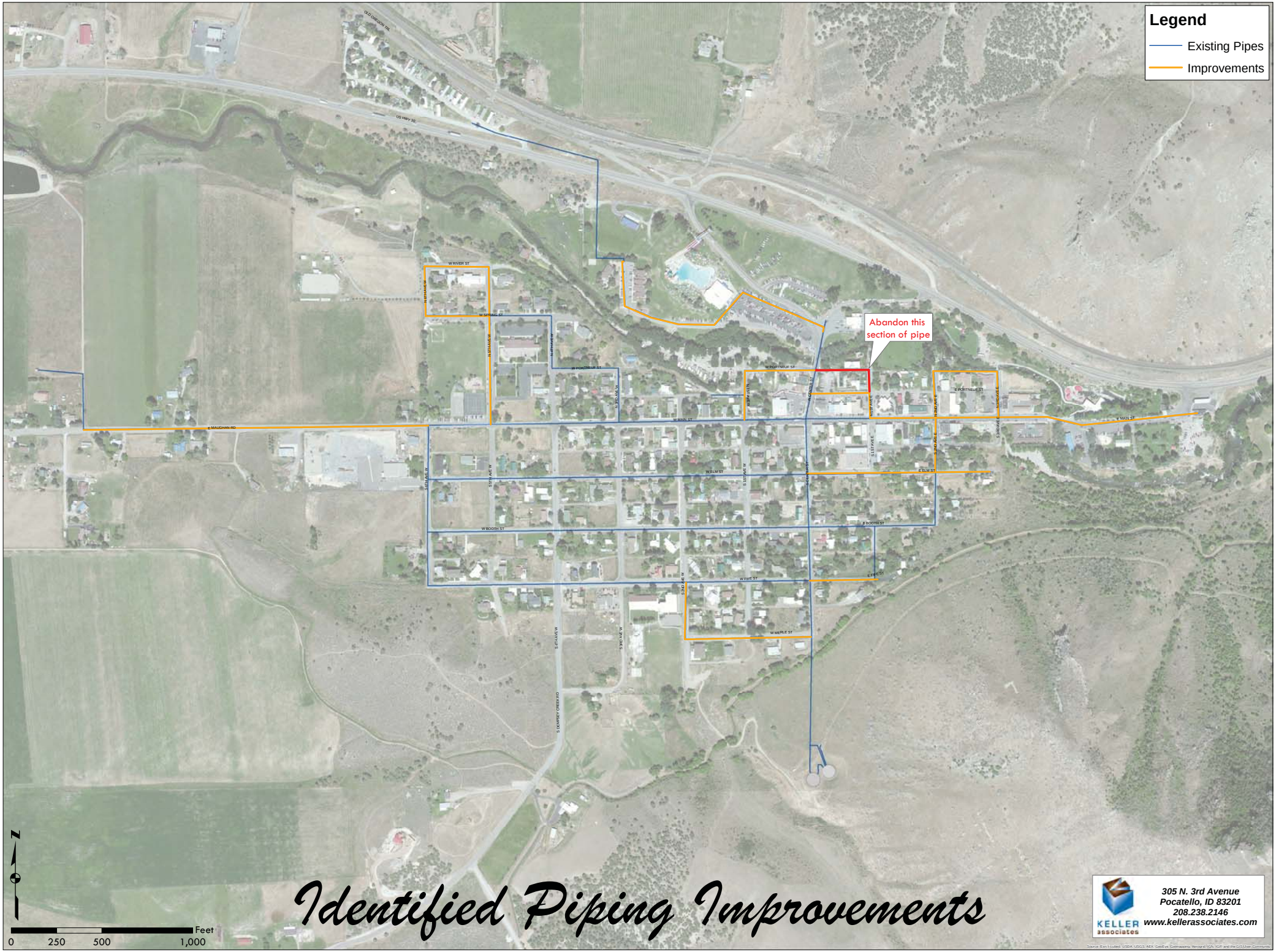

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D.	Future Average Monthly User Charge per EDU (A + B + C)	$82.93

Bond Election

- Scheduled for May 19, 2015
- Need to pass a bond to secure funding
- Need funding to complete improvements

Questions?

Call us at

(208) 238-2146

Bryan Phinney, PE, D.WRE

bphinney@kellerassociates.com

Matthew Hill, PE

mhill@kellerassociates.com

Oksana Roth, EI

oroth@kellerassociates.com

KELLER associates

PLEASE TELL US HOW YOU FEEL . . .

The purpose of this public meeting is to provide the residents of the City Lava Hot Springs with detailed information regarding the water system. We hope that you have had the opportunity to learn more about the existing water system condition, proposed alternatives to address identified issues, and seek answers to your questions or concerns. We would like to hear your comments and questions. Please write them in below and either give to a member of the City Council or send your comments or questions to the following:

Keller Associates, Inc.
305 N. 3rd Avenue, Suite A
Pocatello, ID 83201
Phone: (208) 238-2146
Fax: (208) 238-2162

Name: _____ Phone: _____

Address: _____

Email Address: _____

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KELLER associates

AFFIDAVIT OF DISTRIBUTION

STATE OF IDAHO)

COUNTY OF BANNOCK)

CITY OF POCATELLO)

I, PAMELA E. POWELL, being duly sworn on oath now and during all times herein stated, have been the publisher and designated agent of the publication known as,

IDAHO STATE JOURNAL ("Publication")

and have full knowledge of the facts herein stated as follows:

The insert for MOORE SMITH BUXTON (Display Ad/Advertiser") with Insertion Order No. CITY OF LAVA HOT SPRINGS was distributed according to the Insertion Order/Distribution List on the 23RD day of JUNE, 2015.

By: Pamela E. Powell

Subscribed and sworn to before me this 25 day of JUNE, 2015.

Notary Seal:

Lori A. Sekot

Notary Public

LORI A. SEKOT
NOTARY
PUBLIC
STATE OF IDAHO

Wreck

Continued from A1

reports indicated that the car didn't yield at a stop sign, but deputies are still investigating the incident.

There were three juveniles, ages 12, 15 and 17, in the passenger car and two 19-year-old males in the truck, sheriff's officials said. Multiple people were ejected during the crash, and one of the people in the car had to be extricated from the vehicle.

Emergency helicopters from both Life Flight Network and Portneuf Medical Center responded to the scene and transported two of the accident victims who had been in the car and sustained serious injuries to PMC in Pocatello, sheriff's officials said. All of the other accident victims were transported by ground ambulance to Power County Hospital District in American Falls.

Sheriff's officials did not release the victims' conditions on Monday, but they did say that as of 1:40 p.m. there hadn't been any fatalities reported.

Emergency officials with the Power County Sheriff's Office and Aberdeen Fire and Ambulance also responded to the scene. Chief Deputy Jeff Gardner with the Bingham County Sheriff's Office said he appreciated the neighboring agencies that offered assistance.

"Everyone was taken care of very quickly," he said.

BRIEFS

FORMER JEFFERSON COUNTY SHERIFF SENTENCED FOR MISUSING PUBLIC FUNDS

A former Jefferson County sheriff will have to serve some time in jail and on probation for misusing more than $1,000 in county funds. Blair Olsen, who was convicted of three felony counts of misusing public funds, was ordered on Monday to serve 30 days in jail and three years of probation, according to a news release from the Idaho Attorney General's office.

However, the judge included a provision that allows Olsen to be released after 15 days in jail and serve 120 hours of community service within a 60-day time period. He will also have to pay restitution and a fine. Olsen was charged with the crimes for using county funds to pay for his wife's cellphone from 2010 through 2012, according to the news release, which adds that the case was tried in Twin Falls County to help ensure a fair trial.

Olsen was convicted by a jury in May and was subsequently disqualified from holding office. He was replaced as sheriff days later, according to the news release.

"Public corruption cases are serious for the simple fact that the offender holds a position of public trust and authority, and then takes advantage of that position," Attorney General Lawrence Wasden said in the news release. "This remains true if the crime results in the loss of even the smallest amount of public funds.

"But the real loss in these cases is to the erosion of trust and faith citizens have in their government. Tackling public corruption is essential to restoring that trust and faith citizens must have in their government and those elected to lead it," Wasden said in the news release.

POCATELLO VALLEY FIRE DEPARTMENT RESPONDS TO BRUSH FIRE, WRECK

The Pocatello Valley Fire Department responded to both a small brush fire and a wreck on Monday.

In the first incident, a transformer sparked and caused some weeds to catch fire in a resident's backyard in the area of Lower and Piedmont roads near Pocatello early Monday afternoon, said Fire Chief Karen Aguilar. The family was home at that time and was able to extinguish the flames with a garden hose.

The second incident involved a 1999 Ford F-350 pickup, which was towing a Ford Ranger pickup on a dolly on Interstate 15 near Pocatello shortly before 5 p.m.

Aguilar said no one was transported in that incident, but a guardrail was damaged.

Clair Beasley, 76, of Ogden, Utah, was driving north when he lost control of the pickup, Idaho State police said. The vehicle subsequently went off the right shoulder of the road and then rolled onto its side.

The right side of the northbound I-15 lanes was blocked for about two and a half hours as a result of the crash, police said.

Church

Continued from A1

Stephanie and Tiffanie Evans got the worshippers on their feet, and most of the crowd stayed on their feet throughout the service.

"It's all the Lord," Stephanie said modestly.

Sunday services at Praise God temple are a little bit like being at a family reunion but with better music.

Newcomers are welcomed, birthdays are remembered and the congregation takes a few minutes to mingle and introduce themselves. The atmosphere is joyful.

During Sunday's services last week, fathers and single moms were recognized with a Father's Day gift.

The congregation joined hands and sang an emotional a capella version of "We Shall Overcome."

Thomas said God has a way of turning tragedy into something good.

Shryock

Continued from A1

toxicology results in the case.

Christofferson seemed nervous but did try to smile at her mom.

She waived her preliminary hearing last week, and Andrew told members of the Shryock family that Christofferson was very remorseful about the accident.

According to police reports, Shryock was driving a 2005 Harley Davidson westbound on U.S. Highway 30 when Christofferson, headed east in a 1997 Mazda Protégé, crossed into the westbound lane and struck Shyrock head on.

Shryock was pronounced dead at the scene. She left behind three children.

Shryock's family sat in the back row of the courtroom Monday across the aisle from Christofferson's family.

Andrew asked that Christofferson be released on her own recognizance or that the $100,000 bond in the case be reduced. The judge denied those requests.

LAVAHOTSPRINGS.COM

Colleges

Continued from A1

Public Affairs. Meanwhile, the University of Idaho discontinued 19 degree options. These options included bachelor degrees in American Studies, Art Education and Medical Technology. Lewis Clark State College consolidated a student testing center, and Idaho State University eliminated eight degree and degree emphasis programs.

Idaho's State Board of Education first directed college officials to evaluate programs in 2013 after seeing a decrease in revenue from tuition and state funds. College officials gave an update to the board last week and will report annually to the board as they continue to make changes.

The board only required colleges to review programs rather than uniformly trim each budget the same amount. However, colleges were given instructions that programs that evaluated poorly must find ways to improve.

Each school assessed its programs differently, but according to the universities, reviews were based on demand, student retention, graduation and efficiency.

"The question was: Are we providing programs students need?" said Blake Youde, board spokesman. "There has been a consistent concern over the cost of higher education and falling revenue from the state legislature."

In 2008, state lawmakers approved more than $259.5 million to help cover 26 percent of the combined budgets of all four universities. This year — following the economic downturn and slow recovery— lawmakers approved $246.5 million or less than 20 percent of the combined budgets. At the same time, schools have seen stagnant enrollment.

Boise State University faced substantial expense cuts during the 2014-2015 school year because of a shortfall in its $440 million budget at the same time that it carried out its program changes, said Jim Munger, vice provost for academic affairs for the university.

The academic division had to find a way to reduce more than $1 million in its budget. Non-academic divisions left multiple positions vacant and reorganized to cut costs. For example, officials are now looking to invest in their own campus security rather than rely primarily on the Boise Police Department.

"The first year we talked the talk. But this past year we really had to walk the walk," Munger said.

Up north, the University of Idaho not only cut degree and certificate programs, it also consolidated six programs into different departments. The biggest hit went to the university's music departments. The school reduced nine degree programs to three with different areas of emphasis and made the university's music theatre major degree program a minor.

Lewis Clark State College had the least amount of changes. It discontinued three academic degrees and two certificates.

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Murder

Continued from A1

attorneys to decide if he should disqualify himself.

Clark left the bench, and John Souza, who is representing Dixey, and Randy Schulthies, Bruce's attorney, voted to determine if the judge should pass the case to another judge. At least one of the lawyers asked that Clark excuse himself.

As a result, future hearings, including the motion to consolidate, will be rescheduled in front of a magistrate judge other than Clark, Parris said.

Police were called to an apartment complex at 139 N. Grant Street at about 3:30 p.m. on June 5 after someone reported seeing a man in a bloody bathtub. The caller also said individuals from the apartment were looking for a tarp.

Bannock County Prosecutor Steve Herzog said that once inside the apartment, police located Bruce and Dixey along with two females in the bedroom with what appeared to be Elkins' body stuffed into a trash can.

At that point, officers secured the scene and obtained a search warrant for the residence, Herzog said.

Alcoholics Anonymous
If you want to drink, that's your business.
If you want to quit, that's our business.
To find a meeting in your local area, visit
www.idahoarea18.org

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CITY OF LAVA HOT SPRINGS NOTICE OF HEARING TO CONSIDER A RESOLUTION AUTHORIZING THE FILING OF A PETITION FOR JUDICIAL CONFIRMATION UNDER THE IDAHO JUDICIAL CONFIRMATION LAW

NOTICE IS HEREBY GIVEN that on Thursday, the 9th day of July, 2015, at 5:30 o'clock P.M., or as soon thereafter as the matter may be heard, at the Lava Hot Springs City Hall, 115 West Elm Street, Lava Hot Springs, Idaho, the City Council of the City of Lava Hot Springs, Idaho (the "City"), will conduct a public hearing to consider the adoption of a resolution authorizing the filing of a petition for judicial confirmation under the Idaho Judicial Confirmation Law, Title 7, Chapter 13, Idaho Code.

The proposed petition would seek judicial confirmation of the power of the City (1) to incur an indebtedness as an "ordinary and necessary expense" of the City authorized by the general laws of the State, within the meaning of Article 8, Section 3, of the Idaho Constitution, in a principal amount not to exceed $4,500,000, for domestic water system improvements; (2) to enter into a loan agreement and to issue the promissory note or other evidence of indebtedness of the City for the same, for the purpose of financing the cost of necessary improvements to the domestic water system of the City; and (3) to pledge the City's water system revenues for the payment of such indebtedness for a term of years.

Information relating to the proposed petition and financing is available at the office of the City Clerk, Lava Hot Springs City Hall, 115 West Elm Street, Lava Hot Springs, Idaho, during normal business hours of the City. Interested persons are encouraged to attend the public hearing and to present comments. Comments may also be submitted in writing to the Mayor and Council, City of Lava Hot Springs, 115 West Elm Street, Lava Hot Springs, Idaho 83246.

DATED the 18th day of June, 2015.

CITY OF LAVA HOT SPRINGS
Bannock County, Idaho

AFFIDAVIT OF DISTRIBUTION

STATE OF IDAHO)

COUNTY OF BANNOCK)

CITY OF POCATELLO)

I, PAMELA E. POWELL, being duly sworn on oath now and during all times herein stated, have been the publisher and designated agent of the publication known as,

IDAHO STATE JOURNAL ("Publication")

and have full knowledge of the facts herein stated as follows:

The ~~insert~~ AD for CITY OF LAVA HOT SPRINGS ("Ad/Advertiser") with Insertion Order ~~No.~~ BY MOORE, SMITH, BUXTON was distributed according to the Insertion Order/Distribution List on the 24th day of September, 2015.

By: Pamela E Powell

Subscribed and sworn to before me
this 29th day of Sept, 2015.

Notary Seal:

Lori A. Sekot
Notary Public

LORI A. SEKOT
NOTARY
PUBLIC
STATE OF IDAHO

IEFS

minor.

The two worked as ouse parents at the :hildren's Christian .anch in Eagle, a private roup home for kids up ɔ age 18. The sher- 'f's office says the two ictims in the case, a 4-year-old girl and a 7-year-old girl, lived t the home under the Iagills' care.

They are due to appear ı district court Oct. 2.

Indian Days' comes o Fort Hall Sept. :5, 26

FORT HALL — "Indian)ays" is being held in ort Hall on Friday and aturday with a variety of vents. Friday, the Indian)ay Powwow begins at hoshone-Bannock Ju- ior-Senior High School ɔr Indian Day royalty ageant only. Applica- .ons will be available tarting at 4 p.m. with election of new royalty t 6 p.m. Also on Friday, :ribal members can visit ıe Wild Adventure Corn Iaze — just show your :ribal ID at the gate. It's ɔcated off the Rose Exit 8.

On Saturday, there will e a parade at 10 a.m. t the school, featuring ıe Sho-Ban Junior/Se- ior High School Dance 'roupe and Indian Club, nd traditional games will e held after the parade. ı feast is scheduled at oon and at 2 p.m. will e the grand entry. A ıree-man handgame ɔurnament will be held ı the cafeteria. Master f ceremonies will be ;obette Haskett and host rum will be performed y Medicine Thunder.

Also on Saturday will e the Fort Hall Indian :elay starting at 3 p.m. t the Fort Hall rodeo rounds. Admission is ree. Races include the In- ian Relay, Chief's Race, adies' Race, Elder's Race, 'outh Race and kids'

Smoke from central Idaho wildfire fills skies

By JOURNAL STAFF

HANNAH LEONE/IDAHO STATE JOURNAL

Pocatello firefighters extinguished a small brush fire off Bench Road on Wednesday afternoon.

Smoke from a large wildfire in central Idaho resulted in multiple people in southeast Idaho dialing 911 Wednesday out of fear that the flames were closer to home.

Authorities said the wildfire was reported by a passerby around noon Wednesday and by 6 p.m. the flames had consumed over 6,000 acres northeast of Minidoka, a town of about 100 people northeast of Rupert and Burley.

Smoke from the wildfire began to show up in Pocatello, Chubbuck and American Falls late Wednesday afternoon.

Some Pocatellans thought the smoke was from a brush fire nearby residents reported off Bench Road around 4 p.m. Wednesday but that fire only burned about a half-acre and the flames were quickly extinguished by Pocatello firefighters.

Neither the massive fire near Minidoka nor the small fire in Pocatello resulted in any injuries, evacuations or damage to structures Wednesday.

But both fires were likely human caused. Pocatello firefighters said kids shooting off bottle rockets probably caused the brush fire off Bench Road while investigators believe the Minidoka area fire was somehow caused by a person because there hasn't been any lightning that could have otherwise sparked the blaze.

It's likely the dozens of firefighters from the Bureau of Land Management and volunteer fire departments trying to extinguish the fire near Minidoka will continue battling the flames overnight.

They were getting help Wednesday afternoon from four single-engine air tankers and one helicopter.

But BLM officials said the fire is still spreading and they don't know when it's going to be contained.

Fortunately, there are no homes or businesses anywhere near the fire.

As of 6 p.m. Wednesday the state Department of Environmental Quality had not issued any air quality warnings despite the heavy smoke in the air throughout parts of southeast Idaho.

The National Weather Service at Pocatello Regional Airport said the smoke could get worse overnight and will likely continue to fill the region's skies on Thursday.

Franklin County residents thought they were in the midst of a raging wildfire Wednesday afternoon when thick smoke filled their skies.

But the Franklin County Sheriff's Department said the smoke was actually from a controlled burn set by the U.S. Forest Service.

Ligertown/

from A1

"The conditions these animals were living in was deplorable to say the least," said Nielsen. "That was part of our decision to burn the facility down. on Idaho. The situation at Ligertown forced Idaho to put new laws in place regarding exotic animals and animal cruelty. Culturally, Southeast Idaho will forever remember the liger thanks to the "Napoleon Dynamite" movie and TV show.

THE DOCTOR IS IN...

Dr. Esplin

Q: What are overuse syndromes?

Dr. Stucki

235-HAND (4263)
560 Memorial Dr, Suite B
Pocatello, ID 83201

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A FREE Service of the Idaho State Journal

"Ironically, not for our hot springs or beautiful scenery."

Dragila/from A1

And like Tingey tweeted, there is a street in Pocatello named after the star pole vaulter. Dragila Way is on Idaho State's campus, just south of Holt Arena.

Ultimately, though, ISU harbors no ill will.

"Stacy is an icon at Idaho State," Tingey said Wednesday, "and we'd like to keep it that way."

ASK A PROFESSIONAL

Miracle-Ear Center
2350 Via Caporatti, Pocatello
(208) 237-5322

Barry D. Finlay
ACA, BC-HIS

Miracle-Ear
Audiology & Hearing Clinics

Q It seems like I hear about a lot of people who buy hearing aids and then they don't want to wear them. Why does that happen?

Log on to www.idahostatejournal.com and click on 'site' drop down menu to find the Ask A Pro page.

A FREE Service of the Idaho State Journal

CITY OF LAVA HOT SPRINGS NOTICE OF HEARING TO CONSIDER A RESOLUTION AUTHORIZING THE FILING OF A PETITION FOR JUDICIAL CONFIRMATION

NOTICE IS HEREBY GIVEN that the City of Lava Hot Springs, Bannock County, Idaho (the "City"), has petitioned, pursuant to Idaho Code § 7-1301, et. seq. to seek judicial confirmation of the power of the City (1) to incur an indebtedness as an "ordinary and necessary expense" of the City authorized by the general laws of the State, within the meaning of Article 8, Section 3, of the Idaho Constitution, in a principal amount of approximately $4,500,000 for the purchase of improvements to the public water system of the City; (2) to issue a promissory note or other evidence of such indebtedness of the City for same, for the purpose of financing the cost of necessary improvements to the public water system; and (3) to pledge the City's water system revenues and other lawfully available funds of Petitioner to the payment of such indebtedness for a term of years.

Interested parties who wish to review the Petition may do so during normal business hours at the City Municipal Building, 115 W Elm Street, Lava Hot Springs, Idaho.

Any interested party may appear by written appearance or answer to the Petition filed with the Clerk of the above-entitled Court at any time prior to the date set for hearing on the Petition, which has been set before the Hon. Stephen S. Dunn on the **2nd day of November, 2015, at 2:00 o'clock P.M.**, or as soon thereafter as the matter may be heard, at the Bannock County Courthouse, 624 E Center, Pocatello, ID 83201.

DATED the 18th day of September, 2015.

CLERK OF THE DISTRICT COURT

AFFIDAVIT OF DISTRIBUTION

STATE OF IDAHO)

COUNTY OF BANNOCK)

CITY OF POCATELLO)

I, PAMELA E. POWELL, being duly sworn on oath now and during all times herein stated, have been the publisher and designated agent of the publication known as,

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and have full knowledge of the facts herein stated as follows:

The ~~insert~~ AD for CITY OF LAVA HOT SPRINGS ("Advertiser") with Insertion Order ~~No.~~ BY MOOLE, SMITH, BUXTON was distributed according to the Insertion Order/Distribution List on the 1ST day of OCTOBER, 2015.

By: Pamela E. Powell

Subscribed and sworn to before me this 1st day of Oct, 2015.

Notary Seal:

Lori A. Sekot
Notary Public

LORI A. SEKOT
NOTARY
PUBLIC
STATE OF IDAHO

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Woman sentenced after falcon's death

COUER D'ALENE (AP) — A northern Idaho woman who was found guilty in connection to the death of a hunter's falcon has been sentenced to community service.

Kootenai County District Court Judge James Stow on Monday ordered 60-year-old Patti MacDonald, of Hauser, to complete 20 hours of community service before the end of the year and pay $500 in court fees, The Coeur d'Alene Press reports. She was found guilty of pursuing a protected bird.

Stow said a letter from the falcon's owner Scott Dinger asking that MacDonald not receive jail time was taken into consideration.

"It's appropriate that there is some punishment," Stow said, adding that it was also important to recognize that MacDonald's actions were, "not something she instigated."

Prosecutors said MacDonald fractured the skull of the 8-year-old falcon named Hornet on Jan. 7 trying to save a mallard. Both birds died that day.

"Any reasonable person should see that's not a situation you interfere with," said prosecutor Art Verharen.

MacDonald stopped her car to break up the fight when she saw the falcon wrestling with the mallard.

Verharen had recommended a jail sentence that MacDonald could have served in the Sheriff's Labor Program.

"She showed no empathy to Mr. Dinger when it became clear that she was dealing with someone's pet," Verharen said. "She took a stance without remorse or respect for that. In her mind, it's justified. In her mind, it's OK. And I guess I see that as arrogance."

MacDonald's attorney Michael Palmer asked for a more lenient sentence, saying MacDonald's actions were motivated by good.

"She tried to break up that fight," Palmer said. "While they're saying there's no empathy, it would take a great deal of empathy to attempt to save that duck."

NEWS BRIEFS

Man riding bicycle taken to hospital after car collision

POCATELLO — A man was transported to the hospital Wednesday evening after the motorized bicycle he was riding collided with a car near Old Town.

The man, whose identity has not yet been released, was transported by a Pocatello Fire Department ambulance to the Portneuf Medical Center in Pocatello for treatment of what firefighters called non-life threatening injuries.

The crash happened around 6 p.m. at Main and Carson streets.

The man who was transported to the hospital was riding a bicycle outfitted with a small motor—something firefighters said are becoming somewhat common in Pocatello.

Pocatello police said the crash remains under investigation.

Missing truck driver found deceased in Idaho Falls

IDAHO FALLS — A missing truck driver from Wisconsin was found deceased in a semi parked in Idaho Falls on Tuesday morning.

Joelyn Hansen, public information officer for the Idaho Falls Police Department, said it appears that David W. Fadness, 57, died of natural causes. He was found in the sleeper area of the semi he had been driving. It was still parked at Sam's Club, where he had deliv- truck in the parking lot and contacted authorities.

Fadness did have a dog, a 1-year-old black Labrador mix, with him when he died. Hansen said the animal is doing fine and will be given to one of the man's family members..

Group hopes to save tree grown from Apollo 14 seeds

BOISE (AP) — Boise residents are trying to save a tree that was grown from seeds taken aboard the Apollo 14 mission to the moon.

The Idaho Statesman reports the loblolly pine planted in 1977 on Lowell Elementary School's campus is dehydrated and infected with insects.

Eagle Historical Museum curator Alana Dunn brought the tree to the school's attention. Pattie Hennequin has a third-grader enrolled at Lowell and is now leading the effort to save the so-called moon tree.

"The tree has a special place in our history," she said. "It's a fascinating thing to help teach kids about space exploration and to tie in a little Idaho history."

Astronaut Stuart Roosa included the seeds in his personal items at the request of the Forest Service, in part to test the effects of zero gravity. Roosa was a former Forest Service smoke jumper.

Most of the seeds germinated after returning from their journey

Lowell got its tree because the son of then-Gov. John Evans was enrolled there.

It's unclear where all the moon trees were planted, with many of the known trees having died off since the 70s.

Arborists with Idaho Tree Preservation in Boise are donating time to deal with the insects. The North End Neighborhood Association has agreed to pay for the 275 gallons of water the pine needs each week.

Lowell students are making a plaque for the unmarked tree, which Principal Nick Smith said was hard to identify at first.

"We had to gather cones from both trees to figure out which one was the loblolly," he said.

Rubio campaign taps Idaho controller as state chairman

BOISE (AP) — Republican presidential candidate Marco Rubio on Wednesday selected Idaho State Controller Brandon Woolf to serve as state chairman for the campaign.

Woolf is a Preston native.

Woolf says the Florida senator has a conservative vision that is needed in America, and he admires the Republican's leadership.

Rubio is among more than a dozen Republicans seeking the party's nomination. The candidate made a campaign stop in Idaho earlier this year and has been named a favorite of Idaho's mega-donor Frank VanderSloot.

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morning.

Hansen said a Sam's Club employee who had heard about the missing man noticed the semi

in space and were distributed to schools and other entities to grow. Demand was so high the Forest Service grew more seedlings from cuttings of the trees.

Idaho recently moved up its presidential primary election to March 8, with the hopes of making its 32 GOP delegates more relevant in the upcoming election.

Food/from A1

She moved to Pocatello after marrying her husband, and she brought her parents over last year. Phranasith said she enjoys living in Pocatello because it is a small town, about the same size as her hometown in Thailand.

"It's a small town just like this," she said, "and it feels safe here. It's good for the kids."

Phranasith has three kids, ages 12, 7 and 5. She said her kids were part of the reason she chose to open a food truck rather than a restaurant.

"I want more time with my kids, and if I open a restaurant I may not have any time," said Phranasith. "But a lot of people ask about that, so maybe in a couple of years."

For now Phranasith said she's happy with the food truck. She said pad thai is her favorite thing to cook, and it is also a favorite among her customers.

"I just love noodles," said Phranasith "and I think most people know Thai food as pad thai. Curry they see as an Indian food, and they see stir fry as Chinese."

While food trucks are less time-consuming than restaurants, Phranasith said it's still time-consuming because she has to prepare a lot of the food early in the day. Then she has to load it all into the food truck to be cooked to order. However, she said cooking is what she loves to do, so she doesn't mind the extra work.

"When you do something that you love to do, it doesn't feel like work," said Phranasith. "It makes me happy to see people come back again."

With a five-star rating on Facebook it doesn't seem like Thai Zap has any problems getting people to come back. The truck is open Tuesday through Saturday from 11 a.m. to 7 p.m. outside of Element Outfitters on Yellowstone Avenue in Pocatello.

AHO STATE JOURNAL

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nd (monthly)	$11.50	$13.00	$12.25
iption Price	$6.39	$7.14	$6.66
ax at 6%	$.41	$.46	$.42
y service cost	$4.70	$5.40	$5.17

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@journalnet.com
ohnson, Finance Director
ın@journalnet.com
ımith, IT Director
@journalnet.com
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nts@journalnet.com

Nathan Slater, Circulation Director
nslater@journalnet.com
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CITY OF LAVA HOT SPRINGS NOTICE OF HEARING TO CONSIDER A RESOLUTION AUTHORIZING THE FILING OF A PETITION FOR JUDICIAL CONFIRMATION

NOTICE IS HEREBY GIVEN that the City of Lava Hot Springs, Bannock County, Idaho (the "City"), has petitioned, pursuant to Idaho Code § 7-1301, et. seq. to seek judicial confirmation of the power of the City (1) to incur an indebtedness as an "ordinary and necessary expense" of the City authorized by the general laws of the State, within the meaning of Article 8, Section 3, of the Idaho Constitution, in a principal amount of approximately $4,500,000 for the purchase of improvements to the public water system of the City; (2) to issue a promissory note or other evidence of such indebtedness of the City for same, for the purpose of financing the cost of necessary improvements to the public water system; and (3) to pledge the City's water system revenues and other lawfully available funds of Petitioner to the payment of such indebtedness for a term of years.

Interested parties who wish to review the Petition may do so during normal business hours at the City Municipal Building, 115 W Elm Street, Lava Hot Springs, Idaho.

Any interested party may appear by written appearance or answer to the Petition filed with the Clerk of the above-entitled Court at any time prior to the date set for hearing on the Petition, which has been set before the Hon. Stephen S. Dunn on the **2nd day of November, 2015, at 2:00 o'clock P.M.**, or as soon thereafter as the matter may be heard, at the Bannock County Courthouse, 624 E Center, Pocatello, ID 83201.

DATED the 18th day of September, 2015.

CLERK OF THE DISTRICT COURT

AFFIDAVIT OF DISTRIBUTION

STATE OF IDAHO)

COUNTY OF Bannock)

CITY OF POCATELLO)

I, Pamela E. Powell being duly sworn on oath now and during all times herein stated, have been the publisher and designated agent of the publication known as,

IDAHO STATE Journal ("Publication")

and have full knowledge of the facts herein stated as follows:

The ~~insert~~ AD for CITY OF LAVA HOT SPRINGS ("~~Ad/Advertiser~~") with Insertion Order ~~No.~~ BY MOORE, SMITH, BUTTON was distributed according to the Insertion Order/Distribution List on the 8th day of OCTOBER, 2015.

By: Pamela E Powell

Subscribed and sworn to before me this 8th day of Oct, 2015

Notary Seal:

Lori A. Sekot

Notary Public

LORI A. SEKOT
NOTARY
PUBLIC
STATE OF IDAHO

CALENDAR

Today

• Shoshone-Bannock Tribes Health and Human Services will present "Community without Domestic Abuse" today in Fort Hall. The event begins with a sunrise ceremony at 7 a.m. at the Victims Assistance Program front lawn. Registration will be at 8 a.m. Guest speaker will be Geri Wisner, an attorney from Tulsa, Oklahoma, talking from 1 to 2:30 p.m. on "Domestic Violence and Its Effects on Children."

• The Power County Hospital District Foundation invites Southeast Idaho to participate in the sixth annual Scarecrow Auction and Chili Cook-off today from 5:30 to 8 p.m. at the William Thomas Middle School in American Falls, 335 Bannock Ave. Auction items include several handmade quilts, four Utah Jazz tickets and a one-night stay at a motel, a crocheted christening dress, a photo package, a Kindle and other items. Businesses and individuals can donate scarecrows, fall craft items and compete in the chili cook-off. For information, call Susan Barger at 226-3200 ext. 136.

• The Idaho Falls Police Department will host the first Coffee with a Cop event in Idaho Falls today. This event will bring officers and community members together in an informal, neutral space to discuss community issues while fostering positive relationships. All community members are invited to attend. The event will be held at the 17th Street Idaho Falls McDonalds from 8 to 10 a.m. McDonalds will provide a free small coffee or small soft drink to participants. For additional information, contact Joelyn Hansen at 208-589-3091, 208-612-8655 or jhansen@idahofallsidaho.gov.

• Senior Activity Center, 427 N. Sixth Ave. in Pocatello, has breakfast today

7 p.m. Must be 18 or older. For more information, call 233-1212.

• A fundraiser, "PSK We Care" is today at 7 p.m. at Mystique Performing Arts and Events Center, 158 E. Chubbuck Road. It will be a spaghetti dinner with many local people from local theater venues taking part. Tickets are available at Mystique, Old Town Actors Studio, Great Harvest Bread and Sunrise Travel. The fundraiser is for Patrick Kennedy, who was in a horse accident in June. He does not qualify for Medicaid or other health care systems in Idaho. For more information, call 208-238-8001.

• Red Cross blood drive is today at 8 a.m. to 12:30 p.m. at Fitness Inc., 1800 Garrett Way in Pocatello.

• Pocatello Showcase Chorus invites women of all ages who love to sing to join them. If you are interested, visit their rehearsal on Thursdays at 7 p.m. at 1422 N. Harrison Ave., the Cornelison Building. For more information, go to www.pschorus.com.

Today-Saturday

• Friends of the Marshall Public Library invite the public to their fall used book sale today, Friday and Saturday at the library, 113 S. Garfield Ave. in Pocatello. Hours are 9 a.m. to 9 p.m. today, 9 a.m. to 6 p.m. Friday and 9 a.m. to 4 p.m Saturday. Paperback items will be sold for $1 each and hardbacks for $2 each. All remaining stock is reduced 50 percent on Saturday. All sales are cash.

Today & Oct. 15, 22, 29

• Beginning digital photography four-week class starts today and continues Oct. 15, 22 and 29 at Pocatello Art Center, 444 N. Main St., 5 to 7 p.m. The instructor is Richard Albright. This course will show students how to best use their digital cameras. You need

Locals were in Philadelphia duri

By SARAH GLENN
For the Journal

POCATELLO — Amid a sea of more than a million people recently, Pocatellans Carlos Flores and Liz Meske lifted their eyes to the Jumbotron screen and basked in the glory of Pope Francis' historic stateside visit.

"I looked up at that screen and saw 1.5 million people, and it sunk in that we were all saying the same prayers at the same time," Meske said. "That was the most powerful moment for me."

Since that Mass in Philadelphia, Pope Francis has returned to Rome. The political and papal pundits have digested and commented on his actions and speeches. However, for the two Catholics from Pocatello who were in Philadelphia for the World Meeting of Families, it isn't the commentary but the camaraderie that they will never forget.

"What will I tell my grandchildren about? About how my daughter and I really had a great time there together, how the Pope radiates his love and message to everybody," Flores said. "And that it was not just me. All these people felt the same way. For that time we were all in unison."

Although several others from Idaho might have gone on their own dime, the Roman Catholic Diocese of Boise organized a trip that attracted 100 people from across the state. Meske and Flores represented Pocatello, while others came from Blackfoot, Coeur d'Alene and Boise. Flores' daughter joined the group from her home in Meridian.

"We all left as strangers but came back as friends," Flores said.

The group arrived in

TONY GENTILE/POOL PHO

Pope Francis waves from his popemobile as he heads ebrate Mass at the conclusion of the World Meeti Families along the Benjamin Franklin Parkway in Philad on Sept. 27. Pocatello residents were among the pec Philadelphia for Pope Francis' visit.

"They gave us apples and oranges to take with us for lunch," Meske said of the St. Cornelius congregation from Chadds Ford, Pennsylvania. "But they were considered hurling objects so we weren't allowed to take them in. There were so many apples in the bin!"

Meske and Flores ate theirs while waiting in the long lines of thousands who came for the conference.

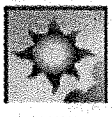
While Pope Francis was meeting with President Barack Obama, canonizing a new saint, speaking to Congress, waving to cheering crowds along a parade route and addressing the United Nations, the Idaho group was enjoying other speakers and events put on for the World Meeting of Families.

"We were strictly in Philadelphia for those five days where we attended meetings on the family and listened to speakers," Meske said. "Rick Warren (author of The Purpose Driven Life) was one of my favorites."

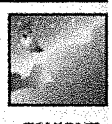
When Pope Francis made his final stop in Philadelphia, Meske and Flores had already experienced a whirlwind week of

uplifting and inspirat meetings. After being home for about 24 hc neither had been able view the United Nati or congressional addı in their entirety. How Francis' words echoe across the globe throu

POCATELLO'S



TODAY MOSTLY SUNNY 70



TONIGHT PARTLY CLOUDY 52

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Pocatello, ID 8

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A FREE Serv

427 N. Sixth Ave. in Pocatello, has community balance class today at 11:30 a.m. For more information, call 233-1212.

• Join the Senior Activity Center, 427 N. Sixth Ave. in Pocatello, today for their bake sale starting at 9 a.m.

• Join the Senior Activity Center, 427 N. Sixth Ave. in Pocatello, today for regular pinochle at 1 p.m. For more information, call 233-1212.

• Senior Activity Center, 427 N. Sixth Ave. in Pocatello, has a dance today at 1 p.m. Fiesta Country/Ramblers plays for the dance. At 2 p.m., there will be dance lessons.

• Senior Activity Center, 427 N. Sixth Ave. in Pocatello, has karaoke today at 232-0970 or 208-233-1066 for more information. Class size will be limited to 10 students.

gation that then welcomed, housed and fed the Idaho pilgrims for their five-day stay.

THE DOCTOR IS IN...

Dr. Baker

Q: Do street drugs affect your teeth?

Dr. Jepsen

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DATED the 18th day of September, 2015.

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Minutes of the Regular Meeting of the City Council of the City of Lava Hot Springs, Idaho held on Thursday, July 09, 2015 at 5:30 p.m., Lava City Hall, 115 West Elm Street, Lava Hot Springs, Idaho.

Present: Marshall Burgin, Mayor
George Linford, Councilperson
Newt Lowe, Councilperson
Tamara Davids, Councilperson
Carl Brown, Councilperson
Canda Dimick, City Clerk

Excused:

Guests: Jon D Thomson, Phil Beeson, Susan Thomas, Jack Fleming, Karen Mendenhall, Tab Mendenhall, Greg, Kelly, Stevens, Darrel Armstrong & Kathryn DeMott

Approval of Minutes:
Councilperson Brown made a motion to approve. Councilperson Linford seconded the motion. All voted aye, unanimous.

Review and Approve Bills:
Councilperson Brown motion to table bills. Councilperson Davids seconded the motion. All voted aye, unanimous.

Law Enforcement/Code Enforcement Monthly Reports:
Law enforcement Armstrong in attendance. No monthly reports. He wanted to make sure everyone was pleased with the July 4th operations. They had extra offices in town for the holiday weekend. Pretty good weekend for a holiday weekend no major issues. Extra offices signed on for July 24th weekend and they they're going to help with the parade. They also will bring down officer and equipment for the special event on July 22nd. Open burn *has not* been lifted. Greg Stevens questioned the open container law enforcement. There was no tolerance this year. The open container law was enforced and is an education process.

Certified weed control, fire hazard notices have been sent out.

Public Hearing:
Councilperson Linford motion to open public hearing. Councilperson Davids seconded the motion. All voted aye, unanimous.

Mathews Hill, Keller associates gave a brief presentation on the water facility study. Transmission lines installed in the 40's are leaking, springs are a critical component to the systems, additional water source not dependent on the fish creek water line, need additional source to augment supply, upgrade 4" lines in town, replace lines that do not meet fire flows, continue maintenance is a problem. Held a couple of public hearings in May, Bond election failed. Judicial confirmation is next step because bond failed.

Expenses will likely go up. Have a 1.75 % interest rate available until June 30th 2016. Councilperson Brown motion to close hearing. Councilperson Linford seconded the motion. All voted aye, unanimous.

Sign Permit(s)
Lava Hot Springs Foundation Hot Pool Directional Sign– North Center Street. Councilperson Brown motion to approve sign. Councilperson Davids seconded the motion. All voted aye, unanimous.

Therapy in Motion – Wall Painting – West Main Street – advertising their business. Council gave them until the end of the month to remove it. Councilperson Brown motion to approve. Died for lack of second approval. Tanny read. They don't see anything wrong with it. Is the city going to make this enforcement for the rest of the community? There is some signage that is historical, some that are in bad shape and other that have a meaning behind them. Some of them are partly covered, others the wall is tumbling. They are not an attraction to the community and nothing is being done with them. Kathryn DeMott thinks the sign is being selective enforcement and is very unfair. Jack asked what if we take the business name off it. The question is it art or a sign? Sign requires a permit, art does not. Jack said the recourse is court. George questioned contacting legal counsel.

2nd Quarter Tourism Development Promotion Funding Applications – Lava Chamber of Commerce Web Impakt Facebook Marketing and SEO Campaign for lavahotsprings.org site. Table and ask Corey or Mark to provide a presentation to the council. Councilperson Davids motion to table. Councilperson Lowe seconded the motion. All voted aye, unanimous.

Business License(s), Alcohol License(s), Coin-Op License(s) & Non-Property Tax Permit(s)
DMX, LLC (non-property tax permit)
Mind Over Body Medicine – Carey Tomich, Owner/Applicant
Mountain Retreat Real Estate – Randy Benglan (Renewal)
Pandoras Baubles & Beads (30 day temporary renewal)
Rocky Mountain Power
RST Properties, LLC – 84 West Elm Street – Residential Monthly Rentals
The Snow Shack Family – Cory & Teiah Truman, Owners/Applicants

List read. Councilperson Brown motion to approve. Councilperson Lowe seconded the motion. All voted aye, unanimous.

Consider Proposed Tree Ordinance intended to establish a Lava Hot Springs Tree Committee and provide direction in planting and caring for trees. Council will review - Under consideration.

Consider Sidewalk Maintenance/Replacement Ordinance Amendment – Amendment discussed

Outside City Limit Water Hookup Request – Whalan Rife not in attendance

Meetings & Announcements
100th Birthday Celebration – July Events: A week long field day events the week of July 24th. Fire Department, Ambulance crew and police department is looking at hosting an event this week. July 24th will be Birthday celebration at 1:00 pm, The Mayor Speech, letter from the governor, Hot Pot Players, Cake and Hot Beer and July 25th Parade Float (Parade 6 pm).

Payroll Service Contract Update - $1.60 per check from the intuit auto deposit, this was not included in the contract agreement.

For Cause Personnel Policy – Council members still reviewing.

Portable Toilet Rentals & Garbage Service for Tourist Season – Need more or get someone dump during the weekend to avoid overflow on 3 day weekends. Check on TPD and Mountain Mayhem concerning portable toilets. Canda to check if 4J's will dump on Saturday, if they won't need to see about getting more Toilets.

Decorative Street Lights – Lights out - Blubs need replaced.

Fire Hydrants Annual Flushing – Done

L Maintenance & Lights – The "L" is painted, looks great. Light bulbs are not here, ordered LED. Canda asked Tony to follow up on order.

Miscellaneous

Projects
Wastewater System - Buffer Zone Plan submitted.

DEQ Reuse Inspection Report – report good.

Buddy Campbell Memorial Park Expansion Project – Sent an email to Curtis at alliance to get property Fagnant purchase agreement moving.

Pedestrian Bridge Project – Special meeting with engineer(s) is scheduled for July 17th 9:00 am. We got the Sun contract for the funding. The State has taken over the project and will make all arrangements and pay bills for the project. Their design review process can take up to 3 to 4 months to complete.

Buddy Campbell Park - Baseball Diamond ADA Compliance Project - Still waiting to hear back from Bonner to see when he will start. Riley Tillotson's Senior English Project – Not sure if completed, he has done a lot of work. Tony is checking on status.

Veteran's Park Restroom - The help is requesting a toilet in the men's bathroom due to plumbing issues. The problem is they run out of toilet paper and use paper towels. Purchase locked toilet paper dispenser to see if that takes care of the problem with paper towels being used. If not, consider purchasing a commercial toilet for men's room.

Fire Station Sewer Line Extension – Bannock county utility easement. Needs signature Canda will get copies to the Council.

Water Improvement Project Funding Options/Status Report - Meeting to adopt judicial confirmation resolution schedule for August regular council meeting.

Storm Drain Maintenance Report – Clean boxes this year and see where we are at.

Street Trenching/Pot Hole Maintenance – Next Tuesday they will be repairing.

North 1st West Proposed Storm Drain System – Billy and Tony checked the storm drain on Portneuf Street and believe is off about 40 feet. Mayor Burgin talked with Kody Tillotson and he is fine with leaving Portneuf street where it is at. Kody is willing to get a survey done to find his property line. This way he will know where his property line is at and in the future can build on it. 1st West after Portneuf Street it is half vacated and the City owns the other half and it's drainage. Kody would be willing to split the cost with the City to put in a box, storm drain system. Councilperson Brown made a motion to hire an engineer and proceed. Councilperson Linford seconded the motion. All voted aye, unanimous.

Discussion

Council Brown asked about Building and Fire Inspector. Linford is still working on getting an appointment setup.

Council Brown asked Black Mountain Software will get it on the budget for approval.

Council Brown asked Solar System – being reviewed by Rocky Mountain Power.

Council Brown asked about year-end audit. It is done and everyone received a packet.

Council Brown asked about the Trailer, the owner of the trailer relinquishes ownership to the owner of the property as of May 15th, Steve Jones. A neighboring owner is leasing the property from him. Canda will follow up on the deed transfer. Who is responsible to remove the trailer?

Council Brown asked bike racks. Tony is still looking at price.

Council Brown asked the about Riverside outdoor seating. It's against City Ordinance to serve alcohol outside and operating a business on public property. They can serve food on their property. Canda will check if there is a survey already done.

Council Brown asked about budgeting city hall expansion for more office space.

Tad Mendenhall questioned property next to him. The property is not a rehab center, it is a monthly rental and is open to anyone wishing to rent. Some of the renters could be graduates from the rehab center.

Adjournment

Councilperson Lowe made a motion to adjourn. Councilperson Brown seconded the motion. All voted aye, unanimous.

Meeting adjourned at 7:50 pm.

Amantha Sierra, Transcriber

Marshall N. Burgin, Mayor

Canda L. Dimick, City Clerk

JULY 9, 2015 REGULAR COUNCIL MEETING
CITY OF LAVA HOT SPRINGS
5:30 p.m., Lava City Hall

Do you wish to speak?
JUDICIAL CONFIRMATION Hearing

NAME & ADDRESS	Yes	No	Object	Support	Neutral
Jon D Thomson	X				X
Mike Beeson	X		X		~~X~~
Susan Thomas	X				
Jack Fleming	X				
Karen Mendenhall		X			
Jar. Mendenhall		X			
Greg Kelly, Stevens	X		X		
Darrel Armstrong					
Katheryn DeMott					

Appendix B. MAILING LIST

Name	Agency	Resource	Address	City	State	Zip	Phone	email
James Joyner	US Army Corps of Engineers	Wetlands, 404 Permits, Floodplains	900 N. Skyline Road, Suite A	Idaho Falls	ID	83402-1718	208-552-1676	James.M.Joyner@usace.army.mil
Tom Hepworth	Dept. of Environmental Quality, Pocatello Regional Office	Water Quality & Air Quality	444 Hospital Way, #300	Pocatello	ID	83201	208-236-6160	tom.hepworth@deq.idaho.gov
Ed Hagan	Dept. of Environmental Quality, State Office	New drinking water well	1410 N. Hilton	Boise	ID	83706		Ed.Hagan@deq.idaho.gov
James Werntz	U.S. EPA, Idaho Operations Office	Water Quality, Air Quality	950 W. Bannock Street, Ste. 900	Boise	ID	83702	208-378-5746	Werntz.James@epamail.epa.gov
Keri Sigman	Idaho Dept. of Water Resources	Floodplain management, maps, general	322 East Front Street, PO Box 83720	Boise	ID	83720-0098	208-287-4928	Keri.Sigman@idwr.idaho.gov
Ethan Morton	Idaho State Historical Society	Historic and archaeological sites and	210 Main Street	Boise	ID	83702	208-334-3847 x107	Ethan.Morton@ishs.idaho.gov
Becky Abel	Idaho Dept. of Fish and Game, SE Region	Biological resources, non game plant and animal species	1345 Barton Road	Pocatello	ID	83204	208-232-4703	Becky.abel@idfg.idaho.gov
Gary Bahr	Idaho Dept. of Agriculture	Important Farmland	P.O. Box 790	Boise	ID	83701	208-332-8500	Gary.Bahr@agri.idaho.gov
Steve Pew	Southeast District Health Department	Solid Waste and Septic System	1901 Alvin Ricken Drive	Pocatello	ID	83201	208-233-9080	
Hal Swenson	USDA-NRCS	Prime Agricultural & Rangelands, Soil Surveys for Wetlands & Floodplain	9173 West Barnes Dr., Ste. C	Boise	ID	83709	208-378-5728	http://www.id.nrcs.usda.gov/technical/soils/index.html
Ara Andrea	Idaho Dept. of Lands	State Land Use	3284 W. Industrial Loop	Coeur d'Alene	ID	83815	208-666-8662	aandrea@idl.idaho.gov
Dennis Dunn	Idaho Dept. of Water Resources, Eastern Region	ONLY IF decommissioning or drilling new drinking water well	900 N. Skyline Dr., Suite A	Idaho Falls	ID	83402	208-525-7161	dennis.dunn@idwr.idaho.gov

Contacted by DEQ

Michael Carrier	US Fish and Wildlife Service
Carolyn Boyer-Smith	Shoshone-Bannock Tribes
Ted Howard	Shoshone-Pauite Tribe

Lava Hot Springs

WATER FACILITIES PLANNING STUDY – PUBLIC MEETING

APRIL 21, 2015 – 5:30 PM

Name: (Please Print)	Address:	Phone:
1. Greg H. Stevens	490 W. Fife	801-884-3898
2. Holly Batter	214 E. Center St. Poc	208-233-4535 x 2
3. Kathleen Lewis	214 E. Center Poc	208-233-4535 x 4
4. Tanny Davids	118 S. 5th W	(208)317-5555
5. Marshall Bangin	65 West Elm Lava Hot Spg	208-776-5570
6. Curtis Walsath	224 S 3rd W	776-5447
7. George Linford	583 W. Elm	776 5244
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KELLER associates

Lava Hot Springs

WATER FACILITIES PLANNING STUDY – PUBLIC MEETING

MAY 14, 2015 – 5:30 PM

Name: (Please Print)	Address:	Phone:
1. Matthew Hill	Keller Associates. 305 N. 3rd Ave, Pocatello, ID	238-2146
2. Oksana Roth	— " —	— " —
3. Holly Batten	214 E. Center St. Pocatello, ID	233-4535 x2
4. Kathleen Lewis	214 E. Center Pocatello, Id	233-4535 x4
5. BOB BERGENDORF	200 WEST MAIN, LAVA	776-5297
6. FRED HINZ	588 SPRING ST. LAVA Hot Springs	776.5242
7. MARY HINZ	"	"
8. Amantha Sierra	186 W Elm Lava Hot Springs	208-220-0952
9. Kenneth Fagnant	Fire Chief: 9431 E. Merrick, Lava	208-776-5933
10. CARL BROWN	P.O. Box 302 LAVA	801 5559443
11. [illegible]	PO Box 23 Lava	801 776 5244
12. [illegible]	Box 114 Lava	208-776-5580
13. Tamara Davids	P.O. Box 692 - 118 S. 5th W Lava	(208) 317-5555
14. Kent Lowe	Box 344 Lava	776 5605
15.		
16.		
17.		
18.		

KELLER associates

Appendix C. AGENCY CONSULTATION

KELLER associates
305 North 3rd Avenue, Suite A • Pocatello, ID 83201
208.238.2146 phone • 208.238.2162 fax • www.kellerassociates.com

August 20, 2015

Re: City of Lava Hot Springs Water System Improvements – Request for Comments for Preparation of an Environmental Information Document

To Whom it May Concern:

The City of Lava Hot Springs is in the final planning phase of developing a drinking water system improvements project which could be fully or partially funded by the Drinking Water State Revolving Loan Fund. The purpose of this letter is to request your review and response regarding any environmental impacts that your agency may identify for this proposed project pursuant to the Idaho Department of Environmental Quality's State Environmental Review Process which mirrors the National Environmental Policy Act.

The project is being proposed to address water quantity deficiencies and bring the system into compliance with the Drinking Water Rules. Enclosed is a map of the proposed project planning area (PPPA) that depicts the proposed project improvements and area of potential effect (APE) for all construction activities.

The proposed project consists of:

- Drilling an additional well to supplement supply and improve redundancy.
- Replacing approximately 14,700 feet of transmission line from the springs to the storage tanks in previously disturbed ground. The transmission line will cross Fish Creek in three separate locations. Each stream crossing will be accomplished by trenching because horizontal borings are not feasible due to large rocks in the streambed.
    - Approximately 8,300 feet of the transmission line is located within 300 feet of Fish Creek or the Portneuf River.
- Replacement of numerous sections of the distribution system piping totaling approximately 12,200 feet of pipe in previously disturbed ground.
    - Approximately 4,900 feet of the distribution piping is located within 300 feet of the Portneuf River
- Replacement of the City's residential water meters using existing meter vaults.
- Miscellaneous minor improvements on existing wells, well houses, and storage tanks (no excavation required).
- Installation of chain link fence around springs and storage tanks.

We request that you advise us of any comments that you may have regarding this project within 30 days, so the City of Lava Hot Springs can proceed with the completion of the Environmental Information Document.

If you have any questions concerning this proposed project or if you need any further information, please feel free to contact Matthew Hill by phone at (208) 238-2146 or by email at mhill@kellerassociates.com.

Sincerely,

Matthew B. Hill, P.E.
Project Manager
KELLER ASSOCIATES, INC.

Encl: map

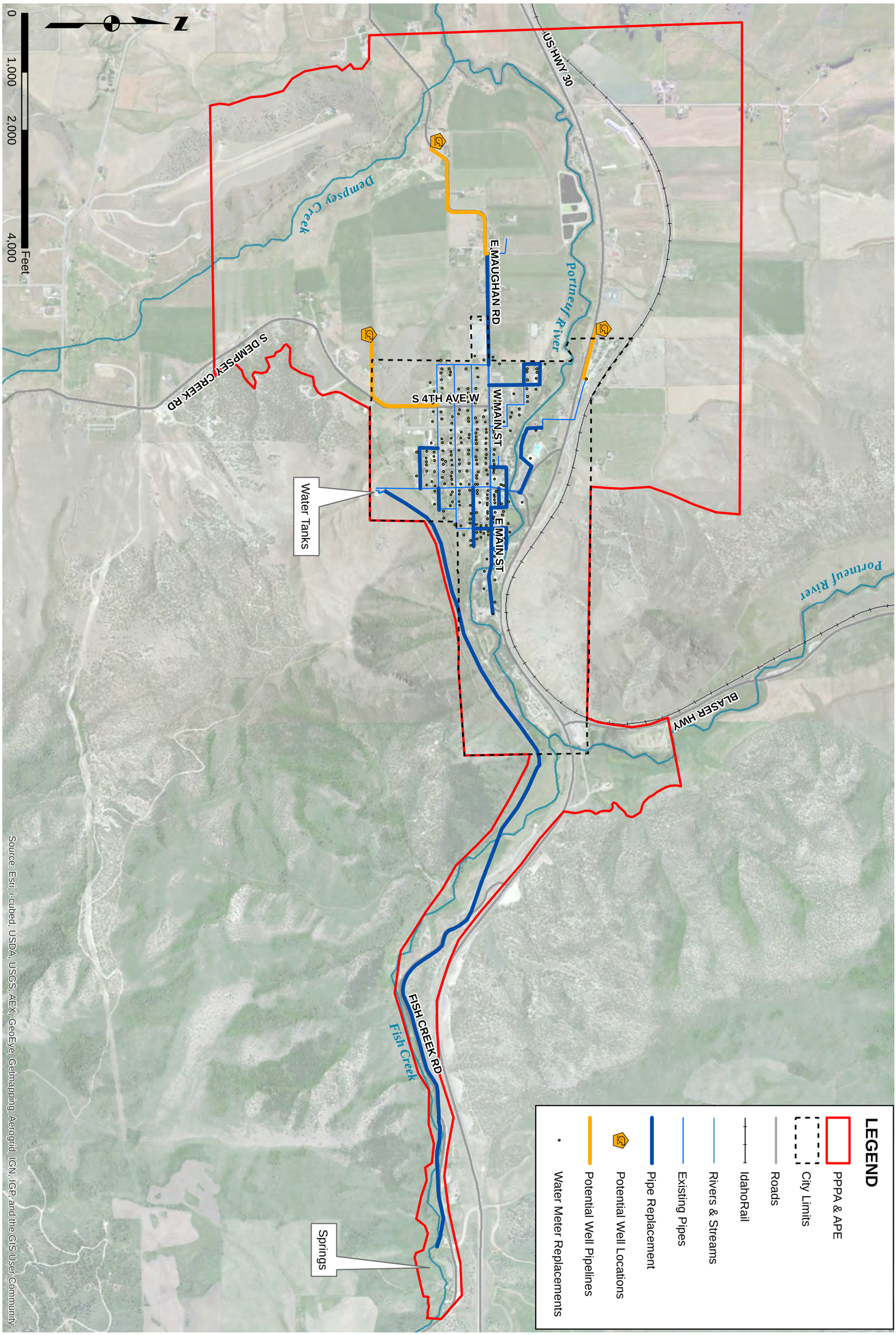

FIGURE NO. 1	Environmental Information Document	CITY OF LAVA HOT SPRINGS	KELLER associates 305 N. 3rd Avenue Pocatello, ID 83201 208.238.2146 www.kellerassociates.com	PROJECT NO. 213093-000
	Proposed Water System Improvements			FILENAME Agency Cons. Map.mxd

Matthew Hill

From: Ed.Hagan@deq.idaho.gov
Sent: Friday, September 11, 2015 5:48 PM
To: Matthew Hill
Cc: Steven.Smith@deq.idaho.gov; Tom.Hepworth@deq.idaho.gov; Michael.May@deq.idaho.gov; Tim.Wendland@deq.idaho.gov; Amy.Williams@deq.idaho.gov; MaryAnna.Peavey@deq.idaho.gov
Subject: RE: EID Agency Consultation - Lava Hot Springs

Mr. Hill,

Thank for the opportunity to comment on the City of Lava Hot Springs Drinking Water System Improvements Project. Based on the information you provided, the project does not appear to create potential adverse impacts to ground water quality because no potential sources of contamination are being created.

DEQ encourages the City of Lava Hot Springs to implement Source Water Protection strategies to protect the capital investment associated with the new water supply well and other system upgrades. Protecting the quality of the ground water supplying the City of Lava Hot Springs protects the investment and helps ensure a safe drinking water supply for the future. Please contact Steven Smith in the DEQ Pocatello Regional Office (208.236.5024) for additional information regarding Source Water Protection.

Edward Hagan, P.G.
Ground Water Program Manager
Idaho DEQ
Ed.Hagan@deq.idaho.gov
208.373.0356

From: Matthew Hill [mailto:mhill@Kellerassociates.com]
Sent: Wednesday, August 19, 2015 8:44 AM
To: Ed Hagan
Subject: EID Agency Consultation - Lava Hot Springs

Please see the attached letter and map.

Thanks,

Matthew B Hill, P.E.
Project Manager | **Keller Associates, Inc.**

P 208.238.2146 | C 208.497.9552
305 N 3rd Avenue, Suite A | Pocatello | Idaho 83201
mhill@kellerassociates.com | www.kellerassociates.com

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

AUG 31 2015

444 Hospital Way, #300 • Pocatello, Idaho 83201 • (208) 236-6160
www.deq.idaho.gov

C.L. "Butch" Otter, Governor
John H. Tippets, Director

Tuesday, August 25, 2015

Matthew B. Hill, P.E.
Keller Associates, Inc.
305 North 3rd Avenue Suite A
Pocatello, ID 83201

RE: City of Lava Hot Springs Water System Improvements Preparation of an Environmental Information Document – Agency Comments

Dear Mr. Hill,

The Idaho Department of Environmental Quality (DEQ) has reviewed information you provided in preparation of an Environmental Information Document (EID) required to describe potential environmental impacts associated with the subject project. Please see the following comments.

Surface Water

The new water line alignment follows the existing water line throughout its length; however, that line crosses Fish Creek in three locations. The two upper crossings are close together and the alignment nearly follows the stream channel. This assessment unit of Fish Creek (ID17040208SK016_03a) fully supports cold water aquatic life and is considered a Tier 2 water for which anti-degradation considerations apply. Following the existing alignment through this area would negatively and unnecessarily impact the stream. Therefore, the new water line needs to be installed closer to the roadway to avoid impacting the stream in this area. At the lowest crossing (nearest Lava Hot Springs) the line should be installed by boring if possible, to limit impacts to the stream.

Storm Water

Land disturbance activities associated with development (i.e. road building, stream crossings, land clearing) have the potential to impact water quality and riparian habitats through the generation and transport of sediment laden run-off and related contaminants.

Since the pipeline alignment is in relatively close proximity to both Fish Creek and the Portneuf River, DEQ strongly recommends that the city incorporate Best Management Practices (BMPs) and/or Best Available Technology (BAT) for storm water management. BMPs and/or BAT should be implemented as an integral part of any construction or modifications associated with this project.

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Air Quality

Land development projects are generally required to follow applicable regulations outlined in the Rules for the control of Air Pollution in Idaho. Of particular concern is IDAPA 58 .01.01.650 and 651 Rules for Control of Fugitive Dust.

Section 650 states, "The purpose of sections 650 through 651 is to require that all reasonable precautions be taken to prevent the generation of fugitive dust." Section 651 states "All reasonable precautions shall be taken to prevent particulate matter from becoming airborne. In determining what is reasonable, consideration will be given to factors such as the proximity of dust emitting operations to human habitations and/or activities and atmospheric conditions which might affect the movement of particulate matter. Reasonable precautions may include, but are not limited to the following:

1. Use of Water or Chemicals. Use, where practical, of water or chemicals for control of dust in the demolition of existing building or structures, construction operations, the grading of roads, or the clearing of land.
2. Application of Dust Suppressants. Application, where practical of asphalt, oil, water or suitable chemicals to, or covering of dirt roads, materials stockpiles, and other surfaces which can create dust.
3. Use of Control Equipment. Installation and use, where practical, of hoods, fans and fabric filters or equivalent systems to enclose and vent the handling of dusty materials. Adequate containment methods should be employed during sandblasting or other operations.
4. Covering of Trucks. Covering, when practical, open bodied trucks transporting materials likely to give rise to airborne dusts.
5. Paving. Paving of roadways and their maintenance in a clean condition, where practical.
6. Removal of Materials. Prompt removal of earth or other stored materials from streets, where practical."

Hazardous Waste

Accidental surface spills of petroleum hydrocarbon products (i.e. fuel, oil, and similar products) are most commonly associated with the transportation and delivery of fuel to work sites or facilities. The Idaho Release, Reporting, and Corrective Action Regulations (IDAPA 58.01 .02 .851 and .852), require notification within 24 hours of any spill of petroleum product greater than 25 gallons and notification for the release of lesser amounts if they cannot be cleaned up within twenty-four (24) hours. The cleanup requirements are also contained in those regulations. Both federal and Idaho regulations require the cleanup of any spill or release of used oil. [IDAPA 58.01.05.015; [40 CFR 279.22(d)(3)].

Ground Water

Wells locations proposed in the project area are within the designated Grace Nitrate Priority Area. DEQ recommends that water quality and quantity be carefully assessed as part of the Well Site Approval process. According to source water system assessments conducted by DEQ, existing public water system (PWS) wells on the north side of the Portneuf River all have high susceptibility scores and those on the south side have medium scores. (These scores are for all contaminants IOC, VOC, SOC, and microbials.) Two of the well locations would be within 50 to 800 feet of the city of Lava's old land application site.

Thanks for the opportunity to provide comments on this important project for the City of Lava Hot Springs. If you have questions or comments, please contact me at 236-6160 or via email at tom.hepworth@deg.idaho.gov.

Sincerely,

Tom Hepworth
Engineering Regional Manager

CC. Bruce Olenick, Regional Administrator, Pocatello Regional Office, Idaho DEQ (email)
Greg Mladenka, Water Quality Scientist, Idaho DEQ (email)

File: TRIM Reference: 2015ALN1305

References: Source Water Assessment Database – SWA Online
http://www2.deq.idaho.gov/water/swaOnline/

Matthew Hill

From: Grafe, Cyndi <Grafe.Cyndi@epa.gov>
Sent: Monday, September 21, 2015 6:32 PM
To: Matthew Hill
Cc: Werntz, James
Subject: FW: EID Agency Consultation - Lava Hot Springs
Attachments: Agency Consultation Letter - Werntz.pdf; Agency Consultation Map.pdf

Hi Matthew,

Thank you for requesting comments regarding the Lava Hot Springs drinking water system upgrade project. My apologies for not completing this review sooner. After reviewing the information and checking with my colleagues at the Idaho Operations Office, we offer the following comments about the project.

- From the information provided, I was not entirely sure if there would be wetlands disturbance or how the transmission line installation would impact Fish Creek. Since the transmission line is crossing at three separate locations of Fish Creek (tributary to the Portneuf River), please ensure you have obtained all the necessary Clean Water Act permit coverage, particularly under Section 402 and 404. It is my understanding the EID will provide the necessary analysis to mitigate impacts to the water body.

- In the future, when you proceed with the construction phase, please evaluate your project and determine if there is a need for coverage under EPA's Construction General Permit (CGP). The NPDES stormwater program requires construction site operators engaged in clearing, grading, and excavating activities that disturb 1 acre or more, including smaller sites in a larger common plan of development or sale, to obtain coverage under an NPDES permit for their stormwater discharges.

- Lastly, we encourage communities and engineering firms to review the *Planning for Sustainability: A Handbook for Water and Wastewater Utilities*. This document provides helpful information for water and wastewater systems to use cost effective, environmentally sound, and sustainable approaches. The handbook includes alternative analysis during the facility planning process and an approach to consistently develop broader assessment criteria to incorporate a community's sustainability goals. We encourage you to review this document along with more information and resources regarding sustainable infrastructure at http://water.epa.gov/infrastructure/sustain/ .

Please feel free to contact me with any questions. With best regards,
Cyndi

Cyndi Grafe
U.S. EPA, Idaho Office
950 W. Bannock Street
Boise, ID 83702
phone: (208) 378-5771, fax: (208) 378-5744

Follow @EPAnorthwest on Twitter! https://twitter.com/EPAnorthwest

From: Werntz, James
Sent: Tuesday, August 18, 2015 4:52 PM
To: Grafe, Cyndi
Cc: Lopez, Maria; Stewart, William C.; Woodruff, Leigh; Helder, Dirk; DeGering, Tracy; Stoll, Pat
Subject: FW: EID Agency Consultation - Lava Hot Springs

Cyndi: I received the attached EID letter from Keller and Associates regarding a DW system upgrade in Lava Springs. Please review and respond to the contact Keller, and cc' me. If anyone else on the cc' list has comments or concerns, please let Cyndi know. Thank you.
Jim

James H. Werntz
Director, EPA-Idaho Operations
950 W. Bannock Street, Suite 900
Boise, Idaho 83702
(208) 378-5743

From: Matthew Hill [mailto:mhill@Kellerassociates.com]
Sent: Tuesday, August 18, 2015 3:21 PM
To: Werntz, James
Subject: EID Agency Consultation - Lava Hot Springs

Please see the attached letter and map.

Thanks,

Matthew B Hill, P.E.
Project Manager | **Keller Associates, Inc.**

P 208.238.2146 | C 208.497.9552
305 N 3rd Avenue, Suite A | Pocatello | Idaho 83201
mhill@kellerassociates.com | www.kellerassociates.com

MEMO

TO:	MATTHEW HILL, P.E., KELLER ASSOCIATES, INC.
FROM:	MICHAEL STAMBULIS, P.E., IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY MS
SUBJECT:	CITY OF LAVA HOT SPRINGS DRIKING WATER IMPROVEMENT PROJECT THREATENED/ENDANGERED SPECIES AND ESSENTIAL FISH HABITAT
DATE:	OCTOBER 29, 2015

The proposed project for the City of Lava Hot Springs is located in Bannock County and consists of proposed upgrades to the existing drinking water system to increase supply, improve system redundancy, and upgrade the transmission system.

The proposed project consists of the following list of activities:

- Drilling an additional well to supplement supply and improve redundancy
- Replacing approximately 14,700 lineal feet of transmission line from the springs to the storage tanks in previously disturbed ground – approximately 8,300 lineal feet of which is located within 300 feet of either Fish Creek or the Portneuf River
- Replacing numerous sections of the distribution system piping totaling approximately 12,200 lineal feet of pipe in previously disturbed ground – approximately 4,900 lineal feet of which is located within 300 feet of the Portneuf River
- Replacing the City's residential water meters using existing meter vaults
- Conducting miscellaneous minor improvements on existing wells, well houses, and storage tanks without excavation
- Installing chain link fence around springs and storage tanks

The Department of Environmental Quality (DEQ) utilized the Information Planning and Conservation (IPaC) Tool to aid in determining endangered and threatened species within Area of Potential Effect (APE). The IPaC Tool can currently be accessed at the following internet address:

http://ecos.fws.gov/ipac/

In addition, the U.S. Fish and Wildlife Service (USFWS) was consulted via letter on August 25, 2015 to determine any impacts to listed species resulting from the proposed project. DEQ did not receive a response to this request.

The official species list obtained via the Information Planning and Conservation (IPaC) Tool on September 28, 2015 indicated there were no federally listed, proposed, or candidate species, or critical habitat, located within the boundaries of the Area of

Potential Effect. The output from the IPaC tool is attached with this memorandum. Therefore, the proposed project will have "NO EFFECT" on federally listed, proposed, or candidate species or critical habitat.

USFWS is also responsible for implementing the Migratory Bird Treaty Act of 1918 (MBTA). The resource list provided by the IPaC tool indicated USFWS indicated up to 17 migratory birds may be identified in the project vicinity. You may wish to contact the local Idaho Fish and Wildlife Office at (208) 378-5243 to ensure project activites do not impact migratory birds protected under the MBTA.

Essential Fish Habitat

The City of Lava Hot Springs drinking water improvements project is not located within Essential Fish Habitat (EFH) for salmon as identified in the attached EFH map and will have "NO EFFECT."

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Idaho Fish and Wildlife Office
1387 SOUTH VINNELL WAY, SUITE 368
BOISE, ID 83709
PHONE: (208)378-5243 FAX: (208)378-5262

Consultation Code: 01EIFW00-2015-SLI-0844 September 28, 2015
Event Code: 01EIFW00-2015-E-00914
Project Name: Lava Hot Springs Drinking Water Grant

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having

similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

Please note: The IPaC module for producing a list of proposed and designated critical habitat is currently incomplete. At this time, we ask that you use the information given below to determine whether your action area falls within a county containing proposed/designated critical habitat for a specific species. If you find that your action falls within a listed county, use the associated links for that species to determine if your action area actually overlaps with the proposed or designated critical habitat.

Canada Lynx (*Lynx canadensis*) - *Designated February 24, 2009.*
Counties: Boundary County.

Federal Register Notice:
http://www.gpo.gov/fdsys/pkg/FR-2009-02-25/pdf/E9-3512.pdf#page=1
Printable Maps:
http://www.fws.gov/mountain-prairie/species/mammals/lynx/criticalhabitat_files/20081222_fedre

GIS Data: http://criticalhabitat.fws.gov/docs/crithab/zip/lunx_ch.zip
KML for Google Earth: (None Currently Available)

Selkirk Mountains Woodland Caribou (*Rangifer tarandus Caribou*) - *Proposed November 30, 2011.*
Counties: Bonner and Boundary Counties.

Federal Register Notice: http://www.fws.gov/idaho/home/2011-30451FINALR.pdf
Printable Maps: http://www.fws.gov/idaho/home/Map1_sub1_150.pdf
GIS Data: (None Currently Available)
KML for Google Earth: (None Currently Available)

Bull Trout (*Salvelinus confluentus*) - *Designated September 30, 2010.*
Counties: Adams, Benewah, Blaine, Boise, Bonner, Boundary, Butte, Camas, Clearwater, Custer, Elmore, Gem, Idaho, Kootenai, Lemhi, Lewis, Nez Perce, Owyhee, Shoshone, Valley, and Washington Counties.

Federal Register Notice:
http://www.gpo.gov/fdsys/pkg/FR-2010-10-18/pdf/2010-25028.pdf#page=2
Printable Maps: http://www.fws.gov/pacific/bulltrout/CH2010_Maps.cfm#CHMaps
GIS Data: http://criticalhabitat.fws.gov/docs/crithab/zip/bulltrout.zip
KML for Google Earth:
http://www.fws.gov/pacific/bulltrout/finalcrithab/BT_FCH_2010_KML.zip

Kootenai River White Sturgeon (*Acipenser transmontanus*) - *Designated July 9, 2008.*
Counties: Boundary County.

Federal Register Notice:
http://www.gpo.gov/fdsys/pkg/FR-2008-07-09/pdf/E8-15134.pdf#page=1
Printable Maps: (None Currently Available)
GIS Data: http://criticalhabitat.fws.gov/docs/crithab/zip/fch_73fr39506_acit_2009.zip
KML for Google Earth: (None Currently Available)

Slickspot Peppergrass (*Lepidium papilliferum*) - Proposed May 10, 2011. Counties: Ada, Canyon, Elmore, Gem, Owyhee, and Payette Counties.

Federal Register Notice: http://www.gpo.gov/fdsys/pkg/FR-2011-10-26/pdf/2011-27727.pdf
Printable Maps: http://www.fws.gov/idaho/Lepidium.html
GIS Data: (None Currently Available)
KML for Google Earth: (None Currently Available)

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment

United States Department of Interior
Fish and Wildlife Service

Project name: Lava Hot Springs Drinking Water Grant

Official Species List

Provided by:

Idaho Fish and Wildlife Office
1387 SOUTH VINNELL WAY, SUITE 368
BOISE, ID 83709
(208) 378-5243

Consultation Code: 01EIFW00-2015-SLI-0844
Event Code: 01EIFW00-2015-E-00914

Project Type: WATER SUPPLY / DELIVERY

Project Name: Lava Hot Springs Drinking Water Grant
Project Description: Evaluate potential impacts to resources as a result of proposed drinking water system improvements.

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.

United States Department of Interior
Fish and Wildlife Service

Project name: Lava Hot Springs Drinking Water Grant

Project Location Map:

Project Coordinates: The coordinates are too numerous to display here.

Project Counties: Bannock, ID

United States Department of Interior
Fish and Wildlife Service

Project name: Lava Hot Springs Drinking Water Grant

Endangered Species Act Species List

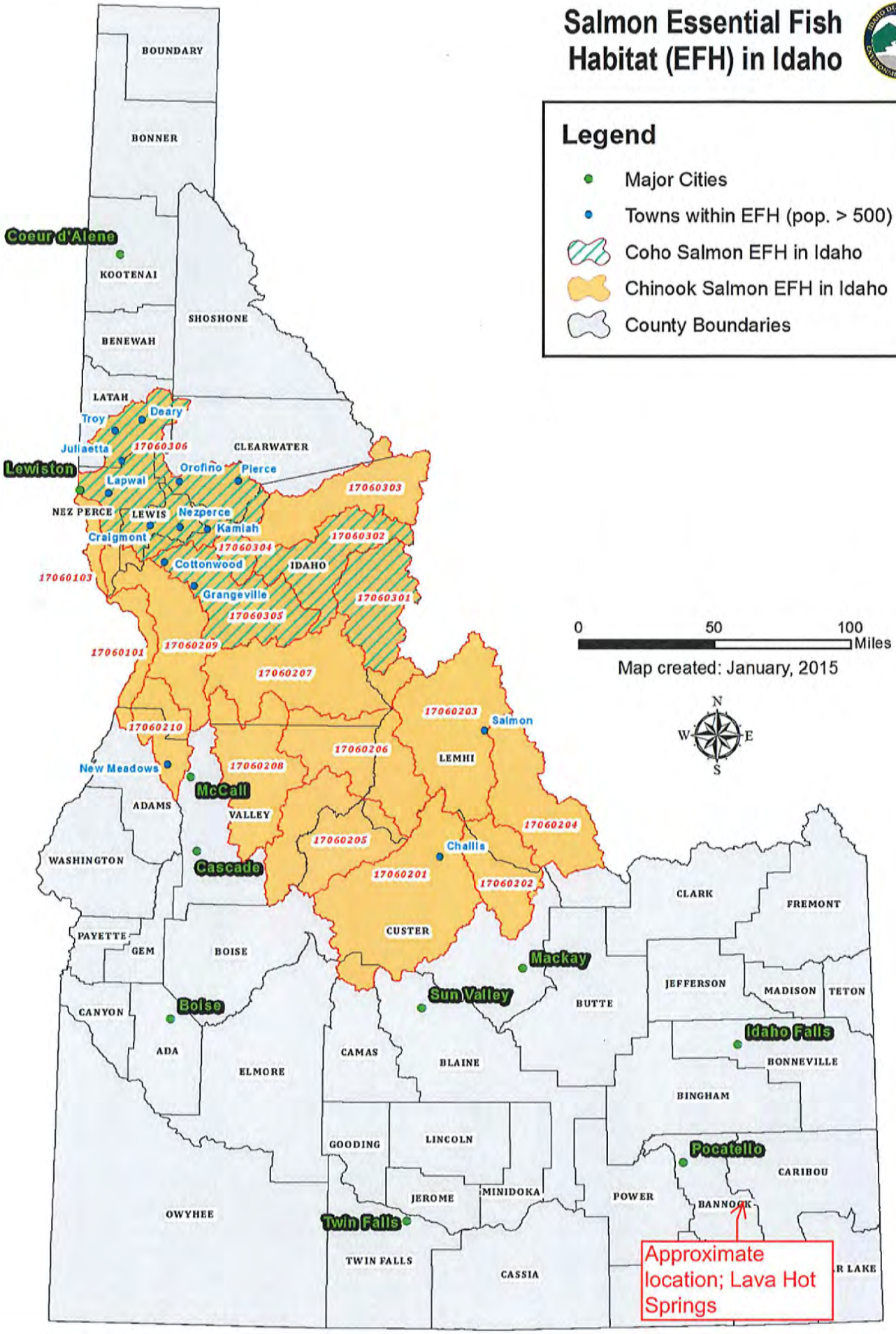
There are a total of 0 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

There are no listed species identified for the vicinity of your project.

Critical habitats that lie within your project area

There are no critical habitats within your project area.

Salmon Essential Fish Habitat (EFH) in Idaho



Matthew Hill

From: Mende,Jim <jim.mende@idfg.idaho.gov>
Sent: Saturday, September 19, 2015 4:13 PM
To: Abel,Becky; Matthew Hill
Subject: RE: Lava Hot Springs EID Agency Consultation

Importance: High

Dear Mr. Hill;

The SE Region has reviewed the project description and site maps of the various improvements to facilities and transmission lines including development of an additional well for the City of Lava Hot Springs, municipal water system.

We believe that with adherence to the applicable Best Management Practices (BMP's) these activities will have minimal impact on resident fish and wildlife species or any associated habitat. BMP's are of particular importance concerning the 3 sites along Fish Creek where trenching is to be used to cross the respective stream channel.

Please contact me at the address below if I can be of any additional assistance.
My apologies for the tardiness of this response.
Jim Mende

Jim Mende
Environmental Staff Biologist
IDFG - Southeast Region
(208) 232-4703 (front desk)
(208) 236-1246 (office)
(208) 241-3452 (cell)
JIM.MENDE@IDFG.IDAHO.GOV
1345 Barton Road
Pocatello, Idaho 83204

From: Abel,Becky
Sent: Friday, September 18, 2015 5:43 PM
To: 'Matthew Hill'
Cc: Mende,Jim
Subject: RE: Lava Hot Springs EID Agency Consultation

Hi Matthew,

I forwarded your letter to Jim Mende, our Environmental Staff Biologist (cc'd here), who is the point of contact for this type of assistance. Please coordinate with Jim on this and future matters. Thanks and our apologies,

Becky

Becky Abel

Regional Wildlife Biologist
Wildlife Diversity Program
Idaho Department of Fish and Game
1345 Barton Road
Pocatello, ID 83204
Office: (208) 236.1258
Cell: (208) 251.2588

From: Matthew Hill [mailto:mhill@Kellerassociates.com]
Sent: Friday, September 18, 2015 1:40 PM
To: Abel,Becky
Subject: Lava Hot Springs EID Agency Consultation

Ms. Abel,

In accordance with IDEQ's requirements for the EID we sent a consultation letter inviting responses regarding Lava Hot Springs' proposed water improvements project. The letter was sent 30 days ago. We have not received a response from you. If you intend on providing a response, please let me know a timeframe, otherwise we will proceed with the completion of the EID. If you need any additional information please let me know.

Thank you,

Matthew B Hill, P.E.
Project Manager | **Keller Associates, Inc.**

P 208.238.2146 | C 208.497.9552
305 N 3rd Avenue, Suite A | Pocatello | Idaho 83201
mhill@kellerassociates.com | www.kellerassociates.com

State of Idaho
DEPARTMENT OF WATER RESOURCES
322 East Front Street • P.O. Box 83720 • Boise, Idaho 83720-0098
Phone: (208) 287-4800 • Fax: (208) 287-6700 • Website: www.idwr.idaho.gov

C.L. "BUTCH" OTTER
Governor

GARY SPACKMAN
Director

Matthew Hill, P.E.
Keller Associates, Inc.
305 North 3rd Avenue, Suite A
Pocatello, ID 83201

August 25, 2015

Re: City of Lava Hot Springs Water System Improvements – Request for Comments for Preparation of an Environmental Information Document

Dear Mr. Hill,

This is a letter in response to the development review that was received by IDWR on August 18, 2015. The subject area in which development will occur regarding the City of Lava Hot Springs Water System is potentially located within the Special Flood Hazard Area (SFHA) as shown on the attached overlay for the City of Lava Hot Springs using Panel Numbers 16005C0657D and 16005C0676. Development within the identified SFHA or 1% annual chance of flooding area will require a floodplain development permit from the community. The local floodplain administrator is Canda Dimick. Ms. Dimick may be reached at (208) 776-5820 or lavacity@qwestoffice.net to verify permitting requirements.

Each community has an ordinance that regulates development in the SFHA; please contact the community for their specific development requirements. I have included typical minimum standards that are applicable and ensure compliance with the National Flood Insurance Program as found in the Code of Federal Regulations § 60.3(a):

1) *Require within flood-prone areas new and replacement water supply systems to be designed to minimize or eliminate infiltration of flood waters into the systems;*

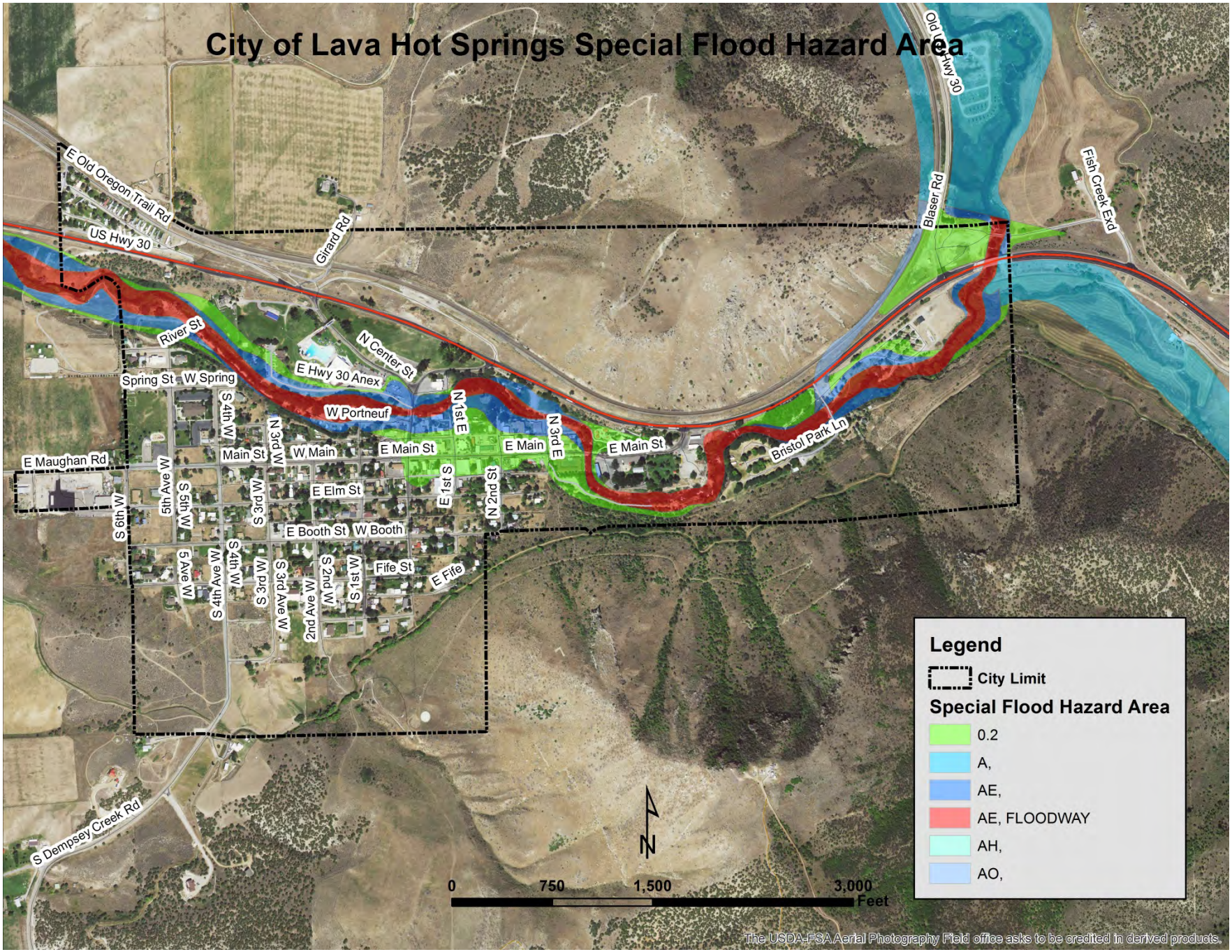
Due to the transmission line replacement of numerous sections crossing Fish Creek and potentially Portneuf River, a Stream Channel Alteration permit is required in accordance with Idaho Code 37.03.07. This permit may be obtained through the Idaho Department of Water Resources Stream Channel Protection Program. The Eastern Region Stream Channel Protection Agent is Kerrie Mathews. Ms. Mathews may be reached at (208) 525-7161 or kerrie.mathews@idwr.idaho.gov.

The objective of these requirements are to ensure that development, including public services, are protected from flood damage and can still be used after the flood recedes. Please let me know if you have any additional questions. Thank you for the opportunity to comment and for giving notice of the proposed development.

Aaron Skinner
Floodplain Specialist
208-287-4912
aaron.skinner@idwr.idaho.gov

Cc via email: Canda Dimick (City of Lava Hot Springs Floodplain Administrator)
Kerrie Mathews (IDWR Eastern Region Stream Channel Alteration Agent)

City of Lava Hot Springs Special Flood Hazard Area



Matthew Hill

From: Dunn, Dennis <Dennis.Dunn@idwr.idaho.gov>
Sent: Friday, September 18, 2015 3:46 PM
To: Matthew Hill
Subject: RE: Lava Hot Springs EID Agency Consultation

I don't have any concerns. Dennis

From: Matthew Hill [mailto:mhill@Kellerassociates.com]
Sent: Friday, September 18, 2015 1:52 PM
To: Dunn, Dennis
Subject: Lava Hot Springs EID Agency Consultation

Mr. Dunn,

In accordance with IDEQ's requirements for the EID we sent a consultation letter inviting responses regarding Lava Hot Springs' proposed water improvements project. We spoke on the phone one day and I was under the impression that you would send a follow up email or letter stating that you didn't have any concerns outside of filing for the water right transfer properly. I hadn't seen anything and wanted to follow up.

Feel free to respond to this email if that is most convenient for you.

Thank you,

Matthew B Hill, P.E.
Project Manager | **Keller Associates, Inc.**

P 208.238.2146 | C 208.497.9552
305 N 3rd Avenue, Suite A | Pocatello | Idaho 83201
mhill@kellerassociates.com | www.kellerassociates.com

STATE OF IDAHO

C. L. "BUTCH" OTTER
GOVERNOR
CELIA R. GOULD
DIRECTOR

August 26, 2015

Dear Matthew Hill:

Thank you for inquiring with the Idaho State Department of Agriculture (ISDA) with regards to your work with the City of Lava Hot Springs Water System Improvement Project. The public works project being proposed will be an important project for the citizens of that area.

At this time we do not have comments or questions related to this project.

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

Sincerely,

Gary Bahr
Water Quality Programs

PC: Water Program File

2270 Old Penitentiary Road • P.O. Box 790 • Boise, Idaho 83701 (83712 for physical address) • (208) 332-8500 •
www.agri.idaho.gov

United States Department of Agriculture

September 15, 2015

Matthew B. Hill
Keller Associates, INC.
305 North 3rd Avenue, Suite A
Pocatello, ID 83201

Dear Mr. Hill

I have reviewed the City of Lava Hot Springs drinking water system improvements project in regards to the Farmland Protection Policy Act (FPPA). The purpose of the FPPA is to protect prime, unique and locally important farmland from the impacts of urbanization.

I have reviewed the project and it is not subject to the provisions of the Farmland Protection Policy Act under Section 523.11.E.2 "Corridor subsurface projects that will develop a soil disturbance/removal and reconstruction plan for all agricultural land uses."

If you have any questions or comments please feel free to contact me by email at: Trudy.pink@id.usda.gov or by phone (208) 237-4628x119.

Sincerely,

Trudy L. Pink
Resource Soil Scientist
USDA-NRCS

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: City of Lava Hot Springs		File Number: NWW-2015-402	Date: 9 Sep 2015
Attached is:			See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)		A
	PROFFERED PERMIT (Standard Permit or Letter of permission)		B
	PERMIT DENIAL		C
X	APPROVED JURISDICTIONAL DETERMINATION		D
	PRELIMINARY JURISDICTIONAL DETERMINATION		E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found in Corps regulations at 33 CFR Part 331, or at http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/FederalRegulation.aspx

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:	If you only have questions regarding the appeal process you may also contact: US Army Corps of Engineers, Northwestern Division Attn: Mary Hoffman, Regulatory Appeals Review Officer P.O. Box 2870 Portland, OR 97208-2870 Telephone (503) 808-3888 Mary.J.Hoffman@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or agent.	Date:	Telephone number:

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

I. BACKGROUND INFORMATION

A. Report completion date for Preliminary Jurisdictional Determination (PJD): 8 September 2015

B. Name/address of person requesting preliminary JD:
Mr. Matthew B. Hill (Agent for City of Lava Hot Springs)
Keller Associates, Inc.
305 North 3rd Avenue, Suite A
Pocatello, Idaho 83201

C. District Office: Walla Walla District
File Name: City of Lava Hot Springs Water System Improvements (Fish Creek and Portneuf River)
File Number: NWW-2015-00402

D. Project Location(s) and Background Information:
State: Idaho County/Parish/Borough: Bannock City: Lava Hot Springs
Center Coordinates of Site (lat/long in degree decimal format): Lat.: 42.61464° North
Long.: -112.00322° West
Name of nearest waterbody(s): Fish Creek and Portneuf River
Identify (estimate) amount of waters in the review area:
Non-wetland waters: approximately 10,000 ft (Fish Creek) and 17,000 ft (Portneuf River)
Cowardin Class: Riverine
Stream Flow: Perennial
Wetlands: 0.00 acres
Cowardin Class: N/A
Name of any water bodies on the site identified as Section 10 waters:
Tidal: N/A
Non-Tidal: N/A

E. Review performed for site evaluation (Check all that Apply):
☒ Office (Desk) Determination Date: 8 September 2015
☐ Field Determination Date(s):

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site. The permit applicant or other affected person/party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for the site, as described above. Nevertheless, the permit applicant or other affected person/party who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "Pre-Construction Notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following:

   (a) The permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters;

(b) That the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions;

(c) That the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization;

(d) That the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary;

(e) That undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable;

(f) Accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and

(g) Whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable.

3. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein) or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.

II. SUPPORTING DATA. Data reviewed for Preliminary JD

This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

Check all boxes below that apply. The checked information should be included in the administrative file. Provide detailed reference sources for each checked box.

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:
(1) City of Lava Hot Springs, Environmental Information Document, Proposed Water System Improvements, Figure No. 1, dated 18 August 2015.

☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant
  ☐ Office concurs with data sheets/delineation report
  ☐ Office does not concur with data sheets/delineation report
☐ Data sheets prepared by the Corps:
☐ Corps navigable waters' study:
☐ U.S. Geological Survey Hydrologic Atlas:
  ☐ USGS NHD data

☐ USGS 8 and 12 digit HUC maps
☒ U.S. Geological Survey map(s): Cite scale & Quad Name: 1:24,000 Sedgwick Peak
☒ USDA Natural Resources Conservation Service Soil Survey, Citation: NRCS (Web Soil Survey)
☒ National wetlands inventory map(s): Cite name: USFWS (Wetlands Mapper)
☐ State/Local wetland inventory map(s):
☐ FEMA/FIRM maps:
☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Google Earth and ORM Database Aerials OR ☐ Other (Name & Date):
☐ Previous determination(s): File no. and Date of Response Letter:
☒ Other information (please specify):

Fish Creek is a perennial stream that flows into the Portneuf River at the City of Lava Hot Springs.

The Portneuf River is a traditional navigable water (TNW) that supports interstate recreation activities (boating, rafting, etc) and is a tributary of the Snake River – also a TNW. Therefore, Fish Creek and the Portneuf River are considered Waters of the United States and subject to the Clean Water Act.

This constitutes a preliminary jurisdictional determination (JD) and is useful for the planning of your project. An approved JD is not necessary in order for the Corps to process a 404 permit application.

Admin File No. NWW-2015-402

Important Note: ***The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.***

Signature of Regulatory Project Manager REQUIRED	*Signature of person requesting Preliminary JD* REQUIRED (unless obtaining signature is impracticable)
September 9, 2015	
Date	Date

DEPARTMENT OF THE ARMY
WALLA WALLA DISTRICT, CORPS OF ENGINEERS
IDAHO FALLS REGULATORY OFFICE
900 NORTH SKYLINE DRIVE, SUITE A
IDAHO FALLS, IDAHO 83402-1700

REPLY TO
ATTENTION OF

9 September 2015

Regulatory Division

SUBJECT: NWW-2015-402, City of Lava Hot Springs Water System Improvements

Mr. Matthew Hill
Keller Associates, Inc.
305 North 3rd Avenue, Suite A
Pocatello, Idaho 83201

Dear Mr. Hill:

This is in response to your 18 August 2015 letter requesting comments on the City of Lava Hot Springs' proposed drinking water system improvement project. Thank you for providing the Corps of Engineers (Corps) the opportunity to provide comment. According to information provided, the proposed project would involve drilling an additional well, replacement of approximately 14,700 feet of transmission line from springs supplying water to the City to storage tanks, and replacing approximately 12,200 feet of distribution.

Based on our review of the information you furnished and available to our office, we have preliminarily determined that as currently proposed your project may involve work requiring Department of the Army (DA) permit authorization. Specifically, the project would involve trenching replacement line(s) in at crossings of Fish Creek and/or the Portneuf River, which would require DA authorization.

Your proposed project site is located near latitude 42.61464º N and longitude -112.00322º W, in Bannock County, in City of Lava Hot Springs, Idaho. Your request has been assigned file number NWW-2015-402, which should be referred to in future correspondence with our office regarding this site.

Enclosed are two copies of the Preliminary Jurisdictional Determination Form for the subject project site. Please review the document and any attachments thereto. If you consent to jurisdiction as set forth, please sign both copies, return one copy to the Corps at the address in the above letterhead and keep the other copy for your records. This PJD shall remain in effect unless an approved jurisdictional determination is requested or new information supporting a revision is provided to this office.

Although this determination is advisory in nature and may not be appealed under the Corps of Engineers Administrative Appeal Procedures, as defined in 33 CFR 331, the enclosed *Notification of Administrative Appeal Options and Process Fact Sheet and Request for Appeal Form* (RFA) explains your options, if you do not agree with this determination.

Section 404 of the Clean Water Act requires that a DA permit be obtained for the discharge of dredged and/or fill material into waters of the U.S., including jurisdictional wetlands (33 U.S.C. 1344). Waters of the U.S. include most perennial and intermittent rivers and streams, natural and man-made lakes and ponds, as well as irrigation and drainage canals and ditches that are tributaries to other waters, and wetlands. A Department of the Army (DA) authorization may be required if you propose to perform work or place dredged and/or fill material into waters or wetlands on the project site.

Further, the Corps defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Discharges of dredged or fill material into these areas may include those associated with mechanized land-clearing involving vegetation removal with mechanized equipment such as front-end loaders, backhoes, or bulldozers with sheer blades, rakes, or discs in wetlands and excavation activities which result in the discharge of dredged material and destroy or degrade Waters of the United States.

This determination applies only to Department of the Army permitting jurisdiction and does not authorize any injury to property or excuse you from compliance with other Federal, State, or local statutes, ordinances, regulations, or requirements which may affect these areas, or work you would propose to conduct in these areas. Please obtain all required permits before starting work in the waters or wetland areas identified on this property.

We are interested in your thoughts and opinions concerning the quality of service you received from the Walla Walla District, Corps of Engineers Regulatory Division. Please visit us online at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey and complete an electronic version of our Customer Service Survey form, which will be automatically submitted to us. Alternatively, you may call and request a paper copy of the survey, which you may complete and return to us by mail. For additional information about our Regulatory program please visit us at http://www.nww.usace.army.mil/BusinessWithUs/RegulatoryDivision.aspx. Your responses are appreciated and will allow us to improve our services.

We appreciate your cooperation with the Corps of Engineers' Regulatory Program. If you have any questions, you may contact me by telephone at (208) 522-1676, by mail at the address in the above letterhead, or via email at james.m.joyner@usace.army.mil.

Sincerely,

James M. Joyner

James M. Joyner
Sr. Project Manager, Regulatory Division

Enclosures:
8 Sep 2015 Preliminary Jurisdictional Determination Form
Notification of Administrative Appeal Options and Request for Appeal Form

Idaho Department of Environmental Quality
Grant and Loan Program
Section 106 of the National Historic Preservation Act (NHPA): Agency Determination of Effect

Project Name: City of Lava Hot Springs Drinking Water Improvements Project

Grant/Loan identification: DWG-148-2014-5

Date: 11/12/2015

Step 1: Initiate the Section 106 Process

X	Establish Undertaking (proposed project scope identified)	
X	Notify Idaho SHPO and respective THPO or Tribal Cultural Resource Program (30 days to respond) about the undertaking.	
X	Involve the public (public participation process)	
Determine one of the following based on consultation with SHPO/THPO/Tribal Cultural Resource Program		
	No undertaking/potential to cause effects. (**Section 106 concluded**) Justification:	
X	Undertaking may affect *historic properties* (**proceed to Step 2**)	
X		Require archeological survey by a qualified consultant: http://www.preservationidaho.org/resources/cultural-resources-consultants

Step 2: Identify Historic Properties

	Determine Areas of Potential Effect (direct, indirect, and cumulative)
	Identify *historic properties* (archival research, reconnaissance, inventory) in survey
Request review of survey from Idaho SHPO and respective THPO or Tribal Cultural Resource Program	
	No *historic properties* present/affected Justification: there are no known *historic properties* in the area of potential effect, undertaking is entirely within disturbed areas and does not have the potential to adversely affect any unknown *historic properties.*
	Potential Adverse Effects to *historic properties* (**proceed to Step 3**)

Step 3: Assess Adverse Effects

	Apply Criteria of Adverse Effects (effects to historic properties)
Consult with Idaho SHPO and respective THPO or Tribal Cultural Resource Program (30 days to respond)	
	No *historic properties* adversely affected Justification:
	Adverse Effects to *historic properties* (**proceed to Step 4**)

Step 4: Resolve Adverse Effects

	Notify Advisory Council on Historic Preservation
	Avoid, minimize, or mitigate adverse effects
	Notify Idaho SHPO and respective THPO or Tribal Cultural Resource Program
	Final Memorandum of Agreement or Programmatic Agreement (**Section 106 concluded**)

DEQ determination: The project consultant corresponded with the State Historic Preservation Office (SHPO), and DEQ consulted with the Shoshone-Bannock Tribes and the Shoshone-Paiute Tribes regarding potential effects to historic properties and cultural resources.

Please note, DEQ cannot make a final determination regarding effects to historic properties and cultural resources until the items listed in No. 1 below are addressed.

1. In a response dated August 24, 2015 (attached), the SHPO recommended a limited survey or a limited evaluation, or both, be conducted on the following aspects of the undertaking:

   - If any of the existing wells, well houses, or storage tanks that are part of the undertaking are more than 50 years of age they should be recorded and evaluated as to their National Register eligibilities. Any modification to a potentially eligible property needs to be assessed.
   - The construction footprint of the final location of the new well and the construction easement/alignment of the new pipeline to tie into the existing system from the new well needs to be intensively surveyed.
   - The construction footprint of the proposed fencing around the exiting well tanks in Section 28 on the hill south of town needs to be intensively surveyed.
   - The construction easement/alignment of the pipeline replacement that is proposed from the existing well tanks discussed above east along Fish Creek to the Springs located in Section 25 east of town needs to be intensively surveyed. The proposed pipeline replacement crosses the alignment of the National Register eligible Dempsey Topaz Canal in two locations. The canal needs to be documented and evaluated in these locations and an assessment of any adverse effects needs to be determined.
   - The construction footprint of the proposed fencing around the springs east of town in Section 25 need to be intensively surveyed.
   - A portion of the proposed pipeline replacement in Section 23 east of town appears to be on public lands managed by the Bureau of Land Management (BLM). If this is the case, consultation should be conducted with the BLM.

2. In a response dated October 9, 2015 (attached), the Shoshone-Bannock Tribes Cultural Resources group of the Heritage Tribal Office (HETO) did not request a survey be performed prior to construction. However, the HETO requested the following stipulations be followed during all ground disturbance in the Lava Hot Springs area:

   - All construction personnel are required to receive Tribal cultural awareness training.
   - A cultural resources monitor will be present during any ground disturbance.
   - In the event of subsurface discovery of any pre-contact, historical, or paleontological resources, all ground disturbing activities shall cease. Notification to the Shoshone-Bannock Tribe's HETO shall be made.
   - Information regarding the discovery of cultural material or burials shall not be made public and the media shall not be informed. All construction personnel shall not touch or pick discovered items.
   - Construction personnel shall keep the discovery confidential to prevent looting.
   - Work in the immediate area may not resume until after the area of discovery has been cleared by a qualified archaeologist who meets the Secretary of Interior's Standards.

3. DEQ did not receive a response from the Shoshone-Paiute Tribes.

As previously stated, a final response regarding effects to historical properties and cultural resources will be made upon submittal and review of the results of the survey/evaluation requested by the SHPO.

Please feel free to contact me with any questions.

Mike Stambulis
michael.stambulis@deq.idaho.gov
(208) 373-0123

Idaho Department of Environmental Quality
Grant and Loan Program
Section 106 of the National Historic Preservation Act (NHPA): Agency Determination of Effect

Project Name: City of Lava Hot Springs Drinking Water Improvements Project

Grant/Loan identification: DWG-148-2014-5

Date: 5/9/2016

Step 1: Initiate the Section 106 Process

X	Establish Undertaking (proposed project scope identified)	
X	Notify Idaho SHPO and respective THPO or Tribal Cultural Resource Program (30 days to respond) about the undertaking.	
X	Involve the public (public participation process)	
Determine one of the following based on consultation with SHPO/THPO/Tribal Cultural Resource Program		
	No undertaking/potential to cause effects. (**Section 106 concluded**) Justification:	
X	Undertaking may affect *historic properties* (**proceed to Step 2**)	
X		Require archeological survey by a qualified consultant: http://www.preservationidaho.org/resources/cultural-resources-consultants

Step 2: Identify Historic Properties

X	Determine Areas of Potential Effect (direct, indirect, and cumulative)
X	Identify *historic properties* (archival research, reconnaissance, inventory) in survey
Request review of survey from Idaho SHPO and respective THPO or Tribal Cultural Resource Program	
	No *historic properties* present/affected Justification: there are no known *historic properties* in the area of potential effect, undertaking is entirely within disturbed areas and does not have the potential to adversely affect any unknown *historic properties.*
X	Potential Adverse Effects to *historic properties* (**proceed to Step 3**)

Step 3: Assess Adverse Effects

X	Apply Criteria of Adverse Effects (effects to historic properties)
Consult with Idaho SHPO and respective THPO or Tribal Cultural Resource Program (30 days to respond)	
X	No *historic properties* adversely affected Justification: **DEQ concurs with the determination that the proposed project will have no adverse effect on historic properties and no additional work is recommended**.
	Adverse Effects to *historic properties* (**proceed to Step 4**)

Step 4: Resolve Adverse Effects

	Notify Advisory Council on Historic Preservation
	Avoid, minimize, or mitigate adverse effects
	Notify Idaho SHPO and respective THPO or Tribal Cultural Resource Program
	Final Memorandum of Agreement or Programmatic Agreement (**Section 106 concluded**)

DEQ determination: An intensive cultural resources survey was conducted based on the response from the SHPO. The survey concluded that there are no known historic properties in the area of potential effect that could be adversely affected by the project. The Dempsey-Topaz Canal is recommended eligible for listing on the National Register of Historic Places, and the Fish Creek Canal and wood stave pipe segment are recommended ineligible for listing. The Dempsey-Topaz Canal is associated with the irrigation of the arid west and agricultural development in southern Idaho.

The Shoshone-Bannock Tribes Cultural Resources group of the Heritage Tribal Office (HETO) response dated October 9, 2015 requests the following stipulations be followed during all ground disturbance in the Lava Hot Springs area:

- All construction personnel are required to receive Tribal cultural awareness training.
- A cultural resources monitor will be present during any ground disturbance.
- In the event of subsurface discovery of any pre-contact, historical, or paleontological resources, all ground disturbing activities shall cease. Notification to the Shoshone-Bannock Tribe's HETO shall be made.
- Information regarding the discovery of cultural material or burials shall not be made public and the media shall not be informed. All construction personnel shall not touch or pick discovered items.
- Construction personnel shall keep the discovery confidential to prevent looting.
- Work in the immediate area may not resume until after the area of discovery has been cleared by a qualified archaeologist who meets the Secretary of Interior's Standards.

Aimee Hill

www.history.idaho.gov

Idaho • State Historical Society

C.L. "Butch" Otter
Governor of Idaho

Janet Gallimore
Executive Director

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

Membership and Fund Development
2205 Old Penitentiary Road
Boise, Idaho 83712-8250
Office: (208) 514-2310
Fax: (208) 334-2774

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

State Historic Preservation Office and Historic Sites
Archeological Survey of Idaho
210 Main Street
Boise, Idaho 83702-7264
Office: (208) 334-3861
Fax: (208) 334-2775

Statewide Sites:
• Franklin Historic Site
• Pierce Courthouse
• Rock Creek Station and
• Stricker Homesite

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

Idaho State Archives
2205 Old Penitentiary Road
Boise, Idaho 83712-8250
Office: (208) 334-2620
Fax: (208) 334-2626

North Idaho Office
112 West 4th Street, Suite #7
Moscow, Idaho 83843
Office: (208) 882-1540
Fax: (208) 882-1763

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August 24, 2015

Matthew B. Hill, P.E.
Project Manager
Keller Associates, Inc.
305 North 3rd Avenue, Suite A
Pocatello, Idaho 83201

RE: City of Lava Hot Springs Water Systems Improvements (Idaho SHPO REV 205-903)

Dear Mr. Hill,

Thank you for your informational letter and project materials regarding the proposed undertaking. We understand that you are soliciting comments from our office on behalf of the City of Lava Hot Springs in anticipation of receipt of federal funding through the Drinking Water State Revolving Loan Fund which triggers compliance with Section 106 of the National Historic Preservation Act.

We have reviewed the materials as well as additional information that you have provided via email and recommend that some additional effort be conducted to identify *historic properties* within the area of potential effect and identify any adverse effects. We recognize that a significant amount of the area of potential effect has been previously disturbed or the nature of the undertaking is such that it has little change to adversely affect *historic properties*. Therefore we recommend that a limited survey and or evaluation be conducted on the following aspects of the undertaking:

1.) If any of the existing wells, well houses, or storage tanks that are part of the undertaking are more than 50 years of age they should be recorded and evaluated as to their National Register eligibilities. Any modification to a potentially eligible property needs to be assessed.

2.) The construction footprint of the final location of the new well and the construction easement/alignment of the new pipeline to tie into the existing system from the new well needs to be intensively surveyed.

3.) The construction footprint of the proposed fencing around the exiting well tanks in Section 28 on the hill south of town needs to be intensively surveyed.

4.) The construction easement/alignment of the pipeline replacement that is proposed from the existing well tanks discussed above east along Fish Creek to the Springs located in Section 25 east of town needs to be intensively surveyed. The proposed pipeline replacement crosses the alignment of the National Register eligible Dempsey Topaz Canal in two locations. The canal needs to be documented and evaluated in these locations and an assessment of any adverse effects needs to be determined.

5.) The construction footprint of the proposed fencing around the springs east of town in Section 25 need to be intensively surveyed.

We would also like to mention that a portion of the proposed pipeline replacement in Section 23 east of town appears to be on public lands managed by the Bureau of Land Management. If this is the case, consultation should be conducted with the BLM. We appreciate your consulting with our office and look forward to receiving a report which documents the survey, and provides an overall recommendation regarding project effect. A list of qualified professionals can be found on Preservation Idaho's website: http://www.preservationidaho.org/resources/cultural-resources-consultants.

If you have any questions feel free to contact me at 208-334-3847 x107 or ethan.morton@ishs.idaho.gov.

Sincerely,

Ethan Morton, State Historic Preservation Office

www.history.idaho.gov

Idaho State Historical Society

C.L. "Butch" Otter
Governor of Idaho

Janet Gallimore
Executive Director

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

Membership and Fund Development
2205 Old Penitentiary Road
Boise, Idaho 83712-8250
Office: (208) 514-2310
Fax: (208) 334-2774

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

State Historic Preservation Office and Historic Sites
Archeological Survey of Idaho
210 Main Street
Boise, Idaho 83702-7264
Office: (208) 334-3861
Fax: (208) 334-2775

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Fax: (208) 334-2626

North Idaho Office
112 West 4th Street, Suite #7
Moscow, Idaho 83843
Office: (208) 882-1540
Fax: (208) 882-1763

May 17, 2016

Canda Dimick
City of Lava Hot Springs
115 West Elm
PO Box 187
Lava Hot Springs, ID 83246

RE: City of Lava Hot Springs Water Systems Improvements (Idaho SHPO REV 205-903)

Dear Ms. Dimick,

Thank you for your informational letter and report prepared by David Larsen with Sundance Consulting, Inc. regarding the undertaking's compliance with Section 106 of the National Historic Preservation Act. We have reviewed the report and concur with Mr. Larsen's recommendation that the Dempsey-Topaz Canal (10BK269) is eligible and the Fish Creek Canal is not eligible for the National Register. We also concur with Mr. Larsen's recommendation that the undertaking will have no adverse effect on *historic properties* (36 CFR800.5).

We appreciate your consulting with our office. If you have any questions feel free to contact me at 208-334-3847 x107 or ethan.morton@ishs.idaho.gov.

Sincerely,

Ethan Morton, State Historic Preservation Office

cc Matthew B. Hill, Keller Associates
Aimee Hill, IDEQ
David Larsen, Sundance Consulting

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The SHOSHONE-BANNOCK TRIBES

PHONE: (208)236-1081
(208)236-1086
FAX: (208)478-3707
Email: lbill@sbtribes.com
csmith@sbtribes.com

CULTURAL RESOURCES
HERITAGE TRIBAL OFFICE (HETO)
P.O. BOX 306
FORT HALL, IDAHO 83203

October 9, 2015

Michael Stambulis
Environmental Engineer
Department of Environmental Quality
1410 North Hilton
Boise, ID 83706

Dear Mr. Stambulis:

The Shoshone-Bannock Tribes' Cultural Resources/Heritage Tribal Office appreciates the opportunity to provide technical comments to the City of Lava Hot Springs Drinking Water System Improvement Project.

The City of Lava and the surrounding area is part of the Fort Hall Indian Reservation ceded lands which were ceded in 1889. And the Shoshone and Bannock people have utilized the area for thousands of years prior to the Reservation era. The Tribes still hold cultural interest in the Lava Hot Springs area. The hot springs is also a very important cultural and spiritual resource used historically and presently by Shoshone-Bannock Tribal members. The following stipulations need to be followed during all ground disturbance in the Lava Hot Springs area:

(1) All construction personnel are required to receive a Tribal cultural awareness training.
(2) A cultural resources monitor will be present during any ground disturbance.
(3) In the event of subsurface discovery of any pre-contact, historical, or paleontological resources, all ground disturbing activities shall cease. And notification to the Shoshone-Bannock Tribes' Cultural Resources/Heritage Tribal office shall be made.
(4) Information regarding the discovery of cultural material and/or burials shall not be made public and the media shall not be informed. All construction personnel shall not touch or pick up and cultural items discovered.
(5) Construction personnel shall keep the discovery CONFIDENTIAL as to prevent looting.
(6) Work in the immediate area may not resume until after the area of discovery has been cleared by a qualified archaeologist who meets the Secretary of Interior's Standards.

Although most of the construction will be in previously disturbed areas, it is important to have monitors on site since the prior installation of the current pipes possibly did not have to undergo the Section 106 stipulations of today. As for the crossing of the streams, the Tribes need to be ensured that not sediments be deposited in the streams.

The purpose of this letter is to provide technical input and is ***not*** intended as formal government-to-government consultation. Should there be any questions or concerns, feel free to contact our office at (208)236-1081 or e-mail me at lbill@sbtribes.com.

Sincerely,

Larae Bill
Archaeological Technician

cc: File- City of Lava Hot Springs Drinking Water System Improvement Project (ID DEQ)

Southeastern Idaho Public Health

8/25/15

Matthew B. Hill
305 North 3rd Avenue, Suite A
Pocatello, ID 83201

Re: City of Lava Hot Springs Water System Improvements – Request for Comments for preparation of an Environmental information Document

Dear Mr. Hill,

I have reviewed the documents provided and have found no public health concerns pertaining to the proposed project. If you have any further questions feel free to contact me.

Thanks,

Jesse Anglesey, REHS
Environmental Health Specialist

Matthew Hill

From: Matthew Hill
Sent: Friday, September 18, 2015 1:40 PM
To: 'aandrea@idl.idaho.gov'
Subject: Lava Hot Springs EID Agency Consultation

Ms. Andrea,

In accordance with IDEQ's requirements for the EID we sent a consultation letter inviting responses regarding Lava Hot Springs' proposed water improvements project. The letter was sent 30 days ago. We have not received a response from you. If you intend on providing a response, please let me know a timeframe, otherwise we will proceed with the completion of the EID. If you need any additional information please let me know.

Thank you,

Matthew B Hill, P.E.
Project Manager | **Keller Associates, Inc.**

P 208.238.2146 | C 208.497.9552
305 N 3rd Avenue, Suite A | Pocatello | Idaho 83201
mhill@kellerassociates.com | www.kellerassociates.com

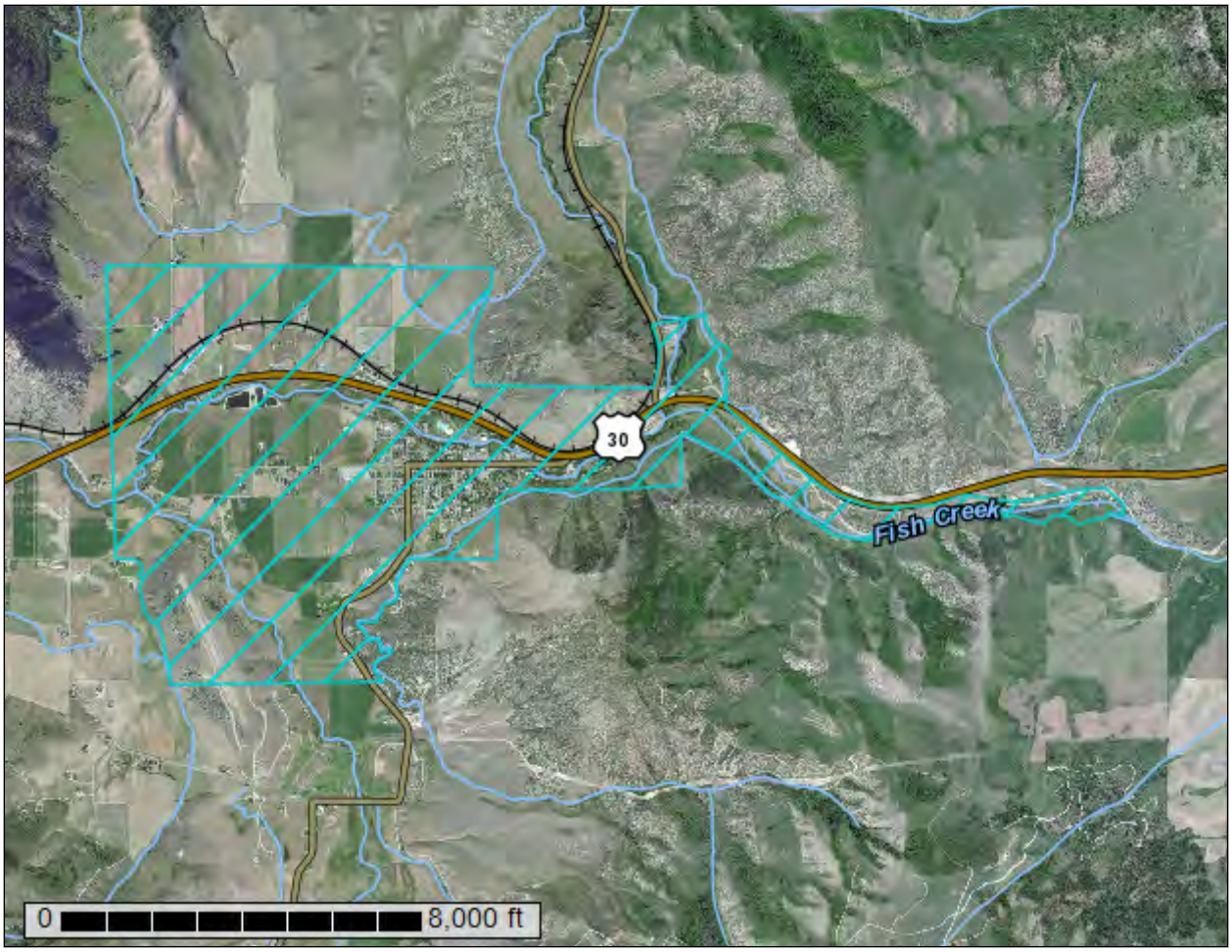
Appendix D. ENVIRONMENTAL INFORMATION

United States Department of Agriculture

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Bannock County Area, Idaho, Parts of Bannock and Power Counties



January 8, 2014

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://soils.usda.gov/sqi/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

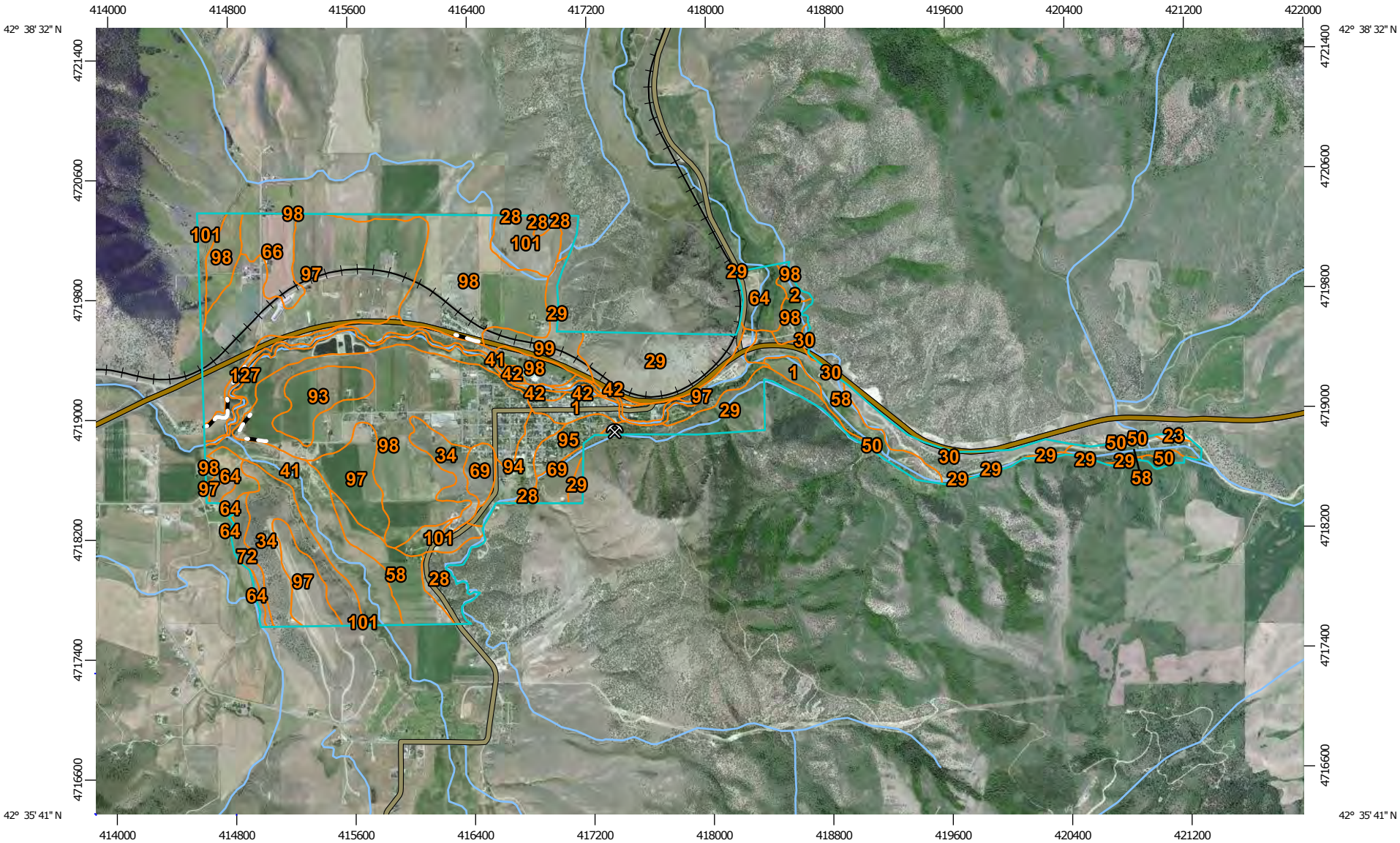
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:37,000 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 500 1000 2000 3000

Feet: 0 1500 3000 6000 9000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bannock County Area, Idaho, Parts of Bannock and Power Counties
Survey Area Data: Version 7, Aug 14, 2012

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 7, 2010—Jul 21, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Bannock County Area, Idaho, Parts of Bannock and Power Counties (ID711)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
1	Arbone silt loam, 1 to 4 percent slopes	30.1	1.6%
2	Arbone silt loam, 4 to 12 percent slopes	3.7	0.2%
23	Camelback-Cedarhill, high precipitation-Lanoak complex, 20 to 50 percent slopes	2.2	0.1%
28	Cedarhill very cobbly silt loam, 30 to 60 percent slopes	42.5	2.2%
29	Cedarhill-Ireland-Rock outcrop complex, 30 to 60 percent slopes	157.5	8.3%
30	Cedarhill-Ririe-Watercanyon complex, 30 to 60 percent slopes	51.0	2.7%
34	Cedarhill, high precipitation-Hondoho-Arbone complex, 20 to 50 percent slopes	111.0	5.8%
41	Downata-Bear Lake complex, drained, 0 to 1 percent slopes	165.4	8.7%
42	Downey-Arimo complex, 0 to 3 percent slopes	15.1	0.8%
50	Hades-Camelback-Lanoak complex, 20 to 50 percent slopes	6.1	0.3%
58	Inkom silt loam, drained, 0 to 1 percent slopes	118.5	6.2%
64	Joevar silt loam, 0 to 3 percent slopes	48.1	2.5%
66	Lanoak silt loam, 4 to 12 percent slopes	41.6	2.2%
69	Lanoak-Camelback complex, 20 to 50 percent slopes	32.4	1.7%
72	Lanoak-Hades complex, 6 to 20 percent slopes	15.9	0.8%
93	Rexburg silt loam, 1 to 4 percent slopes	45.5	2.4%
94	Rexburg silt loam, 4 to 12 percent slopes	34.4	1.8%
95	Rexburg silt loam, 12 to 20 percent slopes	22.8	1.2%
97	Ririe silt loam, 1 to 4 percent slopes	350.6	18.4%
98	Ririe silt loam, 4 to 12 percent slopes	480.7	25.2%

Bannock County Area, Idaho, Parts of Bannock and Power Counties (ID711)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
99	Ririe silt loam, 12 to 20 percent slopes	38.0	2.0%
101	Ririe-Watercanyon complex, 12 to 20 percent slopes	68.0	3.6%
127	Water	27.7	1.5%
Totals for Area of Interest		**1,908.7**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Bannock County Area, Idaho, Parts of Bannock and Power Counties

1—Arbone silt loam, 1 to 4 percent slopes

Map Unit Setting

Elevation: 4,500 to 6,500 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 75 to 100 days

Map Unit Composition

Arbone and similar soils: 75 percent

Description of Arbone

Setting

Landform: Stream terraces, fan remnants
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium and/or loess

Properties and qualities

Slope: 1 to 4 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 10.2 inches)

Interpretive groups

Farmland classification: Prime farmland if irrigated
Land capability classification (irrigated): 3e
Land capability (nonirrigated): 3c
Hydrologic Soil Group: B
Ecological site: LOAMY 12-16 ARTRV/PSSPS-FEID (R013XY001ID)

Typical profile

0 to 9 inches: Silt loam
9 to 12 inches: Silt loam
12 to 60 inches: Silt loam

2—Arbone silt loam, 4 to 12 percent slopes

Map Unit Setting

Elevation: 4,500 to 6,500 feet
Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 75 to 100 days

Map Unit Composition
Arbone and similar soils: 75 percent

Description of Arbone

Setting
Landform: Stream terraces, fan remnants
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium and/or loess

Properties and qualities
Slope: 4 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 10.2 inches)

Interpretive groups
Farmland classification: Not prime farmland
Land capability classification (irrigated): 4e
Land capability (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: LOAMY 12-16 ARTRV/PSSPS-FEID (R013XY001ID)

Typical profile
0 to 9 inches: Silt loam
9 to 12 inches: Silt loam
12 to 60 inches: Silt loam

23—Camelback-Cedarhill, high precipitation-Lanoak complex, 20 to 50 percent slopes

Map Unit Setting
Elevation: 4,900 to 7,800 feet
Mean annual precipitation: 16 to 28 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 60 to 100 days

Map Unit Composition
Cedarhill, high precipitation, and similar soils: 30 percent
Camelback and similar soils: 30 percent
Lanoak and similar soils: 20 percent

Description of Camelback

Setting

Landform: Mountain slopes
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Mixed alluvium and/or colluvium over bedrock derived from sedimentary rock and/or metasedimentary rock

Properties and qualities

Slope: 20 to 50 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.8 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: STEEP SOUTH 16-22 ARTRV/PSSPS (R013XY003ID)
Other vegetative classification: mountain big sagebrush-mountain snowberry/ bluebunch wheatgrass (HFW025)

Typical profile

0 to 21 inches: Gravelly silt loam
21 to 42 inches: Extremely cobbly silt loam
42 to 52 inches: Bedrock

Description of Cedarhill, High Precipitation

Setting

Landform: Mountain slopes
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/or colluvium derived from sedimentary and/or metasedimentary rock

Properties and qualities

Slope: 20 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Low (about 5.8 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: STEEP SOUTH SLOPES 12-16 ARTRV/PSSPS (R013XY008ID)

Typical profile

0 to 9 inches: Very cobbly silt loam
9 to 28 inches: Very cobbly silt loam
28 to 60 inches: Very cobbly loam

Description of Lanoak

Setting

Landform: Mountain slopes
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Silty alluvium and/or loess

Properties and qualities

Slope: 20 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water capacity: High (about 12.0 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: STEEP SOUTH 16-22 ARTRV/PSSPS (R013XY003ID)
Other vegetative classification: mountain big sagebrush-mountain snowberry/ bluebunch wheatgrass (HFW025)

Typical profile

0 to 22 inches: Silt loam
22 to 44 inches: Silt loam
44 to 60 inches: Silt loam

28—Cedarhill very cobbly silt loam, 30 to 60 percent slopes

Map Unit Setting

Elevation: 4,800 to 6,400 feet
Mean annual precipitation: 13 to 24 inches
Mean annual air temperature: 41 to 45 degrees F

Frost-free period: 70 to 100 days

Map Unit Composition

Cedarhill and similar soils: 75 percent

Description of Cedarhill

Setting

Landform: Mountain slopes
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium and/or colluvium derived from sedimentary and/or metasedimentary rock

Properties and qualities

Slope: 30 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Low (about 5.8 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: STEEP SOUTH SLOPES 12-16 ARTRV/PSSPS (R013XY008ID)

Typical profile

0 to 9 inches: Very cobbly silt loam
9 to 28 inches: Very cobbly silt loam
28 to 60 inches: Very cobbly loam

29—Cedarhill-Ireland-Rock outcrop complex, 30 to 60 percent slopes

Map Unit Setting

Elevation: 4,800 to 7,100 feet
Mean annual precipitation: 13 to 24 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 70 to 100 days

Map Unit Composition

Cedarhill and similar soils: 30 percent
Ireland, extremely stony surface, and similar soils: 25 percent
Rock outcrop: 20 percent

Description of Cedarhill

Setting

Landform: Mountain slopes
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Alluvium and/or colluvium derived from sedimentary and/or metasedimentary rock

Properties and qualities

Slope: 30 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Low (about 5.8 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: STEEP SOUTH SLOPES 12-16 ARTRV/PSSPS (R013XY008ID)

Typical profile

0 to 9 inches: Very cobbly silt loam
9 to 28 inches: Very cobbly silt loam
28 to 60 inches: Very cobbly loam

Description of Ireland, Extremely Stony Surface

Setting

Landform: Mountain slopes
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess and/or mixed alluvium and/or colluvium over bedrock derived from sedimentary rock

Properties and qualities

Slope: 30 to 60 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 1.9 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: STEEP STONY MAHOGANY 16-22 CELE3-ARTRV/PSSPS (R013XY015ID)
Other vegetative classification: curl-leaf mountain mahogany/bluebunch wheatgrass (HFW011)

Typical profile

0 to 7 inches: Very stony silt loam
7 to 12 inches: Very stony silt loam
12 to 30 inches: Extremely stony silt loam
30 to 40 inches: Bedrock

Description of Rock Outcrop

Properties and qualities

Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 8

Typical profile

0 to 60 inches: Bedrock

30—Cedarhill-Ririe-Watercanyon complex, 30 to 60 percent slopes

Map Unit Setting

Elevation: 4,500 to 7,000 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 70 to 115 days

Map Unit Composition

Cedarhill and similar soils: 35 percent
Ririe and similar soils: 25 percent
Watercanyon and similar soils: 20 percent

Description of Cedarhill

Setting

Landform: Mountain slopes
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium and/or colluvium derived from sedimentary and/or metasedimentary rock

Properties and qualities

Slope: 30 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Low (about 5.8 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: STEEP SOUTH SLOPES 12-16 ARTRV/PSSPS (R013XY008ID)

Typical profile

0 to 9 inches: Very cobbly silt loam
9 to 28 inches: Very cobbly silt loam
28 to 60 inches: Very cobbly loam

Description of Ririe

Setting

Landform: Mountain slopes
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Silty alluvium and/or loess

Properties and qualities

Slope: 30 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 15.0
Available water capacity: High (about 12.0 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: STEEP SOUTH SLOPES 12-16 ARTRV/PSSPS (R013XY008ID)
Other vegetative classification: mountain big sagebrush/bluebunch wheatgrass (HFW019)

Typical profile

0 to 12 inches: Silt loam

12 to 60 inches: Silt loam

Description of Watercanyon

Setting

Landform: Mountain slopes
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Volcanic ash and/or silty alluvium and/or loess

Properties and qualities

Slope: 30 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water capacity: High (about 9.9 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: SOUTH SLOPE LOAMY 12-16 ARTRW8/PSSPS (R013XY035ID)
Other vegetative classification: mountain big sagebrush/bluebunch wheatgrass (HFW019)

Typical profile

0 to 7 inches: Silt loam
7 to 16 inches: Silt loam
16 to 60 inches: Silt loam

34—Cedarhill, high precipitation-Hondoho-Arbone complex, 20 to 50 percent slopes

Map Unit Setting

Elevation: 4,800 to 6,400 feet
Mean annual precipitation: 13 to 22 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 70 to 100 days

Map Unit Composition

Cedarhill, high precipitation, and similar soils: 45 percent
Hondoho and similar soils: 20 percent

Arbone and similar soils: 15 percent

Description of Cedarhill, High Precipitation

Setting

Landform: Mountain slopes, escarpments
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium and/or colluvium derived from sedimentary and/or metasedimentary rock

Properties and qualities

Slope: 20 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Low (about 5.8 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: STEEP SOUTH SLOPES 12-16 ARTRV/PSSPS (R013XY008ID)

Typical profile

0 to 9 inches: Very cobbly silt loam
9 to 28 inches: Very cobbly silt loam
28 to 60 inches: Very cobbly loam

Description of Hondoho

Setting

Landform: Mountain slopes, escarpments
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Mixed alluvium and/or colluvium

Properties and qualities

Slope: 20 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water capacity: Low (about 5.8 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: STEEP SOUTH SLOPES 12-16 ARTRV/PSSPS (R013XY008ID)
Other vegetative classification: mountain big sagebrush/bluebunch wheatgrass (HFW019)

Typical profile

0 to 15 inches: Cobbly silt loam
15 to 60 inches: Very cobbly sandy clay loam

Description of Arbone

Setting

Landform: Mountain slopes, escarpments
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium and/or loess

Properties and qualities

Slope: 20 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 10.2 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: LOAMY 12-16 ARTRV/PSSPS-FEID (R013XY001ID)
Other vegetative classification: mountain big sagebrush/bluebunch wheatgrass (HFW019)

Typical profile

0 to 9 inches: Silt loam
9 to 12 inches: Silt loam
12 to 60 inches: Silt loam

41—Downata-Bear Lake complex, drained, 0 to 1 percent slopes

Map Unit Setting

Elevation: 4,500 to 7,000 feet

Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 70 to 100 days

Map Unit Composition

Downata, drained, and similar soils: 45 percent
Bear lake, drained, and similar soils: 30 percent
Minor components: 25 percent

Description of Downata, Drained

Setting

Landform: Flood plains, terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess and/or mixed alluvium

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 45 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: High (about 11.8 inches)

Interpretive groups

Farmland classification: Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
Land capability classification (irrigated): 5w
Land capability (nonirrigated): 5w
Hydrologic Soil Group: C/D
Ecological site: MEADOW DECA18-CANE2 (R013XY038ID)

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 15 inches: Silt loam
15 to 41 inches: Silty clay loam
41 to 61 inches: Silt loam

Description of Bear Lake, Drained

Setting

Landform: Flood plains, terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water capacity: High (about 12.0 inches)

Interpretive groups

Farmland classification: Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
Land capability classification (irrigated): 5w
Land capability (nonirrigated): 5w
Hydrologic Soil Group: C/D
Ecological site: MEADOW DECA18-CANE2 (R013XY038ID)

Typical profile

0 to 12 inches: Silt loam
12 to 40 inches: Silty clay loam
40 to 60 inches: Silt loam

Minor Components

Aquolls

Percent of map unit: 10 percent
Landform: Flood plains

Aquolls, strongly saline

Percent of map unit: 5 percent
Landform: Depressions

Inkom

Percent of map unit: 5 percent
Landform: Flood plains
Ecological site: DRY MEADOW PONE-PHAL2 (R013XY039ID)

Tendoy

Percent of map unit: 5 percent
Landform: Flood plains
Ecological site: MEADOW DECA18-CANE2 (R013XY038ID)

42—Downey-Arimo complex, 0 to 3 percent slopes

Map Unit Setting

Elevation: 4,600 to 4,900 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 80 to 110 days

Map Unit Composition

Downey and similar soils: 45 percent
Arimo and similar soils: 40 percent

Description of Downey

Setting

Landform: Terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess over mixed alluvium

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 10 to 20 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Very low (about 2.2 inches)

Interpretive groups

Farmland classification: Prime farmland if irrigated
Land capability classification (irrigated): 3s
Land capability (nonirrigated): 4s
Hydrologic Soil Group: B
Ecological site: LOAMY 11-13 ARTRW8/PSSPS (R013XY018ID)

Typical profile

0 to 12 inches: Gravelly silt loam
12 to 60 inches: Extremely gravelly coarse sand

Description of Arimo

Setting

Landform: Terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess over mixed alluvium

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Moderate (about 6.3 inches)

Interpretive groups

Farmland classification: Prime farmland if irrigated
Land capability classification (irrigated): 3c
Land capability (nonirrigated): 3s
Hydrologic Soil Group: B
Ecological site: LOAMY 12-16 ARTRW8/PSSPS (R013XY036ID)

Typical profile

0 to 6 inches: Silt loam
6 to 18 inches: Silt loam
18 to 33 inches: Silt loam
33 to 60 inches: Extremely gravelly coarse sand

50—Hades-Camelback-Lanoak complex, 20 to 50 percent slopes

Map Unit Setting

Elevation: 5,000 to 6,400 feet
Mean annual precipitation: 16 to 24 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 60 to 100 days

Map Unit Composition

Hades and similar soils: 30 percent
Camelback and similar soils: 25 percent
Lanoak and similar soils: 25 percent

Description of Hades

Setting

Landform: Fan remnants, mountain slopes
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Volcanic ash and/or loess and/or mixed alluvium and/or colluvium

Properties and qualities

Slope: 20 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 10.2 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: STEEP SOUTH 16-22 ARTRV/PSSPS (R013XY003ID)
Other vegetative classification: mountain big sagebrush-mountain snowberry/ bluebunch wheatgrass (HFW025)

Typical profile

0 to 7 inches: Gravelly silt loam
7 to 14 inches: Gravelly silt loam
14 to 60 inches: Gravelly silty clay loam

Description of Camelback

Setting

Landform: Fan remnants, mountain slopes
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Mixed alluvium and/or colluvium over bedrock derived from sedimentary rock and/or metasedimentary rock

Properties and qualities

Slope: 20 to 50 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.8 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: STEEP SOUTH 16-22 ARTRV/PSSPS (R013XY003ID)
Other vegetative classification: mountain big sagebrush-mountain snowberry/ bluebunch wheatgrass (HFW025)

Typical profile

0 to 21 inches: Gravelly silt loam
21 to 42 inches: Extremely cobbly silt loam
42 to 52 inches: Bedrock

Description of Lanoak

Setting

Landform: Fan remnants, mountain slopes
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Silty alluvium and/or loess

Properties and qualities

Slope: 20 to 50 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water capacity: High (about 12.0 inches)

Interpretive groups
Farmland classification: Not prime farmland
Land capability classification (irrigated): 7e
Land capability (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: STEEP SOUTH 16-22 ARTRV/PSSPS (R013XY003ID)
Other vegetative classification: mountain big sagebrush-mountain snowberry/ bluebunch wheatgrass (HFW025)

Typical profile
0 to 22 inches: Silt loam
22 to 47 inches: Silt loam
47 to 60 inches: Silt loam

58—Inkom silt loam, drained, 0 to 1 percent slopes

Map Unit Setting
Elevation: 4,500 to 7,000 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 70 to 100 days

Map Unit Composition
Inkom and similar soils: 80 percent
Minor components: 1 percent

Description of Inkom

Setting
Landform: Stream terraces, flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: About 24 to 48 inches

Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum content: 45 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Very high (about 12.0 inches)

Interpretive groups

Farmland classification: Prime farmland if irrigated
Land capability classification (irrigated): 3w
Land capability (nonirrigated): 3w
Hydrologic Soil Group: C
Ecological site: DRY MEADOW PONE-PHAL2 (R013XY039ID)

Typical profile

0 to 7 inches: Silt loam
7 to 60 inches: Silt loam

Minor Components

Bear lake

Percent of map unit: 1 percent
Landform: Flood plains
Ecological site: MEADOW DECA18-CANE2 (R013XY038ID)

64—Joevar silt loam, 0 to 3 percent slopes

Map Unit Setting

Elevation: 4,500 to 5,600 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 75 to 100 days

Map Unit Composition

Joevar and similar soils: 85 percent
Minor components: 5 percent

Description of Joevar

Setting

Landform: Terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)

Depth to water table: About 60 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: High (about 12.0 inches)

Interpretive groups

Farmland classification: Prime farmland if irrigated
Land capability classification (irrigated): 3c
Land capability (nonirrigated): 3c
Hydrologic Soil Group: B
Ecological site: LOAMY 12-16 ARTRT/PSSPS (R013XY032ID)

Typical profile

0 to 10 inches: Silt loam
10 to 33 inches: Silt loam
33 to 60 inches: Silt loam

Minor Components

Inkom

Percent of map unit: 5 percent
Landform: Flood plains
Ecological site: DRY MEADOW PONE-PHAL2 (R013XY039ID)

66—Lanoak silt loam, 4 to 12 percent slopes

Map Unit Setting

Elevation: 4,800 to 6,100 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 70 to 100 days

Map Unit Composition

Lanoak and similar soils: 85 percent

Description of Lanoak

Setting

Landform: Mountain slopes, fan remnants
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium and/or loess

Properties and qualities

Slope: 4 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water capacity: High (about 12.0 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability classification (irrigated): 4e
Land capability (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: LOAMY 16-22 ARTRV/FEID-PSSPS (R013XY005ID)
Other vegetative classification: mountain big sagebrush-mountain snowberry/ bluebunch wheatgrass (HFW025)

Typical profile

0 to 22 inches: Silt loam
22 to 44 inches: Silt loam
44 to 60 inches: Silt loam

69—Lanoak-Camelback complex, 20 to 50 percent slopes

Map Unit Setting

Elevation: 4,500 to 8,000 feet
Mean annual precipitation: 15 to 20 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 60 to 100 days

Map Unit Composition

Lanoak and similar soils: 50 percent
Camelback and similar soils: 35 percent

Description of Lanoak

Setting

Landform: Mountain slopes
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Silty alluvium and/or loess

Properties and qualities

Slope: 20 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent

Available water capacity: High (about 12.0 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: STEEP SOUTH 16-22 ARTRV/PSSPS (R013XY003ID)
Other vegetative classification: mountain big sagebrush-mountain snowberry/ bluebunch wheatgrass (HFW025)

Typical profile

0 to 22 inches: Silt loam
22 to 44 inches: Silt loam
44 to 60 inches: Silt loam

Description of Camelback

Setting

Landform: Mountain slopes
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Mixed alluvium and/or colluvium over bedrock derived from sedimentary rock and/or metasedimentary rock

Properties and qualities

Slope: 20 to 50 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.8 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: STEEP SOUTH 16-22 ARTRV/PSSPS (R013XY003ID)
Other vegetative classification: mountain big sagebrush-mountain snowberry/ bluebunch wheatgrass (HFW025)

Typical profile

0 to 21 inches: Gravelly silt loam
21 to 42 inches: Extremely cobbly silt loam
42 to 52 inches: Bedrock

72—Lanoak-Hades complex, 6 to 20 percent slopes

Map Unit Setting

Elevation: 4,800 to 6,900 feet

Mean annual precipitation: 16 to 22 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 60 to 100 days

Map Unit Composition

Lanoak and similar soils: 40 percent
Hades and similar soils: 35 percent

Description of Lanoak

Setting

Landform: Mountain slopes, fan remnants
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium and/or loess

Properties and qualities

Slope: 6 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water capacity: High (about 12.0 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability classification (irrigated): 4e
Land capability (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: LOAMY 16-22 ARTRV/FEID-PSSPS (R013XY005ID)
Other vegetative classification: mountain big sagebrush-mountain snowberry/ bluebunch wheatgrass (HFW025)

Typical profile

0 to 22 inches: Silt loam
22 to 44 inches: Silt loam
44 to 60 inches: Silt loam

Description of Hades

Setting

Landform: Mountain slopes, fan remnants
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Volcanic ash and/or loess and/or mixed alluvium and/or colluvium

Properties and qualities

Slope: 6 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water capacity: High (about 10.2 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: LOAMY 16-22 ARTRV/FEID-PSSPS (R013XY005ID)
Other vegetative classification: mountain big sagebrush/bluebunch wheatgrass (HFW019)

Typical profile

0 to 7 inches: Gravelly silt loam
7 to 14 inches: Gravelly silt loam
14 to 60 inches: Gravelly silty clay loam

93—Rexburg silt loam, 1 to 4 percent slopes

Map Unit Setting

Elevation: 4,800 to 6,200 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 75 to 110 days

Map Unit Composition

Rexburg and similar soils: 90 percent

Description of Rexburg

Setting

Landform: Fan remnants, hillslopes
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium and/or loess

Properties and qualities

Slope: 1 to 4 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 12.0 inches)

Interpretive groups

Farmland classification: Prime farmland if irrigated
Land capability classification (irrigated): 3e
Land capability (nonirrigated): 3c
Hydrologic Soil Group: B
Ecological site: LOAMY 12-16 ARTRV/PSSPS-FEID (R013XY001ID)

Typical profile

0 to 10 inches: Silt loam
10 to 26 inches: Silt loam
26 to 60 inches: Silt loam

94—Rexburg silt loam, 4 to 12 percent slopes

Map Unit Setting

Elevation: 4,800 to 6,200 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 75 to 110 days

Map Unit Composition

Rexburg and similar soils: 90 percent

Description of Rexburg

Setting

Landform: Hillslopes, fan remnants
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium and/or loess

Properties and qualities

Slope: 4 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 12.0 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability classification (irrigated): 4e
Land capability (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: LOAMY 12-16 ARTRV/PSSPS-FEID (R013XY001ID)
Other vegetative classification: mountain big sagebrush/bluebunch wheatgrass (HFW019)

Typical profile

0 to 10 inches: Silt loam
10 to 26 inches: Silt loam
26 to 60 inches: Silt loam

95—Rexburg silt loam, 12 to 20 percent slopes

Map Unit Setting

Elevation: 4,700 to 6,200 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 41 to 46 degrees F
Frost-free period: 75 to 110 days

Map Unit Composition

Rexburg and similar soils: 85 percent

Description of Rexburg

Setting

Landform: Hillslopes, fan remnants
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium and/or loess

Properties and qualities

Slope: 12 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 12.0 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability classification (irrigated): 6e
Land capability (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: LOAMY 12-16 ARTRV/PSSPS-FEID (R013XY001ID)
Other vegetative classification: mountain big sagebrush/bluebunch wheatgrass (HFW019)

Typical profile

0 to 10 inches: Silt loam
10 to 26 inches: Silt loam
26 to 60 inches: Silt loam

97—Ririe silt loam, 1 to 4 percent slopes

Map Unit Setting

Elevation: 4,600 to 7,000 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 70 to 100 days

Map Unit Composition

Ririe and similar soils: 85 percent

Description of Ririe

Setting

Landform: Fan remnants, hillslopes
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium and/or loess

Properties and qualities

Slope: 1 to 4 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 15.0
Available water capacity: High (about 12.0 inches)

Interpretive groups

Farmland classification: Prime farmland if irrigated
Land capability classification (irrigated): 3e
Land capability (nonirrigated): 3c
Hydrologic Soil Group: B
Ecological site: LOAMY 12-16 ARTRV/PSSPS-FEID (R013XY001ID)

Typical profile

0 to 12 inches: Silt loam
12 to 60 inches: Silt loam

98—Ririe silt loam, 4 to 12 percent slopes

Map Unit Setting

Elevation: 4,600 to 7,000 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 70 to 100 days

Map Unit Composition

Ririe and similar soils: 85 percent

Description of Ririe

Setting

Landform: Hillslopes, fan remnants
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium and/or loess

Properties and qualities

Slope: 4 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 15.0
Available water capacity: High (about 12.0 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability classification (irrigated): 4e
Land capability (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: LOAMY 12-16 ARTRV/PSSPS-FEID (R013XY001ID)
Other vegetative classification: mountain big sagebrush/bluebunch wheatgrass (HFW019)

Typical profile

0 to 12 inches: Silt loam
12 to 60 inches: Silt loam

99—Ririe silt loam, 12 to 20 percent slopes

Map Unit Setting

Elevation: 4,600 to 7,000 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 70 to 100 days

Map Unit Composition

Ririe and similar soils: 85 percent

Description of Ririe

Setting

Landform: Hillslopes, fan remnants
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium and/or loess

Properties and qualities

Slope: 12 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 15.0
Available water capacity: High (about 12.0 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability classification (irrigated): 6e
Land capability (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: LOAMY 12-16 ARTRV/PSSPS-FEID (R013XY001ID)
Other vegetative classification: mountain big sagebrush/bluebunch wheatgrass (HFW019)

Typical profile

0 to 12 inches: Silt loam
12 to 60 inches: Silt loam

101—Ririe-Watercanyon complex, 12 to 20 percent slopes

Map Unit Setting

Elevation: 4,500 to 7,000 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 70 to 115 days

Map Unit Composition

Ririe and similar soils: 50 percent
Watercanyon and similar soils: 30 percent

Description of Ririe

Setting

Landform: Hillslopes, fan remnants
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Silty alluvium and/or loess

Properties and qualities

Slope: 12 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 15.0
Available water capacity: High (about 12.0 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability classification (irrigated): 6e
Land capability (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: LOAMY 12-16 ARTRV/PSSPS-FEID (R013XY001ID)
Other vegetative classification: mountain big sagebrush/bluebunch wheatgrass (HFW019)

Typical profile

0 to 12 inches: Silt loam
12 to 60 inches: Silt loam

Description of Watercanyon

Setting

Landform: Hillslopes, fan remnants
Down-slope shape: Linear

Across-slope shape: Convex
Parent material: Volcanic ash and/or silty alluvium and/or loess

Properties and qualities

Slope: 12 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water capacity: High (about 9.9 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: SOUTH SLOPE LOAMY 12-16 ARTRW8/PSSPS (R013XY035ID)
Other vegetative classification: mountain big sagebrush/bluebunch wheatgrass (HFW019)

Typical profile

0 to 7 inches: Silt loam
7 to 16 inches: Silt loam
16 to 60 inches: Silt loam

127—Water

Map Unit Composition

Water: 100 percent

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Building Site Development

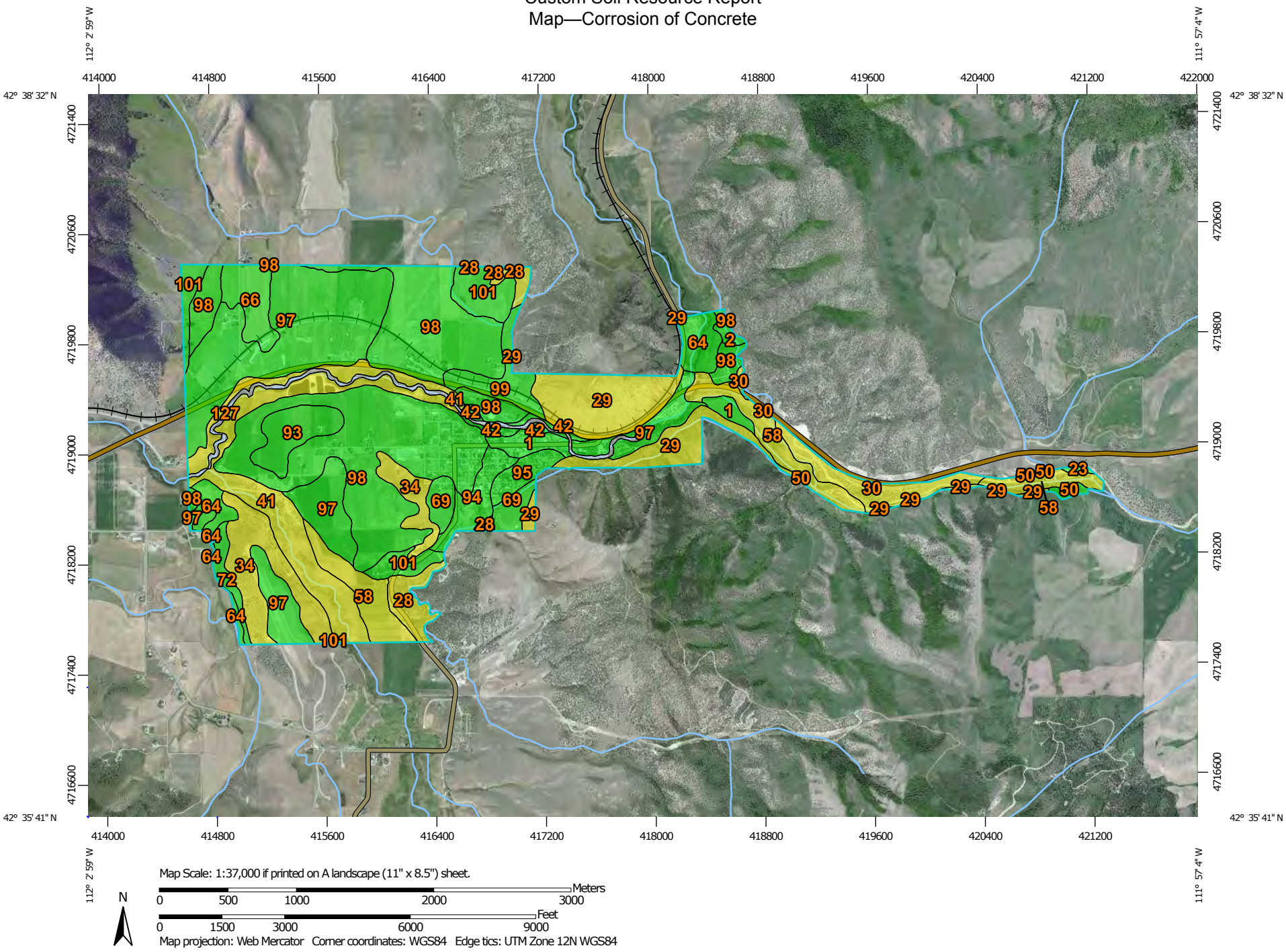
Building site development interpretations are designed to be used as tools for evaluating soil suitability and identifying soil limitations for various construction purposes. As part of the interpretation process, the rating applies to each soil in its described condition and does not consider present land use. Example interpretations can include corrosion of concrete and steel, shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping.

Corrosion of Concrete

"Risk of corrosion" pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens concrete. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the concrete in installations that are entirely within one kind of soil or within one soil layer.

The risk of corrosion is expressed as "low," "moderate," or "high."

Map—Corrosion of Concrete



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

High

Moderate

Low

Not rated or not available

Soil Rating Lines

High

Moderate

Low

Not rated or not available

Soil Rating Points

High

Moderate

Low

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bannock County Area, Idaho, Parts of Bannock and Power Counties
Survey Area Data: Version 7, Aug 14, 2012

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 7, 2010—Jul 21, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Corrosion of Concrete

Corrosion of Concrete— Summary by Map Unit — Bannock County Area, Idaho, Parts of Bannock and Power Counties (ID711)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
1	Arbone silt loam, 1 to 4 percent slopes	Low	30.1	1.6%
2	Arbone silt loam, 4 to 12 percent slopes	Low	3.7	0.2%
23	Camelback-Cedarhill, high precipitation-Lanoak complex, 20 to 50 percent slopes	Low	2.2	0.1%
28	Cedarhill very cobbly silt loam, 30 to 60 percent slopes	Moderate	42.5	2.2%
29	Cedarhill-Ireland-Rock outcrop complex, 30 to 60 percent slopes	Moderate	157.5	8.3%
30	Cedarhill-Ririe-Watercanyon complex, 30 to 60 percent slopes	Moderate	51.0	2.7%
34	Cedarhill, high precipitation-Hondoho-Arbone complex, 20 to 50 percent slopes	Moderate	111.0	5.8%
41	Downata-Bear Lake complex, drained, 0 to 1 percent slopes	Moderate	165.4	8.7%
42	Downey-Arimo complex, 0 to 3 percent slopes	Low	15.1	0.8%
50	Hades-Camelback-Lanoak complex, 20 to 50 percent slopes	Low	6.1	0.3%
58	Inkom silt loam, drained, 0 to 1 percent slopes	Moderate	118.5	6.2%
64	Joevar silt loam, 0 to 3 percent slopes	Low	48.1	2.5%
66	Lanoak silt loam, 4 to 12 percent slopes	Low	41.6	2.2%
69	Lanoak-Camelback complex, 20 to 50 percent slopes	Low	32.4	1.7%
72	Lanoak-Hades complex, 6 to 20 percent slopes	Low	15.9	0.8%
93	Rexburg silt loam, 1 to 4 percent slopes	Low	45.5	2.4%
94	Rexburg silt loam, 4 to 12 percent slopes	Low	34.4	1.8%
95	Rexburg silt loam, 12 to 20 percent slopes	Low	22.8	1.2%
97	Ririe silt loam, 1 to 4 percent slopes	Low	350.6	18.4%

Corrosion of Concrete— Summary by Map Unit — Bannock County Area, Idaho, Parts of Bannock and Power Counties (ID711)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
98	Ririe silt loam, 4 to 12 percent slopes	Low	480.7	25.2%
99	Ririe silt loam, 12 to 20 percent slopes	Low	38.0	2.0%
101	Ririe-Watercanyon complex, 12 to 20 percent slopes	Low	68.0	3.6%
127	Water		27.7	1.5%
Totals for Area of Interest			**1,908.7**	**100.0%**

Rating Options—Corrosion of Concrete

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Higher

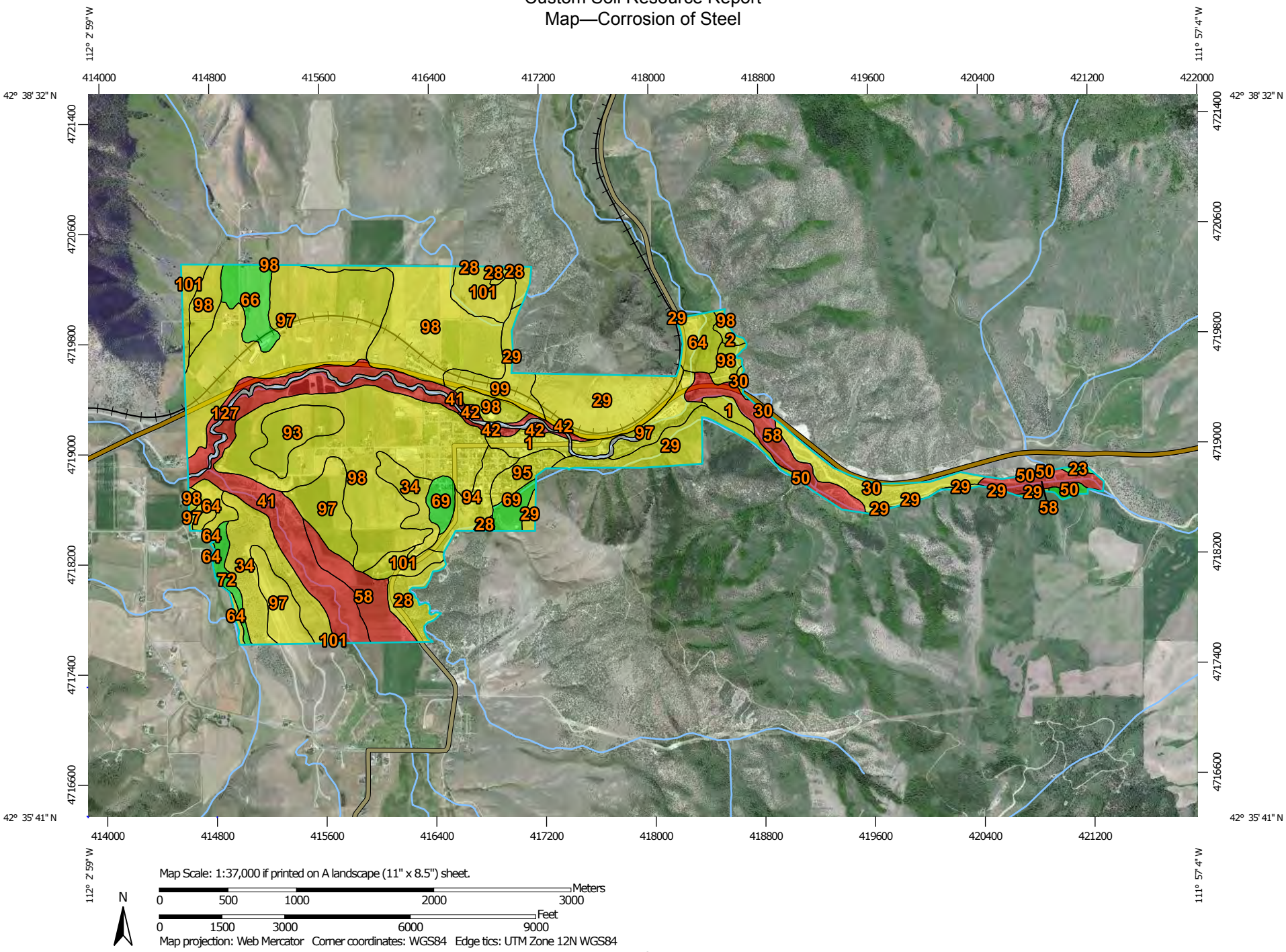
The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

Corrosion of Steel

"Risk of corrosion" pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel in installations that are entirely within one kind of soil or within one soil layer.

The risk of corrosion is expressed as "low," "moderate," or "high."

Map—Corrosion of Steel



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

High

Moderate

Low

Not rated or not available

Soil Rating Lines

High

Moderate

Low

Not rated or not available

Soil Rating Points

High

Moderate

Low

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bannock County Area, Idaho, Parts of Bannock and Power Counties
Survey Area Data: Version 7, Aug 14, 2012

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 7, 2010—Jul 21, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Corrosion of Steel

Corrosion of Steel— Summary by Map Unit — Bannock County Area, Idaho, Parts of Bannock and Power Counties (ID711)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
1	Arbone silt loam, 1 to 4 percent slopes	Moderate	30.1	1.6%
2	Arbone silt loam, 4 to 12 percent slopes	Moderate	3.7	0.2%
23	Camelback-Cedarhill, high precipitation-Lanoak complex, 20 to 50 percent slopes	Low	2.2	0.1%
28	Cedarhill very cobbly silt loam, 30 to 60 percent slopes	Moderate	42.5	2.2%
29	Cedarhill-Ireland-Rock outcrop complex, 30 to 60 percent slopes	Moderate	157.5	8.3%
30	Cedarhill-Ririe-Watercanyon complex, 30 to 60 percent slopes	Moderate	51.0	2.7%
34	Cedarhill, high precipitation-Hondoho-Arbone complex, 20 to 50 percent slopes	Moderate	111.0	5.8%
41	Downata-Bear Lake complex, drained, 0 to 1 percent slopes	High	165.4	8.7%
42	Downey-Arimo complex, 0 to 3 percent slopes	High	15.1	0.8%
50	Hades-Camelback-Lanoak complex, 20 to 50 percent slopes	Low	6.1	0.3%
58	Inkom silt loam, drained, 0 to 1 percent slopes	High	118.5	6.2%
64	Joevar silt loam, 0 to 3 percent slopes	Moderate	48.1	2.5%
66	Lanoak silt loam, 4 to 12 percent slopes	Low	41.6	2.2%
69	Lanoak-Camelback complex, 20 to 50 percent slopes	Low	32.4	1.7%
72	Lanoak-Hades complex, 6 to 20 percent slopes	Low	15.9	0.8%
93	Rexburg silt loam, 1 to 4 percent slopes	Moderate	45.5	2.4%
94	Rexburg silt loam, 4 to 12 percent slopes	Moderate	34.4	1.8%
95	Rexburg silt loam, 12 to 20 percent slopes	Moderate	22.8	1.2%
97	Ririe silt loam, 1 to 4 percent slopes	Moderate	350.6	18.4%

Corrosion of Steel— Summary by Map Unit — Bannock County Area, Idaho, Parts of Bannock and Power Counties (ID711)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
98	Ririe silt loam, 4 to 12 percent slopes	Moderate	480.7	25.2%
99	Ririe silt loam, 12 to 20 percent slopes	Moderate	38.0	2.0%
101	Ririe-Watercanyon complex, 12 to 20 percent slopes	Moderate	68.0	3.6%
127	Water		27.7	1.5%
Totals for Area of Interest			**1,908.7**	**100.0%**

Rating Options—Corrosion of Steel

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

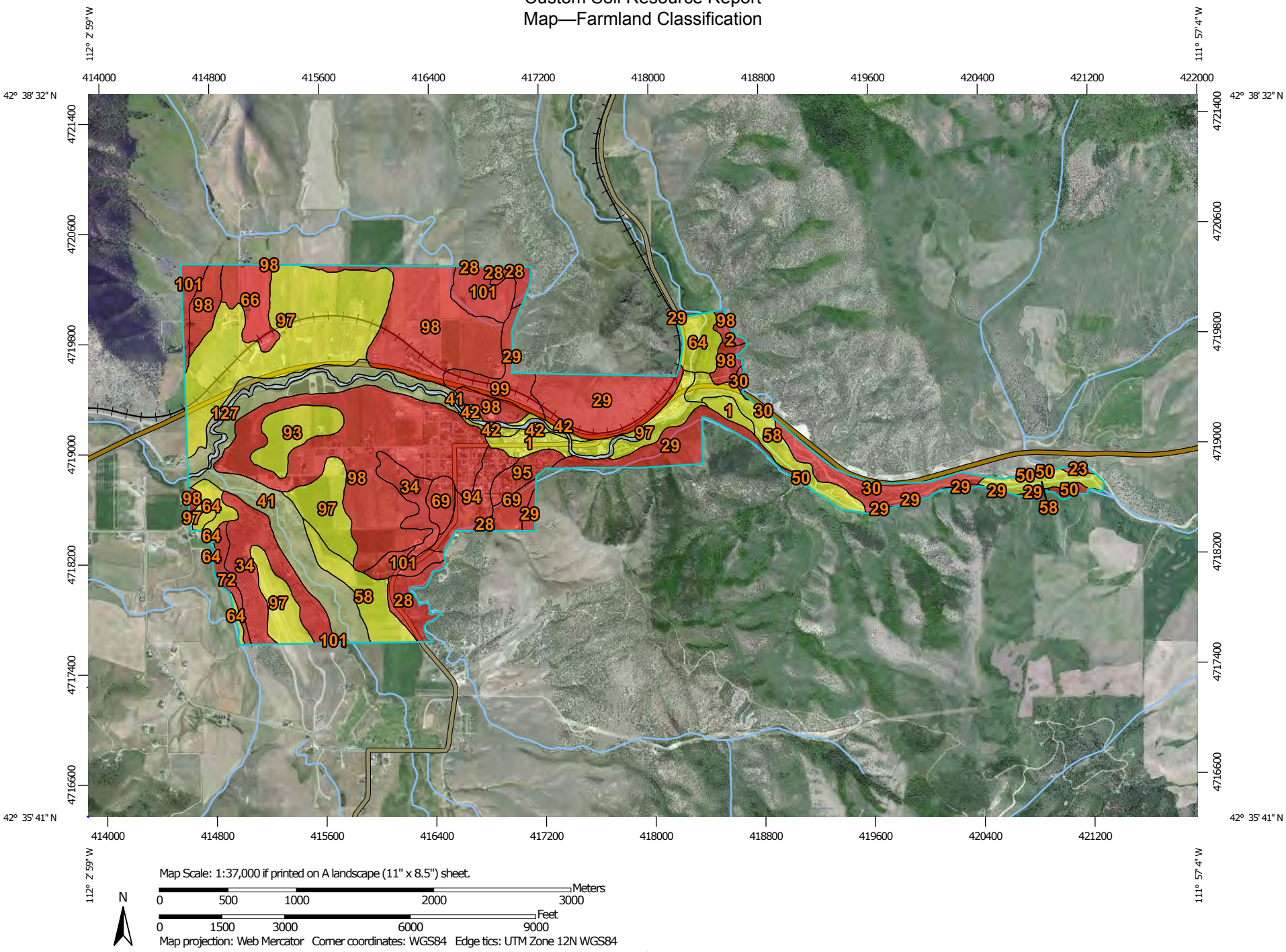
Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Farmland Classification

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Map—Farmland Classification



Map Scale: 1:37,000 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 500 1000 2000 3000

Feet: 0 1500 3000 6000 9000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Soil Rating Lines

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Soil Rating Points

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Water Features

MAP INFORMATION

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bannock County Area, Idaho, Parts of Bannock and Power Counties
Survey Area Data: Version 7, Aug 14, 2012

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 7, 2010—Jul 21, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Farmland Classification

Farmland Classification— Summary by Map Unit — Bannock County Area, Idaho, Parts of Bannock and Power Counties (ID711)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
1	Arbone silt loam, 1 to 4 percent slopes	Prime farmland if irrigated	30.1	1.6%
2	Arbone silt loam, 4 to 12 percent slopes	Not prime farmland	3.7	0.2%
23	Camelback-Cedarhill, high precipitation-Lanoak complex, 20 to 50 percent slopes	Not prime farmland	2.2	0.1%
28	Cedarhill very cobbly silt loam, 30 to 60 percent slopes	Not prime farmland	42.5	2.2%
29	Cedarhill-Ireland-Rock outcrop complex, 30 to 60 percent slopes	Not prime farmland	157.5	8.3%
30	Cedarhill-Ririe-Watercanyon complex, 30 to 60 percent slopes	Not prime farmland	51.0	2.7%
34	Cedarhill, high precipitation-Hondoho-Arbone complex, 20 to 50 percent slopes	Not prime farmland	111.0	5.8%
41	Downata-Bear Lake complex, drained, 0 to 1 percent slopes	Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season	165.4	8.7%
42	Downey-Arimo complex, 0 to 3 percent slopes	Prime farmland if irrigated	15.1	0.8%
50	Hades-Camelback-Lanoak complex, 20 to 50 percent slopes	Not prime farmland	6.1	0.3%
58	Inkom silt loam, drained, 0 to 1 percent slopes	Prime farmland if irrigated	118.5	6.2%
64	Joevar silt loam, 0 to 3 percent slopes	Prime farmland if irrigated	48.1	2.5%
66	Lanoak silt loam, 4 to 12 percent slopes	Not prime farmland	41.6	2.2%
69	Lanoak-Camelback complex, 20 to 50 percent slopes	Not prime farmland	32.4	1.7%
72	Lanoak-Hades complex, 6 to 20 percent slopes	Not prime farmland	15.9	0.8%
93	Rexburg silt loam, 1 to 4 percent slopes	Prime farmland if irrigated	45.5	2.4%
94	Rexburg silt loam, 4 to 12 percent slopes	Not prime farmland	34.4	1.8%

Farmland Classification— Summary by Map Unit — Bannock County Area, Idaho, Parts of Bannock and Power Counties (ID711)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
95	Rexburg silt loam, 12 to 20 percent slopes	Not prime farmland	22.8	1.2%
97	Ririe silt loam, 1 to 4 percent slopes	Prime farmland if irrigated	350.6	18.4%
98	Ririe silt loam, 4 to 12 percent slopes	Not prime farmland	480.7	25.2%
99	Ririe silt loam, 12 to 20 percent slopes	Not prime farmland	38.0	2.0%
101	Ririe-Watercanyon complex, 12 to 20 percent slopes	Not prime farmland	68.0	3.6%
127	Water		27.7	1.5%
Totals for Area of Interest			**1,908.7**	**100.0%**

Rating Options—Farmland Classification

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

References

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Lava Hot Springs Cultural Resources Survey

For the Proposed Water System Improvement Project

Project Number LA01-001

April 2016

By: David N. Larsen, MA, RPA

Sundance Consulting, Inc.

305 N. 3rd Avenue, Suite B, Pocatello, ID 83201

Abstract

The City of Lava Hot Springs anticipates the receipt of federal funding through the Drinking Water State Revolving Loan Fund and has proposed water system improvements within the city limits and surrounding area. The proposed project would include water meter replacements throughout the city, three potential wells and well pipelines, replacement of over three miles of existing pipe, and proposed fencing around the existing water tank and a well. The project is located on private and state land in the vicinity of Lava Hot Springs, Idaho. A small portion of the project passes through federal land managed by the Bureau of Land Management.

The inventory includes an intensive pedestrian survey of select portions of the project area involving new ground disturbance. The inventory includes the location of proposed wells, pipeline replacement, and an evaluation of existing water system features. The existing water tanks, wells, and pumps were reviewed and found to be not historic in age. Two agricultural waterways were documented as a result of fieldwork and include one previously recorded linear site (10BK269 – Dempsey-Topaz Canal) and one newly recorded linear site (FCC1 – Fish Creek Canal). One wood stave pipe section was observed during fieldwork and was recorded as an isolate. The Dempsey-Topaz Canal is recommended eligible for listing on the National Register of Historic Places, and the Fish Creek Canal and wood stave pipe segment are recommended ineligible for listing.

The cultural properties identified within the proposed project area contribute to contexts of agriculture, transportation, and settlement of the City of Lava Hot Springs. The Dempsey-Topaz Canal is associated with the irrigation of the arid west and agricultural development in southern Idaho; however, the proposed project will have no adverse effect on historic properties, and no additional work is recommended.

CERTIFICATION OF RESULTS

I certify that this investigation was conducted and documented according to Secretary of Interior's Standards and guidelines and that the report is complete and accurate to the best of my knowledge.

April 30, 2016

Signature of Principle Investigator

Date

Key Information

PROJECT NAME

A Cultural Resources Survey for the City of Lava Hot Springs Water System Improvement Project

PROJECT NUMBER(S)

Project Number LA01-001

LOCATION

Bannock

USGS QUADS

Lava Hot Springs and Sedgwick Peak

LEGAL LOCATION OF SURVEY

Township 9 South, Range 38 East, Sections 20 - 29

PROJECT AREA

1,920 Acres

AREA SURVEYED

60 Acres Intensive Survey

0 Acres Reconnaissance Survey

PROJECT DATA

1 Previously recorded cultural resources

1 New cultural resources located and/or recorded

AUTHORS

David N. Larsen, MA, RPA

FEDERAL AGENCY

Environmental Protection Agency, Bureau of Land Management

REPORT PREPARED FOR

City of Lava Hot Springs

REPOSITORY

Sundance Consulting, Inc., 305 N. 3rd Avenue, Suite B, Pocatello, ID 83201

PRINCIPLE INVESTIGATOR

David N. Larsen, MA, RPA

DATE

4/30/2016

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Project Description

The City of Lava Hot Springs anticipates the receipt of federal funding through the Drinking Water State Revolving Loan Fund and has proposed water system improvements within the city limits and surrounding area (Appendix A, Figure 1; Appendix B). The proposed project would include water meter replacements throughout the city, three potential wells and well pipelines, replacement of over three miles of existing pipe, and proposed fencing around the existing water tank and a well (Keller Associates 2015). The project is considered an undertaking requiring compliance with Section 106 of the National Historic Preservation Act due to federal funding. The project is located on private and state land in the vicinity of Lava Hot Springs, Idaho. A small portion of the project passes through federal land managed by the Bureau of Land Management.

Project Area of Potential Effect (APE)

The Area of Potential Effect (APE) consists of approximately 1,920 acres and includes the city limits and surrounding area of Lava Hot Springs (Appendix A, Figure 2). The APE was defined by the area to be served by the proposed improvements. The Idaho State Historic Preservation Office (SHPO) reviewed the project and recognized that a significant amount of the area of potential effect has been previously disturbed or the nature of the undertaking is such that it has little chance to adversely affect historic properties (Idaho SHPO REV 205-903). The Idaho SHPO recommended limited survey and/or evaluation be conducted on the following aspects of the undertaking:

1) Evaluate existing wells, well houses, or storage tanks to determine if they are more than 50 years of age.
2) Intensely survey construction footprint of proposed new wells and new pipelines.
3) Intensely survey construction footprint of proposed fencing around the exiting well tanks.
4) Intensely survey construction alignment of pipeline replacement east of town along Fish Creek. The pipeline crosses the alignment of the Dempsey-Topaz Canal in two locations.
5) Intensely survey the construction footprint of the proposed fencing around the springs east of town in Section 25.

Since the Idaho SHPO review, the project no longer includes fencing around the springs east of town; however, fencing is proposed around an existing well and the construction footprint was intensely surveyed.

Environmental Setting

The project area is located in Lava Hot Springs, Idaho and includes the surrounding area. The project area is located within the Portneuf River valley and surrounded by the Portneuf Range. The Portneuf River and Fish Creek pass through the APE and are highly utilized for irrigation.

Topography is mostly flat along the Portneuf River and Fish Creek with mountains rising to the north and south of the Portneuf River. Elevation within the APE ranges from 5,000-feet along the river to 5,400-feet on the hill slopes south of the river. The project area is located in the Semiarid Hills and Low Mountains of the Northern Basin and Range. The Semiarid Hills and Low Mountains ecoregion is composed of unglaciated mountain slopes, hills, and alluvial fans (McGrath et. al 2002). The region is covered by mountain big sagebrush, low sagebrush, and associated grasses and understory plants, including bluebunch wheatgrass, Sandberg bluegrass, Great Basin wildrye, Indian ricegrass, cheatgrass, Idaho fescue, needle-and-thread grass, snowberry, and serviceberry (McGrath et. al 2002). Scattered juniper woodlands grow on shallow and rocky soils. Geyer willow and Booth willow are also present in riparian areas. Land use in the area is primarily agriculture.

Photograph 1: Project area overview facing east

Photograph 2: Project area overview facing west

Cultural Setting

The project area occurs within the Portneuf River Valley and along Fish Creek. The Portneuf River Valley has been used by pre-contact and historic cultures for subsistence and settlement for thousands of years. Pre-contact and historic cultures were drawn to the area by important natural features such as the Portneuf River, Fish Creek, Dempsey Creek, and most notably the thermal mineral pools. Pre-field research, in particular Byington 1989, indicates that the area has a rich history of use by human groups associated with hunting, gathering, fur trapping, transportation, and agriculture.

Lava Hot Springs has been a gathering place to rest and bathe in the hot springs for centuries. Native people from many tribes used the waters as a spiritual place of healing and hunting. According to the South Bannock County Historical Museum exhibit "Poha-Ba, Land of Healing Water," oral traditions and written literature indicate Lava Hot Springs was a gathering location for many nomadic tribes, including the Utes, Paiutes, Cheyenne, and Flathead tribes and more prominently the Shoshone and Bannock Bands. These tribes utilized the natural mud baths, mineral waters, and fertile environment for purposes of healing and as a means of survival (South Bannock County Historical Museum 2016).

Traders and trappers came to this area in the early to mid 1800s. The American Pacific Fur Company (1811-1812), the Northwest Fur Company (1812-1821), and the Hudson's Bay Fur Company (1821-1861), all developed systematic networks for trapping beaver and fur bearing creatures throughout the region (Byington 1989). In 1818, Ross Cox of the Northwest Fur Company declared the Portneuf region "a haven for fur bearing creatures such as beaver, wolf, fox, martin, badger, and bear" (Byington 1989). One notable trapper, Bob Dempsey, set up a trading post a mile from the current business district of Lava Hot Springs near the confluence of Dempsey Creek and the Portneuf River. Prior to incorporation in 1915, Lava Hot Springs was known as Dempsey (Byington 1989).

Travel and trade routes, established by Native Americans, existed for hundreds of years prior to the westward movement of the mid 1800s. The gold rush, fur trade, and westward movement inspired increased transportation routes throughout the western region (Byington 1989). Major economic changes occurred in the late 1870s with the extension of the railroad through south Bannock County. In 1882 the Oregon Short Line Railway route through Lava Hot Springs was completed, and with the arrival of the railroad brought the first trouists to the Lava Hot Springs area who came to partake in the diverse benefits of the natural hot water. The United States Government purchased the land for the State Foundation (Hot Pools) in a treaty with the Shoshone Indians in the late 1800s and granted ownership to the State of Idaho in 1902. Soon hotels, apartments, restaurants, butcher shops, mercantiles, and saloons grew around the unique hot water soaking pools to further attract vacationers to Lava Hot Springs (Byington 1989).

Pre-Field Research

A record search through the Idaho SHPO was requested and results were received on March 4, 2016 (Record Search #16153). The results of the record search identified 29 previously conducted cultural resource inventories, 14 previously recorded archaeological sites, 83 previously recorded historic sites, and 7 previously recorded linear sites within one-half mile of the project area (Appendix C).

Previous Cultural Resources Studies

A total of 29 previously conducted cultural resource inventories have been completed within one-half mile of the project area; however, the majority of these studies only included small portions of the APE. The previously conducted inventories are summarized in the following table:

Table 1: Previous Cultural Resource Studies

SHPO REPORT NUMBER	TITLE	AUTHOR	YEAR	ACRES
1989/1016	Report on an Intensive Cultural Resource Inventory of the Proposed Portneuf River Hydroelectric Project near Lava Hot Springs, Bannock County, Idaho.	Butler, B.R.	1985	10
1991/91	Main Street Lava Hot Springs. Idaho Transportation Department.	Gaston, J.	1990	1
1992/1061	Annual Report of Archaeological Investigations. Idaho Transportation Department.	Gaston, J.	1992	0
1992/490	Lava Hot Springs. Idaho Transportation Department.	Gaston, J.	1992	6
1992/1041	CRM Report Northwest Pipeline Corporation System Expansion Project Idaho Segments: Results of a Cultural Resources Inventory of Access Roads and Other Project Localities.	Newberry, G., Tucker, Gordon C., and Simmons, T.	1992	1140

SHPO REPORT NUMBER	TITLE	AUTHOR	YEAR	ACRES
1992/1042	CRM An Addendum to Northwest Corporation Pipeline System Expansion Project, Idaho Segments: Results of a Cultural Resources Inventory of Additional Work Space Areas.	Tucker, Gordon C.	1992	150
1992/412	Northwest Pipeline Corporation System Expansion Project, Idaho Segment: Results of a Cultural Resources Inventory.	Tucker, Gordon C. and Tate, Marcia J.	1992	5108
1993/19	Lava Hot Springs to Lund/US 30 Project. Idaho Transportation Department.	Sammons, D.	1992	9
1994/414	Cultural Resource Management Report Pipelines Across Idaho: The Results of Archaeological Data Recovery Along Northwest Pipeline Corporation's System Expansion Project in Idaho.	Tucker, Gordon C. and Newberry, G.	1994	0
1999/730	A Class III Cultural Resource Inventory for the Paris to Pocatello Fiber Optic Line and Rockland Facility Upgrade, Bear Lake, Caribou, Bannock, and Power Counties, Idaho.	Harding, W. et. al	1998	1150
1999/750	Neil Hill. NRCS. Idaho.	Cates, K.	1999	1
1999/784	Tom Archibald. NRCS. Idaho.	Cates, K.	1999	27
1999/800	Kit Tillotson. NRCS. Idaho.	Cates, K.	1999	4
2000/1010	Don Gray. NRCS.	Cates, K.	2000	1
2001/95	Tillotson Road Right of Way IDI-33427. Bureau of Land Management.	Hill, R.	2000	1

SHPO REPORT NUMBER	TITLE	AUTHOR	YEAR	ACRES
2001/806	Fawn Potter II. NRCS. Idaho.	Reed, W.	2000	5
2002/10	Aquatic Ecosystem Restoration Portneuf River at Lava Hot Springs, Idaho. Corps of Engineers, Walla Walla District.	Wright, M.	2001	1
2002/452	Brett Casperson. NRCS.	Erickson, C.	2002	5
2002/496	ITD US-30 Topaz-Lava Hot Springs Realignment (Key No 7749). Idaho Transportation Department.	Mauser, L.	2001	
2002/503	Material Source. BK-173. Idaho Transportation Department.	Smith, C.	2001	62
2003/271	City of Lava Hot Springs 410,000 Water Tank.	Walsworth, C.T.	2003	3
2005/369	Portneuf River Bridge. North Wind, Inc.	Harding, W.	2005	9
2007/551	US-30 Topaz to Lava Hot Springs - Stewart Waste Area.	Shelton, J.	2006	4
2007/574	US-30 Topaz to Lava Hot Springs (Benson Rd. Waste Area).	Shelton, J.	2007	5
2009/869	Lower Portneuf Fishing Access	Gallagher, J.	2009	2
2011/221	Lava Hot Springs Sewer Study.	Harding, W.	2011	124
2013/119	Toponce/Crystal Springs Hazardous Fuels Reduction and Restoration Project. Bureau of Land Management.	Berg, A.	2012	2,675

SHPO REPORT NUMBER	TITLE	AUTHOR	YEAR	ACRES
2013/670	Crystal Springs Fuel Reduction and Restoration Project. Bureau of Land Management.	Lapp, A.	2013	0
2015/494	Brett Casperson EQIP 2015. NRCS. Idaho.	Vrem, D.	2015	65

The above reports were conducted using current and standard archaeological methods.

In addition to the record search, the National Register of Historic Places database was reviewed as well as three General Land Office survey plats for Township 13 North, Range 23 East filed September 1, 1896, December 4, 1901, and March 6, 1914. Archives and records at the South Bannock County Historical Museum in Lava Hot Springs, Idaho and water rights information on the Idaho Department of Water Resources (IDWR) website were also researched.

Expected Cultural Resources

A total of 14 previously recorded archaeological sites, 83 previously recorded historic sites, and 7 previously recorded linear sites are located within one-half mile of the project area. The previously recorded cultural resources are summarized in the following tables:

Table 2: Previously Recorded Archaeological Sites

SMITHSONIAN SITE NUMBER	TYPE OF PROPERTY	ARTIFACTS/FEATURES	NRHP ELIGIBILITY
10BK35	Lithic Scatter	unknown	Undetermined
10BK91	Lithic Scatter	Scrapers, hammerstone, projectile points	Undetermined
10BK165	Lithic Scatter	Obsidian and chert flakes, core fragment, biface fragment, 3 manos, possible metate, and one FCR fragment	Eligible

SMITHSONIAN SITE NUMBER	TYPE OF PROPERTY	ARTIFACTS/FEATURES	NRHP ELIGIBILITY
10BK183	Lithic Scatter	Flakes, core	Ineligible
10BK263	Ditch	Ditch	Undetermined
10BK264	Road	Abandoned road bed	Eligible
10BK265	Lithic Scatter	Point, scraper, flakes	Ineligible
10BK266	Lithic Scatter	Nodules, chunks, utilized flakes, flakes	Ineligible
10BK273	Sunken Gardens	Placed rocks with natural rock formation around hot mineral pools	Eligible
10BK277	Lithic	Modified flake	Ineligible
10BK278	Wagon	Farm wagon with Ford axle, Firestone tires, homemade trailer	Ineligible
10BK281	Historic Scatter	Brick, metal, wood, cement, rubber, railroad planks	Undetermined
10BK313	Lithic	Utilized flake	Undetermined
10BK382	Lithic	Biface/preform	Ineligible

Table 3: Previously Recorded Historic Sites

IHSI NUMBER	PROPERTY NAME	STREET	NRHP ELIGIBILITY
05-981	Whitestone Hotel	202 E. Main	NR Listed
05-2554	Riverside Inn	112 Portneuf Ave.	NR Listed
05-4161	Community Memorial Auditorium	150 N. Center St.	Eligible
05-4162	Lava Hot Springs Sanitarium	94 E. Portneuf Ave	Eligible
05-4163	Seppi's Apartment	1st Ave. East	Undetermined
05-4167	Itami Apartments	12 E. Portneuf Ave.	Undetermined
05-4169	Pancake House	99 3rd Ave	Ineligible
05-4170	Raye Hotel	306 E. Main	Eligible
05-4171	Lava Lounge	209 E. Main	Undetermined
05-4173	Blue Apartments	117 Main	Undetermined
05-4174	The Utah Apartments	146 E. Main	Undetermined
05-4175	Bank of Idaho	101 E. Main	Undetermined
05-4176	Silver Grill Café	21 E. Main	Undetermined
05-4177	Lava's Ice Cream Parlor	34-64 E. Main	Eligible
05-4181	Boyce Hotel	68 W. Main	Eligible
05-4183	Ramsey House	89 W. Main	Eligible

IHSI NUMBER	PROPERTY NAME	STREET	NRHP ELIGIBILITY
05-4184	Piedmont Hotel	73 W. Main	Eligible
05-4188	Royal Hotel	11 E. Main	Eligible
05-4189	Public Library	6 Main	Undetermined
05-4190	Dalton Market/Dempsey Creek Trading Post	99 E. Main	Undetermined
05-4191	Berti's Western Food	112 E. Main	Undetermined
05-4192	The Strucel Building	118 E. Main	Ineligible
05-4194	E-Z Livin' Inn	189 E. Main	Eligible
05-5175	NE Lava Bridge	NE of Lava Hot Springs	Undetermined
05-7991	Log Building	S edge of Lava, W side of US Hwy 30	Undetermined
05-7992	Log House	S edge of Lava, W side of US Hwy 30	Undetermined
05-17930	Lava Motor Company	63-93 S. 1st Ave	Undetermined
05-17931	L.D.S Ward Building	187 S. 2nd Ave West	NR Listed
05-17932	William Godfrey House	186 W. Elm	Undetermined
05-17936	N. 1st House	53 N. 1st	Undetermined
05-17937	W. Spring St. House	376 W. Spring St	Undetermined
05-17938	W. Main House	375 W. Main	Undetermined

IHSI NUMBER	PROPERTY NAME	STREET	NRHP ELIGIBILITY
05-17939	W. Main House	192 W. Main	Undetermined
05-17940	The Virginian Apartments	170 W. Main	Undetermined
05-17941	W. Main House	136 W. Main	Undetermined
05-17942	Lava Service Garage	67 Center St. West	Undetermined
05-17943	Gift Shop	206 E. Main	Undetermined
05-17944	Red Vest Café	98 N. 3rd East	Undetermined
05-17945	Pavilion at State Park	450 E. Main	Undetermined
05-17946	Foxman Apartments	56 2nd Ave East	Undetermined
05-17947	Susie Apartments	60 N. 2nd Ave	Undetermined
05-17948	Rich Hospital	266 W. Booth	Undetermined
05-17949	W. Booth House	254 W. Booth	Undetermined
05-17950	W. Elm House	454 W. Elm	Undetermined
05-17951	W. Elm House	426 W. Elm	Undetermined
05-17952	S. 4th House	89 S. 4th West	Undetermined
05-17953	W. Elm House	340 W. Elm	Undetermined
05-17954	W. Elm House	280 W. Elm	Undetermined
05-17955	W. Elm House	264 W. Elm	Undetermined
05-17956	W. Elm House	248 W. Elm	Undetermined

IHSI NUMBER	PROPERTY NAME	STREET	NRHP ELIGIBILITY
05-17957	W. Elm House	253 W. Elm	Undetermined
05-17958	W. Elm House	204 W. Elm	Undetermined
05-17959	W. Elm House	42 W. Elm	Undetermined
05-17960	E. Elm House	47 E. Elm	Undetermined
05-17961	E. Elm House	71 E. Elm	Undetermined
05-17962	S. 1st Ave. E.	94 S. 1st Ave. East	Undetermined
05-17963	E. Elm House	175 E. Elm	Undetermined
05-17964	E. Elm House	190 E. Elm	Undetermined
05-17965	S. 2nd Ave House	88 S. 2nd Ave East	Undetermined
05-17966	Chateau Portneuf	305 W. Main	Undetermined
05-17967	W. Main House	293 W. Main	Undetermined
05-17968	W. Main House	237 W. Main	Undetermined
05-17969	W. Main House	205 W. Main	Undetermined
05-17970	W. Main House	197 W. Main	Undetermined
05-17971	W. Main House	155 W. Main	Undetermined
05-17972	W. Main House	117 W. Main	Undetermined
05-17973	Lava High School Gymnasium	202 W. Fife St.	NR Listed
05-17974	S. 2nd Ave House	193 S. 2nd Ave East	Undetermined

IHSI NUMBER	PROPERTY NAME	STREET	NRHP ELIGIBILITY
05-17975	Albert Shurtleff House	77 E. Fife	Undetermined
05-17976	City Hall	103 W. Elm	Undetermined
05-17977	S. 3rd Ave House	215 S. 3rd Ave West	Undetermined
05-17978	The Gift Horse	159-157 E. Main	Undetermined
05-17979	E. Main House	161-181 E. Main	Undetermined
05-17980	Yellowstone Hotel – Wagon Wheel Lounge	211-255 E. Main	Undetermined
05-17981	2nd Ave House	32 2nd Ave East	Undetermined
05-17982	F.D. Fagnant Bottling Works	31 2nd Ave East	Undetermined
05-17983	E. Main House	594 E. Main	Undetermined
05-17985	Bristol Park	200 Bristol Lane	Undetermined
05-17986	W. Booth House	183 W. Booth	Undetermined
05-17987	W. Booth House	171 W. Booth	Undetermined
05-17988	S. 1st W. House	211 S. 1st West	Undetermined
05-17989	S. 1st W. House	275 S. 1st West	Undetermined
05-18524	US 30 Portneuf Bridge	Approx. 1.1 miles NE of Lava Hot Springs	Eligible

Table 4: Previously Recorded Linear Sites

SITE NUMBER	TYPE OF PROPERTY	ARTIFACTS/ FEATURES	NRHP ELIGIBILITY
10BK269	Agricultural Waterway	Dempsey-Topaz Canal	Eligible
10BK275	Agricultural Waterway	Sunnyside Ditch	Eligible
05-18610	Agricultural Waterway	Topaz and Casperson Canal	Undetermined
10BK190	Emigrant Trail	Hudspeth's Cutoff	Eligible
10BK272	Road	Old US Hwy 30	Eligible
10BK309	Road	Old US Hwy 30 N	Eligible
10BK274	Railroad	Oregon Short Line	Eligible

Cultural themes and contexts within the APE include pre-contact archaeology, agriculture, transportation, exploration/fur trapping, and recreation/tourism. Potential time periods represented include pre-contact through modern.

Field Methodology

Mr. David Larsen, MA, RPA conducted fieldwork on April 5, 2016. Mr. Larsen has over 12 years of professional experience in archaeology and is a Registered Professional Archaeologist (RPA). His education and experience exceeds the requirements of the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (Federal Register, Volume 48, No. 190, September 29, 1983, 44716-44742).

The inventory included an intensive pedestrian survey of select portions of the APE. The inventory included an intensive pedestrian survey at the location of each proposed well and the portions of the project involving new ground disturbance. As stated previously, the Idaho SHPO reviewed the project and recognized that a significant amount of the area of potential effect has been previously disturbed or the nature of the undertaking is such that it has little chance to adversely affect historic properties (Idaho SHPO REV 205-903). As per Idaho SHPO recommendation, limited survey and/or evaluation was conducted on the following aspects of the undertaking:

1) Evaluate existing wells, well houses, or storage tanks to determine if they are more than 50 years of age.
2) Intensely survey construction footprint of proposed new wells and new pipelines.
3) Intensely survey construction footprint of proposed fencing around the exiting well tanks.
4) Intensely survey construction alignment of pipeline replacement east of town along Fish Creek. The pipeline crosses the alignment of the Dempsey-Topaz Canal in two locations.
5) Intensely survey the construction footprint of the proposed fencing around the springs east of town in Section 25.

Since Idaho SHPO review, the project no longer includes fencing around the springs east of town; however, fencing is proposed around existing Well #2 and the construction footprint was intensely surveyed.

Approximately 60 acres were intensively surveyed using parallel transect intervals spaced no more than 15m apart. Surface visibility was generally good (75–100%) within the APE due to the type of vegetation present. The ground surface within the APE was primarily bunch grass species with some sagebrush. No problems were encountered during fieldwork.

Areas not examined include those areas that have been previously disturbed by roadway development, as well as residential or commercial development.

Results

The existing water tanks, wells, and pumps were reviewed and found to be not historic in age. Well #1 was drilled in 1955; however, the well house and pump have since been upgraded with modern materials and equipment (Keller Associates 2015). Well #2 was drilled in 1991, the old water tank was constructed in 1975, and the new water tank was constructed in 2003 (Keller

Associates 2015). Two agricultural waterways were documented as a result of fieldwork and include one previously recorded linear site (10BK269 – Dempsey-Topaz Canal) and one newly recorded linear site (FCC1 – Fish Creek Canal). One wood stave pipe section was observed during fieldwork and was recorded as an isolate. The results of the cultural resources inventory are described below.

10BK269 – Dempsey-Topaz Canal

The Dempsey-Topaz Canal originates from the Portneuf River at a point of diversion located east of the mouth of Reed Canyon in the SW quarter, of the NE quarter, of the SW quarter of Section 28, T8S, R38E. The canal flows to the south, east of the Portneuf River, contouring along the hillside. Near the toe of the hill south of Fish Creek, the canal turns east, contouring along the hillside south of the town of Lava Hot Springs and continues south along the edge of the Dempsey Creek Drainage. The canal ends at the mouth of Henderson Canyon near the Lava Hot Springs Cemetery. Any additional water not used is diverted to the west into the Topaz and Casperson Canal (IHSI #05-18610). The canal is currently in use, though dry at the time of recording.

The canal is banked by earth excavated into the hillside. The canal varies in width from 5-feet to 10-feet, and varies in depths from 2-feet to 5-feet. The canal receives regular maintenance and clearing as needed. The canal is owned by the Dempsey Irrigation Company and the Topaz Irrigation Company. The canal was most likely constructed through man- and horse-power.

A portion of the canal near US-30 and Fish Creek has been diverted under the highway by way of a concrete culvert. Constructed features noted during the survey consist of an aqueduct that transports water around the point of a rock outcrop. The feature consists of a metal channel on a concrete foundation with timber framing. The channel is approximately 4-feet wide and 2-feet tall.

Documentation of construction has not been located in literature search of regional history or historic map files. Water rights were filed on the canal by the Dempsey Irrigation Company and the Topaz Irrigation Company on April 18, 1898 (IDWR 2016).

The Dempsey-Topaz Canal is recommended as eligible for inclusion on the National Register of Historic Places (NRHP) for its association with engineering (Criterion C) and irrigation of the arid west and agricultural development in southern Idaho (Criterion A).

FCC1 – Fish Creek Canal

The Fish Creek Canal originates from Fish Creek at a point of diversion where the creek is crossed by the Dempsey-Topaz Canal located in the NW quarter, of the NW quarter, of the NW quarter of Section 26. Currently, the Fish Creek Irrigation Company water is transported by the Dempsey-Topaz Canal until another point of diversion located in the NE quarter, of the SE quarter, of the NW quarter Section 28, T9S, R38E. The Fish Creek Canal then continues northwest to the use area located south of the sewage disposal ponds in the SE corner of Section 20, SW corner of Section 21, NE corner of Section 29, and NW corner of Section 28.

The segment of the canal identified during the survey is an old segment that was used prior to the Fish Creek Irrigation Company’s use of the Dempsey-Topaz Canal to transport water from Fish

Creek to the point of diversion located in Section 28. Historically, the Fish Creek Canal diverted water directly from Fish Creek and flowed west, running north of and parallel to the Dempsey-Topaz Canal (Smith 2016). It was later determined to be more efficient to use the Dempsey-Topaz canal to carry the allotted water from Fish Creek to the point of diversion located in Section 28. The date when the canal segment was abandoned could not be determined, but is estimated to be in the early- to mid-1900s.

The canal is banked by earth excavated into the hillside. The canal segment is approximately 3 feet wide and varies in depths from 1 foot to 2 feet. This segment of the canal is no longer in use. The canal was most likely constructed through man- and horse-power.

Documentation of construction has not been located in literature search of regional history or historic map files. Water rights were filed by the Fish Creek Irrigation Company on March 1, 1893 (IDWR 2016).

The Fish Creek Canal, while contributing to the agricultural growth and settlement of the Lava Hot Springs area, no longer retains integrity, except for the general course of the original canal. No associated artifacts or features were identified within the survey area and the segment of canal is no longer in use. The canal segment retains integrity of materials, workmanship, location, and setting; however, the feature lacks integrity of design, feeling, and association. The feature is not associated with a significant person, and is not architecturally significant. It is not likely to yield information important to local or regional history. While the canal is associated with the irrigation of the arid west and agricultural development in southern Idaho, better examples exist that retain integrity and remain in use. Therefore, it is recommended ineligible for the NRHP.

Isolates/Noted but not recorded

One wood stave pipe section was observed during fieldwork and was recorded as an isolate. The segment of pipe is approximately 6-inches in diameter and is partially buried. Approximately 6-feet of the pipe is exposed. The pipe is wood stave wrapped with wire and some metal bands.

The isolate represents a portion of a historic waterline; however, the entire length and alignment of the original pipeline as well as the date of placement is unknown. The City of Lava Hot Springs has no additional information on the original waterline pipe. The wood staved pipe waterline likely dates to the early- to mid- 1900s, and the City of Lava Hot Springs estimates that the pipeline was abandoned in the late 1950s when the existing cast iron line was placed. The pipe lacks architectural significance and is not associated with any people, events, or trends of historical significance. It lacks integrity as the length and alignment is unknown. It is not likely to yield information important to local or regional history. Therefore, it is recommended ineligible for the NRHP.

Management Recommendations

The cultural properties identified within the proposed project APE contribute to contexts of agriculture, transportation, and settlement of the City Lava Hot Springs. The various historic buildings and structures within the City contribute to the development of the City. The railroad, highway, and irrigation canals all played a major role in contributing to the local history of Lava

Hot Springs. The Dempsey-Topaz Canal is associated with the irrigation of the arid west and agricultural development in southern Idaho.

All historic properties identified in Tables 2, 3, and 4 will be avoided by project design, with the exception of the Dempsey-Topaz Canal. The proposed project will require placing waterline pipe under the Dempsey-Topaz Canal and the Fish Creek Canal. The proposed project will cross the Dempsey-Topaz canal at two locations: one at the location the canal passes through a modern culvert and passes under Hwy 30 in the SE quarter, of the SE quarter, of the SE quarter of Section 22 and at another in the SW quarter, of the SW quarter, of the SW quarter of Section 22. The proposed project will cross a historic segment of the Fish Creek Canal at a single location in the NE quarter, of the SE quarter, of the SW quarter of Section 22. An open cut or bore method would be used for laying pipe under the canals. The open cut or bore method would have no impact on the alignment or integrity of the canals. The proposed project will have no direct or indirect impacts on the integrity of location, function, and design of these historic properties.

No additional work is recommended, and the proposed project will have no adverse effect on historic properties.

Determination of Effects

The Dempsey-Topaz Canal is recommended as eligible for inclusion on the NRHP for its association with agricultural development in southern Idaho (Criterion A) and engineering (Criterion C). The proposed project will cross the Dempsey-Topaz canal at two locations: the first at the location the canal passes through a modern culvert and passes under Hwy 30 in the SE quarter, of the SE quarter, of the SE quarter of Section 22, and the second in the SW quarter, of the SW quarter, of the SW quarter of Section 22. An open cut or bore method would be used for laying pipe under the canal, and would not impact the alignment, function, or integrity of the canal. While direct and indirect impacts to the structure may occur during pipe placement, these impacts would not be significant, as they would not impact the integrity of location, function, and design of the historic property. The proposed project will have no adverse effect to this historic property.

The Fish Creek Canal is recommended as ineligible for inclusion on the NRHP. The Fish Creek Canal, while contributing to the agricultural growth and settlement of the Lava Hot Springs area, no longer retains integrity, except for the general course of the original canal. No associated artifacts or features were identified within the survey area and a segment of canal is no longer in use. The canal segment retains integrity of materials, workmanship, location, and setting; however, the feature lacks integrity of design, feeling, and association. The feature is not associated with a significant event or person, and is not architecturally significant. It is not likely to yield information important to local or regional history. Therefore, it is recommended ineligible for the NRHP. The proposed project will cross the Fish Creek Canal at two locations: the first in the NE quarter, of the SE quarter, of the SW quarter of Section 22, and the second in the NE quarter, of the SE quarter, of the NW quarter Section 28, T9S, R38E near the intersection of the canal and Dempsey Creek Road. An open cut or bore method would be used for laying pipe under the canal. While direct and indirect impacts to the structure may occur during pipe placement, these impacts would not be significant, as the canal segment is recommended

ineligible for listing on the NRHP. Therefore, the proposed project will have no adverse effect to this feature.

Avoidance, Minimization, or Mitigation Options

10BK1069 – Dempsey-Topaz Canal

The proposed project will require placing waterline pipe under the Dempsey-Topaz Canal. The proposed project will cross the Dempsey-Topaz canal at two locations: first at the location the canal passes through a modern culvert and passes under Hwy 30 in the SE quarter, of the SE quarter, of the SE quarter of Section 22, and the second in the SW quarter, of the SW quarter, of the SW quarter of Section 22; however, an open cut or bore method would be used for laying pipe under the canal. The bore method is preferred, as this would avoid the structure; however, either method would result in no impacts on the integrity of location, function, and design of the canal. No additional work is recommended.

Fish Creek Canal

The proposed project will cross the Fish Creek Canal at two locations: the first in the NE quarter, of the SE quarter, of the SW quarter of Section 22, and the second in the NE quarter, of the SE quarter, of the NW quarter Section 28, T9S, R38E near the intersection of the canal and Dempsey Creek Road; however, an open cut or bore method would be used for laying pipe under the canal. Either method would result in no impacts as the canal segment is recommended ineligible for listing on the NRHP. No additional work is recommended.

Conclusions

The cultural properties identified within the proposed project APE contribute to contexts of agriculture, transportation, and settlement of the City of Lava Hot Springs. The various historic buildings and structures within the City contribute to the development of the City. The railroad, highway, and irrigation all played a major role in contributing to the local history of Lava Hot Springs. The Dempsey-Topaz Canal is associated with the irrigation of the arid west and agricultural development in southern Idaho. The proposed project will have no adverse effect on historic properties, and no additional work is recommended.

Original survey records, field notes, and photographs are located at:

Sundance Consulting, Inc.

305 North 3rd Avenue, Suite B

Pocatello, ID 83201

References

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Idaho Department of Water Resources (IDWR)
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McGrath C.L., Woods A.J., Omernik, J.M., Bryce S.A., Edmondson M., Nesser J.A., Shelden J., Crawford R.C., Comstock J.A., and Plocher M.D.
2002 Ecoregions of Idaho (color poster with map, descriptive text, summary tables, and photographs). Reston, Virginia. United States Geological Survey (map scale 1:1,350,000).

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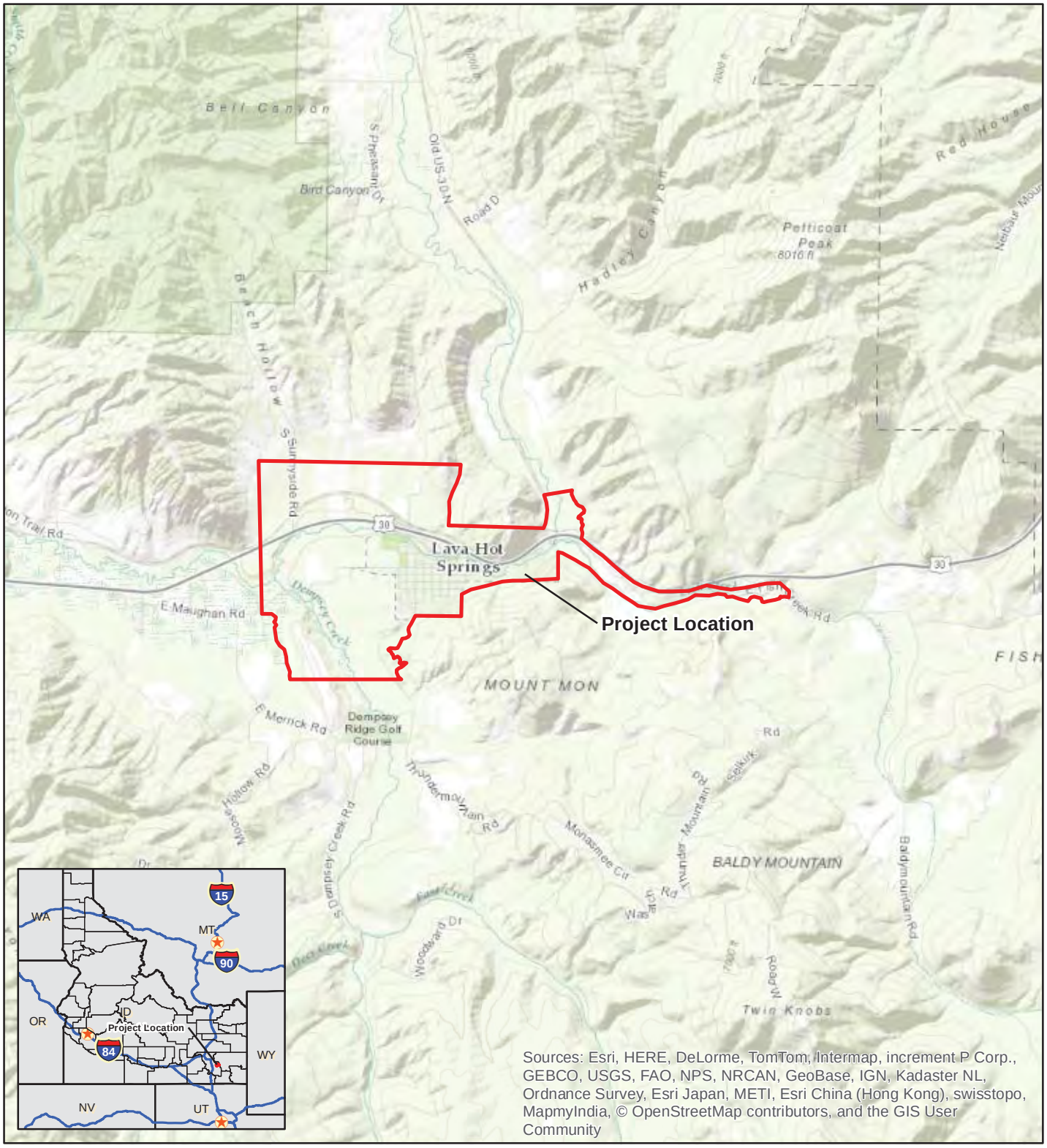
Smith, Earl
2016 Dempsey Irrigating Company. Personal communication. April 19, 2016.

Appendix A

Figures

Figure 1 - Project Location
Lava Hot Springs Water System Improvements



N
W E
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Scale 1:70,000

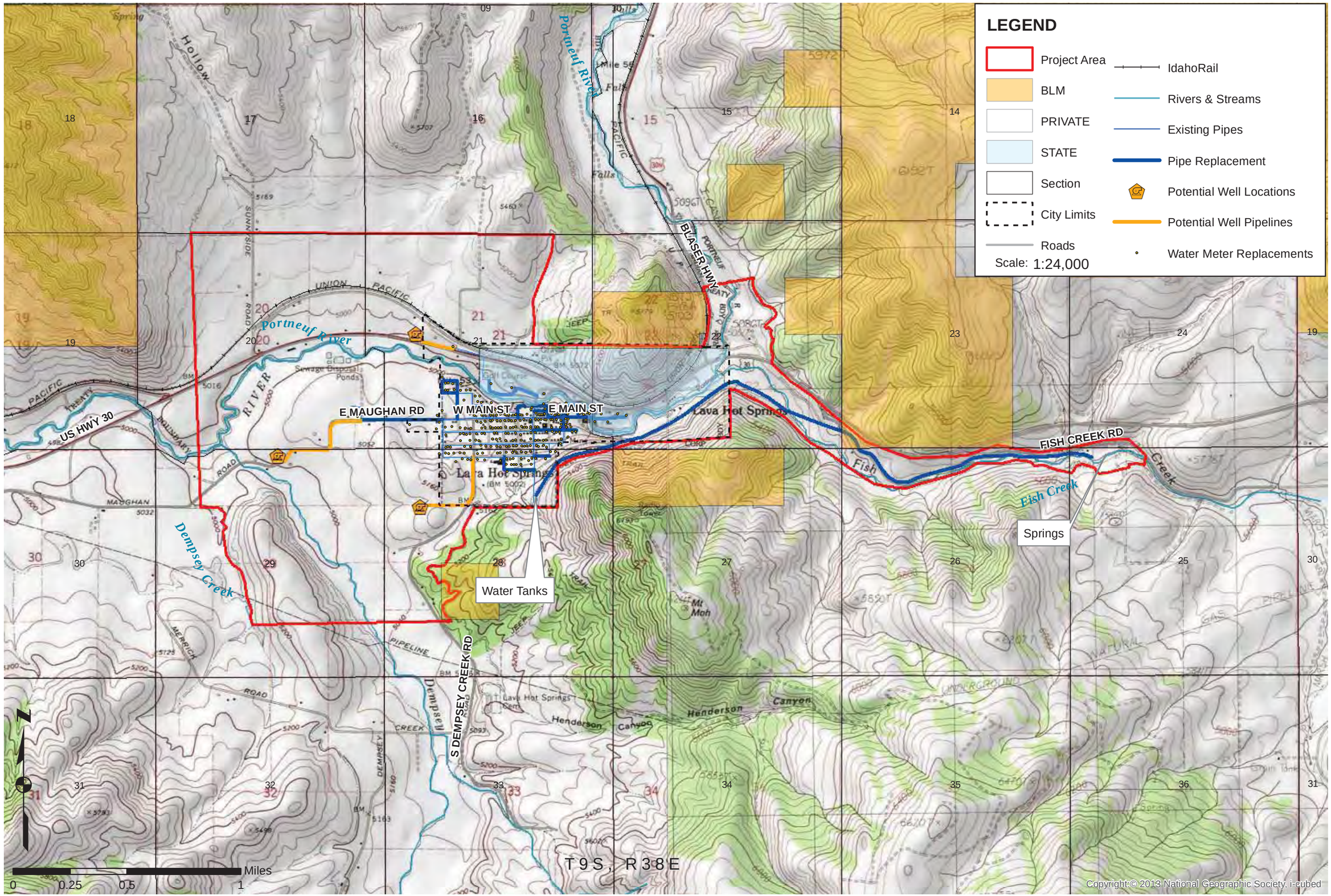
Data Displayed in UTM Zone 12, NAD83

0 0.5 1 2 Miles

0 1.5 3 Kilometers

Date Created: 4/14/2016

Print Date: 4/14/2016



PROJECT NO. LA01-001

FILENAME Lava.mxd

Sundance Consulting, Inc.
305 N. 3rd Ave, Ste. B
Pocatello, ID 83201
208.222.2929

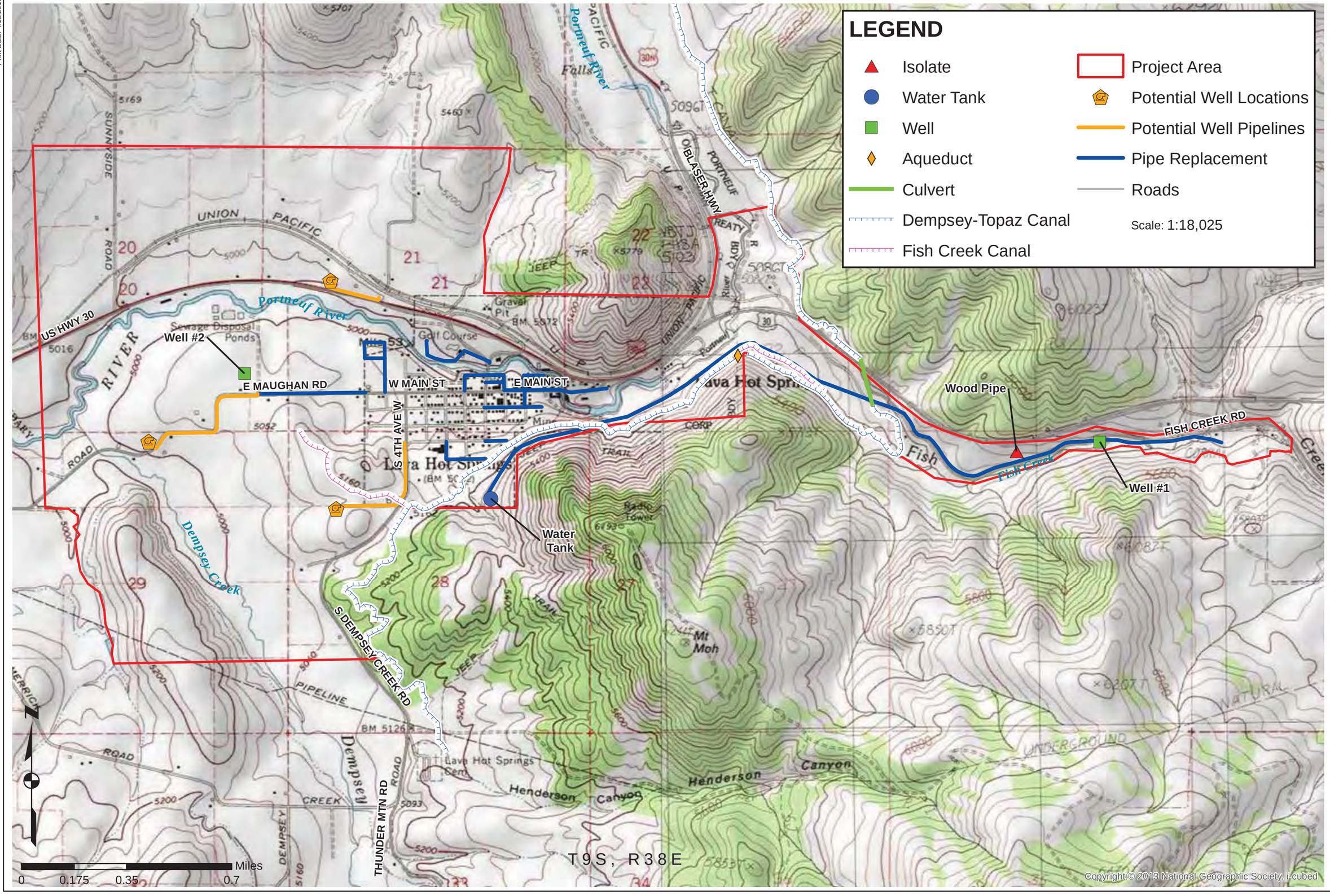
CITY OF LAVA HOT SPRINGS

Cultural Resources Inventory

Proposed Water System Improvements

FIGURE NO. 2

Print Date: 4/19/2016



PROJECT NO. LA01-001

FILENAME Lava3.mxd

Sundance Consulting, Inc.
305 N. 3rd Ave, Ste. B
Pocatello, ID 83201
208.222.2929

CITY OF LAVA HOT SPRINGS

Cultural Resources Inventory

Proposed Water System Improvements

FIGURE NO. 3

Appendix B

Photographs

Photograph Identification Log

Photographer: David N. Larsen, MA, RPA
Project Title: Lava Hot Springs Cultural Resources Survey for the Proposed Waster System Improvement Project, Bannock County, Idaho
Camera: Olympus Tough TG-320 Digital Camera – 14 Mega Pixels

FRAME NUMBER	DATE	SUBJECT	LOCATION (TOWNSHIP, RANGE, SECTION PLUS COUNTY AND NEAREST TOWN)	DIRECTION (FROM WHICH PHOTO IS TAKEN)
P4050006	4/5/2016	Project Area Overview	T9S, R38E, Sec. 26, Bannock County, Lava Hot Springs	W
P4050008	4/5/2016	Project Area Overview and Well #1	T9S, R38E, Sec. 26, Bannock County, Lava Hot Springs	W
P4050010	4/5/2016	Project Area Overview	T9S, R38E, Sec. 26, Bannock County, Lava Hot Springs	W
P4050012	4/5/2016	Wood stave pipe	T9S, R38E, Sec. 26, Bannock County, Lava Hot Springs	N
P4050013	4/5/2016	Wood stave pipe	T9S, R38E, Sec. 26, Bannock County, Lava Hot Springs	W
P4050020	4/5/2016	Project Area Overview	T9S, R38E, Sec. 22, Bannock County, Lava Hot Springs	W
P4050021	4/5/2016	Dempsey-Topaz Canal culvert	T9S, R38E, Sec. 22, Bannock County, Lava Hot Springs	N
P4050025	4/5/2016	Project Area Overview	T9S, R38E, Sec. 22, Bannock County, Lava Hot Springs	NW
P4050026	4/5/2016	Fish Creek Canal	T9S, R38E, Sec. 22, Bannock County, Lava Hot Springs	E
P4050038	4/5/2016	Dempsey-Topaz Canal	T9S, R38E, Sec. 22, Bannock County, Lava Hot Springs	W

FRAME NUMBER	DATE	SUBJECT	LOCATION (TOWNSHIP, RANGE, SECTION PLUS COUNTY AND NEAREST TOWN)	DIRECTION (FROM WHICH PHOTO IS TAKEN)
P4050041	4/5/2016	Project Area Overview	T9S, R38E, Sec. 22, Bannock County, Lava Hot Springs	E
P4050043	4/5/2016	Existing water tank	T9S, R38E, Sec. 28, Bannock County, Lava Hot Springs	NW
P4050045	4/5/2016	Proposed well location #1	T9S, R38E, Sec. 28, Bannock County, Lava Hot Springs	N
IMG_2083	4/5/2016	Proposed well location #2	T9S, R38E, Sec. 29, Bannock County, Lava Hot Springs	NE
IMG_2087	4/5/2016	Well #2 Overview	T9S, R38E, Sec. 20, Bannock County, Lava Hot Springs	NE
IMG_2089	4/5/2016	Proposed well location #3	T9S, R38E, Sec. 21, Bannock County, Lava Hot Springs	W

P4050006: Project area overview facing west

P4050008: Project area overview and well #1 facing west

P4050010: Project area overview facing west

P4050012: Wood stave pipe facing north

P4050013: Wood stave pipe facing west

P4050020: Project area overview facing west

P4050021: Dempsey-Topaz Canal culvert facing north

P4050025: Project area overview facing northwest

P4050026: Fish Creek Canal overview facing east

P4050038: Dempsey-Topaz Canal overview facing west

P4050041: Project area overview facing east

P4050043: Existing water tank overview facing northwest

P4050045: Proposed well location #1 overview facing north

IMG_2083: Proposed well location #2 overview facing northeast

IMG_2087: Well #2 overview facing northeast

IMG_2089: Proposed well location #3 overview facing west

Appendix C

Record Search

IDAHO

State Historic Preservation Office

Cultural Resource Database

Legend

- Archaeological Site (ASI)
- Archaeological Isolate (ASI)
- Historic (IHSI) NR Listed
- Historic (IHSI)
- Agricultural Waterways
- New Roads
- Railroads

Emigrant Trails

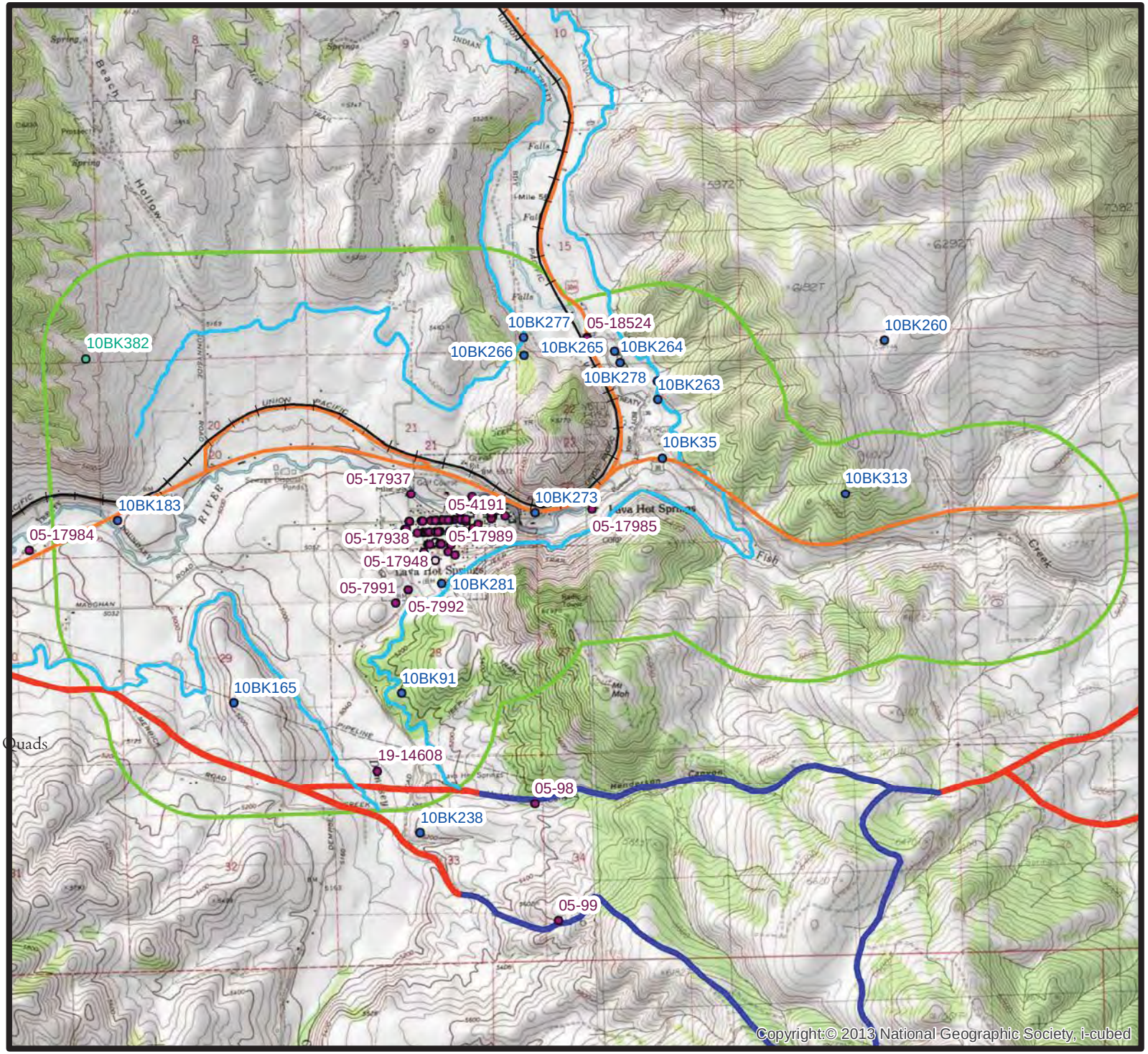
CONDITION

- not visible
- visible

Record Search #

- 16153

T9S R38E | Bannock County
Haystack Mountain, Lava Hot Springs, Bancoft, and Sedgwick Peak, ID 7.5' USGS Quads



The information contained in this database is confidential and may not be released to unauthorized individuals or organizations. There are no guarantees as to the data's accuracy or completeness, and changes will occur frequently. The absence of information concerning cultural resources in a particular location does not necessarily indicate that none exist in the area. The absence of information concerning cultural resources in a particular location may be due to a lack of survey investigations in that area.

Idaho State Historical Society

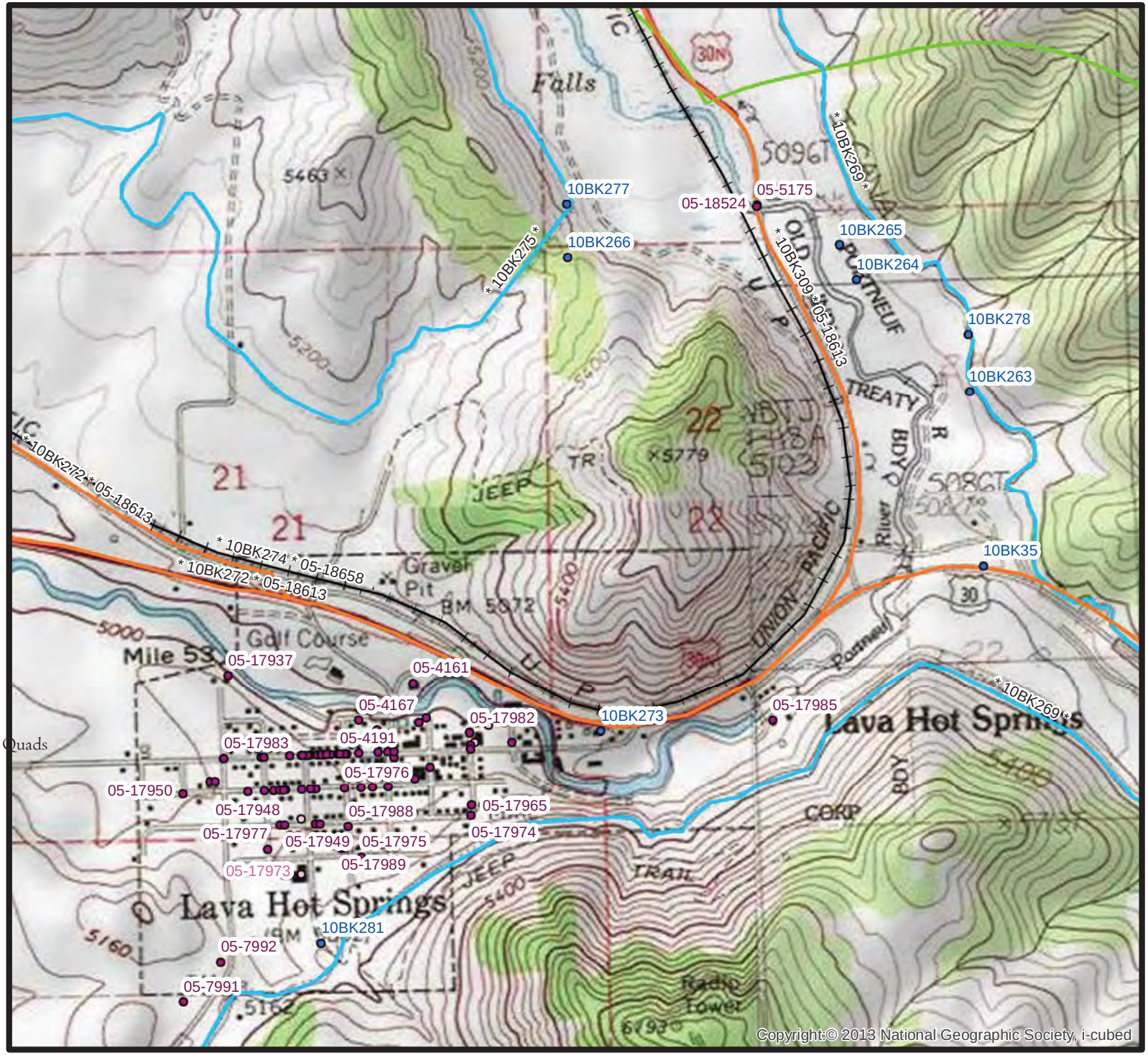
Date: 3/4/2016
Author: Ethan Morton

1:42,000 0 0.45 0.9 1.8 Miles

IDAHO

State Historic Preservation Office

Cultural Resource Database



Legend

- Archaeological Site (ASI)
- Historic (IHSI) NR Listed
- Historic (IHSI)
- Agricultural Waterways
- New Roads
- Railroads

Record Search #

16153

T9S R38E | Bannock County
Haystack Mountain, Lava Hot Springs, Bancoft, and Sedgwick Peak, ID 7.5' USGS Quads

The information contained in this database is confidential and may not be released to unauthorized individuals or organizations. There are no guarantees as to the data's accuracy or completeness, and changes will occur frequently. The absence of information concerning cultural resources in a particular location does not necessarily indicate that none exist in the area. The absence of information concerning cultural resources in a particular location may be due to a lack of survey investigations in that area.

Idaho State Historical Society

Date: 3/4/2016

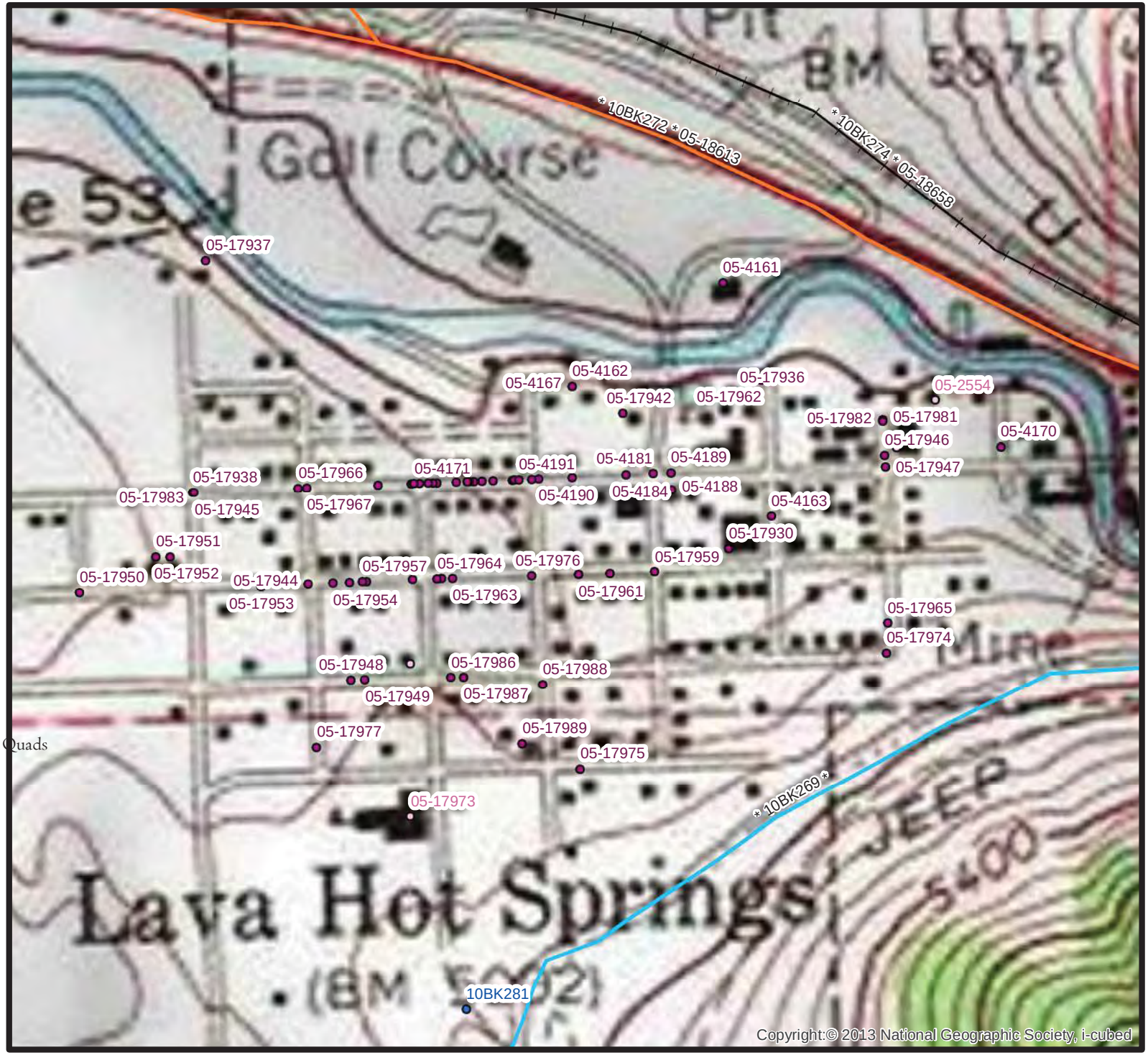
Author: Ethan Morton

1:14,000

0 0.15 0.3 0.6 Miles

IDAHO
State Historic Preservation Office

Cultural Resource Database



Legend

- Archaeological Site (ASI)
- Historic (IHSI) NR Listed
- Historic (IHSI)
- Agricultural Waterways
- New Roads
- Railroads

Record Search #

16153

T9S R38E | Bannock County
Haystack Mountain, Lava Hot Springs, Bancoft, and Sedgwick Peak, ID 7.5' USGS Quads

The information contained in this database is confidential and may not be released to unauthorized individuals or organizations. There are no guarantees as to the data's accuracy or completeness, and changes will occur frequently. The absence of information concerning cultural resources in a particular location does not necessarily indicate that none exist in the area. The absence of information concerning cultural resources in a particular location may be due to a lack of survey investigations in that area.

Idaho State Historical Society

Date: 3/4/2016
Author: Ethan Morton

1:5,000

0 0.05 0.1 0.2 Miles

Appendix E. REFERENCE INFORMATION

DP03

SELECTED ECONOMIC CHARACTERISTICS

2008-2012 American Community Survey 5-Year Estimates

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Data and Documentation section.

Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

Subject	Lava Hot Springs city, Idaho			
	Estimate	Margin of Error	Percent	Percent Margin of Error
EMPLOYMENT STATUS				
Population 16 years and over	283	+/-111	283	(X)
In labor force	178	+/-90	62.9%	+/-13.8
Civilian labor force	178	+/-90	62.9%	+/-13.8
Employed	170	+/-86	60.1%	+/-13.8
Unemployed	8	+/-14	2.8%	+/-4.8
Armed Forces	0	+/-12	0.0%	+/-10.8
Not in labor force	105	+/-47	37.1%	+/-13.8
Civilian labor force	178	+/-90	178	(X)
Percent Unemployed	(X)	(X)	4.5%	+/-7.6
Females 16 years and over	169	+/-70	169	(X)
In labor force	99	+/-61	58.6%	+/-18.9
Civilian labor force	99	+/-61	58.6%	+/-18.9
Employed	91	+/-58	53.8%	+/-19.6
Own children under 6 years	19	+/-20	19	(X)
All parents in family in labor force	18	+/-19	94.7%	+/-23.0
Own children 6 to 17 years	56	+/-47	56	(X)
All parents in family in labor force	53	+/-47	94.6%	+/-10.0
COMMUTING TO WORK				
Workers 16 years and over	167	+/-87	167	(X)
Car, truck, or van -- drove alone	59	+/-35	35.3%	+/-25.3
Car, truck, or van -- carpooled	84	+/-83	50.3%	+/-30.9
Public transportation (excluding taxicab)	0	+/-12	0.0%	+/-17.6
Walked	11	+/-11	6.6%	+/-7.5
Other means	0	+/-12	0.0%	+/-17.6
Worked at home	13	+/-17	7.8%	+/-11.0
Mean travel time to work (minutes)	19.4	+/-7.4	(X)	(X)
OCCUPATION				
Civilian employed population 16 years and over	170	+/-86	170	(X)

Subject	Lava Hot Springs city, Idaho			
	Estimate	Margin of Error	Percent	Percent Margin of Error
Management, business, science, and arts occupations	36	+/-28	21.2%	+/-14.1
Service occupations	39	+/-29	22.9%	+/-14.2
Sales and office occupations	32	+/-25	18.8%	+/-12.6
Natural resources, construction, and maintenance occupations	20	+/-18	11.8%	+/-8.9
Production, transportation, and material moving occupations	43	+/-49	25.3%	+/-24.7
INDUSTRY				
Civilian employed population 16 years and over	170	+/-86	170	(X)
Agriculture, forestry, fishing and hunting, and mining	0	+/-12	0.0%	+/-17.3
Construction	19	+/-16	11.2%	+/-8.2
Manufacturing	20	+/-19	11.8%	+/-11.1
Wholesale trade	0	+/-12	0.0%	+/-17.3
Retail trade	9	+/-12	5.3%	+/-7.8
Transportation and warehousing, and utilities	3	+/-4	1.8%	+/-2.2
Information	0	+/-12	0.0%	+/-17.3
Finance and insurance, and real estate and rental and leasing	0	+/-12	0.0%	+/-17.3
Professional, scientific, and management, and administrative and waste management services	13	+/-17	7.6%	+/-10.8
Educational services, and health care and social assistance	46	+/-45	27.1%	+/-18.3
Arts, entertainment, and recreation, and accommodation and food services	18	+/-17	10.6%	+/-11.6
Other services, except public administration	33	+/-47	19.4%	+/-24.2
Public administration	9	+/-11	5.3%	+/-6.8
CLASS OF WORKER				
Civilian employed population 16 years and over	170	+/-86	170	(X)
Private wage and salary workers	114	+/-61	67.1%	+/-14.7
Government workers	42	+/-33	24.7%	+/-12.9
Self-employed in own not incorporated business workers	14	+/-18	8.2%	+/-11.3
Unpaid family workers	0	+/-12	0.0%	+/-17.3
INCOME AND BENEFITS (IN 2012 INFLATION-ADJUSTED DOLLARS)				
Total households	169	+/-65	169	(X)
Less than $10,000	13	+/-14	7.7%	+/-9.1
$10,000 to $14,999	12	+/-12	7.1%	+/-7.4
$15,000 to $24,999	51	+/-50	30.2%	+/-23.0
$25,000 to $34,999	9	+/-11	5.3%	+/-6.8
$35,000 to $49,999	44	+/-28	26.0%	+/-15.9
$50,000 to $74,999	10	+/-8	5.9%	+/-4.8
$75,000 to $99,999	9	+/-7	5.3%	+/-5.0
$100,000 to $149,999	21	+/-22	12.4%	+/-11.8
$150,000 to $199,999	0	+/-12	0.0%	+/-17.4
$200,000 or more	0	+/-12	0.0%	+/-17.4
Median household income (dollars)	34,792	+/-18,583	(X)	(X)
Mean household income (dollars)	44,175	+/-12,762	(X)	(X)
With earnings	116	+/-59	68.6%	+/-17.0
Mean earnings (dollars)	43,262	+/-15,765	(X)	(X)
With Social Security	54	+/-29	32.0%	+/-16.4
Mean Social Security income (dollars)	17,450	+/-4,511	(X)	(X)
With retirement income	44	+/-25	26.0%	+/-14.6
Mean retirement income (dollars)	10,720	+/-5,830	(X)	(X)
With Supplemental Security Income	0	+/-12	0.0%	+/-17.4
Mean Supplemental Security Income (dollars)	-	**	(X)	(X)
With cash public assistance income	3	+/-5	1.8%	+/-2.7

Subject	Lava Hot Springs city, Idaho			
	Estimate	Margin of Error	Percent	Percent Margin of Error
Mean cash public assistance income (dollars)	633	+/-62	(X)	(X)
With Food Stamp/SNAP benefits in the past 12 months	14	+/-11	8.3%	+/-7.2
Families	75	+/-34	75	(X)
Less than $10,000	0	+/-12	0.0%	+/-33.5
$10,000 to $14,999	2	+/-4	2.7%	+/-4.9
$15,000 to $24,999	2	+/-3	2.7%	+/-4.4
$25,000 to $34,999	9	+/-11	12.0%	+/-14.5
$35,000 to $49,999	27	+/-21	36.0%	+/-22.5
$50,000 to $74,999	10	+/-8	13.3%	+/-10.2
$75,000 to $99,999	4	+/-5	5.3%	+/-8.4
$100,000 to $149,999	21	+/-22	28.0%	+/-24.0
$150,000 to $199,999	0	+/-12	0.0%	+/-33.5
$200,000 or more	0	+/-12	0.0%	+/-33.5
Median family income (dollars)	44,609	+/-23,544	(X)	(X)
Mean family income (dollars)	67,408	+/-21,348	(X)	(X)
Per capita income (dollars)	21,875	+/-4,799	(X)	(X)
Nonfamily households	94	+/-53	94	(X)
Median nonfamily income (dollars)	18,871	+/-3,133	(X)	(X)
Mean nonfamily income (dollars)	25,639	+/-7,344	(X)	(X)
Median earnings for workers (dollars)	17,321	+/-5,441	(X)	(X)
Median earnings for male full-time, year-round workers (dollars)	45,417	+/-27,512	(X)	(X)
Median earnings for female full-time, year-round workers (dollars)	19,258	+/-26,123	(X)	(X)
HEALTH INSURANCE COVERAGE				
Civilian noninstitutionalized population	347	+/-145	347	(X)
With health insurance coverage	302	+/-138	87.0%	+/-10.6
With private health insurance	274	+/-134	79.0%	+/-12.2
With public coverage	83	+/-29	23.9%	+/-11.0
No health insurance coverage	45	+/-39	13.0%	+/-10.6
Civilian noninstitutionalized population under 18 years	81	+/-63	81	(X)
No health insurance coverage	0	+/-12	0.0%	+/-31.8
Civilian noninstitutionalized population 18 to 64 years	207	+/-95	207	(X)
In labor force:	168	+/-89	168	(X)
Employed:	160	+/-86	160	(X)
With health insurance coverage	117	+/-72	73.1%	+/-20.1
With private health insurance	114	+/-73	71.3%	+/-19.7
With public coverage	5	+/-6	3.1%	+/-4.1
No health insurance coverage	43	+/-38	26.9%	+/-20.1
Unemployed:	8	+/-14	8	(X)
With health insurance coverage	8	+/-14	100.0%	+/-100.0
With private health insurance	8	+/-14	100.0%	+/-100.0
With public coverage	0	+/-12	0.0%	+/-100.0
No health insurance coverage	0	+/-12	0.0%	+/-100.0
Not in labor force:	39	+/-28	39	(X)
With health insurance coverage	37	+/-27	94.9%	+/-10.5
With private health insurance	27	+/-25	69.2%	+/-27.1
With public coverage	12	+/-9	30.8%	+/-25.2
No health insurance coverage	2	+/-4	5.1%	+/-10.5

Subject	Lava Hot Springs city, Idaho			
	Estimate	Margin of Error	Percent	Percent Margin of Error
PERCENTAGE OF FAMILIES AND PEOPLE WHOSE INCOME IN THE PAST 12 MONTHS IS BELOW THE POVERTY LEVEL				
All families	(X)	(X)	5.3%	+/-7.0
With related children under 18 years	(X)	(X)	10.3%	+/-13.6
With related children under 5 years only	(X)	(X)	0.0%	+/-98.9
Married couple families	(X)	(X)	5.5%	+/-7.2
With related children under 18 years	(X)	(X)	10.8%	+/-14.5
With related children under 5 years only	(X)	(X)	0.0%	+/-98.9
Families with female householder, no husband present	(X)	(X)	0.0%	+/-100.0
With related children under 18 years	(X)	(X)	0.0%	+/-100.0
With related children under 5 years only	(X)	(X)	-	**
All people	(X)	(X)	8.1%	+/-6.9
Under 18 years	(X)	(X)	8.6%	+/-16.1
Related children under 18 years	(X)	(X)	8.6%	+/-16.1
Related children under 5 years	(X)	(X)	16.7%	+/-37.8
Related children 5 to 17 years	(X)	(X)	6.3%	+/-14.4
18 years and over	(X)	(X)	7.9%	+/-6.4
18 to 64 years	(X)	(X)	10.1%	+/-8.6
65 years and over	(X)	(X)	0.0%	+/-38.6
People in families	(X)	(X)	6.1%	+/-7.3
Unrelated individuals 15 years and over	(X)	(X)	13.0%	+/-16.5

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

There were changes in the edit between 2009 and 2010 regarding Supplemental Security Income (SSI) and Social Security. The changes in the edit loosened restrictions on disability requirements for receipt of SSI resulting in an increase in the total number of SSI recipients in the American Community Survey. The changes also loosened restrictions on possible reported monthly amounts in Social Security income resulting in higher Social Security aggregate amounts. These results more closely match administrative counts compiled by the Social Security Administration.

Workers include members of the Armed Forces and civilians who were at work last week.

Industry codes are 4-digit codes and are based on the North American Industry Classification System 2007. The Industry categories adhere to the guidelines issued in Clarification Memorandum No. 2, "NAICS Alternate Aggregation Structure for Use By U.S. Statistical Agencies," issued by the Office of Management and Budget.

While the 2008-2012 American Community Survey (ACS) data generally reflect the December 2009 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB definitions due to differences in the effective dates of the geographic entities.

Estimates of urban and rural population, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2000 data. Boundaries for urban areas have not been updated since Census 2000. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Source: U.S. Census Bureau, 2008-2012 American Community Survey

Explanation of Symbols:

1. An '**' entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.
2. An '-' entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution.
3. An '-' following a median estimate means the median falls in the lowest interval of an open-ended distribution.

4. An '+' following a median estimate means the median falls in the upper interval of an open-ended distribution.
5. An '***' entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.
6. An '*****' entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.
7. An 'N' entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.
8. An '(X)' means that the estimate is not applicable or not available.

DP-1

Profile of General Population and Housing Characteristics: 2010

2010 Demographic Profile Data

NOTE: For more information on confidentiality protection, nonsampling error, and definitions, see http://www.census.gov/prod/cen2010/doc/dpsf.pdf.

Geography: Lava Hot Springs city, Idaho

Subject	Number	Percent
SEX AND AGE		
Total population	407	100.0
Under 5 years	13	3.2
5 to 9 years	18	4.4
10 to 14 years	26	6.4
15 to 19 years	17	4.2
20 to 24 years	19	4.7
25 to 29 years	11	2.7
30 to 34 years	24	5.9
35 to 39 years	20	4.9
40 to 44 years	23	5.7
45 to 49 years	27	6.6
50 to 54 years	35	8.6
55 to 59 years	19	4.7
60 to 64 years	47	11.5
65 to 69 years	28	6.9
70 to 74 years	28	6.9
75 to 79 years	24	5.9
80 to 84 years	13	3.2
85 years and over	15	3.7
Median age (years)	50.9	(X)
16 years and over	345	84.8
18 years and over	339	83.3
21 years and over	328	80.6
62 years and over	133	32.7
65 years and over	108	26.5
Male population	196	48.2
Under 5 years	6	1.5
5 to 9 years	9	2.2
10 to 14 years	9	2.2
15 to 19 years	9	2.2
20 to 24 years	9	2.2
25 to 29 years	8	2.0
30 to 34 years	15	3.7
35 to 39 years	11	2.7
40 to 44 years	7	1.7
45 to 49 years	11	2.7
50 to 54 years	19	4.7
55 to 59 years	8	2.0
60 to 64 years	26	6.4
65 to 69 years	12	2.9
70 to 74 years	10	2.5

Subject	Number	Percent
75 to 79 years	13	3.2
80 to 84 years	8	2.0
85 years and over	6	1.5
Median age (years)	51.3	(X)
16 years and over	167	41.0
18 years and over	163	40.0
21 years and over	160	39.3
62 years and over	62	15.2
65 years and over	49	12.0
Female population	211	51.8
Under 5 years	7	1.7
5 to 9 years	9	2.2
10 to 14 years	17	4.2
15 to 19 years	8	2.0
20 to 24 years	10	2.5
25 to 29 years	3	0.7
30 to 34 years	9	2.2
35 to 39 years	9	2.2
40 to 44 years	16	3.9
45 to 49 years	16	3.9
50 to 54 years	16	3.9
55 to 59 years	11	2.7
60 to 64 years	21	5.2
65 to 69 years	16	3.9
70 to 74 years	18	4.4
75 to 79 years	11	2.7
80 to 84 years	5	1.2
85 years and over	9	2.2
Median age (years)	50.5	(X)
16 years and over	178	43.7
18 years and over	176	43.2
21 years and over	168	41.3
62 years and over	71	17.4
65 years and over	59	14.5
RACE		
Total population	407	100.0
One Race	404	99.3
White	397	97.5
Black or African American	1	0.2
American Indian and Alaska Native	1	0.2
Asian	0	0.0
Asian Indian	0	0.0
Chinese	0	0.0
Filipino	0	0.0
Japanese	0	0.0
Korean	0	0.0
Vietnamese	0	0.0
Other Asian [1]	0	0.0
Native Hawaiian and Other Pacific Islander	0	0.0
Native Hawaiian	0	0.0
Guamanian or Chamorro	0	0.0
Samoan	0	0.0
Other Pacific Islander [2]	0	0.0
Some Other Race	5	1.2

Subject	Number	Percent
Two or More Races	3	0.7
White; American Indian and Alaska Native [3]	1	0.2
White; Asian [3]	1	0.2
White; Black or African American [3]	0	0.0
White; Some Other Race [3]	1	0.2
Race alone or in combination with one or more other races: [4]		
White	400	98.3
Black or African American	1	0.2
American Indian and Alaska Native	2	0.5
Asian	1	0.2
Native Hawaiian and Other Pacific Islander	0	0.0
Some Other Race	6	1.5
HISPANIC OR LATINO		
Total population	407	100.0
Hispanic or Latino (of any race)	17	4.2
Mexican	13	3.2
Puerto Rican	0	0.0
Cuban	0	0.0
Other Hispanic or Latino [5]	4	1.0
Not Hispanic or Latino	390	95.8
HISPANIC OR LATINO AND RACE		
Total population	407	100.0
Hispanic or Latino	17	4.2
White alone	11	2.7
Black or African American alone	0	0.0
American Indian and Alaska Native alone	0	0.0
Asian alone	0	0.0
Native Hawaiian and Other Pacific Islander alone	0	0.0
Some Other Race alone	5	1.2
Two or More Races	1	0.2
Not Hispanic or Latino	390	95.8
White alone	386	94.8
Black or African American alone	1	0.2
American Indian and Alaska Native alone	1	0.2
Asian alone	0	0.0
Native Hawaiian and Other Pacific Islander alone	0	0.0
Some Other Race alone	0	0.0
Two or More Races	2	0.5
RELATIONSHIP		
Total population	407	100.0
In households	407	100.0
Householder	209	51.4
Spouse [6]	84	20.6
Child	78	19.2
Own child under 18 years	59	14.5
Other relatives	19	4.7
Under 18 years	8	2.0
65 years and over	7	1.7
Nonrelatives	17	4.2
Under 18 years	1	0.2
65 years and over	1	0.2
Unmarried partner	10	2.5
In group quarters	0	0.0
Institutionalized population	0	0.0
Male	0	0.0

Subject	Number	Percent
Female	0	0.0
Noninstitutionalized population	0	0.0
Male	0	0.0
Female	0	0.0
HOUSEHOLDS BY TYPE		
Total households	209	100.0
Family households (families) [7]	104	49.8
With own children under 18 years	30	14.4
Husband-wife family	84	40.2
With own children under 18 years	23	11.0
Male householder, no wife present	3	1.4
With own children under 18 years	1	0.5
Female householder, no husband present	17	8.1
With own children under 18 years	6	2.9
Nonfamily households [7]	105	50.2
Householder living alone	93	44.5
Male	48	23.0
65 years and over	15	7.2
Female	45	21.5
65 years and over	28	13.4
Households with individuals under 18 years	34	16.3
Households with individuals 65 years and over	82	39.2
Average household size	1.95	(X)
Average family size [7]	2.74	(X)
HOUSING OCCUPANCY		
Total housing units	317	100.0
Occupied housing units	209	65.9
Vacant housing units	108	34.1
For rent	29	9.1
Rented, not occupied	2	0.6
For sale only	4	1.3
Sold, not occupied	2	0.6
For seasonal, recreational, or occasional use	61	19.2
All other vacants	10	3.2
Homeowner vacancy rate (percent) [8]	2.6	(X)
Rental vacancy rate (percent) [9]	31.5	(X)
HOUSING TENURE		
Occupied housing units	209	100.0
Owner-occupied housing units	148	70.8
Population in owner-occupied housing units	300	(X)
Average household size of owner-occupied units	2.03	(X)
Renter-occupied housing units	61	29.2
Population in renter-occupied housing units	107	(X)
Average household size of renter-occupied units	1.75	(X)

X Not applicable.

[1] Other Asian alone, or two or more Asian categories.

[2] Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.

[3] One of the four most commonly reported multiple-race combinations nationwide in Census 2000.

[4] In combination with one or more of the other races listed. The six numbers may add to more than the total population, and the six percentages may add to more than 100 percent because individuals may report more than one race.

[5] This category is composed of people whose origins are from the Dominican Republic, Spain, and Spanish-speaking Central or South

American countries. It also includes general origin responses such as "Latino" or "Hispanic."

[6] "Spouse" represents spouse of the householder. It does not reflect all spouses in a household. Responses of "same-sex spouse" were edited during processing to "unmarried partner."

[7] "Family households" consist of a householder and one or more other people related to the householder by birth, marriage, or adoption. They do not include same-sex married couples even if the marriage was performed in a state issuing marriage certificates for same-sex couples. Same-sex couple households are included in the family households category if there is at least one additional person related to the householder by birth or adoption. Same-sex couple households with no relatives of the householder present are tabulated in nonfamily households. "Nonfamily households" consist of people living alone and households which do not have any members related to the householder.

[8] The homeowner vacancy rate is the proportion of the homeowner inventory that is vacant "for sale." It is computed by dividing the total number of vacant units "for sale only" by the sum of owner-occupied units, vacant units that are "for sale only," and vacant units that have been sold but not yet occupied; and then multiplying by 100.

[9] The rental vacancy rate is the proportion of the rental inventory that is vacant "for rent." It is computed by dividing the total number of vacant units "for rent" by the sum of the renter-occupied units, vacant units that are "for rent," and vacant units that have been rented but not yet occupied; and then multiplying by 100.

Source: U.S. Census Bureau, 2010 Census.