Environmental Information Document

for

Hauser Lake Water System

Submitted to the Hauser Lake Water Association

December 2011

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ENVIRONMENTAL INFORMATION DOCUMENT

HAUSER LAKE WATER SYSTEM

PROJECT NO. 41018

SUBMITTED TO THE:

HAUSER LAKE WATER ASSOCIATION

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COVER SHEET

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Project Cost and Funding

Estimated Construction Costs:

Transmission and Distribution System[1] (Phase 2)	$ 4,032,550
Treatment	$ N/A
Storage/Source (Phase 1)	$ 1,974,700
Total Estimated Cost	**$ 6,007,250**

[1]Phase 2 funds have not been secured. Phase 2 improvements have been included in this document so that when the Association chooses to fund these improvements, they will be covered under this document.

Funding[1]:

DEQ (Loan and Grant) for Phase 1	$ 1,974,700
Other Share	$ 0
Total Funding for Phase 1	**$ 1,974,700**

[1]Phase 2 funds have not been secured. Phase 2 improvements have been included in this document so that when the Association chooses to fund these improvements, they will be covered under this document.

User Costs

The Hauser Lake Water Association residents will be assessed the cost of improving the source and storage components of the system (Phase 1). Therefore, the following fees will be assessed.

Estimated User Costs for Existing Service Area for Phase 1 Improvements[1]:

Current Average Monthly User Charge per EDU[2]	$ 17.50
Change in Operation and Maintenance Monthly Charge per EDU	$ N/A
Change in Debt Service Monthly Charge per EDU	$ 23.00
Future Monthly User Charge per EDU	**$ 40.50**

[1]Increase in cost based on source/storage improvements only

[2]Based on a bi-monthly rate of $35.00

Abstract

The November 2011 Hauser Lake Water Association Water System Facility Plan recommends several improvements to the existing water system to meet IDAPA rules. The improvements are aimed at providing additional storage and source capacity (Phase 1) in addition to several distribution improvements (Phase 2). This Environmental Information Document addresses the expected environmental impacts of the proposed alternatives for the improvements (both Phase 1 and 2). After receiving public input in June 2011, the Association made their final selection of the improvement alternatives to be included and funded in the proposed project. The environmental impacts associated with the proposed project are assessed in this document. Note that the improvements covered in this document include the transmission and distribution system (Phase 2) improvements even though they will not likely be fully funded at this time. After consultation with environmental agencies, mitigation measures were identified to address items of concern. Mitigation measures include the following:

- Best Management Practices (BMPs) shall be developed as part of the project design and implemented during construction.
- The Association will need to obtain a permit (from City of Hauser and Kootenai County) for the new reservoir since the land use ordinance requires a permit for public utility use.
- SHPO requested an archeological survey for the reservoir site. The survey concluded that the project would have no impact on cultural resources. However, if artifacts are discovered during the course of construction, the Coeur d'Alene Indian Tribe and SHPO will be contacted, and mitigation may be further evaluated.

- The Contractor must mitigate fugitive dust. No burning of construction debris or vegetation is allowed.

1. BACKGROUND

1.1. SYSTEM BACKGROUND

The Hauser Lake Water System (Idaho Department of Environmental Quality ("IDEQ") PWS No. 1280084) is owned and operated by the Hauser Lake Water Association, Inc. ("Association"). The Association is a non-profit organization established for the mutual benefit of its members with an elected Board of Directors.

The system currently consists of two groundwater wells, located at the intersection of Highway 53 and Cloverleaf Road. These wells currently pump to an in ground concrete reservoir (Main Reservoir) located off of Cloverleaf Road, with a storage volume of 90,000 gallons. The Main Booster Station, located on Cloverleaf Road, pumps water from the Main Reservoir to the majority of the system, north of the Main Booster Station. The Hauser View Booster Station, located on Hauser View Drive, pumps water from the system to approximately 9 connections. The Woodlake Booster Station pumps water from the system to the Woodlake Reservoir, an in ground, concrete reservoir located off of Liree Drive with a storage volume of 120,000 gallons. Refer to Appendix A for a map depicting the existing system.

1.2. FACILITY PLAN INFORMATION

The Hauser Lake Water Association, Inc. ("Association") authorized Welch Comer and Associates, Inc. to prepare a Water System Facility Plan for the Hauser Lake water system, located in Kootenai County, Idaho. The purpose of the report was to identify existing and future sub-standard components of the system based on system demands. Deficiencies with respect to Idaho Rules for Public Drinking Water systems were identified in the report and include deficiencies in source, booster capacity, storage, and distribution capacity. The report identified improvements to eliminate these deficiencies and to protect public health and safety. The improvements include a variety of options which include modifications to well pumps, reservoirs, booster stations, and distribution and are described in Section 2.

The primary deficiencies (based on existing system demand and evaluated using Idaho Rules for Public Drinking Water Systems) identified in the Facility Plan were:

- Source: The current source supply is deficient by 77 gallons per minute according to the 2009 IDAPA (Idaho Administrative Procedures Act) Ground Water Source Redundancy rule, which requires sufficient source capacity to supply the Maximum Daily Production[1] (MDP) with the largest source offline.

[1] Analysis for this system was based on water production instead of demand. Systems that experience significant loss will exhibit a significant difference between production and consumption demands. Therefore, it is important to recognize the difference and use the appropriate demand for each analysis. The "demand" used within this report will be based on production and will therefore include system losses. Refer to Facility Plan Section 2.7 (Appendix O) for more information.

- Booster Capacity:
    - Main Booster Station – deficient by 1,256 gallons per minute according to the 2009 IDAPA Redundant Fire Flow Capacity rule.
    - Hauser View Booster Station – deficient by 954 gallons per minute according to the 2009 IDAPA Redundant Fire Flow Capacity rule.
    - Woodlake Booster Station – deficient by 86 gallons per minute according to the 2009 IDAPA rule requiring MDP to be provided with any pump out of service.
- Storage:
    - Main Reservoir – deficient by 143,353 gallons
    - Woodlake Reservoir – deficient by 94,608 gallons
    - Total System – deficient by 89,597 gallons (assuming the system was re-configured to allow entire system access to all storage)
- Distribution:
    - The existing distribution system is sufficient to support the peak hour demand and maintain 40 psi throughout the system provided sufficient booster pump capacity is available, which it currently is not. Refer to the booster capacity deficiency noted above and Section 2.8.5.1 in the Facility Plan in Appendix O for more information on this issue.
    - The existing distribution system is not sufficient to support maximum day demand plus required fire flows while maintaining a minimum pressure of 20 psi throughout the system.

Refer to the Facility Plan (Appendix O) for further information regarding the system deficiencies for existing and projected growth.

1.3. Purpose and Need

The purpose of the proposed project is to protect public health and safety by addressing the deficiencies (per Idaho Rules for Public Drinking Water Systems) analyzed in the Facility Plan (Appendix O). Several deficiencies with respect to the Idaho Rules were identified for source, storage, and booster capacity in addition to deficiencies within the distribution system (refer to Section 1.2 above). Thus the projects (Phase 1 and 2) address the public health and safety concerns identified with respect to Idaho Rules (which provide sufficient system capacity for emergency and everyday operation of a public drinking water system). The improvements include a variety of options which include modifications to well pumps, reservoirs, booster stations, and distribution and are described in Section 2.

2. Proposed Alternatives

The November 2011 Water System Facility Plan (Appendix O) provided alternatives for the recommended improvements to the water system's source, storage, booster station, and distribution facilities. An overview of the alternatives is presented within this section.

2.1. Source, Storage, and Booster Improvements (Phase 1)

The system is currently deficient with respect to the source and storage requirements (Idaho Rules for Public Drinking Water systems). Several improvement options were developed and presented to the Association for consideration. Each option is described in detail in the Facility Plan (Appendix O) and addresses system source, storage and booster deficiencies based on current demand. These options were presented at the December 7, 2010 and January 4, 2011 monthly Board of Directors meetings (which can be attended by the public).

2.1.1. Option 1 – Existing Configuration

Under this improvement option, the system would remain in its current configuration and the source, storage and booster deficiencies (with respect to Idaho Rules for Public Drinking Water Systems) would be addressed (adding pumping capacity and storage capacity). Refer to Figure 4.1 in Appendix A for an overview of Option 1, and refer to Section 4.1.1.1 in the Facility Plan (Appendix O) for more information on this option. The estimated project cost for this option is approximately $1.588 million, with approximately $35,375 in annual operation and maintenance costs[2].

An alternative ("Option 1A") under this option includes adding two large pumps (rated at 800 gallons per minute each) to the Woodlake Booster Station in lieu of expanding the Woodlake Reservoir as required for fire suppression. The estimated project cost for this alternative is approximately $1.428 million, with approximately $38,675 in operation and maintenance costs.

The primary environmental impacts associated with this option consist of excavation for reservoir expansion and building expansion. However, the long-term impacts to the environment should be minimal. There will be short-term impacts associated with site disturbance for flora and fauna and air quality. In addition, best management practices (BMPs) will be utilized to limit the effect to water quality and wetlands in the area. There should be positive impacts to energy consumption due to the installation of higher efficiency components.

Option 1 and 1A were presented to the Board on December 7, 2010 and January 4, 2011. Although it is the lowest cost option, the Board expressed a desire to move away from the current system configuration due to operating inefficiencies and

[2] Operation and Maintenance costs were calculated based on annual pumping costs and a short lived asset analysis. See Facility Plan for further reference.

the constant reliance on booster pumps to pressurize the system. The majority (70 percent) of the system is served directly by booster pumps and does not have "gravity" storage. Thus, if the booster pumps become inoperable, the majority of the water system will lose service. Therefore, the Board asked to eliminate Option 1/1A and it was not developed further.

2.1.2. OPTION 2 – NEW STORAGE SITE (ADJACENT PROPERTY)

This improvement option would include a slight re-configuration and expansion of the system's source, storage and booster. Refer to Figure 4.2 in Appendix A for an overview of Option 2, and refer to Section 4.1.1.2 in the Facility Plan (Appendix O) for more information on this option. The estimated project cost for this option is approximately $2.476 million, with approximately $36,410 in annual operation and maintenance costs.

As in Option 1, an alternative ("Option 2A") exists that includes adding two large pumps (rated at 800 gallons per minute each) to the Woodlake Booster Station in lieu of expanding the Woodlake Reservoir. The estimated project cost for this alternative is approximately $2.317 million, with approximately $39,710 in annual operation and maintenance costs.

The primary environmental impacts associated with this option consist of excavation for a new reservoir and building expansion. However, the long-term impacts to the environment should be minimal. The reservoir may impact cultural resources since the area has not been significantly disturbed. There will be short-term impacts associated with site disturbance for flora and fauna and air quality. In addition, BMPs will be utilized to limit the effect to water quality and wetlands in the area. There should be positive impacts to energy consumption due to the installation of higher efficiency components.

Option 2 and 2A were presented to the Board on December 7, 2010 and January 4, 2011, but was eliminated because it is the highest cost option. Therefore, Option 2 was not developed further.

2.1.3. OPTION 3 – NEW STORAGE SITE (RICE ROAD)

This improvement option would include a re-configuration of the system. The Main Reservoir would be abandoned and a new, 234,000 gallon reservoir (approximate overflow elevation 2,380 feet, matching the current hydraulic grade line provided by the main boosters) would be constructed near Rice Road (off Advent Lane), as shown on Figure 4.3 included in Appendix A. Approximately 3,000 feet of 12 inch transmission main would be installed to connect the new reservoir to the existing system. Well pump 1 would be upsized to pump 1,000 gallons per minute direct to the new reservoir which would gravity feed the system, eliminating the need for the Main Booster Station. The Main Booster Station would be converted to a PRV Station in order to regulate the pressure in the portion of the system currently served directly by the Main Reservoir. It does not appear, based on the hydraulic model, that Well pump 2 will require replacement to pump the higher elevation. However, additional field testing is necessary to confirm the model results, and will be conducted during design phases of the project. A third pump (rated at 90 gallons per minute) would be added to the

Woodlake Booster Station. The estimated project cost for this option is approximately $1.829 million, with approximately $32,785 in annual operation and maintenance costs.

The same alternative ("Option 3A") presented for Options 1 and 2, consisting of installing two 800 gallon per minute pumps in the Woodlake Booster Station in lieu of expanding the Woodlake Reservoir, exists for Option 3. The estimated project cost for this alternative is approximately $1.637 million, with approximately $35,585 in annual operation and maintenance costs.

Option 3/3A was presented to the Board on December 7, 2010 and January 4, 2011 and was chosen for further development since it would result in a reduced reliance on booster pumps with the elimination of the Main Booster Station. Completion of this option would also result in a significant improvement in available fire flow to the core area of the system.

The primary environmental impacts associated with this option consist of excavation for a new reservoir and building expansion. However, the long-term impacts to the environment should be minimal. The reservoir may impact cultural resources since the area has not been significantly disturbed. There will be short-term impacts associated with site disturbance for flora and fauna and air quality. BMPs will be utilized to minimize the impacts of ground disturbance during construction. There should be positive impacts to energy consumption due to the installation of higher efficiency components (storage will now be available by "gravity" from this higher elevation versus using booster pumps to pressurize the system). Additionally, the proposed tank site elevation will allow the tank to be constructed mostly in ground. Thus, the facility will be very unobtrusive to surrounding properties. Existing trees on the site will be preserved to buffer the facility.

2.1.4. Option 4 – Expansion of Woodlake Reservoir

This improvement option includes the most significant re-configuration of the system. The Main Reservoir, Main Booster Station and the Woodlake Booster Station would be abandoned and a new 180,000 gallon storage facility would be added at the Woodlake Reservoir site. The pumps in both Well 1 and Well 2 would be upsized to pump 1,000 gallons per minute and 1,200 gallons per minute, respectively, directly to the Woodlake Reservoir. The Main Booster Station would be converted into a PRV Station in order to regulate the pressure in the portion of the system currently served by the Main Reservoir. The existing by-pass PRV in the Woodlake Booster Station would remain in service and the middle PRV would be upsized to regulate pressure to the majority of the system. A new, high pressure, 16 inch transmission main (approximately 6,000 feet, from the Main Booster Station to the Woodlake Booster Station) would be installed to allow the wells to pump directly to the Woodlake Reservoir without over-pressurizing the rest of the system. Refer to Figure 4.4 in Appendix A for a schematic of this option. The estimated project cost for this option is approximately $1.975 million, with approximately $33,745 in operation and maintenance expenses.

Option 4 was also chosen by the Board for further development during the December 7, 2010 and January 4, 2011 meetings. This option would result in the least number of booster and storage facilities and would eliminate the system's reliance on

booster pumps (the wells would pump directly to the Woodlake Reservoir which would feed the system through gravity). In addition, this option would result in the greatest improvement to available fire flow in the core area of the system. However, some inefficiency is associated with this configuration since water for the entire system would be pumped to the elevation of the Woodlake Reservoir and then would have to flow through PRV stations for much of the system to prevent over-pressurization.

The primary environmental impacts associated with this option consist of excavation for reservoir expansion and building expansion. However, the long-term impacts to the environment should be minimal. There will be short-term impacts associated with site disturbance for flora and fauna and air quality. In addition, BMPs will be utilized to minimize the impact to water quality in the area. There should be positive impacts to energy consumption due to the installation of higher efficiency components.

2.1.5. NO ACTION OPTION

As was indicated in the Section 1, the system has deficiencies with respect to source, storage, and booster (per Idaho Rules for Public Drinking Water Systems). If these deficiencies are not addressed, the system cannot provide service that meets current standards and cannot provide fire flow to the existing customers and cannot add additional users to the system. Since growth is expected for this area, this option is not recommended for the Association.

Since there would be no action taken to improve the current system, there would be no environmental impacts. However, the existing customers would experience public health and safety concerns including limited system reliability and fire protection concerns. There would also be no capacity in the system for growth or expansion, which inhibits the community from natural population growth.

2.2. DISTRIBUTION IMPROVEMENTS (PHASE 2)

Once Option 3/3A and Option 4 were chosen for further development, an analysis of the distribution system was completed. Distribution improvements for each were identified and broken down into four categories as follows:

- Fire Flow Capacity – These are the distribution improvements necessary to provide 1,000 gallons per minute for 2 hours to all existing hydrants on the system.
- Transmission Capacity – These are improvements that would reduce the head loss in transmission mains and thus increase transmission capacity. It should be noted that these improvements are not required by improve system efficiency and capacity.
- Front Currently Served Lots – The Association serves many lots that are not directly fronted by water mains. These lots have meters close to the main in public right-of-way and very long individual services. The Facility Plan (Appendix O) identifies potential water main extension opportunities that would eliminate future maintenance issues for the property owner associated

with these services. These are not required improvements (because the existing services meet the requirements of the IDAPA rules for Public Drinking Water Systems) and funding would likely be provided (in full or in part) by the benefitted properties.

- Upsize 4 Inch Mains – These improvements have been identified as future projects that would improve service and potentially expand fire flow to these areas. These are not required improvements (because the existing mains meet the requirements of the IDAPA rules for Public Drinking Water Systems) and the Association may request the benefitted properties to fund/partially fund these improvements.

Figures 4.5 and 4.6 (included in Appendix A) illustrate the distribution improvements identified for Option 3/3A and Option 4, respectively. The alternatives are summarized below in Table 2-1. The distribution improvements will be replacing existing waterlines or will be occurring in previously-disturbed areas (such as roadways). As can be seen, more improvements are required to provide fire flow to the existing hydrants for Option 3/3A than for Option 4. However, the Option 4 improvements include a new transmission main improvement to the Woodlake Reservoir that is not included in the list of improvements for Option 3/3A.

Table 2-1: Distribution Improvement Summary

	Source/Storage Option 3/3A	Source/Storage Option 4
Distribution Improvements		
Fire Flow Capacity	24,800 LF	19,800 LF
Transmission Capacity	3,300 LF	5,800 LF
Front Currently Served Lots (Funded by Benefitted Lots Only)	3,400 LF	3,400 LF
Upsize 4 Inch Mains (Funded by Benefitted Lots Only)	5,900 LF	5,900 LF

The cost associated with each of these distribution improvements is included in Table 2-2.

Table 2-2: Distribution Improvement Costs

	Source/Storage Option 3/3A	Source/Storage Option 4
Distribution Improvements		
Fire Flow Capacity	$2,658,475	$2,077,600
Transmission Capacity	$404,450	$711,700
Front Currently Served Lots (Funded by Benefitted Lots Only)	$351,250	$351,250
Upsize 4 Inch Mains (Funded by Benefitted Lots Only)	$618,375	$618,375

The primary environmental impacts associated with the distribution improvements consist of excavation/ground disturbance. However, the distribution improvements will occur within existing road right of ways and areas of prior disturbance and thus are not anticipated to cause long-term impacts. There will be short-term impacts associated with site disturbance for flora and fauna and air quality. BMPs will be utilized to limit the effect to the impact of ground disturbance and control discharge of sediment during construction.

2.2.1. NO ACTION OPTION

As was indicated in the Section 1, the system has deficiencies with respect to distribution (per Idaho Rules for Public Drinking Water Systems). If these deficiencies are not addressed, the system cannot provide fire flow to the existing customers, will have limited decreased transmission capacity and limited capacity to add additional users to the system. Since growth is expected for this area, this option is not recommended for the Association.

Since there would be no action taken to improve the current system, there would be no environmental impacts. However, the existing customers would experience limited transmission capacity and fire protection concerns.

2.3. ALTERNATIVE COMPARISON

The alternatives were compared in terms of environmental impacts and cost information in a table format that can be found in Appendix C.

3. PROPOSED ACTION/SELECTED ALTERNATIVES

As mentioned previously, Option 1/1A and 2/2A were eliminated by the Board on December 7, 2010 and January 4, 2011. Option 1 was a low cost option, but the Board expressed desire to move away from the current system configuration. Option 2 was eliminated because it was the highest cost option. Option 3 and 4 were chosen for further development. A comparison of the two is presented below.

3.1. COMPARISON OF OPTION 3 AND 4

Table 3-1 below provides a summary of the Capital Improvement Plan, and associated costs, for each option.

Table 3-1: Summary of Capital Improvement Plans

	Source/Storage Option 3/3A	Source/Storage Option 4
Source/Storage Improvements (Phase 1)	$1,636,800 (budget: $1,974,700)	$1,974,700
Distribution Improvements (Phase 2)		
Fire Flow Capacity	$2,658,475	$2,077,600
Transmission Capacity	$404,450	$711,700
Front Currently Served Lots (Funded by Benefitted Lots Only)	$351,250	$351,250
Upsize 4 Inch Mains (Funded by Benefitted Lots Only)	$618,375	$618,375
Total CIP	**$5,669,350 (budget: $6,007,250)**	**$5,733,625**

Option 4 provides maximum fire flow benefit (in comparison to Option 3) due to the hydraulic location and elevation of the storage facility relative to the rest of the system. Thus fewer distribution improvements to support fire flow are required in this option than in Option 3. However, Option 4 requires a new dedicated transmission main to deliver source water to the storage facility which offsets the savings in distribution. As a result of this offset and as shown in the table, the costs for each of the options are thus very similar ($64,275 difference) and create a negligible price difference between the two alternatives.

3.2. SELECTED ALTERNATIVE

The Association selected source and storage improvement Option 3A for implementation. The total estimated project cost of this option was originally estimated at approximately $1.637 million. Considering the funding to be used and reflecting Davis Bacon, administrative, legal, inflation, and other associated costs, the

project cost for this option was revised for a total budget of approximately $1.975 million. Based on this revision, the Association intends to seek funding for a total of approximately $1.975 million.

It should be noted that this estimate is based on completion of source and storage improvements to address the deficiencies (with respect to Idaho Rules for Public Drinking Water Systems) discussed in the Facility Plan (See Appendix O). Additional distribution improvements will be necessary in order to provide fire flow to all existing hydrants. Completion of all the improvements (source, storage, and distribution) discussed in the Facility Plan at once would be a large undertaking for the Association and would require a significant financial obligation by the customers. Considering the list of improvements, the Association has decided to move forward with the source and storage Option 3A (Phase 1). Distribution improvements (Phase 2) will be phased and completed as funds become available.

4. Affected Environment and Anticipated Impacts

The improvement area is located throughout the Association and is described in Section 4.1 below. The anticipated disturbance is summarized below:

- Source, Storage, and Booster Improvements – Option 3A New Storage Site (Rice Road) (Phase 1):

  Minimal site disturbance is anticipated in conjunction with the Main Reservoir abandonment, well pump upsizing, conversion of the Main Booster Station to a PRV station, and pump additions to the Woodlake Booster Station. The new reservoir will require ground disturbance and clearing. In total, it is estimated that the maximum surface disturbed will be 7,500 square feet. In addition, approximately 3,000 feet of 12 inch transmission main will be installed to connect the new reservoir to the existing system. The expected limit of disturbance for this section of the waterline is 20 feet wide.
- Distribution Improvements (Phase 2):

  The distribution system improvements consist of installation of 8 inch, 10 inch, and 16 inch waterline, new 8 inch water main, and upsize from 4 inch to 8 inch waterline. In total, there will be approximately 34,900 feet of pipe installation. The expected limit of disturbance for this waterline is 20 feet wide. These improvements will either replace existing waterlines and/or be within existing roadways and public right-of-ways. The disturbance required for all these improvements will be within previously disturbed areas.

4.1. Proposed Planning Area and Area of Potential Effect

The Hauser Lake Water Association is located approximately 9 miles northwest of the City of Post Falls, in Kootenai County, Idaho. The System is bordered on the south by Highway 53 and is adjacent to the Idaho-Washington border. The Association provides water to residence around Hauser Lake. The majority of the connections are single-family residences. These residences are located within Sections 6, 7, 17, 18, 19, 20 Township 51 North, Range 5 West, and Sections 12 and 13 Township 51 North, Range 6 West, Boise Meridian.

The project planning area (PPPA) consists of the current properties served by the Hauser Lake Water Association, the improvements included for these properties, and the growth areas (described in Section 4.4), as shown in Appendix A. The area of potential effects (APE) is the same as this project planning area for this project.

The current service area and the PPPA/APE generally surrounds Hauser Lake. The area consists primarily of gently sloping hillsides, with some prairie areas. The elevation of the system varies from 2400 feet on the eastern side of the lake, to 2130 feet at the wells. The area is forested around the lake with areas of wetlands surrounding the lake. There are also flatter agricultural areas south of the lake. The service area consists primarily of residential development with some small commercial customers. Hauser Lake is the primary surface water body within the service area.

4.2. PHYSICAL ASPECTS

4.2.1. AFFECTED ENVIRONMENT

4.2.1.1. TOPOGRAPHY

The existing topography is variable throughout the project PPPA/APE. There are wetlands in the flatter areas primarily on the north and west side of the Lake outside of the service area, which are discussed further in Section 4.8. Hillsides exist on the east side of the lake. The southern portion of the service area is gently sloping with several flat areas. Refer to Appendix D for a topographical map. Construction of the proposed waterlines and transmission main will require disturbance (approximately 20 feet wide) of existing ground and roadway. After construction of the distribution area, the terrain will be returned to its original contours and vegetation reestablished. Best Management Practices will be utilized during construction to reduce the potential of erosion and to stabilize the site until vegetation is re-established.

The new reservoir will be partially buried and may change the topography of the area. However, there are no known physical conditions that will be adversely affected by this construction.

4.2.1.2. GEOLOGY

The surface geology in the area has been mapped (Breckenridge and Othberg 1998) as unconsolidated rock deposits. The types of rock present are:

- Lacustrine and Alluvial Deposits – Lake deposits (Holocene)
- Colluvium and Residuum – Colluvium and residuum of intermediate depth (Quaternary and Tertiary)
- Glacial-Flood and Periglacial Deposits – Gravel of McGuire (Pleistocene), Gravel of Hauser (Pleistocene), Silts of Hauser (Pleistocene)
- Flood-Scoured Bedrock – Metamorphic rocks of the Belt Supergroup and gneiss, schist, and granite (Precambrian)

Detailed description of these deposits and bedrock can be found in Appendix D on the surficial geological map. No active fault lines or unusual geological features that may impact the proposed project were identified within the project planning area.

4.2.1.3. SOILS

The soils in the area mapped as silt loam to very stony loam by the USDA Soil Survey. These soils are generally well drained and have a moderate shrink-swell potential. The soils have a possibility of erosion due to the fine grained particle size. A Natural Resources Conservation Service, Web Soil Survey map and soil descriptions are provided in Appendix D. Best Management Practices (BMPs) will be implemented during construction to minimize the potential for the soils to erode and leave the construction site.

4.2.2. ENVIRONMENTAL IMPACTS

4.2.2.1. TOPOGRAPHY

Construction of the proposed waterlines and transmission main will require disturbance (approximately 20 feet wide) of existing ground and roadway. After construction of the distribution area, the terrain will be returned to its original contours and vegetation reestablished. Best Management Practices will be utilized during construction to reduce the potential of erosion and to stabilize the site until vegetation is re-established. Thus, the impact due to these disturbances is expected to be a short-term direct impact.

The new reservoir will be partially buried and will alter the topography of the area, but the ground level modifications will likely be within six feet of the original ground level (this could be a long-term direct impact due to changing the topography). The terrain surrounding the reservoir will be returned to its original contours and vegetation reestablished. There are no known physical conditions that will be adversely affected by this construction. Any slope stability or other safety concerns will be addressed and minimized in the design process.

Therefore, short-term and long-term direct impacts are anticipated, but indirect or cumulative impacts are not anticipated.

4.2.2.2. GEOLOGY

No active fault lines or unusual geological features that may impact the proposed project were identified within the project planning area. Therefore, no impacts (short-term, long-term, direct, indirect, or cumulative) are anticipated.

4.2.2.3. SOILS

The soils in the area mapped as silt loam to very stony loam by the USDA Soil Survey. The soils have a possibility of erosion due to the fine grained particle size. Best Management Practices (BMPs) will be implemented during construction to minimize the potential for the soils to erode and leave the construction site.

Therefore, there will be short-term direct impacts are anticipated, but long-term, indirect, or cumulative impacts are not anticipated.

4.3. CLIMATE

4.3.1. AFFECTED ENVIRONMENT

The following climate information for the Hauser Lake area was obtained from weather.com, based on monthly averages:

- Average Annual Temperature High – 57 °F
- Average Annual Temperature Low – 38 °F
- Average Annual Precipitation – 26.1 inches

- Average Annual Snow Fall – 45.6 inches[3]

There are no known special or unusual meteorological constraints that would affect the feasibility of the proposed project.

4.3.2. ENVIRONMENTAL IMPACTS

There are no known special or unusual meteorological constraints that would affect the feasibility of the proposed project. Therefore, no impacts (short-term, long-term, direct, indirect, or cumulative) are anticipated.

4.4. POPULATION AND FLOW PROJECTIONS

4.4.1. AFFECTED ENVIRONMENT

The system serves a population of approximately 985 residents through 451 connections (445 EDUs). The population of the service area is fairly stable, but is expected to grow. Growth for the system has been categorized into four phases; Growth A, B, C and D. These phases are used to organize and express expected growth according to its nature and location. The parcels identified as part of each growth phase are shown on the map included as Figure 2.2 in Appendix E. Each growth phase is defined below:

- Growth A: This is the growth expected for buildout of the existing vacant parcels that are either fronted by water main or are directly adjacent to a currently served parcel and would therefore be "easily" connected to the system.
- Growth B: This growth is the result of future subdivision of existing large parcels that are currently served by the system. A minimum lot size of 2 acres was assumed in order to determine the number of EDUs associated with this growth phase.
- Growth C: This is the growth expected for buildout of existing parcels that are outside of the current service area and are at or below the maximum elevation that can be served by the existing Main Booster Station (2310 feet).
- Growth D: This is the growth expected for buildout of existing parcels that are outside of the current service area and are at an elevation that is higher than that which can be served by the existing Main Booster Station (2310 feet).

The term "equivalent dwelling unit" or EDU is used throughout this document. An EDU is defined in The Idaho Rules for Public Drinking Water Systems – IDAPA 58. Title 01, chapter 8 as a unit of measure that standardizes all land use types (housing, retail, office, etc.) to the level of demand created by a single-family detached housing unit within a water system. The demand for one EDU is equivalent to the amount of

[3] Average annual snow fall for Hauser was obtained from NOAA

water provided to the average single-family detached housing unit within a water system. For example, if a typical single-family household within a given system uses 300 gallons per day (i.e. one EDU equals 300 gpd) and a particular commercial connection uses 600 gallons per day that commercial connection would account for 2 EDUs within that system.

The Draft Kootenai County Comprehensive Plan states that "an average annual growth rate of at least 2% for the next ten years would not be unreasonable for 'what-if' planning purposes." The Association chose to utilize a growth rate of 2% for years 2010 through 2020 and a growth rate of 3% for 2021 forward. Based on these growth rates, it is estimated that the system will reach buildout of Growth A in 2018, Growth B in 2028, Growth C in 2032 and Growth D in 2038.

The estimates for future demands are based on the assumption that the demand per EDU will remain constant throughout the growth period. It should be noted, however, that if several large users are added to the system, these estimates may change. Table 4-1 shows the estimated future demand that has been used for the purposes of this report. It should be recognized that growth and demand have been estimated and will not likely occur exactly as shown in Table 4-1.

Table 4-1: Future EDUs and Demand

	Total System			
	EDUs	ADP (gpd)	MDP (gpd)	PHP (gpm)
2010	445	243,931	975,723	1,428
2011	454	248,792	995,168	1,456
2012	463	253,724	1,014,896	1,485
2013	472	258,656	1,034,624	1,514
2014	481	263,588	1,054,352	1,543
2015	491	269,068	1,076,272	1,575
2016	501	274,548	1,098,192	1,607
2017	511	280,028	1,120,112	1,639
2018	521	285,508	1,142,032	1,671
Growth A	**526**	**288,248**	**1,152,992**	**1,687**
2019	531	290,988	1,163,952	1,703
2020	542	297,016	1,188,064	1,739
2021	558	305,784	1,223,136	1,790
2022	575	315,100	1,260,400	1,845
2023	592	324,416	1,297,664	1,899
2024	610	334,280	1,337,120	1,957
2025	628	344,144	1,376,576	2,015
2026	647	354,556	1,418,224	2,076
2027	666	364,968	1,459,872	2,137
2028	686	375,928	1,503,712	2,201
Growth B	**691**	**378,668**	**1,514,672**	**2,217**
2029	707	387,436	1,549,744	2,268
2030	728	398,944	1,595,776	2,335
2031	750	411,000	1,644,000	2,406
2032	773	423,604	1,694,416	2,480

Growth C	**791**	**433,578**	**1,734,310**	**2,538**
2033	796	436,208	1,744,832	2,554
2034	820	449,360	1,797,440	2,631
2035	845	463,060	1,852,240	2,711
2036	870	476,760	1,907,040	2,791
2037	896	491,008	1,964,032	2,874
2038	923	505,804	2,023,216	2,961
Growth D	**939**	**514,682**	**2,058,726**	**3,013**
2039	951	521,148	2,084,592	3,051

Growth projections have not been made for the 40-year scenario since the system's components (other than distribution) would need to be modified to handle this capacity.

4.4.2. Environmental Impacts

The improvements will support the anticipated growth for the Association, and the growth is not anticipated to be excessive. The Idaho Division of Financial Management's statewide projected 2010-2030 growth rate is 1.69 percent. The projected Hauser Lake Water Association's estimated growth over that time period is 283 EDUs. When compared to the statewide projections for that time period (increase of 177 EDUs), the Association's growth is 17 percent higher than the statewide projection. However, the estimated growth for the Association is less than 500 EDUs over the life of the project. Therefore, the direct and indirect impacts to the population should be positive in the long-term since the improvements will support the anticipated growth for the Association. Short-term and cumulative impacts are not anticipated.

4.5. Economic and Social Profile

4.5.1. Affected Environment

The majority of the homes served by the Hauser Lake Water Association are primary, year-round single family dwelling units. Although no social-economic data is available specifically for this project planning area, the US Census Bureau reports that 13.8 percent of the population in Kootenai County is below the poverty level. The median household income in 2009 was reported as $47,196.

Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and polices. The Hauser Lake Water Association will seek the input of all persons within the Area of Potential Effects through public meetings. All members of the community will be treated the same and have equal access to the Association's public services and decision-making process.

The residents within the Association will benefit from the proposed project by receiving a reliable and good quality supply of drinking water and improved fire

protection. In addition, the project will allow for future growth and economic expansion within this area.

4.5.2. ENVIRONMENTAL IMPACTS

The residents within the Association will benefit from the proposed project by receiving a reliable supply of clean drinking water and improved fire protection. The budgeted project will increase the user rates to 1.03 percent of their monthly income. In addition, the project will allow for future growth and economic expansion within this area, which is a positive long-term impact associated with the project.

Therefore, the direct and indirect impacts to economic and social profile should be positive in the long-term. Short-term and cumulative impacts are not anticipated.

4.6. LAND USE

4.6.1. AFFECTED ENVIRONMENT

The water system is located in Kootenai County within the City of Hauser Impact Area. The service area for the water system is zoned as Lake Village, Upper Watershed, Hauser Hills, and High Density Residential. These zones correspond to the Hauser area, but have been incorporated into the Kootenai County zoning map (Appendix E). The existing land uses in the area consist of Open Space/Limited Residential, Suburban Residential, and Surface Water Surface Area. The completion of these improvements will allow the water system to support the current residential land use. The land area for the new reservoir is currently zoned as agriculture/suburban (Upper Watershed), as can be seen in Appendix E. The improvement (new reservoir) is not incompatible with the current land use, but it will require a permit from the City of Hauser and Kootenai County to use for a public utility. Lastly, for the extension of the Well #1 building, Kootenai County Building and Planning will require a building permit.

4.6.2. ENVIRONMENTAL IMPACTS

The completion of distribution improvements is not anticipated to negatively impact the current land use, since it will be completed within existing roadways. The new reservoir will require a permit from the City of Hauser and Kootenai County. Construction of the new reservoir is not anticipated to impact the land use negatively, but will require a permit for public utility use.

Therefore, no impacts (short-term, long-term, direct, indirect, or cumulative) are anticipated.

4.7. FLOODPLAINS

4.7.1. AFFECTED ENVIRONMENT

Based on the City of Hauser, Idaho Flood Insurance Rate map, dated May 3, 2010, the proposed improvements are not located within the 100 year flood hazard

zone. A portion of the floodplain map is provided in Appendix F. The proposed improvements are near the flood hazard zone boundary, but the improvements located near the boundary will follow existing roadways or will be within existing structures (for booster improvements, as discussed in Section 2). Therefore, adverse impacts to the floodplains are not expected.

4.7.2. ENVIRONMENTAL IMPACTS

A portion of the proposed improvements are near the flood zone boundary; however, these improvements will be in existing roadways and should not adversely impact the floodplain.

Consultation with the Idaho Department of Water Resources revealed that the Association does not participate in the National Flood Insurance Program (NFIP). The mapped zone that was examined (discussed above) shows that some improvements are near the flood hazard zone, but since the community does not participate in the NFIP, the community has not adopted a flood damage prevention ordinance that meets the minimum requirements of the NFIP. Since the community does not participate in the NFIP, the Idaho Department of Water Resources did not provide any comments on the project.

Best management practices (BMPs) will be utilized to protect the water quality of the flood hazard zone and to prevent sediment from leaving the construction site. Therefore, short-term direct impacts are anticipated for floodplains from soil disturbance (mitigated through BMPs). But long-term, indirect, and cumulative impacts are not anticipated.

4.8. WETLANDS

4.8.1. AFFECTED ENVIRONMENT

United States Fish and Wildlife Service provided a National Wetlands Inventory interactive online mapper[4]. A map of wetlands within the project area was prepared using the mapper and is included in Appendix F. There is one improvement area that is located within the wetland area. The improvements will not result in the placement of fill since the improvements will occur within existing facilities or in existing roadways.

4.8.2. ENVIRONMENTAL IMPACTS

The US Army Corps of Engineers were consulted and it was determined that because a portion of the distribution improvements are located within designated

[4] The online mapper provides "reconnaissance level information" on wetland resources and accuracy may be limited. In addition, federal, state, and local regulatory agencies with jurisdiction over wetland areas may define them differently, and the boundaries of these jurisdictions have not been defined as part of this mapper. Consultation with the appropriate agencies should be conducted when activities within the wetland are proposed. Refer to www.fws.gov/wetlands/Data/Limitations.html for more information on the limitations of the mapper.

wetland area, a wetland delineation would need to be conducted. The distribution improvements located within these specified areas are shown in the map entitled: Wetland Exclusion Map in Appendix F. The wetland delineation will be conducted for these specified distribution improvements when funding is obtained for them. The appropriate permits for wetland crossing will be applied for from both the US Army Corps of Engineers and the Idaho Department of Water Resources.

Best management practices (BMPs) will be utilized to protect the water quality of the wetlands and floodplains and to prevent sediment from leaving the construction site. Therefore, short-term direct impacts are anticipated for floodplains or wetlands. But long-term, indirect, and cumulative impacts are not anticipated.

4.9. Wild and Scenic Rivers

4.9.1. Affected Environment

The Spokane River is located approximately 5 miles to the south of the project area. The Spokane River is not listed as a Wild and Scenic River, according to the National Wild and Scenic Rivers database (see Section 7 for reference). No designated wild and scenic rivers are located within the project area.

4.9.2. Environmental Impacts

Since there are no designated wild and scenic rivers in the project area, no impacts (short-term, long-term, direct, indirect, or cumulative) are anticipated.

4.10. Cultural Resources

4.10.1. Affected Environment

There are no known historic resources within the area of construction for the improvements. A search of the Kootenai County, Idaho sites listed on National Register of Historic Places, provided in Appendix G, shows the nearest site located within the town of Post Falls or Rathdrum.

The project is not located in a tribal reservation area, and archeological resources have not been identified in the area.

4.10.2. Environmental Impacts

The Idaho State Historical Preservation Officer was consulted in the process of developing this document. They indicated that the reservoir site would require an archeological survey since it does not appear to be substantially disturbed and archeological surveys had not been conducted in that area previously.

Therefore, Northwest Archeological Associates conducted an archeological survey for the project. The survey involved both a field survey and a records search in addition to correspondence with the affected Tribes. Records search revealed that

there may be cultural properties as the reservoir site is in an important area archeologically, but the likelihood of discovering early historic period cultural resources is reduced due to disturbance related to logging and farming. The field survey revealed no artifacts. Therefore, the project is not expected to impact cultural resources. If artifacts are discovered during the course of construction, the Coeur d'Alene Indian Tribe and SHPO will be contacted, and mitigation may be further evaluated.

The cultural resource assessment was completed and submitted to the Idaho Department of Environmental Quality, but is not included for confidentiality reasons. The SHPO reviewed the cultural resource assessment and documented that it meets the Secretary of the Interior's Standards. No additional investigations were recommended. In addition, the Coeur d'Alene Indian Tribe reviewed the cultural assessment and did not have any comments. Refer to Appendix M for correspondence with the SHPO.

4.11. PLANTS AND WILDLIFE

4.11.1. AFFECTED ENVIRONMENT

A list of endangered, threatened, and candidate species for Kootenai County was obtained from the US Fish and Wildlife Services website and is included in Appendix H. After consulting the US Fish and Wildlife Services Critical Habitat Mapper[5], the project planning area is not in a critical habitat area. It is not anticipated that these species or habitat areas will be affected by the project.

4.11.2. ENVIRONMENTAL IMPACTS

As mentioned above, the project area is not located in a critical habitat area and it is not anticipated that the species or habitat areas will be affected by the project. The Idaho Fish and Wildlife Office provided consultation for this project. The Idaho Fish and Wildlife Office stated that there is no critical habitat located within the project area and there are not listed species in the vicinity. The consultation also discusses a Section 7 consultation, which is required since a federal nexus (federal permitting, federal funding, etc) was involved. Please refer to the consultation information from the Idaho Fish and Wildlife Office in Appendix M for more information on the Section 7 consultation. In addition, the Idaho Department of Fish and Game does not anticipate that the proposed project will have an impact on the fish and wildlife in the project area (see consultation in Appendix M).

Therefore, no impacts to plants and wildlife (short-term, long-term, direct, indirect, or cumulative) are anticipated at this point. It is the responsibility of the federal agency to determine if a Section 7 consultation will be required.

[5] The US Fish and Wildlife Service Critical Habitat Mapper does not contain all designated habitat, but provides a reference.

4.12. Recreation and Open Space

4.12.1. Affected Environment

The project is not located in recreational open spaces, parks, or areas of recognized scenic or recreational value. There is land in the northern portion of the Association that is designated as open space/limited residential (see Land Use map in Appendix E). However, none of the project improvements are located in this area.

4.12.2. Environmental Impacts

Since there are no designated recreational open spaces, parks, or areas of recognized scenic or recreational value in the project area, no impacts (short-term, long-term, direct, indirect, or cumulative) are anticipated.

4.13. Agricultural lands

4.13.1. Affected Environment

Prime agricultural classification is provided as part of the USDA Soil Survey conducted for the soil information in Section 4.1. According to the Soil Survey, "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." There are soils listed as prime farmland if irrigated within the service area for the Association. The improvements in these areas will only consist of replacing existing waterline, which should not disturb or irreversibly convert the land resulting in loss of these lands. A map of the USDA Soil Survey information for the Association is provided in Appendix I.

4.13.2. Environmental Impacts

The planning area does include prime agricultural lands if irrigated. The improvements in these lands will only consist of replacing existing waterline, which should not disturb or irreversibly convert the land resulting in loss of these lands. Therefore, short-term direct impacts are anticipated, but long-term, indirect, or cumulative impacts are not anticipated.

4.14. Air Quality

4.14.1. Affected Environment

The State of Idaho has been delegated authority to regulate air quality through the EPA and the Clean Air Act. The State Implementation Plan provides the rules and regulation to maintain acceptable air quality standards within the state and site specific plans delineating areas that do not meet air quality standards. Areas that do not meet

specific air quality standards are known as Nonattainment Areas. A map showing Nonattainment Areas and Areas of Concern for the State of Idaho is provided in Appendix J. The proposed project planning area is not located in a Nonattainment area or an area of concern. Additionally, it is not anticipated that this project will impact air quality standards during construction or during operation of the facility.

4.14.2. Environmental Impacts

The Department of Environmental Quality (DEQ) was consulted, and they require that reasonable controls be implemented during construction and maintenance to prevent fugitive dust during all phases of the project. The project plans should also describe the proper disposal of any demolition and construction debris in accordance with solid waste regulations. Open during of demolition or construction debris is not allowed. Vegetation/land clearing should be accomplished using mechanical methods to avoid generation of smoke.

Short-term impacts are anticipated in association with construction emissions; however, the impact to air quality is not anticipated to exceed state or federal limits. Long-term, indirect, or cumulative impacts are not anticipated.

4.15. Energy Production/Consumption

4.15.1. Affected Environment

The Association currently meters individual water consumption with service meters at all connections. Users are billed based on their bi-monthly consumption. Additional fees are charged for water use in excess of the base allotment of water.

Completion of the proposed improvements will not significantly increase the water systems energy consumption. When selecting new, larger pumps as part of the proposed improvements, the efficiency of the pump and motor will be considered during the selection process to ensure that the pumping equipment is as energy efficient as possible. Additionally, the design will incorporate the use of variable frequency drives (VFDs) to control pump/motor operation and allow for the most efficient operation.

4.15.2. Environmental Impacts

The impacts associated with energy production and consumption is anticipated to be negligible. Old components will be replaced with new, higher efficiency components. The installation of new pumps may increase energy production. Thus, with the increase in efficiency (decrease in energy consumption) and the increase in pump usage (increase in energy consumption), the impact to energy production and consumption will be negligible.

Therefore, short-term, long-term, direct, indirect, and cumulative impacts are not anticipated.

4.16. REGIONALIZATION

4.16.1. AFFECTED ENVIRONMENT

The Association has not considered an intermunicipal agreement with any surrounding communities. The closest communities are Post Falls and Rathdrum which are located 3 miles and 6.5 miles, respectively, from Hauser, making it highly unfeasible to tie-in to these systems.

4.16.2. ENVIRONMENTAL IMPACTS

Since no regionalization scheme is in place, no impacts (short-term, long-term, direct, indirect, or cumulative) are anticipated.

4.17. SURFACE AND GROUNDWATER HYDROLOGY

4.17.1. AFFECTED ENVIRONMENT

4.17.1.1. SURFACE WATER

The primary surface water body in within the Association is Hauser Lake. The Lake is fed by small tributaries and discharges nearly wholly to the Spokane-Rathdrum Prairie Aquifer. Hauser Lake has a TMDL for total phosphorus. The phosphorus originates from Hauser Creek, internal sediment loading, storm water runoff, atmospheric fallout, aquatic plant decay, waterfowl, and shoreline septic systems. For more information on the Hauser Lake TMDL, see Appendix K.

4.17.1.2. GROUNDWATER

The system is supplied by two production wells, Well No. 1 and Well No. 2, located at the intersection of Highway 53 and Cloverleaf Road. The two wells draw from the Spokane Valley-Rathdrum Prairie Aquifer (see Appendix K for a map of the Aquifer). The Aquifer is classified as a sole source aquifer by the US Environmental Protection Agency. A sole source aquifer classification indicates that the aquifer supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. Table 4-2 on the following page provides a summary of each of the two wells that serve the Association.

Table 4-2: Inventory of Source

	Year Drilled	Year Current Pump/ Motor Installed[1]	Casing Dia. (inch)	Static Water Level (ft)	Motor HP	Pump Model	Pump Operating Point (gpm)	Back-up Power Supply	Pump Type	Screen Capacity[2] (gpm)
Well No. 1	1967	1988	12	140	75	10MA	600	None	Peerless	1,000
Well No. 2	1975	2002	16	164	125	118C	1,200[3]	None	Goulds	1,400

1. Available well logs and pump curves are included in Appendix C.
2. Screened source capacity according to well logs.
3. It should be noted that the design operating point for Well No. 2 is 900 gallons per minute at 424 feet of TDH. However, under the system's current configuration, the pump operates at a lower head and therefore produces 1,200 gallons per minute.

Both wells pump to the Main Reservoir, and are controlled by pressure transducers (with back-up floats) within the reservoir. Well No. 1 turns on when the water level drops to 7 feet and Well No. 2 turns on when the water level drops to 6 feet. Both wells turn off when the water level in the reservoir reaches 15 feet (the overflow is at 15 feet 9 inches).

The Association follows sampling regulations stipulated by the Idaho Department of Environmental Quality (IDEQ). The 2009 Drinking Water Quality Report, attached as Appendix K for reference, notes that levels of three regulated contaminants, nitrate, coliform and E. coli, were below state and federal standards. Also attached in Appendix K is a Drinking Water Advisory that was sent to the Association's customers on May 24, 2010 regarding the presence of coliform in the system. As discussed in the advisory, six samples were taken in May 2010 that tested positive for coliform. Each of these samples was taken from the By-Pass PRV Datum, which is served by the Woodlake Reservoir. Circulation in this reservoir is not optimum. Thus, it was determined that the issue was likely due to water stagnation in the Woodlake Reservoir.

The system is now chlorinated. Chlorinators were installed at the Woodlake Booster Station and the production wells. Coliform has not been detected in the system since the Woodlake Reservoir was chlorinated. It should be noted that upon detecting coliform in the system, samples were collected and tested for both fecal coliform and E. coli. These bacteria were not present in the system.

The Association holds four water rights for the diversion of ground water, as can be seen in Table 4-3 on the following page.

Table 4-3 - Inventory of Water Rights

Water Right No.	Basis	Beneficial Use	Period of Use	Priority Date	Diversion Rate	Volume Limitation
95-2189	License	Domestic	Jan. 1 to Dec. 31	8/8/1966	0.56 cfs	108 AFA
95-7463	License	Domestic	Jan. 1 to Dec. 31	7/3/1974	2 cfs	150 AFA
95-8535	License	Domestic	Jan. 1 to Dec. 31	11/17/1986	0.2 cfs	52.2 AFA
		Irrigation	March 15 to Nov. 15		2 cfs	300 AFA
				Maximum Diversion for Licenses[1]:	**2.65 cfs**	**610.2 AFA**
95-9111	Permit	Municipal	Jan. 1 to Dec. 31	2/7/2002	2.25 cfs	Limited only by Max. Diversion
				Maximum Diversion for Permit[2]:	**2.25 cfs**	**1,629 AFA**
				Maximum Diversion for Licenses and Permit:	**4.9 cfs**	**2,239 AFA**

1. License 95-8535 states that the maximum diversion rate when combined with licenses 95-2189 and 95-7463 is 2.65 cfs. There is no annual volume restriction when the licenses are combined, thus indicating the individual volume limitations are additive.
2. There is no annual volume limitation associated with the permit indicating that the Association could withdraw the maximum diversion of 2.25 cfs on a daily basis throughout the year

As can be seen, the Association holds three water right licenses with a total combined diversion rate of 2.65 cfs (1,189 gpm), based on the restriction included in license 95-8535, and a combined annual volume limitation of 610.2 AFA (378 gpm).

The Association also holds a permit with diversion rate 2.25 cfs (1,010 gpm) with no annual volume limitation. Proof of Beneficial Use for the permit must be submitted to the Idaho Department of Water Resources (IDWR) on or prior to July 1, 2012. At that time, a field examination will be completed and the permit will be converted to a license with a diversion rate equal to the capacity of the diversion works installed at the time of the field examination.

IDWR is currently conducting an adjudication of all the water rights (that were put into beneficial use on or prior to November 12, 2008) in the Coeur d'Alene and Spokane River water systems. The Association filed adjudication claims with IDWR for the three licensed rights in December, 2009. It should be noted that the three licenses will be changed to Municipal beneficial use rights during the adjudication.

4.17.2. ENVIRONMENTAL IMPACTS

4.17.2.1. SURFACE WATER

The primary surface water body in within the Association is Hauser Lake, which has a TMDL for total phosphorus. The phosphorus originates from Hauser Creek, internal sediment loading, storm water runoff, atmospheric fallout, aquatic plant decay, waterfowl, and shoreline septic systems. The Idaho DEQ was consulted, and they

require the protection of surface water and control of erosion and sedimentation by the use of acceptable best management practices (BMPs).

Therefore, short-term impacts are anticipated, but the Lake and other water bodies will be protected utilizing BMPs, as required by DEQ. Long-term, indirect, and cumulative impacts are not anticipated.

4.17.2.2. GROUNDWATER

The project proposes to upsize the existing pump at Well No. 1, which will increase the pumping capability of the well. This will allow the well to pump to the new reservoir site. The additional capacity will not increase the production rate beyond the existing water rights held by the Association. Therefore, adverse impact to the source and water rights is not anticipated. The improvements will increase the capacity of the system to provide clean, reliable drinking water to the Association.

The Idaho Department of Water Resources was consulted and they indicated that the water rights be reviewed and that the proposed improvements stay within the parameters of the rights. Since water right review has taken place as part of the facility planning document (See Appendix O for more information) and the improvements are expected to stay within the parameters of the water rights, impacts to water rights or ground water quantity are not anticipated.

The Environmental Protection Agency's Sole Source Aquifer Program provided consultation on this project. They indicated that the project will not have a significant impact on the Spokane Valley-Rathdrum Prairie Aquifer.

Additionally, the Idaho DEQ was consulted, and they require storm water controls to adequately protect ground water as well as surface water (mentioned previously). Therefore, control of sedimentation and erosion will be achieved through the use of acceptable best management practices (BMPs).

Thus, short-term, long-term, direct and indirect positive impacts are anticipated. Short-term impacts are anticipated but will be mitigated through the use of BMPs. Cumulative adverse impacts are not anticipated.

5. Environmental Impact Mitigation

Section	Regulatory Agency	Mitigation
4.2 Physical Aspects AND 4.16 Water Quality	Idaho Department of Environmental Quality	Stormwater controls will need to be developed that adequately protect surface waters and ground water from being impacted during construction.
4.6 Land Use	City of Hauser and Kootenai County	The Association will need to obtain a permit for the new reservoir site to be used for a public utility.
4.9 Cultural Resources	Idaho SHPO and Coeur d'Alene THPO	SHPO requested an archeological survey for the reservoir site. The survey concluded that the project would have no impact on cultural resources. However, if artifacts are discovered during the course of construction, the Coeur d'Alene Indian Tribe and SHPO will be contacted, and mitigation may be further evaluated.
4.13 Air Quality	Idaho Department of Environmental Quality	The contractor must mitigate fugitive dust as a result of construction of this project using reasonable controls in accordance with DEQ regulations and should be advised during the preconstruction conference of the requirements to keep dust to a minimum. The project plans should also describe the proper disposal of any demolition, construction, or cleared vegetation debris is not allowed.

6. Public Participation

In May 2011, one newsletter was sent out to residents in the Association. The newsletter presented brief information about the potential proposed project and the alternatives for the project. Public information meeting was scheduled for June 7, 2011. A copy of the newsletter and the list of Association members the newsletter was sent to are included in Appendix L.

The public meeting presented information about the existing system, the deficiencies with the existing system (per Idaho Rules for Drinking Water Systems), and recommended improvements. Impacts to user fees, physical aspects (topography and soils), saved energy, and system reliability were discussed at the meeting as well as can be seen in the presentation (slides 4, 6, 7, 10, 15, 16, 18, and 19 included in Appendix L). The costs were summarized for Option 3 and 4 along with a summary of the project benefits, funding, and proposed schedule. The meeting was attended by Katy Baker-Casile from DEQ to discuss funding. The meeting presentation is included in Appendix L.

The public was given 14 days to comment on the project. Notice of the comment period was published in the Coeur d'Alene Press (widest circulation for the area). The public notice is included in Appendix L. No comments were received. After careful consideration of the project alternatives, available information, and public comments received during the entire process, Hauser Lake Water Association chose Source/Storage Option 3A, and Distribution Option 3 during their meeting on May 21, 2012. The minutes from this meeting are included in Appendix L.

7. References Consulted

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8. AGENCY CONSULTATION

The following table provides a list of agencies that were contacted October 17, 2011 via mail to request their comments, concerns, or any potential impacts of the proposed project. The request letters and their responses are located in Appendix M.

Agency	Contact	Address	Date Received Consultation/Reply
US Army Corps of Engineers, Coeur d'Alene Regulatory Office	Beth Reinhart/ Michael Burgan	2065 W. Riverstone Drive, Ste. 201 Coeur d'Alene, ID 83814	November 8, 2011
US Fish and Wildlife Service	State Supervisor/ Ben Conard and Bryon Holt	11103 East Montgomery Drive Spokane, WA 99206	October 25, 2011
Idaho Department of Environmental Quality, Coeur d'Alene Regional Office	Katy Baker-Casile/ John Tindall	2110 Ironwood Parkway Coeur d'Alene, ID 83814	November 4, 2011
US EPA, Coeur d'Alene Field Office	Don Martin	1910 NW Blvd., Suite 208 Coeur d'Alene, ID 83814	October 21, 2011
US EPA, Idaho Operations Office	James Werntz/ Cyndi Grafe	1435 North Orchard Boise, ID 83706	November 10, 2011
EPA Region 10	Mike Lidgard, Manager, NPDES Unit/ Marie Jennings	1200 6th Avenue, OWW 130 Seattle, WA 98101	December 2, 2011
EPA Region 10, Office of Environmental Assessment (OEA-095)	Sue Eastman, Hydrogeologist	1200 6th Avenue, OWW 136 Seattle, WA 98101	October 21, 2011 / March 16, 2012
USDA-NRCS	Mark Addy, District Conservationist/ Aubrey Woodcock, District Conservationist	7830 Meadowlark Way, Suite C1 Coeur d'Alene, ID 83815	November 23, 2011
Idaho Department of Water Resources	Mary McGown, State NFIP Coordinator	322 East Front Street, PO Box 83720 Boise, ID 83720	November 21, 2011
Idaho Department of Water Resources	Allen Beardslee/ Keith Franklin, Interim Project Manager	7600 Mineral Drive, Ste. 100 Coeur d'Alene, ID 83815	November 2, 2011
Idaho Department of Fish and Game, SE Region	Regional Nongame Biologist/ Charles Corsi, Regional Supervisor	2750 Kathleen Avenue Coeur d'Alene, ID 83815	November 17, 2011
Idaho Department of Agriculture	Gary Bahr	PO Box 790 Boise, ID 83701	October 26, 2011

Panhandle District Health Department	Dale Peck, Environmental Health Director	2195 Ironwood Court Coeur d'Alene, ID 83814	No response by December 9, 2011 (voicemail left on November 21, 2011)
Department of Lands, Northern Operations	Roger Jansson, Operations Chief - North	3780 Industrial Avenue South Coeur d'Alene, ID 83815	November 21, 2011
USDA-RD	Jeff Beeman, Rural Development Specialist/ Howard Lunderstadt	7830 Meadowlark Way, Suite C3 Coeur d'Alene, ID 83815	November 21, 2011
Idaho Department of Commerce	Dennis Porter, State Program Manager/ Tony Tenne	700 West State Street, PO Box 83720 Boise, ID 83720	November 21, 2011
Idaho Sate Historical Society	Suzi Pengilly, Deputy SHPO	210 Main Street Boise, ID 83702	November 7, 2011
Coeur d'Alene Tribe of Idaho	Jill Wagner, PhD, THPO, Cultural Resource Program	PO Box 408 Plummer, ID 83851	Information sent via DEQ, response provided via DEQ on February 6, 2012

9. Mailing List

The mailing list for this project includes both the agencies consulted (see Section 8), and the residents who were contacted with the newsletter (see Appendix L for list of newsletter recipients).

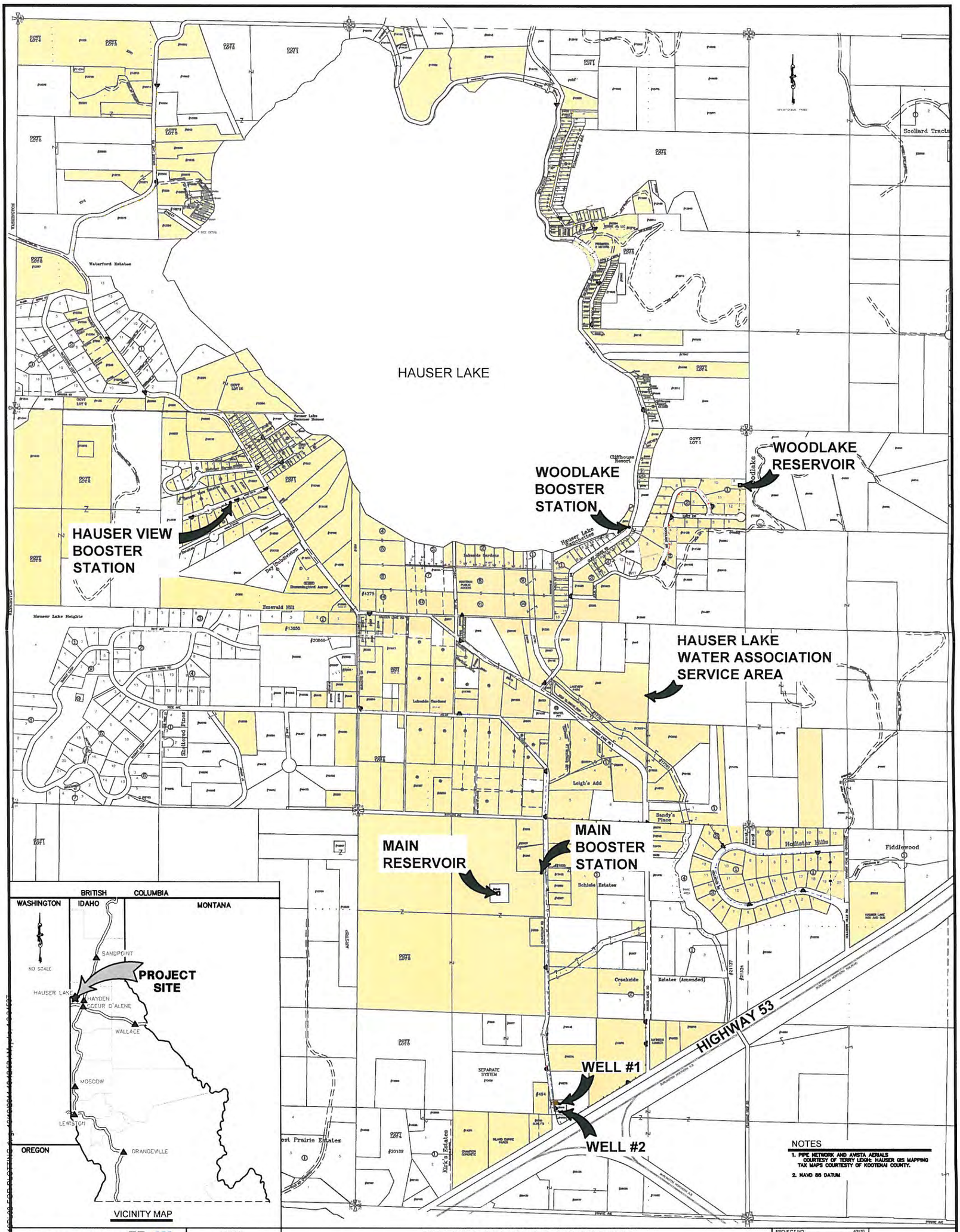
Appendix A

Hauser Lake Maps

Existing System Map

Improvement Alternatives Maps

Selected Alternative Map



NOTES

1. PIPE NETWORK AND AVISTA AERIALS COURTESY OF TERRY LEIGH; HAUSER GIS MAPPING TAX MAPS COURTESY OF KOOTENAI COUNTY.
2. NAVD 88 DATUM

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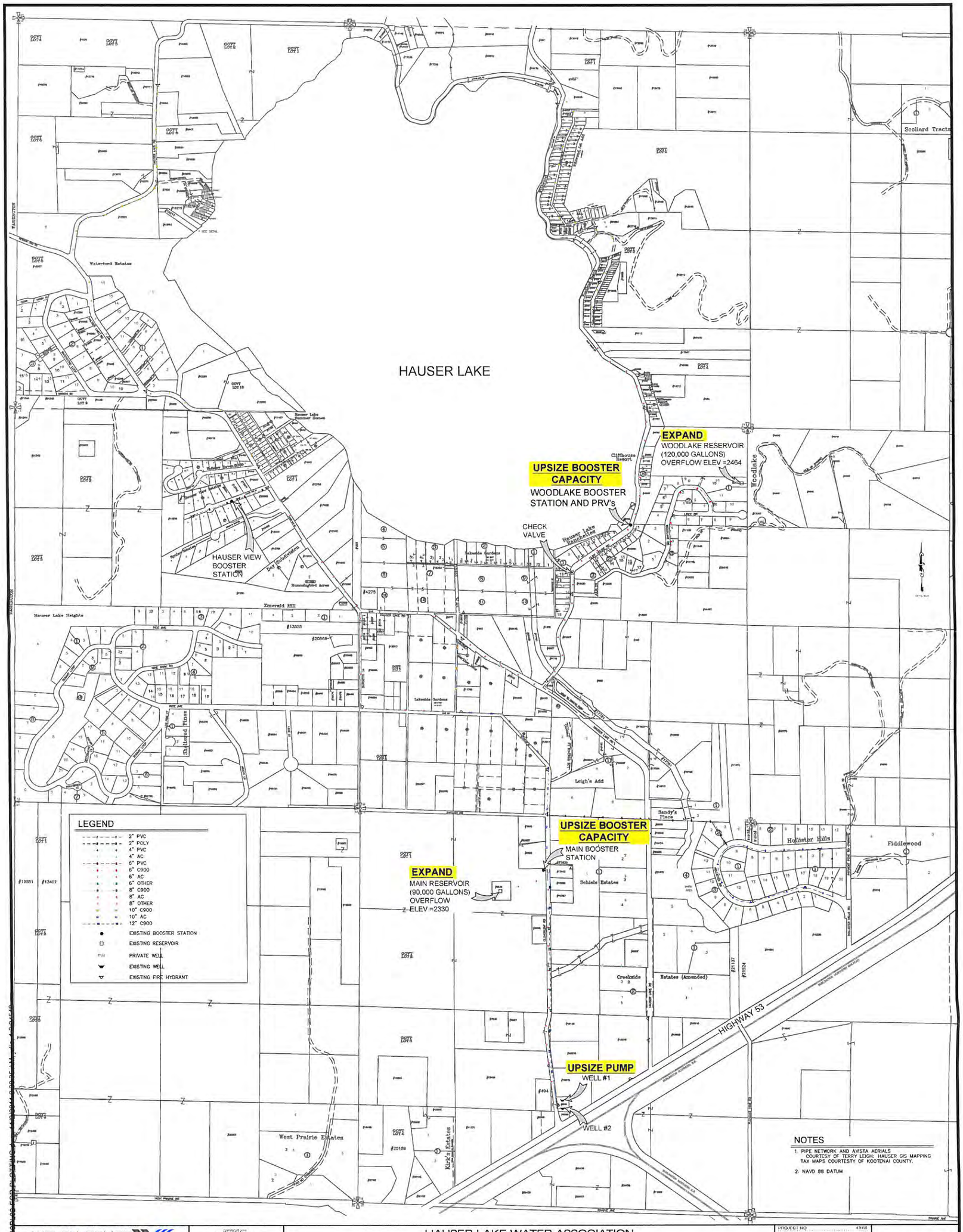
HAUSER LAKE WATER ASSOCIATION
EXISTING SYSTEM MAP

PROJECT NO.	4910S
ENGINEER BY	KAT
DRAWN BY	JAL
DWG NAME	4910SEXQ.DWG
DATE	10-19-11

\\Nas-01\CAD\CAD Projects\4910 Hauser Lake\4910SEXQ.DWG



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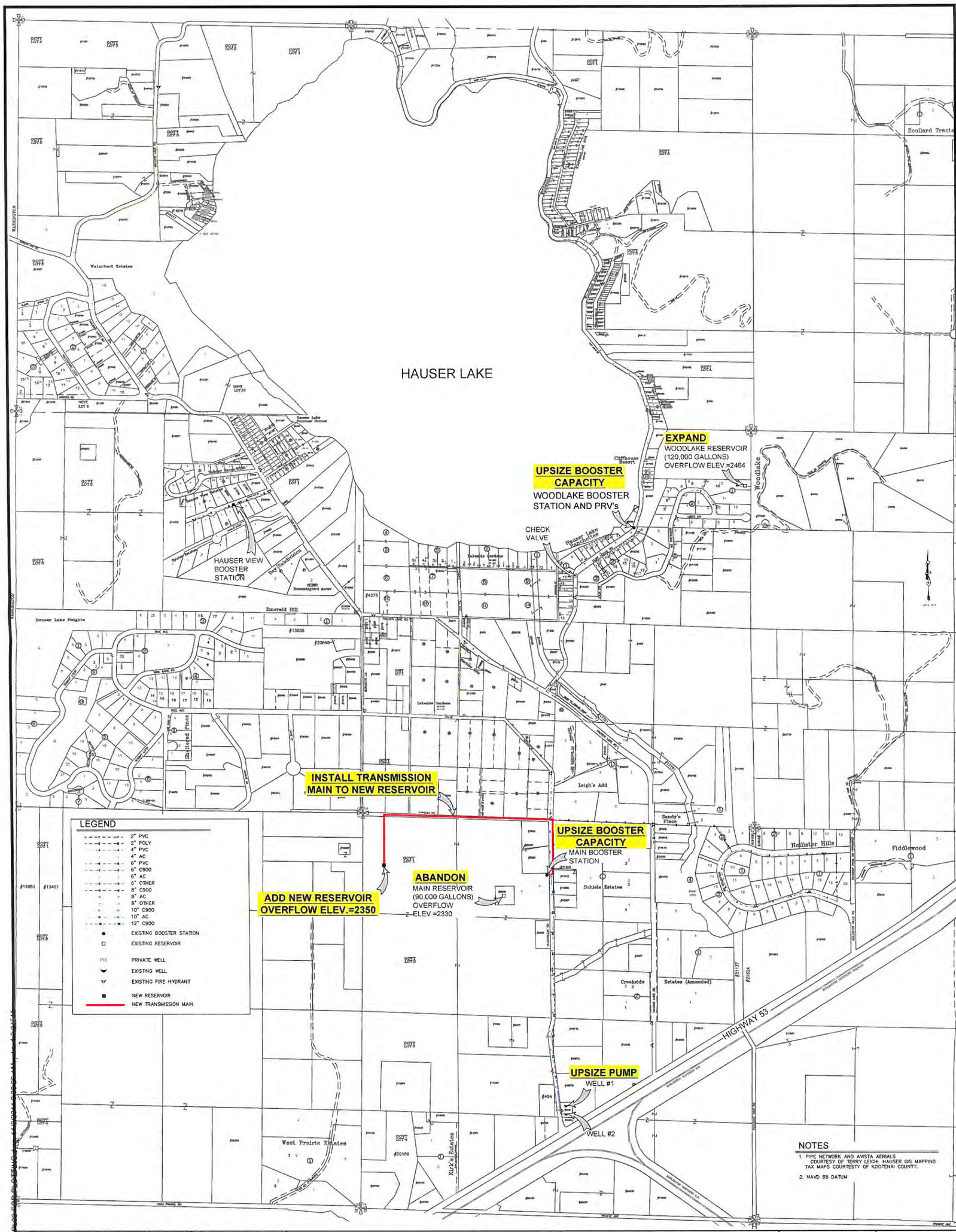
HAUSER LAKE WATER ASSOCIATION
SOURCE/STORAGE IMPROVEMENT OPTION 1
EXISTING CONFIGURATION

PROJECT NO	49155
DESIGNED BY	KJO
DRAWN BY	JAL
DWG NAME	49155PL02.DWG
DATE	01-07-11

FIGURE 4.1

I:\Nas-01\cad\CAD Projects\49155\



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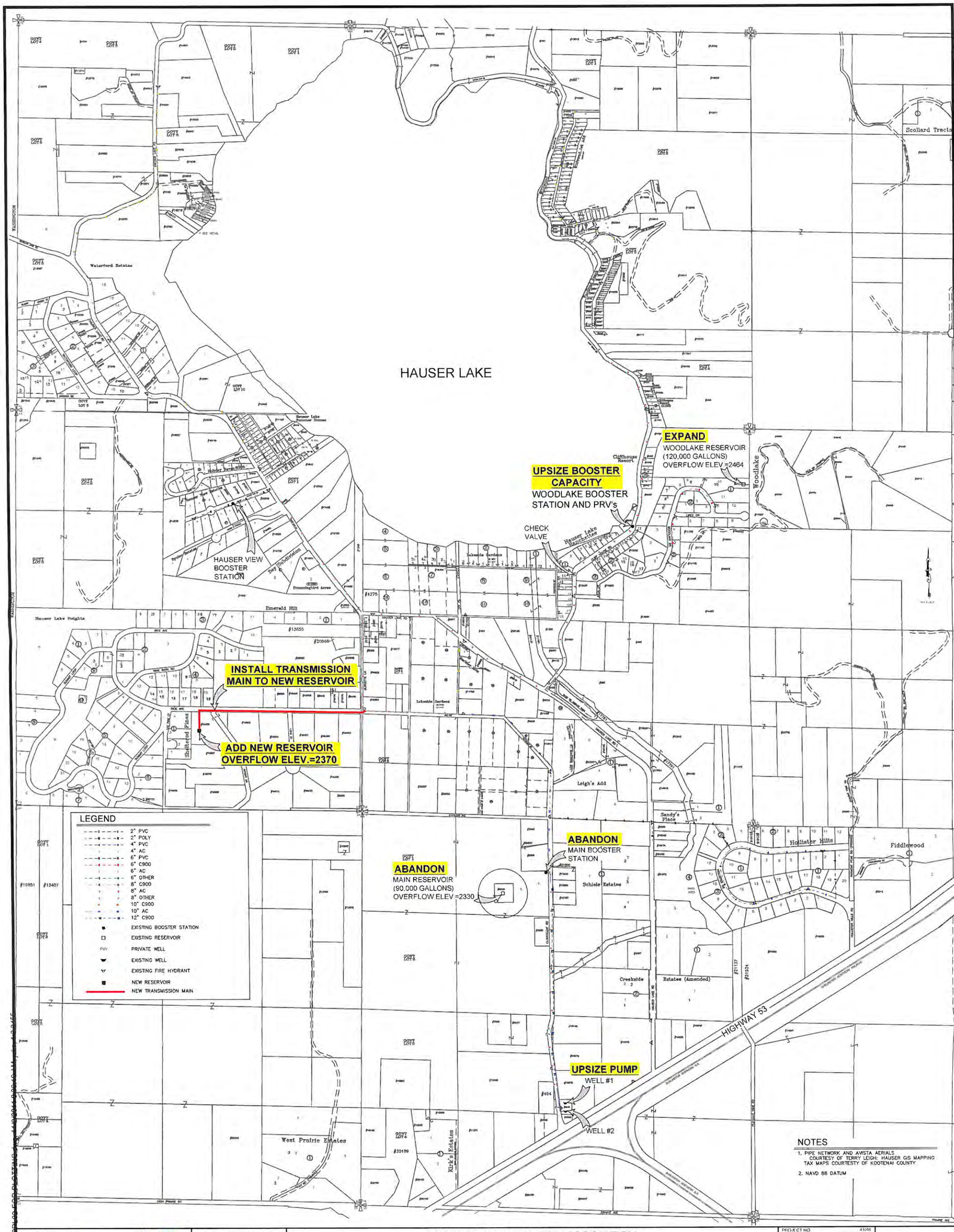
HAUSER LAKE WATER ASSOCIATION
SOURCE/STORAGE IMPROVEMENT OPTION 2
NEW STORAGE SITE (ADJACENT PROPERTY)

PROJECT NO.	410/19
DESIGNED BY	KJ
DRAWN BY	JM
DWG NAME	410101L02.DWG
DATE	01-07-11

FIGURE 4.2

\\Nas-01\cad\CAD Projects\410101\



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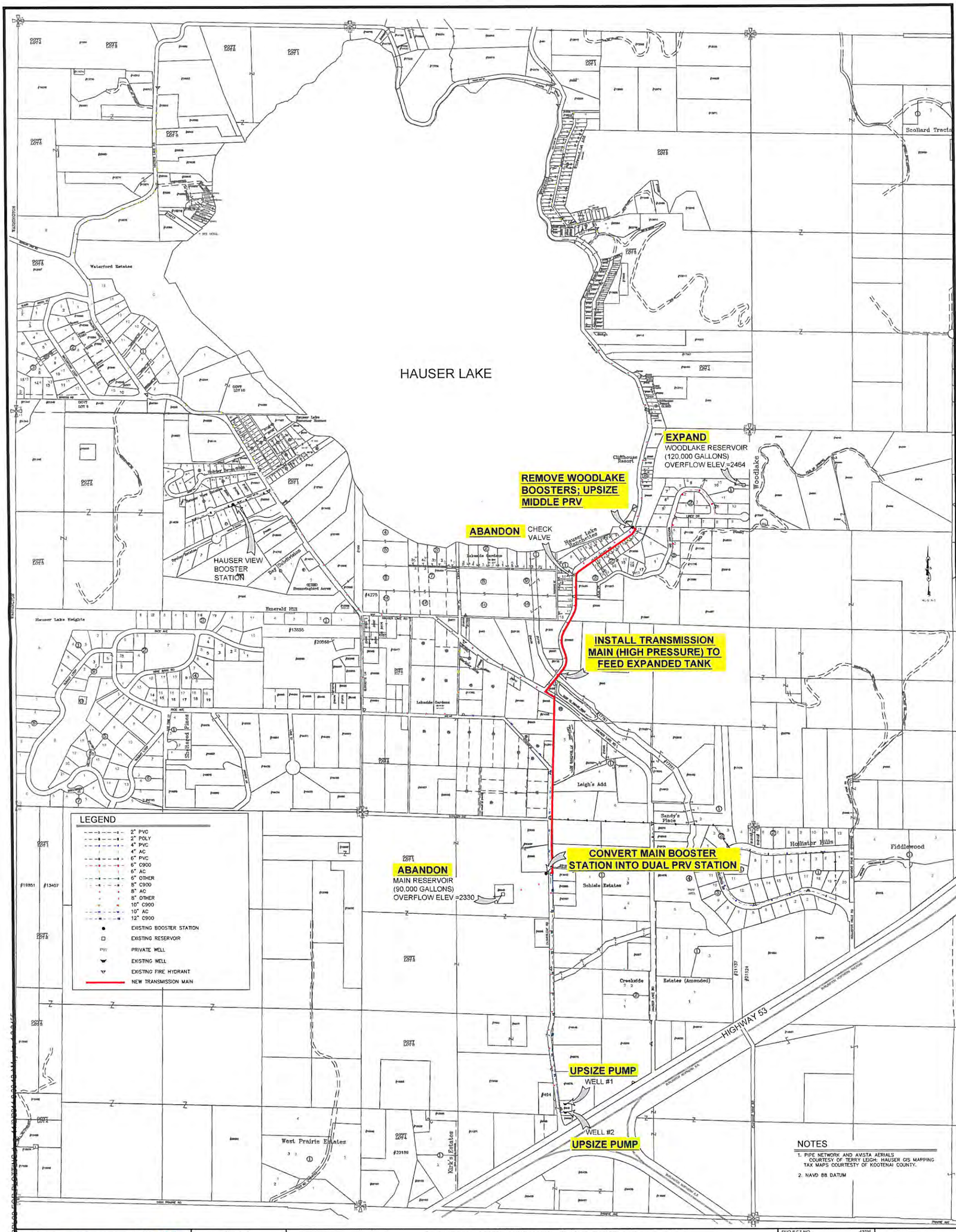
HAUSER LAKE WATER ASSOCIATION
SOURCE/STORAGE IMPROVEMENT OPTION 3
NEW STORAGE SITE (RICE ROAD)

FIGURE 4.3

\\Was-01\cad\CAD Projects\41018\



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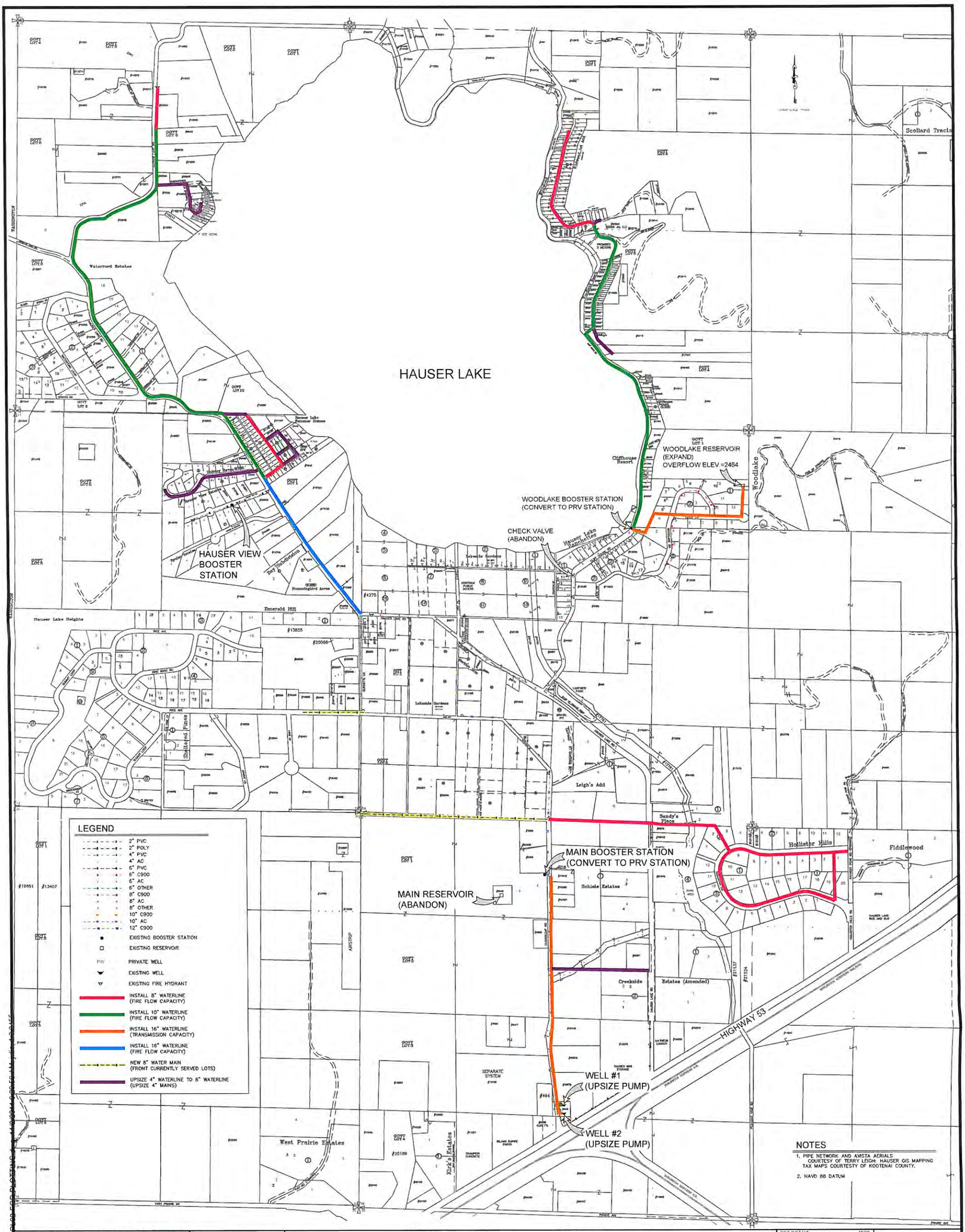
HAUSER LAKE WATER ASSOCIATION
SOURCE/STORAGE IMPROVEMENT OPTION 4
EXPANSION AT WOODLAKE

FIGURE 4.4



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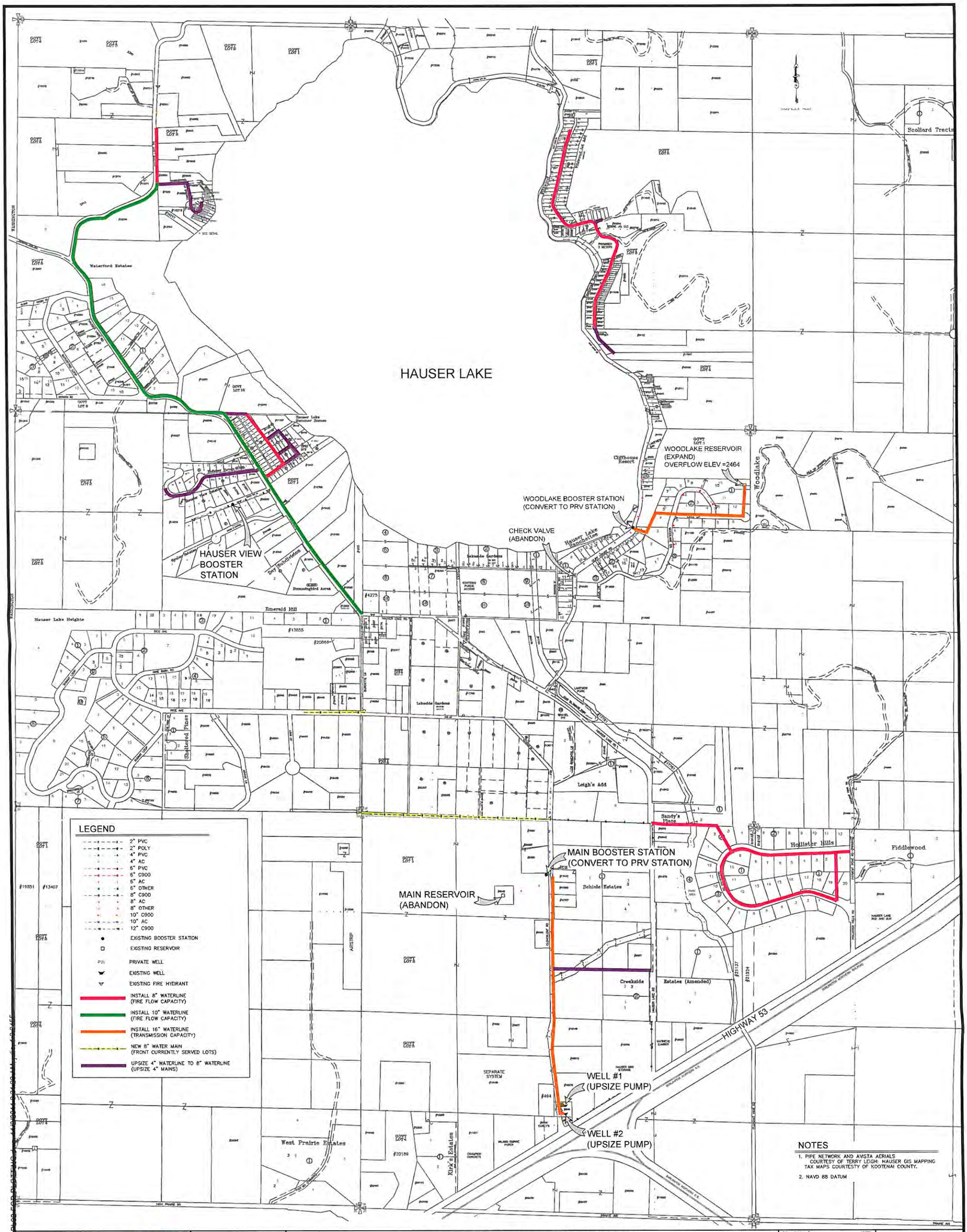
HAUSER LAKE WATER ASSOCIATION
DISTRIBUTION IMPROVEMENTS FOR SOURCE/STORAGE IMPROVEMENT
OPTION 3/3A

PROJECT NO	41018
DESIGNED BY	KJO
DRAWN BY	JAL
DWG NAME	41018FIG02.DWG
DATE	01-07-11

FIGURE 4.5

\\Was-01\cadd\CAD Projects\41018



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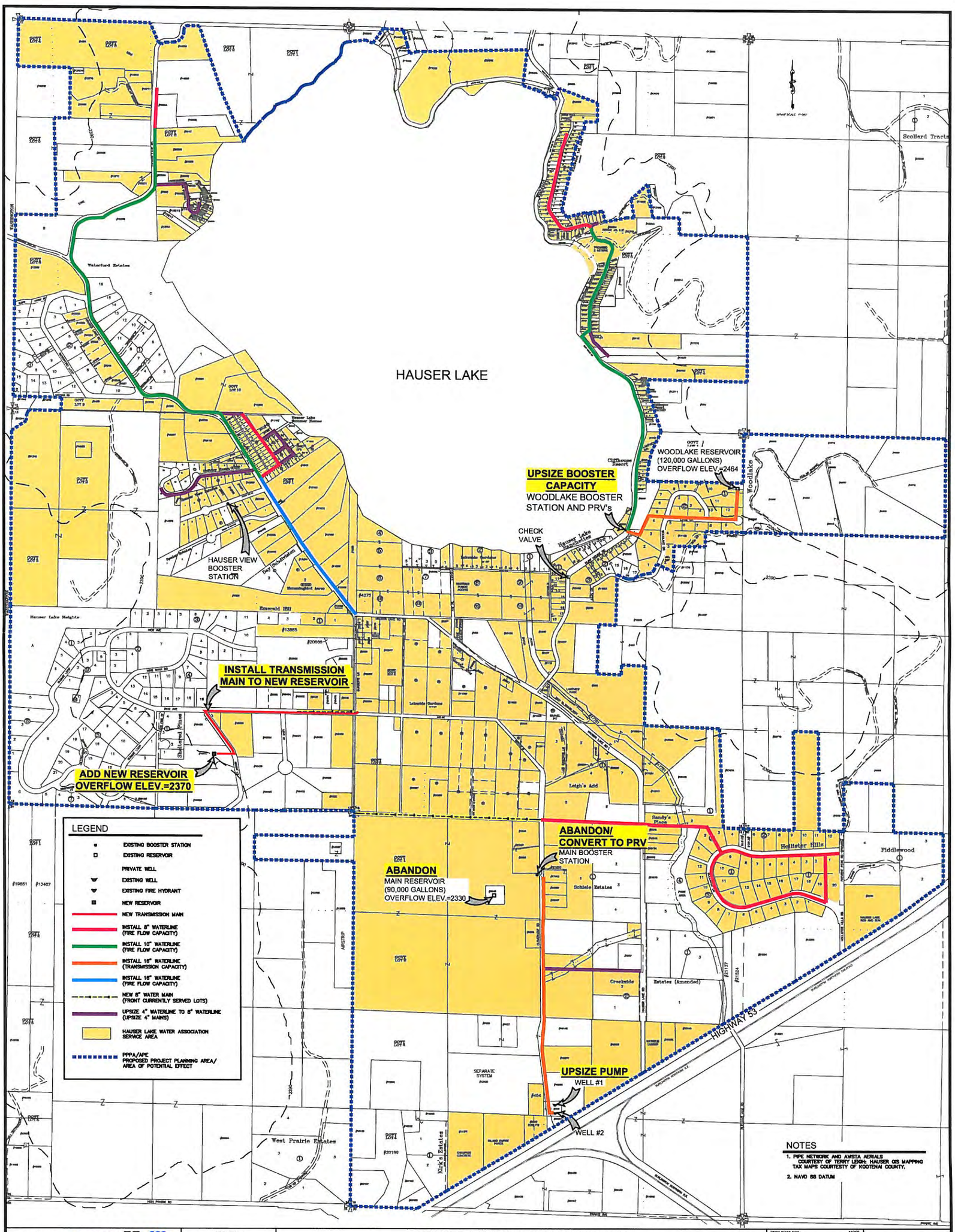
HAUSER LAKE WATER ASSOCIATION
DISTRIBUTION IMPROVEMENTS FOR SOURCE/STORAGE IMPROVEMENT
OPTION 4

PROJECT NO	41016
DESIGNED BY	KJO
DRAWN BY	JAL
DWG NAME	41016PLD2.DWG
DATE	01-07-11

FIGURE 4.6

\\Was-01\cadd\CAD Projects\41016



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HAUSER LAKE WATER ASSOCIATION
PROPOSED SOURCE, STORAGE, DISTRIBUTION IMPROVEMENTS
(OPTION 3/3A – SELECTED ALERNATIVE)

PROJECT NO.:	41016
DESIGNED BY:	KJO
DRAWN BY:	JAL
DWG NAME:	41016PL02.DWG
DATE:	04-26-12

Appendix B

Engineer's Opinion of Preliminary Project Costs for Alternatives

Hauser Lake Water Association

Option 1 - Existing Configuration and Woodlake Reservoir Expansion to Meet Fire Flow Requirements

ENGINEER's OPINION OF PRELIMINARY PROJECT COSTS

Prepared By:	Karen J. Osterdock	Date:	December 15, 2010		
Project Manager:		Date:			
	Description	Unit	Quantity	Unit Price	Total
MODIFICATIONS TO WELLS					
	Replace Well 1 Pump (1,000 gpm at 350 feet TDH)	EA	1	$ 55,000.00	$ 55,000.00
	Electrical	LS	1	$ 25,000.00	$ 25,000.00
	Modifications to Mechanical Piping	LS	1	$ 40,000.00	$ 40,000.00
	Modifications to Existing Mechanical Piping and Building	LS	1	$ 50,000.00	$ 50,000.00
					$ 170,000.00
MODIFICATIONS TO MAIN BOOSTER STATION					
	Abandon Existing Pumps and Piping	LS	1	$ 7,000.00	$ 7,000.00
	Building Modifications/Expansion	LS	1	$ 75,000.00	$ 75,000.00
	New BoosterpaQ (1,630 gpm at 95 feet TDH)	LS	1	$ 90,000.00	$ 90,000.00
	Electrical	LS	1	$ 110,000.00	$ 110,000.00
	Generator	LS	1	$ 75,000.00	$ 75,000.00
	Mechanical Piping	LS	1	$ 45,000.00	$ 45,000.00
					$ 402,000.00
STORAGE IMPROVMENTS					
	Expand Main Reservoir (144,000 gallons, ground level concrete)	GAL	144000	$ 2.25	$ 324,000.00
	Circulation Improvements to Existing Woodlake Reservoir	LS	1	$ 50,000.00	$ 50,000.00
	Expand Woodlake Reservoir (95,000 gallons, ground level concrete)	GAL	95000	$ 2.00	$ 190,000.00
					$ 564,000.00
MODIFICATIONS TO WOODLAKE BOOSTER STATION					
	New Pump (90 gpm at 75 feet TDH)	EA	1	$ 20,000.00	$ 20,000.00
	Electrical	LS	1	$ 2,500.00	$ 2,500.00
	Modifications to Mechanical Piping	LS	1	$ 5,000.00	$ 5,000.00
					$ 27,500.00
				Subtotal =	$1,163,500.00
				10% Contingency =	$116,400.00
				Total Estimated Construction =	$1,279,900.00
	Design Phase Engineering	LS	1	$ 175,000.00	$ 175,000.00
	Bid Phase Engineering	LS	1	$ 17,500.00	$ 17,500.00
	Construction Phase Engineering	LS	1	$ 116,000.00	$ 116,000.00
				Total Estimated Project =	**$1,588,400.00**

Hauser Lake Water Association

Option 1A - Existing Configuration and Woodlake Booster Station Expansion to Meet Fire Flow Requirements

ENGINEER's OPINION OF PRELIMINARY PROJECT COSTS

Prepared By: Karen J. Osterdock | Date: December 15, 2010
Project Manager: | Date:

	Description	Unit	Quantity	Unit Price	Total
MODIFICATIONS TO WELLS					
	Replace Well 1 Pump (1,000 gpm at 350 feet TDH)	EA	1	$ 55,000.00	$ 55,000.00
	Electrical	LS	1	$ 25,000.00	$ 25,000.00
	Modifications to Mechanical Piping	LS	1	$ 40,000.00	$ 40,000.00
	CMU Building Extension	LS	1	$ 50,000.00	$ 50,000.00
					$ 170,000.00
MODIFICATIONS TO MAIN BOOSTER STATION					
	Abandon Existing Pumps and Piping	LS	1	$ 7,000.00	$ 7,000.00
	Building Modifications/Expansion	LS	1	$ 75,000.00	$ 75,000.00
	New BoosterpaQ (1,630 gpm at 95 feet TDH)	LS	1	$ 90,000.00	$ 90,000.00
	Electrical	LS	1	$ 110,000.00	$ 110,000.00
	Generator	LS	1	$ 75,000.00	$ 75,000.00
	Mechanical Piping	LS	1	$ 45,000.00	$ 45,000.00
					$ 402,000.00
STORAGE IMPROVMENTS					
	Expand Main Reservoir (144,000 gallons, ground level concrete)	GAL	144000	$ 2.25	$ 324,000.00
	Circulation Improvements to Existing Woodlake Reservoir	LS	1	$ 50,000.00	$ 50,000.00
					$ 374,000.00
MODIFICATIONS TO WOODLAKE BOOSTER STATION					
	New Pump (800 gpm at 75 feet TDH)	EA	2	$ 43,000.00	$ 86,000.00
	Electrical	LS	1	$ 5,500.00	$ 5,500.00
	Modifications to Mechanical Piping	LS	1	$ 10,000.00	$ 10,000.00
					$ 101,500.00
				Subtotal =	$1,047,500.00
				10% Contingency =	$104,800.00
				Total Estimated Construction =	$1,152,300.00
	Design Phase Engineering	LS	1	$ 157,000.00	$ 157,000.00
	Bid Phase Engineering	LS	1	$ 14,000.00	$ 14,000.00
	Construction Phase Engineering	LS	1	$ 105,000.00	$ 105,000.00
				Total Estimated Project =	**$1,428,300.00**

Hauser Lake Water Association

Option 2 - New Storage Site (Adjacent Property) and Woodlake Reservoir Expansion to Meet Fire Flow Requirements

ENGINEER's OPINION OF PRELIMINARY PROJECT COSTS

Prepared By: Karen J. Osterdock Date: December 15, 2010
Project Manager: Date:

	Description	Unit	Quantity	Unit Price	Total
MODIFICATIONS TO WELLS					
	Replace Well 1 Pump (1,000 gpm at 369 feet TDH)	EA	1	$ 60,000.00	$ 60,000.00
	Electrical	LS	1	$ 25,000.00	$ 25,000.00
	Modifications to Mechanical Piping	LS	1	$ 40,000.00	$ 40,000.00
	CMU Building Extension	LS	1	$ 50,000.00	$ 50,000.00
					$ 175,000.00
MODIFICATIONS TO MAIN BOOSTER STATION					
	Abandon Existing Pumps and Piping	LS	1	$ 7,000.00	$ 7,000.00
	Building Modifications/Expansion	LS	1	$ 75,000.00	$ 75,000.00
	New BoosterpaQ (1,630 gpm at 65 feet TDH)	LS	1	$ 90,000.00	$ 90,000.00
	Electrical	LS	1	$ 110,000.00	$ 110,000.00
	Generator	LS	1	$ 75,000.00	$ 75,000.00
	Mechanical Piping	LS	1	$ 45,000.00	$ 45,000.00
					$ 402,000.00
STORAGE IMPROVMENTS					
	Abandon Existing Main Reservoir	LS	1	$ 10,000.00	$ 10,000.00
	Construct New Concrete Reservoir (234,000 gallons, ground level)	GAL	234000	$ 2.25	$ 526,500.00
	Land Acquisition	LS	1	$ 100,000.00	$ 100,000.00
	Circulation Improvments to Existing Woodlake Reservoir	LS	1	$ 50,000.00	$ 50,000.00
	Expand Woodlake Reservoir (95,000 gallons, ground level concrete)	GAL	95000	$ 2.00	$ 190,000.00
	12 Inch Transmission Main to New Reservoir	LF	4000	$ 85.00	$ 340,000.00
					$ 1,216,500.00
MODIFICATIONS TO WOODLAKE BOOSTER STATION					
	New Pump (90 gpm at 75 feet TDH)	EA	1	$ 20,000.00	$ 20,000.00
	Electrical	LS	1	$ 2,500.00	$ 2,500.00
	Modifications to Mechanical Piping	LS	1	$ 5,000.00	$ 5,000.00
					$ 27,500.00
				Subtotal =	$1,821,000.00
				10% Contingency =	$182,100.00
				Total Estimated Construction =	$2,003,100.00
	Design Phase Engineering	LS	1	$ 273,000.00	$ 273,000.00
	Bid Phase Engineering	LS	1	$ 17,500.00	$ 17,500.00
	Construction Phase Engineering	LS	1	$ 182,000.00	$ 182,000.00
				Total Estimated Project =	**$2,475,600.00**

Hauser Lake Water Association

Option 2A - New Storage Site (Adjacent Property) and Woodlake Booster Station Expansion to Meet Fire Flow Requirements

ENGINEER's OPINION OF PRELIMINARY PROJECT COSTS

Prepared By: Karen J. Osterdock Date: December 15, 2010
Project Manager: Date:

	Description	Unit	Quantity	Unit Price	Total
MODIFICATIONS TO WELLS					
	Replace Well 1 Pump (1000 gpm at 369 feet TDH)	EA	1	$ 60,000.00	$ 60,000.00
	Electrical	LS	1	$ 25,000.00	$ 25,000.00
	Modifications to Mechanical Piping	LS	1	$ 40,000.00	$ 40,000.00
	CMU Building Extension	LS	1	$ 50,000.00	$ 50,000.00
					$ 175,000.00
MODIFICATIONS TO MAIN BOOSTER STATION					
	Abandon Existing Pumps and Piping	LS	1	$ 7,000.00	$ 7,000.00
	Building Modifications/Expansion	LS	1	$ 75,000.00	$ 75,000.00
	New BoosterpaQ (1,630 gpm at 65 feet TDH)	LS	1	$ 90,000.00	$ 90,000.00
	Electrical	LS	1	$ 110,000.00	$ 110,000.00
	Generator	LS	1	$ 75,000.00	$ 75,000.00
	Mechanical Piping	LS	1	$ 45,000.00	$ 45,000.00
					$ 402,000.00
STORAGE IMPROVMENTS					
	Abandon Existing Main Reservoir	LS	1	$ 10,000.00	$ 10,000.00
	Circulation Improvements to Existing Woodlake Reservoir	LS	1	$ 50,000.00	$ 50,000.00
	Construct New Concrete Reservoir (234,000 gallons, ground level)	GAL	234000	$ 2.25	$ 526,500.00
	Land Acquisition	LS	1	$ 100,000.00	$ 100,000.00
	12 Inch Transmission Main to New Reservoir	LF	4000	$ 85.00	$ 340,000.00
					$ 1,026,500.00
MODIFICATIONS TO WOODLAKE BOOSTER STATION					
	New Pump (800 gpm at 75 feet TDH)	EA	2	$ 43,000.00	$ 86,000.00
	Electrical	LS	1	$ 5,500.00	$ 5,500.00
	Modifications to Mechanical Piping	LS	1	$ 10,000.00	$ 10,000.00
					$ 101,500.00
				Subtotal =	$1,705,000.00
				10% Contingency =	$170,500.00
				Total Estimated Construction =	$1,875,500.00
	Design Phase Engineering	LS	1	$ 256,000.00	$ 256,000.00
	Bid Phase Engineering	LS	1	$ 14,000.00	$ 14,000.00
	Construction Phase Engineering	LS	1	$ 171,000.00	$ 171,000.00
				Total Estimated Project =	**$2,316,500.00**

Hauser Lake Water Association

Option 3 - New Storage Site (Rice Road) and Woodlake Reservoir Expansion to Meet Fire Flow Requirements

ENGINEER's OPINION OF PRELIMINARY PROJECT COSTS

Prepared By: Karen J. Osterdock | Date: December 15, 2010
Project Manager: | Date:

	Description	Unit	Quantity	Unit Price	Total
MODIFICATIONS TO WELLS					
	Replace Well 1 Pump (1000 gpm at 415 feet TDH)	EA	1	$ 65,000.00	$ 65,000.00
	Electrical	LS	1	$ 26,000.00	$ 26,000.00
	Modifications to Mechanical Piping	LS	1	$ 40,000.00	$ 40,000.00
	CMU Building Extension	LS	1	$ 50,000.00	$ 50,000.00
					$ 181,000.00
CONVERT MAIN BOOSTER STATION TO PRV STATION					
	Abandon Existing Pumps and Piping	LS	1	$ 5,000.00	$ 5,000.00
	PRV Assembly	EA	2	$ 12,000.00	$ 24,000.00
	Mechanical Piping	LS	1	$ 8,000.00	$ 8,000.00
					$ 37,000.00
STORAGE IMPROVMENTS					
	Abandon Existing Main Reservoir	LS	1	$ 10,000.00	$ 10,000.00
	Construct New Steel Reservoir (234,000 gallons, 20 feet tall)	GAL	234000	$ 2.00	$ 468,000.00
	Land Acquisition	LS	1	$ 100,000.00	$ 100,000.00
	Circulation Improvments to Existing Woodlake Reservoir	LS	1	$ 50,000.00	$ 50,000.00
	Expand Woodlake Reservoir (95,000 gallons, ground level concrete)	GAL	95000	$ 2.00	$ 190,000.00
	12 Inch Transmission Main to New Reservoir	LF	3000	$ 85.00	$ 255,000.00
					$ 1,073,000.00
MODIFICATIONS TO WOODLAKE BOOSTER STATION					
	New Pump (90 gpm at 75 feet TDH)	EA	1	$ 20,000.00	$ 20,000.00
	Electrical	LS	1	$ 2,500.00	$ 2,500.00
	Modifications to Mechanical Piping	LS	1	$ 5,000.00	$ 5,000.00
					$ 27,500.00
				Subtotal =	$1,318,500.00
				10% Contingency =	$131,900.00
				Total Estimated Construction =	$1,450,400.00
ENGINEERING					
	Design Phase Engineering	LS	1	$ 198,000.00	$ 198,000.00
	Bid Phase Engineering	LS	1	$ 17,500.00	$ 17,500.00
	Construction Phase Engineering	LS	1	$ 132,000.00	$ 132,000.00
				Total Estimated Project =	**$1,797,900.00**

Hauser Lake Water Association

Option 3A - New Storage Site (Rice Road Overflow 2380 feet) and Woodlake Booster Station Expansion to Meet Fire Flow Requirements

ENGINEER's OPINION OF PRELIMINARY PROJECT COSTS

Prepared By:	Karen J. Osterdock	Date:	December 15, 2010		
Project Manager:		Date:			
	Description	Unit	Quantity	Unit Price	Total
MODIFICATIONS TO WELLS					
	Replace Well 1 Pump (1,000 gpm at 430 feet TDH)	EA	1	$ 65,000.00	$ 65,000.00
	Electrical	LS	1	$ 26,000.00	$ 26,000.00
	Modifications to Mechanical Piping	LS	1	$ 40,000.00	$ 40,000.00
	CMU Building Extension	LS	1	$ 50,000.00	$ 50,000.00
					$ 181,000.00
CONVERT MAIN BOOSTER STATION TO PRV STATION					
	Abandon Existing Pumps and Piping	LS	1	$ 5,000.00	$ 5,000.00
	PRV Assembly	EA	2	$ 12,000.00	$ 24,000.00
	Mechanical Piping	LS	1	$ 8,000.00	$ 8,000.00
					$ 37,000.00
STORAGE IMPROVMENTS					
	Abandon Existing Main Reservoir	LS	1	$ 10,000.00	$ 10,000.00
	Circulation Improvements to Existing Woodlake Reservoir	LS	1	$ 50,000.00	$ 50,000.00
	Construct New Steel Reservoir (234,000 gallons, 20 feet tall))	GAL	234000	$ 2.00	$ 468,000.00
	Land Acquisition	LS	1	$ 100,000.00	$ 100,000.00
	12 Inch Transmission Main to New Reservoir	LF	3000	$ 85.00	$ 255,000.00
					$ 883,000.00
MODIFICATIONS TO WOODLAKE BOOSTER STATION					
	Add Pump (800 gpm at 75 feet TDH)	EA	2	$ 43,000.00	$ 86,000.00
	Electrical	LS	1	$ 5,500.00	$ 5,500.00
	Modifications to Mechanical Piping	LS	1	$ 10,000.00	$ 10,000.00
					$ 101,500.00
				Subtotal =	$1,202,500.00
				10% Contingency =	$120,300.00
				Total Estimated Construction =	$1,322,800.00
ENGINEERING					
	Design Phase Engineering	LS	1	$ 180,000.00	$ 180,000.00
	Bid Phase Engineering	LS	1	$ 14,000.00	$ 14,000.00
	Construction Phase Engineering	LS	1	$ 120,000.00	$ 120,000.00
				Total Estimated Project =	**$1,636,800.00**

Hauser Lake Water Association

Option 3A - New Storage Site (Rice Road Overflow 2380 feet) and Woodlake Booster Station Expansion to Meet Fire Flow Requirements

REVISED ENGINEER's OPINION OF PRELIMINARY PROJECT COSTS

Prepared By:	Karen J. Osterdock	Date:	November 3, 2011		
Project Manager:		Date:			
	Description	Unit	Quantity	Unit Price	Total
MODIFICATIONS TO WELLS					
	Replace Well 1 Pump (1,000 gpm at 430 feet TDH)	EA	1	$ 65,000.00	$ 65,000.00
	Electrical	LS	1	$ 26,000.00	$ 26,000.00
	Modifications to Mechanical Piping	LS	1	$ 40,000.00	$ 40,000.00
	CMU Building Extension	LS	1	$ 50,000.00	$ 50,000.00
					$ 181,000.00
CONVERT MAIN BOOSTER STATION TO PRV STATION					
	Abandon Existing Pumps and Piping	LS	1	$ 5,000.00	$ 5,000.00
	PRV Assembly	EA	2	$ 12,000.00	$ 24,000.00
	Mechanical Piping	LS	1	$ 8,000.00	$ 8,000.00
					$ 37,000.00
STORAGE IMPROVMENTS					
	Abandon Existing Main Reservoir	LS	1	$ 10,000.00	$ 10,000.00
	Circulation Improvements to Existing Woodlake Reservoir	LS	1	$ 50,000.00	$ 50,000.00
	Construct New Steel Reservoir (234,000 gallons, 20 feet tall))	GAL	234000	$ 2.00	$ 468,000.00
	Land Acquisition	LS	1	$ 100,000.00	$ 100,000.00
	12 Inch Transmission Main to New Reservoir	LF	3000	$ 85.00	$ 255,000.00
					$ 883,000.00
MODIFICATIONS TO WOODLAKE BOOSTER STATION					
	Add Pump (800 gpm at 75 feet TDH)	EA	2	$ 43,000.00	$ 86,000.00
	Electrical	LS	1	$ 5,500.00	$ 5,500.00
	Modifications to Mechanical Piping	LS	1	$ 10,000.00	$ 10,000.00
					$ 101,500.00
	Davis Bacon Wages	LS	1	$ 49,000.00	$ 49,000.00
				Subtotal =	$1,251,500.00
				10% Contingency =	$125,200.00
				Total Estimated Construction =	$1,376,700.00
ENGINEERING					
	Design Phase Engineering	LS	1	$ 188,000.00	$ 188,000.00
	Bid Phase Engineering	LS	1	$ 17,500.00	$ 17,500.00
	Construction Phase Engineering	LS	1	$ 125,000.00	$ 125,000.00
	Administration	LS	1	$ 14,000.00	$ 14,000.00
	Legal	LS	1	$ 7,000.00	$ 7,000.00
	Inflation	LS	1	$ 105,000.00	$ 105,000.00
	Project Contingency	LS	1	$ 69,000.00	$ 69,000.00
	Interim Interest	LS	1	$ 72,500.00	$ 72,500.00
				Total Estimated Project =	**$1,974,700.00**

Hauser Lake Water Association

Option 4 - Expansion at Woodlake (Overflow 2464 feet)

ENGINEER's OPINION OF PRELIMINARY PROJECT COSTS

Prepared By: Karen J. Osterdock Date: December 15, 2010
Project Manager: . Date:

Description	Unit	Quantity	Unit Price	Total
MODIFICATIONS TO WELL 1				
Replace Pump (1,000 gpm at 506 feet TDH)	EA	1	$ 70,000.00	$ 70,000.00
Electrical	LS	1	$ 26,000.00	$ 26,000.00
Modifications to Mechanical Piping	LS	1	$ 40,000.00	$ 40,000.00
CMU Building Extension	LS	1	$ 50,000.00	$ 50,000.00
				$ 186,000.00
MODIFICATIONS TO WELL 2				
Replace Pump (1,200 gpm at 506 feet TDH)	EA	1	$ 80,000.00	$ 80,000.00
Electrical	LS	1	$ 27,000.00	$ 27,000.00
Modifications to Mechanical Piping	LS	1	$ 40,000.00	$ 40,000.00
CMU Building Extension	LS	1	$ 50,000.00	$ 50,000.00
				$ 197,000.00
CONVERT MAIN BOOSTER STATION TO PRV STATION				
Abandon Existing Pumps and Piping	LS	1	$ 5,000.00	$ 5,000.00
PRV Assembly	EA	2	$ 12,000.00	$ 24,000.00
Mechanical Piping	LS	1	$ 8,000.00	$ 8,000.00
				$ 37,000.00
CONVERT WOODLAKE BOOSTER STATION TO PRV STATION				
Abandon Existing Pumps	LS	1	$ 5,000.00	$ 5,000.00
Upsize Middle PRV Assembly	LS	1	$ 12,000.00	$ 12,000.00
Upsize Mechanical Piping	LS	1	$ 5,000.00	$ 5,000.00
				$ 22,000.00
STORAGE IMPROVEMENTS				
Abandon Existing Main Reservoir	LS	1	$ 10,000.00	$ 10,000.00
Circulation Improvements to Existing Woodlake Reservoir	LS	1	$ 50,000.00	$ 50,000.00
Expand Woodlake Reservoir (180,000 gallons, ground level concrete)	GAL	180000	$ 2.25	$ 405,000.00
				$ 465,000.00
TRANSMISSION MAIN				
16 Inch Transmission Main	LF	6000	$ 90.00	$ 540,000.00
			Subtotal =	$1,447,000.00
			10% Contingency =	$144,700.00
			Total Estimated Construction =	$1,591,700.00
ENGINEERING				
Design Phase Engineering	LS	1	$217,000.00	$ 217,000.00
Bid Phase Engineering	LS	1	$ 21,000.00	$ 21,000.00
Construction Phase Engineering	LS	1	$145,000.00	$ 145,000.00
			Total Estimated Project =	**$ 1,974,700.00**

Hauser Lake Water Association
Distribution Improvements For Option 3
ENGINEER's OPINION OF PRELIMINARY PROJECT COSTS

Prepared By: Karen J. Osterdock — Date: December 15, 2010
Project Manager: — Date:

Description	Unit	Quantity	Unit Price	Total
TRANSMISSION CAPACITY				
Replace Existing 12 Inch Line (Wells to Main Booster Station) with 16 Inch Line	LF	3300	$ 90.00	$ 297,000.00
				$ 297,000.00
FIRE FLOW CAPACITY				
Replace Existing 6, 4 and 2 Inch Lines (Hollister Hills) with 8 Inch Lines	LF	7700	$ 75.00	$ 577,500.00
Replace Existing 4 Inch Lines (Main St. and 2nd St.) with 8 Inch Line	LF	1200	$ 75.00	$ 90,000.00
Replace Existing 6 inch Line (Woodland Beach Dr.) with 10 Inch Line	LF	1750	$ 80.00	$ 140,000.00
Replace Existing 6 Inch Line (Wildwood Point) with 8 Inch Line	LF	1650	$ 75.00	$ 123,750.00
Replace Existing 8 Inch Line (E Hauser Lake Rd) with 10 Inch Line	LF	3000	$ 80.00	$ 240,000.00
Replace Existing 8 Inch Line (W Hauser Lake Rd) with 16 Inch Line	LF	2050	$ 90.00	$ 184,500.00
Replace Existing 8 Inch and 6 Inch Lines (W Hauser Lake Rd) with 10 Inch Line	LF	6800	$ 80.00	$ 544,000.00
Replace Existing 6 Inch Line (W Hauser Lake Rd) with 8 Inch Line	LF	650	$ 75.00	$ 48,750.00
				$ 931,250.00
FRONT CURRENTLY SERVED LOTS				
8 Inch Line on Kathleen	LF	2600	$ 75.00	$ 195,000.00
8 Inch Line on Rice Road	LF	800	$ 75.00	$ 60,000.00
				$ 255,000.00
UPSIZE 4 INCH MAINS				
Replace Existing 4 Inch Line (Between Cloverleaf and E Hauser Lake Rd) with 8 Inch Line	LF	1350	$ 75.00	$ 101,250.00
Replace Existing 4 Inch Line (Holiday Way) with 8 Inch Line	LF	1450	$ 75.00	$ 108,750.00
Replace Existing 4 Inch Lines (City of Hauser) with 8 Inch Line	LF	1400	$ 75.00	$ 105,000.00
Replace Existing 4 Inch Line (Snap Dragon/Paddlewheel) with 8 Inch Line	LF	1000	$ 75.00	$ 75,000.00
Replace Existing 4 Inch Line (south of Woodland Beach Dr.) with 8 Inch Line	LF	500	$ 75.00	$ 37,500.00
Replace Existing 4 Inch Line (Sala Ln.) with 8 Inch Line	LF	200	$ 75.00	$ 15,000.00
				$ 442,500.00
			Subtotal =	$2,943,000.00
			10% Contingency =	$294,300.00
			Total Estimated Construction =	$3,237,300.00
ENGINEERING				
Design Phase Engineering	LS	1	$ 441,000.00	$ 441,000.00
Bid Phase Engineering	LS	1	$ 59,500.00	$ 59,500.00
Construction Phase Engineering	LS	1	$ 294,000.00	$ 294,000.00
			Total Estimated Project =	**$ 4,031,800.00**

Hauser Lake Water Association
Distribution Improvements For Option 4
ENGINEER's OPINION OF PRELIMINARY PROJECT COSTS

Prepared By: Karen J. Osterdock | Date: December 15, 2010
Project Manager: | Date:

Description	Unit	Quantity	Unit Price	Total
TRANSMISSION CAPACITY				
Replace Existing 12 Inch Line (Wells to Main Booster Station) with 16 Inch Line	LF	3300	$ 90.00	$ 297,000.00
Replace Existing 8 Inch Line (Woodlake Booster Station to Woodlake Reservoir) with 16 Inch Line	LF	2500	$ 90.00	$ 225,000.00
				$ 522,000.00
FIRE FLOW CAPACITY				
Replace Existing 6, 4 and 2 Inch Lines (Hollister Hills) with 8 Inch Lines	LF	6300	$ 75.00	$ 472,500.00
Replace Existing 4 Inch Lines (Main St. and 2nd St.) with 8 Inch Line	LF	1200	$ 75.00	$ 90,000.00
Replace Existing 6 Inch Line (Woodland Beach Dr. and Wildwood Point) with 8 Inch Line	LF	3400	$ 75.00	$ 255,000.00
Replace Existing 8 Inch and 6 Inch Lines (W Hauser Lake Rd) with 10 Inch Line	LF	8200	$ 80.00	$ 656,000.00
Replace Existing 6 Inch Line (W Hauser Lake Rd) with 8 Inch Line	LF	700	$ 75.00	$ 52,500.00
				$ 817,500.00
FRONT CURRENTLY SERVED LOTS				
8 Inch Line on Kathleen	LF	2600	$ 75.00	$ 195,000.00
8 Inch Line on Rice Road	LF	800	$ 75.00	$ 60,000.00
				$ 255,000.00
UPSIZE 4 INCH MAINS				
Replace Existing 4 Inch Line (Between Cloverleaf and E Hauser Lake Rd) with 8 Inch Line	LF	1350	$ 75.00	$ 101,250.00
Replace Existing 4 Inch Line (Holiday Way) with 8 Inch Line	LF	1450	$ 75.00	$ 108,750.00
Replace Existing 4 Inch Lines (City of Hauser) with 8 Inch Line	LF	1400	$ 75.00	$ 105,000.00
Replace Existing 4 Inch Line (Snap Dragon/Paddlewheel) with 8 Inch Line	LF	1000	$ 75.00	$ 75,000.00
Replace Existing 4 Inch Line (south of Woodland Beach Dr.) with 8 Inch Line	LF	500	$ 75.00	$ 37,500.00
Replace Existing 4 Inch Line (Sala Ln.) with 8 Inch Line	LF	200	$ 75.00	$ 15,000.00
				$ 442,500.00
			Subtotal =	$2,745,500.00
			10% Contingency =	$274,550.00
			Total Estimated Construction =	$3,020,050.00
ENGINEERING				
Design Phase Engineering	LS	1	$ 412,000.00	$ 412,000.00
Bid Phase Engineering	LS	1	$ 52,500.00	$ 52,500.00
Construction Phase Engineering	LS	1	$ 275,000.00	$ 275,000.00
			Total Estimated Project =	**$ 3,759,550.00**

Appendix C

Environmental Impact Comparison Table for Alternatives

	Source/Storage Improvements				
Environmental Criteria	**Option 1/1A**	**Option 2/2A**	**Option 3/3A**	**Option 4**	**No Action Alternative**
Climate and Physical Aspects (Topography, Geology, and Soils)	Excavation for Reservoir Expansion, Long-Term Impacts Minimal	Excavation for New Reservoir, Long-Term Impacts Minimal	Excavation for New Reservoir, Long-Term Impacts Minimal	Excavation for Reservoir Expansion, Long-Term Impacts Minimal	No Impact
Population, Economic, and Social Profile	Increased User Rates; Allow for Growth, Improved Fire Flow and Service	Increased User Rates; Allow for Growth, Improved Fire Flow and Service	Increased User Rates; Allow for Growth, Improved Fire Flow and Service	Increased User Rates; Allow for Growth, Improved Fire Flow and Service	No Potential for Growth or Expansion
Land Use	No Impact	Permit Required for Land Use, No Impact	Permit Required for Land Use, No Impact	No Impact	No Impact
Floodplain Development	No Impact	No Impact	No Impact	No Impact	No Impact
Wetlands and Water Quality	No Impact	No Impact	No Impact	No Impact	No Impact
Wild and Scenic Rivers	No Impact	No Impact	No Impact	No Impact	No Impact
Cultural Resources	No Adverse Impact	No Adverse Impact	No Adverse Impact	No Adverse Impact	No Impact
Flora and Fauna	Site Disturbance, Short-Term Impact	Site Disturbance, Short-Term Impact	Site Disturbance, Short-Term Impact	Site Disturbance, Short-Term Impact	No Impact
Recreation and Open Space	No Impact	No Impact	No Impact	No Impact	No Impact
Agricultural Lands	No Impact	No Impact	No Impact	No Impact	No Impact
Air Quality	Construction Emissions, Short-Term Impact	Construction Emissions, Short-Term Impact	Construction Emissions, Short-Term Impact	Construction Emissions, Short-Term Impact	No Impact

	Source/Storage Improvements				
Environmental Criteria	**Option 1/1A**	**Option 2/2A**	**Option 3/3A**	**Option 4**	**No Action Alternative**
Energy	Improved Efficiency, More Pumping (Negligible Effect)	Improved Efficiency, More Pumping (Negligible Effect)	Improved Efficiency, More Pumping (Negligible Effect)	Improved Efficiency, More Pumping (Negligible Effect)	No Impact
Public Health	Improve Service, Reliability, and Improve Fire Flow	Improve Service, Reliability, and Improve Fire Flow	Improve Service, Reliability, and Improve Fire Flow	Improve Service, Reliability, and Improve Fire Flow	No Impact
Option Cost	$1.588 million/ $1.428 million	$2.476 million/ $2.317 million	$1.829 million/ $1.637 million	$1.975 million	$0

	Distribution Improvements		
Environmental Criteria	**Distribution Improvements for Option 3**	**Distribution Improvements for Option 4**	**No Action Alternative**
Climate and Physical Aspects (Topography, Geology, and Soils)	Excavation for Piping, Short-Term Impacts	Excavation for Piping, Short-Term Impacts	No Impact
Population, Economic, and Social Profile	Increased User Rates; Allow for Growth, Improved Fire Flow and Service	Increased User Rates; Allow for Growth, Improved Fire Flow and Service	No Potential for Growth or Expansion
Land Use	No Impact	No Impact	No Impact
Floodplain Development	No Adverse Impact	No Adverse Impact	No Impact
Wetlands and Water Quality	No Adverse Impact	No Adverse Impact	No Impact
Wild and Scenic Rivers	No Impact	No Impact	No Impact
Cultural Resources	No Adverse Impact	No Adverse Impact	No Impact
Flora and Fauna	Site Disturbance, Short-Term Impact	Site Disturbance, Short-Term Impact	No Impact
Recreation and Open Space	No Impact	No Impact	No Impact
Agricultural Lands	No Adverse Impact	No Adverse Impact	No Impact
Air Quality	Construction Emissions, Short-Term Impact	Construction Emissions, Short-Term Impact	No Impact
Energy	No Impact	No Impact	No Impact
Public Health	Decreased Potential for Contamination	Decreased Potential for Contamination	No Impact
Option Cost	$4.032 million	$3.760 million	$0

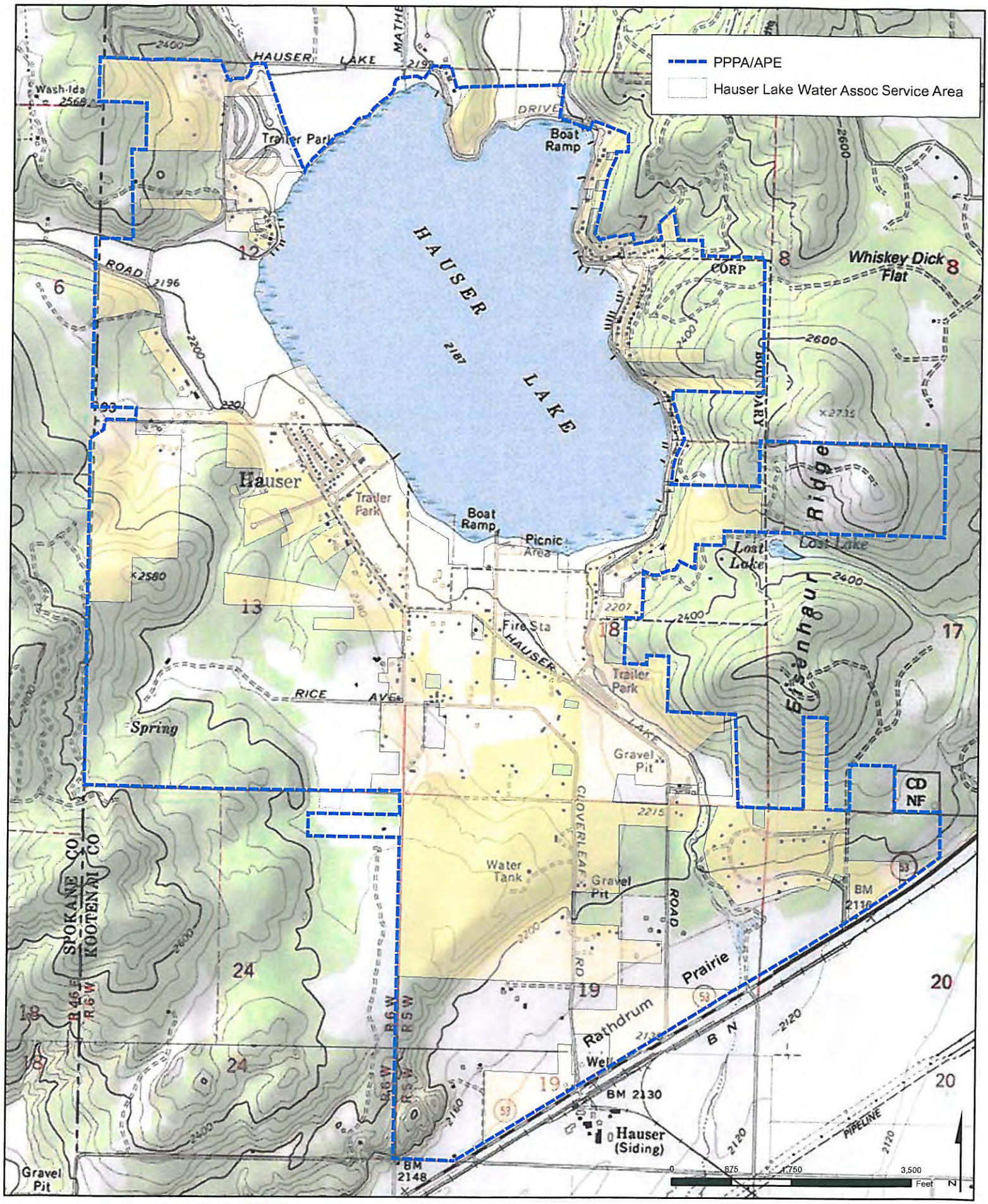
Appendix D

Physical Aspect Information

Topography Map

Surficial Geology Map

Soil Survey Information



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Hauser Lake Water Association

Topography

Sources:
INSIDE Idaho, University of Idaho
Hauser Lake Water
ArcGIS Online
Kootenai County GIS Department

PROJECT NO 41018
DRAWN BY ..... AW
FILENAME ..... Hauser_Water_FacilitiesPlan_02
DATE 02/28/12

IDAHO GEOLOGICAL SURVEY
MOSCOW-BOISE-POCATELLO

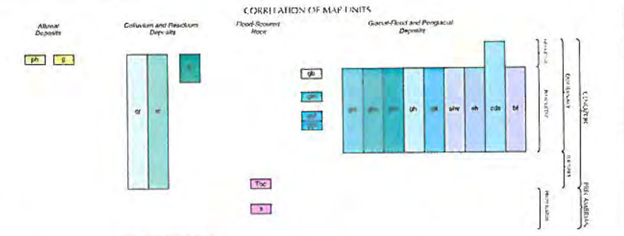
SURFICIAL GEOLOGY MAP 5
BRECKENRIDGE AND OTHBERG

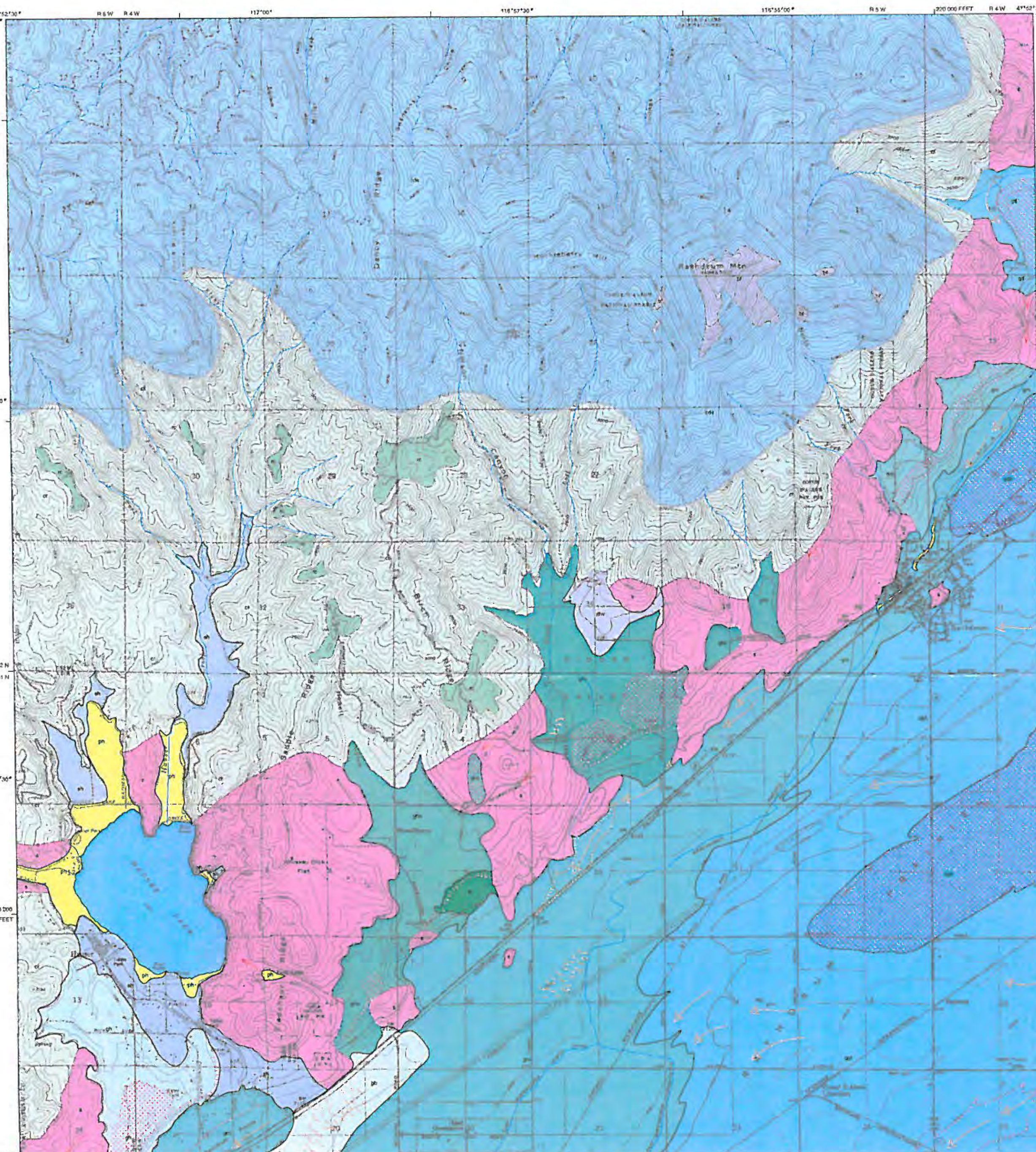
Surficial Geologic Map of the Rathdrum Quadrangle and Part of the Newman Lake Quadrangle, Kootenai County, Idaho

Roy M. Breckenridge and Kurt L. Othberg

1998

CORRELATION OF MAP UNITS





Base map from the USGS Digital Raster Graphics of the Newman Lake and the Post Falls quadrangles.

Control by USGS and USC&GS.

Topography by photogrammetric methods from aerial photographs taken 1956. Rathdrum, 1972 (Newman Lake). Field checked 1961 (Rathdrum), 1973 (Newman Lake).

Polyconic projection. 1927 North American datum. 10,000-foot grid based on Idaho Coordinate system, west zone.

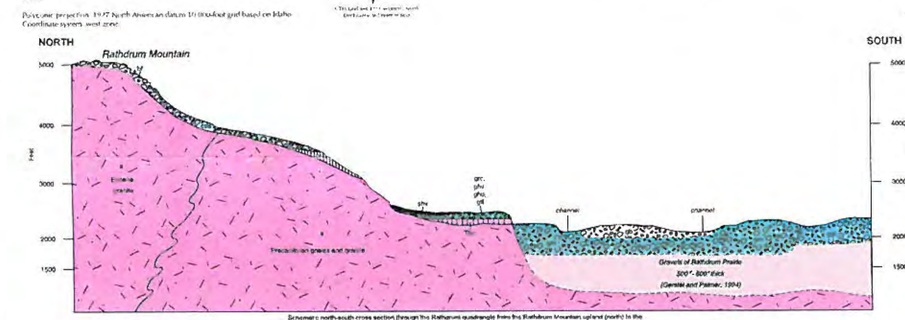
SCALE 1:24,000

Field work conducted 1996-1997.

Field work and map preparation funded in part by U.S. Geological Survey's STATEMAP program.

Reviewed by Wendy J. Gerstel, Washington State Division of Geology and Earth Resources.

Digital cartography by Jane S. Freed and Loudon R. Stanford at the Idaho Geological Survey's Digital Mapping and Information Lab.



Schematic north-south cross section through the Rathdrum quadrangle from the Rathdrum Mountain upland (north) to the Rathdrum Prairie (south) demonstrates the stratigraphic and topographic relationships of surficial geologic units. Not to scale.

INDEX TO QUADRANGLES AND ADJACENT MAPPING

SGM-6
1. Newman Lake
2. Rathdrum

SGM-5
1. Liberty Lake
2. Post Falls

INTRODUCTION

This map product addresses the increasing demand for geological information in urban areas. The area covered by the map is experiencing the most rapid growth in Idaho. The geologic mapping was funded in part by STATEMAP, a national cooperative program of the U.S. Geological Survey with the state geological surveys.

The map represents the geology of the materials and soils exposed near the earth's surface. The thickness of these deposits varies from a few feet in the upland areas to hundreds of feet in the Rathdrum Valley. The map is useful for determining the type and characteristics of the materials found at the surface and in the shallow subsurface by agricultural activities, building excavations, construction material excavations, ditches, and well holes. The information can be used by government, private industry and the public for planning, development, and resource characterization. In particular, the map provides new information about the Rathdrum Aquifer, the sole source water supply for over 200,000 people in Idaho and Washington. The map can be used as a guide for site locations but is not intended as a substitute for a detailed site-specific geotechnical evaluation.

Most users are more familiar with traditional geologic maps that show bedrock. Surficial maps show units with more diverse characteristics than rock type and lithology. Most surficial deposits are geologically young, Quaternary in age, and unconsolidated. The mapping criteria used here to subdivide the Quaternary units are based on their physical characteristics and the boundaries between them (allostratigraphy). In most places the boundaries between these units are manifested in morphologic features.

DESCRIPTION OF MAP UNITS

LACUSTRINE AND ALLUVIAL DEPOSITS

g **Alluvial gravels (Holocene)**—Sandy gravels and sands. Mostly consists of reworked Pleistocene outwash and flood deposits along Rathdrum Creek.

ph **Lake deposits (Holocene)**—Sandy silts and peat deposits in modern Hauser Lake and Lost Lake basin.

COLLUVIUM AND RESIDUUM

cr **Colluvium and residuum of intermediate depth (Quaternary and Tertiary)**—Colluvium is composed of gravelly silty sand. The coarseness of the gravel typically increases with depth. Colluvium is formed by Holocene slope movements and predominates over residuum, which is mostly a sandy silt saprolite, or grus, that grades with depth into granite and gneiss. Colluvium mostly occurs on steeper slopes typically lower than 3,000 feet in elevation. Residuum is thickest on more gentle slopes. Most surfaces have a 3- to 6-foot mantle of loess and volcanic ash with weakly developed, Holocene soil horizons (Weisel, 1981). A clayey soil horizon typically occurs within 1 to 2 feet below the loess (Weisel, 1981) on gentle, stable slopes, but may be eroded from steeper slopes. Slopes are variable, and the steepest ones are typically located where stream incision has cut deeply into the regolith. Locally, there may be slack-water deposits of Lake Missoula Floods that inundated the Howelltown, Hidden Valley, and Hauser Lake basins to an elevation of 2,600 feet.

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ls **Landslide deposits (Holocene and Pleistocene)**—Landslide deposits of variable age but mostly post-Lake Missoula Floods. Along the margin of the Rathdrum Prairie, they may represent failure of Latah Formation beneath Columbia River basalt flow. However, in the mapped area no basalts are exposed at the surface.

GLACIAL-FLOOD AND PERIGLACIAL DEPOSITS

Gravels of Rathdrum Prairie

The gravel deposits of the Rathdrum Prairie are the result of repeated catastrophic flood releases from Pleistocene glacial Lake Missoula that ended about 12,000 years ago. The map area is about 40 miles downstream from the Clark Fork ice dam and 18 miles from the end of Lake Pend Oreille where most of the flood waters were channeled. As much as 500 cubic miles of water was released during a large flood. Within the Rathdrum Prairie, the proximal deposits consist mostly of boulder gravels with interbedded sands emplaced by high flow regimes. Crude bedding and clast-supported boxwork textures are common. Early geologists in the region interpreted the valley gravels as glacial deposits. The actual limits of the Pleistocene advances of the Purcell Trench lobe are unknown due to catastrophic floods sweeping the area. Today's understanding of the repeated ice dam failures has led most researchers to consider the gravels as flood, not glacial, in origin. Tributary valleys along the sides of the Rathdrum Prairie are filled with more finely bedded flood deposits of sands and gravel. Early geologic reports attributed the tributary valley fills and associated lakes to damming by lateral moraines or kame terraces. We now know they are giant eddy bars. The gravels are irregularly mantled with loess, volcanic ash, and a component of silt from the Lake Missoula beds. They are also sporadically cemented with calcium carbonate in varying stages of development from only rinds on the bottom of clasts to a near complete matrix filling most of the pore space (Breckenridge and others, 1997b).

Proximal Deposits on the Floor of Rathdrum Prairie

gb **Gravel of Beck Road (Pleistocene)**—Flood gravels graded to the lowest valley-filling episode of flooding continuous with the Spokane Valley, about 2,100 feet at the Idaho-Washington state line. The gravels on lack the most developed incision representing a large abandoned river channel meandering eastward into Washington (Gerstel and Palmer, 1994). Two separate sets of thick-bedded foresets are exposed in deep gravel pits. Thickness exceeds 80 feet.

gm **Gravel of McGuire (Pleistocene)**—Sandy flood gravels graded to an intermediate level of 2,140 feet near Post Falls. Though extensive, the gravel unit appears to be characterized by incision and scour unconformities; the surface is marked by channel erosion and lag deposits.

Gravel of Green Ferry (Pleistocene)—Coarse flood gravels. Consists of an extensive sheet of flood deposits in the quadrangle. Has poor sorting and variation in bedding, graded to about 2,200 feet at Post Falls. Probably represents the last episode of major flood events. Thickness in excess of 100 feet.

gff **Gravel of Green Ferry, fan facies (Pleistocene)**—Poorly sorted, sandy flood gravels with channel cut and fill structures. The deposits form a large coalescing fan complex characterized by scour and fill features and concentrations of lag boulders, dissected by waning phases of flooding and smaller later flood events. The depositional facies of the fan tend to take the form of lobes in the fan complex. Thickness 10 to 80 feet.

gfb **Gravel of Green Ferry, bar facies (Pleistocene)**—Bouldery flood gravels channel bar facies shown by stippled pattern. Coarse, poorly sorted imbricate flood gravels with large-scale foreset bedding. Forms a large channel bar with well-developed current ripples at the surface. Thickness up to 40 feet.

Distal Deposits Along Valley Sides and Tributaries

gh **Gravel of Hauser (Pleistocene)**—Sandy flood gravels on the valley side at mouths of tributary drainages. These deposits were eddy bars at the mouths of the tributary valleys. Lower energy eddy flows deposit finer facies behind the main bar form. Thickness up to 120 feet.

ghw **Gravel of Howelltown (Pleistocene)**—Sandy flood gravels of the Howell Gulch drainage. The deposits form an eddy bar, shown by the stippled area at the mouth of the valley. Lower energy eddy flows deposited finer facies behind the main bar form. Some gravels interbedded in the Howell Gulch embayment represent slackwater sediments in waning floodwaters, or finer facies of pendant bar deposits. In places, may be mantled by post-flood lacustrine silt, and alluvial deposits. Thickness up to 200 feet.

ghv **Gravel of Hidden Valley (Pleistocene)**—Sandy flood gravels in the tributary drainage of Lost Creek. The deposits form an eddy bar, shown by the stippled area, at the mouth of the tributary valley. Lower energy eddy flows deposited finer facies behind the main bar. Includes silt, sand, and some gravels interbedded in the embayment that represent slackwater sediments in waning floodwaters, or finer facies of pendant bar deposits. May be mantled by post-flood lacustrine silts and alluvial deposits. Thickness up to 200 feet.

shv **Sand of Hidden Valley (Pleistocene)**—Silty sand deposits in lee of Hidden Valley eddy bar (ghv). Finer grained slackwater silts and sands deposited at high-level slopes that backed water into the Lost Creek drainage. Forms a terrace above Hidden Valley. Thickness 10 to 30 feet.

gr **Gravel of Rathdrum Creek (Pleistocene)**—Bouldery flood gravels deposited by high energy flood water forward directly in lee of Round Mountain, a bedrock knob. Probably a remnant pendant bar that was draped by the waning flood flows at the margin of the Rathdrum Prairie. Thickness as much as 120 feet.

gtl **Gravel of Twin Lakes (Pleistocene)**—Bouldery flood gravels deposited as a major pendant bar in the lee of Round Mountain, a bedrock knob in the east of the map. Thickness up to 80 feet.

sh **Silts of Hauser Lake (Pleistocene)**—Silt, sand, and some gravels deposited in lower energy Lake Missoula Floods regime; may represent slackwater sediments in waning flood waters or finer facies of pendant bar deposits (gh). Overlain by post-flood lacustrine silts and peat deposits (ph). Thickness 10 to 20 feet.

Periglacial Deposits in Uplands

cdo **Colluvium including debris-flow and solifluction deposits (Quaternary)**—Composed of gravelly silty sand; gravel clasts typically range in size from pebbles to cobbles. Relict periglacial debris-flow and solifluction deposits occur on steeply sloping, northerly and easterly aspects at elevations typically above about 3,000 feet, and are more pervasive on all slopes above 4,000 feet. Colluvium formed by Holocene slope movements is predominant at lower elevation, south-facing slopes. On lower elevation gentle slopes, colluvium overlies and grades into grus with depth. Surface typically mantled by 3- to 6-feet of loess and volcanic ash with weakly developed, Holocene soil horizons (Weisel, 1981).

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FLOOD-SCOURED BEDROCK

Tbc **Basalt scoured by Lake Missoula Floods (Miocene)**—Not exposed; shown only on geologic cross section. Basalt of Columbia River Basalt Group (Breckenridge and others, 1997a). Forms sporadic rimrock along the margins of Rathdrum Prairie. Mostly eroded by Pleistocene glaciation and repeated Lake Missoula Floods. May be present in the subsurface of Rathdrum Prairie.

s **Precambrian metamorphic rocks of the Belt Supergroup and gneiss, schist, and granite**—Mapped as Prichard Formation and foliated metamorphic granite by Griggs (1973). Includes granitic intrusive rocks that are part of a large pluton north of Rathdrum Prairie, as seen on cross section.

SYMBOLS

Contact: dashed where approximately located.

Gradational contact.

Abandoned channels of Lake Missoula Floods drainageways; generally erosional pathways during waning flows.

Channels scoured in bedrock by Lake Missoula Floods; mostly on margins of Rathdrum Prairie on spurs and divide crossings.

Giant current ripple field; rolling topography from ground level. Crests visible from the air and on aerial photographs.

Stippled areas represent active surfaces of remnant flood bars.

Slope face of gravel flood bar or erosional scarp.

Plunge-pool depression formed by erosion of Lake Missoula floodwaters.

REFERENCES

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Weissenborn, A.E., and P.L. Weis, 1976, Geologic map of the Mount Spokane quadrangle, Spokane County, Washington, and Kootenai and Bonner counties, Idaho: U.S. Geological Survey, Geologic Quadrangle Map GQ-1336, 1:62,500.

Vertical Aerial Photo Mosaic of the Area (1992)*

*Compiled from Idaho Department of Lands digital ortho photo quadrangles

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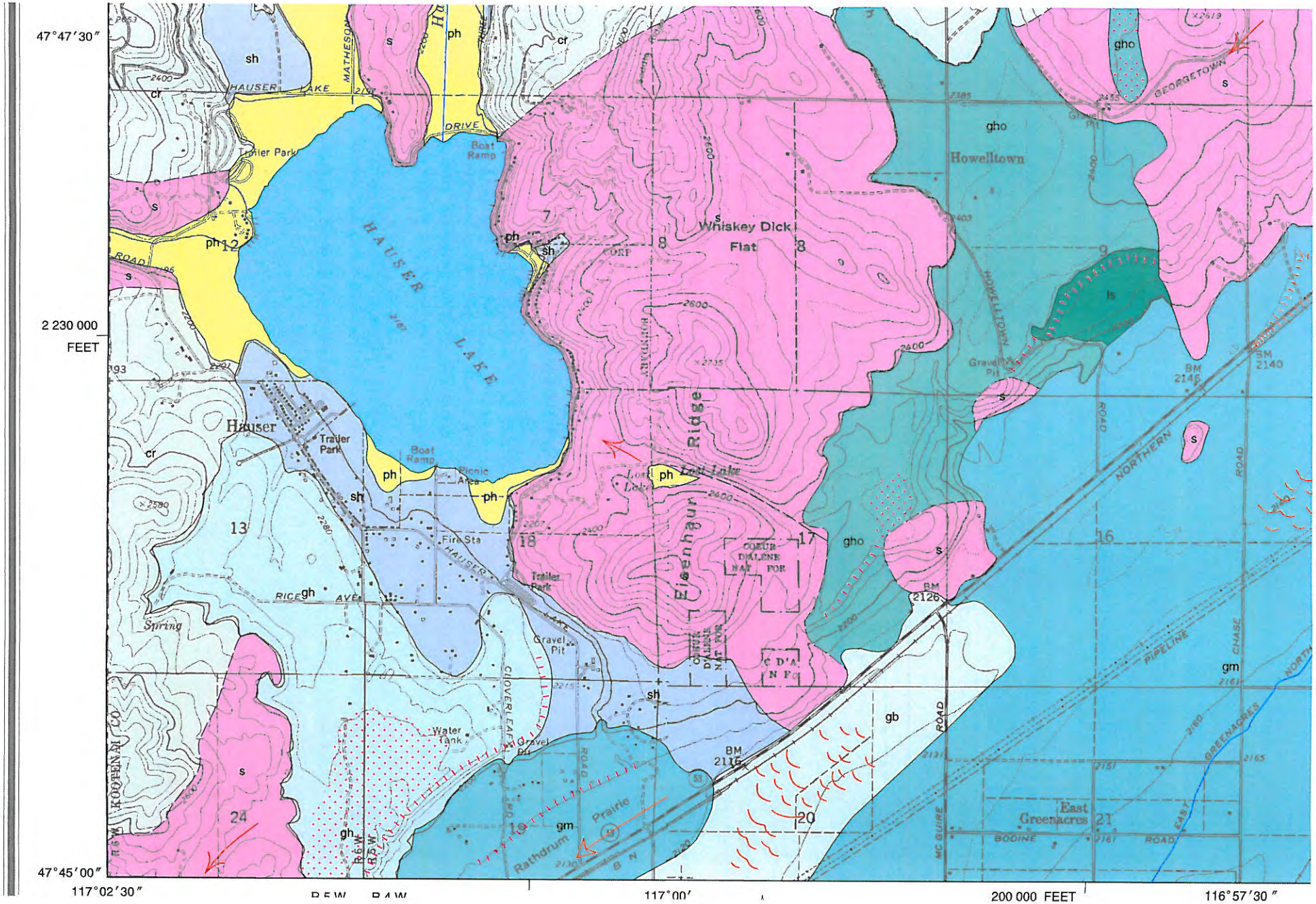
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Hauser
Trailer Park
Boat Ramp
Picnic Area
Fire Sta
Spring
Water Tank
Gravel Pit
Whiskey Dick Flat
Eisenhauer Ridge
Lost Lake
Howelltown
Georgetown
East Greenacres
Rathdrum Prairie
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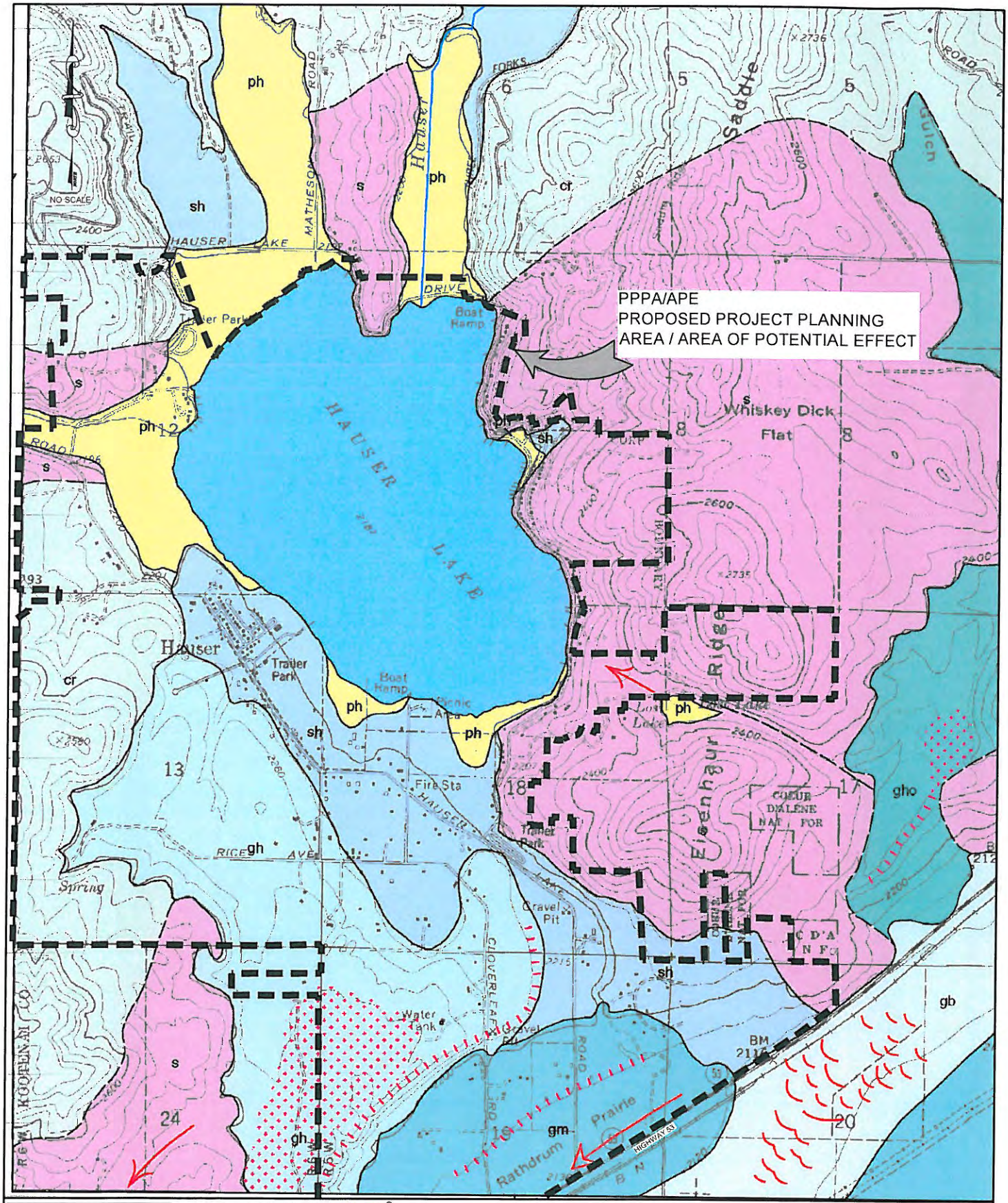

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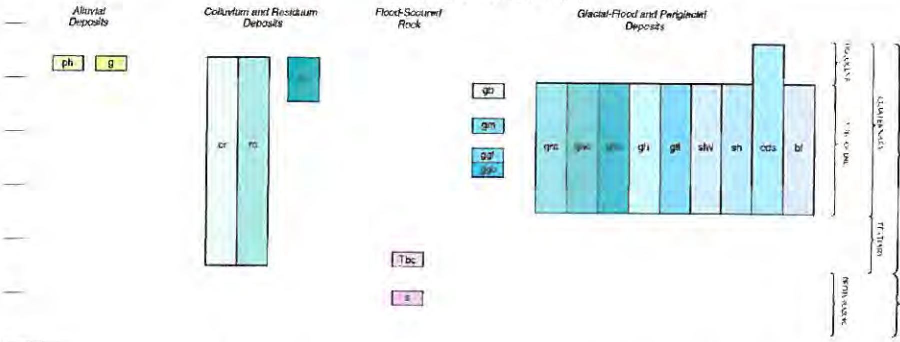
HAUSER LAKE EID

GEOLOGIC MAP

PROJECT NO.:	41018
DESIGNED BY:	A.M.W.
DRAWN BY:	J.A.L.
DWG NAME:	41018DS01.DWG
DATE:	03-08-12
SHEET NO:	

CORRELATION OF MAP UNITS



INTRODUCTION

This map product addresses the increasing demand for geologic information in urban areas. The area covered by the map is experiencing the most rapid growth in Idaho. The geologic mapping was funded in part by STATEMAP, a national cooperative program of the U.S. Geological Survey with the state geological surveys.

The map represents the geology of the materials and soils exposed near the earth's surface. The thickness of these deposits varies from a few feet in the upland areas to hundreds of feet in the Rathdrum Valley. The map is useful for determining the type and characteristics of the materials found at the surface and in the shallow subsurface by agricultural activities, building excavations, construction material excavations, ditches, and well holes. The information can be used by government, private industry and the public for planning, development, and resource characterization. In particular, the map provides new information about the Rathdrum Aquifer, the sole source water supply for over 200,000 people in Idaho and Washington. The map can be used as a guide for site locations but is not intended as a substitute for a detailed site specific geotechnical evaluation.

Most users are more familiar with traditional geologic maps that show bedrock. Surficial maps show units with more diverse characteristics than rock type and lithology. Most surficial deposits are geologically young, Quaternary in age, and unconsolidated. The mapping criteria used here to subdivide the Quaternary units are based on their physical characteristics and the boundaries between them (allostratigraphy). In most places the boundaries between these units are manifested in morphologic features.

DESCRIPTION OF MAP UNITS

LACUSTRINE AND ALLUVIAL DEPOSITS

g **Alluvial gravels (Holocene)**—Sandy gravels and sands. Mostly consists of reworked Pleistocene outwash and flood deposits along Rathdrum Creek.

ph **Lake deposits (Holocene)**—Sandy silts and peat deposits in modern Hauser Lake and Lost Lake basin.

COLLUVIUM AND RESIDUUM

cr **Colluvium and residuum of intermediate depth (Quaternary and Tertiary)**—Colluvium is composed of gravelly silty sand. The coarseness of the gravel typically increases with depth. Colluvium is formed by Holocene slope movements and predominates over residuum, which is mostly a sandy silt saprolite, or grus, that grades with depth into granite and gneiss. Colluvium mostly occurs on steeper slopes typically lower than 3,000 feet in elevation. Residuum is thickest on more gentle slopes. Most surfaces have a 3- to 6-foot mantle of loess and volcanic ash with weakly developed Holocene soil horizons (Weisel, 1981). A clayey soil horizon typically occurs within 1 to 2 feet below the loess (Weisel, 1981) on gentle stable slopes, but may be eroded from steeper slopes. Slopes are variable, and the steepest ones are typically located where stream incision has cut deeply into the regolith. Locally, there may be slack-water deposits of Lake Missoula Floods that inundated the Howelltown, Hidden Valley, and Hauser Lake basin to an elevation of 2,600 feet.

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Proximal Deposits on the Floor of Rathdrum Prairie

gb **Gravel of Beck Road (Pleistocene)**—Flood gravels graded to the lowest valley filling episode of flooding continuous with the Spokane Valley, about 2,100 feet at the Idaho-Washington state line. The gravels include the most developed incision representing a large abandoned river channel meandering eastward into Washington (Gerstel and Palmer, 1991). Two separate sets of thinly bedded foresets are exposed in deep gravel pits. Thickness exceeds 80 feet.

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gtl **Gravel of Twin Lakes (Pleistocene)**—Bouldery flood gravels deposited as a major pendant bar in the lee of Round Mountain, a bedrock knob northeast of the map. Thickness up to 80 feet.

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FLOOD SCOURED BEDROCK

Tbc **Basalt scoured by Lake Missoula Floods (Miocene)**—Not exposed, shown only on geologic cross section. Basalt of Columbia River Basalt Group (Breckenridge and others, 1997a). Forms sporadic rimrock along the margins of Rathdrum Prairie. Mostly eroded by Pleistocene glaciation and repeated Lake Missoula Floods. May be present in the subsurface of Rathdrum Prairie.

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SYMBOLS

Contact, dashed where approximately located.

Gradational contact.

Abandoned channels of Lake Missoula Floods drainageways, generally erosional pathways during waning flows.

Channels scoured in bedrock by Lake Missoula Floods; mostly on margins of Rathdrum Prairie in spurs and divide crossings.

Giant current ripple field, rolling topography from ground level. Crests visible from the air and on aerial photographs.

Stippled areas represent active surfaces of remnant flood bars.

Slope face of gravel flood bar or erosional scarp.

Plunge pool depression formed by erosion of Lake Missoula floodwaters.

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HAUSER LAKE EID

GEOLOGIC MAP LEGEND

PROJECT NO.:	41018
DESIGNED BY:	A.M.W.
DRAWN BY:	J.A.L.
DWG NAME:	41018DS01.DWG
DATE:	03-08-12
SHEET NO:	

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116° 59' 10"
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Meters
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Feet
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MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

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

- Gully
- Short Steep Slope
- Other

Political Features

- Cities

Water Features

- Streams and Canals

Transportation

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

MAP INFORMATION

Map Scale: 1:29,300 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 11N NAD83

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

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Soil Survey Area: Spokane County, Washington
Survey Area Data: Version 2, Jun 9, 2009

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Date(s) aerial images were photographed: 7/2/2006; 6/23/2004

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

Kootenai County Area, Idaho (ID606)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
107	Bonner silt loam, 0 to 8 percent slopes	67.0	2.5%
119	Garrison gravelly silt loam, 0 to 7 percent slopes	244.0	9.0%
120	Garrison very stony silt loam, 0 to 7 percent slopes	36.0	1.3%
126	Kootenai gravelly silt loam, 0 to 7 percent slopes	337.1	12.5%
134	Kruse-Ulricher association, 35 to 65 percent slopes	33.7	1.2%
142	Lenz loam, 5 to 35 percent slopes	0.4	0.0%
143	Lenz very stony loam, 5 to 35 percent slopes	40.9	1.5%
144	Lenz complex, 35 to 65 percent slopes	72.1	2.7%
145	Lenz-Spokane-Rock outcrop association, 30 to 55 percent slopes	51.9	1.9%
149	McGuire-Marble association, 0 to 7 percent slopes	465.9	17.3%
150	McGuire-Marble association, 20 to 45 percent slopes	30.2	1.1%
155	Moscow loam, 5 to 35 percent slopes	33.9	1.3%
159	Pywell muck	130.1	4.8%
171	Schumacher-Skalan association, 20 to 35 percent slopes	64.8	2.4%
174	Selle fine sandy loam, 0 to 7 percent slopes	89.5	3.3%
183	Spokane loam, 5 to 30 percent slopes	34.8	1.3%
184	Spokane loam, 30 to 65 percent slopes	107.4	4.0%
185	Spokane-Moscow association, 35 to 65 percent slopes	64.5	2.4%
195	Ulricher loam, 5 to 20 percent slopes	17.7	0.7%
196	Ulricher loam, 20 to 35 percent slopes	3.4	0.1%
201	Vassar-Moscow association, 5 to 35 percent slopes	30.6	1.1%
202	Vassar-Moscow association, 35 to 65 percent slopes	144.8	5.4%
205	Water	599.3	22.2%
Subtotals for Soil Survey Area		**2,700.1**	**100.0%**
Totals for Area of Interest		**2,700.1**	**100.0%**

Spokane County, Washington (WA063)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
EkB	Eloika silt loam, 0 to 20 percent slopes	0.0	0.0%
SsE	Spokane complex, 30 to 70 percent slopes	0.0	0.0%

Spokane County, Washington (WA063)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Subtotals for Soil Survey Area		**0.0**	**0.0%**
Totals for Area of Interest		**2,700.1**	**100.0%**

Kootenai County Area, Idaho

107—Bonner silt loam, 0 to 8 percent slopes

Map Unit Setting

Elevation: 2,000 to 3,000 feet
Mean annual precipitation: 25 to 35 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Bonner and similar soils: 85 percent

Description of Bonner

Setting

Landform: Outwash terraces
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Volcanic ash and loess over outwash derived from granite and/or schist and/or gneiss

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 24 to 36 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
Available water capacity: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 2 inches: Moderately decomposed plant material
2 to 10 inches: Silt loam
10 to 20 inches: Gravelly silt loam
20 to 28 inches: Gravelly sandy loam
28 to 62 inches: Very gravelly loamy sand

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

119—Garrison gravelly silt loam, 0 to 7 percent slopes

Map Unit Setting

Elevation: 1,400 to 2,800 feet
Mean annual precipitation: 15 to 25 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 170 days

Map Unit Composition

Garrison and similar soils: 75 percent

Description of Garrison

Setting

Landform: Outwash terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Volcanic ash and loess over outwash

Properties and qualities

Slope: 0 to 7 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively 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 4.7 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile

0 to 12 inches: Gravelly silt loam
12 to 28 inches: Very gravelly loam
28 to 60 inches: Stratified very gravelly loamy coarse sand to very gravelly sandy loam

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

120—Garrison very stony silt loam, 0 to 7 percent slopes

Map Unit Setting

Elevation: 2,100 to 2,300 feet
Mean annual precipitation: 15 to 25 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 170 days

Map Unit Composition

Garrison and similar soils: 95 percent

Description of Garrison

Setting

Landform: Outwash terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Volcanic ash and loess over outwash

Properties and qualities

Slope: 0 to 7 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively 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 4.4 inches)

Interpretive groups

Land capability (nonirrigated): 6s

Typical profile

0 to 12 inches: Very stony silt loam
12 to 28 inches: Very gravelly loam
28 to 60 inches: Stratified very gravelly loamy coarse sand to very gravelly sandy loam

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

126—Kootenai gravelly silt loam, 0 to 7 percent slopes

Map Unit Setting

Elevation: 2,100 to 2,700 feet
Mean annual precipitation: 25 to 30 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Kootenai and similar soils: 75 percent

Description of Kootenai

Setting

Landform: Outwash terraces, moraines
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Volcanic ash and loess over outwash derived from granite and/or gneiss and/or schist

Properties and qualities

Slope: 0 to 7 percent
Depth to restrictive feature: 20 to 36 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
Available water capacity: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability (nonirrigated): 4s

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 2 inches: Moderately decomposed plant material
2 to 8 inches: Gravelly silt loam
8 to 24 inches: Gravelly silt loam
24 to 28 inches: Very gravelly loam
28 to 62 inches: Extremely gravelly coarse sand

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

134—Kruse-Ulricher association, 35 to 65 percent slopes

Map Unit Setting

Elevation: 2,200 to 4,600 feet
Mean annual precipitation: 25 to 35 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 90 to 130 days

Map Unit Composition

Kruse and similar soils: 55 percent
Ulricher and similar soils: 40 percent

Description of Kruse

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Volcanic ash and/or loess over mixed colluvium

Properties and qualities

Slope: 35 to 65 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 11.4 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Typical profile

0 to 2 inches: Slightly decomposed plant material
2 to 3 inches: Moderately decomposed plant material
3 to 16 inches: Silt loam
16 to 27 inches: Loam
27 to 46 inches: Clay loam
46 to 63 inches: Fine sandy loam

Description of Ulricher

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Volcanic ash and loess over residuum weathered from gneiss and/or metamorphic rock

Properties and qualities

Slope: 35 to 65 percent
Depth to restrictive feature: 40 to 60 inches to paralithic 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 5.8 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 10 inches: Loam
10 to 32 inches: Sandy loam
32 to 43 inches: Cobbly sandy loam
43 to 53 inches: Weathered bedrock

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

142—Lenz loam, 5 to 35 percent slopes

Map Unit Setting

Elevation: 2,500 to 4,000 feet
Mean annual precipitation: 22 to 28 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 100 to 130 days

Map Unit Composition

Lenz and similar soils: 80 percent

Description of Lenz

Setting

Landform: Mountains
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loess over bedrock derived from granite and/or gneiss and/or schist

Properties and qualities

Slope: 5 to 35 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
Available water capacity: Low (about 3.2 inches)

Interpretive groups

Land capability (nonirrigated): 4e

Typical profile

0 to 7 inches: Loam
7 to 12 inches: Loam
12 to 23 inches: Very gravelly sandy loam
23 to 36 inches: Extremely stony sandy loam
36 to 46 inches: Unweathered bedrock

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

143—Lenz very stony loam, 5 to 35 percent slopes

Map Unit Setting

Elevation: 2,500 to 4,000 feet
Mean annual precipitation: 22 to 28 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 100 to 130 days

Map Unit Composition

Lenz and similar soils: 80 percent

Description of Lenz

Setting

Landform: Mountains
Landform position (two-dimensional): Footslope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess over bedrock derived from granite and/or gneiss and/or schist

Properties and qualities

Slope: 5 to 35 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
Available water capacity: Very low (about 2.9 inches)

Interpretive groups

Land capability (nonirrigated): 6s

Typical profile

0 to 7 inches: Very stony loam
7 to 12 inches: Loam
12 to 23 inches: Very stony sandy loam
23 to 36 inches: Extremely stony sandy loam
36 to 46 inches: Unweathered bedrock

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

144—Lenz complex, 35 to 65 percent slopes

Map Unit Setting

Elevation: 2,500 to 4,000 feet
Mean annual precipitation: 22 to 28 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 100 to 130 days

Map Unit Composition

Lenz and similar soils: 45 percent
Lenz and similar soils: 35 percent

Description of Lenz

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loess over bedrock derived from granite and/or gneiss and/or schist

Properties and qualities

Slope: 35 to 65 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
Available water capacity: Very low (about 2.9 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Typical profile

0 to 7 inches: Very stony loam
7 to 12 inches: Loam
12 to 23 inches: Very stony loam
23 to 36 inches: Extremely stony sandy loam
36 to 46 inches: Unweathered bedrock

Description of Lenz

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess over bedrock derived from granite and/or gneiss and/or schist

Properties and qualities

Slope: 35 to 65 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
Available water capacity: Low (about 3.2 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Typical profile

0 to 7 inches: Loam
7 to 12 inches: Loam
12 to 23 inches: Very gravelly loam
23 to 36 inches: Extremely stony sandy loam
36 to 46 inches: Unweathered bedrock

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

145—Lenz-Spokane-Rock outcrop association, 30 to 55 percent slopes

Map Unit Setting

Elevation: 1,800 to 4,000 feet
Mean annual precipitation: 15 to 28 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 100 to 140 days

Map Unit Composition

Lenz and similar soils: 45 percent
Spokane and similar soils: 25 percent
Rock outcrop: 20 percent

Description of Lenz

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess over bedrock derived from granite and/or gneiss and/or schist

Properties and qualities

Slope: 30 to 55 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
Available water capacity: Low (about 3.2 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Typical profile

0 to 7 inches: Loam
7 to 12 inches: Loam
12 to 23 inches: Very gravelly sandy loam
23 to 36 inches: Extremely stony sandy loam
36 to 46 inches: Unweathered bedrock

Description of Spokane

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Down-slope shape: Concave
Across-slope shape: Linear

Parent material: Loess over residuum weathered from granite and/or gneiss and/or schist

Properties and qualities

Slope: 30 to 55 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 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 3.5 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 9 inches: Loam
9 to 28 inches: Gravelly loam
28 to 38 inches: Weathered bedrock

Description of Rock Outcrop

Properties and qualities

Slope: 30 to 55 percent
Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups

Land capability (nonirrigated): 8

Typical profile

0 to 60 inches: Unweathered bedrock

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

149—McGuire-Marble association, 0 to 7 percent slopes

Map Unit Setting

Elevation: 1,500 to 2,500 feet
Mean annual precipitation: 15 to 26 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 110 to 150 days

Map Unit Composition

Mcguire and similar soils: 60 percent
Marble and similar soils: 30 percent

Description of Mcguire

Setting

Landform: Outwash terraces
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Volcanic ash and loess over outwash

Properties and qualities

Slope: 0 to 7 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 9 inches: Gravelly sandy loam
9 to 23 inches: Very gravelly sandy loam
23 to 27 inches: Extremely gravelly coarse sandy loam
27 to 61 inches: Extremely gravelly coarse sand

Description of Marble

Setting

Landform: Outwash terraces
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Reworked sandy outwash

Properties and qualities

Slope: 0 to 7 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile

0 to 2 inches: Slightly decomposed plant material
2 to 3 inches: Moderately decomposed plant material
3 to 9 inches: Sandy loam
9 to 63 inches: Loamy sand

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

150—McGuire-Marble association, 20 to 45 percent slopes

Map Unit Setting

Elevation: 1,500 to 2,500 feet
Mean annual precipitation: 15 to 26 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 110 to 150 days

Map Unit Composition

Mcguire and similar soils: 70 percent
Marble and similar soils: 25 percent

Description of Mcguire

Setting

Landform: Outwash terraces, escarpments
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Volcanic ash and loess over outwash

Properties and qualities

Slope: 20 to 45 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.5 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 9 inches: Gravelly sandy loam
9 to 23 inches: Very gravelly sandy loam
23 to 27 inches: Extremely gravelly coarse sandy loam
27 to 61 inches: Extremely gravelly coarse sand

Description of Marble

Setting

Landform: Outwash terraces, escarpments
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Reworked sandy outwash

Properties and qualities

Slope: 20 to 45 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.7 inches)

Interpretive groups

Land capability (nonirrigated): 6e

Typical profile

0 to 2 inches: Slightly decomposed plant material
2 to 3 inches: Moderately decomposed plant material
3 to 9 inches: Sandy loam
9 to 63 inches: Loamy sand

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

155—Moscow loam, 5 to 35 percent slopes

Map Unit Setting

Elevation: 2,200 to 5,000 feet
Mean annual precipitation: 18 to 30 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 80 to 120 days

Map Unit Composition

Moscow and similar soils: 80 percent

Description of Moscow

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Volcanic ash and loess over residuum weathered from schist and/or gneiss and/or granite

Properties and qualities

Slope: 5 to 35 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 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 6.0 inches)

Interpretive groups

Land capability (nonirrigated): 4e

Typical profile

0 to 2 inches: Slightly decomposed plant material
2 to 3 inches: Moderately decomposed plant material
3 to 4 inches: Loam
4 to 26 inches: Loam
26 to 29 inches: Gravelly sandy loam
29 to 39 inches: Weathered bedrock

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

156—Narcisse silt loam, 0 to 5 percent slopes

Map Unit Setting

Elevation: 2,000 to 2,500 feet
Mean annual precipitation: 22 to 26 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 90 to 130 days

Map Unit Composition

Narcisse and similar soils: 80 percent

Description of Narcisse

Setting

Landform: Drainageways
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Properties and qualities

Slope: 0 to 5 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 36 to 60 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water capacity: High (about 10.0 inches)

Interpretive groups

Land capability (nonirrigated): 3w

Typical profile

0 to 18 inches: Silt loam
18 to 36 inches: Silt loam
36 to 51 inches: Very fine sandy loam
51 to 60 inches: Very cobbly fine sandy loam

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

159—Pywell muck

Map Unit Setting

Elevation: 2,100 to 2,800 feet
Mean annual precipitation: 20 to 35 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 80 to 130 days

Map Unit Composition

Pywell and similar soils: 80 percent
Minor components: 15 percent

Description of Pywell

Setting

Landform: Depressions, flood plains, drainageways
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Herbaceous and/or woody organic material

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly 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 0 to 24 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water capacity: Very high (about 15.6 inches)

Interpretive groups

Land capability (nonirrigated): 4w

Typical profile

0 to 11 inches: Muck
11 to 60 inches: Muck

Minor Components

Cougarbay

Percent of map unit: 5 percent
Landform: Flood plains

Ramsdell

Percent of map unit: 5 percent
Landform: Flood plains

Slickens

Percent of map unit: 5 percent

Kootenai County Area, Idaho

171—Schumacher-Skalan association, 20 to 35 percent slopes

Map Unit Setting

Elevation: 2,100 to 4,000 feet
Mean annual precipitation: 18 to 27 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 140 days

Map Unit Composition

Schumacher and similar soils: 55 percent
Skalan and similar soils: 35 percent

Description of Schumacher

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Loess over bedrock derived from metasedimentary rock and/or granite and/or sandstone and/or slate and/or quartzite

Properties and qualities

Slope: 20 to 35 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 (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: Moderate (about 7.7 inches)

Interpretive groups

Land capability (nonirrigated): 4e

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 20 inches: Silt loam
20 to 41 inches: Gravelly silty clay loam
41 to 51 inches: Unweathered bedrock

Description of Skalan

Setting

Landform: Mountain slopes, ridges
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Volcanic ash and loess over bedrock derived from gneiss and/or metamorphic rock

Properties and qualities

Slope: 20 to 35 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
Available water capacity: Low (about 3.3 inches)

Interpretive groups

Land capability (nonirrigated): 6e

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 2 inches: Moderately decomposed plant material
2 to 5 inches: Gravelly loam
5 to 10 inches: Gravelly loam
10 to 20 inches: Extremely gravelly clay loam
20 to 32 inches: Extremely gravelly loam
32 to 42 inches: Unweathered bedrock

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

172—Schumacher-Skalan association, 35 to 65 percent slopes

Map Unit Setting

Elevation: 2,100 to 4,000 feet
Mean annual precipitation: 18 to 27 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 140 days

Map Unit Composition

Schumacher and similar soils: 45 percent
Skalan and similar soils: 40 percent

Description of Schumacher

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loess over bedrock derived from metasedimentary rock and/or granite and/or sandstone and/or slate and/or quartzite

Properties and qualities

Slope: 35 to 65 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 (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: Moderate (about 7.7 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 20 inches: Silt loam
20 to 41 inches: Gravelly silty clay loam
41 to 51 inches: Unweathered bedrock

Description of Skalan

Setting

Landform: Mountain slopes, ridges
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Volcanic ash and loess over bedrock derived from gneiss and/or metamorphic rock

Properties and qualities

Slope: 35 to 65 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
Available water capacity: Low (about 3.3 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 2 inches: Moderately decomposed plant material
2 to 5 inches: Gravelly loam
5 to 10 inches: Gravelly loam
10 to 20 inches: Extremely gravelly clay loam
20 to 32 inches: Extremely gravelly loam
32 to 42 inches: Unweathered bedrock

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

174—Selle fine sandy loam, 0 to 7 percent slopes

Map Unit Setting

Elevation: 2,000 to 2,500 feet
Mean annual precipitation: 25 to 35 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 100 to 130 days

Map Unit Composition

Selle and similar soils: 75 percent

Description of Selle

Setting

Landform: Terraces
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Volcanic ash and/or loess over sandy glaciolacustrine deposits

Properties and qualities

Slope: 0 to 7 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability (nonirrigated): 3s

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 2 inches: Moderately decomposed plant material
2 to 19 inches: Fine sandy loam
19 to 26 inches: Fine sandy loam
26 to 60 inches: Loamy fine sand

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

183—Spokane loam, 5 to 30 percent slopes

Map Unit Setting

Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 15 to 24 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 100 to 140 days

Map Unit Composition

Spokane and similar soils: 80 percent

Description of Spokane

Setting

Landform: Mountains
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loess over residuum weathered from granite and/or gneiss and/or schist

Properties and qualities

Slope: 5 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 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 3.5 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability (nonirrigated): 4e

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 9 inches: Loam
9 to 28 inches: Gravelly loam
28 to 38 inches: Weathered bedrock

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

184—Spokane loam, 30 to 65 percent slopes

Map Unit Setting

Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 15 to 24 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 100 to 140 days

Map Unit Composition

Spokane and similar soils: 85 percent

Description of Spokane

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess over residuum weathered from granite and/or gneiss and/or schist

Properties and qualities

Slope: 30 to 65 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 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 3.5 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 9 inches: Loam
9 to 28 inches: Gravelly loam
28 to 38 inches: Weathered bedrock

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

185—Spokane-Moscow association, 35 to 65 percent slopes

Map Unit Setting

Elevation: 1,800 to 5,000 feet
Mean annual precipitation: 15 to 30 inches
Mean annual air temperature: 43 to 48 degrees F
Frost-free period: 80 to 140 days

Map Unit Composition

Spokane and similar soils: 45 percent
Moscow and similar soils: 35 percent

Description of Spokane

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess over residuum weathered from granite and/or gneiss and/or schist

Properties and qualities

Slope: 35 to 65 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 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 3.5 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 9 inches: Loam
9 to 28 inches: Gravelly loam
28 to 38 inches: Weathered bedrock

Description of Moscow

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Volcanic ash and loess over residuum weathered from schist and/or gneiss and/or granite

Properties and qualities

Slope: 35 to 65 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 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 6.0 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Typical profile

0 to 2 inches: Slightly decomposed plant material
2 to 3 inches: Moderately decomposed plant material
3 to 4 inches: Loam
4 to 26 inches: Loam
26 to 29 inches: Gravelly sandy loam
29 to 39 inches: Weathered bedrock

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

195—Ulricher loam, 5 to 20 percent slopes

Map Unit Setting

Elevation: 2,200 to 4,600 feet
Mean annual precipitation: 25 to 28 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 100 to 130 days

Map Unit Composition

Ulricher and similar soils: 75 percent

Description of Ulricher

Setting

Landform: Mountains
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Volcanic ash and loess over residuum weathered from gneiss and/or metamorphic rock

Properties and qualities

Slope: 5 to 20 percent
Depth to restrictive feature: 40 to 60 inches to paralithic 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 5.8 inches)

Interpretive groups

Land capability (nonirrigated): 4e

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 10 inches: Loam
10 to 32 inches: Sandy loam
32 to 43 inches: Cobbly loamy sand
43 to 53 inches: Weathered bedrock

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

196—Ulricher loam, 20 to 35 percent slopes

Map Unit Setting

Elevation: 2,200 to 4,600 feet
Mean annual precipitation: 25 to 28 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 100 to 130 days

Map Unit Composition

Ulricher and similar soils: 75 percent

Description of Ulricher

Setting

Landform: Mountains
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Volcanic ash and loess over residuum weathered from gneiss and/or metamorphic rock

Properties and qualities

Slope: 20 to 35 percent
Depth to restrictive feature: 40 to 60 inches to paralithic 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 5.8 inches)

Interpretive groups

Land capability (nonirrigated): 6e

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 10 inches: Loam
10 to 32 inches: Sandy loam
32 to 43 inches: Cobbly loamy sand
43 to 53 inches: Weathered bedrock

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

198—Vassar silt loam, 5 to 30 percent slopes

Map Unit Setting

Elevation: 2,500 to 5,000 feet
Mean annual precipitation: 30 to 45 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 50 to 90 days

Map Unit Composition

Vassar and similar soils: 75 percent

Description of Vassar

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Volcanic ash over residuum weathered from granite and/or gneiss and/or schist

Properties and qualities

Slope: 5 to 30 percent
Depth to restrictive feature: 40 to 60 inches to paralithic 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: Moderate (about 7.7 inches)

Interpretive groups

Land capability (nonirrigated): 6e

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 2 inches: Moderately decomposed plant material
2 to 22 inches: Silt loam
22 to 62 inches: Coarse sandy loam

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

201—Vassar-Moscow association, 5 to 35 percent slopes

Map Unit Setting

Elevation: 2,200 to 5,000 feet
Mean annual precipitation: 18 to 45 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 50 to 120 days

Map Unit Composition

Vassar and similar soils: 50 percent
Moscow and similar soils: 30 percent

Description of Vassar

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Volcanic ash over residuum weathered from granite and/or gneiss and/or schist

Properties and qualities

Slope: 5 to 35 percent
Depth to restrictive feature: 40 to 60 inches to paralithic 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: Moderate (about 7.7 inches)

Interpretive groups

Land capability (nonirrigated): 6e

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 2 inches: Moderately decomposed plant material
2 to 22 inches: Silt loam
22 to 62 inches: Coarse sandy loam

Description of Moscow

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Volcanic ash and loess over residuum weathered from schist and/or gneiss and/or granite

Properties and qualities

Slope: 5 to 35 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 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 6.0 inches)

Interpretive groups

Land capability (nonirrigated): 4e

Typical profile

0 to 2 inches: Slightly decomposed plant material
2 to 3 inches: Moderately decomposed plant material
3 to 4 inches: Loam
4 to 26 inches: Loam
26 to 29 inches: Gravelly sandy loam
29 to 39 inches: Weathered bedrock

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

202—Vassar-Moscow association, 35 to 65 percent slopes

Map Unit Setting

Elevation: 2,200 to 5,000 feet
Mean annual precipitation: 18 to 45 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 50 to 120 days

Map Unit Composition

Vassar and similar soils: 50 percent
Moscow and similar soils: 30 percent

Description of Vassar

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Volcanic ash over residuum weathered from granite and/or gneiss and/or schist

Properties and qualities

Slope: 35 to 65 percent
Depth to restrictive feature: 40 to 60 inches to paralithic 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: Moderate (about 7.7 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 2 inches: Moderately decomposed plant material
2 to 22 inches: Silt loam
22 to 62 inches: Coarse sandy loam

Description of Moscow

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Volcanic ash and loess over residuum weathered from schist and/or gneiss and/or granite

Properties and qualities

Slope: 35 to 65 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 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 6.0 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Typical profile

0 to 2 inches: Slightly decomposed plant material
2 to 3 inches: Moderately decomposed plant material
3 to 4 inches: Loam
4 to 26 inches: Loam
26 to 29 inches: Gravelly sandy loam
29 to 39 inches: Weathered bedrock

Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Kootenai County Area, Idaho

205—Water

Map Unit Composition
Water: 100 percent

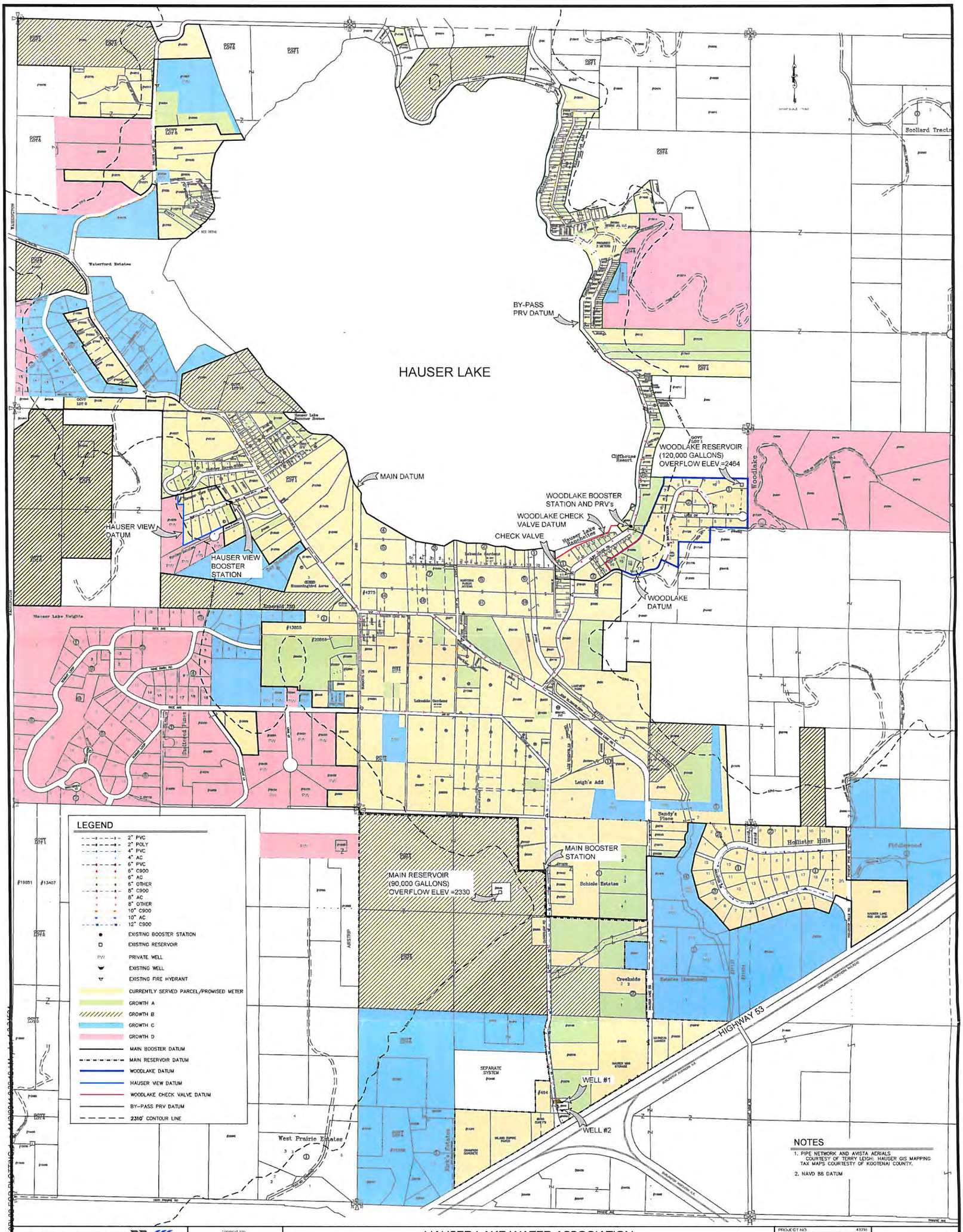
Data Source Information

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Appendix E

Future Service Area Map and Land Use Information

Future Service Area Map
Kootenai County Land Use Map
Kootenai County Zoning Map



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HAUSER LAKE WATER ASSOCIATION

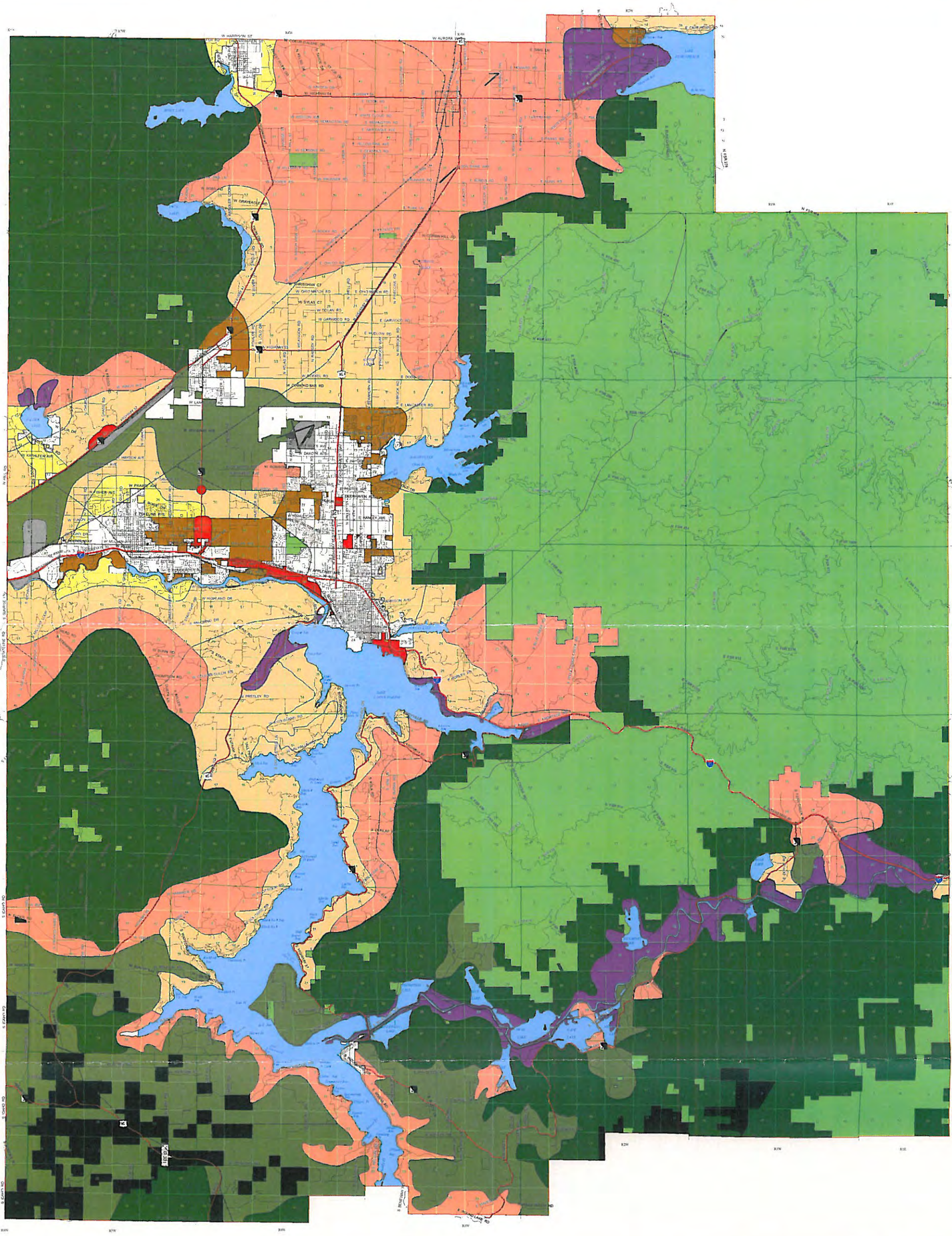
FUTURE SERVICE AREA MAP

PROJECT NO.	41019
DESIGNED BY	KJG
DRAWN BY	JAL
DWG NAME	41019FL02.DWG
DATE	05-07-11

FIGURE 2.2

\\Was-01\cadd\CAD Projects\41019

Kootenai County Comprehensive Plan
Land Use

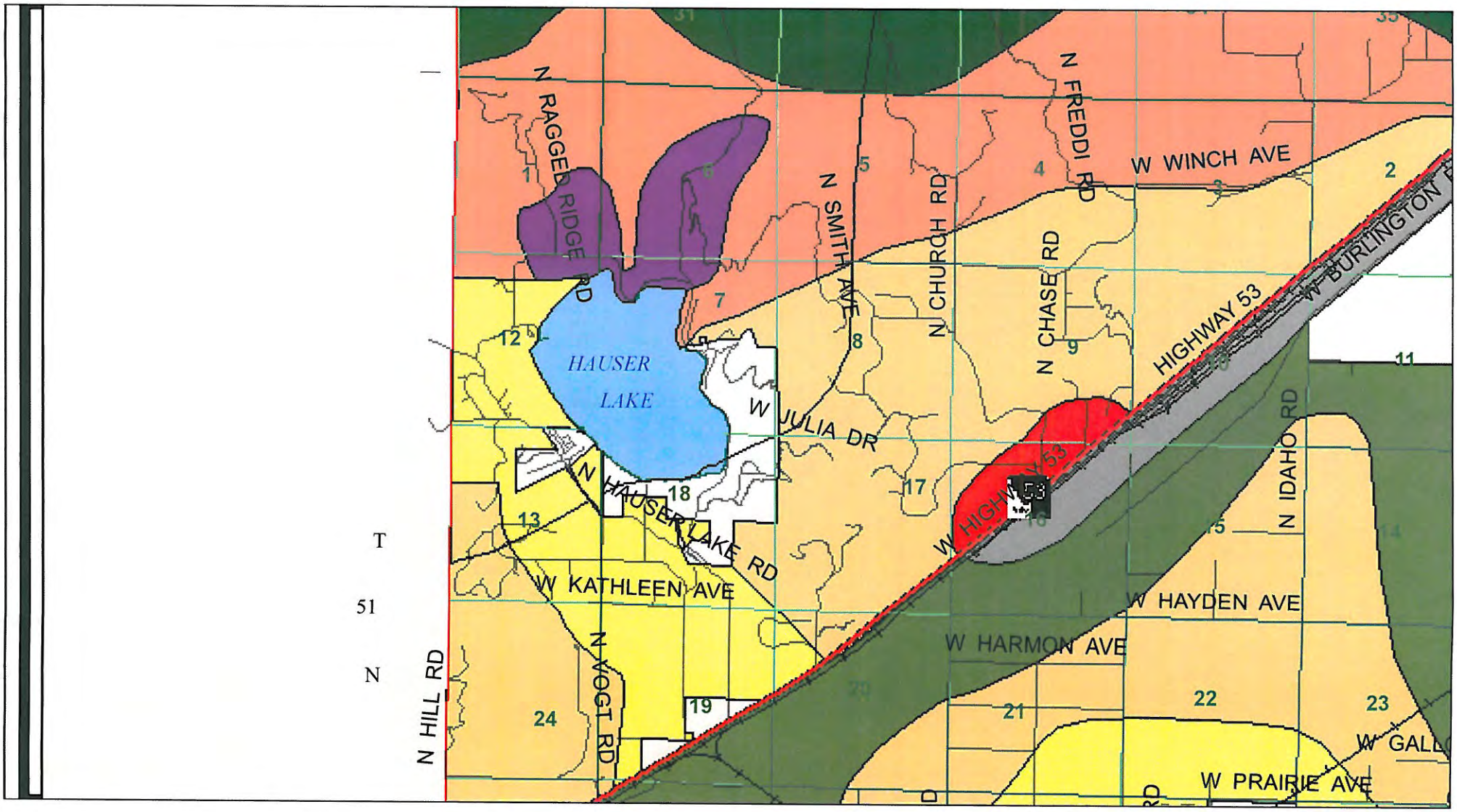


Kootenai County Planning & Zoning Office

Prepared for: Public
Prepared by: KC GIS
Map Date: 10-07-2009
Map Name: Land Use 2010
Plot Size: Letter/8.5 x 11

0 1.25 2.5 5 7.5 10 Miles

*This map is to be used for reference purposes only.
Kootenai County is not responsible for all data shown contained herein.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51
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N HILL RD
N VOGT RD
N RAGGED RIDGE RD
HAUSER LAKE
N HAUSER LAKE RD
W KATHLEEN AVE
W JULIA DR
N SMITH AVE
N CHURCH RD
N FREDDI RD
N CHASE RD
W WINCH AVE
HIGHWAY 53
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W BURLINGTON
N IDAHO RD
W HAYDEN AVE
W HARMON AVE
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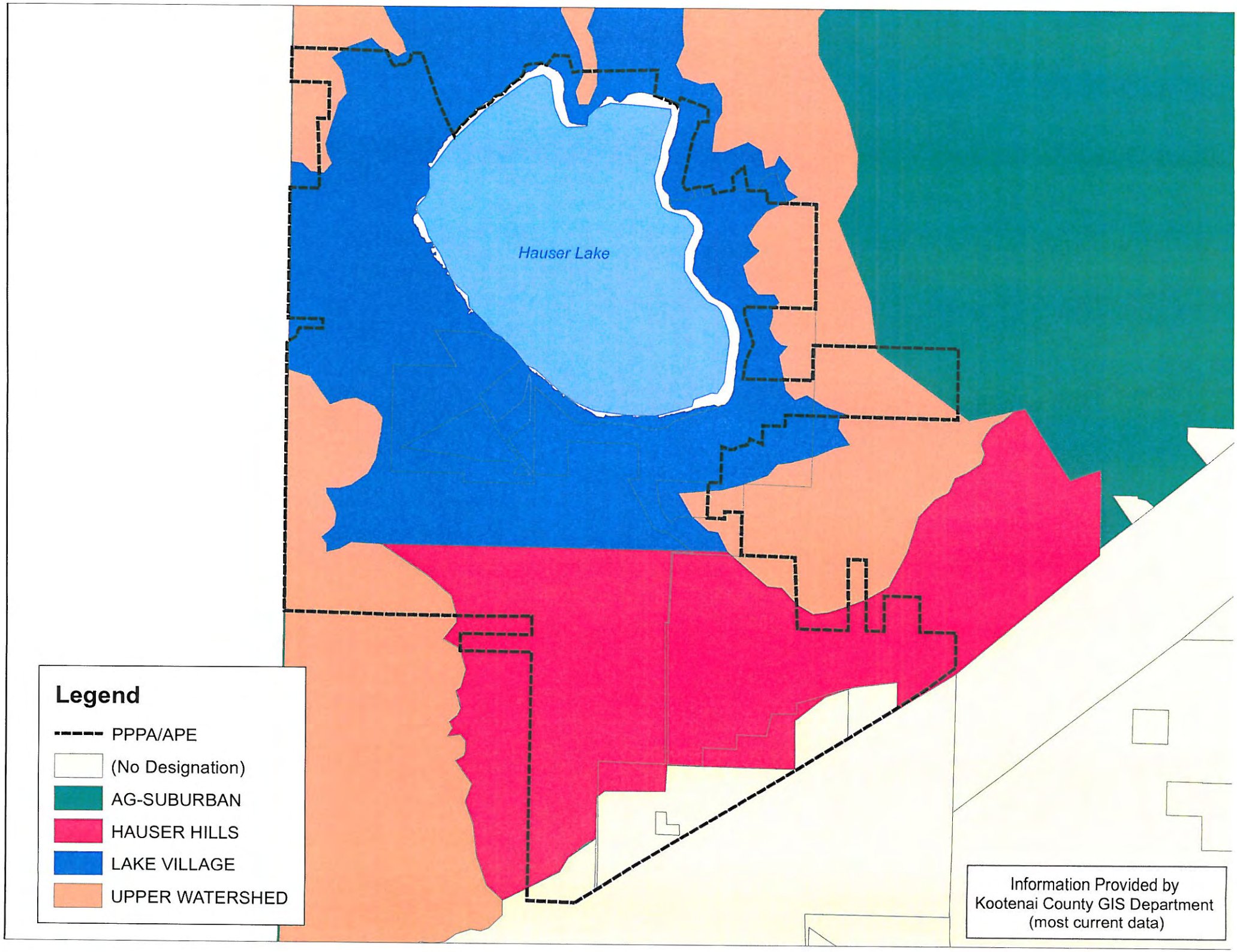
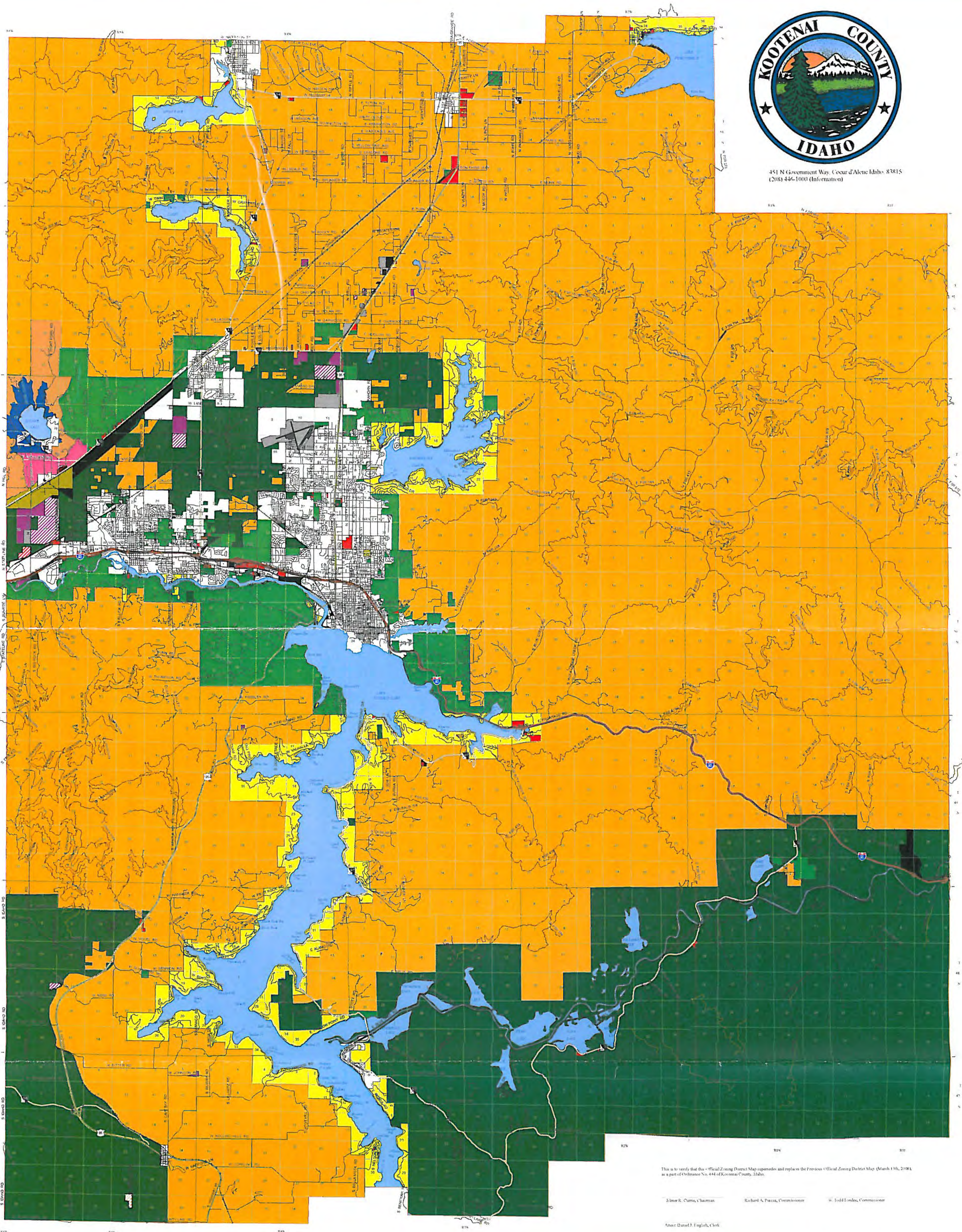

Hauser Lake
Legend
PPPA/APE
(No Designation)
AG-SUBURBAN
HAUSER HILLS
LAKE VILLAGE
UPPER WATERSHED
Information Provided by
Kootenai County GIS Department
(most current data)

Kootenai County Zoning District Map

June 24th, 2010



451 N Government Way, Coeur d'Alene Idaho 83815
(208) 446-1000 (Information)

This is to verify that this Official Zoning District Map supersedes and replaces the Previous Official Zoning District Map (March 13th, 2008) as a part of Ordinance No. 444 of Kootenai County, Idaho.

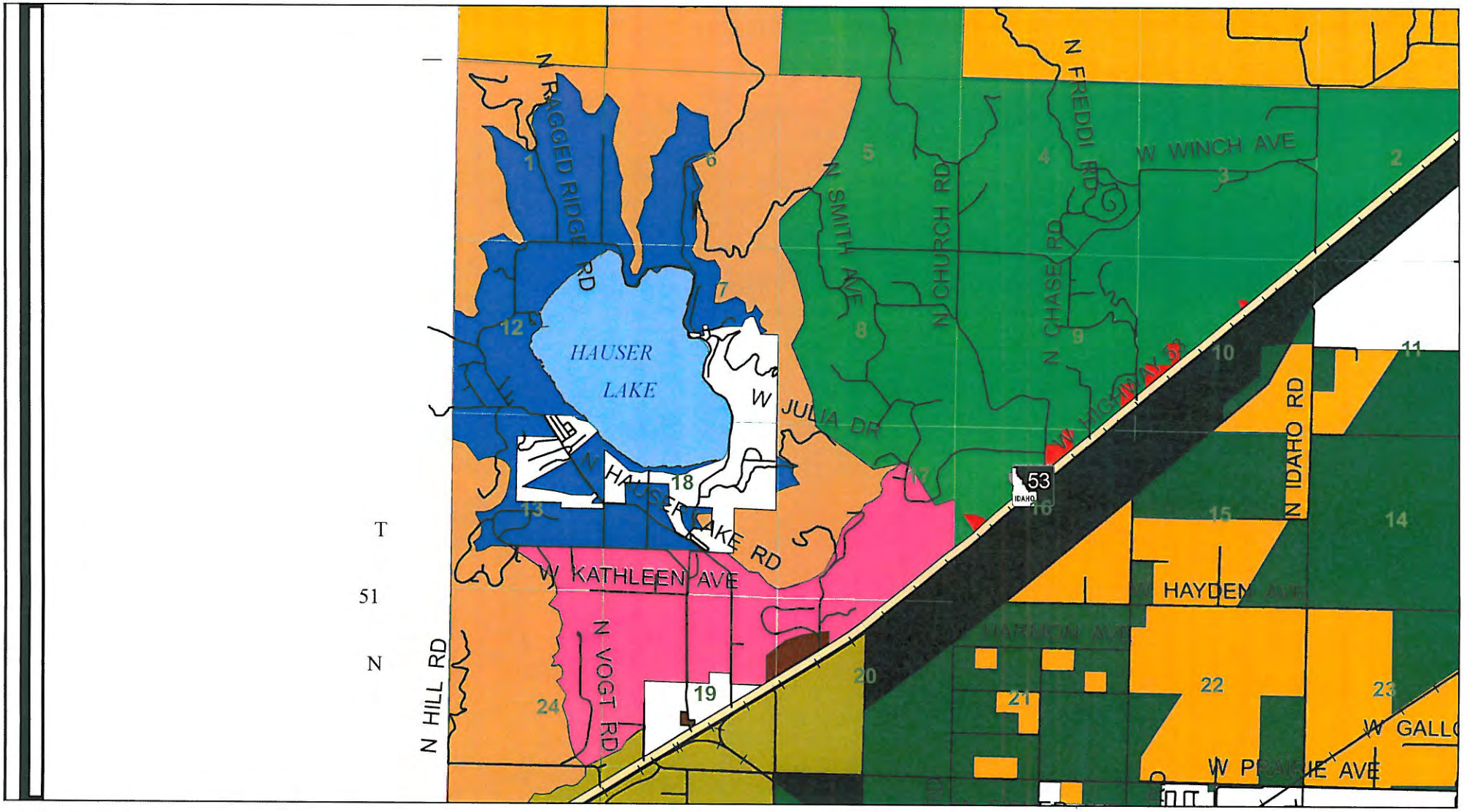
Elmer R. Currie, Chairman

Richard A. Piazza, Commissioner

W. Todd Tondee, Commissioner

Attest: Daniel J. English, Clerk

Kootenai County Planning & Zoning Office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N RAGGED RIDGE RD
N SMITH AVE
N CHURCH RD
N FREDDI RD
N CHASE RD
W WINCH AVE
W JULIA DR
W HAUSER LAKE RD
W KATHLEEN AVE
N VOGT RD
N HILL RD
N IDAHO RD
W HAYDEN AVE
W PRAIRIE AVE
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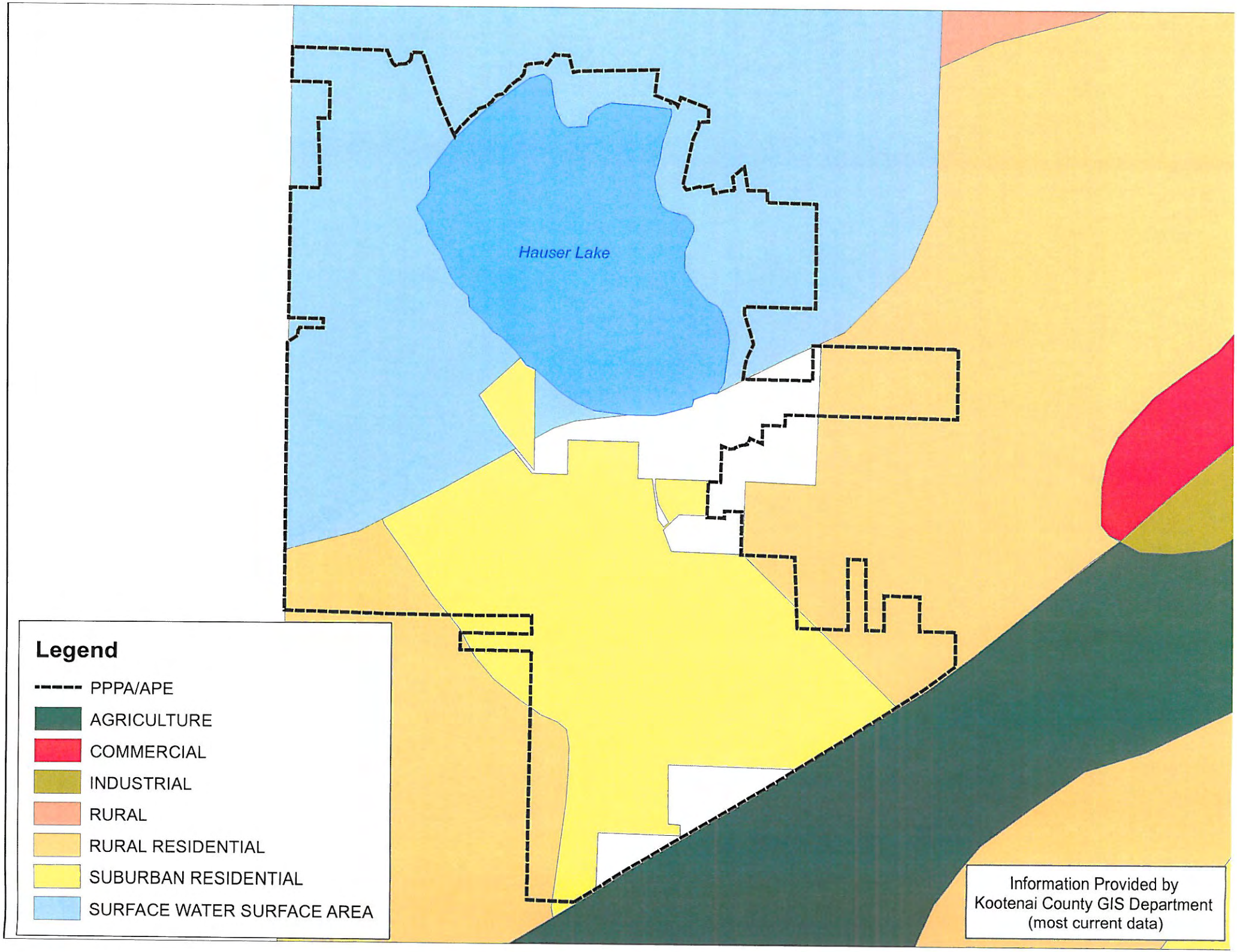
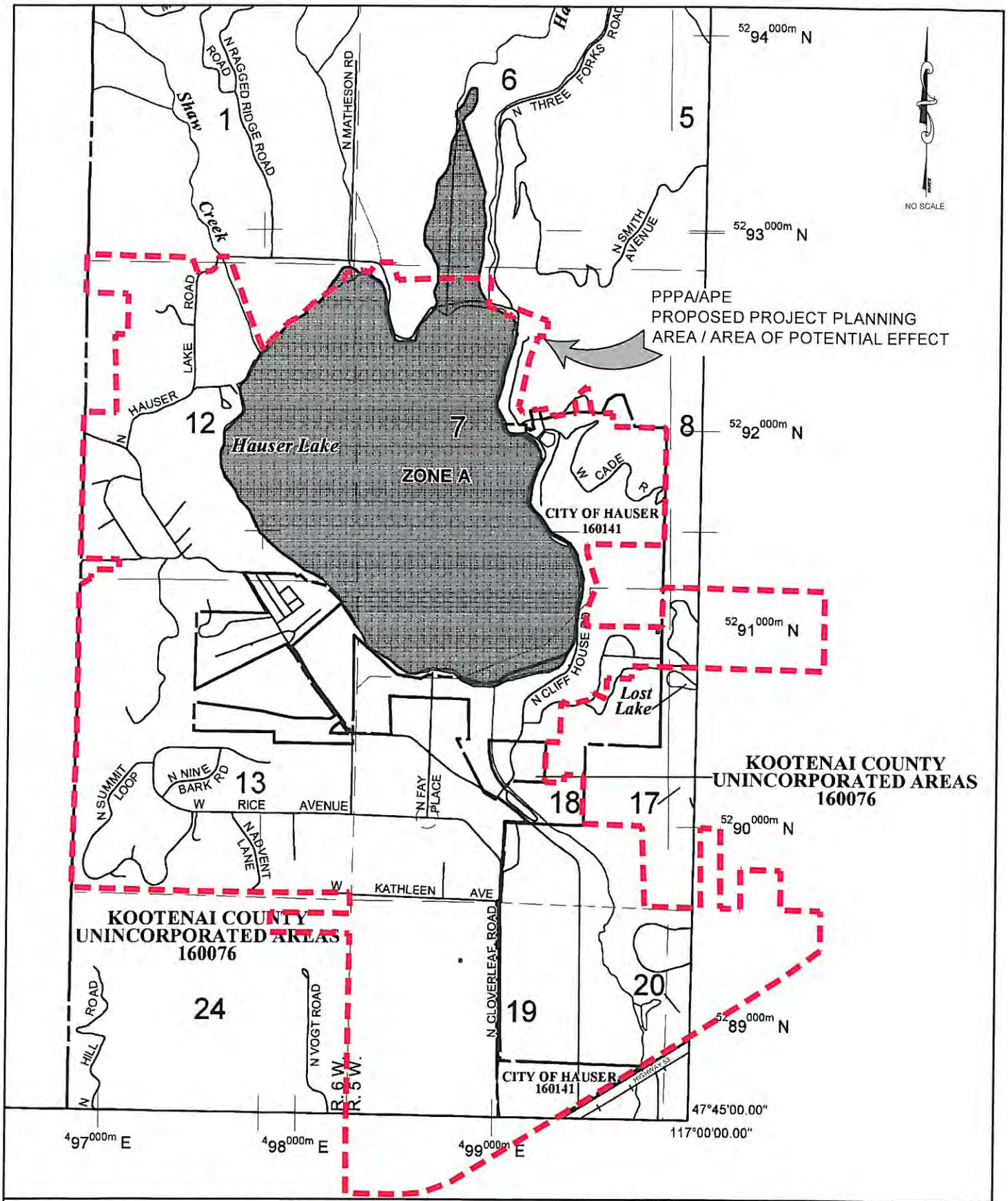

Hauser Lake
Legend
PPPA/APE
AGRICULTURE
COMMERCIAL
INDUSTRIAL
RURAL
RURAL RESIDENTIAL
SUBURBAN RESIDENTIAL
SURFACE WATER SURFACE AREA
Information Provided by
Kootenai County GIS Department
(most current data)

Appendix F

Floodplain and Wetland Maps

FEMA Floodplain Map

Wetland Map



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(toll free) 877-815-5672
(fax) 208-664-5946

HAUSER LAKE EID

FLOOD PLANE MAP

PROJECT NO.:	41018
DESIGNED BY:	A.M.W.
DRAWN BY:	J.A.L.
DWG NAME:	41018FLOOD.DWG
DATE:	03-01-12
SHEET NO:	

\\Nas-01\CAD\CAD Projects\41018\dwg\41018FLOOD dwg, 3/1/2012 8 45 29 AM, julie, 1 1

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	Floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

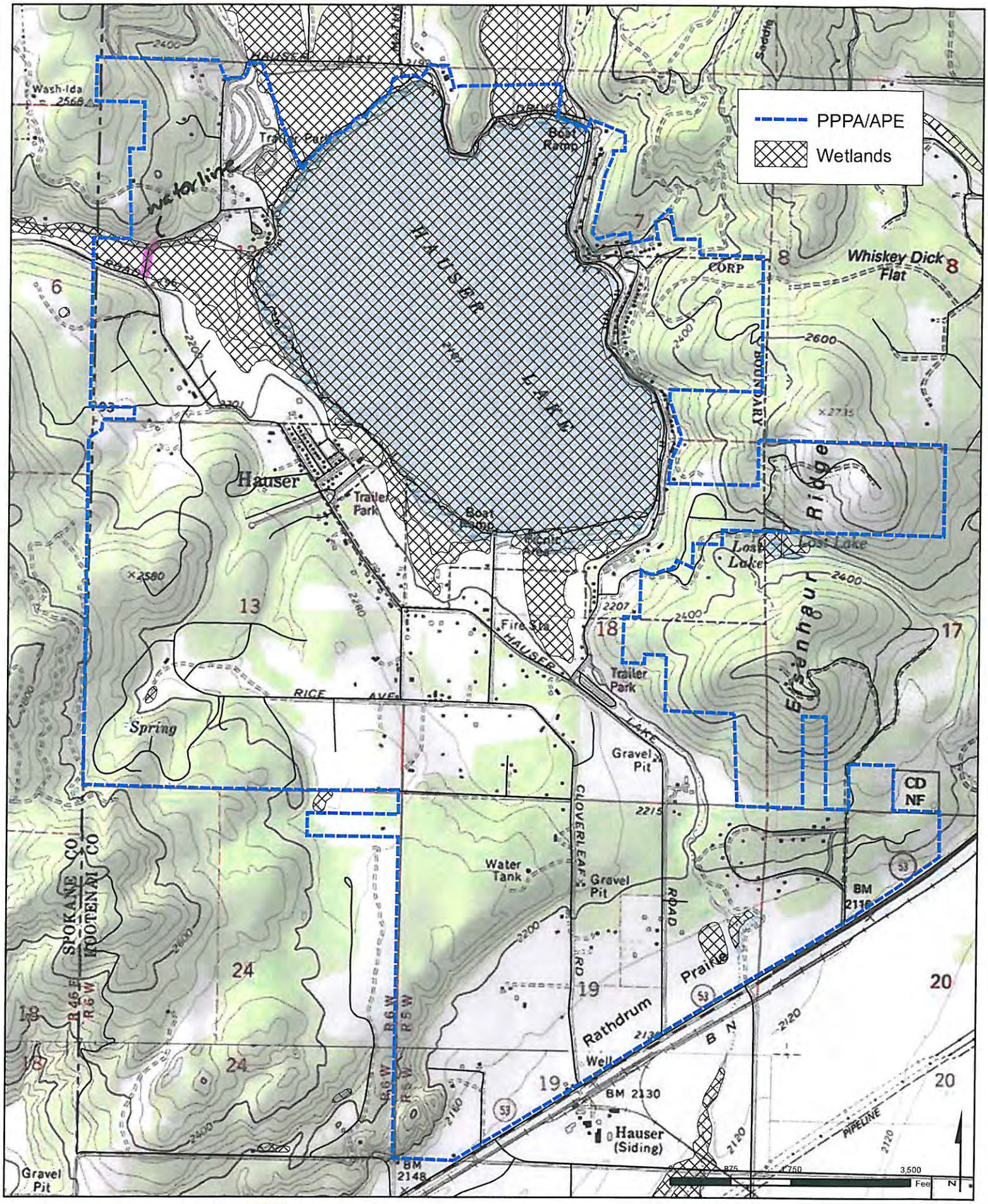
* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

A — A	Cross section line
23 - - - - - - - 23	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
$^{42}75^{000m}$N	1000-meter Universal Transverse Mercator grid ticks, zone 11
6000000 FT	5000-foot grid ticks: Idaho State Plane coordinate system, west zone (FIPSZONE 1103), Transverse Mercator
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
May 3, 2010
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

\\Nas-01\cad\Civil3D Projects\41055\Production Drawings\41055DS01.dwg, 10/13/2011 11:19:14 AM, julie, 1:1



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(fax) 208-664-5946

Hauser Lake Water Association

Wetlands

Sources
INSIDE Idaho, University of Idaho
Hauser Lake Water
ArcGIS Online
Kootenai County GIS Department

PROJECT NO 41018
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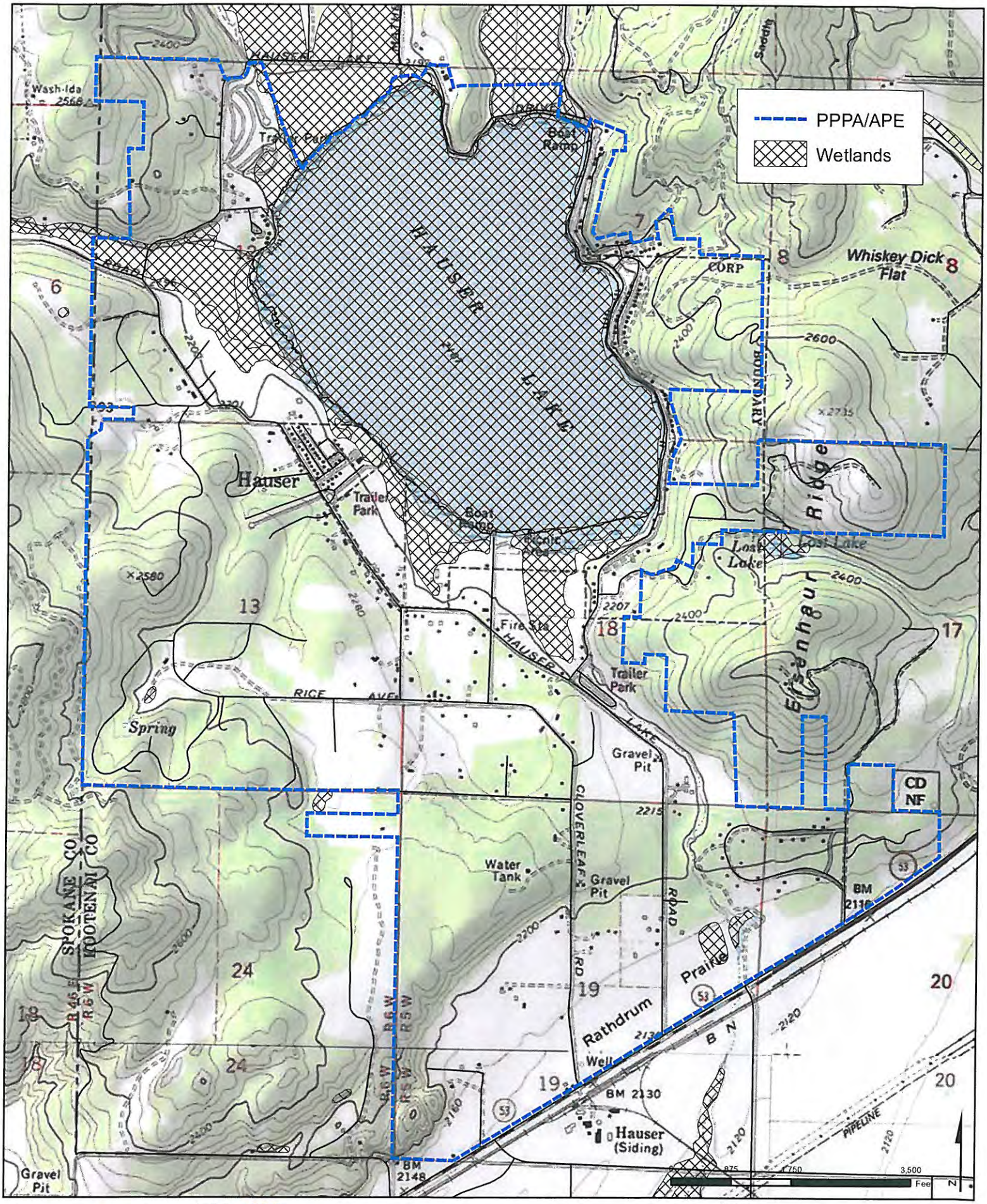
FILENAME ..... Hauser_Water_FacilitiesPlan_03
DATE 02/28/12



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(fax) 208-664-5946

Hauser Lake Water Association

Wetlands

Sources:
INSIDE Idaho, University of Idaho
Hauser Lake Water
ArcGIS Online
Kootenai County GIS Department

PROJECT NO	41018
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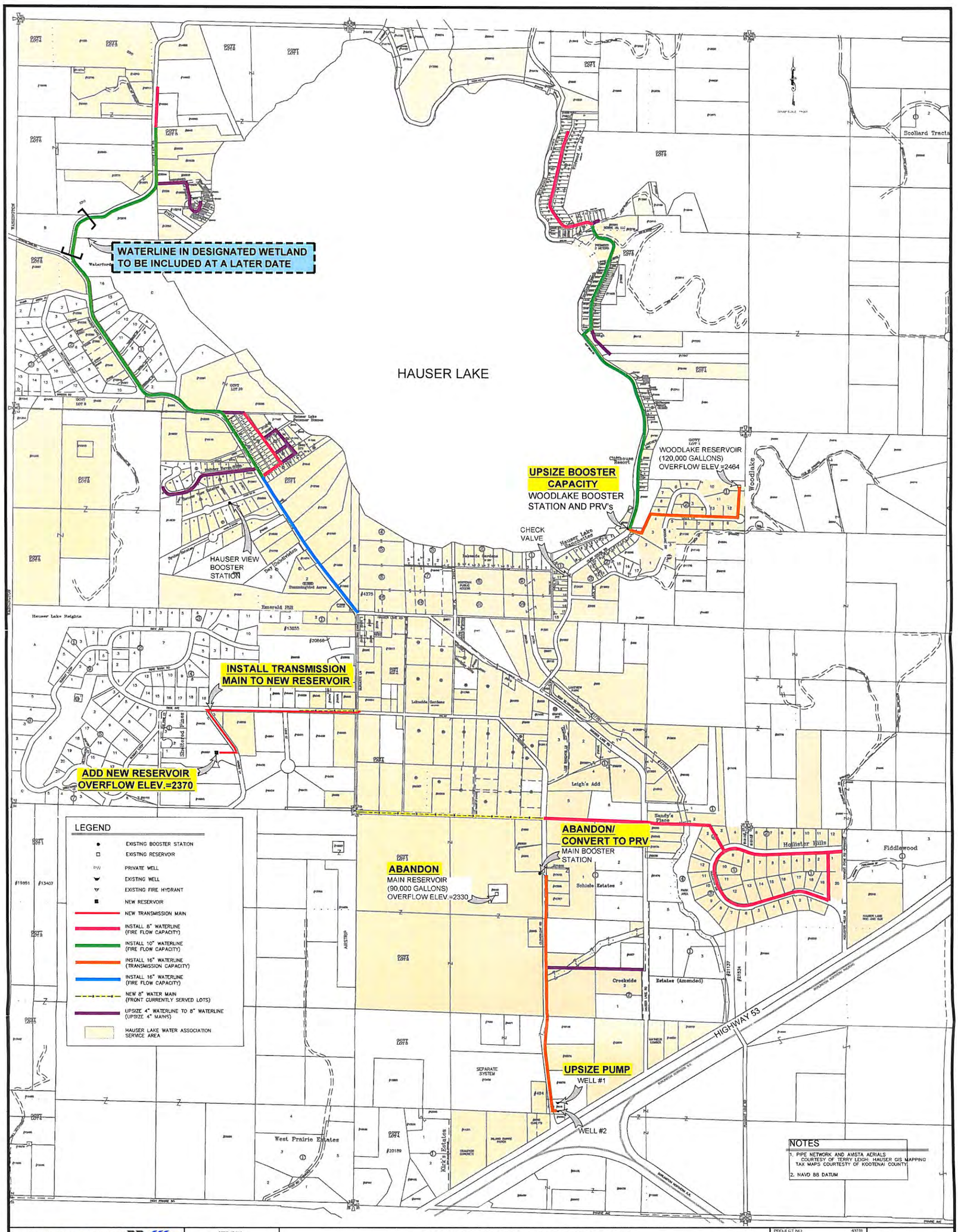

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HAUSER LAKE WATER ASSOCIATION
WETLAND EXCLUSION MAP

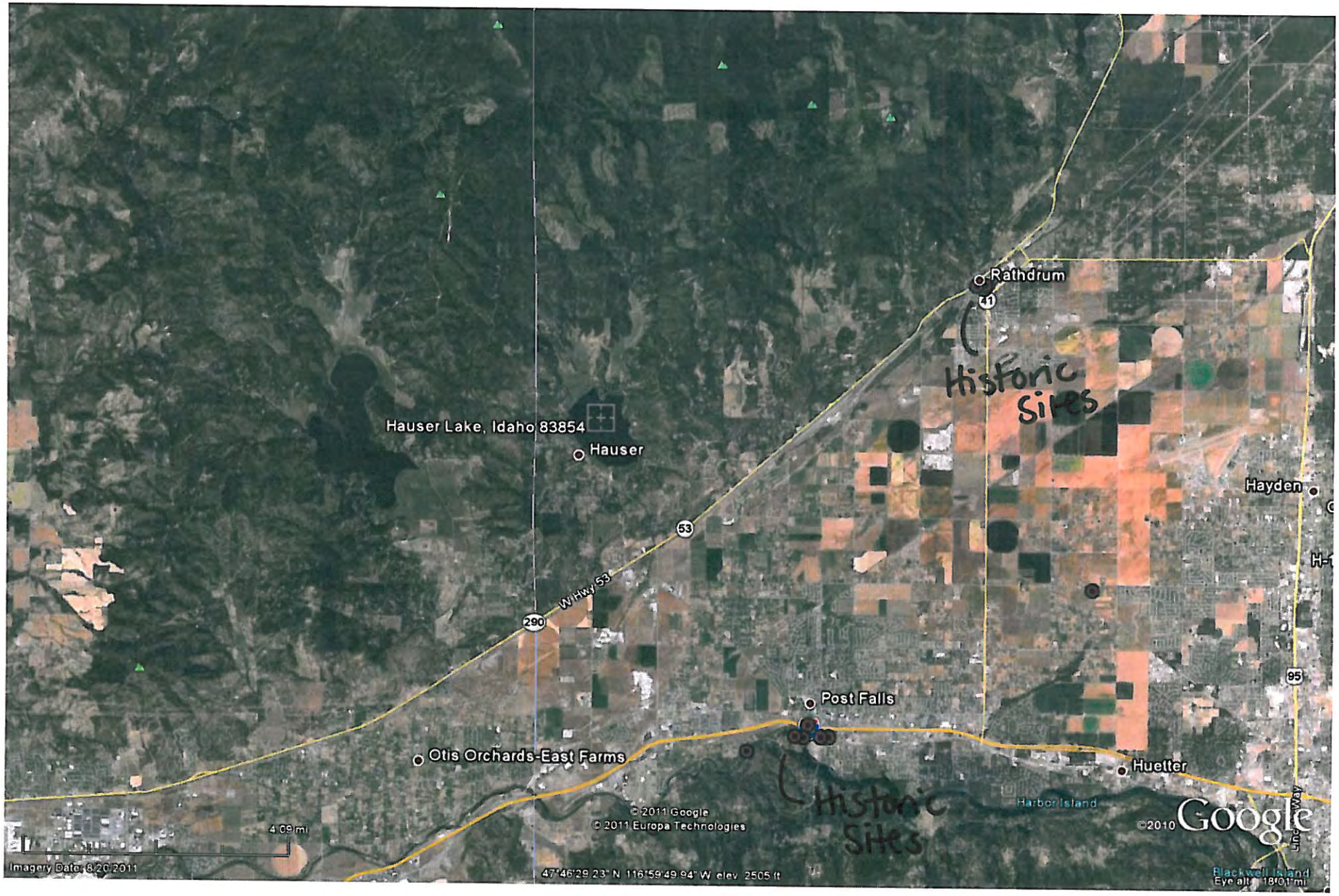
PROJECT NO	43139
DESIGNED BY	KJD
DRAWN BY	JAL
DWG NAME	43139FLOZ.DWG
DATE	12-08-11

Appendix G

Historic Site Information

National Park Service Historic Site Information
National Park Service Historic Site Locations

85002090	Bayview School II	Carewood Rd	Bayview			Kootenai	IDAHO	19850912 Kootenai County Rural Schools TR
85002091	Bellgrove School II	Hamaker Rd	Rockford Bay		X	Kootenai	IDAHO	19850912 Kootenai County Rural Schools TR
66000312	Cataldo Mission	Off U S 10	Cataldo			Kootenai	IDAHO	19661015
85002092	Cave Lake School	ID 3	Medimont		X	Kootenai	IDAHO	19850912 Kootenai County Rural Schools TR
85002093	Cedar Mountain School	Parks and Lewellyn Creek Rd	Athol	X		Kootenai	IDAHO	19850912 Kootenai County Rural Schools TR
78001070	Clark House	On Hayden Lake	Clarksville			Kootenai	IDAHO	19781212
79000792	Coeur d'Alene City Hall	5th and Sherman Sts	Coeur d'Alene			Kootenai	IDAHO	19790803
77000461	Coeur d'Alene Federal Building	4th and Lakeside	Coeur d'Alene			Kootenai	IDAHO	19771216
78001071	Coeur d'Alene Masonic Temple	525 Sherman Ave	Coeur d'Alene			Kootenai	IDAHO	19780522
85002094	Cougar Gulch School III	Cougar Gulch Rd	Post Falls	X		Kootenai	IDAHO	19850912 Kootenai County Rural Schools TR
99001476	Crane, Silas W., and Elizabeth, House	201 S. Coeur d'Alene Ave	Harrison			Kootenai	IDAHO	19991209
85001126	Davey, Harvey M., House	315 Wallace Ave	Coeur d'Alene			Kootenai	IDAHO	19850523
85002095	East Hayden Lake School II	Hayden Lake Rd	Camp Mvoden		X	Kootenai	IDAHO	19850912 Kootenai County Rural Schools TR
87001562	Finch, John A., Caretaker's House	2160 Finch Rd	Hayden Lake			Kootenai	IDAHO	19870914
79000793	First United Methodist Church	618 Wallace Ave	Coeur d'Alene			Kootenai	IDAHO	19790618
79000794	Fort Sherman Buildings	North Idaho Junior College campus	Coeur d'Alene			Kootenai	IDAHO	19791025
88000272	Gray, John P. and Stella, House	521 S. Thirteenth St	Coeur d'Alene			Kootenai	IDAHO	19880331
96001505	Harrison Commercial Historic District	Roughly bounded by N. Lake Ave., W. Harrison St., N. Coeur d'Alene, and Pine St	Harrison			Kootenai	IDAHO	19961220
85002096	Indian Springs School II	ID 3	Medimont		X	Kootenai	IDAHO	19850912 Kootenai County Rural Schools TR
75000633	Inland Empire Electric Railway Substation	Mullan Rd. and Northwest Blvd	Coeur d'Alene			Kootenai	IDAHO	19750627
77000462	Kootenai County Courthouse	501 Government Way	Coeur d'Alene			Kootenai	IDAHO	19771223
01000834	Kootenai County Jail	802 Second St.	Rathdrum			Kootenai	IDAHO	20010510
85002097	Lane School II	Lanz Rd	Lane			Kootenai	IDAHO	19850912 Kootenai County Rural Schools TR
85002098	McGuires School	Corbin Rd. and Old Hwy. 10	McGuire			Kootenai	IDAHO	19850912 Kootenai County Rural Schools TR
09001163	Mooney-Dahlberg Farmstead	5803 Riverview Dr	Coeur d'Alene		X	Kootenai	IDAHO	20091230
90000548	Mullan Road	3 segments 1)between Aldar Creek and Cedar Creek 2)Fourth of July Pass between I-80 and Old US 10 3)Heyburn State Park	Coeur d'Alene		X	Kootenai	IDAHO	19900405
85002099	Pleasant View School II	Pleasant View Rd	Pleasant View		X	Kootenai	IDAHO	19850912 Kootenai County Rural Schools TR
84003851	Post Falls Community United Presbyterian Church	4th and William Sts.	Post Falls	X		Kootenai	IDAHO	19840907
85002100	Prairie School II	Prairie Ave	Coeur d'Alene		X	Kootenai	IDAHO	19850912 Kootenai County Rural Schools TR
74000742	Rathdrum State Bank	1st and Mills Sts.	Rathdrum			Kootenai	IDAHO	19741108
76000676	Roosevelt School	1st and Wallace Sts	Coeur d'Alene			Kootenai	IDAHO	19760730
85002101	Rose Lake School II	Queen St. and ID 3	Rose Lake			Kootenai	IDAHO	19850912 Kootenai County Rural Schools TR
92000418	Sherman Park Addition	Bounded by Garden Ave., Hubbard St., Lakeshore Dr. and Park Dr.	Coeur d'Alene			Kootenai	IDAHO	19920427
79000795	Spirit Lake Historic District	Maine St.	Spirit Lake			Kootenai	IDAHO	19790208
03000124	Spokane Valley Land and Water Company Canal	Diverts in Falls Park, Fourth St.	Post Falls			Kootenai	IDAHO	20030320
77000464	St. Stanislaus Kostka Mission	McCartney and 3rd Sts	Rathdrum			Kootenai	IDAHO	19771117
77000463	St. Thomas Catholic Church	919 Indiana Ave	Coeur d'Alene			Kootenai	IDAHO	19771005
85002156	Thunborg, Jacob and Cristina, House	Chicken Point	Hayden Lake		X	Kootenai	IDAHO	19850912
92000420	Treaty Rock	N of I-90, NE of Spokane R. falls	Post Falls	X		Kootenai	IDAHO	19920430
85002102	Upper Twin Lakes School	Twin Lakes Rd	Silver Sands Beach		X	Kootenai	IDAHO	19850912 Kootenai County Rural Schools TR
96001507	Washington Water Power Bridges	.5 mi. W of jct. of Spokane and 4th Sts.	Post Falls			Kootenai	IDAHO	19961220
97000765	Young, Samuel and Ann, House	120 4th Ave	Post Falls			Kootenai	IDAHO	19970709


Rathdrum
41
Historic Sites
Hauser Lake, Idaho 83854
Hauser
Hayden
53
W Hwy 53
290
95
Post Falls
Otis Orchards-East Farms
Huetter
Historic Sites
Harbor Island
© 2011 Google
© 2011 Europa Technologies
©2010 Google
4.09 mi
Imagery Date: 8/20/2011
47°46'29.23" N 116°59'49.94" W elev 2505 ft
Blackwell Island
Eye alt 18.01 mi

Appendix H

Fish and Wildlife Information

Endangered Species Information
Critical Habitat Map

Group	Name	Population	Status	Lead Office	Recovery Plan Name	Recovery Plan Stage
Birds	Yellow-billed Cuckoo (Coccyzus	Western U.S. DPS	Candidate	Sacramento Fish And Wildlife		
Fishes	Bull Trout (Salvelinus	U.S.A., conterminous, lower 48	Threatened	Idaho Fish And Wildlife Office	Draft Recovery Plan for the	Draft
Fishes	Bull Trout (Salvelinus	U.S.A., conterminous, lower 48	Threatened	Idaho Fish And Wildlife Office	Draft Recovery Plan for the	Draft
Fishes	Bull Trout (Salvelinus	U.S.A., conterminous, lower 48	Threatened	Idaho Fish And Wildlife Office	Draft Recovery Plan for Three of	Draft
Flowering Plants	Spalding's Catchfly (Silene		Threatened	Idaho Fish And Wildlife Office	Spalding's Catchfly Final	Final
Mammals	Gray wolf (Canis lupus)	Northern Rocky Mountain DPS	Recovery	Office Of The Regional Director		
Mammals	Canada Lynx (Lynx canadensis)	(Contiguous U.S. DPS)	Threatened	Montana Ecological Services	Recovery Outline for the	Outline
Mammals	North American wolverine (Gulo		Candidate	Montana Ecological Services		

Species Reports

Environmental Conservation Online System

(http://www.fws.gov)

Species By County Report

The following report contains Species that are known to or are believed to occur in this county. Species with range unrefined past the state level are now excluded from this report. If you are looking for the Section 7 range (for Section 7 Consultations), please visit the IPaC (/ipac) application.

County: Kootenai, ID

Group (countySearch!speciesByCountyReport.action;jsessionid=94A6AB67A39589A1C7A06B232580B126?d-16544-s=0&d-16544-o=2&d-16544-p=1&fips=16055)	Name (countySearch!speciesByCou
Birds	Yellow-billed Cuckoo (*Coccyzus*
Fishes	Bull Trout (*Salvelinus confluentu*
Flowering Plants	Spalding's Catchfly (*Silene spalo*
Mammals	Gray wolf (*Canis lupus*) (http://ecc
	Canada Lynx (*Lynx canadensis*)
	North American wolverine (*Gulo*

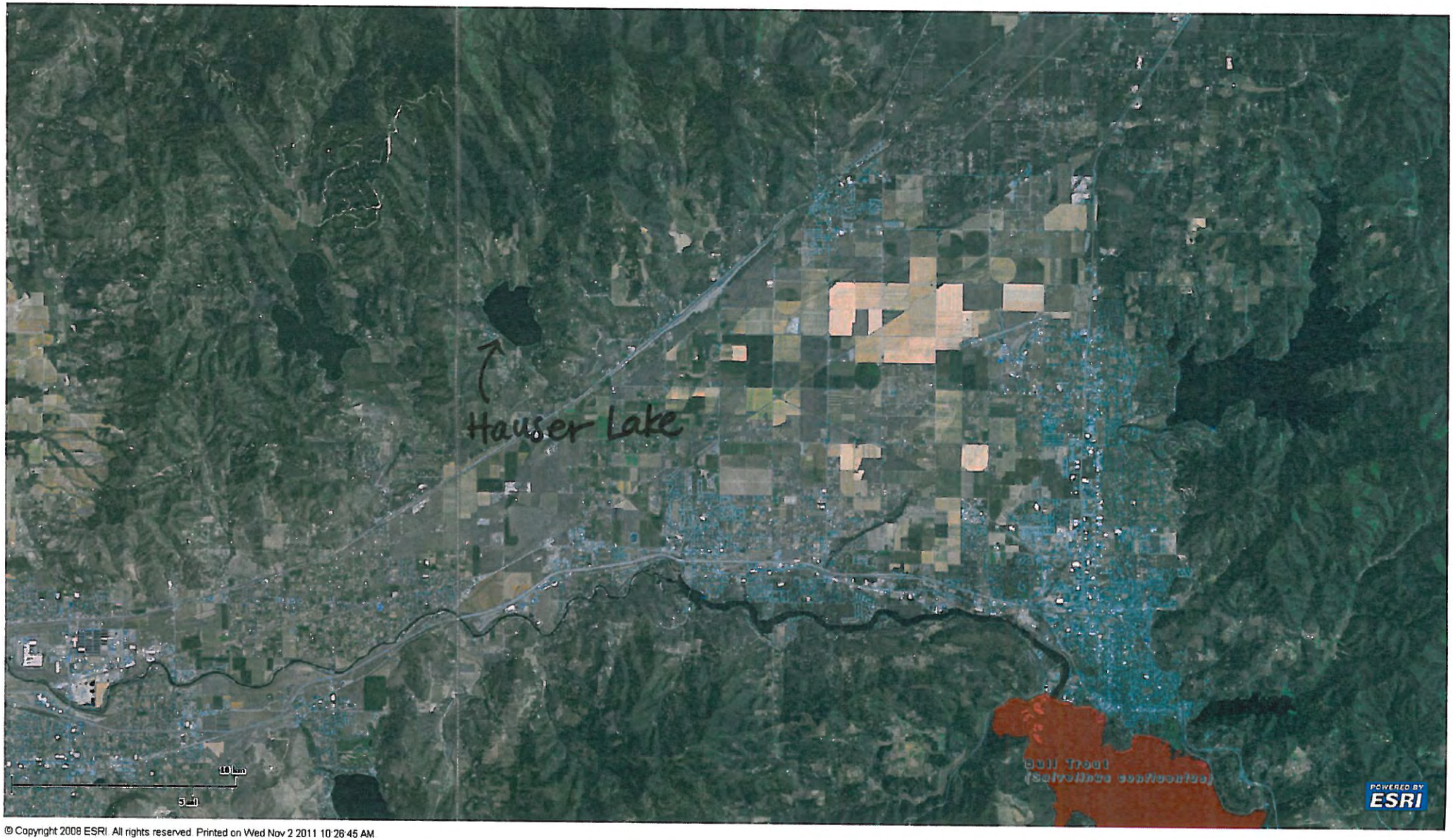
Export options. CSV (countySearch!speciesByCountyReport.action;jsessionid=94A6AB67A39589A1C7A06B232580B126?d-16544-e=1&6578706f7274=1&fips=16055)| EXCEL (countySearch!speciesByCountyReport.action;jsessionid=94A6AB67A39589A1C7A06B232580B126?d-16544-e=2&6578706f7274=1&fips=16055)| XML (countySearch!speciesByCountyReport.action;jsessionid=94A6AB67A39589A1C7A06B232580B126?d-16544-e=3&6578706f7274=1&fips=16055)| PDF (following page) (countySearch!speciesByCountyReport.action;jsessionid=94A6AB67A39589A1C7A06B232580B126?d-16544-e=5&6578706f7274=1&fips=16055)

Last updated: February 16, 2012

ECOS Home (/ecos/indexPublic.do) | Contact Us (/ecos/helpdesk.do?version=TESS_PUBLIC-1_1_10)

Critical Habitat

for Hauser Lake, Idaho Area



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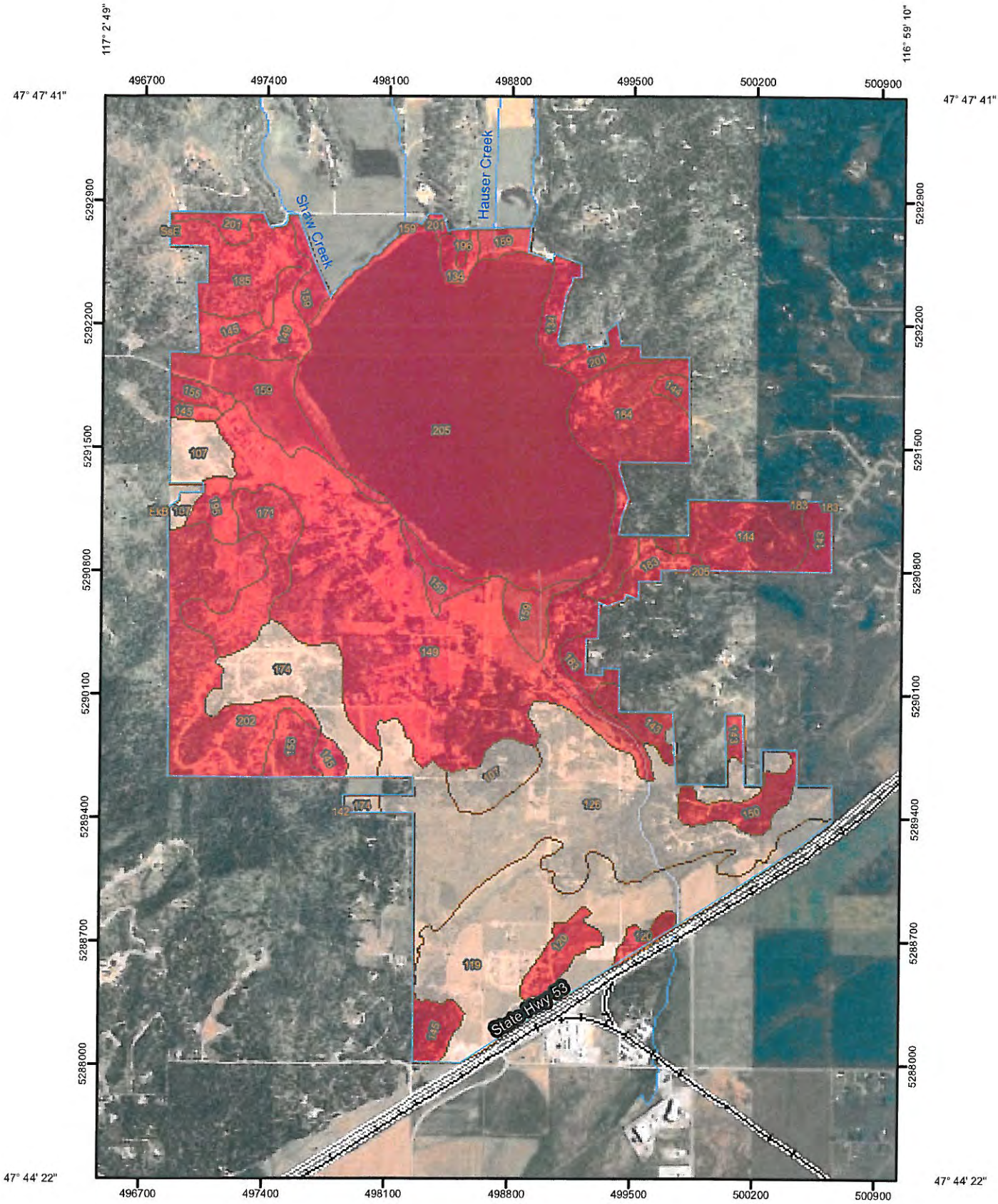
Appendix I

Farmland Classification Map



Map Scale: 1:29,300 if printed on A size (8.5" x 11") sheet.

N

Meters: 0 250 500 1,000 1,500

Feet: 0 1,000 2,000 4,000 6,000

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

Soil Ratings

- 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

Political Features

- Cities

Water Features

- Streams and Canals

Transportation

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

MAP INFORMATION

Map Scale: 1:29,300 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 11N NAD83

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

Soil Survey Area: Kootenai County Area, Idaho
Survey Area Data: Version 6, Jan 31, 2008

Soil Survey Area: Spokane County, Washington
Survey Area Data: Version 2, Jun 9, 2009

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Date(s) aerial images were photographed: 7/2/2006; 6/23/2004

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.

Farmland Classification

Farmland Classification— Summary by Map Unit — Kootenai County Area, Idaho (ID606)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
107	Bonner silt loam, 0 to 8 percent slopes	Prime farmland if irrigated	67.0	2.5%
119	Garrison gravelly silt loam, 0 to 7 percent slopes	Prime farmland if irrigated	244.0	9.0%
120	Garrison very stony silt loam, 0 to 7 percent slopes	Not prime farmland	36.0	1.3%
126	Kootenai gravelly silt loam, 0 to 7 percent slopes	Prime farmland if irrigated	337.1	12.5%
134	Kruse-Ulricher association, 35 to 65 percent slopes	Not prime farmland	33.7	1.2%
142	Lenz loam, 5 to 35 percent slopes	Not prime farmland	0.4	0.0%
143	Lenz very stony loam, 5 to 35 percent slopes	Not prime farmland	40.9	1.5%
144	Lenz complex, 35 to 65 percent slopes	Not prime farmland	72.1	2.7%
145	Lenz-Spokane-Rock outcrop association, 30 to 55 percent slopes	Not prime farmland	51.9	1.9%
149	McGuire-Marble association, 0 to 7 percent slopes	Not prime farmland	465.9	17.3%
150	McGuire-Marble association, 20 to 45 percent slopes	Not prime farmland	30.2	1.1%
155	Moscow loam, 5 to 35 percent slopes	Not prime farmland	33.9	1.3%
159	Pywell muck	Not prime farmland	130.1	4.8%
171	Schumacher-Skalan association, 20 to 35 percent slopes	Not prime farmland	64.8	2.4%
174	Selle fine sandy loam, 0 to 7 percent slopes	Prime farmland if irrigated	89.5	3.3%
183	Spokane loam, 5 to 30 percent slopes	Not prime farmland	34.8	1.3%
184	Spokane loam, 30 to 65 percent slopes	Not prime farmland	107.4	4.0%
185	Spokane-Moscow association, 35 to 65 percent slopes	Not prime farmland	64.5	2.4%
195	Ulricher loam, 5 to 20 percent slopes	Not prime farmland	17.7	0.7%
196	Ulricher loam, 20 to 35 percent slopes	Not prime farmland	3.4	0.1%
201	Vassar-Moscow association, 5 to 35 percent slopes	Not prime farmland	30.6	1.1%
202	Vassar-Moscow association, 35 to 65 percent slopes	Not prime farmland	144.8	5.4%
205	Water	Not prime farmland	599.3	22.2%

Farmland Classification— Summary by Map Unit — Kootenai County Area, Idaho (ID606)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
Subtotals for Soil Survey Area			**2,700.1**	**100.0%**
Totals for Area of Interest			**2,700.1**	**100.0%**

Farmland Classification— Summary by Map Unit — Spokane County, Washington (WA063)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
EkB	Eloika silt loam, 0 to 20 percent slopes	Farmland of statewide importance	0.0	0.0%
SsE	Spokane complex, 30 to 70 percent slopes	Not prime farmland	0.0	0.0%
Subtotals for Soil Survey Area			**0.0**	**0.0%**
Totals for Area of Interest			**2,700.1**	**100.0%**

Description

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.

Rating Options

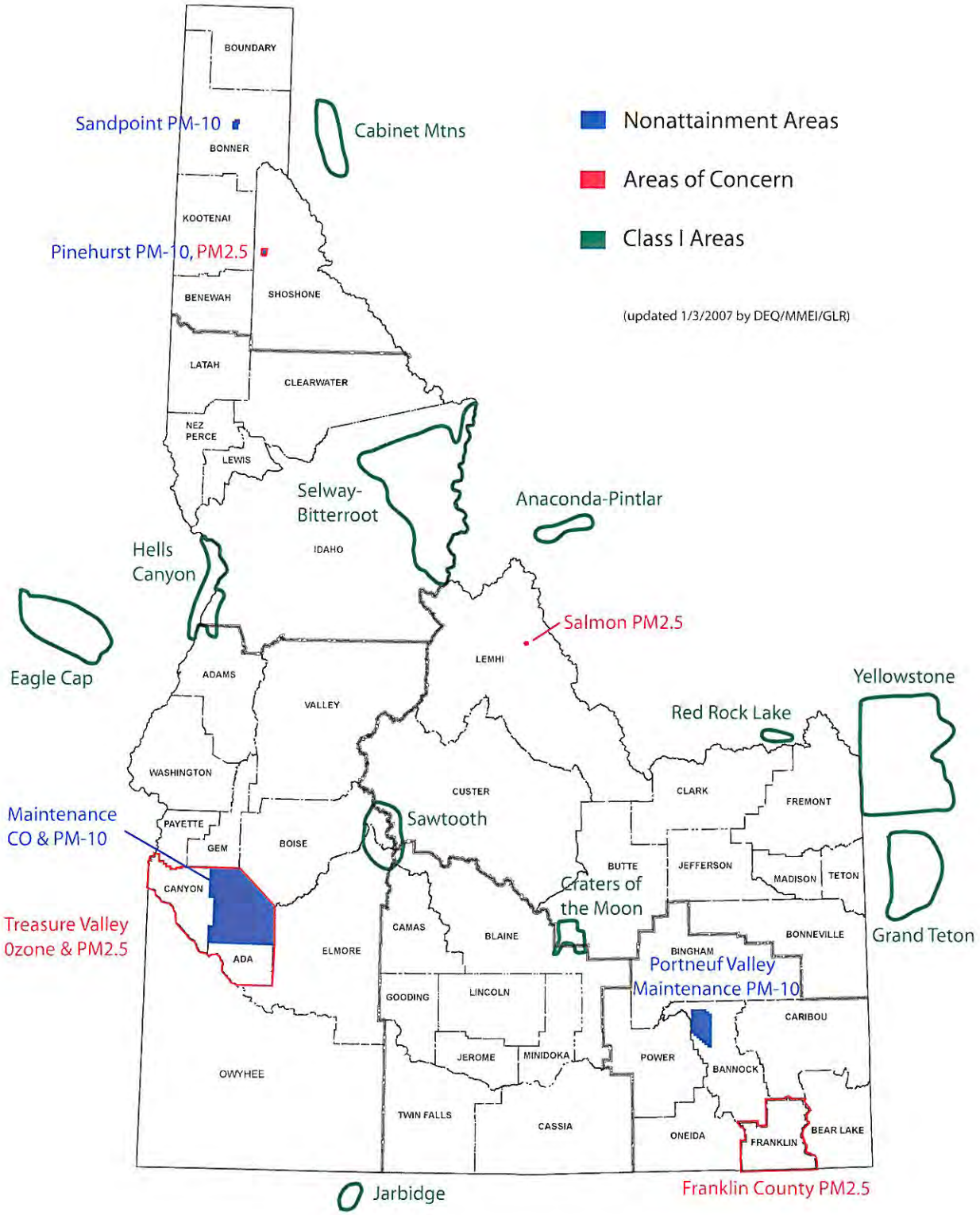
Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

Appendix J

Idaho Air Quality Map

Idaho Air Quality Planning Areas



Appendix K

Water Quality Information

Rathdrum Prairie TMDL

Spokane Valley-Rathdrum Prairie Aquifer Map

Drinking Water Quality Information

SUB-BASIN ASSESSMENT AND TOTAL MAXIMUM DAILY LOADS OF LAKES AND STREAMS LOCATED ON OR DRAINING TO THE RATHDRUM PRAIRIE (17010305)

November 22, 2000

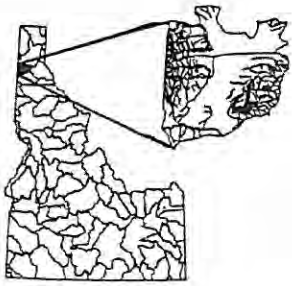
Idaho Department of Environmental Quality
Coeur d'Alene Regional Office
2110 Ironwood Parkway
Coeur d'Alene ID 83814

2. SUB-BASIN ASSESSMENT OF LAKES AND STREAMS LOCATED ON OR DRAINING TO THE RATHDRUM PRAIRIE (17010305)

2.0 Rathdrum-Spokane Sub-basin Water Quality at a Glance

Water Quality at a Glance:

Hydrologic Unit Code..... 17010305
Water Quality Limited Segments..... Hauser Lake; Hayden Lake; Spirit Lake; Fish Creek-Twin Lakes-Rathdrum Creek
Beneficial Uses affected..... Cold Water Biota, salmonid Spawning, Primary Contact Recreation
Pollutants of Concern..... Nutrients, sediment, D.O. and bacteria
Known Land Uses..... Forestry, agriculture, urban



2.0.1 Prologue:

The impact of the trace (heavy) metals cadmium, lead and zinc on the Spokane River has been addressed in assessments of the Spokane River and the Coeur d'Alene Lake Plan (Gugliomone, 1992; IDEQ, 1996a). A total maximum daily load document has been developed for these pollutants (IDEQ, 1998a; EPA, 2000). This subbasin assessment addresses the nonmetallic pollutants of concern for the entire subbasin. For background on the Spokane River, the reader is referred to the documents cited.

2.1. Characterization of the Watershed

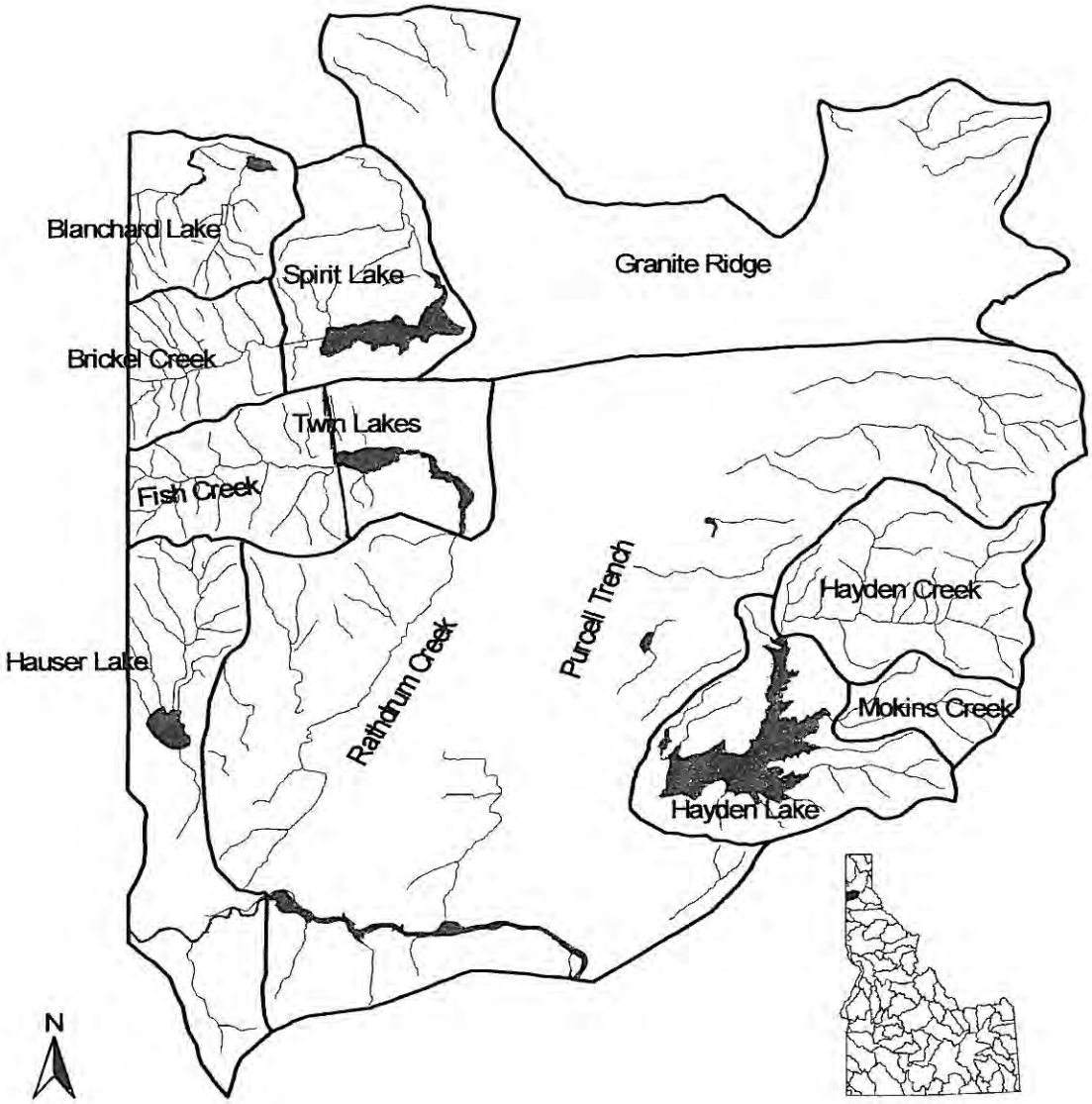
The Rathdrum Prairie is a 209 square mile area located west of the Coeur d'Alene Mountains, north of Coeur d'Alene Lake and south of Lake Pend Oreille (Figure 1). In addition to the two large lakes, five smaller lakes (Blanchard, Hauser, Hayden, Spirit and Twin) are located at the fringes of the prairie. Streams flow from the mountains adjacent to the prairie, either into the lake basins or onto the prairie, where these streams dewater rapidly to the underlying Rathdrum-Spokane Aquifer. The lakes at the margin of the prairie discharge in part, (Blanchard, Coeur d'Alene, Pend Oreille and Twin), or nearly wholly, to the aquifer (Hauser, Spirit and Hayden). The Spokane River traces the southern boundary of the watershed on its route from Coeur d'Alene Lake to the Washington border. The majority of the population of northern Idaho lives in the subbasin on or adjacent to the prairie.

2.1.1. Physical and Biological Characteristics

2.1.1.1 Climate

The Rathdrum Prairie sub-basin is located in the Northern Rocky Mountain physiographic region

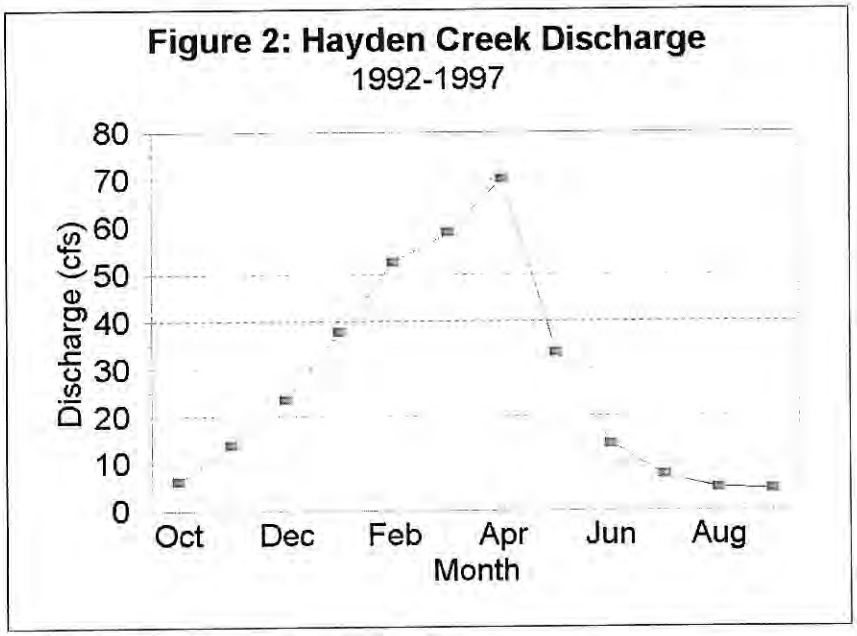
Figure 1: Rathdrum Aquifer Watershed (HUC 17010305)



to the west of the Bitterroot Mountains. The local climate is influenced by both pacific maritime air masses from the west as well as continental air masses from Canada to the north. The annual weather cycle generally consists of cool to warm summers with cold and wet winters. The relative warmth of summers or winters depends on the dominance of pacific or continental air masses. Precipitation amounts are most generous in the winter months. Precipitation takes the form of rain on the prairie and in the adjacent mountains below 3,000 feet of elevation, while it is in the form of snow in the mountains above 4,500 feet. The transitional zone between 3,000 and 4,500 feet holds a transient snow pack, which is subject to rapid melt when warm wet pacific air masses predominate. The result of these snow melt events is high discharge rain on snow events.

2.1.1.2. Hydrology

The average discharge hydrograph of Hayden Creek near its mouth is provided in Figure 2 (USGS, 1992-1997). The hydrograph is representative of streams of the sub-basin. The discharge of the streams of the sub-basin is dominated by the spring snowmelt. The streams draining the Coeur d'Alene and Selkirk Mountains have watersheds predominantly in the elevation range (3,000 - 4,500 feet) subject to winter "rain on snow" discharge events. The relative low elevation of the watersheds causes earlier maximum discharge (early-April), than from the majority of the watersheds of the Coeur d'Alene Mountains to the east or the Selkirk Mountains to the north. The lakes discharge to the aquifer with no back flow from the aquifer to the lakes. Lake levels are controlled by tributary stream discharge from their watersheds and the rate of discharge to the aquifer. The levels of Coeur d'Alene, Pend Oreille and Twin Lakes are controlled by discharge structures.



2.1.1.3 Land Forms, Geology and Soils

The Rathdrum Prairie is a large sand, gravel and cobble deposit resulting from the out wash of the Pleistocene Missoulian floods. The deposit is believed to have partially or wholly impounded Coeur d'Alene Lake as well as Hayden, Hauser, Twin and Spirit Lakes (Anderson, 1927). The prairie deposit is ringed by mountainous lands to the east (Coeur d'Alene Mountains), north, west and south (Selkirk Range). A gap in the Selkirk Range at the southwest edge of the prairie is the outlet for both the Spokane River as well as the Rathdrum-Spokane Aquifer.

The watersheds of the sub-basin draining the western flank of the Coeur d'Alene Mountains are generally underlain by rocks of the Belt Supergroup meta-sedimentary terrain. Isolated granitic intrusions and Miocene basalt flow formations are found in these watersheds as well. The Belt terrene weathers to predominantly silt size particles with rounded cobbles as the primary transitional material found in the higher gradient streams. The Selkirk Range forms the watersheds of streams flowing from the north and west to the lakes or the prairie. The range is a granitic formation. However, some remnant Belt geologies exist in some watersheds. These granitic substrates weather to sandy substrates. The predominant bedload of these streams is sand. Soils of the Coeur d'Alene Mountain watersheds are silty and stony podzols developed under predominantly cool conditions and mixed coniferous forest. Soils of the Selkirk Mountain watersheds are sandy podzols developed under predominantly cool conditions and mixed coniferous forest.

Tributaries to the lakes flowing from the mountains are high gradient streams (Rosgen B) channels. Streams flowing onto the prairie are similar. As these streams enter the prairie formation, an abrupt transition to lower gradient channels occurs in their final half miles. Streams quickly dewater into the sands and gravels. The lakes discharge to the prairie formation to feed the Rathdrum-Spokane Aquifer. Blanchard, Hauser Hayden and Spirit Lakes have either no or modest outlets which rapidly dewater. The exception is Twin Lakes, which forms Rathdrum Creek. This Creek flows at the edge of the prairie for approximately seven miles before it dewaters into the prairie gravels.

2.1.1.4. Vegetation

The predominant vegetation of the Coeur d'Alene and Selkirk Mountains, adjacent to the prairie, is mixed coniferous forest at higher elevations. Dominant conifers of the mixed forest are pines, true fir, Douglas fir, tamarack and red cedar. Cottonwood, aspen and alder are the predominant broadleaf species. Lower elevation slopes supported a dryer ponderosa pine forest, which was kept sparse by a more frequent fire occurrence. Fire suppression in the past ninety years has caused the conversion of most of these stands to Douglas fir forest. Riparian areas would be dominated by cottonwood, alder and red cedar. The prairie was grassland with a stony surface prior to European settlement. This vegetation formation was likely maintained by frequent burning practiced by the indigenous peoples. The grasslands and wooded areas would have expanded and contracted dependent on the fire cycle.

2.1.1.5. Aquatic Fauna

The native salmonids of the sub-basin's streams are cutthroat trout, whitefish and bull trout. Sculpin, shiners and bullhead catfish are also natives. The tailed frog, giant salamander and turtles completed the vertebrate species. The fish fauna of the lakes and some streams have been greatly altered by the introduction of several trouts, salmon and warm water species. A detailed discussion of the current fishery of Coeur d'Alene Lake is available in the Coeur d'Alene Lake Management Plan (IDEQ, 1996a). Similar introductions were made to the smaller lakes of the sub-basin with the collateral impact to their tributary streams. Although the lakes and some streams have highly altered aquatic fauna due to introductions, some headwater streams retain native species with the addition of rainbow and brook trout and the loss of bull trout. Although fish composition appears stable in the headwaters, fish abundance is generally believed to be reduced from historic levels observed during settlement of the area.

2.1.2 Cultural Impacts:

The watersheds of the Coeur d'Alene and Selkirk Mountains which drain to the lakes or directly to the prairie formation are managed primarily for timber production and dispersed recreation. Timber management has been moderately intense with large clear-cut areas and dense road development. Land management in this area is primarily by the U.S. Forest Service in the Coeur d'Alene Mountains. Large tracts of private industrial and private forestland exist in the Selkirk Mountains. The Inland Empire Paper Company has large timber land holdings in the watersheds of Hauser, Twin and Spirit Lakes as well as the watersheds draining south to the prairie formation. Near the population center of Coeur d'Alene, Hayden Lake and Dalton, timber management has been less intense to protect scenic values. Some forested watersheds were logged using railroad systems (Hayden and Fish Creeks).

Agriculture on the Rathdrum Prairie is primarily bluegrass seed and small grain production. No streams are present on the prairie to be affected by these practices. Agricultural burning (Falter and Hallock, 1987) has been suggested as a source of atmospheric nutrient deposition to the lakes, but the level of contribution has not been quantified. Grazing occurs on some tributaries to the lakes. Lancaster Creek, a tributary to Hayden Creek, and Fish Creek, as well as the shoreline of Upper Twin Lake, remain areas of intense cattle grazing. Grazing continues in the Brickel Creek watershed, which is the primary tributary to Spirit Lake. Cattle have been excluded from the stream by fencing.

The Rathdrum Prairie sub-basin has the largest population concentration in northern Idaho. The main population center in the sub-basin is the City of Coeur d'Alene on the northern shore of the lake. The Hayden, Hayden Lake and Dalton communities are arrayed along the eastern edge of the prairie. Many residences are located in the watersheds of tributaries to the lakes or streams flowing onto the prairie. The city of Post Falls is located along the Spokane River six miles west of Coeur d'Alene. Rathdrum is located on the western edge of the prairie. Twin Lakes Village is located at the foot of Twin Lakes, while the City of Spirit Lake is located to the north near Spirit Lake. The town of Athol is situated on the northeast edge of the prairie. Rural residences and businesses are found across the prairie and in the adjacent mountains. Lakeside residences and cabins fill the

shores of all the lakes. The cities of Coeur d'Alene, Post Falls, Hayden, Hayden Lake, Dalton and Rathdrum have centralized sewage collection and treatment. Many rural residences and lakeside homes or cabins use on-site wastewater treatment systems of varying efficiency. Lot size restrictions have been imposed on the Rathdrum Prairie to protect the Rathdrum-Spokane Aquifer from contamination. For additional information on the land use and demographics of the Coeur d'Alene Basin refer to the Coeur d'Alene Lake Management Plan (IDEQ, 1996a).

2.2. Regulatory Requirements:

2.2.1. Segments of Concern:

The stream segments listed in 1998 under Section 303(d) Clean Water Act for nonmetallic pollutants in sub-basin 17010305 are provided in Table 1. Two additional water bodies had been listed on the 1996 list. These were Mokins Creek (17010305 3557), which was listed for nutrients, sediment and habitat alteration and Brickel Creek (17010305 3437, which was listed for sediment. Mokins and Brickel Creeks were removed from the list when analysis of more recent water quality data provided scores sufficiently high for delisting (IDEQ 1996b).

Table 1: List of 1998 Section 303(d) Clean Water Act listed water bodies.

Water body Name	HUC Number	Boundaries	Pollutant(s)
Spokane River	17010305 3552	CdA Lake to Huetter	Temperature
Spokane River	17010305 3553	Huetter to Post Falls Bridge	Temperature
Spokane River	17010305 4554	Post Falls Bridge to WA Border	Temperature
Fish Creek	17010305 3561	WA Border to Twin lakes	Nutrients and sediment
Twin Lakes	17010305 7561		Bacteria, nutrients and sediment
Rathdrum Creek	17010305 3560	Twin Lks Outlet to E. Green acres Diversion	Nutrients and sediment
Hauser Lake	17010305 3562		Dissolved oxygen and nutrients
Hayden Lake	17010305 7555		Nutrients and sediment
Spirit Lake	17010305 3438		Nutrients, dissolved oxygen and sediment

2.2.2 Beneficial uses:

Of the listed water bodies, the Spokane River, Hauser, Hayden, Spirit and Twin Lakes have beneficial uses specifically designated in the Idaho Water Quality Standards (IDAPA 58.01.02.)(IDEQ, 2000). Beneficial uses of the other water bodies listed (Fish and Rathdrum Creeks) would be by interpretation of the standards, cold water biota and secondary contact recreation (IDAPA 58.01.02101.01.a).

The Spokane River (P-3, P-4) has designated uses in the Idaho water quality standards (IDAPA 58.01.02110.12.) of domestic water supply, agricultural water supply, cold water biota, primary and secondary contact recreation and salmonid spawning. Twin Lakes (P-13) have designated uses of domestic water supply, agricultural water supply, cold water biota, primary and secondary contact recreation (IDAPA 58.01.02110.12.). Hayden Lake (P-5) has designated uses of domestic water supply, agricultural water supply, cold water biota, salmonid spawning and primary and secondary contact recreation (IDAPA 58.01.02110.12.). It is designated as a special resource water as well. Hauser Lake (P-16) has designated uses of domestic water supply, agricultural water supply, cold water biota, primary and secondary contact recreation (IDAPA 58.01.02110.12.). Hauser and Twin Lakes have salmonid spawning protected for future use. Spirit Lake (P-9) has designated beneficial uses of domestic water supply, agricultural water supply, cold water biota, salmonid spawning, primary and secondary contact recreation and special resource water (IDAPA 58.01.02110.05.)

The Idaho Water Quality Standards and Wastewater Treatment Requirements are currently undergoing major revision under the Idaho Administrative Procedures Act requirements. Among the revisions are changes to the designated uses of several water bodies including those listed in Table 1. Agricultural water use would be dropped from all these water bodies. Secondary contact recreation is dropped as redundant, when primary contact recreation is designated. Primary contact recreation requires more stringent support criteria than secondary contact recreation. The protection of salmonid spawning for future use is dropped for Hauser and Twin Lakes. These changes have been adopted by the Idaho Board of Health & Welfare and approved by the Legislature. These changes are currently under review by the EPA.

2.2.3. Water Quality Criteria:

Water quality criteria supportive of the beneficial uses are stated in the Idaho Water Quality Standards and Wastewater Treatment Requirements (IDHW 1996b). The standards supporting the beneficial uses are outlined in Table 2. In addition to these standards cold water biota and salmonid spawning are supported by two narrative standards. The narrative sediment standard states:

Sediment shall not exceed quantities specified in section 250 or, in the absence of specific sediment criteria, quantities, which impair designated beneficial uses. Determinations of impairment shall be based on water quality monitoring and surveillance and the information utilized as described in Subsection 350.02.b. (IDAPA 58.01.02.200.08).

The excess nutrients standard states:

Surface waters of the state shall be free from excess nutrients that can cause visible slime growths or other aquatic growths impairing designated beneficial uses. (IDAPA 58.01.02.200.06).

Table 2: Water quality criteria supportive of beneficial uses.

Designated Use	Primary Contact Recreation	Secondary Contact Recreation	Cold Water Biota	Salmonid Spawning
Coliforms and pH	406 EC/100mL	576 EC/100mL	pH between 6.5 and 9.5	pH between 6.5 and 9.5
Coliforms and dissolved gas	126 EC/100mL geometric mean over 30days	126 FC/100mL geometric mean over 30 days	dissolved gas not exceeding 110%	dissolved gas not exceeding 110%
chlorine			total chlorine residual less than 19 ug/L/hr or an average 11 ug/L/4 day period	total chlorine residual less than 19 ug/L/hr or an average 11 ug/L/4 day period
toxics substances			less than toxic substances set forth in 40 CFR 131.36(b)(1) Columns B1, B2, D2	less than toxic substances set forth in 40 CFR 131.36(b)(1) Columns B1, B2, D2
dissolved oxygen			exceeding 6 mg/L D.O.	exceeding 5 mg/L intergraval D. O.; exceeding 6 mg/L surface
temperature			less than 22°C (72°F) instantaneous; 19°C (66°F) daily average	less than 13°C (55°F) instantaneous; 9°C (48°F) daily average
ammonia			low ammonia (formula/tables for exact concentration	low ammonia (formula/tables for exact concentration
turbidity			less than 50 NTU instantaneous greater than background; 25 NTU over 10 days greater than background	

2.3. Water Quality Concerns and Status:

2.3.1 Pollutant Sources

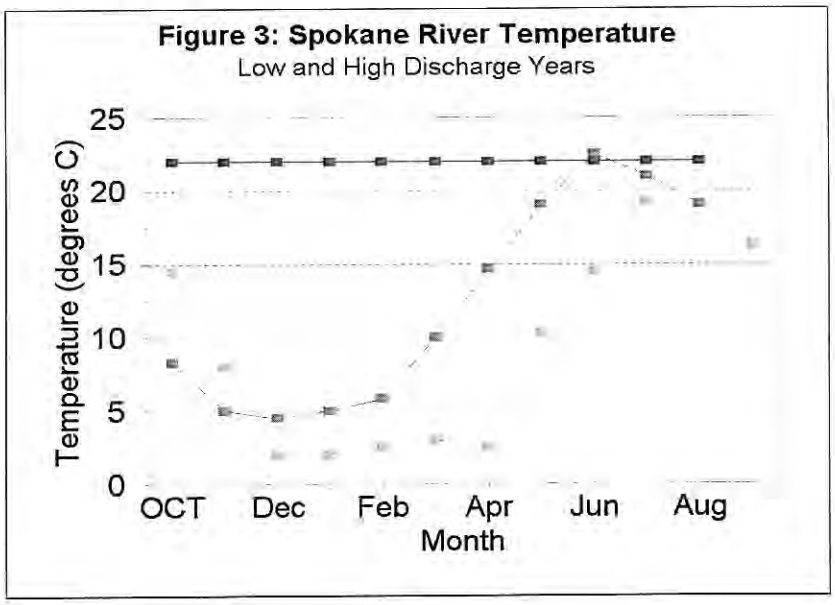
The water bodies listed in the sub-basin have reported pollutant exceedences for one or more of the following pollutants: bacteria, nutrients, sediment, dissolved oxygen and temperature. Bacterial contamination would be predominantly from livestock grazing. Some bacterial contamination may be from insufficient treatment of human wastes at lakeshore cabins. Excess nutrients normally are the result of human residential development or livestock grazing activities in the waters under assessment. Nutrients may also naturally build up in a lake over time causing a naturally eutrophic lake. Shallow lakes, which have limited water flow through the lake on an annual basis, are more likely to be eutrophic. Any water body, which has its source in a nutrient enriched lake, will itself be rich in nutrients. Sediment is a water constituent naturally yielded by watersheds to water bodies.

Excess sedimentation most often has its origin in roads developed for logging or access to a watershed. Roads may yield sediment directly from their surfaces or bed through mass wasting or their locations may cause the adjacent stream to begin bank and channel cutting. Dissolved oxygen may be deficient in lakes and some streams as the result of the presence of biological oxygen demanding materials. Often eutrophic lakes have sufficient algal and weed growth to engender dissolved oxygen problems. Dissolved oxygen deficits normally appear initially in the hypolimnetic waters of lakes, which thermally stratify. Streams often have insufficient dissolved oxygen as a result of temperature exceedences. Oxygen solubility declines with increased water temperature. Temperature exceedences in these waters are often due either to insufficient water flow, alteration of the stream structure to a broad shallow morphology or lack of riparian vegetation to supply shading. Streams which have their source in shallow warm lakes often are warm as well.

2.3.2. Available Water Quality Data:

2.3.2.1. Spokane River

Water temperature data has been collected on the Spokane River by the US Geological Survey at its Post Falls gauging station, Idaho Department of Environmental Quality, Spokane River Dischargers Group and others. Gugliomone (1992) summarized much of this data. During the late summer months of drought years, the Spokane River exceeds the temperature criteria (Figure 3) for cold water biota and salmonid spawning.



Note: Red: Low discharge year; Green: High discharge year; Blue: Temperature standard

The river is formed by the discharge of Lake Coeur d'Alene. A natural discharge control at the outlet of the lake governed discharge from the lake prior to creation of the Post Falls impoundment (Davenport, 1921). Water entering the river is epilimnion water from the upper surface of the lake. During summer conditions this water is the warmest in the lake (Woods and Beckwith, 1996).

The Post Falls, prior to impoundment, was 8 feet lower than the lake outlet. Surveys completed by the Army Corp of Engineers in the late 1940s indicate the lowest elevation of the outlet cross section is 2,118 feet, while the lowest point of the pre-development Post Falls is 2,110 feet (Stockinger, 1998). Under pre-development conditions, the mid to late summer flow of the Spokane River would have been low, dependent on the year. This discharge would consist of warm epilimnion water. The water would traverse a channel capable of carrying up to 30,000 cubic feet per second high flow discharges. It is most probable that the Spokane River was generally shallow and not well shaded during the summer low flow conditions. The Spokane River below the Post Falls Dam generally meets this description today under low flow conditions. Thus the warm water from the lake may have been further heated as it traversed the Spokane River. Thermal exceedence most likely occurred during summer low flow conditions prior to dam development.

The effect of the Post Falls Dam has been to impound the river upstream to the lake, enlarge the lake surface area and increase the retention time of water in the channel above the dam. The river continues to receive warm epilimnetic water during the summer months. The water held in the channel above the dam is deeper, but is retained for a longer period. For this reason it is more resistant to warming than a shallower stream configuration, but the water is retained for a longer period to warm. The Post Falls Dam might function to marginally increase thermal gain by the river during summer low flow conditions as a result of lake surface augmentation and change in the retention time of the water. The marginal increase would be in the range of one or two degrees centigrade. Since the lake epilimnion can exceed the cold water biota standard by four to five degrees centigrade during a warm summer (Woods and Beckwith, 1996), the effect of the dam is not critical to the temperature exceedences. The only feasible remedy would be dam removal.

The summer thermal limitation of the Spokane River is probably a natural situation caused by its source of lake epilimnion water and some additional warming in the channel. These conditions would occur with or without human intervention, although the Post Falls Dam likely adds some thermal gain. Since the limitation is of natural origins, no feasible corrective strategy exists. The Spokane River should be redesignated as seasonal cold water biota to account for its natural thermal gain and delisted for temperature.

2.3.2.2. Twin Lakes Watershed (Fish Creek -Twin Lakes - Rathdrum Creek):

2.3.2.2.1 Fish Creek:

Fish Creek is the largest tributary to Upper Twin Lake accounting for 88.6% of the annual discharge to Twin Lakes (Falter and Hallock, 1987). Waters of Upper Twin Lakes move through a narrow channel into Lower Twin Lake.

Habitat assessment by DEQ beneficial use reconnaissance teams of two reaches of the stream indicated an average residual pool volume of 9,181 ft^3/mile. Compared to other streams of its size in granitic terrenes, this is a respectable level of pool volume (IDEQ, 1998b). Macroinvertebrate

data collected in 1995, 1996, 1998 and 1999 results in macroinvertebrate biotic indices in excess of 3.5 in every case except one (Appendix D). A single measurement of 3.37 occurred at the upper stream site in June 1995. Subsequent measurement in 1996, 1998 and 1999 result in MBI scores well in excess of 3.5. A modeled sediment yield from the stream is provided in the section below. Few impacts to the stream are apparent with the exception of the lower one-half mile, along which bank damage from grazing has occurred.

Bacteria were measured in Fish Creek during the summer 1999. Bacteria levels in the creek were 115 *Escherichia coli* (E. Coli) per 100 mL. The value does not exceed the trigger value of 126 E. coli per 100 mL.

Plant growth nutrient (total phosphorous and nitrogen) concentrations were measured in Fish Creek as part of the investigation of the nutrient loading of Twin Lakes (Falter and Hallock, 1987). The total phosphorous concentration guideline for nuisance weed growth in streams is 100 ug/L (USEPA, 1986). In a flowing stream, nitrogen would be primarily in the nitrate-nitrite forms. The guideline for excess nitrate is 300 ug/L as nitrogen (Sawyer, 1947; Müller, 1953). None of the concentrations measured approach these guidelines.

2.3.2.2.2 Twin Lakes:

The limnology of the Twin Lakes was investigated in depth by Falter and Hallock (1987). Both Upper and Lower Twin Lakes were assessed by Falter and Hallock (1987) as moderately productive oligo-mesotrophic to mesotrophic. The assessment was based on annual nutrient loads, in-lake phosphorous and chlorophyll a concentrations, Secchi depths (the depth at which a bicolor disc can be observed in the water to measure clarity), hypolimnetic oxygen depletion, algal biovolume and species, benthic fauna and macrophyte cover. Algal bioassay of an earlier eutrophication survey indicated that phosphorous was the limiting nutrient to vegetation growth. Lake data suggested primary limitation by nitrogen throughout the sampling year (USEPA, 1977a). A phosphorous loadings of 645.5 kg P/year to the upper lake and 537.5 kg P/year to the lower lake were estimated (Falter and Hallock, 1987). Loadings from human activities were estimated to be 109 kg/year (16.6%) to the upper lake and 61 kg/year (11%) to the lower lake. A relatively short retention time (0.29 years) and extensive growths of macrophytes reduce some effects of the moderately high phosphorous loads to the upper lake. Phosphorous processing in the upper lake reduces impacts in the lower lake (Falter and Hallock, 1987).

The estimated two years averaged sources of nitrogen and phosphorous contribution to the Twin Lakes from various sources is provided in Table 3. It should be noted the contribution of grazing in the Table 3 is to the upper lake only and does not account for nutrient loading to lower Fish Creek from grazing.

Table 3: Estimated two year (1985-86) averages of the nitrogen and phosphorous contribution to Upper and Lower Twin Lakes by source.

a) Upper Twin Lake

Source	Total N (kg)	% of Total N Loading	Total P (kg)	% of Total P Loading
Tributaries	5,300	73.1	568	76.8
Precipitation	1,521	20.9	77	10.4
Wastewater	164	2.3	31	4.3
Grazing	240	3.4	39	5.4
Internal	---	---	23	3.1
Motorboats	25	0.3	0.1	0.0
Total	7,250	100	738	100

b) Lower Twin Lake

Source	Total N (kg)	% of Total N Loading	Total P (kg)	% of Total P Loading
Tributaries	5,443	77.1	305	57.7
Precipitation	1,230	17.6	63	12.0
Wastewater	317	4.7	59	11.1
Internal	---	---	101	19.2
Motorboats	43	0.6	0.1	0.0
Total	7,033	100	528	100

A water quality management plan has been developed for the Twin Lakes. The plan has a goal of 25% reduction (CLCC, 1991).

Citizens volunteer water quality monitoring (CVMP) has assessed the Secchi depth, total phosphorous and chlorophyll a concentration of Upper and Lower Twin Lakes for six of the nine summer seasons between 1992 and 1999 (Mosier, 1999; Appendix C). The average Secchi depths of the upper and lower lakes over this period are 2.7 and 3.8 meters. T he upper lake did not exceed a Secchi depth of 4 meters, while the lower lake did not exceed a Secchi depth of 5 meters. Average total phosphorous in the surface waters of the upper lake was 29.8 ug/L, while the water near the bottom averaged 29.6 ug/L. These values essentially identical because the upper lake is shallow, eutrophic and does not stratify. Average total phosphorous in the surface waters of the lower lake is 15.4 ug/L, while the water near the bottom averaged 141.7 ug/L. These data indicate the deeper, lower lake stratifies in the summer months, is mesotrophic and the bottom waters become sufficiently low in oxygen (anoxic) to allow the release of phosphorous from the bottom sediments. Chlorophyll a concentration is a measurement of lake productivity. The upper lake has an average chlorophyll a concentration of 7.1 ug/L, while the lower lake averaged 3.8 ug/L. These data indicate the shallow upper lake is nearly twice as productive in algal as the lower lake. The data collected

by the citizens supports the view that the upper lake is eutrophic, but too shallow to stratify and allow anoxic conditions which would mobilize phosphorous from its sediments. The upper lake is likely a phosphorous sink. The CVMP data indicates the lower lake is mesotrophic. A large component of the lake's phosphorous is supplied from bottom sediment during anoxic conditions. The data values have not shifted greatly since the work completed by Falter and Hallock (1987).

The CVMP monitoring collected a few bacteria samples during the summer 1999 (Appendix C). *Escherichia coli* (*E. coli*) numbers near the upper lake boat ramp averaged at 27 per 100 mL. Only one sample was collected in the channel between the upper and lower lakes. This sample had 400 *E.coli* per 100 mL. Two bacteria samples were collected in the lower lake near Echo Beach. These contained 23 and 11 *E. coli* per 100 mL. *Escherichia coli* was measured at the upper lake boat ramp and near Echo Beach in the lower lake. Both samples were below the detection limit of 2 per 100 mL. These data indicate bacteria does not exceed the current trigger values in the lakes. The channel measurement does not exceed the primary contact recreation instantaneous standard, but additional measurements should be made.
Sediment contribution to the upper lake is primarily from Fish Creek. This sediment source has declined in recent years. Sediment contribution to the lower lake is minimal. Examination of Secchi measurements of the lake early in the season (May and early June) indicates a pattern of higher clarity (4-5 meters) during and shortly after the high runoff period (Appendix C). This result indicates that sediment delivery is not exceeding the salmonid sight-feeding standard. Turbidity of 25 NTU (chronic standard) would equate to a Secchi depth of approximately 0.5 meters. Fisheries population information provided by Fish and Game do not indicate that sediment impairs in lake spawning. The original listing that sediment was exceeding a water quality standard was in error. Other than the impact of sediment bound phosphorous on the phosphorous concentration of the lake, an impact of sediment to a beneficial use of the lake could not be demonstrated.

2.3.2.2.3 Rathdrum Creek:

Rathdrum Creek receives the discharge from Lower Twin Lake. The lake filters out any upstream sediment sources. Although the stream is listed for nutrients and sediment, no data could be located on sediment loads. Sediment would be expected from bank erosion and the only major tributary, Spring Creek, flowing from Rathdrum Mountain. This creek enters Rathdrum Creek below the majority of its course. Field inspection of the stream found generally stable banks except for isolated areas within the City of Rathdrum. The stream has fine sediment over most of its course with a little cobble near the Spring Creek confluence. Habitat assessment by DEQ beneficial use reconnaissance teams indicated no pools and no residual pool volume. The single beneficial use assessment of the stream provided a low macroinvertebrate biotic index (Appendix D). An explanation of the low MBI score may be the sand bottom nature of the stream. A sandy bed would have lower species diversity and lower diversification of May, stone and caddis flies. Although electrofishing was not conducted, fish were noted as present in the stream. Sediment modeling of Fish and Rathdrum Creeks provided in the next section.

Rathdrum Creek received 87 kg P/year and 2391 kg N/year from lower Twin Lake (Falter and Hallock, 1987). Mean total phosphorous concentration was 10.5 ug/L (range 4 - 20 ug/L). Mean total nitrogen concentration was 265 ug/L (range 180 - 360). The total phosphorous concentration of the outlet water was nearly an order of magnitude lower than the guideline of 100 ug/L normally applied for nuisance weed growth in streams (USEPA, 1986). In a flowing stream, nitrogen would be primarily in the nitrate-nitrite forms. The guideline for excess nitrate is 300 ug/L as nitrogen (Sawyer, 1947; Müller, 1953). The concentrations measured in Rathdrum Creek are generally below the guideline.

No cultivated agriculture is practiced along Rathdrum Creek. The creek traverses pasture and hay lands. Some grazing occurs along the stream (Brown, 1999). Nutrients could enter the creek from septic systems along the course of the creek between Twin Lakes Village and the City of Rathdrum. Twin Lakes Village has a community wastewater treatment system currently discharging to a drain field well removed from the stream. The City of Rathdrum has a centralized sewage collection system (Gaffney, 1999). No surveys of septic systems or their competency have been made of systems along Rathdrum Creek (Hale, 1999).
Bacteria were assessed in Rathdrum Creek. Bacteria concentrations of 420 E. coli per 100 mL were measured. The value does not exceed the 576 fecal coliform per 100-mL secondary contact recreation trigger value.

2.3.2.2.4 Sedimentation Estimates for Fish and Rathdrum Creeks:

2.3.2.2.4.1 Land Use and Road Density

Land use classifications and road inventory data are provided in Table 4. These data were developed from photo-orthoquads covering the two watersheds. After inspection of the watersheds by Idaho Department of Lands specialists, cumulative watershed effects (CWE) scores were developed. These scores are estimates, which are developed by a team approach. Sediment model assumptions and documentation are provided in Appendix A. Sediment model spreadsheets are provided in Appendix B.

2.3.2.2.4.2 Sediment Yield and Export Coefficients

Sediment yields were developed separately for agricultural, forestlands and forest roads.

2.3.2.2.4.2.1 Agricultural land sediment yield and export.

Sediment yield was estimated from agricultural lands (rangeland, pasture and dry agriculture) using the Revised Universal Soil Loss Equation (RUSLE) (equation 1)(Hogen, 1999).

Equation 1: A = (R)(K)(LS)(C)(D) tons per acre per year where:
: A is the average annual soil loss from sheet and rill erosion
: R is climate erosivity
: K is the soil erodibility
: LS is the slope length and steepness

: C is the cover management and
: D is the support practices.

RUSLE does not take into account bank erosion, gully erosion or scour. RUSLE applies to cropland, pasture, hayland or other land, which has some vegetation improvement by tilling or seeding. Based on these soils characteristics of the agricultural and the slope, sediment yield was developed for the agricultural lands of each watershed. The yield coefficients are provided in Table 5.

Bank erosion, caused by agricultural practices, was independently estimated based on data developed for Wolf Lodge Creek. The fieldwork required to develop more accurate estimates was not permitted by the private landowner.

Table 4: Land use and roads of the Fish and Rathdrum Creek Watersheds.

Watershed	Fish Creek[1]	Spring Creek[1]
Pasture (ac)	452	81
Forest Land (ac)	13,690	1,584
Unstocked Forest Land (ac)	800	0
Highway (ac)	0	0
Ave road density (mi/mi ^{2})	4.0	4.8
Forest Roads (mi)	92.9	12.6
Forest road xing frequency	0.8	2.0
Road Crossing number	75	25
Encroaching Road (mi)	5.6	3.5
CWE score	28	12
Unpaved county & private roads (mi)	2.0	1.0
Paved county roads (mi)	0	1.7

2.3.2.2.4.2.2 Forest land sediment yield and export.

Forest land sediment yield was based on sediment production rates used in the Forest Service WATSED Model (Patten, 1998.). This is 25 tons per square mile per year with a range from 22-35 for the Kaniksu granitic terrene. The mean value was used for all forestland except that not stocked with trees to the number required by the Idaho Forest Practices Act. The highest values in the range were used for non-stocked (unstocked) forestlands. The lowest value was applied to highway rights of way. These values were divided by 640 acres per square mile to convert them to tons per acre per year (Table 6). Sediment yield from forestlands was estimated by applying the sediment yield coefficients to the land area in forest use (Table 4).

Table 5: Estimated sediment yield coefficients for pasture

Watershed	Fish Creek	Spring Creek
Pasture (ton/ac//yr)	0.025	0.03

Table 6: Estimated sediment yield coefficients for forestland uses on the terrenes of the watersheds.

Land use type sediment export coefficient	Kaniksu Granitic
Forest land (tons/ac/yr)[2]	0.038
Unstocked land (tons/ac/yr)[2]	0.055
Highway (tons/ac/yr)[3]	0.034

Table 7: Estimated sediment export based on land use for Fish Creek and Rathdrum Creek's only sediment producing stream, Spring Creek.

Watershed	Fish Creek	Spring Creek
Pasture/ dry ag (tons/yr)	11.3	2.4
Forest Land (tons/yr)	520.3	60.2
Unstocked Forest Land (tons/yr)	44.0	0

Highway (tons/yr)	0	0
Bank erosion (tons/yr)	15.5	0.0
Land use total (tons/yr)	591.1	62.2

2.3.2.2.4.2.3 Forest Roads

Forest road sediment yield was estimated using a relationship between CWE score and the sediment yield per mile of road (IDEQ, 1999, Figure 6). The relationship was developed for roads on a Kaniksu granitic terrane in the LaClerc Creek watershed and is directly applicable to the Fish and Rathdrum Creek watersheds (McGreer, 1998). The watershed CWE score was used to develop a sediment tons per mile, which was multiplied by the estimated road mileage associated with stream crossings in the watershed. These values are reported as ton fine sediment per year (Table 7). In the case of roads, it was assumed that all sediment was delivered to the stream system. This is a conservative over estimate of actual delivery.

Unlike the Belt Supergroup terrane, which produces significant amounts of cobble as a weathering product, the Kaniksu granitic weather primarily to coarse and fine sands. Accordingly the bedload is primarily a sandy substrate.

2.3.2.2.4.2.4 Sedimentation Estimates

Sedimentation estimates were developed by addition of the various sediment yields (Table 8; Appendix B). The values reflect delivery of all sediment to the channel. Land use and bank erosion estimates for Rathdrum Creek are added to the sediment yield from its tributary, Spring Creek.

Table 8: Estimated sediment export of watersheds listed for sediment impairment from roads.

Watershed	Fish Creek	Rathdrum Creek
Land use sediment (tons/yr)	591.1	129.8
Forest Roads	90.5	42.3
County & Private Roads	9.5	5.1
Total sediment (tons/yr)	691.1	177.2

Estimated backgrounds based on the assumption of totally forested watersheds would be 567.8 and 115 tons per year. Fish Creek sediment modeling provides a value 21.7% above the natural background, while Rathdrum Creek sediment modeling provides a value 54% above natural background. Model results for neither creek exceed the 100% above natural background and threshold indicative of water quality impairment, while Fish Creek is below the 50% above natural background lower limit and Rathdrum Creek is only 4% above this lower limit (Washington Forest Practices Board, 1995).

2.3.2.2.5 Fish Population Data:

Sedimentation can interfere with natural trout recruitment and cause the filling of pools. The impact should be reflected in the trout populations. Trout population density has been assessed in some tributaries of the lakes by DEQ beneficial use reconnaissance teams (IDEQ, 1998b). Brook and cutthroat trout are the salmonids found in Fish Creek. Trout population densities (salmonid/m^2/ hour effort) were 0.072 and 0.230 in the two reaches of Fish Creek assessed. Sculpin populations (sculpin/m^2/ hour effort) were 0.028 and 0.061. Three age classes of brook trout, the most abundant fish, were found. Fish populations were not assessed in Rathdrum Creek. Reference streams, in the Priest Lake Basin (Two Mouth and Trapper Creeks), range from 0.1 - 0.3 salmonid/m^2/hour effort and 0.1 - 0.5 sculpin/m^2/hour effort (IDEQ, 1999). It is necessary to default to these reference streams, because no appropriate references have been assessed in the sub-basin. Fish density can be affected by other factors such as harvest and disease. In this case, however, fish densities and age class distribution data support the conclusion that Fish Creek is not water quality limited by sediment.

Twin Lakes was a west slope cutthroat trout fishery prior to European settlement of the area. Trout remains an important part of the fishery with some tributary production of trout. Tributary trout production is insufficient to support the lake population under fishing pressure. The trout population is augmented by stocking. Upper Twin Lake becomes too warm to support trout during August and September of most summers. Warm water species have been introduced to the lakes. Bass, pike, crappie, sunfish and bullhead catfish make up the important warm water biota (Horner, 1999).

2.3.2.3. Hayden Lake:

2.3.2.3.1 Limnology and Nutrient Loading

The limnology of the Hayden Lake was investigated in depth by Soltero and Associates (1986) and Bellatty (IDEQ, 1990). Hayden Lake was assessed as oligotrophic bordering on mesotrophy. The assessment was based on nutrient concentration, primary productivity and chlorophyll a concentrations. Algal bioassay of an earlier eutrophication survey indicated that phosphorous was the limiting nutrient to vegetation growth. During spring and fall, while nitrogen limits growth during the summer (USEPA, 1977b). Later more detailed investigations, by Soltero and his associates (1986), Bellatty (1990) and the Panhandle Health District (PHD 1994) indicate that phosphorous is the nutrient limiting algal growth in Hayden Lake. Volunteer monitoring completed between 1990 and 1999 indicates that phosphorous, chlorophyll a and clarity have remained rather

stable at the mid lake station. The ten-year average total phosphorous concentration for the lake in its photic zone is 7.75 ug/L. The ten-year average chlorophyll a concentration in the Secchi zone is 1.4 ug/L, while the ten-year average Secchi depth is 8.4 meters (Appendix C). These values are consistent with an oligotrophic lake, limited by phosphorous concentration (Ryding and Rast, 1989). Chlorophyll a and total phosphorous are considerably higher in near shore areas (Honeysuckle Beach) and in the shallow northern arm of the lake, while Secchi depths are more shallow. (Mosier, 1999).

Soltero and associates (1986) and later data (PHD, 1994) estimated the annual phosphorous loading at 3610 kg P/yr. The source of phosphorous loadings was estimated as 33% (1,200 kg P/yr) from the Hayden Creek watershed, 7% (240 kg P/yr) from Mokins Creek, 7% (250 kg P/yr) from the other tributaries, 17% (630 kg P/yr) from atmospheric fallout, 32% (1,170 kg P/yr) from residential storm water and 3% (120 kg P/yr) from shoreline septic systems. Water leaves Hayden Lake by evaporation, discharge to the Rathdrum Prairie Aquifer or through a very limited seasonal outlet. Effectively, phosphorous entering the lake remains in the lake system primarily in the bottom sediments.

Sediment contribution to Hayden Lake is primarily from Hayden Creek. Sediment contribution from the other tributaries is minimal. Examination of Secchi measurements of the lake early in the season (May and early June) indicates a pattern of higher clarity (5-7 meters) during and shortly after the high runoff period (Appendix C). This result indicates that fine sediment delivery is not exceeding the salmonid sight-feeding standard. Fisheries population information provided by Fish and Game do not indicate that sediment impairs in lake spawning. The original listing that sediment was exceeding a water quality standard was in error. Other than the impact of sediment bound phosphorous on the phosphorous concentration of the lake, an impact of sediment to a beneficial use of the lake could not be demonstrated.

2.3.2.3.2 Fisheries

Hayden Lake was a west slope cutthroat trout fishery prior to settlement of the area. Trout remains an important part of the fishery with significant tributary production of trout. Most trout production occurs in Hayden Creek where fishing is prohibited. Tributary trout production is insufficient to support the lake population under fishing pressure. The trout population is augmented by stocking. Warm water species have been introduced to the lake. Bass, pike, crappie, sunfish and bullhead catfish make up the important warm water biota. This fishery is limited to the bays and northern arm of this cold and deep lake. The small mouth bass, largemouth bass and crappie are managed as high quality fisheries (Horner, 1999).

2.3.2.4. Hauser Lake:

2.3.2.4.1 Limnology and Nutrient Loading

The limnology of the Hauser Lake was investigated by Entranco Engineers (1990). Hauser Lake was assessed as mesotrophic with a small margin of safety protecting it from eutrophic conditions. The assessment was based on nutrient concentration, chlorophyll a concentrations and Secchi depths. Algal bioassay of an earlier eutrophication survey indicated that phosphorous was the limiting nutrient to vegetation growth during June, while nitrogen was limiting in late summer and fall. Data from the study suggested that nitrogen might be limiting vegetation growth throughout the growing season (USEPA, 1977c).

Hauser Lake develops a low oxygenation zone which approaches anoxic conditions in the lower four meters of its depth during the late summer months when the lake is stratified (Entranco Engineers, 1990). Similar results were developed by Mossier during July 1991 (1993) and more recently during summer 1998 (IDEQ, 1998c). All three data sets indicate that the oxygen concentration is below 6 mg/L in the metalimnion portion of the water column. This condition violates the dissolved oxygen criterion protective of cold water biota use (IDAPA 58.01.02.250.02.c.1.), which excludes the hypolimnion of lakes from the dissolved oxygen standard (IDAPA 58.01.02.250.02.c.1.(3)), but not the epilimnion or metalimnion. The exceedence of oxygen standards in Hauser Lake is attributed to high lake productivity resulting from nutrient enrichment (Entranco Engineers, 1990; Mossier 1993). The production of biomass and its subsequent death and decay creates a biological oxygen demand, which can deplete dissolved oxygen below the standard. The ten-year average for chlorophyll a in the Secchi zone is 4.6 ug/L, while the ten-year average Secchi depth is 3.8 meters. The ten-year average total phosphorous is 17 ug/L (Appendix C). These values are consistent with a mesotrophic lake, limited by phosphorous concentration (Ryding and Rast, 1989).

Entranco Engineers (1990) estimated the annual phosphorous loading at 878 kg P/yr. The estimated sources of phosphorous loading were characterized as external loading (512 kg P/yr) and internal loading (366 kg P/yr). The total annual loading was estimated as 48% (418 kg P/yr) from the watershed with Hauser Creek as the single largest tributary, 33% (288 kg P/yr) from sediment release, 7% (62 kg P/yr) from atmospheric fallout (precipitation), 5% (46 kg P/yr) from aquatic plant decay, 4% (32 kg P/yr) from waterfowl and 3% (32 kg P/yr) from groundwater. The Entranco estimates did not include the loading from storm water runoff. The population density is not as high in the immediate Hauser Lake watershed as it is in the Hayden Lake watershed. The relief around the lake is also not as steep. However, Hauser Lake has many more ranchettes with livestock. Based on the development in the immediate watershed of Hauser Lake, storm water runoff contribution is estimated to be half that estimated for Hayden Lake or fifteen percent. This fifteen-percent is added to the Entranco estimates as 132 kg P/yr, revising the total phosphorous load to 1,010 kg P/yr. Water leaves Hauser Lake by evaporation, discharge to the Rathdrum Prairie Aquifer or through a very limited seasonal outlet. Effectively, phosphorous entering the lake remains in the lake system primarily in the bottom sediments.

The CVMP has monitored Secchi depth (clarity), total phosphorous and chlorophyll a concentration in Hauser Lake for six of the nine summer seasons between 1992 and 1999 (Mosier, 1999; Appendix C). Secchi depth of the lake averaged 3.7 meters and with maximum depths of 6 meters. Total phosphorous averaged 21.2 ug/L in the surface waters and 182.3 ug/L near the lake bottom. These values indicate the lake stratifies during the summer months and that the bottom waters become sufficiently low in oxygen (anoxic) to permit the release of phosphorous from the bottom sediments. The chlorophyll a concentration of the surface waters averaged 4.1 ug/L. The data collected by the CVMP is consistent with a mesotrophic lake, which is close to eutrophic conditions.

2.3.2.4.2 Fisheries

Hauser Lake was a west slope cutthroat trout fishery prior to settlement of the area. Trout remains an important part of the fishery. Tributary trout production is poor and insufficient to support the lake population under fishing pressure. The trout population is augmented by stocking. During some warm summers a large percentage of Hauser Lake's water column becomes too warm or too low in dissolved oxygen to support trout (IDEQ, 1998c). Under these conditions only a small portion of the thermocline is available as trout habitat. Warm water species have been introduced to the lake. Bass, pike, crappie, sunfish and bullhead catfish make up the important warm water biota (Horner, 1999).

2.3.2.5 Spirit Lake

2.3.2.5.1 Limnology and Nutrient Loading

The limnology of Spirit Lake was initially investigated by Soltero and Hall (1985). Their study was triggered by the concern from long time residents of the lake that the water quality had declined. Spirit Lake was assessed in this study as an oligotrophic lake, which was verging on mesotrophy. This conclusion was based on chlorophyll a concentration in the surface waters, clarity, total phosphorous concentrations and planktonic composition. Phosphorous was determined to be the nutrient limiting the algal productivity of the lake. Brickel and Birch Creeks were determined to be the primary nutrient sources to the lake accounting for 82.5% of the phosphorous loading. Lake water quality assessment was completed on the lake in 1991 (Mossier, 1993). The assessment demonstrated that the dissolved oxygen of the lake met the Idaho standard in the epilimnion and metalimnion and remained above the standard through most of the hypolimnion. Total phosphorous and chlorophyll a concentration in the surface waters were consistent with oligotrophic to mesotrophic conditions. Submergent macrophytes analysis indicated that most plants were consistent with an oligotrophic lake, while plants found in some bays were consistent with a mesotrophic lake. Citizens volunteer monitoring data provides a ten-year average Chlorophyll a concentration in the Secchi layer of 3.7 ug/L and a ten-year average Secchi depth of 4.3 meters. Ten-year average total phosphorous is 11.7 ug/L. Since 1992, when cattle were fenced off Brickel Creek, the total phosphorous average is 10.1 ug/L.

Soltero and Hall (1985) estimated the phosphorous loading from Brickel and Birch Creeks to be 1,045 kg/yr, while the loadings from precipitation and septic system leakage were estimated to be 177 kg/yr and 285 kg/yr. These latter estimates were made from literature values. Bellatty (1989)

completed limited monitoring on the tributaries and modeled other phosphorous sources with yield coefficients. Based on Soltero and Hall's measured tributary phosphorous loading of 1,045 kg/yr, the estimation that this is 82.5% of the phosphorous load and the percentages developed by Bellatty (1989), background phosphorous sources are estimated at 1,000 kg/yr (78.9%), residential development (storm water) at 90 kg/yr (7.1%), domestic wastewater at 89 kg/yr (7.0%), forest harvest at 51 kg/yr (4%) and grazing at 37 kg/yr (2.9%). Nichols and Rabe (1988) demonstrated that nutrient levels doubled in lower Brickel Creek as it passed through areas grazed by cattle. The marsh near the mouth of Brickel Creek was identified as a sink for nutrients.

Sediment contribution from the tributaries is minimal. Examination of Secchi measurements of the lake early in the season (May and early June) indicates a pattern of higher clarity (3.5-5 meters) during and shortly after the high runoff period (Appendix C). This result indicates that sediment delivery is not exceeding the salmonid sight-feeding standard. Fisheries population information provided by Fish and Game do not indicate that sediment impairs in lake spawning. The original listing that sediment was exceeding a water quality standard was in error. Other than the impact of sediment bound phosphorous on the phosphorous concentration of the lake, an impact of sediment to a beneficial use of the lake could not be demonstrated.

A Spirit Lake water quality management plan was developed in 1993 by the Clean Lakes Coordinating Council (PHD, 1993). The plan set a ten-year average total phosphorous concentration goal in the Secchi layer of 12 ug/L or less. The plan contains many action items to protect the lake's water quality. As the plan was under development cattle grazing along Brickel Creek was excluded with a fencing system developed by the rancher and the Kootenai-Shoshone Soil Conservation District (Brown, 2000). Spirit Lake has met the total phosphorous goal or been below the goal, since grazing restrictions were implemented.

2.3.2.5.2 Fisheries

The native fishery of Spirit Lake would have been a cutthroat trout fishery. The dominant fishery of the lake is Kokanee Salmon. Some rainbow and cutthroat trout use the lake. Some Kokanee spawn in Brickel and Birch Creeks, but the majority (80%) are lakeshore spawners. Kokanee populations are augmented by stocking. Fingerling cutthroat trout are stocked. Brickel and Birch Creeks hold brook trout as well as Kokanee Salmon and Cutthroat Trout. Warm water fish have been introduced to the lake by private interests. The warm water species include crappie, largemouth bass, perch, pumpkinseed sunfish, bullhead catfish and northern pike. This fishery is restricted to the warm bays and the mill pond end of the lake.

2.3.3 Beneficial Use Support Status

The assessed support status of the water bodies based on the data available is provided in Table 10. The need for development of a TMDL is noted.

Table 10: Results of sub-basin assessment based on application of the available data.

Water body Name and HUC Number	Assessed Support Status	Reasons segment to be de-listed for pollutant	Reason TMDL deferred
Spokane River 17010305 3552	CWB temperature standard exceeded	N.A.	TMDL deferred until temperature and/or beneficial use standards reviewed/revised
Spokane River 17010305 3553	CWB temperature standard exceeded	N.A.	TMDL deferred until temperature and/or beneficial use standards reviewed/revised
Spokane River 17010305 4554	CWB temperature standard exceeded	N.A.	TMDL deferred until temperature and/or beneficial use standards reviewed/revised
Fish Creek 17010305 3561	Sediment modeling and nutrient data indicate cold water biota supported.	Sediment modeled at below 50% above background. Nutrients concentrations of Fish Creek well below stream guidelines. Twin Lakes nutrient TMDL will address Fish Creek	N.A.
Twin Lakes 17010305 7561	CWB impaired by nutrients; nutrient TMDL required.	CWB not impaired by sediment. Sediment not impacting salmonid sight feeding beneficial use directly; listing in error	N.A
Water body Name and HUC Number	**Assessed Support Status**	**Reasons segment to be de-listed for pollutant**	**Reason TMDL deferred**
Rathdrum Creek 17010305 3560	Sediment modeling and nutrient data indicate cold water biota supported. Bacteria standard not exceeded indicating secondary contact recreation supported.	Sediment below 100% above background and near lowest threshold of 50% above background. Nutrient concentrations below stream guidelines. Nutrient TMDL for Twin Lakes will address Rathdrum Creek Bacteria standard not exceeded.	N.A
Hauser Lake17010305 3562	CWB impaired by nutrients; nutrient TMDL required. CWB impaired by dissolved oxygen deficit created by organic matter resulting from lake productivity	N.A.	Dissolved oxygen TMDL deferred until nutrient reduction approach is assessed to determine if dissolved oxygen recovers.
Hayden Lake 17010305 7555	CWB threatened by nutrients; nutrient TMDL required.	CWB not impaired by sediment. Sediment not impacting salmonid sight feeding beneficial use directly; listing in error	N.A
Spirit Lake 17010305 3438	CWB supported by measured dissolved oxygen, and nutrients. CWB not impaired by sediment.	Sediment not impacting salmonid sight feeding beneficial use directly; listing in error. Dissolved oxygen meeting water quality standards. Total phosphorous at or below the lake plan goals.	N.A.

Note: N.A. - Not Applicable

The TMDLs required for HUC 17010305 can be grouped in one case. A nutrient TMDL addressing Fish Creek, Twin Lakes and Rathdrum Creek can be prepared with a nutrient TMDL for Lower Twin Lake. Sedimentation of Rathdrum Creek is low. Sediment TMDLs are not required for Fish and Rathdrum Creeks. Nutrient TMDLs are required for Hauser and Hayden Lakes.

Lake management plans have been developed for Hauser, Hayden, Spirit and Twin Lakes (CLCC, 1990; PHD, 1994; PHD, 1993; CLCC, 1991). These plans contain the necessary information for TMDL development and constitute the start of implementation plans. Three lakes require total phosphorous TMDLs, while Spirit Lake is meeting or below its total phosphorous goal and for this reason does not require a TMDL.

The Spokane River exceeds temperature standards as a result of natural conditions. The stream should be redesignated as a seasonal cold water biota protected with a standard reflecting the upper limit of lake epilimnion temperatures observed during warm dry summers. This approach will recognize natural conditions. A temperature TMDL should be deferred until water quality standards issues are resolved.

2.4. Pollution Control

2.4.1. Control Efforts to Date

Pollution control efforts to date have been in place on some of the watershed requiring additional TMDL measures.

Analysis of sediment in the two watersheds of the basin listed indicates roads are the primary sediment producing infrastructures. Forest harvest methods have progressed from logging systems heavily dependent on harvest roads to those less dependent of high road densities. Most forest roads in the Fish, Hauser and Brickel and Birch Creeks watersheds belong to Inland Empire Paper Company. The company has a program through which ten miles of road are reclaimed per year in these watersheds and main haul roads have gravel applied. Application of gravel decreases the fine sediment yield by roads nearly 80%. These activities are likely responsible for lower combined CWE scores (28 -1995 to 12.5 -2000) in the Fish Creek watershed. A grazing management plan has been developed for livestock using pastures adjacent to lower Fish Creek and Upper Twin Lake (Brown, 1999) and Brickel Creek (Brown, 2000). Implementation of Fish Creek and Upper Twin Lakes grazing plans on the ground has not fully occurred. Grazing plans have been implemented on Brickel Creek. This implementation coincides with the lower total phosphorous concentrations observed in Spirit Lake since 1993.

Lake management plans have been developed for the three water quality limited lakes. These plans identify the nutrient sources and prescribe remedial approaches to limit some nutrient sources. Some approaches have been implemented. Kootenai County has implemented a "grading ordinance" as part of its building codes. A set of storm water runoff best management practices has been developed for urbanized areas around the lakes, especially Hayden Lake. Many of the residences on the shore of Hayden Lake are now served by the Hayden Area Regional Sewer Board, which

collects and treats wastewater at a centralized facility (PHD, 1994). Twin Lakes Village near Twin Lakes has a sewage collection and treatment at a community facility remote from the lake (Gaffney, 1999).

2.4.2. Pollution Control Strategies

Pollution control strategies have been developed for the three lakes assessed as water quality limited. The required TMDLs for nutrient in Twin, Hauser and Hayden Lakes will closely mirror the existing lake management plans. Nutrient management of Twin Lakes will address the nutrient yield to Fish Creek both from grazing and logging practices. The Twin Lakes nutrient TMDL should address the nutrient problems in Rathdrum Creek.

Phosphorous attached to sediment can be controlled in Fish Creek by the obliteration of unnecessary encroaching forest roads and graveling of those roads still needed. Bank erosion related to grazing must also be addressed as a part of nutrients from grazing activities.

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Washington Forest Practices Board, 1995. Board Manual: Standard Methodology for Conducting Watershed Analysis under Chapter 222-22 WAC Version 3.0 November 1995.

Woods, P.F., and M. Beckwith 1995. Nutrient and Trace Element Enrichment of Coeur d'Alene Lake. Idaho, Open File Report 95-740. U.S. Geological Survey, Boise, Idaho.

3.2. Hauser Lake Total Maximum Daily Load

3.2.1. Introduction

The limnology and water quality of Hauser Lake has been investigated in depth (Entranco Engineers, 1990). The lake has the nutrient status and biological productivity consistent with mesotrophy deteriorating towards eutrophy. The lake is phosphorous limited. Phosphorous entering the lake remains in the lake or its bottom sediments, because the lake discharges nearly completely to the Rathdrum-Spokane Aquifer.

The phosphorous loading budget of the lake is provided in Table 1.

Table 1: Total Phosphorous budget of Hauser Lake (Entranco Engineers, 1990; CLCC, 1990)

Phosphorous Source	**Phosphorous Load (kg/year)**	**Percentage**
Hauser Creek	418	41.3%
Internal Sediment Loading	288	28.5%
Estimated Storm Water Runoff	132	13%
Atmospheric Fallout (precip)	62	6.1%
Aquatic plant decay	46	4.5%
Waterfowl	32	3.2%
Shoreline Septic Systems (ground water)	32	3.2%
Total	1,010	99.8%

The Hauser Lake Management Plan (CLCC, 1994) has a goal for the lake of reduction of surface total phosphorous. No numeric goal is provided. The average total phosphorous concentration of Hauser Lake surface water is 17.4 ug/L. A 25 % reduction would indicate the goal:

: Total Phosphorous at Secchi depth of 13 ug/L (10-year average)

The phosphorous concentration reduction would decrease algal and water plant growth, improving clarity and reducing demand for dissolved oxygen. The plan indicates that the phosphorous concentration reduction should protect clarity and would increase dissolved oxygen to meet water quality standards.

Additional goals would be:

: Average secchi depth of 4.5 meters

: Minimum dissolved oxygen of 6 mg/L.

Average total phosphorous is designated as the primary indicator of lake productivity and water quality. Secchi depth and dissolved oxygen concentration would be expected to increase in the surface zone as total phosphorous is reduced to 13 ug/L.

The total phosphorous ten-year average in the Secchi zone is 17.4 ug/L (Mossier, 1993; CVMP, 1992-1999, Appendix C). The ten-year total phosphorous average is 33% above the goal developed for Hauser Lake.

3.2.2. TMDL Authority

Section 303(d)(1) of the Clean Water Act requires states to prepare a list of waters not meeting state water quality standards in spite of technology based pollution control efforts and the application of best management practices for nonpoint sources. This list must include a priority ranking "... taking into account severity of the pollution and the uses to be made of such waters." The prescribed remedy for these water quality limited waters is for states to determine the total maximum daily load (TMDL) for pollutants □... at a level necessary to implement applicable water quality standards with seasonal variations and a margin of safety ...□ A margin of safety is included to account for any lack of knowledge about how limiting pollutant loads will attain water quality.

Section 303(d)(2) requires both the list and any total maximum daily loads developed by the state be submitted to the Environmental Protection Agency (EPA). The EPA is given thirty days to either approve or disapprove the state's submission. If the EPA disapproves, the agency has another thirty days to develop a list or TMDL for the state. Both the list and all TMDLs, either approved or developed by EPA, are incorporated into the state's continuing planning process as required by section 303(e).

3.2.3. Loading Capacity

Based on the management plan goal of 13 ug/L in the Secchi zone and the ten-year average phosphorous of 17.4 ug/L, a 33% (17.4/13 x 100) reduction in total phosphorous load is required to improve the water quality. Since the estimated load to the lake is 1,010 kilograms total phosphorous per year, the loading capacity required to meet the management plan is 676 kilograms total phosphorous per year ((1,010- (1,010 X 0.33). This value is the total phosphorous loading capacity of Hauser Lake. An estimated total phosphorous load reduction of 333 kilograms phosphorous per year is required to meet the nutrient reduction goal.

3.2.4. Margins of Safety

The chemical measurements used to develop the ten-year total phosphorous average and nutrient loads have a precision margin of error of 5%. Discharge measurements contain a margin of error of 5%. Based on these two errors an additive margin of safety of 10% is applied. This additional total phosphorous load is deducted from the loading capacity to develop an allocable phosphorous load of 608 kilograms per year (676 - (676 X 0.1).

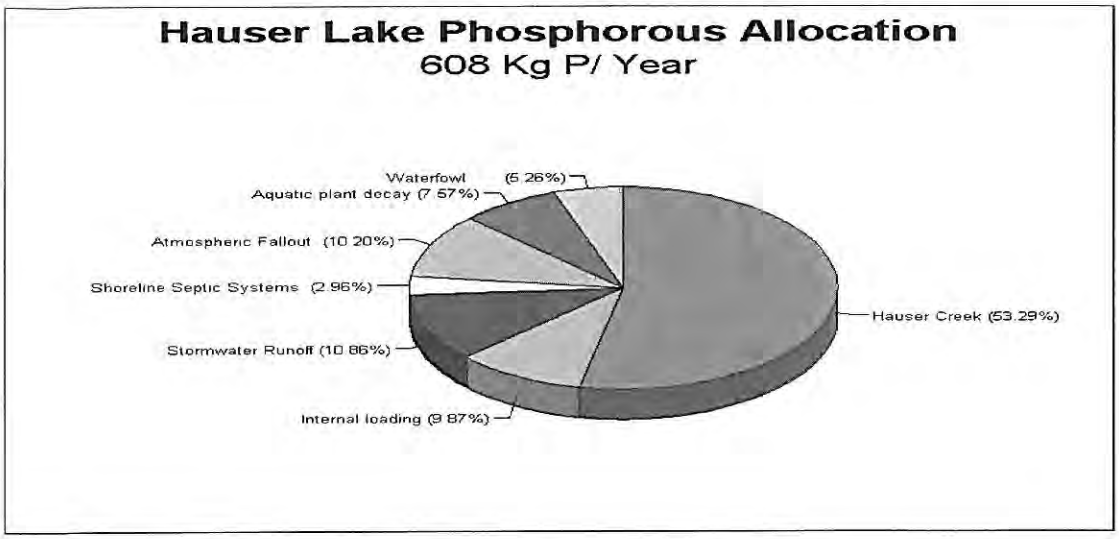
3.2.5. Total Phosphorous Load Allocation

All sources of phosphorous to Hauser Lake are nonpoint sources. Phosphorous load cannot be allocated evenly to the sources to the lake. Atmospheric fallout and waterfowl inputs cannot realistically be controlled. Control of aquatic plants could adversely affect the fishery. Atmospheric fallout, waterfowl and aquatic plants are 13% of the phosphorous load to the lake. These three sources are assigned allocations equal to their current load. Phosphorous loading from internal sediments (internal fertilization) is 28.5% of the estimated load. Control of the internal contribution is critical to reducing the nutrient concentration of the lake. It will require alum treatment to achieve control of this portion of the load. Alum treatment is 95% effective. The allocation based on the efficient reduction of internal-fertilization by alum treatment is provided in Table 2 and Figure 1.

Table 2: Total phosphorous allocation for Hayden Lake.

Phosphorous Source	**Allocated Phosphorous Load (kilograms/year)**	**Total phosphorous load reduction required.**	**Percent Reduction**
Hauser Creek	324	94	22.
Internal loading	60	228	79.1
Stormwater Runoff	66	66	50.0
Shoreline Septic Systems (ground water)	18	14	43.8
Atmospheric Fallout (precip)	62	0	0
Aquatic plant decay	46	0	0
Waterfowl	32	0	0
Total	608	402	

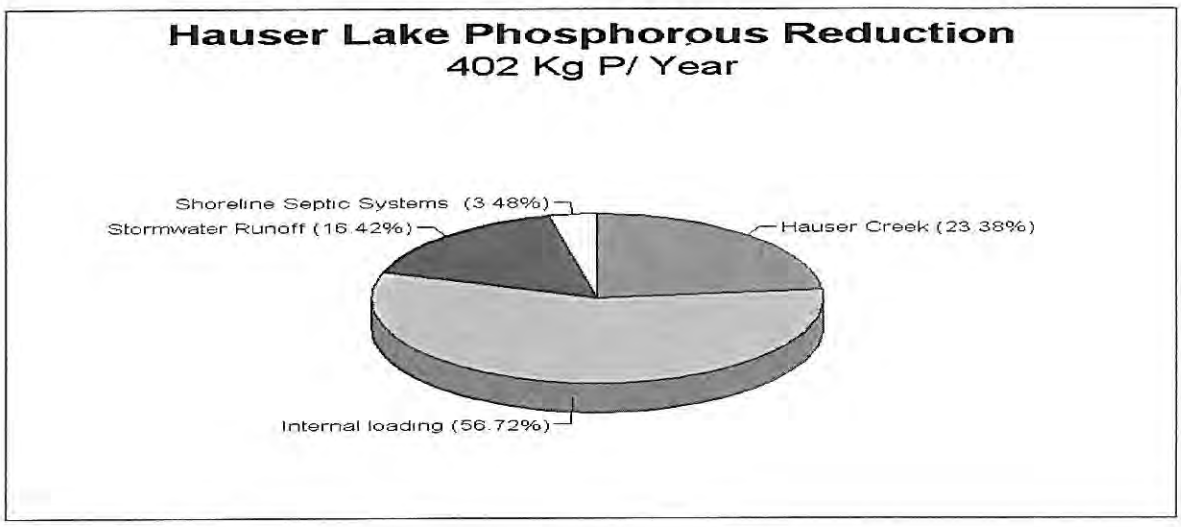
Figure 1: Total phosphorous allocation for Hauser Lake.



3.2.6. Total Phosphorous Load Reduction Allocation

Many phosphorous load reduction actions are discussed in depth in the Hauser Lake Management Plan (CLCC, 1994). A storm water management plan will be required to meet the allocation. The sources and the responsible agencies or governments are designated in the plan's action items. The load reduction required, including the margin of safety (10%; 68 kilograms phosphorous per year) is 402 kilograms per year. The load reductions required of each source are provided in Table 2, column 3. The reductions are provided graphically in Figure 2.

Figure 2: Hauser Lake Total Phosphorous Reduction



3.2.7. Seasonal critical conditions

The issue of critical conditions has importance in a stream which experiences radical changes in discharge (water volume) throughout the year. A lake, by its very nature as a watershed sink integrates and buffers seasonal flows. Plant growth conditions are critical during the summer months, but the growth nutrients are conserved by the lake. For this reason, lake nutrient TMDLs seek yearly reductions in the nutrient load without regard to seasonality.

3.2.8. Reasonable assurance

No point sources of nutrients are present in the watershed. The only assurance that the TMDL will be implemented is the ongoing implementation of remedial actions by Kootenai County, lakeshore owner's association and the State.

3.2.9. Monitoring Provisions

Hauser Lake has been monitored by a Citizens Volunteer Monitoring Program (CVMP) for the past ten years. The program has reliably provided phosphorous, clarity and chlorophyll a data collected during four and some years five summer months. This program will be relied upon to provide the water column data necessary to assess the effectiveness of the phosphorous load reductions required by the TMDL.

3.2.10. Feedback Provisions

Data from which the problem assessment and TMDL for Hauser Lake were developed are fairly accurate measurements. The loading analysis was completed more than a decade ago. As more up to date measurements are developed, these will be added to a revised TMDL as required.

When total phosphorous concentration declines below 13 ug/L, and remains at this level, further phosphorous load reduction will not be required of the sources. Best management practices for forest and road practices will be prescribed by a revised TMDL with erosion abatement structure maintenance provisions. Regular monitoring of the lake will be continued for an appropriate period to document maintenance of the full support.

3.2.11. References:

CLCC, 1990. Hauser Lake Management Plan, Kootenai County, Idaho. Clean Lakes Coordinating Council, 2195 Ironwood Court, Coeur d'Alene ID 83814, 42p.

CVMP, 1992-1999. Unpublished data collected by the Citizens Volunteer Monitoring Project. Buell Hollister, Hauser Lake.

Entranco Engineers, 1990. Phase I diagnostic and feasibility analysis for Hauser Lake, Kootenai County, Idaho. Entranco Engineers, Inc., Kirkland WA.

Mossier, J. 1993. Idaho lake water quality assessment report. Idaho Department of Health & Welfare-Division of Environmental Quality, Northern Idaho Regional Office, 2110 Ironwood Parkway, Coeur d'Alene ID 83814. Water Quality Status Report No. 105. 232p

3.3. Twin Lakes Total Maximum Daily Load

3.3.1. Introduction

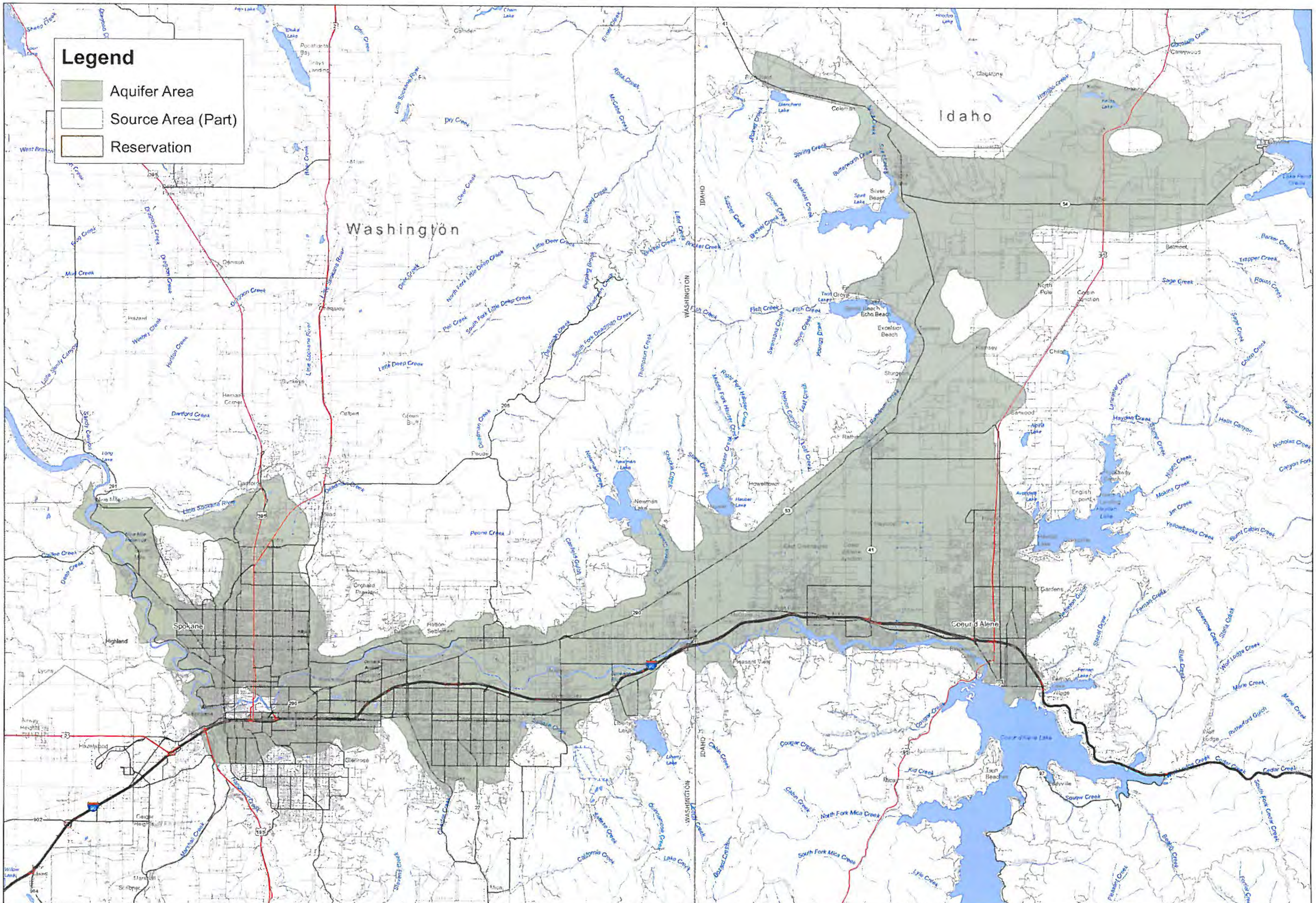
The limnology and water quality of Twin Lakes has been investigated in depth (Falter and Hallock, 1987; CVMP, 1992-1999, Appendix C). The upper lake has the nutrient status and biological productivity consistent with a eutrophic lake. The lower lake has nutrient status and biological productivity consistent with a mesotrophic lake. Internal phosphorous liberation to the water column occurs in the lower lake. Productivity of the lower lake is phosphorous limited, while the upper lake is by definition not limited in its productivity. The phosphorous loading budget of the lake is provided in Table 1 a & b.

Table 1a: Total Phosphorous budget of Upper Twin Lake (Falter and Hallock, 1987; CLCC, 1991)

Phosphorous Source	**Phosphorous Load (kg/year)**	**Percentage**
Tributaries	568	76.8
Precipitation	77	10.4
Wastewater	31	4.3
Grazing	39	5.4
Internal (aquatic plant decay)	23	3.1
Motorboats	0.1	0.0
Estimated Storm Water Runoff	0	0.0
Total	738	100

Table 1b: Total Phosphorous budget of Lower Twin Lake (Falter and Hallock, 1987; CLCC, 1991)

Phosphorous Source	**Phosphorous Load (kg/year)**	**Percentage**
Tributaries	305	54.9
Precipitation	63	11.3
Wastewater	59	10.6
Internal	101	18.2
Motorboats	0.1	0.0
Estimated Storm Water Runoff	28	5.0
Total	556	100

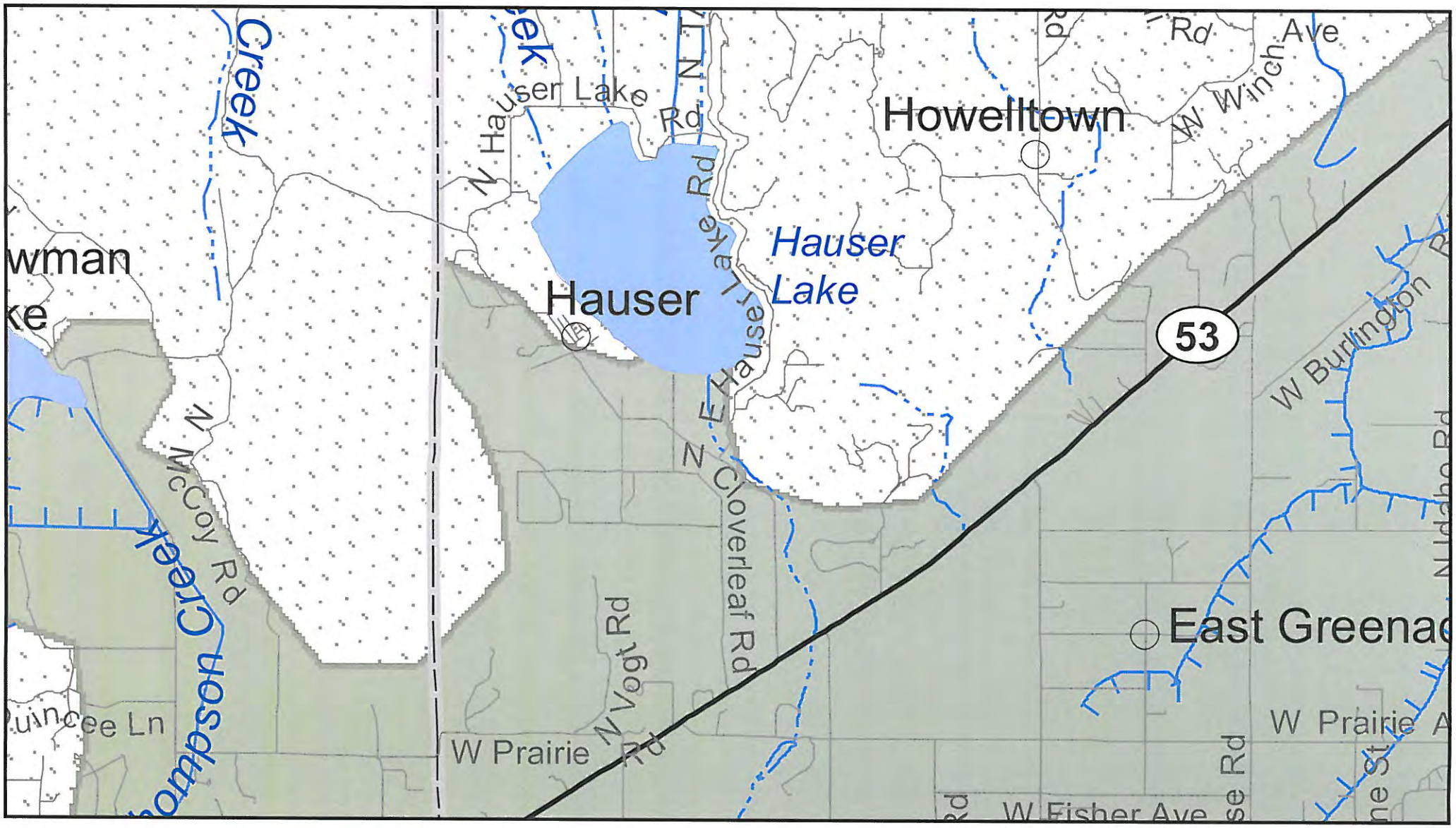


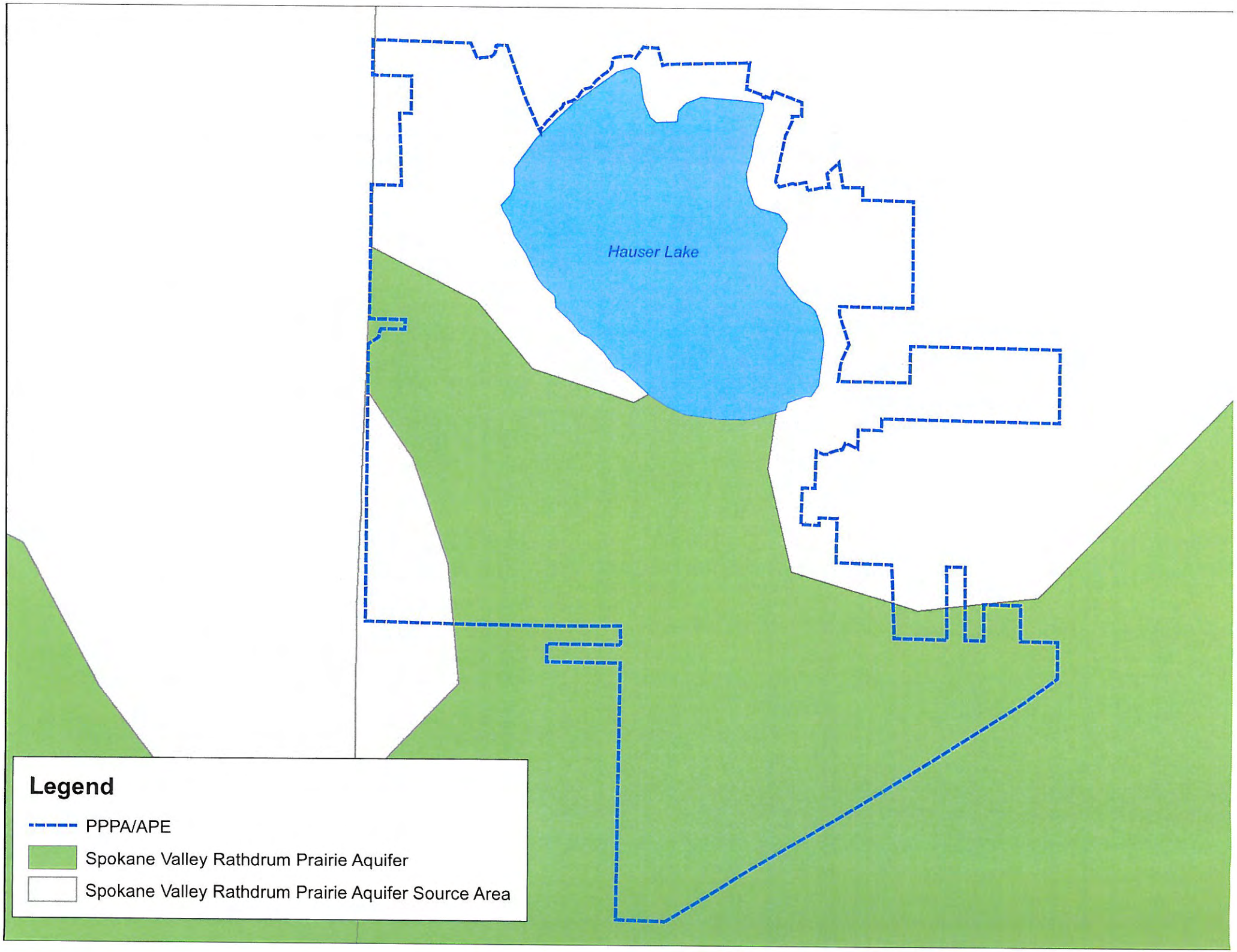
Spokane-Rathdrum Sole Source Aquifer

Aquifer Area and Part of Source Area

The U.S. Environmental Protection Agency (EPA) has compiled this computer representation from data or information sources that may not have been verified by the EPA. This data is offered here as a general representation only, and is not to be re-used without verification by an independent professional qualified to verify such data or information. The EPA does not guarantee the accuracy, completeness, or timeliness of the information shown and shall not be liable for any loss or injury resulting from reliance upon the information shown.

Map Created 11/04/2008 EPA Region 10


Hauser Lake
Howelltown
Hauser
Hauser Lake
53
W Winch Ave
N Hauser Lake Rd
N McCoy Rd
N Vogt Rd
N Cloverleaf Rd
W Burlington
W Prairie
W Fisher Ave
East Greenac
Creek
Hoskinson Creek


Hauser Lake
Legend
PPPA/APE
Spokane Valley Rathdrum Prairie Aquifer
Spokane Valley Rathdrum Prairie Aquifer Source Area

Hauser Lake Water Association
Drinking Water Quality Report
2009

This is a snapshot of the quality of the water that we provided last year. Included are details about where your water comes from, what it contains, and how it compares to Environmental Protection Agency (EPA) and state standards. We are committed to providing you with information because informed customers are our best allies. For more information about your water, call 773-7760 and ask for Lynn Peterson.

Last year, we conducted 38 tests for drinking water contaminants. We searched for three regulated contaminants. These contaminants were nitrate, coliform and e.coli. The sample results for these contaminants were detected at levels below state and federal standards. More information about these contaminants, in addition to other detectable contaminants that we have sampled for over the past five years can be found on the table in page 2 of this report.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Your water comes from 2 wells located near Highway 53. They draw water from an underground source called the Rathdrum Prairie Aquifer. We own the land around the wells and restrict any activity that could contaminate them. After the water comes out of the wells, it is pumped to our reservoir and from there to the distribution system.
The state has performed an assessment of our source water. The results of the assessment show our well is at a moderate risk for potential contamination.

Our Water System is an association. We are governed by a board of directors who meet the first Tuesday of every month at the Hauser Lake Fire Station at 7:00 p.m.

General Drinking Water Information

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPAs Safe Drinking Water Hotline (800-426-4791).

The sources of all drinking water, not just ours, (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:
Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
Inorganic contaminants, such as salts and metals, can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.
Pesticides and herbicides, may come from a variety of sources such as agriculture and residential uses.
Radioactive contaminants, which are naturally occurring.
Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. We treat our water according to EPAs regulations. Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Water Quality Data

Terms and abbreviations used below:

X **Maximum Contaminant Level Goal** (MCLG): the level of a contaminant in drinking water below which there is no known or expected health risk. MCLGs allow for a margin of safety.

X **Maximum Contaminant Level** (MCL): the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology.

X **Action Level** (AL): the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow.

X **n/a**: not applicable, **nd**: not detectable at testing limit, **PPM**: parts per million or milligrams per liter, **PPB**: parts per billion or micrograms per liter, **pCi/l**: picocuries per liter (a measure of radiation).

Inorganic Contaminants	**MCL**	**MCLG**	**Our Water**	**Range of Detection**	**Sample Date**	**Violation?**	**Typical Source of Contaminant**
Nitrate	10 PPM	10 PPM	1.2 PPM	na	10/15/09	No	Agricultural runoff, fertilizers, septic tank effluent
Organic Chemical Contaminants	**MCL**	**MCLG**	**Our Water**	**Range of Detection**	**Sample Date**	**Violation?**	**Typical Source of Contaminant**
Synthetic Organic Chemicals	na	na	nd	na	10/15/07	No	Pesticides, herbicides, industrial chemicals carried to the ground water by runoff or discharges.
Volatile Organic Chemicals	na	na	nd	na	10/15/07	No	Solvents, fuels, industrial chemicals carried by runoff or discharges to the ground.
Radionuclides	**MCL**	**MCLG**	**Our Water**	**Range of Detection**	**Sample Date**	**Violation?**	**Typical Source of Contaminant**
Alpha Activity	15 pCi/l	0	1.7 pCi/l	na	9/16/03	No	Erosion of natural deposits
Beta Activity	50 pCi/l	0	3.2 pCi/l	na	9/16/03	No	Decay of natural and man made deposits
Lead/Copper	**Action Limit**	**MCLG**	**Our Water**	**Range of Detection**	**Sample Date**	**Violation?**	**Typical Source of Contaminant**
Copper	1.3 PPM	1.3 PPM	0.14 PPM	nd-0.145 PPM	10/13/08	No	Corrosion of pipes within the water system, erosion of natural mineral deposits
Lead	15 PPB	0	7 PPB	nd-10 PPB	10/13/08	No	Corrosion of pipes within the water system, erosion of natural mineral deposits

Bacteria	**MCL**	**MCLG**	**Our Water**	**Sample Date**	**Violation?**	**Typical Source of Contaminant**
Total Coliform	Present	Absent	Absent	monthly	Yes	Naturally present in the environment
E. Coli	Absent	Absent	Absent	monthly	No	Human and animal fecal waste

Monitoring Waiver Information

Our well is within the **Rathdrum Prairie Aquifer Wellhead Protection Area**. This is a geographical and geological area where strict regulations to protect ground water (drinking water) are applied. The federal Environmental Protection Agency (EPA) has granted the State of Idaho authority to issue monitoring waivers for Volatile Organic Compounds (VOCs) and Synthetic Organic Compounds (SOCs). Hauser Lake Water Association- monitoring for VOCs and SOCs was completed in 2007. Testing done in 2007 indicated no detections of either VOCs or SOCs. Testing for Lead and Copper was completed in 2008. Testing for arsenic and nitrate was completed in 2009.

Please disregard first notice – dates are now correct! Sorry about the mix-up!

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

Tests Showed Coliform Bacteria in the Hauser Lake Water Assoc., Inc. Water

Our water system recently tested for coliform. Although this incident was not an emergency, as our customers, you have a right to know what happened and what we are doing to correct this situation.

We routinely monitor for drinking water contaminants. We took two samples to test for the presence of coliform bacteria and other contaminants May 12. One of our samples (north of the Woodlake reservoir) showed the presence of coliform bacteria. Four more samples were taken on May 14 and one (north of Woodlake reservoir) showed the presence of coliform. Three more samples were taken on May 17 and one sample (north of the Woodlake reservoir) showed the presence of coliform. One sample was taken May 18 (north of the Woodlake reservoir) and showed the presence of coliform. Two more samples were taken May 21 and both (north of the Woodlake reservoir) showed the presence of coliform. The standard is that no more than 1 sample per month/5 percent of samples may do so.

What should I do?

- You do not need to boil your water or take other corrective actions. However, if you have specific health concerns, consult your doctor.
- People with severely compromised immune systems, infants, and some elderly may be at increased risk. These people should seek advice about drinking water from their health care providers. General guidelines on ways to lessen the risk of infection by microbes are available from EPA's Safe Drinking Water Hotline at 1-800-426-4791.

What does this mean?

This is not an emergency. If it had been, you would have been notified immediately. Coliform bacteria are generally not harmful themselves. *Coliforms are bacteria which are naturally present in the environment and are used as an indicator that other; potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.*

Usually, coliforms are a sign that there could be a problem with the system's treatment or distribution system (pipes). Whenever we detect coliform bacteria in any sample, we do follow-up testing to see if other bacteria of greater concern, such as fecal coliform or *E. coli*, are present. **We did not find any of these bacteria in our subsequent testing.**

What is being done?

The operators will chlorinate the Woodlake Reservoir at the DEQ's recommended rate on Tuesday, May 25. Subsequent testing will be done and the results should be back by the first week of June, if you would like the results please contact Wes Michael – 773-5584/Dave Nall – 773-2255 or Larry Simms – 773-1174. If the problem is not corrected another notice will be mailed.

For those of you who would prefer faster communication please send your email address to lynnsvdp @ yahoo.com.

This notice is being sent to you by the Hauser Lake Water Association, Inc.
State Water System ID#: 1280084 Date distributed: May 24, 2010

Appendix L

Public Participation Information

Association Newsletter

Newsletter Recipient List

Public Meeting Presentation for June 7, 2011

Meeting Minutes for July 12, 2011

Annual Meeting Information for May 1, 2012

Public Notice for Comment Period

Meeting Minutes for May 21, 2012

Volume 1, Issue 1

May, 2011

Hauser Lake Water Association Newsletter

Board of Directors:

Patrick Travis
President

David Nall
Vice President

Rick Jemison
Member

Wesley Michael
Member

Larry Simms
Member

Hauser Lake Water Association Informational Meeting

7:00 pm
on
June 7, 2011
at
Hauser Lake Fire Station
10728 N Hauser Lake Rd

Board Meeting to be held at 6:00 pm prior to the public meeting

Hauser Lake Water Association, Inc.

P.O. Box 3468
Post Falls, Idaho 83854

Phone: 208/773-7760
Email:
pat_83815@yahoo.com

Introduction

In July of 2010, the Hauser Lake Water Association ("Association") received a grant from the Idaho Department of Environmental Quality (IDEQ) to complete a Water System Facility Plan (Facility Plan). IDEQ now requires all water systems proposing system modifications to complete a facility planning document. The Facility Plan analyzes the ability of the existing water system to serve both current and anticipated future demands while complying with the Idaho Drinking Water Rules for Public Water Systems. The Facility Plan identified several deficiencies with the existing water system's source, storage, booster pump and distribution systems. Therefore, improvements to the system are necessary to bring the system up to current standards.

The Association Board has evaluated several options for improving the water system and the Board along with the Association's engineer, Welch Comer Engineers, will present this information to customers at an informational meeting.

The purpose of this newsletter is to invite you to the informational meeting at 7:00 pm, on Tuesday, June 7, 2011 at the Hauser Lake Fire Station located at 10728 N. Hauser Lake Road. The regularly scheduled Board meeting will take place at 6:00 pm prior to the public meeting.

Informational Meeting

The purpose of the informational meeting is to present information about the water system to customers and solicit feedback and answer questions. Welch Comer Engineers will make a brief presentation describing the facility plan process, existing water system, deficiencies, proposed improvement options, costs and funding options. The recommended option will also be presented. The Association Board encourages each of you to attend the meeting to learn more details about the existing system and proposed improvements, ask questions and provide feedback to the Board.

The Board is taking proactive steps to maintain and improve the ability of our water system to continue to provide safe and reliable water service. It is important that the customers are part of that process. We look forward to seeing you at the meeting.

Meeting Information Inside

Hauser Lake Water Association, Inc.
P.O. Box 3468
Post Falls, Idaho 83854

PLACE POSTAGE HERE

1:46:04PM

SHORT CUSTOMER LIST

Hauser Lake Water Association, Inc

ACCT #	ROUTE #	NAME	BILLING ADDRESS				PHONE
1	1	Bowen, Mary Beth	P.O. Box 1676	Post Falls	ID	83877	773-5047
2	1	Vacant				0	
3	1	Cantelon, Bill	11962 N Hauser Lake Road	Hauser	ID	83854	0
4	1	Rolph, Bob	5206 S Dayton St.	Kennewick	WA	99337	(509)585-9651
5	1	Peone, Ed	11128 North 4th Street	Hauser	ID	83854	773-9005
6	1	Barnard, Douglas	2514 East 8th	Spokane	WA	99202	(509)534-8655
7	1	Kohn, Paul	11105 North 1st	Hauser	ID	83854	773-0678
8	1	Vacant				0	
9	1	Laverdure, Robert	10541 N Cliffhouse Road	Hauser	ID	83854	773-5461
10	1	Danford, Richard	11177 North 2nd Street	Hauser	ID	83854	777-9858
11	1	Jemison, Rick	11579 N Hauser Lake Road	Hauser	ID	83854	773-4284
12	1	Curran, Richard	11483 N Hauser Lake Road	Hauser	ID	83854	773-4808
13	1	Vacant		Hauser	ID	83854	
14	1	Heise, Thomas	P.O. Box 1475	Hayden	ID	83835	661-1176
15	1	Nunes, Robert	11979 N Hauser Lake Road	Hauser	ID	83854	773-7123
16	1	Mask, Joseph	12048 N Hauser Lake Road	Hauser	ID	83854	773-0691
17	1	Armstrong, Mindy	11178 North 1st Street	Hauser	ID	83854	777-9929
18	1	Bowman, Andrew	506 Reid Ave	Coeur d'Alene	ID	83814	773-9177
19	1	Kiecker, Jeff/Patty	P.O. Box 503	Post Falls	ID	83877	773-7202
20	1	Moses, Nick	11041 North 2nd Street	Hauser	ID	83854	777-9864
21	1	Pannell, Addie	11891 N Hauser Lake Road	Hauser	ID	83854	704-5452
22	1	Bruch, Ruth	12096 N Hauser Lake Road	Hauser	ID	83854	0
23	1	Crump, Ralph	10487 N Hauser Lake Road	Hauser	ID	83854	773-6945
24	1	Sanders, Timothy	10461 N Hauser Lake Road	Hauser	ID	83854	777-7869
25	1	Allen, Dan	10609 N Cliffhouse Road	Hauser	ID	83854	773-6257
26	1	Newman, Ed	10623 N Hauser Lake Road	Hauser	ID	83854	457-0574
27	1	Peone, Jennifer	11949 N Hauser Lake Rd	Hauser	ID	83854	777-7305
28	1	Waterford, LLC	% Gary Weibel		ID	95926	0
29	1	Farmer, Randall	11102 North 4th Street	Hauser	ID	83854	773-4580
30	1	McFarlane, Donald	21511 N.E. 159th Street	Woodinville	WA	98077	
31	1	Vacant		Hauser	ID	83854	
32	2	Seager, Roxann	10925 N Cliffhouse Road	Hauser	ID	83854	457-8448
33	1	Ward, John	9671 W. Hamaker Road	Coeur d'Alene	ID	83814	765-9638
34	1	Anderson, Steven	12185 N Hauser Lake Road	Hauser	ID	83854	777-8760
35	1	Seat, David	17712 West Rice Ave.	Hauser	ID	83854	0
36	1	Kartevold, Don	10659 N Cliffhouse Road	Hauser	ID	83854	773-3446
37	1	Jung, Reinhold	9702 N Hauser Lake Road	Hauser	ID	83854	773-2478
38	1	Buffington, John	13744 N Hauser Lake Road	Hauser	ID	83854	777-1914
39	1	Vacant		Hauser	ID	83854	
40	1	Massong, Peter	11902 N Hauser Lake Road	Hauser	ID	83854	0
41	1	Wallis. Cheryl/John	11392 N Hauser Lake Road	Hauser	ID	83854	777-6967
42	1	Meek, Ron	P.O. Box 2333	Post Falls	ID	83877	773-5397
43	1	Westside Resort	101 W Prairie Shopping Ce	Hayden	ID	83835	687-1238

1:46:04PM

SHORT CUSTOMER LIST

Hauser Lake Water Association, Inc

ACCT #	ROUTE #	NAME	BILLING ADDRESS				PHONE
44	1	Studer, Duane	17506 West Rice Ave.	Hauser	ID	83854	777-7105
45	1	Lundt, Nicholas	10995 North 1st Street	Hauser	ID	83854	773-7425
46	1	Vacant		Hauser	ID	83854	
47	1	Hutchings, Cheralet	11916 N Hauser Lake Road	Hauser	ID	83854	(509)210-9632
48	1	Lindsay, Rodney	11027 North 2nd Street	Hauser	ID	83854	773-8730
49	1	Lenon, Joseph	17376 West Rice Ave.	Hauser	ID	83854	0
50	1	Montgomery, Paul	16945 West Rice Ave.	Hauser	ID	83854	773-8606
51	1	Janke, Terry	10253 N Cliffhouse Road	Hauser	ID	83854	
52	1	O'Brien, Donna	11192 N Hauser Lake Road	Hauser	ID	83854	773-2591
53	1	Parker, Terry	9709 North Cloverleaf	Hauser	ID	83854	704-0094
54	1	Carlson, Don	12152 N Hauser Lake Road	Hauser	ID	83854	773-3194
55	1	Waterford, LLC	% Gary Weibel		ID	95926	(360)293-0796
56	1	Harsh, Robert	11397 N Hauser Lake Road	Hauser	ID	83854	773-1709
57	1	Danford, Richard	11198 North 1st Street	Hauser	ID	83854	773-4261
58	1	Yancey, Paul	12655 N Hauser Lake Road	Hauser	ID	83854	0
59	1	Prochnau, Jeremy	18257 West Vinton Ave.	Hauser	ID	83854	457-8959
60	1	Hubik, Richard	10622 N Cliffhouse Road	Hauser	ID	83854	773-3207
61	1	Primmer, John	11163 N Hauser Lake Rd	Hauser	ID	83854	773-9785
62	1	Curley's	26433 West Hwy 53	Hauser	ID	83854	773-5816
63	1	Dinki-Di`s	P.O. Box 1002	Rathdrum	ID	83858	661-5349
64	1	LaRue, Josh	11087 North 4th Street	Hauser	ID	83854	661-4432
65	1	Vacant		Hauser	ID	83854	
66	1	Sieck, James	13617 E Wellesley Ave.	Spokane Valley	WA	99216	(509)926-9876
67	1	Spuler, Carol	11729 N. Hauser Lake Road	Hauser	ID	83854	0
68	1	Spuler, Carol	11729 N. Hauser Lake Road	Hauser	ID	83854	0
69	1	McDonough, Diane	19 Walking Stick Lane	Cocolalla	ID	83813	(208)263-1115
70	1	Gould, Sandra	11942 N Hauser Lake Road	Hauser	ID	83854	651-1996
71	1	DesMarais, Jonell	10980 N. Hauser Lake Road	Hauser	ID	83854	773-0911
72	1	Cohen, Terri/Darrel	10878 N. Hauser Lake Road	Hauser	ID	83854	773-9119
73	1	Fallquist, Mark	11115 North 4th Street	Hauser	ID	83854	773-6882
74	1	Luke, Georgia	10009 North Fay Place	Hauser	ID	83854	691-2400
75	1	Hensch, Janet	11076 North 2nd Street	Hauser	ID	83854	773-4694
76	1	Wachter, Robert	11108 North 1st Street	Hauser	ID	83854	773-4668
77	1	Martin, Jaime	11142 North 1st Street	Hauser	ID	83854	773-0678
78	1	Mulcahy, James	1952 Sundance Drive	Post Falls	ID	83854	0
79	1	Rady, Mick	11630 N. Summit Loop	Hauser	ID	83854	773-6205
80	2	Tipke, Jim	1424 West Bellwood Drive	Spokane	WA	99218	(509)466-0692
81	2	Tipke, Jim	1424 West Bellwood Drive	Spokane	WA	99218	(509)466-0692
82	2	Freeman, David	11212 N Cliffhouse Road	Hauser	ID	83854	(509)269-4366
83	2	Debbie Jo LLC	12008 N Woodland Beach Dr	Hauser	ID	83854	773-3654
84	2	Currie, Linda	P.O. Box 782	Rathdrum	ID	83858	
85	2	Ishihara, Flavio	12404 N Woodland Beach Dr	Hauser	ID	83854	773-5669
86	2	Hughes, D.C.	13014 East 23rd	Spokane Valley	WA	99216	(509)924-4843

1:46:04PM

SHORT CUSTOMER LIST

Hauser Lake Water Association, Inc

ACCT #	ROUTE #	NAME	BILLING ADDRESS				PHONE
87	2	DeLeo, Pamela	580 Simoron Drive	Ogden	UT	84404	(509)747-2993
88	2	LEW LLC	% Ed Hoff	Gillette	WY	82717	(307)680-7021
89	2	Fister, Ross	12230 N Woodland Beach Dr	Hauser	ID	83854	777-1967
90	2	McCrea, Sally	28405 18th Ave. S apt 304	Federal Way	WA	98003	(206)661-4370
91	2	Peterson, Lynn	12361 N Woodland Beach Dr	Hauser	ID	83854	773-7760
92	2	Sales, Dorothy	11106 N Cliffhouse Road	Hauser	ID	83854	773-5295
93	2	Graves. Jerry	11492 N Cliffhouse Rd.	Hauser	ID	83854	773-9674
94	2	Manthey, Troy	N 7410 Fox Point Drive	Spokane	WA	99208	(509)747-4076
95	2	Spurway, Mark	11356 N Cliffhouse Road	Hauser	ID	83854	215-6950
96	2	Babb, Charles	12378 N Woodland Beach Dr	Hauser	ID	83854	777-1827
97	2	Dutoit, Patricia	6560 Dry Creek Road	Napa	CA	94599	
98	2	Malley, Kevin	12407 N Wildwood Point	Hauser	ID	83854	773-3809
99	2	Angel, Jeff/Erchul, Nancy	11482 N Cliffhouse Road	Hauser	ID	83854	773-9003
100	2	Martin, Bill	12236 N Cliffhouse Road	Hauser	ID	83854	
101	2	Panattoni Marital Trust	% Cheryl Panattoni	Folsom	CA	95630	
102	2	Lagrou, Paul	12334 N Woodland Beach Dr	Hauser	ID	93954	773-3827
103	2	Kean, Dana	1032 East Pine Ave	Coeur d'Alene	ID	83814	661-1619
104	2	Sutherland, Bill	% Charles Stadtmueller	Spokane	WA	99223	(509)489-2747
105	2	Robinson, Glenn	4400 Staples Ave.	Coeur d'Alene	ID	83815	765-2161
106	2	Fischer, Gail	% PMIG	Post Falls	ID	83854	0
107	2	Holmes, Patrick	10950 N Cliffhouse Road	Hauser	ID	83854	773-2028
108	2	Leaf, Allan	4427 S.E. Division	Portland	OR	97206	(503)233-5839
109	2	Bell, Dan	12617 N Wildwood Point	Hauser	ID	83854	
110	2	Grennay, John	P.O. Box 406	Valleyford	WA	99036	(509)951-2774
111	2	Beebe, Lucinda	12364 N Woodland Beach Dr	Hauser	ID	83854	777-8725
112	2	Fischer, Joey	1487 - 7th Street	Los Osos	CA	93402	(877)528-1855
113	2	Luzzo, Thomas	P.O. Box 1435	Post Falls	ID	83877	755-5487
114	2	Johnston, Olita	12423 N Woodland Beach Dr	Hauser	ID	83854	773-8580
115	2	Cleveland, Jack	12339 N Woodland Beach Dr	Hauser	ID	83854	
116	2	Hansen, Christopher	3 Rollins Hills Road	Tiouron	CA	94920	
117	2	Schimanski, Edward	12155 N Wildwook Point	Hauser	ID	83854	773-9960
118	2	Romeu, Eugene	12274 N Woodland Beach Dr	Hauser	ID	83854	773-2831
119	2	Hammons, Chris	1669 W Durham Drive	Coeur d'Alene	ID	83814	640-3930
120	2	Slotten/Hall	12625 N Wildwood Dr	Hauser	ID	83854	691-1961
121	2	Langford, Michael	1654 Ashley Drive	Clarkston	WA	99403	773-8058
122	2	Langford, Michael	1645 Ashley Drive4	Clarkston	WA	99403	773-8058
123	2	Crocker, Nick	12363 N Wildwood Point	Hauser	ID	83854	773-5913
124	2	Rohrer, Bruce	12379 N Woodland Beach Dr	Hauser	ID	83854	773-8776
125	1	Vacant		Hauser	ID	83854	
126	2	Newell, Steve	12450 N Woodland Beach Dr	Hauser	ID	83854	773-4952
127	2	Chambers, Beki	11514 Cliffhouse Road	Hauser	ID	83854	0
128	1	Brown, Lance	11554 N Hauser Lake Road	Hauser	ID	83854	659-4171
129	1	Eggart, Ronald	101 W Roycroft Ct	Coeur d'Alene	ID	83815	(208)784-6581

1:46:04PM

SHORT CUSTOMER LIST

Hauser Lake Water Association, Inc

ACCT #	ROUTE #	NAME	BILLING ADDRESS				PHONE
130	1	Miller, LaMar	P.O. Box 190	Veredale	WA	99037	(509)924-9580
131	1	Finch, Jim/Marilyn	14722 East 48th Lane	Veredale	WA	99037	773-6828
132	1	Finch, Jim/Marilyn	14722 East 48th Lane	Veredale	WA	99037	0
133	1	Morgan, Gary	18509 West Snapdragon	Hauser	ID	83854	777-4330
134	1	Vacant		Hauser	ID	83854	
135	1	Thurston, Michelle	8985 N Hauser Lake Rd	Hauser	ID	83854	755-9839
136	1	Brooks, Jami/Barry	9008 North Cloverleaf	Hauser	ID	83854	773-0124
137	2	Wheeler, James	12798 N Cliffhouse Road	Hauser	ID	83854	777-0483
138	1	Stoll, Paul	17606 West Rice Ave.	Hauser	ID	83854	773-3356
139	2	McCoy, Tina	11522 N Cliffhouse Road	Hauser	ID	83854	773-6928
140	2	Scott, Michael	14147 W Stone	Post Falls	ID	83854	
141	2	Michael, Wes	12104 N Wildwood Point	Hauser	ID	83854	773-5584
142	2	Fisher, Kori	P.O. Box 1028	Newman Lake	WA	99025	(509)226-0331
143	1	Vacant		Hauser	ID	83854	
144	1	Ernst, Norman	10761 N Hauser Lake Road	Hauser	ID	83854	773-3190
145	1	Carfora, Edwin	10395 N Hauser Lake Road	Hauser	ID	83854	
146	1	Janhsen, Werner	12090 North Burdette Lane	Hauser	ID	83854	773-5743
147	1	Patterson, Tim	18404 West Paddlewheel	Hauser	ID	83854	773-7016
148	1	Falsone, Diane	9131 North Cloverleaf	Hauser	ID	83854	773-5119
149	1	Kory, John	9415 North Cloverleaf	Hauser	ID	83854	773-0078
150	1	Isbell, Ron	11233 N Hauser Lake Road	Hauser	ID	83854	773-5964
151	1	Thomson, Darla	16949 W Kathleen Ave.	Hauser	ID	83854	773-5048
152	1	Wells Fargo Bank	3476 Stateview Blvd	Fort Mill	SC	29715	0
153	1	Blount, Wade	10453 N Cliffouse Road	Hauser	ID	83854	262-9492
154	1	Lakeview Park	506 West Alder	Sandpoint	ID	83864	255-2222
155	1	Falsone, Gina	9131 North Cloverleaf	Hauser	ID	83854	773-6196
156	1	Wendle, Todd	9750 N Glen Hollow	Hauser	ID	83854	773-3067
157	1	Bridges, Bruce	17541 West Rice Ave.	Hauser	ID	83854	773-5664
158	1	Rolph, Bob	5206 S Dayton St.	Kennewick	WA	99337	(509)531-0103
159	1	Evans, Don	16912 West Rice Ave.	Hauser	ID	83854	773-2303
160	1	Sellers, Terrance	16857 West Rice Ave.	Hauser	ID	83854	457-9821
161	1	Ellerbroek, Charles	9535 North Cloverleaf	Hauser	ID	83854	773-9428
162	1	Kinsey, Dana	10632 N Cliffhouse Road	Hauser	ID	83854	773-5704
163	1	Wintz/Leblanc	2225 South Madison	Spokane	WA	99203	
164	1	Westside Resort	101 W Prairie Shopping Ce	Hayden	ID	83835	687-1238
165	1	Westside Resort	101 W Prairie Shopping Ce	Hayden	ID	83835	687-1238
166	1	Westside Resort	101 W Prairie Shopping Ce	Hayden	ID	83835	687-1238
167	1	Westside Resort	101 W Prairie Shopping Ce	Hayden	ID	83835	687-1238
168	1	Lakeview Park	506 West Alder	Sandpoint	ID	83864	(208)255-2222
169	2	Spada, Nancy	P.O. Box 26	Newman Lake	WA	99025	773-5616
170	1	Heggstrom, Bruce	1149 Mustang Springs Road	Kingman	AZ	86401	(928)377-2800
171	1	Hendryx, Susan	% Resort Property Managem	Coeur d'Alene	ID	83814	
172	1	Mulcahy, Rose	1952 Sundance Drive	Post Falls	ID	83854	263-3756

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SHORT CUSTOMER LIST

Hauser Lake Water Association, Inc

ACCT #	ROUTE #	NAME	BILLING ADDRESS				PHONE
173	1	O'Neal, Craig	10981 N Hauser Lake Road	Hauser	ID	83854	773-0449
174	1	Kiecker, Jefff/Patty	P.O. Box 503	Post Falls	ID	83877	773-7202
175	1	Bates, Glen	10926 N Hauser Lake Road	Hauser	ID	83854	
176	1	Clapper, Lloyd	11515 North Peppercorn	Hauser	ID	83854	773-4068
177	1	Hildesheim, James	18814 West Mincoda Road	Hauser	ID	83854	773-0149
178	1	Hegbloom, Van/Karla	12593 N Hauser Lake Road	Hauser	ID	83854	0
179	1	Keys, Bill	17845 West Rice Ave.	Hauser	ID	83854	691-1883
180	1	Colton, Margaret	12234 North Burdette Lane	Hauser	ID	83854	640-0712
181	1	Wachsmuth, Chester	17008 West Rice Ave.	Hauser	ID	83854	773-3275
182	1	Schmidt, LeRoy	P.O. Box 291	Newman Lake	WA	99025	773-4874
183	1	Beebe, George	11099 N Hauser Lake Road	Hauser	ID	83854	
184	1	Hammons, Jeff	10431 N Cliffhouse Road	Hauser	ID	83854	
185	1	Lakeview Park	506 West Alder	Sandpoint	ID	83864	(208)255-2222
186	1	Millier, Ursula	18341 West Main Street	Hauser	ID	83854	773-0827
187	1	Westside Resort	101 W Prairie Shopping Ce	Hayden	ID	83835	687-1238
188	1	Elliott, Gary	17571 West Rice Ave.	Hauser	ID	83854	773-7602
189	1	McKee/Nugent	10373 N Cliffhouse Road	Hauser	ID	83854	773-4771
190	2	Turner, Wilma	26727 E Hauser Lake Rd	Newman Lake	WA	99025	(509)226-1229
191	2	Asburry, Rodney	P.O. Box 993	Post Falls	ID	83877	687-3625
192	1	Otto, Bill	9653 North Cloverleaf	Hauser	ID	83854	704-7358
193	2	Sala, Ron	16593 West Sala Lane	Hauser	ID	83854	773-2418
194	1	Jordan, Danellla	10411 North Fay Place	Hauser	ID	83854	773-0087
195	1	Ragan, Karen	10931 N Hauser Lake Road	Hauser	ID	83854	773-5090
196	1	Etten, Pamela	12258 North Burdette Lane	Hauser	ID	83854	773-5645
197	1	Varner, Darek	10822 N Cliffhouse Road	Hauser	ID	83854	
198	1	Frei, Terry	8513 North Cloverleaf	Hauser	ID	83854	773-1886
199	1	Hannon, Thomas	10523 N Hauser Lake Road	Hauser	ID	83854	773-5395
200	1	Vacant		Hauser	ID	83854	
201	1	Johnson, Lloran	P.O. Box 784	Post Falls	ID	83877	773-5830
202	1	Kootenai Public Access	10905 North Ramsey	Hayden	ID	83835	
203	1	Uptagrafft, Pat	10169 N Cliffhouse Road	Hauser	ID	83854	773-2583
204	1	Fuller, Vita	14099 N Hauser Lake Road	Hauser	ID	83854	773-3934
205	1	Westside Resort	101 W Prairie Shopping Ce	Hayden	ID	83835	687-1238
206	1	Westside Resort	101 W Prairie Shopping Ce	Hayden	ID	83835	687-1238
207	1	Westside Resort	101 W Prairie Shopping Ce	Hayden	ID	83835	687-1238
208	1	Evarts, Margaret	13846 N Hauser Lake Road	Hauser	ID	83854	773-4950
209	1	Dengel, Robert	P.O. Box 416	Post Falls	ID	83877	773-1219
210	1	Ziegler, Greg	9386 North Cloverleaf	Hauser	ID	83854	773-0974
211	1	Williams, Charles	12057 North Burdette Lane	Hauser	ID	83854	773-6321
212	1	Meiggs, Kathy	13687 N Hauser Lake Road	Hauser	ID	83854	773-6971
213	1	Buchanan, Hardy	11017 N Hauser Lake Road	Hauser	ID	83854	773-4116
214	1	Jenkins, Loretta	10413 N Cliffhouse Road	Hauser	ID	83854	777-9235
215	1	Vacant		Hauser	ID	83854	

1:46:04PM

SHORT CUSTOMER LIST

Hauser Lake Water Association, Inc

ACCT #	ROUTE #	NAME	BILLING ADDRESS				PHONE
216	1	Bennett, Dewey	1018 Reynolds Ct.	Oviedo	FL	32765	0
217	1	Gonzales, Kevin	9588 N Hauser Lake Road	Hauser	ID	83854	0
218	2	Wallace, James	12678 N Cliffhouse Road	Hauser	ID	83854	457-8329
219	1	Barrett, Jamie	17222 West Rice Ave.	Hauser	ID	83854	773-8633
220	1	Vacant		Hauser	ID	83854	
221	1	Kohn, Paul	11105 North 1st Street	Hauser	ID	83854	773-7872
222	2	Allen, Michael	P.O. Box 387	Otis Orchards	WA	99027	
223	1	O'Neal, Danny	P.O. Box 1523	Post Falls	ID	83877	773-0449
224	1	Vacant		Hauser	ID	83854	
225	1	Drapeau, Lance	11285 N Hauser Lake Road	Hauser	ID	83854	773-3309
226	1	Vacant		Hauser	ID	83854	
227	1	Primmer, John	11163 N Hauser Lake Road	Hauser	ID	83854	773-9785
228	2	Stipe, Scott	12460 N Wildwood Point	Hauser	ID	83854	777-9245
229	1	Nickerson, Dale	17185 W Kathleen Ave.	Hauser	ID	83854	773-0900
230	2	Debbie Jo LLC	12008 N Woodland Beach Dr	Hauser	ID	83854	773-3654
231	1	Ashcraft, Bob	9510 N Hauser Lake Road	Hauser	ID	83854	773-9800
232	2	Sutherland, Bill	% Charles Stadtmueller	Spokane	WA	99223	(509)343-1040
233	2	Mercier/Walsh	12384 N Wildwood Point	Hauser	ID	83854	0
234	1	Carlson, Kenneth	18623 West Paddlewheel	Hauser	ID	83854	773-5439
235	2	Martin, Jason	12238 N Cliffhouse Road	Hauser	ID	83854	0
236	2	Hunter, Virginia	12001 N Wildwood Point	Hauser	ID	83854	
237	1	Benson, Travis	18046 W Hauser View Dr.	Hauser	ID	83854	457-9736
238	1	Oles, Merton	15967 W Hollister Hills	Hauser	ID	83854	773-2638
239	1	Nelson, Dan	13993 N Hauser Lake Rd	Hauser	ID	83854	0
240	1	Hubbs, Judith	21875 DeBerry Street	Grand Terrace	CA	92313	0
241	1	Brown, Sandra	9644 N Hauser Lake Road	Hauser	ID	83854	777-7033
242	1	Trumbich, Chris	16667 W Hollister Hills	Hauser	ID	83854	773-7673
243	1	Crouse, Dave	16327 W Hollister Hills	Hauser	ID	83854	777-7338
244	1	Eklof, Karl	16217 W Hollister Hills	Hauser	ID	83854	773-6696
245	1	Murphy, Carol	12286 North Burdette Lane	Hauser	ID	83854	773-3821
246	1	Bengtson, Vernon	16309 W Hollister Hills	Hauser	ID	83854	773-2460
247	1	Hall, Deborah	18606 West Rebel Road	Hauser	ID	83854	0
248	1	Tierney, Joseph	17235 W Kathleen Ave	Hauser	ID	83854	777-1247
249	1	Davidson, Lee	16259 W Hollister Hills	Hauser	ID	83854	773-9613
250	1	Foy, Deborah	9730 North Glen Hollow	Hauser	ID	83854	773-6265
251	1	Bunce, Judyth	16751 W Hollister Hills	Hauser	ID	83854	661-7860
252	1	Lee, Pearl	16634 W Hollister Hills	Hauser	ID	83854	773-5954
253	1	Cathey, Joe	15922 W Hollister Hills	Hauser	ID	83854	773-3109
254	1	Graves, Ron	9358 North Cloverleaf	Hauser	ID	83854	0
255	1	Cordell, Marylyn	8954 North Cloverleaf	Hauser	ID	83854	773-5592
256	1	Stimak, Mike	9505 West Oak Drive	Lake City	MI	49651	0
257	2	Martin, Gary	16400 West Sala Lane	Hauser	ID	83854	773-9596
258	2	Justus, Christene	15281 N Hauser Lake Road	Hauser	ID	83854	457-8600

SHORT CUSTOMER LIST

Hauser Lake Water Association, Inc

ACCT #	ROUTE #	NAME	BILLING ADDRESS				PHONE
259	2	Justus, Christene	15281 N Hauser Lake Road	Hauser	ID	83854	457-8600
260	2	LaBoure/Panattoni	15807 N Hauser Lake Road	Hauser	ID	83854	773-0228
261	1	Cook, Marilyn	16364 W Hollister Hills	Hauser	ID	83854	773-1116
262	1	Lenon, Senaca	16510 W Hollister Hills	Hauser	ID	83854	699-5234
263	1	Hanson, Gene	16071 W Hollister Hills	Hauser	ID	83854	0
264	1	Petersen, Gary	P.O. Box 1171	Post Falls	ID	83877	773-4474
265	1	Vacant		Hauser	ID	83854	
266	2	Lakeview Inn	11308 E 11th Ave	Spokane Valley	WA	99206	(509)710-1120
267	1	Wood, James	16007 W Hollister Hills	Hauser	ID	83854	773-5577
268	1	Moore, Bill	15878 W Hollister Hills	Hauser	ID	83854	773-1317
269	1	Fish, Merle	17323 W Kathleen Ave.	Hauser	ID	83854	773-4419
270	1	Brooks, Henry	6801 Quarter Horse Dr	Springboro	OH	45066	0
271	1	Coe, Matt	18242 W Holiday Way	Hauser	ID	83854	777-2686
272	1	Backsen, Rick	16375 W Hollisteer Hills	Hauser	ID	83854	777-0918
273	1	Hartley, Herman	12801 N Hauser Lake Road	Hauser	ID	83854	773-7197
274	1	Lenon, Amanda	16024 W Hollister Hills	Hauser	ID	83854	457-8071
275	1	Dawson, Kim	14055 N Hauser Lake Road	Hauser	ID	83854	773-4087
276	1	Benoit, Barry	18595 West Paddlewheel	Hauser	ID	83854	773-0673
277	1	Sparks, Tom	16139 W Hollister Hills	Hauser	ID	83854	773-1302
278	2	James, Norene	P.O. Box 870521	Wasilla	AK	99687	(907)376-4987
279	1	Rapalli, Bob	15787 W Hollister Hills	Hauser	ID	83854	0
280	1	Abendschein, Kurt	12845 N Hauser Lake Road	Hauser	ID	83854	0
281	1	Herrera, Rick	12731 N Hauser Lake Road	Hauser	ID	83854	773-9966
282	1	Wilmeth, Helen	12773 N Hauser Lake Road	Hauser	ID	83854	773-7062
283	1	Wilburn, Larry	18401 W Snapdraggon	Hauser	ID	83854	773-7764
284	1	Lovell, Maureen	11154 North 2nd Street	Hauser	ID	83854	773-2366
285	1	Roberts, Kathy	18015 West Lake Street	Hauser	ID	83854	704-5120
286	1	Hess, Bruce	9266 North Cloverleaf	Hauser	ID	83854	773-6041
287	1	Raff, Christina	16696 W Hollister Hills	Hauser	ID	83854	0
288	1	Ziegler, Mr.	16592 W Hollister Hills	Hauser	ID	83854	0
289	1	Zychek, Robert	18272 W Holiday Way	Hauser	ID	83854	773-0168
290	1	Nordby, Bob	10800 N Hauser Lake Road	Hauser	ID	83854	773-0220
291	2	Minderman, Sean	P.O. Box 1329	Veradale	WA	99037	
292	2	Comfort, James/Linda	P.O. Box 807	Newman Lake	WA	99025	(509)979-2586
293	1	Excell Property Manageme	Hollister Hills Property	Coeur d'Alene	ID	83814	(307)756-3887
294	1	Haney, Brett	16788 W Hollister Hills	Hauser	ID	83854	773-9066
295	1	Champion Concrete	26769 W Highway 53	Hauser	ID	83854	773-8222
296	1	Cramer, Don/Julie	17685 West Rice Ave.	Hauser	ID	83854	777-1853
297	1	Bosio, Tim	18261 W Holiday Way	Hauser	ID	83854	457-1364
298	1	Krapf, Kenneth	18213 W Holiday Way	Hauser	ID	83854	0
299	1	Comstock, H.E.	16811 W Hollister Hills	Hauser	ID	83854	773-2815
300	1	Markley, Fred	10699 N Hauser Lake Road	Hauser	ID	83854	773-4310
301	1	Farner, Paul	18191 W Hauser View Dr	Hauser	ID	83854	773-0134

1:46:04PM

SHORT CUSTOMER LIST

Hauser Lake Water Association, Inc

ACCT #	ROUTE #	NAME	BILLING ADDRESS				PHONE
302	1	Wachter, Joseph	10058 North Fay Place	Hauser	ID	83854	773-7800
303	1	Vacant		Hauser	ID	83854	
304	1	Vacant		Hauser	ID	83854	
305	1	Thomas, William	16575 W Hollister Hills	Hauser	ID	83854	773-5088
306	1	Smith, Wendy	12134 N Hauser Lake Road	Hauser	ID	83854	964-5534
307	1	Chambers, John	16546 W Hollister Hills	Hauser	ID	83854	773-3937
308	1	Munn, Robert	12114 N Hauser Lake Road	Hauser	ID	83854	0
309	1	Robinson, Frank	16738 W Hollister Hills	Hauser	ID	83854	773-1359
310	1	Jones, Gary	9241 N Hauser lake Road	Hauser	ID	83854	773-3262
311	1	Simms, Larry	P.O. Box 1504	Post Falls	ID	83877	773-7457
312	1	Reeves, A.	16210 W Hollister Hills	Hauser	ID	83854	661-9471
313	1	Janhsen, Debbie	17681 W Kathleen Ave.	Hauser	ID	83854	773-3616
314	1	Vacant		Hauser	ID	83854	
315	1	Pessein, Darlene	18756 West Rebel Road	Hauser	ID	83854	819-3493
316	1	Lofstrom, Henry	18801 West Rebel Road	Hauser	ID	83854	773-5174
317	1	Hildesheim, Mark	11347 W Waterford Lane	Hauser	ID	83854	773-8724
318	1	Taylor, Melissa/Sean	10944 N Hauser Lake Road	Hauser	ID	83854	773-1193
319	1	Vacant		Hauser	ID	83854	
320	1	Royster, Jackie	18190 W Holiday Way	Hauser	ID	83854	457-9593
321	1	Brown, John C	11714 N Hauser lake Road	Hauser	ID	83854	773-1312
322	1	Schwarz, Paul	9761 N Glen Hollow Lane	Hauser	ID	83854	262-9676
323	1	Neils, John	15788 W Hollister Hills	Hauser	ID	83854	755-9590
324	1	Smith, Delvera	16068 Holllister Hills	Hauser	ID	83854	777-7100
325	1	Gilbert, Darell	16107 W Hollister Hills	Hauser	ID	83854	773-3285
326	1	Peterson, Joe	12961 N Hauser Lakae Road	Hauser	ID	83854	773-1325
327	1	Matheus Lumber	P.O. Box 2260	Woodinville	WA	98027	(425)489-3000
328	1	Washburn, Carol	12473 N Hauser Lake Road	Hauser	ID	83854	773-3928
329	1	Richardson, Pete	10102 N Memory Lane	Rathdrum	ID	83858	818-6478
330	1	Chaffee, Chris	18166 W Holiday Way	Hauser	ID	83854	661-8098
331	1	MacDonald, John	2301 Balsam Drive	Arlington	TX	76006	(817)422-1590
332	1	Sterr, Don	9794 North Glen Hollow	Hauser	ID	83854	777-8263
333	1	McGlocklin, Jim	9689 North Payment Peak	Hauser	ID	83854	773-3980
334	1	Aragon, Mike	18235 W Holiday Way	Hauser	ID	83854	773-8903
335	1	Eggart, Warren	1034 Raven Lane	College Place	WA	99324	(509)525-8465
336	1	City of Hauser	11837 N Hauser Lake Road	Hauser	ID	83854	773-5461
337	1	Simmons, Mike	9776 N Hauser Lake Road	Hauser	ID	83854	773-2115
338	1	Coyne, Jessica	16829 W Hollister Hills	Hauser	ID	83854	(425)418-1366
339	1	Watson, Harry	10583 North Fay Place	Hauser	ID	83854	773-8305
340	1	Jeffrey, Mark	9797 N Glen Hollow Lane	Hauser	ID	83854	0
341	1	Travis, Patrick	18569 W Holiday Way	Hauser	ID	83854	773-2456
342	1	Peterson, Joe	12961 N Hauser Lake Road	Hauser	ID	83854	773-1325
343	1	MacDonald, David	18330 W Hauser View Driv	Hauser	ID	83854	0
344	1	Frank, Steve	18303 W Hauser View Drivw	Hauser	ID	83854	773-1043

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SHORT CUSTOMER LIST

Hauser Lake Water Association, Inc

ACCT #	ROUTE #	NAME	BILLING ADDRESS				PHONE
345	1	Hauser Lake Rod & Gun	P.O. Box 431	Post Falls	ID	83877	0
346	1	Scott, Tim	18281 W Hauser View Drive	Hauser	ID	83854	773-7711
347	1	Inland Empire Paper	N. 3320 Argonne Road	Spokane	WA	99212	0
348	1	Laughton, Thomas	9579 N Hauser Lake Road	Hauser	ID	83854	(509)994-0034
349	1	Wysong, Robert	18304 W Hauser View Drive	Hauser	ID	83854	773-6753
350	1	Hitz, Joe	18117 W Hauser View Drive	Hauser	ID	83854	773-8730
351	1	Savage, Greg	18242 W Hauser View Drive	Hauser	ID	83854	773-2669
352	1	Hazel, Ramona	18144 W Hauser View Drive	Hauser	ID	83854	773-4022
353	1	Pauckert, Michael	9717 North Cloverleaf	Hauser	ID	83854	773-2197
354	1	Rust, Peter	18224 W Holiday Way	Hauser	ID	83854	773-0879
355	1	Mallon, Gary	18366 W Hauser View Drive	Hauser	ID	83854	773-4765
356	1	Kagarice, Joshua	18108 W Hauser View Drive	Hauser	ID	83854	0
357	1	Romine, James	18155 W Hauser View Drive	Hauser	ID	83854	773-3669
358	1	McBride, William	18282 W Hauser View Drive	Hauser	ID	83854	777-0446
359	1	Gilbert, George	18400 W Holiday Way	Hauser	ID	83854	773-3450
360	1	Schnore, Robert	17314 West Rice Ave.	Hauser	ID	83854	773-1259
361	1	Feldhusen/Passow	12327 North Burdette Lane	Hauser	ID	83854	0
362	1	Routson, Craig	18246 N Advent Road	Hauser	ID	83854	612-2546
363	1	Noska, Larry	15911 W Hollister Hills	Hauser	ID	83854	777-2957
364	1	Cavallaro, Elisha	17623 West Rice Ave	Hauser	ID	83854	777-2479
365	1	Bockstruck, B.K.	11630 N Hauser Lake Road	Hauser	ID	83854	773-4168
366	1	Koth, Arthur	12915 N Northpark	Newman Lake	WA	99025	(509)226-3121
367	1	Helt, Randall	18182 W Hauser View Drive	Hauser	ID	83854	0
368	1	Camm, Terri	18128 W Holiday Way	Hauser	ID	83854	773-9205
369	1	Wellington, Kim	12915 N Northpark	Newman Lake	WA	99025	(509)999-5819
370	2	Meyer. Julie	17567 W Woodlake Drive	Hauser	ID	83854	773-0962
371	1	Shipp, Dennis	13640 N Ragged Ridge	Hauser	ID	83854	
372	1	Bergman, Eugene	16385 W Hollister Hills	Hauser	ID	83854	773-9422
373	1	Hansen, Chris	9433 N Payment Peak	Hauser	ID	83854	0
374	1	Rigby, Jeff/Lori	18127 W Holiday Way	Hauser	ID	83854	773-0716
375	1	Kirk, Lee/Amelia	20972 N Camper Road	Rathdrum	ID	83858	0
376	1	Leigh, Joe	9701 N Hauser Lake Road	Hauser	ID	83854	773-5195
377	1	Watt, Russell	14280 N Hauser Lake Road	Hauser	ID	83854	262-6911
378	1	Guches, Larry	17940 West Julia Drive	Hauser	ID	83854	773-0436
379	1	Myser, Luther	9552 N Hauser Lake Road	Hauser	ID	83854	0
380	1	Vacant		Hauser	ID	83854	
381	1	King, David/Donna	11092 North 2nd	Hauser	ID	83854	
382	1	Reynolds, Don	17120 West Rice Road	Hauser	ID	83854	773-9470
383	1	Gilfilen, Brett	18151 W Holiday Way	Hauser	ID	83854	660-1571
384	1	Larson, Doug	17980 West Julia Drive	Hauser	ID	83854	777-0105
385	1	Staley, Carl		Hauser	ID	83854	0
386	1	Gile, Charles	18677 W Holiday Way	Hauser	ID	83854	773-7078
387	1	Swaney, Ronald	25689 West Highway 53	Hauser	ID	83854	773-6880

1:46:04PM

SHORT CUSTOMER LIST

Hauser Lake Water Association, Inc

ACCT #	ROUTE #	NAME	BILLING ADDRESS				PHONE
388	1	Huff, Jay	16515 W Hollister Hills	Hauser	ID	83854	773-9693
389	1	Hauser Mini Storage	P.O. Box 1954	Post Falls	ID	83877	773-6667
390	1	Marceau, Kirk	13698 N Hauser Lake Road	Hauser	ID	83854	457-9341
391	1	Sapp, Lana	16691 W Hollister Hills	Hauser	ID	83854	773-1394
392	2	Beauchesne, George	17319 West Julia Drive	Hauser	ID	83854	0
393	2	Lefebvre, Roger	17556 W Woodlake Drive	Hauser	ID	83854	773-6450
394	1	Watson, Harry	10583 North Fay Place	Hauser	ID	83854	
395	1	Sweetman, Al	17833 West Julia Drive	Hauser	ID	83854	773-3128
396	1	Stoll, Scott	17586 West Rice Ave.	Hauser	ID	83854	773-3356
397	2	Burkett, James	17363 W Woodlake Drive	Hauser	ID	83854	773-0600
398	2	Douglas, Donald	17273 W Woodlake Drive	Hauser	ID	83854	773-2441
399	1	Brown, Gloria	11544 N Hauser Lake Road	Hauser	ID	83854	0
400	1	Burgan,Michael	19076 W Mincoda Road	Hauser	ID	83854	262-9415
401	2	Werst, Don	17227 W Woodlake Drive	Hauser	ID	83854	777-1705
402	2	Prockish, Tim	17562 West Liree Drive	Hauser	ID	83854	0
403	1	Weber III, Henry	10671 N Hauser Lake Road	Hauser	ID	83854	
404	1	Miller, Ryan	17988 West Lake Street	Hauser	ID	83854	773-4140
405	1	Seat, Danny	17445 W Kathleen Ave.	Hauser	ID	83854	773-9141
406	1	Hansen, M.L.	11975 N Hauser Lake Road	Hauser	ID	83854	773-1935
407	1	Bartlett, Kenneth	18016 West Lake Street	Hauser	ID	83854	773-8538
408	1	Kellard, Michael	16427 W Hollister Hills	Hauser	ID	83854	773-6869
409	1	Dutton, Jeff	P.O. Box 2641	Post Falls	ID	83877	
410	1	Bilodeau, James	P.O. Box 1931	Post Falls	ID	83877	777-0432
411	1	Kalmback, Randy	11067 North 2nd Street	Hauser	ID	83854	818-7353
412	1	Adele Properties, LLC	15281 N Hauser Lake Road	Hauser	ID	83854	777-9238
413	1	Uzzi, Paul	12055 N Hauser Lake Road	Hauser	ID	83854	651-0795
414	1	Bockstruck, Tracy	11617 N Hauser Lake Road	Hauser	ID	83854	777-7026
415	1	Madigan, William	12329 North Burdette Lane	Hauser	ID	83854	777-1910
416	1	Vacant		Hauser	ID	83854	
417	2	Plonka, Brian	12339 N Wildwood Point	Hauser	ID	83854	777-0683
418	1	Bell, Debbie	15852 W Hollister Hills	Hauser	ID	83854	0
419	1	Hauser Fire Station		Hauser	ID	83854	0
420	1	Brinkley, Cedar	18219 W Hauser View Drive	Hauser	ID	83854	(208)964-2299
421	1	Coats, Sara	17158 West Rice Ave.	Hauser	ID	83854	0
422	2	Ray, Donna	P.O. Box 995	Post Falls	ID	83877	
423	2	Ribinsky, Catherine	17288W Woodlake Drive	Hauser	ID	83854	773-8781
424	2	Bremer, Gary	17329 W Woodlake Drive	Hauser	ID	83854	777-0562
425	1	Bergquam, Brent	510 N Homestead Drive	Liberty Lake	WA	99019	0
426	2	Postmus, William	17643 West Liree Road	Hauser	ID	83854	0
427	1	Tingey, John	6797 W Kamloops Dr	Rathdrum	ID	83858	687-9093
428	2	Jennings, Everett	17414 West Liree Drive	Hauser	ID	83854	457-8050
429	2	Lofstrand, Helene	17590 West Liree Drive	Hauser	ID	83854	777-1185
430	2	Speer, Greg	17397 W Woodlake Drive	Hauser	ID	83854	773-7543

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SHORT CUSTOMER LIST

Hauser Lake Water Association, Inc

ACCT #	ROUTE #	NAME	BILLING ADDRESS				PHONE
431	2	Gerking, Dale	17557 West Liree Drive	Hauser	ID	83854	777-8459
432	2	Musselman, Crystal	17170 West Woodlake Drive	Hauser	ID	83854	773-2882
433	2	Tierney, Joseph	17491 West Liree Drive	Hauser	ID	83854	777-1247
434	1	Sitko, Darin	18039 West Julia Drive	Hauser	ID	83854	773-0455
435	1	Belanger, John	11110 N Hauser Lake Road	Hauser	ID	83854	
436	1	Paul, Karl	9850 North Los Ranchos	Hauser	ID	83854	661-8098
437	1	Leigh, Terry	10045 North Los Ranchos	Hauser	ID	83854	0
438	2	Maki, Rodney	17466 West Liree Drive	Hauser	ID	83854	773-8039
439	1	Schloesser, Dave	16282 W Hollister Hills	Hauser	ID	83854	0
440	1	Allmon, Rick/Carol	P.O. Box 628	Rathdrum	ID	83858	773-1432
441	2	Childress. Lyn	17447 West Liree Drive	Hauser	ID	83854	262-9927
442	2	Simon, John	2600 A East Seltice	Post Falls	ID	83854	0
443	1	Schwafel, Jerry	4314 Marine Heights	Anacortes	WA	98221	(360)293-5899
444	2	Simon,, Rozalia	17295 N Woodlake Drive	Hauser	ID	83854	0
445	1	Durham, Mark	11186 N Hauser Lake Road	Hauser	ID	83854	457-1515
446	1	Craner, Angela	9979 N Hauser Lake Road	Hauser	ID	83854	0
447	1	Cook, Marilyn	16364 W Hollister Hill Dr	Hauser	ID	83854	773-1116
448	1	Lovell, Maureen	11154 North 2nd Street	Hauser	ID	83854	773-2366
449	2	Peterson, Donald	12361 N Woodland Beach Dr	Hauser	ID	83854	
450	1	Ranney, Robert	12473 N Hauser Lake Road	Hauser	ID	83854	773-3928
455	1	Well 1 pre lube				0	
456	1	Well 2 pre-lube				0	

452 Accounts Listed

Qualified By: All Customers

Hauser Lake Water Assn.

HAUSER LAKE WATER ASSOCIATION

2011 FACILITY PLAN PRESENTATION AND PUBLIC MEETING

June 7, 2011

WELCH-COMER
ENGINEERS | SURVEYORS

Introductions

1. Hauser Lake Water Association:
   - Pat Travis, President
   - David Nall, Vice President
   - Rick Jemison, Member
   - Wesley Michael, Member
   - Larry Simms, Member
   - Lynn Peterson, Board Secretary
   - Joe and Terry Leigh, Water System Operators

2. Welch, Comer & Associates, Inc.:
   - Necia Maiani, P.E. – Sr. Project Manager
   - Phil Boyd, P.E. – Principal Engineer

3. Katy Baker-Casile, P.E., IDEQ

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Agenda

1. Background (Water System Overview and Facility Planning Process)
2. Description of Water System Deficiencies
3. Recommended Improvement Options
4. Benefits of Improvements
5. Costs of Improvements
6. Financing and Rate Impact
7. Schedule for Completion

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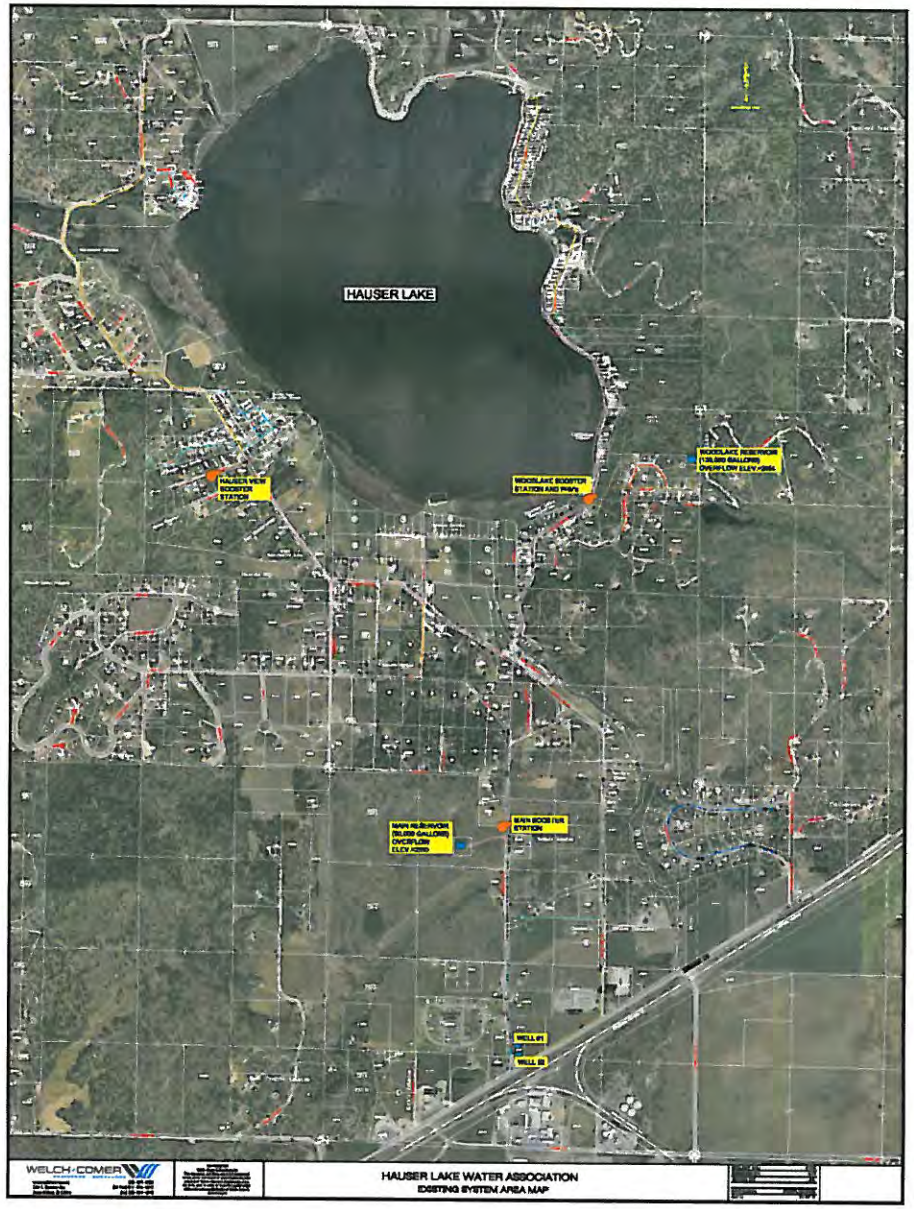
Hauser Lake Water Association Water System Overview/History



- Original System Established in 1967
- Two (2) Wells (~1800 gpm)
- Three (3) Booster Facilities
- Two (2) Storage Facilities (~210,000 gallons)
- 56,200 Lineal Feet of Distribution Line
- Services 451 Existing Connections
  - Current Average Daily Demand: 170 gpm
  - Current Maximum Daily Demand: 678 gpm

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System Expansion/Upgrade History

- Well Pump No. 1: Drilled in 1967, New Pumps Installed in 1988
- Well Pump No. 2: Drilled in 1975, New Pump Installed in 2002
- Woodlake Booster and Storage Facility: 1992
- 12" Transmission Main from Well 2 to Main Booster: 2002
- Transmission Main: 2002

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Purposes for Completing a Facility Plan

- Regulatory: Analyze the ability of the system to meet regulatory requirements from a capacity standpoint. IDEQ now requires water systems to prepare and have an approved facility plan before making substantial modifications to the system.

- Function: Analyze the system's operational efficiency.

- Performance/Serviceability: Analyze the system's ability to provide and maintain a high level of service.

- Asset Management: Provide a tool for the Association to manage the system infrastructure operation and growth.

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Overview of Pertinent Idaho Rules for Public Water Systems Regulated by IDEQ (IDAPA 58.01.08)

1. Groundwater Systems: Must have sufficient source capacity to supply the maximum day demand with largest source off line.
2. Booster Facilities: Must have sufficient capacity to supply the maximum day demand plus fire flow (if pumped) with any pump out of service.
3. Storage: Must have sufficient volume to provide:
   - Operational Storage: Volume allocated to pump control
   - Equalization Storage: Volume to supply peak hour demand over 150 min.
   - Standby Storage: Volume to supply 8 hours of average day demand.
   - Fire Suppression: Volume specified by local fire authority
     - Typical requirement is 120,000 gallons for residential areas based on International Fire Code

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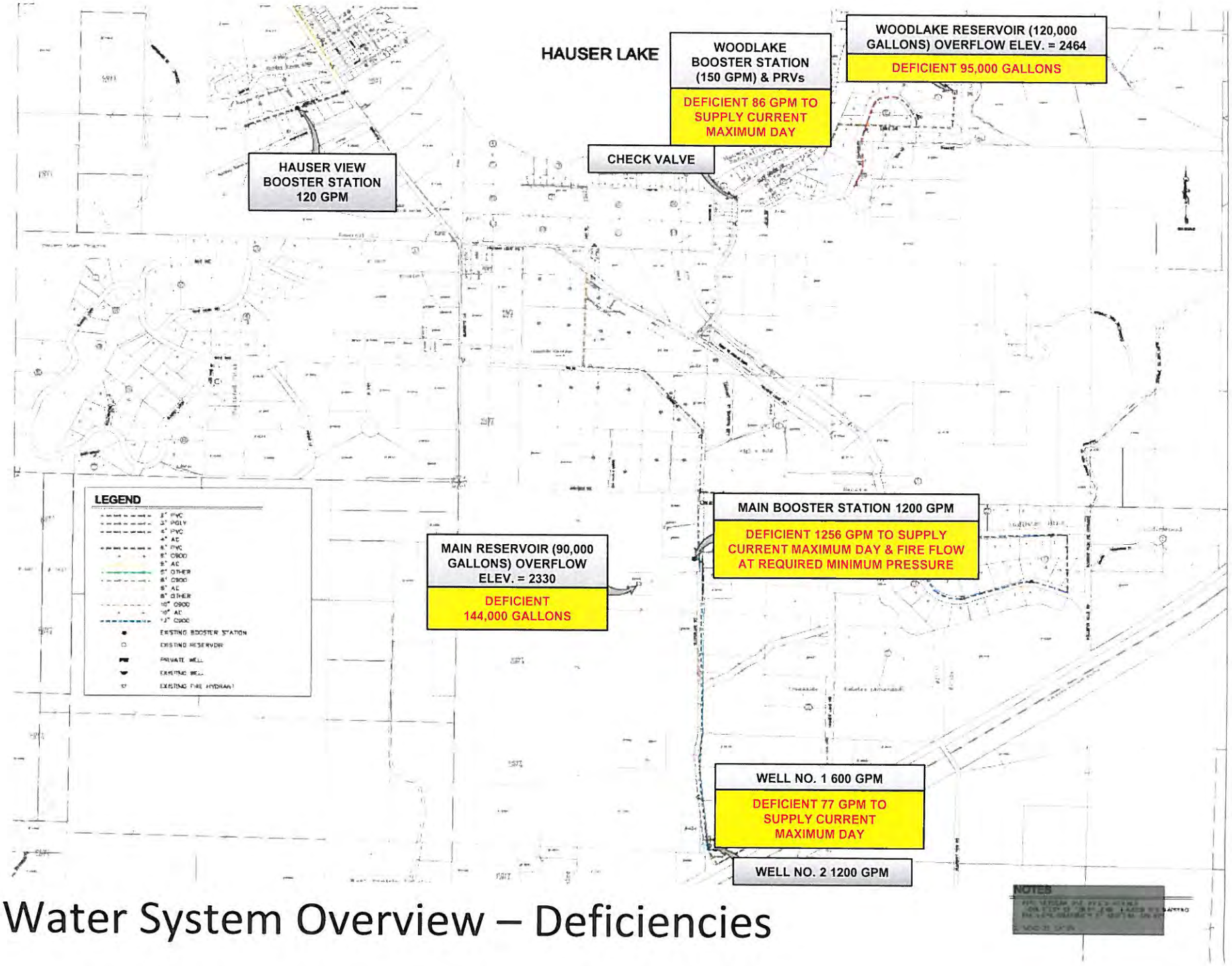
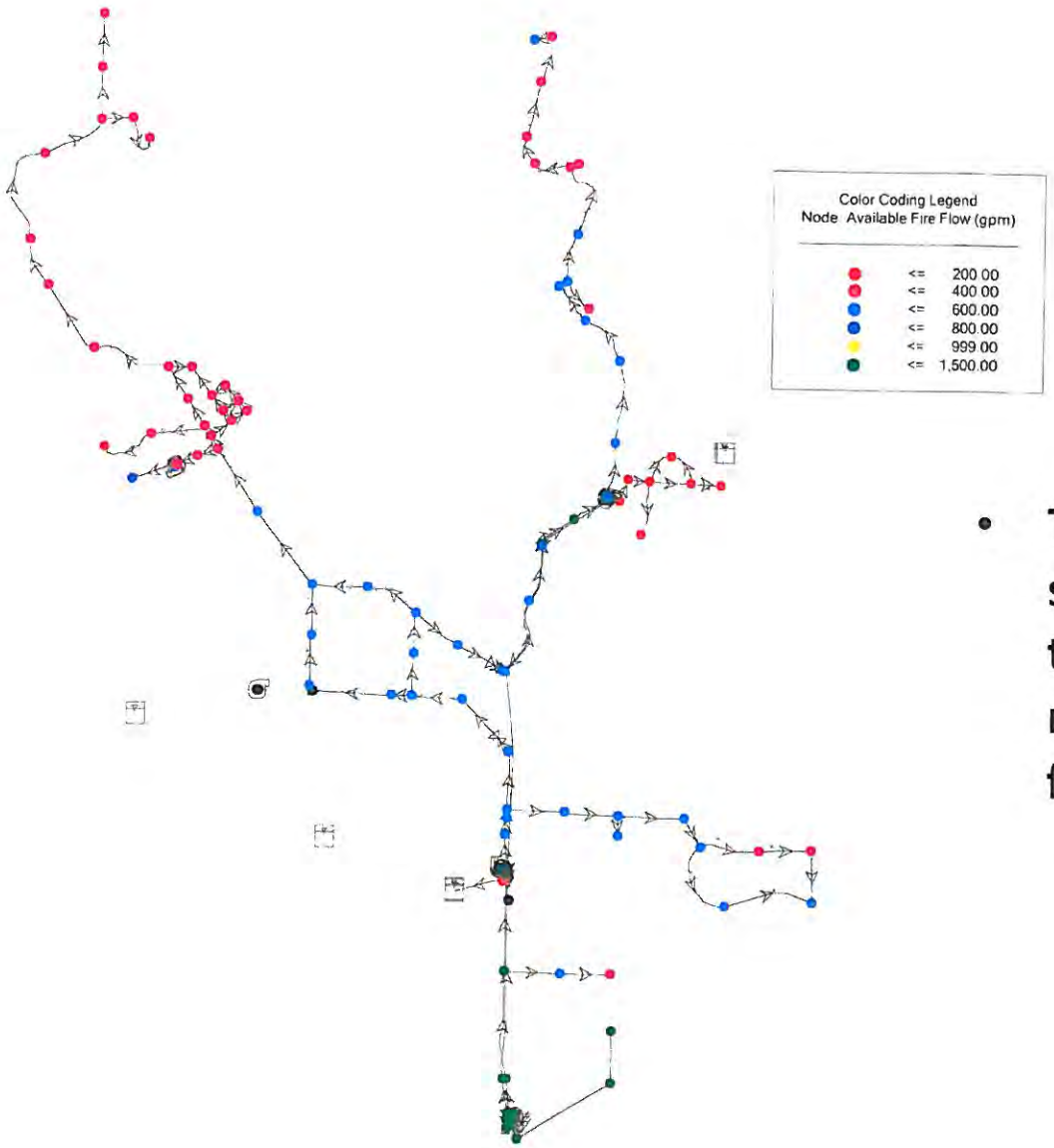


Water System Overview – Deficiencies

Available Fire Flow at the End of a Fire

(1,000 gpm for 2 Hours)



- **The existing distribution system cannot support the typical fire flow requirement for a single family residence**

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Summary of Deficiencies

1. The system has capacity and operational deficiencies which minimize the Association's ability to provide high level of service and do not meet the requirements of the Idaho Rules for Public Drinking Water Systems.

2. The system has depreciating infrastructure which will need to be addressed by the Association – this is typically funded over time by rates.

The recommended improvements and budget focuses on the capacity and operational deficiencies, these are the highest priority from a service and regulatory standpoint.

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Recommended Improvements

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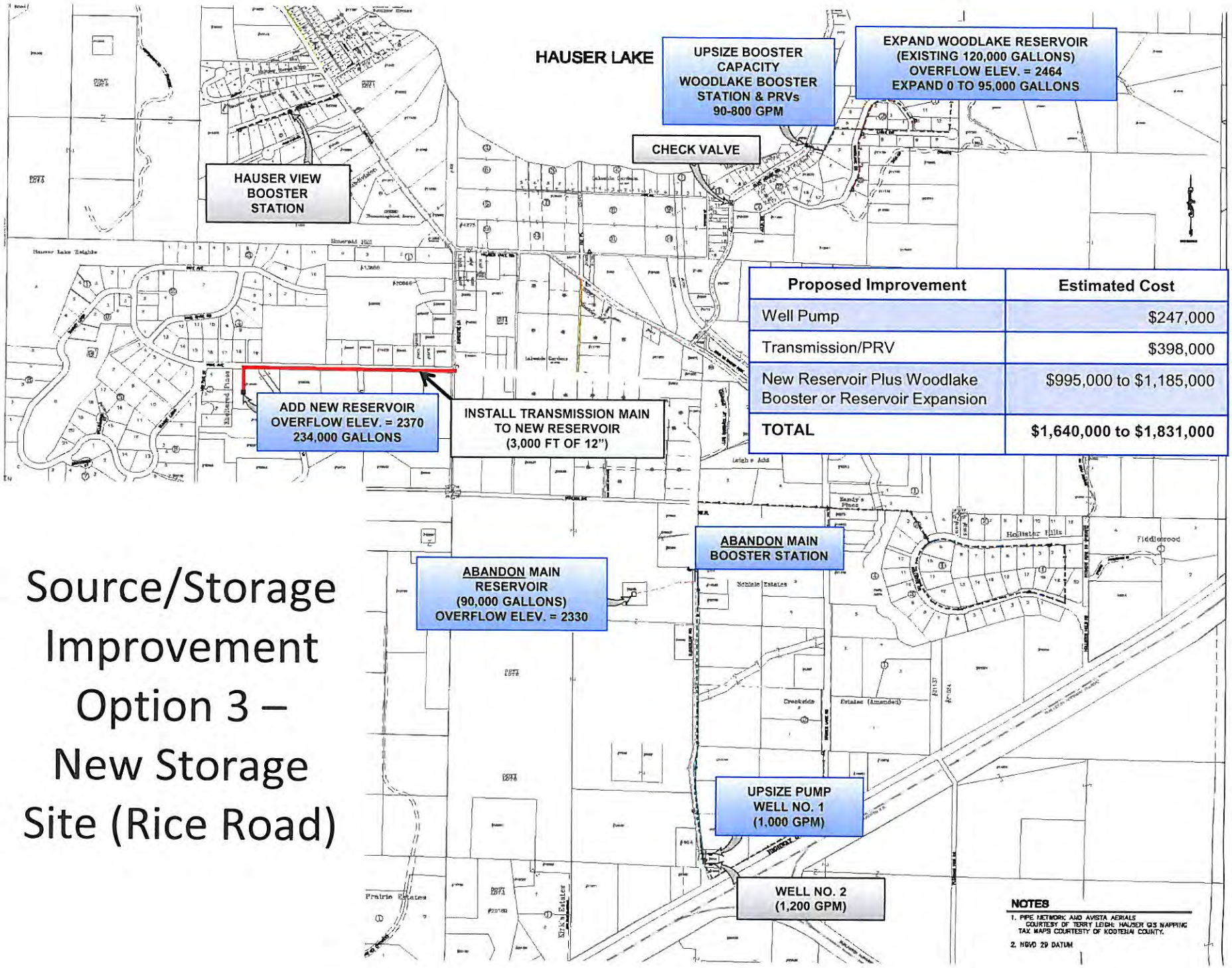
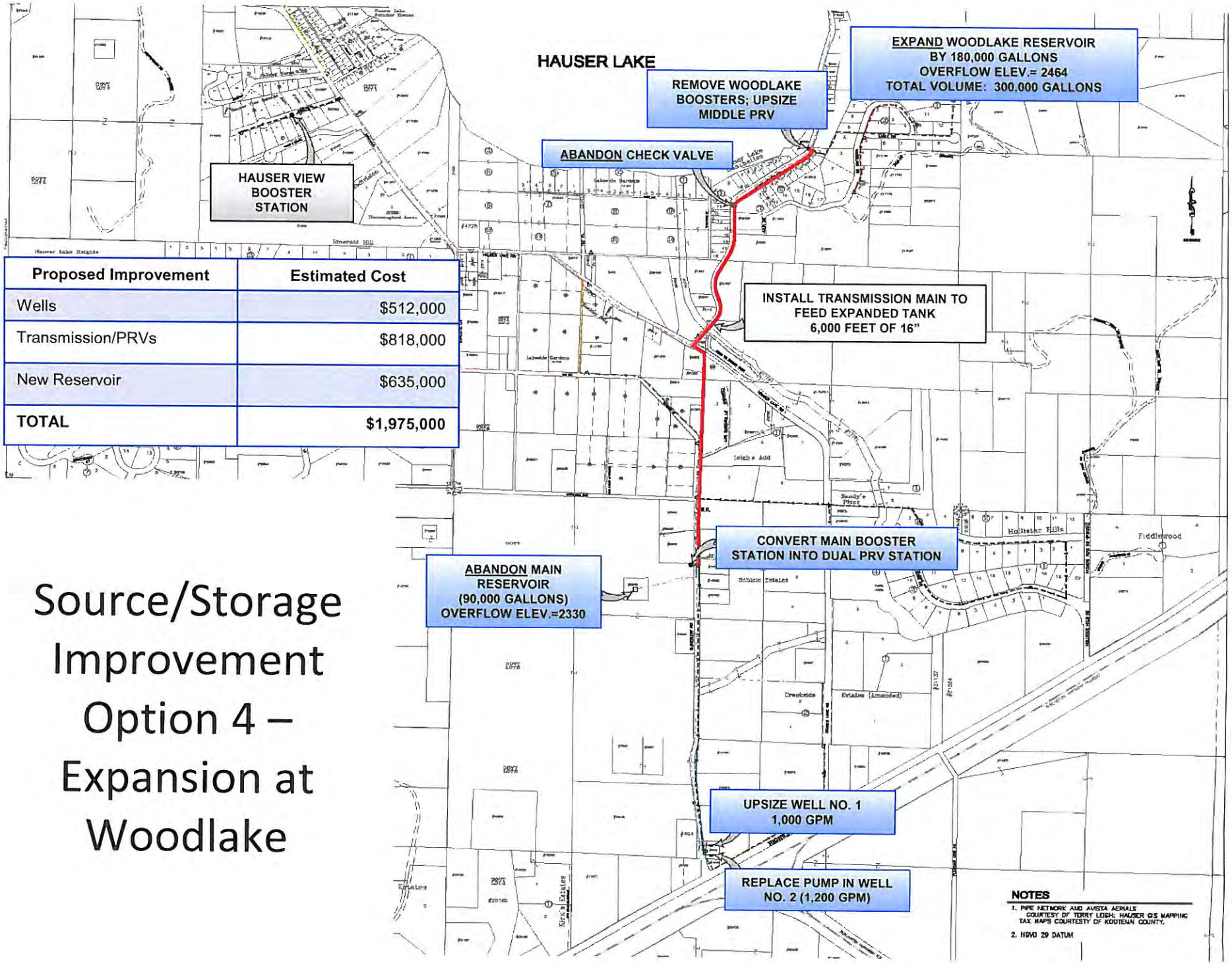
Source/Storage Improvement Option 3 – New Storage Site (Rice Road)

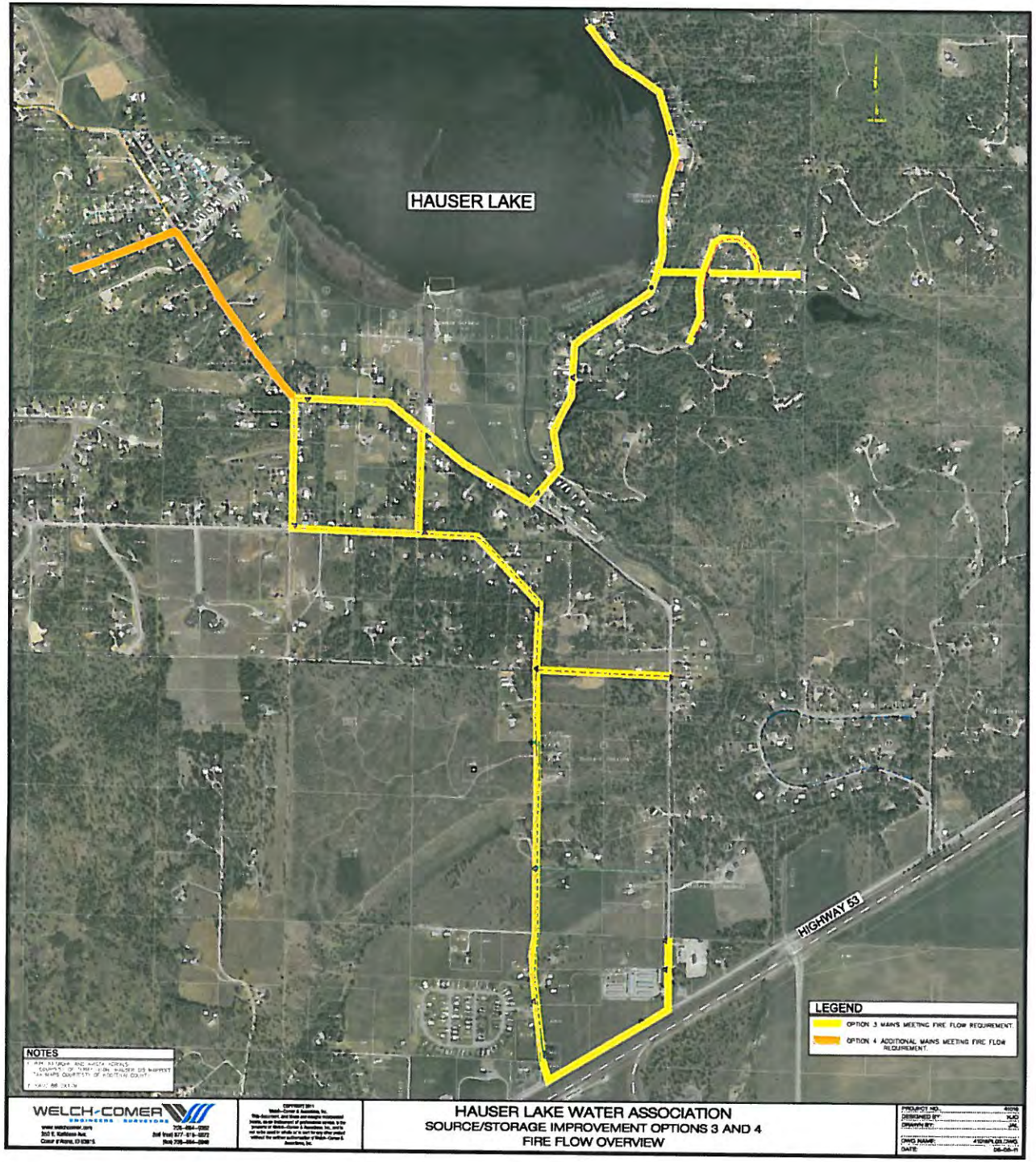


Proposed Improvement	Estimated Cost
Well Pump	$247,000
Transmission/PRV	$398,000
New Reservoir Plus Woodlake Booster or Reservoir Expansion	$995,000 to $1,185,000
TOTAL	**$1,640,000 to $1,831,000**

Source/Storage Improvement Option 4 – Expansion at Woodlake



Proposed Improvement	Estimated Cost
Wells	$512,000
Transmission/PRVs	$818,000
New Reservoir	$635,000
TOTAL	**$1,975,000**



Source/Storage Improvement Options 3 & 4 Fire Flow Improvement Impact

NOTE: Fire Flow at End of Line Hydrants

- W. Hauser Lake Rd:
  - Current – 200 to 400 gpm
  - Option 3 – 200 to 400 gpm
  - Option 4 – 400 to 600 gpm
- E. Hauser Lake Rd:
  - Current – 200 to 400 gpm
  - Option 3 – 400 to 600 gpm
  - Option 4 – 400 to 600 gpm

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Comparison of Improvement Options

	OPTION 3 Storage on Rice Road	OPTION 4 Storage at Woodlake
Capital Cost	$1,640,000 to $1,830,000	$1,975,000
Estimated Annual Operating & Maintenance Cost	$33,000 to $36,000	$34,000
Improvement to Fire Flow		Largest Impact
Land Acquisition Required	Yes	Soil conditions may not allow expansion on available land
Elimination of Pumping Facilities	Eliminates 1	Eliminates 2
Elimination of Storage Facilities/Sites	Eliminates 1 Facility Adds New Facility	Eliminates 1

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Summary of Project Benefits

1. Bring source and storage capacity up to current state standards for Public Drinking Water Systems
2. Improve system operation (elimination of continuous maintenance/replacement costs for multiple pump facilities, this cost can be reallocated to other capital improvements, water system replacements)
3. Improve system reliability
   - gravity storage feed to all customers
   - available storage capacity for fire suppression and emergency (power outage) events
   - available back up source capacity to support maximum day demands if primary source fails
4. Preserve water rights
5. Improve fire flow

* NOTE: Long term, the Association needs to keep in mind that even with the proposed improvements, the system contains a large amount of depreciating infrastructure that will eventually wear out and require replacement. The Association should set aside funds annually in anticipation of this.

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Funding Available

- The Association has been placed on the IDEQ priority list for funding for FY2012.
- The available funding is a low interest loan at 1.75% for 20 years.
- If the Association accepts this funding, funds would be available as early as July, 2011.

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Funding Scenario & Rate Impact
(IDEQ Loan at 1.75% for 20 Years)

OPTION 4:

Total Estimated Capital Cost:	$1,974,700
Total Annual Payment: (Includes Financing/Admin Costs)	$120,230
Monthly Debt Service: (per each single family residence)	$23.00

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Funding Scenario & Rate Impact
(IDEQ Loan at 1.75% for 20 Years)

- Complete Improvements Over 3-4 Year Period
- 1st Payment Due Within 1 Year of Loan Closure
  (If loan closes 2012, payment would be due 2015)
- Phase Rate Increases Beginning 2012 to Cover Interim Interest and Accumulate Emergency Reserve
- Proposed Rate Increase Schedule:

Year	Monthly Increase	Revised Equivalent Monthly Base Rate
2011	---	$17.50
2012	$4.60	$22.10
2013	$4.60	$26.70
2014	$4.60	$31.30
2015	$4.60	$35.90
2016	$4.60	$40.50
Total Increase for Debt Service	**$23.00**	

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Proposed Schedule

	Facility Plan/Environmental Process	DEQ Funding Process
Jan-11	DRAFT Plan Submitted to Board – Mid January: Prepare Newsletter DRAFT	
Feb-11	Receive Board Comments on DRAFT Plan and Newsletter, Newsletter Mailing for Public Informational Meeting	
Mar-11		
Apr-11		
May-11		DEQ Priority List Published
Jun-11	1st Public Informational Meeting (Presentation of Facility Plan)	
Jul-11	Public Input Received/Board Selects Final Project Scope	Board Decision to Move Forward/ DEQ Funding Available
Aug-11	Environmental Process Begins	Preparation and Approval of Loan Agreement
Sep-11		
Oct-11		
Nov-11		
Dec-11	Environmental Process Complete	
Jan-12		Design Begins
Feb-12		
Mar-12		
Apr-12		Advertise / Bid First Phase
May-12		
Jun-12		Construction First Phase
Jul-12		
Aug-12		
Sep-12		
Oct-12		
Nov-12		

QUESTIONS

This Presentation and the DRAFT Facility Plan are available for viewing at www.welchcomer.com

WELCH-COMER
ENGINEERS | SURVEYORS

HAUSER LAKE WATER ASSOCIATION
PO BOX 3468
POST FALLS, ID 83877

Regular Meeting
Hauser Lake Fire Station
July 12, 2011

The regular meeting of the Board of Directors of the Hauser Lake Water Association, Inc. was called to order at 7:00 p.m. by President Patrick Travis. Steven Anderson, Rick Jemison, Wes Michael, and Larry Simms were present. Joe Leigh, Terry Leigh and Lynn Peterson were present. Necia Maiani from Welch Comer was also present. President Travis acknowledged there was a quorum.

Minutes

Steve Anderson moved to approve the minutes from the June regular meeting as received. Wes Michael seconded the motion and it carried.

Bills

Larry Simms moved to approve payment of the bills as attached to these minutes. Steve Anderson seconded the motion and it carried.

Mountain West Bank Account Signatures

Larry Simms moved delete Tracy Bockstruck and David Nall from the Mountain West bank accounts and add Steve Anderson and Rick Jemison. Wes Michael seconded the motion and it carried.

Engineer Report

Necia was given the go ahead to move forward with the water rights application.

There was much discussion on the options for source and storage for the system. Larry Simms moved to proceed forward at this point with option 3A. Rick Jemison seconded the motion. A roll call vote was called and all Board members said yes. The motion carried. (Option 3A is a new storage site on Rice Road) There was discussion on acquisition of this site.

Property Acquisition
Rick Jemison moved to proceed with finding an appraiser for the property the association wishes to acquire. Steve Anderson seconded the motion and it carried.

Meter Hook-up Request
Norene James requested two meter hook ups for her properties located on Cliffhouse Road just north of the old Rainbow Inn. Board member said they would take it under consideration and to put it on the December agenda.

Plaques for Retired Board Members
Board members were shown the plaques they purchased for Tracy Bockstruck and David Nall.

Disconecting Meters for Non Payment
There was discussion on the procedure currently used to disconnect meters for non payment. The procedure was not in writing, but in long ago minutes, nor in the Policy Handbook. Terry said he would like to have door hangers to warn people they had 48 more hours after the final notices. Larry said he would write a sample policy of the procedure for Board discussion before approval.

Adjourn
Wes Michael moved to adjourn the meeting at 8:55 p.m. Rick Jemison seconded the motion and it carried.

Respectfully Submitted: Attest:

Lynn Peterson, Secretary Treasurer Patrick Travis, President

AGENDA
ANNUAL MEETING
May 1, 2012
Hauser Lake Fire Station
7:00 p.m.

Polls Close

Minutes

Financial Report

Budget

Engineering Report

- water rights
- system study for
- capitalization study
  - original
  - current replacement cost

Election Results

From the Floor

Old Business

New Business

HAUSER LAKE WATER ASSOCIATION, INC.
ANNUAL MEETING
MAY 1, 2012

Name	Address
Russell Watt	14280 N Hauser Lk Rd
[illegible]	9701 Hauser Lake Rd ID
Terry Leigh	10045 N. Los Ranchos,
Linda R Nelson	11522 N Cliff Hse Rd
Don Carlson	12152 W Hauser Lake Road
Duane Stuper	17506 W. Rice Ave, Hauser

HAUSER LAKE WATER ASSOCIATION

2012 ANNUAL MEETING

May 1, 2012

WELCH-COMER
ENGINEERS | SURVEYORS

Introductions

1. Hauser Lake Water Association:
   - Pat Travis, President
   - Larry Simms, Vice President
   - Rick Jemison, Member
   - Wesley Michael, Member
   - Steve Anderson, Member
   - Lynn Peterson, Board Secretary
   - Joe and Terry Leigh, Water System Operators

2. Welch, Comer & Associates, Inc.:
   - Necia Maiani, P.E. – Sr. Project Manager

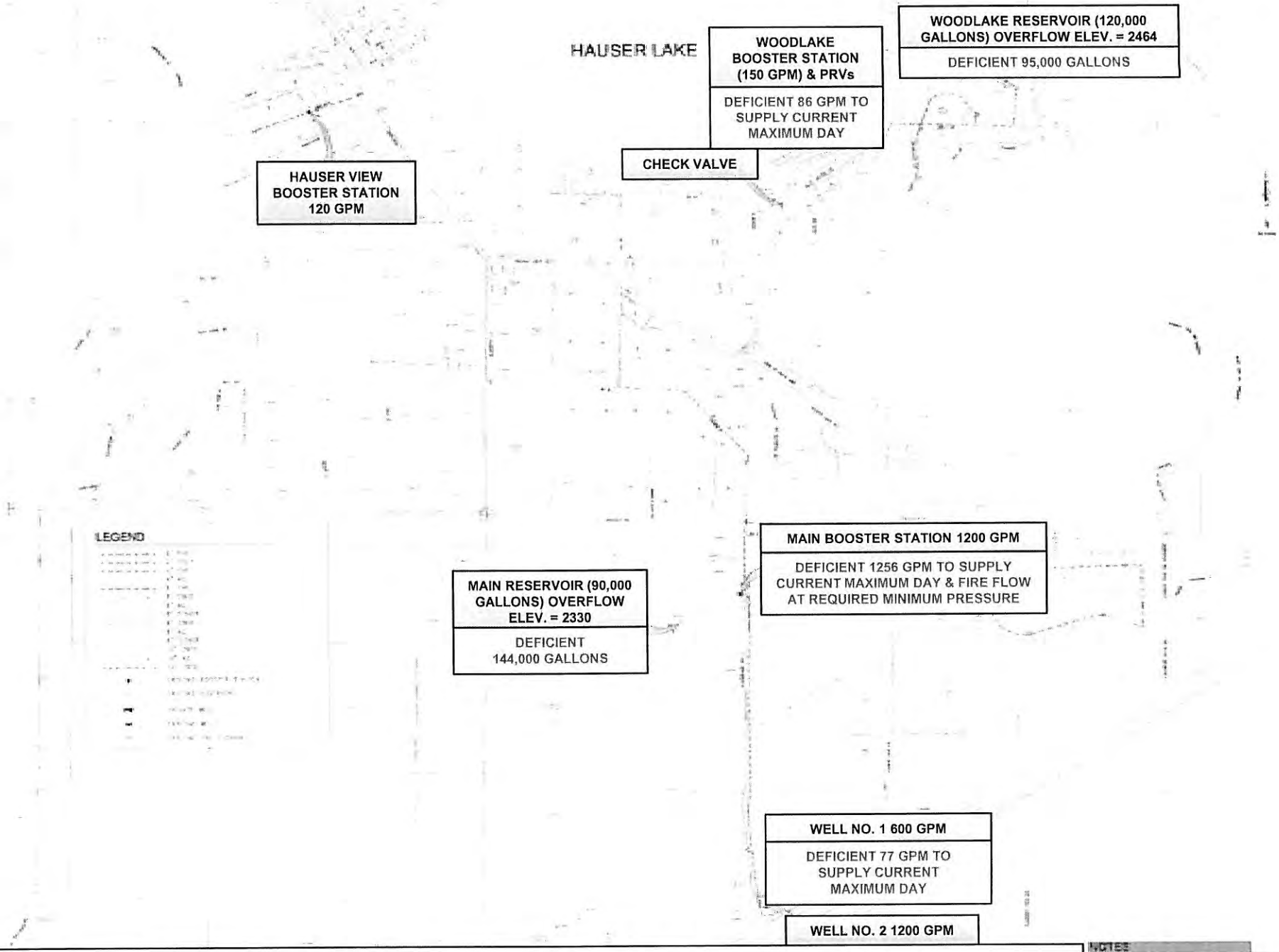
Background

- Association completed a Facility Plan in 2011 which identified system deficiencies based on current rules.
- Association was put on IDEQ's priority list for a low interest loan to complete improvements to the system.
- Association presented findings of Facility Plan and proposed improvements to the members last June.
- Association submitted loan application in December and is awaiting DEQ's loan offer. (Anticipated June, 2012)

Hauser Lake Water Association Water System Overview/History

- Original System Established in 1967
- Two (2) Wells (~1800 gpm)
- Three (3) Booster Facilities
- Two (2) Storage Facilities (~210,000 gallons)
- 56,200 Lineal Feet of Distribution Line
- Services 451 Existing Connections
  - Current Average Daily Demand: 170 gpm
  - Current Maximum Daily Demand: 678 gpm

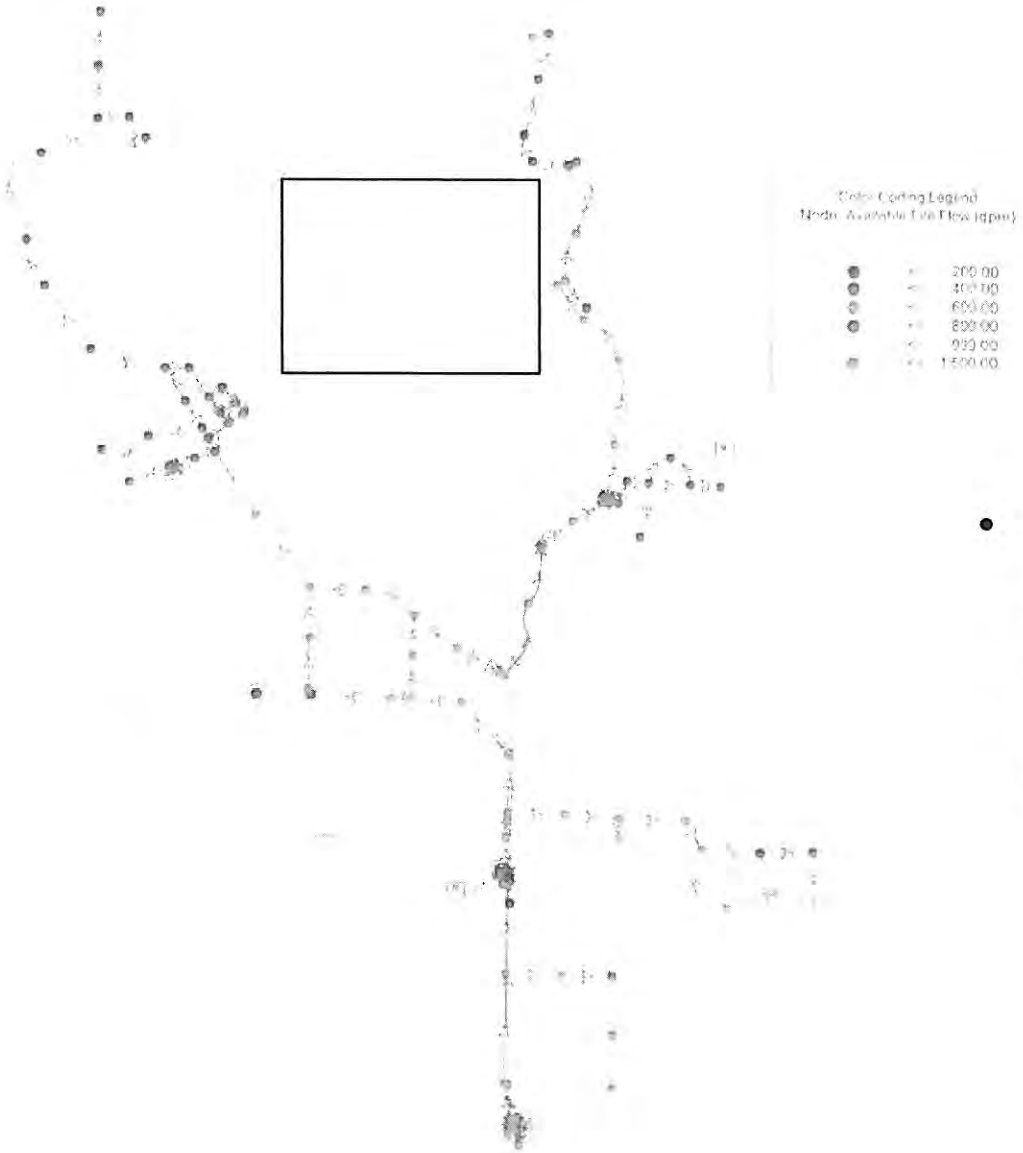
WELCH-COMER
ENGINEERS | SURVEYORS



Water System Overview – Deficiencies

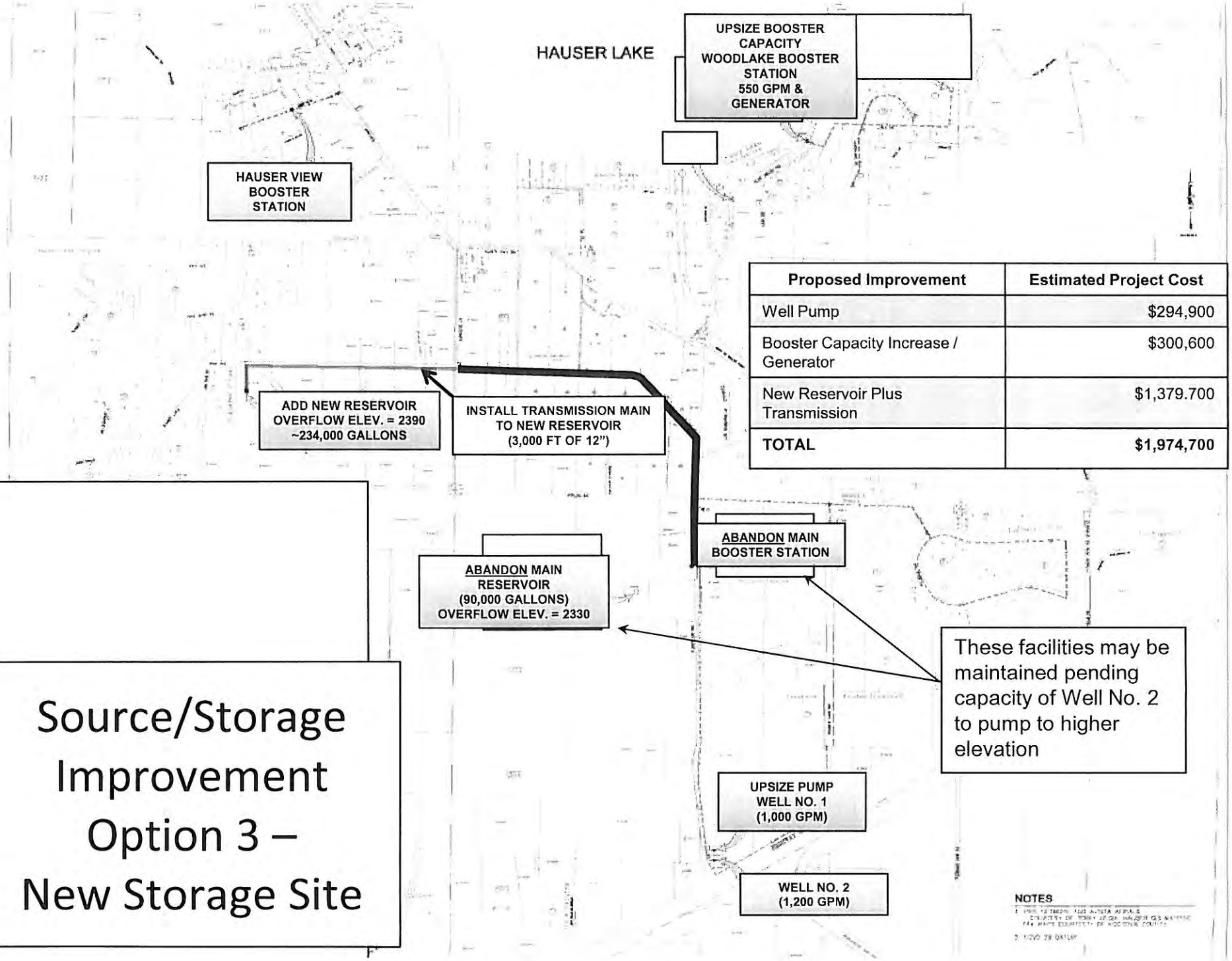
Available Fire Flow at the End of a Fire

(1,000 gpm for 2 Hours)



- **The existing distribution system cannot support the typical fire flow requirement for a single family residence**

WELCH-COMER
ENGINEERS / SURVEYORS



Proposed Improvement	Estimated Project Cost
Well Pump	$294,900
Booster Capacity Increase / Generator	$300,600
New Reservoir Plus Transmission	$1,379.700
TOTAL	**$1,974,700**

Source/Storage Improvement Option 3 – New Storage Site

Source/Storage Improvement Option 3 Fire Flow Improvement Impact

NOTE: Fire Flow at End of Line Hydrants

- W. Hauser Lake Rd:
  - Current – 200 to 400 gpm
  - Option 3 – 200 to 400 gpm
- E. Hauser Lake Rd:
  - Current – 200 to 400 gpm
  - Option 3 – 400 to 600 gpm

WELCH-COMER
ENGINEERS | SURVEYORS

Summary of Project Benefits

1. Bring source and storage capacity up to current state standards for Public Drinking Water Systems
2. Improve system operation (elimination of continuous maintenance/replacement costs for multiple pump facilities, this cost can be reallocated to other capital improvements, water system replacements)
3. Improve system reliability
   - gravity storage feed to all customers
   - available storage capacity for fire suppression and emergency (power outage) events
   - available back up source capacity to support maximum day demands if primary source fails
4. Preserve water rights
5. Improve fire flow

* NOTE: Long term, the Association needs to keep in mind that even with the proposed improvements, the system contains a large amount of depreciating infrastructure that will eventually wear out and require replacement. The Association should set aside funds annually in anticipation of this.

Funding Scenario & Rate Impact
(IDEQ Loan at 1.75% for 20 Years)

Available Loan Funding:	$1,974,700
Total Annual Payment: (Includes Financing/Admin Costs)	$118,000
Monthly Debt Service: (per each single family residence)	$23.13

WELCH-COMER
ENGINEERS | SURVEYORS

Funding Scenario & Rate Impact
(IDEQ Loan at 1.75% for 20 Years)

- Complete Improvements Over 3-4 Year Period
- 1st Payment Due Within 1 Year of Loan Closure
  (If loan closes 2014, payment would be due 2015)
- Phase Rate Increases Beginning 2012 to Cover Interim Interest and Accumulate Emergency Reserve
- Proposed Rate Increase Schedule:

Year	Monthly Increase	Revised Equivalent Monthly Base Rate
2011	---	$17.50
2012	$7.50	$25.00
2013	$7.50	$32.50
2014	$8.13	$40.63
2015	$0	$40.63
2016	$0	$40.63
Total Increase for Debt Service	**$23.13**	

NOTE: Increments may be reduced/ spread out over 4 or 5 years to reduce impact

WELCH-COMER ENGINEERS | SURVEYORS

Proposed Schedule

	Facility Plan/Environmental Process	DEQ Funding Process
Jan-11	DRAFT Plan Submitted to Board – Mid January: Prepare Newsletter DRAFT	
Feb-11	Receive Board Comments on DRAFT Plan and Newsletter, Newsletter Mailing for Public Informational Meeting	
Mar-11		
Apr-11		
May-11		DEQ Priority List Published
Jun-11	1st Public Informational Meeting (Presentation of Facility Plan)	
Jul-11	Public Input Received/Board Selects Final Project Scope	Board Decision to Move Forward/ DEQ Funding Available
Aug-11	Environmental Process Begins	
Sep-11		
Oct-11		
Nov-11		
Dec-11	Draft EID Submitted to DEQ	Loan Application Submitted to DEQ
Jan-12	DEQ Review	DEQ Review
Feb-12		
Mar-12		
Apr-12		
May-12	Environmental Process Complete	
Jun-12		Loan Offer Issued
Jul-12		Design Begins First Phase
Aug-12		
Sep-12		
Oct-12		Bid First Phase
Nov-12		
		CONSTRUCT 2013

QUESTIONS

Volume 1, Issue 2

March, 2012

HAUSER LAKE WATER ASSOCIATION NEWSLETTER

Board of Directors:

Patrick Travis
President
(208) 691-8445

Larry Simms
Member
(208) 773-7457

Rick Jemison
Member
(208) 773-4284

Wesley Michael
Member
(208)773-5584

Steve Anderson
Member
(208) 777-8760

Hauser Lake Water Association Annual Meeting

Tuesday
May 1, 2012
7:00 p.m.
at the
Hauser Lake Fire Station

Hauser Lake Water Association, Inc.

P.O. Box 3468
Post Falls, Idaho 83854

Phone: 208/773-7760

PURPOSE

The purpose of this newsletter is to:

1. Inform members of the Hauser Lake Water Association of the status of the proposed Water System Improvement Project that was presented to you in June of 2011
2. Notify you of the associated rate increase necessary to construct the improvements.
3. Notify you of the upcoming annual meeting and election.

ANNUAL MEETING AND ELECTION

The ANNUAL MEETING of the Hauser Lake Water Association, Inc. will be held Tuesday May 1, 2012 at 7:00 p.m. at the Hauser Lake Fire Station.

On the Agenda at this meeting will be:

(1) Minutes of the previous annual meeting
(2) Financial report
(3) Budget
(4) Report of Water System Improvement Project
(5) Any other business which may be legally transacted.
(6) The election of one (1) Director (your ballot is enclosed)

Elections

The Fire Station will be open from 6:00 to 7:00 p.m. for those of you who wish to vote at the regular meeting. There will be no voting after 7:00 p.m. when the Annual Meeting begins. An envelope is enclosed for those of you wishing to vote by mail. Ballots received after 7:00 p.m., May 1, 2012 shall be VOID!!

Please be advised that, according to our Bylaws, only property owners should be receiving ballots, with each property owner having one vote. Just as the owner is ultimately responsible for the water bill only he/she has voting privileges. If you are renting and receive a ballot please advise the Water Association office at (208) 773-7760 and it will be corrected. Thank you for your cooperation!

WELCH-COMER
ENGINEERS | SURVEYORS

WATER SYSTEM IMPROVEMENTS

Background

In June 2011, the Board presented the results of the Facility Plan prepared for the Association. The Facility Plan identified necessary improvements to the water system to bring it up to current State standards which are administered by the Idaho Department of Environmental Quality (IDEQ). The Association submitted a letter of interest and IDEQ prioritized the Association's proposed improvements to receive a low interest loan (1.75% over 20 years). The Association has submitted their loan application for funding of the proposed improvements to IDEQ and is currently awaiting the official loan offer.

The following is a list of the proposed improvements, deficiency the improvement will fix and estimated project costs:

	Description	Deficiencies Addressed	Requirement/Basis	Estimated Project Cost
Phase 1: Storage Facility				
	Construct a new 234,000 gallon (minimum) storage facility.	Eliminate storage deficit.	IDEQ Rules for Public Drinking Water Systems and Operational Efficiency/System Reliability	$1,379,700
Phase 2: Source				
	Replace the existing Well Pump 1.	Provide sufficient source capacity to supply maximum day demand when one of the system's sources is off line.	IDEQ Rules for Public Drinking Water Systems	$294,368
Phase 3: Booster Stations				
	Expand the Woodlake Booster Facility.	Provide sufficient booster capacity to supply maximum day demand plus fire flow when one booster pump is off line.	IDEQ Rules for Public Drinking Water Systems	
	Eliminate one or more of the system's existing booster facilities.	Eliminates operational expense.	Operational Efficiency	$309,855
			Total Estimated Project	**$1,983,923**

RATE INCREASE AND MONTHLY BILLING

In order to repay the IDEQ loan, it is necessary for the Association to implement a debt service charge which will be added to the current water base rate (currently $35 for a 5/8" meter charged every 2 months including 20,000 gallons of water). Upon completion of the project, the total estimated increase to the base rate to fund the debt service will be $23.13 per month (based on a 5/8"). In order to lessen the "all at once" impact of this additional charge to the members, the Board will institute incremental increases over the next three years. The following table demonstrates the proposed debt service charge implementation schedule (based on a 5/8" meter).

Effective Date	Total Debt Service Charge (to be added to the monthly base rate)
May 2012	$ 7.50
May 2013	$ 15.00
May 2014	$ 23.13

It should be noted that the final (2014) debt service increase may be slightly more or less than what has been projected pending the final project costs that are incurred and total members served at close out of the project. ***The Board is committed to manage the project scope to maintain the debt service increase to as near as possible with what has been estimated.***

As another way to help lessen the impact to our members, the Association will be moving to a monthly billing cycle for the base rate and an every other month charge for water consumption above the allotted amount.

Thus, for 2012 starting with the May billing cycle, the Association will charge a flat $25 per month per 5/8" meter ($17.50 base rate plus $7.50 debt service). In the next billing cycle, members will be charged $25 per month plus a gallon charge for any consumption in excess of the allotted 20,000 gallons for the prior two months.

Proposed Project Schedule

The proposed improvements are scheduled to begin in late 2012 and are planned for completion at the end of 2015.

IDEQ Loan Offer	April/May
Phase 1 Storage Improvement	2012/2013
Phase 2 Source Improvement	2013/2014
Phase 3 Booster Station Modifications	2015

Summary

The HLWA Board encourages each of you to attend the annual meeting to learn more details about the proposed improvements, and to ask questions. **We appreciate your support of these improvements which improve our system's reliability, enhance service to our membership and most of all protect our public health and safety.** Should you have any questions, please feel free to contact one of the Board members.

AFFIDAVIT OF PUBLICATION

STATE OF IDAHO,
County of Kootenai, } SS.

Madison Morgan being first duly sworn upon oath deposes and says:

1. I am now and at all times hereinafter mentioned was a citizen of the United States, resident of the State of Idaho, over the age of twenty-one years and not a party of the above entitled action

2. I am now and at all times hereinafter mentioned was the printer (principal clerk) of the "Coeur d'Alene Press," a newspaper printed and published daily except Sunday in Coeur d'Alene, Kootenai County, Idaho, and having a general circulation in said county.

3. The Legal Notice

of which the annexed is a printed copy, was published in the regular Tuesday issue of said newspaper for 1 consecutive Day commencing on the 1 day of May 20 12, and ending on the 1 day of May, 20 12, and such publication was made as often during said period as said Daily newspaper was regularly issued

4. That said newspaper has been continuously and uninterruptedly published in said Kootenai County, during a period of more than seventy-eight consecutive weeks immediately prior to the first publication of said notice. Madison Morgan

On this 1 day of May in the year of 2012, before me, a Notary Public, personally appeared Madison Morgan, 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 acknowledged to me that he executed the same.

Katrina George
Notary Public for the State of Idaho,
residing at Coeur d'Alene, Idaho

KATRINA GEORGE NOTARY PUBLIC STATE OF IDAHO

MY COMMISSION EXPIRES 8/29/17

The Hauser Lake Water Association has completed a Water System Facility Plan which identifies water system improvements which the Association intends to complete. The Facility Plan provides detailed information with respect to existing system deficiencies and improvement alternatives and will be available for review (during normal business hours) at the Engineer's office (Welch Comer & Associates, Inc.) located at 350 E Kathleen Avenue in Coeur d'Alene starting May 1, 2012. The Association invites the public to provide written comments regarding the improvement alternatives considered in the Facility Plan. Written comments must be received no later than May 15, 2012. Please send written comments to Hauser Lake Water Association c/o Welch Comer & Associates, Inc. 350 E Kathleen Ave, Coeur d'Alene, ID 83815 or email to wc@welchcomer.com, with "Hauser Lake Water Association Water Project Comments" in the subject line. After considering and addressing written comments, the Association will complete their final selection of improvements.
Legal 5273
May 1, 2012.

Special Meeting
Hauser Lake Fire Station
May 21, 2012

A Special meeting of the Board of Directors of the Hauser Lake Water Association, Inc. was called to order at 6:30 p.m. by President Patrick Travis. Steve Anderson, Rick Jemison, Wes Michael, and Larry Simms were present. Necia Maiani from Welch Comer was present. Terry Leigh and Lynn Peterson were also present.

Financial Control Policy
Board members reviewed the Financial Control Policy (which is attached to these minutes). Steve Anderson moved to approve the Financial Control Policy as presented. Larry Simms seconded the motion and it carried.

Facility Plan
It was noted that the designated public comment period had ended and no written or verbal comments had been received by the Association. There was more discussion on the facility plan, mainly going over the scope of improvements in option 3a which include a new reservoir. Rick Jemison moved to proceed with option 3a in the facility plan. Steve Anderson seconded the motion and it carried.

Investment
Wes Michael moved to reinvest $137,000. Larry Simms seconded the motion and it carried.

Adjourn
Larry Simms moved to adjourn the meeting at 7:40 p.m. Wes Michael seconded the motion and it carried.

Respectfully Submitted: **Attest:**

_____ _____

Lynn Peterson, Secretary Treasurer **Patrick Travis, President**

Williams, Ashley

From: Maiani, Necia M
Sent: Thursday, May 24, 2012 8:13 AM
To: Williams, Ashley
Subject: FW: Special Meeting Minutes

For the record...Hauser Board approval of the meeting minutes.

From: Patrick Travis [mailto:pa_travis@yahoo.com]
Sent: Thursday, May 24, 2012 7:46 AM
To: Lynn Peterson
Cc: Larry Simms; Maiani, Necia M; Rick Jemison; Steve Anderson; Terry Leigh; Wes Michael
Subject: Re: Special Meeting Minutes

Lynn,

Please note Steve moved to accept the special meeting minutes and the motion was seconded by Larry and aye votes by all.

Thanks,

Patrick

Necia,

Is the e-mail chain on this acceptable or do you need something else for this?

Patrick Travis
18569 W Holiday Way
Hauser, ID 83854

--- On **Thu, 5/24/12, Rick Jemison <*rick.jemison@yahoo.com*>** wrote:

From: Rick Jemison <rick.jemison@yahoo.com>
Subject: Re: Special Meeting Minutes
To: "Wesley Michael" <wesjmichael@msn.com>
Cc: "<lesimms@gmail.com>" <lesimms@gmail.com>, "steve anderson" <sanderson@thesaijgroup.com>, pa_travis@yahoo.com, "larry simms" <llsimms@roadrunner.com>, "Lynn Peterson" <lynnsvdp@yahoo.com>, "necia" <nmaiani@welchcomer.com>
Date: Thursday, May 24, 2012, 5:34 AM

Aye on the minutes

Sent from my iPhone

On May 23, 2012, at 11:18 PM, Wesley Michael <wesjmichael@msn.com> wrote:

Aye WES

Date: Wed, 23 May 2012 23:14:44 -0700
Subject: RE: Special Meeting Minutes
From: lesimms@gmail.com
To: sanderson@thesaijgroup.com
CC: pa_travis@yahoo.com; llsimms@roadrunner.com; wesjmichael@msn.com; rick.jemison@yahoo.com; lynnsvdp@yahoo.com; nmaiani@welchcomer.com

Second and aye.
Larry Simms
Sent from my ASUS Eee Pad

Steven Anderson <sanderson@thesaijgroup.com> wrote:

I move to approve the minutes of the meeting on Monday.

Steven F. Anderson

Managing Director

The SAIJ Group, LLC

(509) 241-0535 (O)

(208) 819-5808 (C)

sanderson@thesaijgroup.com

www.thesaijgroup.com

-----Original Message-----
From: Patrick Travis [mailto:pa_travis@yahoo.com]
Sent: Wednesday, May 23, 2012 7:28 PM
To: Larry Simms; Wes Michael; ricki jemison; Steve Anderson; Lynn Peterson
Cc: Necia M Maiani
Subject: Re: Special Meeting Minutes

Can I please have a motion (or a second or an aye vote?) to approve the minutes from the Monday, May 21, 2012 meeting?

Thanks,

Patrick

Patrick Travis
18569 W Holiday Way
Hauser, ID 83854

--- On **Wed, 5/23/12, Lynn Peterson** ***<lynnsvdp@yahoo.com>*** wrote:

From: Lynn Peterson <lynnsvdp@yahoo.com>
Subject: Special Meeting Minutes
To: "Larry Simms" <llsimms@roadrunner.com>, "Wes Michael" <wesjmichael@msn.com>, "Patrick Travis" <pa_travis@yahoo.com>, "ricki jemison" <rick.jemison@yahoo.com>, "Steve Anderson" <sanderson@thesaijgroup.com>
Cc: "Necia M Maiani" <nmaiani@welchcomer.com>
Date: Wednesday, May 23, 2012, 6:43 PM

Appendix M

Agency Consultation Letters

WELCH-COMER
ENGINEERS | SURVEYORS

www.welchcomer.com
208-664-9382
877-815-5672 (toll free)
208-664-5946 (fax)
350 E. Kathleen Ave.
Coeur d'Alene, ID 83815

October 18, 2011

Beth Reinhart
US Army Corps of Engineers, Coeur d'Alene Regulatory Office
2065 W. Riverstone Drive, Ste. 201
Coeur d'Alene, ID 83814

Re: Hauser Lake Water System Improvement Project – Request for Comments for Preparation of an Environmental Informational Document

Dear Beth:

The Hauser Lake Water Association is preparing a facility planning document to identify and make necessary improvements to their drinking water system that are cost effective and environmentally sound. The facility plan for this project is being funded completely by a Department of Environmental Quality (DEQ) planning grant which requires compliance with the Rules for Administration of Planning Grants for Drinking Water Facilities, IDAPA 58.01.22. The grant rule carries DEQ State Environmental Review Process requirements which mirror those of the National Environmental Policy Act (NEPA).

The proposed project consists of a new storage facility, eliminating the need for the Main Reservoir. One of the well pumps (well 1) will be upsized, the Main Booster Station will be converted to a PRV Station, and pumping capacity will be increased at the Woodlake Booster Station for fire flow. Improvements to the distribution system will increase fire flow capacity and transmission capacity, and involve upsizing 4-inch water mains and installation of new water mains fronting lots that are currently served but not fronted by water main.

The project is being proposed due to deficiencies in source supply, booster capacity, storage capacity, and distribution system capacity, per IDAPA 58.01.08. Therefore, improvements are necessary to this system. Enclosed are maps of the proposed project area that depict the proposed improvements.

We request that you advise us of any comments that you may have regarding this project within 30 days, so that Hauser Lake Water Association 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 me at Welch, Comer & Associates, Inc. at (208) 664-9382 at your convenience.

Sincerely,

Ashley Williams

Ashley M. Williams, E.I.T.
Staff Engineer

AMW
Enclosure: Existing System Overview Map, Proposed Improvements Map

DEPARTMENT OF THE ARMY
WALLA WALLA DISTRICT, CORPS OF ENGINEERS
COEUR D'ALENE REGULATORY OFFICE
2065 W. RIVERSTONE DR., STE 201
COEUR D'ALENE, ID 83814

REPLY TO
ATTENTION OF:

RECEIVED NOV 08 2011 BY

November 4, 2011

Regulatory Division

SUBJECT: NWW-2011-00549-C09

Ashley Williams, E.I.T.
Welch, Comer & Associates, Inc
350 E Kathleen Ave.
Coeur d'Alene, ID 83815

Dear Ms. Williams,

This is in response to your October 18, 2011, letter requesting our comments on the proposed water system improvements to be done in the Hauser Lake area. Section 404 of the Clean Water Act (33 U.S.C. 1344) requires a Department of the Army permit be obtained for the discharge of dredged or fill material into waters of the United States. This includes most perennial and intermittent rivers and streams, natural and man-made lakes and ponds, and wetlands, as well as irrigation and drainage canals and ditches that are tributaries to other waters. Activities regulated under Section 404 include excavation and mechanized land clearing activities which result in the discharge of dredged material and destroy or degrade waters of the United States.

Based on the information provided, it appears that the proposed water system improvement project will involve work in wetland areas subject to our jurisdiction. We suggest you have a qualified wetland consultant complete a wetland delineation for entire project area. If the proposed project will involve the discharge fill material in waters of the United States, including wetlands, a Department of the Army permit is required. As described, the proposed project is authorized under Nationwide Permit 12 (*Utility Line Activities*). However, if the proposed water line being placed in waters of the U.S. exceeds 500 feet you will need to complete and submit a permit application, including a wetland delineation to this office. A copy of the permit application and instructions for filling out the application, including the types of drawings that must accompany the application are available on our website http://www.nww.usace.army.mil/html/offices/op/rf/joint_app.asp. Please be advised that starting work before we verify the project is authorized under nationwide permit 12 could constitute a violation of Section 404 and could result in legal action.

If you have any questions concerning these regulatory matters, please contact me at 208-765-8139.

Sincerely,

Michael A. Burgan
Environmental Resource Specialist

Enclosures

Printed Recycled Paper

WELCH, COMER & ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS

PHONE LOG

DATE: 11/10/11 TIME: 8:50am

PROJECT NAME: Hauser Lake Facility Plan / EID

PROJECT NUMBER: 41018

WELCH-COMER REPRESENTATIVE: Ashley Williams

WHO INITIATED COMMUNICATION: Ashley Williams

NAME: Mike. Burgan PHONE NUMBER: 208-765-8139

ADDRESS: —

SUBJECT: Agency consultation regarding wetlands

Reduce scope so that distribution lines that are within wetlands be eliminated. On the western side, one line goes through wetlands. Mike stated that as long as distribution line is in roadway prism and under 500 feet long, the delineation shouldnt be needed. If it is over 500ft, the pre-construction notification is needed.

WELCH-COMER FOLLOW-UP REQUIRED? ☐ YES ☒ NO

FOLLOW-UP COMMUNICATION REQUIRED? ☐ YES ☒ NO

NOTES:

350 E. Kathleen Avenue, Coeur d'Alene, ID 83815 · (208) 664-9382 · Fax (208) 664-5946

Williams, Ashley

From: Burgan, Michael A NWW [Michael.A.Burgan@usace.army.mil]
Sent: Monday, November 14, 2011 8:45 AM
To: Williams, Ashley
Cc: Maiani, Necia M; MacDonald, Sharie
Subject: RE: Hauser Lake Water Improvements

Follow Up Flag: Follow up
Flag Status: Completed

Good morning Ashley,

Glad I could answer your questions.

That is correct. If the portion of the line on the west end of the lake that will require excavation and backfilling of less than 500 linear feet of wetland or lake, the project is authorized under NWP12 without submitting a pre-construction notification (PCN, aka a permit application). If it will require excavating and backfilling more than 500 linear feet in wetlands or lake, you would need to submit a PCN, which will include a wetland delineation. It is authorized under NWP12, but submitting a PCN is required.

If no fill will be placed in wetlands or the lake, a wetland delineation of PCN will not be required. What side of the road will the new waterline be located, and how far from the road surface will it be? I drove that road last weekend, and if I recall correctly, I believe it is likely wetland does come up the side of the fill a little. Not far, but I believe the wetland vegetation does come up the fill slope a little.

I realize the cost of the wetland delineation could be a factor, as well as the cost of having Welch-Comer filling out application itself, the but the permitting aspect is very easy. I don't want to call it a rubber stamp, but I have never seen a permit verification request for a NWP12 not be issued, and I do not foresee an issue with this one either.

If you have any additional questions, don't hesitate to give me a call. I will be in the field today after about 9:30 or 10:00, but will have me cell phone with me. You can reach me at 277-7665. I'll be back in the office tomorrow.

Mike Burgan
Environmental Resources Specialist
Coeur d'Alene Regulatory Office
(208) 765-8139

-----Original Message-----
From: Williams, Ashley [mailto:awilliams@welchcomer.com]
Sent: Thursday, November 10, 2011 4:32 PM
To: Burgan, Michael A NWW
Cc: Maiani, Necia M; MacDonald, Sharie
Subject: Hauser Lake Water Improvements

Mike,

Thank you for speaking with me today regarding the Hauser Lake Water Improvements. I wanted to follow up to make sure I understood your suggestions correctly.

The portion of waterline that is of concern is in the western portion of the lake and is located within wetland areas, as indicated by the US Fish and Wildlife Service Wetland Mapper (see attached map).

If this portion is less than 500 ft long, we do not need to submit a Nationwide Permit 12 application and wetland delineation to your office. If this portion is more than 500 ft, then we will need to complete a wetland delineation and apply for a Nationwide Permit 12. Is this correct? Also, the waterline will be improved within the existing roadway prism and is not expected to place fill within the wetland area. With this being said, do we still need to complete a wetland delineation (if the waterline is less than 500 ft)?

The waterline is very close to 500 ft in length within this area. If it is found to be more than 500 ft, we may eliminate this portion from our project. If we do so, would you still recommend a wetland delineation?

Let me know if you have any questions or concerns.

Thanks!

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208-664-9382
877-815-5672 (toll free)
208-664-5946 (fax)
350 E. Kathleen Ave.
Coeur d'Alene, ID 83815

October 18, 2011

State Supervisor
US Fish and Wildlife Service
11103 East Montgomery Drive
Spokane, WA 99206-4779

Re: Hauser Lake Water System Improvement Project – Request for Comments for Preparation of an Environmental Informational Document

Dear State Supervisor:

The Hauser Lake Water Association is preparing a facility planning document to identify and make necessary improvements to their drinking water system that are cost effective and environmentally sound. The facility plan for this project is being funded completely by a Department of Environmental Quality (DEQ) planning grant which requires compliance with the Rules for Administration of Planning Grants for Drinking Water Facilities, IDAPA 58.01.22. The grant rule carries DEQ State Environmental Review Process requirements which mirror those of the National Environmental Policy Act (NEPA).

The proposed project consists of a new storage facility, eliminating the need for the Main Reservoir. One of the well pumps (well 1) will be upsized, the Main Booster Station will be converted to a PRV Station, and pumping capacity will be increased at the Woodlake Booster Station for fire flow. Improvements to the distribution system will increase fire flow capacity and transmission capacity, and involve upsizing 4-inch water mains and installation of new water mains fronting lots that are currently served but not fronted by water main.

The project is being proposed due to deficiencies in source supply, booster capacity, storage capacity, and distribution system capacity, per IDAPA 58.01.08. Therefore, improvements are necessary to this system. Enclosed are maps of the proposed project area that depict the proposed improvements.

We request that you advise us of any comments that you may have regarding this project within 30 days, so that Hauser Lake Water Association 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 me at Welch, Comer & Associates, Inc. at (208) 664-9382 at your convenience.

Sincerely,

Ashley Williams

Ashley M. Williams, E.I.T.
Staff Engineer

AMW
Enclosure: Existing System Overview Map, Proposed Improvements Map

United States Department of the Interior

IDAHO FISH AND WILDLIFE OFFICE

Northern Idaho Field Office
11103 East Montgomery Drive
Spokane Valley, WA 99206

COPY

October 24, 2011

Ashley Williams
Staff Engineer
Welch-Comer
350 E Kathleen Ave
Coeur d'Alene, ID 83815

Subject: Species List for Proposed Hauser Lake Water System Improvement Project in Kootenai County, ID

Dear Ms. Williams:

This responds to your recent request for a list of threatened and endangered species. For your convenience, updated countywide species and habitat listings are now available on our website at http://www.fws.gov/idaho/species/IdahoSpeciesList.pdf. To view the listings in your area of concern, select "county species lists" within the ESA programs page, and then select the county of interest. The lists available on our website are compliant with Section 7(c) of the Endangered Species Act of 1973, as amended (Act), and are the most current available listings of endangered, threatened and proposed species and critical habitats in a given area. For optional consideration, the lists also contain updated candidate species.

If you would like information concerning state listed species or species of concern in Idaho, you may contact the Idaho Conservation Data Center, at (208) 334-3402, for fish and wildlife species. Species of anadromous fishes that have been listed by the National Marine Fisheries Service (NMFS) may also occur in your project area. Please contact NMFS in Ellensburg, WA, at (509) 962-8911 or NMFS in Boise, ID at (208) 378-5692, to request information on listed species within NMFS's jurisdiction.

When you submit a request for Section 7 consultation, we request that you include your downloaded species list and the date it was downloaded, as an attachment. If applicable, please also include the United States Fish and Wildlife Service reference number on your consultation request. This will document your compliance with 50 CFR 402.12 (c).

Should your project plans change significantly, or if the project is delayed more than 90 days, you should update your species lists through our website and through the above listed agencies.

Thank you for your efforts to protect our nation's species and their habitats. If you have any questions concerning the above information, please contact Bryon Holt at (509) 893-8014 or via email at Bryon_Holt@fws.gov.

Sincerely,

Ben Conard
Field Supervisor

Williams, Ashley

From: Bryon_Holt@fws.gov
Sent: Thursday, October 27, 2011 2:59 PM
To: Williams, Ashley
Subject: Re: Hauser Lake Water System Improvement Project in Kootenai County, Idaho
Follow Up Flag: Follow up
Flag Status: Red

Ashley,

If there is no federal nexus (i.e., federal permit, federal funding, etc) then section 7 consultation is not required. However, if a federal agency is involved in some way in this project, then it is the responsibility of the federal agency to assess whether or not implementation of the project may affected listed species or their habitat. If the federal agency determines that project implementation has the potential to affect listed species or their habitats, then it is again the federal agency's responsibility to request consultation with us. If however, the federal agency determines that project implementation will not affect listed species or their habitats, then section 7 consultation is not required. Additionally, if there is no federal involvement, the threshold for coordinating with us is,if implementation of the project is likely to result in 'take' of a listed species, the client must first obtain an incidental take permit from us pursuant to the applicant developing a habitat conservation plan.

If you have any further questions, please feel free to respond to this email or give me a call.

****
Bryon Holt
U.S. Fish and Wildlife Service
Northern Idaho Field Office, Spokane, WA
Telephone: (509) 893-8014
Fax: (509) 891-6748
Blackberry: (509) 209-0711
email: bryon_holt@fws.gov
****

"Williams, Ashley" <awilliams@welchcomer.com>

"Williams, Ashley" <awilliams@welchcomer.com>
10/26/2011 01:46 PM

To<Bryon_Holt@fws.gov>
cc
SubjectHauser Lake Water System Improvement Project in Kootenai County, Idaho

Bryon,

I received the letter dated October 24, 2011 from Ben Conard (Field Supervisor). He told me to contact you with any questions regarding the response to our request for comments on the Hauser Lake project.

The letter references a Section 7 consultation. The project will be funded by the Idaho Department of Environmental Quality. Does the funding agency need to request this

consultation? Or does the client (Hauser Lake Water Association) or the engineer (Welch Comer) need to submit the request for consultation?

Let me know if you need any further information or have any questions.

Thank you,

Ashley Williams, E.I.T.
Staff Engineer
WELCH-COMER
208-664-9382
208-664-5946 (fax)
350 E. Kathleen Ave.
Coeur d'Alene, ID 83815
www.welchcomer.com

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Williams, Ashley

From: Bryon_Holt@fws.gov
Sent: Friday, March 02, 2012 12:48 PM
To: Williams, Ashley
Subject: RE: Hauser Lake Water System Improvement Project in Kootenai County, Idaho
Attachments: S45C-212022815310.pdf

Ashley,

There is no designated critical habitat within the project area.

****
Bryon Holt
U.S. Fish and Wildlife Service
Northern Idaho Field Office, Spokane, WA
Telephone: (509) 893-8014
Fax: (509) 891-6748
email: bryon_holt@fws.gov
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"Williams, Ashley" <awilliams@welchcomer.com>

"Williams, Ashley" <awilliams@welchcomer.com>
02/28/2012 03:54 PM

To<Bryon_Holt@fws.gov>
cc
SubjectRE: Hauser Lake Water System Improvement Project in Kootenai County, Idaho

Bryon,

We have received comments on the Hauser Lake Environmental document.

I had used the critical habitat mapper online, but it states that it does not contain all designated critical habitat. Since there is critical habitat listed as present in Kootenai County, do you know if this habitat area is within the Hauser Lake project area (refer to the attached map)?

Please let me know if you have any questions or concerns.

Thanks!

Ashley Williams, E.I.T.
Staff Engineer
WELCH-COMER
208-664-9382
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From: Bryon_Holt@fws.gov [mailto:Bryon_Holt@fws.gov]
Sent: Thursday, October 27, 2011 2:59 PM
To: Williams, Ashley
Subject: Re: Hauser Lake Water System Improvement Project in Kootenai County, Idaho

Ashley,

If there is no federal nexus (i.e., federal permit, federal funding, etc) then section 7 consultation is not required. However, if a federal agency is involved in some way in this project, then it is the responsibility of the federal agency to assess whether or not implementation of the project may affected listed species or their habitat. If the federal agency determines that project implementation has the potential to affect listed species or their habitats, then it is again the federal agency's responsibility to request consultation with us. If however, the federal agency determines that project implementation will not affect listed species or their habitats, then section 7 consultation is not required. Additionally, if there is no federal involvement, the threshold for coordinating with us is,if implementation of the project is likely to result in 'take' of a listed species, the client must first obtain an incidental take permit from us pursuant to the applicant developing a habitat conservation plan.

If you have any further questions, please feel free to respond to this email or give me a call.

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Bryon Holt
U.S. Fish and Wildlife Service
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email: bryon_holt@fws.gov
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"Williams, Ashley" <awilliams@welchcomer.com>

"Williams, Ashley" <awilliams@welchcomer.com>
10/26/2011 01:46 PM

To <Bryon_Holt@fws.gov>
cc
Subject Hauser Lake Water System Improvement Project in Kootenai County, Idaho

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The letter references a Section 7 consultation. The project will be funded by the Idaho Department of Environmental Quality. Does the funding agency need to request this consultation? Or does the client (Hauser Lake Water Association) or the engineer (Welch Comer) need to submit the request for

consultation?

Let me know if you need any further information or have any questions.

Thank you,

Ashley Williams, E.I.T.
Staff Engineer
WELCH-COMER
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Williams, Ashley

From: Bryon_Holt@fws.gov
Sent: Tuesday, March 06, 2012 2:43 PM
To: Williams, Ashley
Subject: RE: Hauser Lake Water System Improvement Project in Kootenai County, Idaho

Ashley,

Good question. It would be the federal agency providing funding to DEQ. However, the assessment and consultation with us should have been done programmatically by the federal agency to assess the potential effect upon listed species resulting from funding the program. Once the money is provided to the state, it becomes state money and there would no longer be a federal nexus relative to the funding and implementation of an individual project. Also, in this case, if the project is in or will affect Hauser Lake, there are no listed species in the vicinity. Thus, the effect determination would be "no effect" in any case, and there would not be a need to consult with us, even if there was a federal nexus.

****
Bryon Holt
U.S. Fish and Wildlife Service
Northern Idaho Field Office, Spokane, WA
Telephone: (509) 893-8014
Fax: (509) 891-6748
email: bryon_holt@fws.gov
****

"Williams, Ashley" <awilliams@welchcomer.com>

"Williams, Ashley"
<awilliams@welchcomer.com>

03/06/2012 02:23 PM

To<Bryon_Holt@fws.gov>
cc
SubjectRE: Hauser Lake Water System Improvement Project in Kootenai County, Idaho

Bryon,

I had another question regarding the Section 7 consultation. This project is a State Revolving Funded project, which is a federally-funded program through Idaho Department of Environmental Quality. Now, I do believe a federal nexus exists because of the federal-funding for the program. However, Idaho DEQ is not a federal agency. So who would be responsible for assessing impact and potentially completing a Section 7 consultation: the Owner/Engineer or Idaho DEQ?

Please let me know what you would advise.

Thanks!

Ashley Williams, E.I.T.
Staff Engineer
WELCH-COMER
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Sent: Friday, March 02, 2012 12:48 PM
To: Williams, Ashley
Subject: RE: Hauser Lake Water System Improvement Project in Kootenai County, Idaho

Ashley,

There is no designated critical habitat within the project area.

****
Bryon Holt
U.S. Fish and Wildlife Service
Northern Idaho Field Office, Spokane, WA
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"Williams, Ashley"
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02/28/2012 03:54 PM

<Bryon_Holt@fws.gov>
To
cc
RE: Hauser Lake Water System Improvement Project in Kootenai County,

SubjectIdaho

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Please let me know if you have any questions or concerns.

Thanks!

Ashley Williams, E.I.T.
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Sent: Thursday, October 27, 2011 2:59 PM
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Subject: Re: Hauser Lake Water System Improvement Project in Kootenai County, Idaho

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10/26/2011 01:46 PM

<Bryon_Holt@fws.gov>
To
cc
Subject Hauser Lake Water System Improvement Project in Kootenai County, Idaho

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The letter references a Section 7 consultation. The project will be funded by the Idaho Department of Environmental Quality. Does the funding agency need to request this consultation? Or does the client (Hauser Lake Water Association) or the engineer (Welch Comer) need to submit the request for consultation?

Let me know if you need any further information or have any questions.

Thank you,

Ashley Williams, E.I.T.
Staff Engineer
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Coeur d'Alene, ID 83815

October 18, 2011

John Tindall, P.E.
Department of Environmental Quality, Coeur d'Alene Regional Office
2110 Ironwood Parkway
Coeur d'Alene, ID 83814

Re: Hauser Lake Water System Improvement Project – Request for Comments for Preparation of an Environmental Informational Document

Dear John:

The Hauser Lake Water Association is preparing a facility planning document to identify and make necessary improvements to their drinking water system that are cost effective and environmentally sound. The facility plan for this project is being funded completely by a Department of Environmental Quality (DEQ) planning grant which requires compliance with the Rules for Administration of Planning Grants for Drinking Water Facilities, IDAPA 58.01.22. The grant rule carries DEQ State Environmental Review Process requirements which mirror those of the National Environmental Policy Act (NEPA).

The proposed project consists of a new storage facility, eliminating the need for the Main Reservoir. One of the well pumps (well 1) will be upsized, the Main Booster Station will be converted to a PRV Station, and pumping capacity will be increased at the Woodlake Booster Station for fire flow. Improvements to the distribution system will increase fire flow capacity and transmission capacity, and involve upsizing 4-inch water mains and installation of new water mains fronting lots that are currently served but not fronted by water main.

The project is being proposed due to deficiencies in source supply, booster capacity, storage capacity, and distribution system capacity, per IDAPA 58.01.08. Therefore, improvements are necessary to this system. Enclosed are maps of the proposed project area that depict the proposed improvements.

We request that you advise us of any comments that you may have regarding this project within 30 days, so that Hauser Lake Water Association 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 me at Welch, Comer & Associates, Inc. at (208) 664-9382 at your convenience.

Sincerely,

Ashley Williams

Ashley M. Williams, E.I.T.
Staff Engineer

AMW
Enclosure: Existing System Overview Map, Proposed Improvements Map

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

COPY

2110 Ironwood Parkway, Coeur d'Alene, ID 83814 (208) 769-1422

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

November 4, 2011

Ashley Williams, EIT
Welch Comer Engineers
350 E Kathleen Ave
Coeur d'Alene, ID 83815
awilliams@welchcomer.com

Subject: **Hauser Lake Water Association, Drinking Water System Improvement Projects,** Idaho DEQ Comments on Environmental Impacts

Dear Ashley:

In your letter dated October 18, 2011, you requested comments from the Idaho Department of Environmental Quality (DEQ) on the environmental impacts from the proposed drinking water system upgrade projects for the Hauser Lake Water Association.

The proposed projects are the following:

1. Construction of a new storage reservoir and abandonment of the existing 90,000-gallon reservoir.
2. Increase the capacity of Well Pump #1.
3. Convert the existing main booster station to a pressure reducing valve (PRV) station.
4. Increase the pumping capacity of the Woodlake Booster Pump Station for fire flow.
5. Extensive distribution system improvements to increase fire flow capacity, replace 4-inch main lines and increase the capacity of select transmission main lines.

These water system upgrades are needed to improve source supply, booster capacity, storage capacity and distribution system capacity.

DEQ is supportive of these projects. The following are comments regarding the wastewater collection system, drinking water system, storm water control and air quality issues related to this project:

Drinking Water System

The facility plan and plans and specifications will need to be reviewed and approved by DEQ before starting construction. During planning and design, the Idaho Public Drinking Water Rules (IDAPA 58.01.08) requirements will need to be met.

Storm Water Control

Storm water controls will need to be developed that adequately protect surface waters and ground water from being impacted during and after construction. The local stormwater control authority should be contacted for details on the appropriate collection/treatment/disposal requirements. Control of sedimentation and erosion during construction activities must be achieved by the use of acceptable best management practices (BMPs) and is considered the responsibility of the owner/developer/contractor for the project. The project may require compliance with the Construction General Permit, a program administered by the U.S. Environmental Protection Agency. This requirement is designed to prevent pollution of waters of the U.S. during construction projects.

More information on this requirement can be found at:
http://yosemite.epa.gov/R10/WATER.NSF/NPDES+Permits/Region+10+CGP+resources/

Air Quality
Potential air quality impacts may arise with land clearing, demolition, construction and the subsequent operational phases of the project.

The project plans must incorporate reasonable controls on fugitive dust sources during all phases of the project. All reasonable precautions shall be taken to prevent particulate matter (dust) from becoming airborne, as required in IDAPA 58.01.01.651. A project specific dust control plan that incorporates adequate levels of control measures is encouraged.

Project plans should consider alternatives to open burning of vegetative (land clearing) debris. Mechanical processing of land clearing debris avoids generating smoke and offers the greatest flexibility for timely project progress. If open burning of land clearing debris is incorporated into the project plan, smoke management practices to protect air quality as described in IDAPA 20.02.01.071.03 and IDAPA 58.01.01.614.03 must be considered.

The project plan should describe the proper disposal of demolition and construction debris. Open burning of demolition or construction debris is not an allowable form of open burning as defined by IDAPA 58.01.01.600. Demolition and construction debris must be treated in accordance with solid waste regulations.

Depending on the facility's maximum capacity to emit an air pollutant under its physical and operational design, an air quality permit may be required as described in IDAPA 58.01.01.200-228. If a permit is required, it must be obtained prior to the construction phase of this project. Typical water, wastewater, and sewer project sources that will require an applicability determination include flares and generator sets powered by internal combustion (IC) engines.

There are no additional or specific air pollution concerns with the Hauser Lake Water Association Drinking Water System Improvement Project as described in the letter from Ashley Williams, Staff Engineer, Welch Comer Engineers, dated October 18, 2011. The project area is located in Kootenai County which is classified as "Attainment" or "Unclassified" for all Criteria Pollutants.

If you have any questions about air quality issues, please call Mark Boyle at 769-1422 or email him at mark.boyle@deq.idaho.gov. Thank you for the opportunity to provide input on these projects.

Sincerely,

John Tindall

John C. Tindall, P.E.
John.tindall@deq.idaho.gov

c: Necia Maiani, P.E., Welch Comer, Coeur d'Alene nmaiani@welchcomer.com
Ester Ceja, DEQ State Office, Boise ester.ceja@deq.idaho.gov
Mark Boyle, DEQ Coeur d'Alene mark.boyle@deq.idaho.gov
File: Hauser Water Association DW Grant TRIM

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Coeur d'Alene, ID 83815

October 18, 2011

Don Martin
U.S. EPA, Coeur d'Alene Field Office
1910 NW Blvd., Suite 208
Coeur d'Alene, ID 83814

Re: Hauser Lake Water System Improvement Project – Request for Comments for Preparation of an Environmental Informational Document

Dear Don:

The Hauser Lake Water Association is preparing a facility planning document to identify and make necessary improvements to their drinking water system that are cost effective and environmentally sound. The facility plan for this project is being funded completely by a Department of Environmental Quality (DEQ) planning grant which requires compliance with the Rules for Administration of Planning Grants for Drinking Water Facilities, IDAPA 58.01.22. The grant rule carries DEQ State Environmental Review Process requirements which mirror those of the National Environmental Policy Act (NEPA).

The proposed project consists of a new storage facility, eliminating the need for the Main Reservoir. One of the well pumps (well 1) will be upsized, the Main Booster Station will be converted to a PRV Station, and pumping capacity will be increased at the Woodlake Booster Station for fire flow. Improvements to the distribution system will increase fire flow capacity and transmission capacity, and involve upsizing 4-inch water mains and installation of new water mains fronting lots that are currently served but not fronted by water main.

The project is being proposed due to deficiencies in source supply, booster capacity, storage capacity, and distribution system capacity, per IDAPA 58.01.08. Therefore, improvements are necessary to this system. Enclosed are maps of the proposed project area that depict the proposed improvements.

We request that you advise us of any comments that you may have regarding this project within 30 days, so that Hauser Lake Water Association 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 me at Welch, Comer & Associates, Inc. at (208) 664-9382 at your convenience.

Sincerely,

Ashley Williams

Ashley M. Williams, E.I.T.
Staff Engineer

AMW
Enclosure: Existing System Overview Map, Proposed Improvements Map

WELCH, COMER & ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS

PHONE LOG

DATE: 10/21/11 TIME: 10:10 am

PROJECT NAME: Hauser Lake Environmental Info. Document

PROJECT NUMBER: 41018

WELCH-COMER REPRESENTATIVE: Ashley Williams

WHO INITIATED COMMUNICATION: Ashley Williams (letter)

NAME: Don Martin PHONE NUMBER: 208-665-0458

ADDRESS: 1910 NW Blvd. Suite 208 Coeur d'Alene, ID 83814

SUBJECT: Response to EID letter

He does not typically respond to these letters and suggested Welch Comer contact engineers in Boise or in the local DEQ office. Therefore, he had no comments for this EID.

WELCH-COMER FOLLOW-UP REQUIRED? ☐ YES ☒ NO

FOLLOW-UP COMMUNICATION REQUIRED? ☐ YES ☒ NO

NOTES:

No comment - 10/21/11

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Coeur d'Alene, ID 83815

October 18, 2011

James Werntz
U.S. EPA, Idaho Operations Office
1435 North Orchard
Boise, ID 83706

Re: Hauser Lake Water System Improvement Project – Request for Comments for Preparation of an Environmental Informational Document

Dear James:

The Hauser Lake Water Association is preparing a facility planning document to identify and make necessary improvements to their drinking water system that are cost effective and environmentally sound. The facility plan for this project is being funded completely by a Department of Environmental Quality (DEQ) planning grant which requires compliance with the Rules for Administration of Planning Grants for Drinking Water Facilities, IDAPA 58.01.22. The grant rule carries DEQ State Environmental Review Process requirements which mirror those of the National Environmental Policy Act (NEPA).

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Sincerely,

Ashley Williams

Ashley M. Williams, E.I.T.
Staff Engineer

AMW
Enclosure: Existing System Overview Map, Proposed Improvements Map

Williams, Ashley

From: Grafe.Cyndi@epamail.epa.gov
Sent: Thursday, November 10, 2011 3:07 PM
To: Williams, Ashley
Cc: Werntz.James@epamail.epa.gov
Subject: Hauser Lake Water System Improvement Project - Preparation of EID

Hi Ashley,

Thank you for the opportunity to review the Hauser Lake Water System Improvement Project. After checking with my colleagues, the R10 Idaho Operations Office does not have any comments regarding the proposed project.

Best regards,
Cyndi

==========

Cyndi Grafe
EPA Region 10 - Idaho Operations Office
Boise, Idaho
208/378-5771
grafe.cyndi@epa.gov

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Coeur d'Alene, ID 83815

October 18, 2011

Mike Lidgard, Manager, NPDES Unit
EPA Region 10
1200 6th Avenue, OWW 130
Seattle, WA 98101

Re: Hauser Lake Water System Improvement Project – Request for Comments for Preparation of an Environmental Informational Document

Dear Mike:

The Hauser Lake Water Association is preparing a facility planning document to identify and make necessary improvements to their drinking water system that are cost effective and environmentally sound. The facility plan for this project is being funded completely by a Department of Environmental Quality (DEQ) planning grant which requires compliance with the Rules for Administration of Planning Grants for Drinking Water Facilities, IDAPA 58.01.22. The grant rule carries DEQ State Environmental Review Process requirements which mirror those of the National Environmental Policy Act (NEPA).

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Sincerely,

Ashley Williams

Ashley M. Williams, E.I.T.
Staff Engineer

AMW
Enclosure: Existing System Overview Map, Proposed Improvements Map

Williams, Ashley

From: Lidgard.Michael@epamail.epa.gov
Sent: Tuesday, November 22, 2011 1:30 PM
To: Williams, Ashley
Subject: water system improvement project

Hi Ashley: In response to your phone call today I do recall receiving a document from your office which was in regards to a drinking water system improvement project which I believe was Howser (sp?) Lake Water System. I remember forwarding a letter to our Drinking Water Unit Manager, Marie Jennings. I am not sure whether her unit reviews projects of this nature but you might want to call her to check on whether they plan to review and or comment. (her number is 206-553-1893). thanks

Mike Lidgard
Manager, NPDES Permits Unit
phone: (206) 553-1755
fax: (206) 553-0165
email: lidgard.michael@epa.gov

WELCH, COMER & ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS

PHONE LOG

DATE: 12/2/11 TIME: 1:00 pm

PROJECT NAME: Hauser Lake Water System Improvements (EID)

PROJECT NUMBER: 41018

WELCH-COMER REPRESENTATIVE: Ashley Williams

WHO INITIATED COMMUNICATION: Ashley Williams

NAME: Marie Jennings PHONE NUMBER: 206-553-1893

ADDRESS: N/A

SUBJECT: EID comments

Mike Lidgard had forwarded Marie to me regarding Hauser Lake EID comments.

EPA does not typically approve engineering plans, especially drinking water construction. If Idaho has its own mechanism for review (Idaho DEQ), then EPA doesn't need to look at them. Proceed on with project.

WELCH-COMER FOLLOW-UP REQUIRED? ☐ YES ☒ NO

FOLLOW-UP COMMUNICATION REQUIRED? ☐ YES ☒ NO

NOTES:

Essentially "no comment" since will be reviewed by DEQ.

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October 18, 2011

Sue Eastman, Hydrogeologist
EPA Region 10, Office of Environmental Assessment (OEA-095)
1200 6th Avenue, OWW 136
Seattle, WA 98101

Re: Hauser Lake Water System Improvement Project – Request for Comments for Preparation of an Environmental Informational Document

Dear Sue:

The Hauser Lake Water Association is preparing a facility planning document to identify and make necessary improvements to their drinking water system that are cost effective and environmentally sound. The facility plan for this project is being funded completely by a Department of Environmental Quality (DEQ) planning grant which requires compliance with the Rules for Administration of Planning Grants for Drinking Water Facilities, IDAPA 58.01.22. The grant rule carries DEQ State Environmental Review Process requirements which mirror those of the National Environmental Policy Act (NEPA).

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Sincerely,

Ashley Williams

Ashley M. Williams, E.I.T.
Staff Engineer

AMW
Enclosure: Existing System Overview Map, Proposed Improvements Map

Williams, Ashley

From: Eastman.Susan@epamail.epa.gov
Sent: Friday, October 21, 2011 2:32 PM
To: Williams, Ashley
Subject: EPA Sole Source Aquifer response to 10-18-11 letter regarding Hauser Lake Water Assoc

Follow Up Flag: Follow up
Flag Status: Red

Attachments: R10 Sole Source Aquifer Checklist.doc

R10 Sole Source Aquifer Checkl...

My program only has the statutory authority to review and approve federal funding for projects that are 1. within the review area of a federally designated sole source aquifer AND (not or AND) 2. are getting federal funding. It does not appear you are getting federal funding.
Should this change please submit the attached check list filled out for my review. Thanks.

(See attached file: R10 Sole Source Aquifer Checklist.doc)

Susan Eastman, Environmental Scientist
EPA Region 10
1200 Sixth Ave. Suite 900, OWW-136
Seattle, WA. 98101
SDWA Tribal & CWA Indian Set Aside Program, Sole Source Aquifer Program, Source Water Protection and ID 106

206-553-6249
EASTMAN.SUSAN@EPA.GOV

Williams, Ashley

From: Williams, Ashley
Sent: Friday, February 10, 2012 10:19 AM
To: 'Eastman.Susan@epamail.epa.gov'
Cc: Maiani, Necia M; MacDonald, Sharie
Subject: RE: EPA Sole Source Aquifer response to 10-18-11 letter regarding Hauser Lake Water Assoc

Attachments: Sole Source Aquifer Checklist.PDF

Sole Source Aquifer Checklist....

Susan,

After Idaho DEQ reviewed the EID for Hauser Lake Water Association, they requested that you provide a consultation on the project. I have filled out the checklist and attached the aquifer map.

Please let me know if you have any questions or need any further information.

Thanks!
Ashley Williams

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-----Original Message-----
From: Eastman.Susan@epamail.epa.gov [mailto:Eastman.Susan@epamail.epa.gov]
Sent: Friday, October 21, 2011 2:32 PM
To: Williams, Ashley
Subject: EPA Sole Source Aquifer response to 10-18-11 letter regarding Hauser Lake Water Assoc

My program only has the statutory authority to review and approve federal funding for projects that are 1. within the review area of a federally designated sole source aquifer AND (not or AND) 2. are getting federal funding. It does not appear you are getting federal funding. Should this change please submit the attached check list filled out for my review. Thanks.

(See attached file: R10 Sole Source Aquifer Checklist.doc)

Susan Eastman, Environmental Scientist
EPA Region 10
1200 Sixth Ave. Suite 900, OWW-136
Seattle, WA. 98101
SDWA Tribal & CWA Indian Set Aside Program, Sole Source Aquifer Program, Source Water Protection and ID 106

206-553-6249
EASTMAN.SUSAN@EPA.GOV

Sole Source Aquifer Checklist

1. Location of Project and name of Sole Source Aquifer.

   Hauser, Idaho; Spokane Valley-Rathdrum Prairie Aquifer

2. Project description and federal funding source (e.g., Federal Highway Administration, Housing and Urban Development etc)

   The proposed project consists of a new storage facility and transmission main. One of the well pumps (well 1) will be upsized, the Main Booster Station will be converted to a PRV Station, and pumping capacity will be increased at the Woodlake Booster Station for fire flow. Improvements to the distribution system will increase fire flow capacity and transmission capacity, and involve upsizing undersized water mains and installation of new water mains fronting lots that are currently served but not fronted by water main.

   The project will be funded with Department of Environmental Quality (DEQ) funds.

3. Is there any increase of impervious surface? If so, what is the area?

   No

4. Describe how storm water is currently treated on the site?

   There is no storm water treatment facility; the storm water is collected in culverts and ditches, but is not treated through a treatment facility.

5. How will storm water be treated on this site during construction and after the project is complete?

   Best Management Practices (BMPs) will be utilized to minimize/eliminate effect of storm water to surface and ground water. The project will not involve treatment of storm water on-site after the project is complete.

6. Are there any underground storage tanks present or to be installed? Include details of such tanks.

   The new reservoir will be storing potable drinking water. The size of the reservoir will be approximately 400,000 gallons and is anticipated to disturb 7,500 square feet of surface area when installed. This reservoir may be partially-buried or may be installed above ground.

7. Will there be any liquid or solid waste generated? If so how will it be disposed of?

   No

8. What is the depth of excavation?

   4-5 feet for water lines; the new reservoir may be partially buried or may be above ground (design is not final).

9. Are there any wells in the area that may provide direct routes for contaminates to access the aquifer and how close are they to the project?

   Yes, the Hauser Lake Water Association has two wells near Highway 53. As part of the project, one of the well pumps will be upsized, but the Association will still be within their water right amount. The attached map from Idaho Department of Water Resources gives approximate locations of other wells in the area. During construction, BMPs will be used to protect the water quality.

10. Are there any hazardous waste sites in the project area....especially if the waste site has an underground plume with monitoring wells that may be disturbed? Include details.

    No

11. Are there any deep pilings that may provide access to the aquifer?

    No

12. Are Best Management Practices planned to address any possible risks or concerns?

    Yes

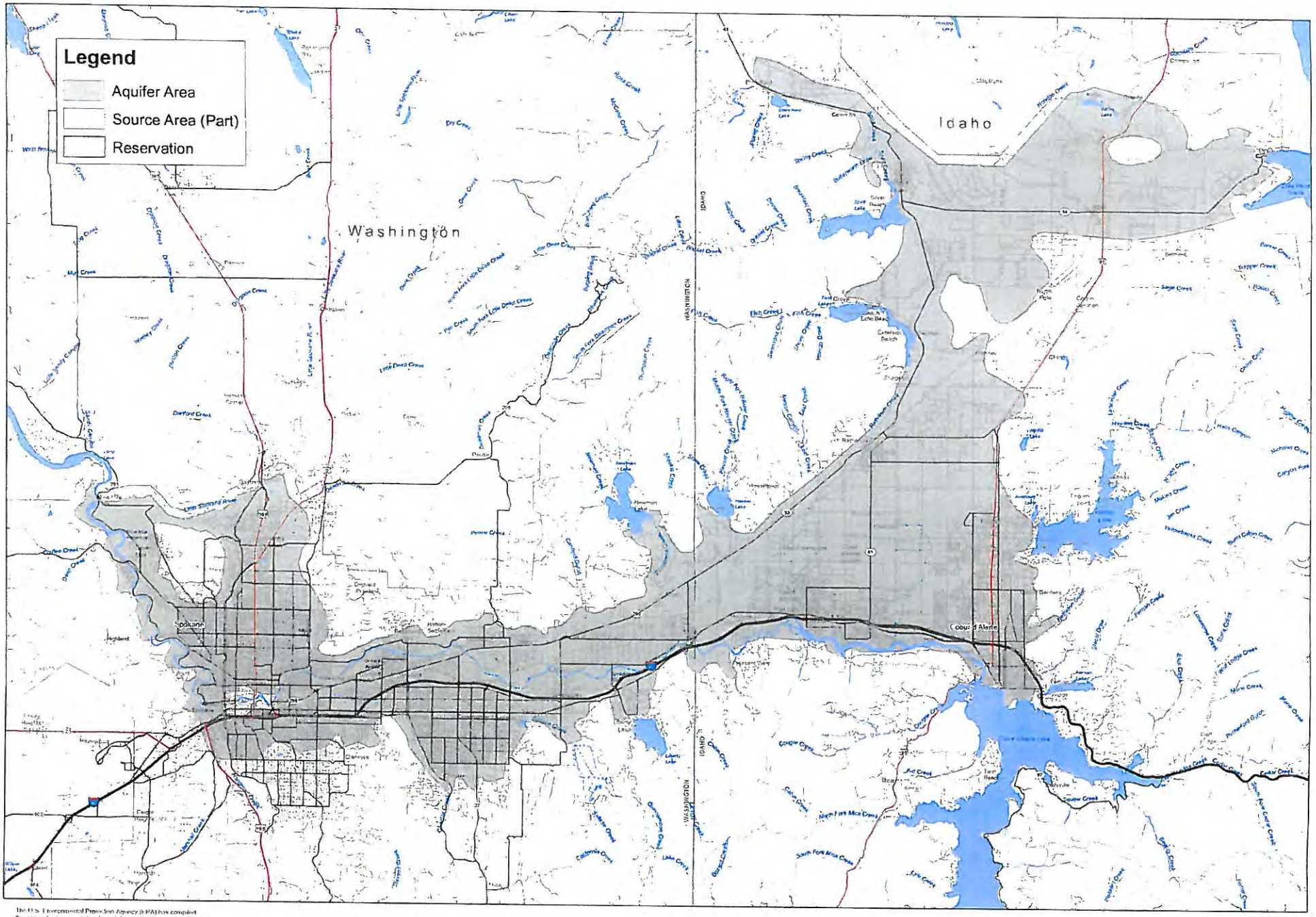
13. Is there any other information that could be helpful in determining if this project may have an affect on the aquifer?

    BMPs will be utilized during the construction phase to protect the quality of the aquifer and surface water nearby.

14. Does this Project include any improvements that may be beneficial to the aquifer, such as improvements to the wastewater treatment plan?

    Improving the system with more efficient components may reduce the demand on the aquifer.

The EPA Sole Source Aquifer Program may request additional information if impacts to the aquifer are questionable after this information is submitted for review.



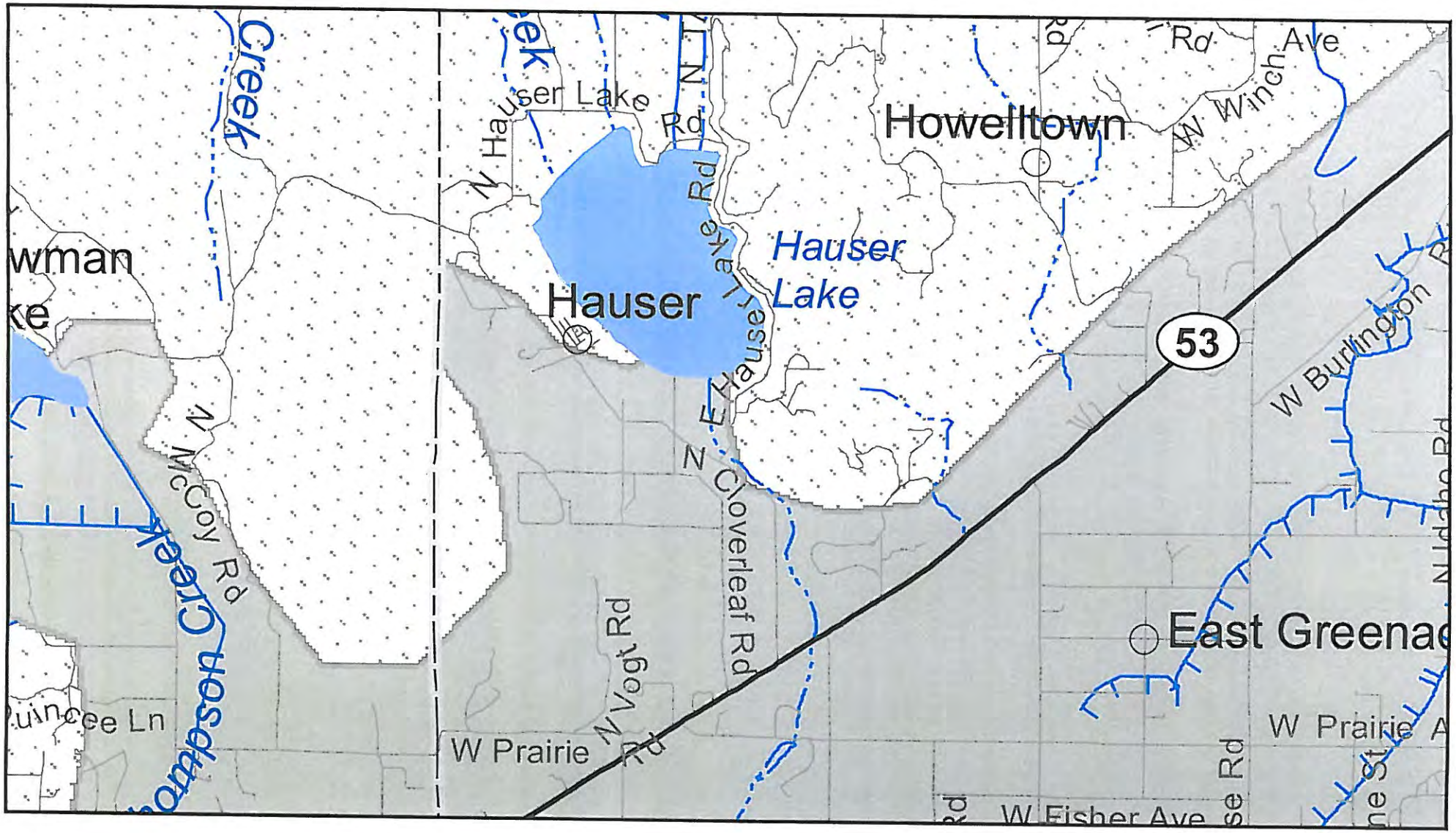
The U.S. Environmental Protection Agency (EPA) has compiled the cartographic representations from data or information sources that may not have been verified by the EPA. This data is offered here as a general representation only and is not to be relied without verification by an independent professional qualified to verify such data or information. The EPA does not guarantee the accuracy, completeness, or timeliness of the information shown and shall not be liable for any loss or injury resulting from reliance upon the information shown.

Spokane-Rathdrum Sole Source Aquifer

Aquifer Area and Part of Source Area

0 5 10 20 Kilometers

Map Created 11/04/2008 EPA Region 10


Hauser Lake
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N Vogt Rd
N McCoy Rd
W Prairie Rd
W Prairie A
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W Winch Ave
W Burlington R
N Idaho Rd
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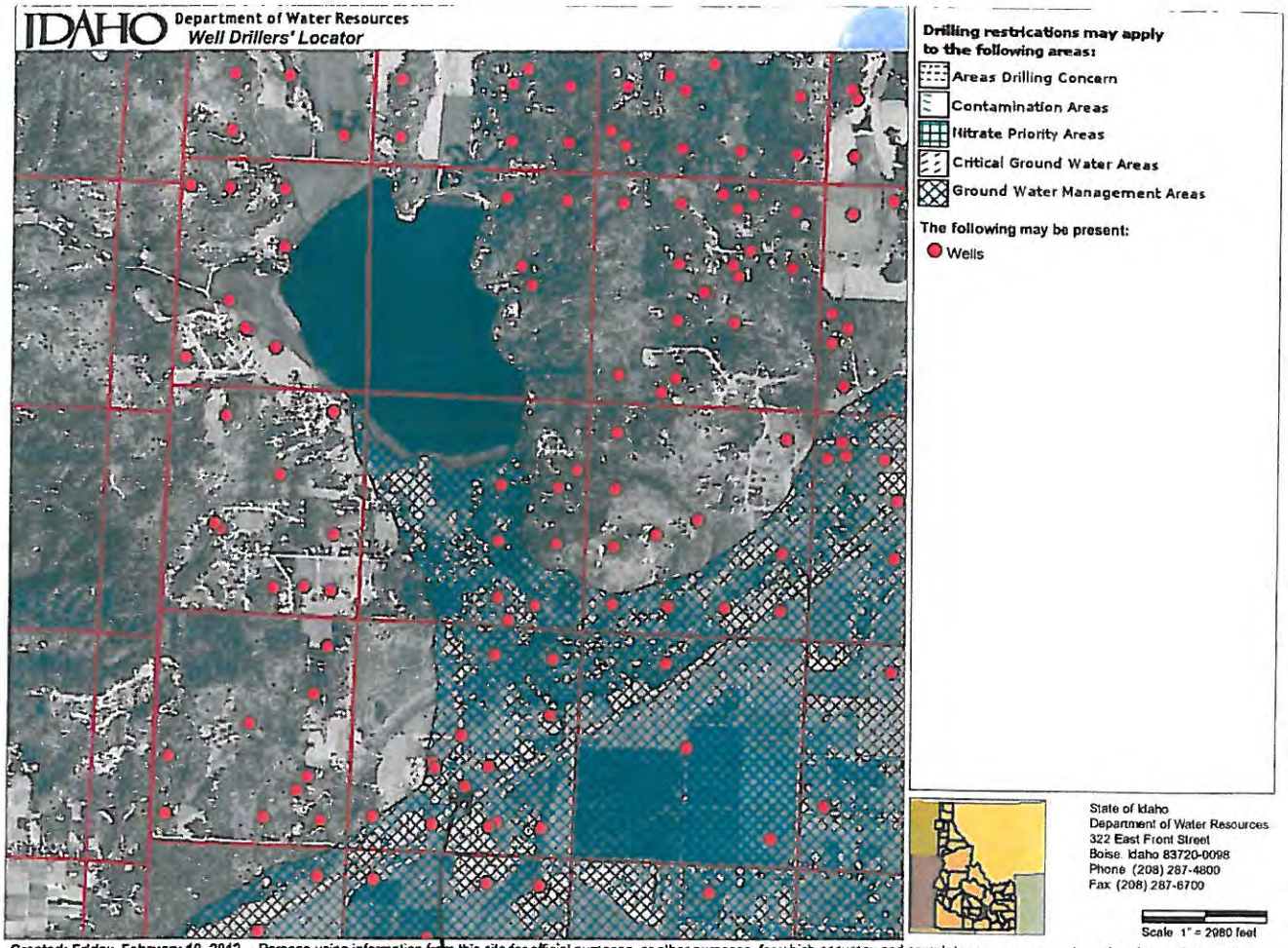

Created: Friday, February 10, 2012 -- Persons using information from this site for official purposes, or other purposes, for which accuracy and completeness are required, are hereby notified that they should first verify the information with the public records or other primary sources from which the information was obtained.

Association wells

Williams, Ashley

From: Williams, Ashley

Sent: Tuesday, February 28, 2012 9:29 AM

To: 'Eastman.Susan@epamail.epa.gov'

Subject: Hauser Lake Water Association

Attachments: RE: EPA Sole Source Aquifer response to 10-18-11 letter regarding Hauser Lake Water Assoc

Susan,

A few weeks ago, I sent you a request for consultation on the Hauser Lake System (attached email). The project is funded through the Drinking Water State Revolving Fund, which is a federally-funded program. Would you be able to provide consultation for this project?

Please let me know if you have any questions or concerns.

Thank you,

Ashley Williams, E.I.T.
Staff Engineer
WELCH-COMER
208-664-9382
208-664-5946 (fax)
350 E. Kathleen Ave.
Coeur d'Alene, ID 83815
www.welchcomer.com

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WELCH, COMER & ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS

PHONE LOG

DATE: 3/1/12 TIME: 11:10am

PROJECT NAME: Hauser Lake Environmental Information Doc

PROJECT NUMBER: 41018

VOICEMAIL

WELCH-COMER REPRESENTATIVE: Ashley Williams

WHO INITIATED COMMUNICATION: Ashley Williams

NAME: Sue Eastman PHONE NUMBER: 206-553-6249

ADDRESS: 1200 Sixth Ave, Suite 900, OWW-136, Seattle, WA 98101

SUBJECT: EID consultation

Left voicemail, to provide consultation, provided checklist. Please call or email me back.

WELCH-COMER FOLLOW-UP REQUIRED? ☐ YES ☒ NO

FOLLOW-UP COMMUNICATION REQUIRED? ☒ YES ☐ NO

NOTES:

requesting consultation. Third attempt.

350 E. Kathleen Avenue, Coeur d'Alene, ID 83815 · (208) 664-9382 · Fax (208) 664-5946

Williams, Ashley

From: Susan Eastman [Eastman.Susan@epamail.epa.gov]
Sent: Friday, March 16, 2012 11:01 AM
To: Williams, Ashley
Subject: RE: EPA Sole Source Aquifer response to 10-18-11 letter regarding Hauser Lake Water Assoc
Follow Up Flag: Follow up
Flag Status: Red

Thank you for submitting your project for review. We have reviewed the information provided and find that the project will not have a significant adverse impact on the Spokane Valley Rathdrum Prairie Sole Source Aquifer and therefore the funding may proceed.

EPA reviews federally financially assisted projects that are proposed in federally designated Sole Source Aquifer review areas to determine if the projects have a potential to contaminate the aquifer through a recharge zone so as to create a significant hazard to public health. Such projects are submitted to EPA by federal, state, and local governments, and by the public.

This correspondence only addresses the Sole Source Aquifer Program, any other federal environmental requirements are your responsibility to ensure compliance. Please retain this email for your records.

Thank You,

Susan Eastman, Environmental Scientist
EPA Region 10
1200 Sixth Ave. Suite 900, OWW-136
Seattle, WA. 98101
SDWA Tribal & CWA Indian Set Aside Program, Sole Source Aquifer Program, Source Water Protection and ID 106

206-553-6249
EASTMAN.SUSAN@EPA.GOV

"Williams, Ashley" ---02/10/2012 10:20:15 AM---Susan, After Idaho DEQ reviewed the EID for Hauser Lake Water Association, they

From: "Williams, Ashley" <awilliams@welchcomer.com>
To: Susan Eastman/R10/USEPA/US@EPA
Cc: "Maiani, Necia M" <nmaiani@welchcomer.com>, "MacDonald, Sharie" <smacdonald@welchcomer.com>
Date: 02/10/2012 10:20 AM
Subject: RE: EPA Sole Source Aquifer response to 10-18-11 letter regarding Hauser Lake Water Assoc

---

Susan,

After Idaho DEQ reviewed the EID for Hauser Lake Water Association, they requested that you provide a consultation on the project. I have filled out the checklist and attached the aquifer map.

Please let me know if you have any questions or need any further

information.

Thanks!
Ashley Williams

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-----Original Message-----
From: Eastman.Susan@epamail.epa.gov
[mailto:Eastman.Susan@epamail.epa.gov]
Sent: Friday, October 21, 2011 2:32 PM
To: Williams, Ashley
Subject: EPA Sole Source Aquifer response to 10-18-11 letter regarding Hauser Lake Water Assoc

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(See attached file: R10 Sole Source Aquifer Checklist.doc)

Susan Eastman, Environmental Scientist
EPA Region 10
1200 Sixth Ave. Suite 900, OWW-136
Seattle, WA. 98101
SDWA Tribal & CWA Indian Set Aside Program, Sole Source Aquifer Program, Source Water Protection and ID 106

206-553-6249
EASTMAN.SUSAN@EPA.GOV
[attachment "Sole Source Aquifer Checklist.PDF" deleted by Susan Eastman/R10/USEPA/US]

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Coeur d'Alene, ID 83815

October 18, 2011

Mr. Mark Addy, District Conservationist
USDA-NRCS
7830 Meadowlark Way, Suite C1
Coeur d'Alene, ID 83815

Re: Hauser Lake Water System Improvement Project – Request for Comments for Preparation of an Environmental Informational Document

Dear Mark:

The Hauser Lake Water Association is preparing a facility planning document to identify and make necessary improvements to their drinking water system that are cost effective and environmentally sound. The facility plan for this project is being funded completely by a Department of Environmental Quality (DEQ) planning grant which requires compliance with the Rules for Administration of Planning Grants for Drinking Water Facilities, IDAPA 58.01.22. The grant rule carries DEQ State Environmental Review Process requirements which mirror those of the National Environmental Policy Act (NEPA).

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We request that you advise us of any comments that you may have regarding this project within 30 days, so that Hauser Lake Water Association 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 me at Welch, Comer & Associates, Inc. at (208) 664-9382 at your convenience.

Sincerely,

Ashley Williams

Ashley M. Williams, E.I.T.
Staff Engineer

AMW
Enclosure: Existing System Overview Map, Proposed Improvements Map

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
7830 Meadow lark Way, Suite C-1
Coeur d'Alene, Id 83815
Phone: 208-762-4939
Fax: 208-762-9859

COPY

RECEIVED NOV 23 2011 By

November 21, 2011

Ashley M Williams, E.I.T.
Welch-Comer
350 E Kathleen Ave.
Coeur d' Alene, ID 83815

Dear Ashley,

I have recently reviewed the documents for the Hauser Lake Water System Improvement Project. The project seems like a necessary project to improve current deficiencies within the current system. At this time, we have no comments about the project, but would like to be kept informed on the progress of the system.

Sincerely,

Aubrey Woodcock

Aubrey Woodcock
DISTRICT CONSERVATIONIST

WELCH-COMER
ENGINEERS | SURVEYORS

www.welchcomer.com
208-664-9382
877-815-5672 (toll free)
208-664-5946 (fax)
350 E. Kathleen Ave.
Coeur d'Alene, ID 83815

October 18, 2011

Mary McGown, State NFIP Coordinator
Idaho Dept. of Water Resources
322 East Front Street PO Box 83720
Boise, ID 83720-0098

Re: Hauser Lake Water System Improvement Project – Request for Comments for Preparation of an Environmental Informational Document

Dear Mary:

The Hauser Lake Water Association is preparing a facility planning document to identify and make necessary improvements to their drinking water system that are cost effective and environmentally sound. The facility plan for this project is being funded completely by a Department of Environmental Quality (DEQ) planning grant which requires compliance with the Rules for Administration of Planning Grants for Drinking Water Facilities, IDAPA 58.01.22. The grant rule carries DEQ State Environmental Review Process requirements which mirror those of the National Environmental Policy Act (NEPA).

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Sincerely,

Ashley Williams

Ashley M. Williams, E.I.T.
Staff Engineer

AMW
Enclosure: Existing System Overview Map, Proposed Improvements Map

Williams, Ashley

From: McGown, Mary [Mary.McGown@idwr.idaho.gov]
Sent: Monday, November 21, 2011 1:14 PM
To: Williams, Ashley
Subject: Hauser Lake Water System Improvement Project

Ashley,

Hauser is not in the National Flood Insurance Program (NFIP). There is a mapped flood hazard zone around Hauser Lake, but since Hauser does not participate in the NFIP, the city has not adopted a flood damage prevention ordinance that meets the minimum requirements of the NFIP. I have no comments about the proposed project as NFIP regulations do not apply.

Mary G. McGown, Ph.D., CFM

State Floodplain Coordinator

Idaho Department of Water Resources

322 E. Front Street

P.O. Box 83720

Boise, ID 83720-0098

(208) 287-4928

(208) 287-6700 fax

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Coeur d'Alene, ID 83815

October 18, 2011

Allen Beardslee
Idaho Dept. of Water Resources
7600 Mineral Drive, Ste. 100
Coeur d'Alene, ID 83815

Re: Hauser Lake Water System Improvement Project – Request for Comments for Preparation of an Environmental Informational Document

Dear Allen:

The Hauser Lake Water Association is preparing a facility planning document to identify and make necessary improvements to their drinking water system that are cost effective and environmentally sound. The facility plan for this project is being funded completely by a Department of Environmental Quality (DEQ) planning grant which requires compliance with the Rules for Administration of Planning Grants for Drinking Water Facilities, IDAPA 58.01.22. The grant rule carries DEQ State Environmental Review Process requirements which mirror those of the National Environmental Policy Act (NEPA).

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Sincerely,

Ashley Williams

Ashley M. Williams, E.I.T.
Staff Engineer

AMW
Enclosure: Existing System Overview Map, Proposed Improvements Map

State of Idaho
DEPARTMENT OF WATER RESOURCES
Northern Region, 7600 N. Mineral Drive, Suite 100 • Coeur d'Alene, Idaho 83815
Phone: (208) 762-2800 • Fax: (208) 762-2819 • Web Site: www.idwr.idaho.gov

COPY

C. L. "BUTCH" OTTER
Governor

GARY SPACKMAN
Interim Director

October 31, 2011

Ashley M Williams
Welch-Comer Engineers
350 E Kathleen Ave.
Coeur d'Alene, ID 83815

Re: Hauser Lake Water System Improvement Project

Dear Ms. Williams:

The Idaho Department of Water Resources (IDWR) appreciates the opportunity to comment on the Hauser Lake Water System Improvement Project.

Based upon the projects brief description, the IDWR suggests the water rights for the Hauser Lake Water Association be reviewed and the proposed improvement project stays within the parameters of the rights.

Thank you.

Sincerely,

Keith E Franklin
Interim Project Manager

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208-664-9382
877-815-5672 (toll free)
208-664-5946 (fax)
350 E. Kathleen Ave.
Coeur d'Alene, ID 83815

October 18, 2011

Regional Nongame Biologist
Idaho Dept. of Fish and Game, SE Region
2750 Kathleen Avenue
Coeur d'Alene, ID 83815

Re: Hauser Lake Water System Improvement Project – Request for Comments for Preparation of an Environmental Informational Document

Dear Regional Nongame Biologist:

The Hauser Lake Water Association is preparing a facility planning document to identify and make necessary improvements to their drinking water system that are cost effective and environmentally sound. The facility plan for this project is being funded completely by a Department of Environmental Quality (DEQ) planning grant which requires compliance with the Rules for Administration of Planning Grants for Drinking Water Facilities, IDAPA 58.01.22. The grant rule carries DEQ State Environmental Review Process requirements which mirror those of the National Environmental Policy Act (NEPA).

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Sincerely,

Ashley Williams

Ashley M. Williams, E.I.T.
Staff Engineer

AMW
Enclosure: Existing System Overview Map, Proposed Improvements Map

COPY
NOV 17 2011

IDAHO DEPARTMENT OF FISH AND GAME
PANHANDLE REGION
2885 West Kathleen Avenue
Coeur d' Alene, Idaho 83815

C.L. "Butch" Otter/Governor
Virgil Moore/Director

November 15, 2011

Ms. Ashley M. Williams, E.I.T.
Welch, Comer and Associates, Inc.
350 E. Kathleen Ave.
Coeur d'Alene, ID 83815

Dear Ms. Williams:

REFERENCE: HAUSER LAKE WATER SYSTEM IMPROVEMENT PROJECT

We have reviewed the information you provided regarding the proposed Hauser Lake Water System Improvement project. According to your document, the project involves improvements to the current system (improved capacity, upsizing wells, etc.). The project will improve deficiencies in source supply, booster capacity, storage capacity, and distribution system capacity. All of the improvements fall along road right-of-ways in the project planning area.

Given the brief description and maps provided, IDFG does not anticipate that the proposed project will have significant impacts to fish or wildlife.

Thank you for the opportunity to comment.

Sincerely,

Charles E. Corsi
Regional Supervisor

CEC:MTB

C: Sharon Kiefer, IDFG Boise

File: Welch Comer Hauser water system improvements

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208-664-5946 (fax)
350 E. Kathleen Ave.
Coeur d'Alene, ID 83815

October 18, 2011

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

Re: Hauser Lake Water System Improvement Project – Request for Comments for Preparation of an Environmental Informational Document

Dear Gary:

The Hauser Lake Water Association is preparing a facility planning document to identify and make necessary improvements to their drinking water system that are cost effective and environmentally sound. The facility plan for this project is being funded completely by a Department of Environmental Quality (DEQ) planning grant which requires compliance with the Rules for Administration of Planning Grants for Drinking Water Facilities, IDAPA 58.01.22. The grant rule carries DEQ State Environmental Review Process requirements which mirror those of the National Environmental Policy Act (NEPA).

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Sincerely,

Ashley Williams

Ashley M. Williams, E.I.T.
Staff Engineer

AMW
Enclosure: Existing System Overview Map, Proposed Improvements Map

COPY

STATE OF IDAHO

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

October 24, 2011

Ashley Williams
350 E Kathleen Ave
Coeur d Alene, ID 83815

Dear Ms. Williams:

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

We have reviewed the planning documents provided to us. Your documents appear to be professional and informative. 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 (main number - 208-332-8500, my number - 208-332-8597).

Sincerely,

Gary Bahr

Gary Bahr

Water Quality Programs

PC: Water Program File

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208-664-5946 (fax)
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Coeur d'Alene, ID 83815

October 18, 2011

Dale Peck, Environmental Health Director
Panhandle District Health Department
2195 Ironwood Court
Coeur d'Alene, ID 83814

Re: Hauser Lake Water System Improvement Project – Request for Comments for Preparation of an Environmental Informational Document

Dear Dale:

The Hauser Lake Water Association is preparing a facility planning document to identify and make necessary improvements to their drinking water system that are cost effective and environmentally sound. The facility plan for this project is being funded completely by a Department of Environmental Quality (DEQ) planning grant which requires compliance with the Rules for Administration of Planning Grants for Drinking Water Facilities, IDAPA 58.01.22. The grant rule carries DEQ State Environmental Review Process requirements which mirror those of the National Environmental Policy Act (NEPA).

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Sincerely,

Ashley Williams

called, left voicemail
Nov. 21, 2011
No response by 12/9/11
AW

Ashley M. Williams, E.I.T.
Staff Engineer

AMW
Enclosure: Existing System Overview Map, Proposed Improvements Map

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Coeur d'Alene, ID 83815

October 18, 2011

Roger Jansson, Operations Chief - North
Department of Lands, Northern Operations
3780 Industrial Avenue South
Coeur d'Alene, ID 83815

Re: Hauser Lake Water System Improvement Project – Request for Comments for Preparation of an Environmental Informational Document

Dear Roger:

The Hauser Lake Water Association is preparing a facility planning document to identify and make necessary improvements to their drinking water system that are cost effective and environmentally sound. The facility plan for this project is being funded completely by a Department of Environmental Quality (DEQ) planning grant which requires compliance with the Rules for Administration of Planning Grants for Drinking Water Facilities, IDAPA 58.01.22. The grant rule carries DEQ State Environmental Review Process requirements which mirror those of the National Environmental Policy Act (NEPA).

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Sincerely,

Ashley Williams

Ashley M. Williams, E.I.T.
Staff Engineer

AMW
Enclosure: Existing System Overview Map, Proposed Improvements Map

WELCH, COMER & ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS

PHONE LOG

DATE: 11/21/11 TIME: 11:20am

PROJECT NAME: Hauser Lake Water System Improvements (EID)

PROJECT NUMBER: 41018

WELCH-COMER REPRESENTATIVE: Ashley Williams

WHO INITIATED COMMUNICATION: Ashley Williams

NAME: Roger Jansson PHONE NUMBER: 208-769-1525

ADDRESS: 3780 Industrial Avenue South Coeur d'Alene, ID 83815

SUBJECT: Hauser Lake System comments

Received letter requesting comments, and He circulated to Mica District, who had no comment.

Roger's comment was that he was supporve of the project due to the increase in fire flow capacity for system.

WELCH-COMER FOLLOW-UP REQUIRED? ☐ YES ☒ NO

FOLLOW-UP COMMUNICATION REQUIRED? ☐ YES ☒ NO

NOTES: Essentially no comment for EID.

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Coeur d'Alene, ID 83815

October 18, 2011

Jeff Beeman, Rural Development Specialist
USDA-RD
7830 Meadowlark Way, Suite C3
Coeur d'Alene, ID 83815

Re: Hauser Lake Water System Improvement Project – Request for Comments for Preparation of an Environmental Informational Document

Dear Jeff:

The Hauser Lake Water Association is preparing a facility planning document to identify and make necessary improvements to their drinking water system that are cost effective and environmentally sound. The facility plan for this project is being funded completely by a Department of Environmental Quality (DEQ) planning grant which requires compliance with the Rules for Administration of Planning Grants for Drinking Water Facilities, IDAPA 58.01.22. The grant rule carries DEQ State Environmental Review Process requirements which mirror those of the National Environmental Policy Act (NEPA).

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Sincerely,

Ashley Williams

Ashley M. Williams, E.I.T.
Staff Engineer

AMW
Enclosure: Existing System Overview Map, Proposed Improvements Map

WELCH, COMER & ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS

PHONE LOG

DATE: 11/21/11 TIME: 1:40pm

PROJECT NAME: Hauser Lake water system

PROJECT NUMBER: 4019

WELCH-COMER REPRESENTATIVE: Ashley Williams

WHO INITIATED COMMUNICATION: Ashley Williams

NAME: Howard Lindkvistadt PHONE NUMBER: 208-762-4939

ADDRESS: 7830 Meadowlark Way suite C3, Coeur d'Alene, ID

SUBJECT: EID comments

Letters sent to Jeff Beeman, but in the future should be sent to Howard now.

Since they are funding agency (Rural Development), typically do not have comments on EIDs.

So, no comment.

WELCH-COMER FOLLOW-UP REQUIRED? ☐ YES ☒ NO

FOLLOW-UP COMMUNICATION REQUIRED? ☐ YES ☒ NO

NOTES:

350 E. Kathleen Avenue, Coeur d'Alene, ID 83815 · (208) 664-9382 · Fax (208) 664-5946

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Coeur d'Alene, ID 83815

October 18, 2011

Dennis Porter, State Program Manager
Idaho Dept of Commerce
700 West State Street, PO Box 83720
Boise, ID 83720

Re: Hauser Lake Water System Improvement Project – Request for Comments for Preparation of an Environmental Informational Document

Dear Dennis:

The Hauser Lake Water Association is preparing a facility planning document to identify and make necessary improvements to their drinking water system that are cost effective and environmentally sound. The facility plan for this project is being funded completely by a Department of Environmental Quality (DEQ) planning grant which requires compliance with the Rules for Administration of Planning Grants for Drinking Water Facilities, IDAPA 58.01.22. The grant rule carries DEQ State Environmental Review Process requirements which mirror those of the National Environmental Policy Act (NEPA).

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Sincerely,

Ashley Williams

Ashley M. Williams, E.I.T.
Staff Engineer

AMW
Enclosure: Existing System Overview Map, Proposed Improvements Map

WELCH, COMER & ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS

PHONE LOG

DATE: 11/21/11 TIME: 12:30pm

PROJECT NAME: Hauser Lake Water system Improvements (EID)

PROJECT NUMBER: 41018

WELCH-COMER REPRESENTATIVE: Ashley Williams

WHO INITIATED COMMUNICATION: Ashley Williams

NAME: Tony Tenne PHONE NUMBER: 208 - 334 - 2470

ADDRESS: 700 west state Street Boise, ID 83720

SUBJECT: EID comments

Dennis Porter sent AW's voicemail over to Tony Tenne.

They do not have any comments, other than it sounds like a good project.

He asked if Hauser was considering Idaho CDBG funding. AW ~~[illegible]~~ stated that they are funding through Idaho DEQ monies.

WELCH-COMER FOLLOW-UP REQUIRED? ☐ YES ☒ NO

FOLLOW-UP COMMUNICATION REQUIRED? ☐ YES ☒ NO

NOTES:

No comment, essentially.

350 E. Kathleen Avenue, Coeur d'Alene, ID 83815 · (208) 664-9382 · Fax (208) 664-5946

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350 E. Kathleen Ave.
Coeur d'Alene, ID 83815

October 18, 2011

Suzi Pengilly, Deputy SHPO
Idaho State Historical Society
210 Main Street
Boise, ID 83702

Re: Hauser Lake Water System Improvement Project – Request for Comments for Preparation of an Environmental Informational Document

Dear Suzi:

The Hauser Lake Water Association is preparing a facility planning document to identify and make necessary improvements to their drinking water system that are cost effective and environmentally sound. The facility plan for this project is being funded completely by a Department of Environmental Quality (DEQ) planning grant which requires compliance with the Rules for Administration of Planning Grants for Drinking Water Facilities, IDAPA 58.01.22. The grant rule carries DEQ State Environmental Review Process requirements which mirror those of the National Environmental Policy Act (NEPA).

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Sincerely,

Ashley Williams

Ashley M. Williams, E.I.T.
Staff Engineer

AMW
Enclosure: Existing System Overview Map, Proposed Improvements Map

www.history.idaho.gov

Idaho • State Historical Society

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November 2, 2011

Ashley Williams
Welch Comer Engineers
350 E. Kathleen Ave.
Coeur d'Alene, Idaho 83815

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

RE: Hauser Lake Water System Improvement, Kootenai County, Idaho

Dear Ms. Williams:

Thank you for requesting our views on the proposed improvements to the Hauser Lake water system. The project is located in Kootenai County, Idaho. Improvements that will cause ground disturbance include a new storage facility and transmission line, upsizing a well, and replacing water lines.

You have informed us that the only work that will involve new ground disturbance is the construction of the new storage facility and transmission line. Our records show that the project is located in an area where archaeological sites may exist, and no archaeological surveys have been conducted in the past. We are therefore recommending an archaeological survey of the two project components noted above, and any others that may result in new ground disturbance. The survey should be conducted when ground visibility is good, and a report should be sent to our office for review. Depending upon the results, we may recommend avoiding sensitive areas, archaeological testing or monitoring, or proceeding with the project as planned.

A list of archaeological consultants can be found on Preservation Idaho's website (www.preservationidaho.org) under Resources.

We appreciate your cooperation. If you have any questions, please feel free to contact me at 208-334-3847, ext. 107.

Sincerely,

Susan Pengilly
Deputy SHPO and
Compliance Coordinator

Historical Society is an
Equal Opportunity Employer.

Williams, Ashley

From: Suzi Pengilly [Suzi.Pengilly@ishs.idaho.gov]
Sent: Monday, November 14, 2011 10:53 AM
To: Williams, Ashley
Subject: RE: Hauser Lake Water Improvements

Ashley,
I am back in the office and looked at this file. After discussing it with a colleague, we still believe that a survey should be conducted. The disturbance does not sound very substantial, and the excavation for the line and reservoir will extend deeper than the disturbance you cited. It would be good to get the survey done before it snows!
Thanks,
Suzi.

From: Williams, Ashley [mailto:awilliams@welchcomer.com]
Sent: Wednesday, November 09, 2011 12:06 PM
To: Suzi Pengilly
Subject: Hauser Lake Water Improvements

Suzi,

Thank you for your letter dated November 2, 2011 regarding the Hauser Lake Water System Improvements.

After reviewing your letter and further discussion of the site conditions with the project manager whom has been to the site, she indicated that the site has been previously disturbed. It appears to have been logged or thinned in the past, and there is an access road cut through the property as well as a building site for a home (as this is currently part of a subdivision). I have attached several pictures and a high resolution aerial of the site for your review .

Thus, we are wondering if you may be able to review these pictures and the site map to determine if the archeological survey is still needed.

Please let me know if there is anything else you might need to make this determination. Also, feel free to contact me with any questions or concerns.

Thank you,

Ashley Williams, E.I.T.
Staff Engineer
WELCH-COMER
208-664-9382
208-664-5946 (fax)
350 E. Kathleen Ave.
Coeur d'Alene, ID 83815
www.welchcomer.com

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Williams, Ashley

From: Suzi Pengilly [Suzi.Pengilly@ishs.idaho.gov]
Sent: Monday, November 21, 2011 9:58 AM
To: Williams, Ashley
Cc: Maiani, Necia M
Subject: RE: Hauser Lake Water Improvements EID

Thanks Ashley. Yes, this is what we agreed to.

Suzi Pengilly
Deputy SHPO Idaho

From: Williams, Ashley [awilliams@welchcomer.com]
Sent: Friday, November 18, 2011 4:06 PM
To: Suzi Pengilly
Cc: Maiani, Necia M
Subject: Hauser Lake Water Improvements EID

Suzi,

Thank you for speaking on the phone with me today (11/18/11) regarding the Hauser Lake Water System Improvements. I just wanted to re-iterate what we discussed today.

We have hired an Archeologist subconsultant and have the Hauser Lake Water Association's approval to move forward this week with the archeologist survey. The Archeologist was on-site yesterday, and unfortunately, there was 2 inches of snow on the site. Thus, they were not able to conduct the field survey, and we are concerned that the weather will not allow for the survey to be completed until after the the winter season. Since the Association must submit the Environmental Information Document (EID) prior to January 2, we are concerned that the survey will not be conducted in time.

As you stated today, it would be acceptable for us to proceed with the records search and incorporate these results into the EID, upon commitment to conducting the field survey prior to design implementation implementation on the reservoir site. In the meantime, the Archeologist will watch the weather so that the the field survey can be conducted as soon as it is feasible. We will incorporate the results of their records records search into the EID as well.

Please let me know if my understanding is correct. If you have any questions or concerns, please feel free to contact me.

Thanks!

Ashley Williams, E.I.T.
Staff Engineer
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208-664-9382
208-664-5946 (fax)
350 E. Kathleen Ave.
Coeur d'Alene, ID 83815
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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

DATE: December 7, 2011
TO: Ashley Williams, Welch Comer Engineers
FEDERAL AGENCY: EPA
PROJECT NAME: Hauser Lake Water System Improvements, Kootenai County, Idaho; Archaeological Report by Ann Sharley, Lorelea Hudson, and Brandy Rinck, Northwest Archaeological Associates/SWCA, dated 30 November 2011

Section 106 Evaluation

X The field work and documentation presented in this report meet the Secretary of the Interior's Standards.

X No additional investigations are recommended. Project can proceed as planned.

Additional information is required to complete the project review. (See comments below.)

Additional investigations are recommended. (See comments below).

Identification of Historic Properties (36 CFR 900.4):

X No historic properties were identified within the project area.

Property is not eligible. Reason:

Property is eligible for listing in the National Register of Historic Places.

Criterion: _A _B _C _D Context for Evaluation:

X *No historic properties* will be affected within the project area.

Assessment of Adverse Effects (36 CFR 800.5):

Project will have *no adverse effect* on historic properties.

Property will have an *adverse effect* on historic properties. Additional consultation is required.

Comments:

Work should halt and your archaeological consultant contacted immediately if archaeological remains are discovered during construction.

Susan Pengilly

Susan Pengilly, Deputy SHPO
State Historic Preservation Office

December 7, 2011
Date

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October 18, 2011

Jill Wagner, PhD, THPO, Cultural Resource Program
Coeur d'Alene Tribe of Idaho
PO Box 408
Plummer, ID 83851

Re: Hauser Lake Water System Improvement Project – Request for Comments for Preparation of an Environmental Informational Document

Dear Jill:

The Hauser Lake Water Association is preparing a facility planning document to identify and make necessary improvements to their drinking water system that are cost effective and environmentally sound. The facility plan for this project is being funded completely by a Department of Environmental Quality (DEQ) planning grant which requires compliance with the Rules for Administration of Planning Grants for Drinking Water Facilities, IDAPA 58.01.22. The grant rule carries DEQ State Environmental Review Process requirements which mirror those of the National Environmental Policy Act (NEPA).

The proposed project consists of a new storage facility, eliminating the need for the Main Reservoir. One of the well pumps (well 1) will be upsized, the Main Booster Station will be converted to a PRV Station, and pumping capacity will be increased at the Woodlake Booster Station for fire flow. Improvements to the distribution system will increase fire flow capacity and transmission capacity, and involve upsizing 4-inch water mains and installation of new water mains fronting lots that are currently served but not fronted by water main.

The project is being proposed due to deficiencies in source supply, booster capacity, storage capacity, and distribution system capacity, per IDAPA 58.01.08. Therefore, improvements are necessary to this system. Enclosed are maps of the proposed project area that depict the proposed improvements.

We request that you advise us of any comments that you may have regarding this project within 30 days, so that Hauser Lake Water Association 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 me at Welch, Comer & Associates, Inc. at (208) 664-9382 at your convenience.

Sincerely,

Ashley Williams

Information sent via Ester Ceja (DEQ) October 19, 2011 (email)

Ashley M. Williams, E.I.T.
Staff Engineer

AMW
Enclosure: Existing System Overview Map, Proposed Improvements Map

Williams, Ashley

From: Ester.Ceja@deq.idaho.gov
Sent: Monday, February 06, 2012 3:19 PM
To: Williams, Ashley
Subject: Hauser lake

Ashley,

Hello again. I was looking through my Hauser Lake emails and wanted to confirm with you that I had passed along a response from the CDA THPO. I forwarded the archeology survey to Jill and she did not have any comments.

Thanks,

Ester Ceja
Sr. Water Quality Analyst
1410 North Hilton
Boise, Idaho 83706
Phone (208) 373.0585
Fax (208) 373.0576
Ester.Ceja@deq.idaho.gov

Appendix N

Completed IDEQ EID Checklist

Form 5-B
Outline and Checklist for Environmental Information Documents (EIDs)

Applicant/Borrower and DEQ Grant or Loan #: Hauser Water Association

Environmental Reviewer:

Date:

Y=yes N=no N/A=not applicable

A. COVER SHEET

1. Is the project properly identified with the applicant's name and address? (•) Y ( ) N
2. Is the project contact person named on the cover sheet, along with their address and phone number and email address? Please provide the name and contact information for the environmental review contact if different from project contact person. (•) Y ( ) N
3. Is it clear what the project will cost and how it will be funded? (•) Y ( ) N
4. Is the environmental information document (EID) or environmental assessment a stand-alone document, a separate chapter in the engineering report or facility plan, or an appendix in the engineering report or facility plan? (•) Y ( ) N

A recommended format for showing the costs and funding follows:

Estimated Construction Costs:

Transmission and distribution system	$ 4,032,550
Treatment	
Storage	$ 1,974,700
Source	
Total estimated cost	$ 9,007,250

Funding:

DEQ share	$ 6,007,250
Other share	
Total funding	$ 6,007,250

5. Does the cover sheet provide information about the estimated user costs of the project? ◉ Y ○ N

The recommended format for item A.5 follows:

A.	Current Average Monthly User Charge per EDU	$17.50
B.	Change in Operation & Maintenance Monthly Charge per EDU	$ N/A
C.	Change in Debt Service Monthly Charge per EDU	$ 23.00
D.	Future Average Monthly User Charge per EDU (A+B+C)	$ 40.50

6. Does the cover sheet provide a one-paragraph abstract of the EID? ◉ Y ○ N

B. PURPOSE AND NEED FOR THE PROPOSED PROJECT

Does the document provide a clear discussion of the need for the proposed facility relative to public health, water quality problems, and other concerns with particular emphasis on the severity and extent of the problem(s)? Describe sources of information used to assess the need. ◉ Y ○ N

C. ALTERNATIVES INCLUDING THE PROPOSED ACTION

1. Does the document briefly describe all alternatives studied in the planning document, including the No Action alternative? ◉ Y ○ N

2. Does the document discuss the low-cost alternative? ◉ Y ○ N

3. Does the document comparatively analyze the alternatives with respect to relevant environmental impacts, costs to mitigate environmental impacts, and capital and operating costs? ◉ Y ○ N

4. Does the document discuss the apparent best alternative in detail, including the following: ◉ Y ○ N

   a) Treatment and distribution ◉ Y ○ N

   b) Location of proposed new facility, or footprint of project components (if other than a new facility) ◉ Y ○ N

   c) Environmental impacts (See Section D. Affected Environment) ◉ Y ○ N

   d) Notes and Discussion:

5. If the selected alternative is not the most cost-effective one, does the document provide a justification for this? ◉ Y ○ N ○ N/A

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D. AFFECTED ENVIRONMENT

The purpose of this section is to verify that the selected alternative is environmentally sound and verify that any adverse environmental impacts are avoided, minimized, or mitigated. To validate the selection of the preferred alternative, it is important at this point to identify the major human-made and natural features of the environment that will be affected by the proposed project. Direct, indirect, short-term, long-term, and cumulative impacts must be considered. This information is one part of the information that will be used to determine whether a full environmental impact statement (EIS) will be required.

1. Is a description and map of the proposed project planning area included in the facility planning document or EID (if stand alone document)? ◉ Y ○ N

   Do the description and map take into account the following criteria?

   a) A description of the proposed project planning area boundaries ◉ Y ○ N

   b) Key topographic and geographic features of the area ◉ Y ○ N

   c) The population distribution ◉ Y ○ N

   d) Industrial and commercial features of the proposed project planning area ◉ Y ○ N

2. Has a map of the proposed project planning area been provided that includes all pertinent details? ◉ Y ○ N

3. Has the area of potential effects (APE), if different from the proposed project planning area, been identified? ◉ Y ○ N

   a) Once the APE has been identified, have the direct, indirect, short-term, long-term, and cumulative effects related to the proposed project been characterized? ◉ Y ○ N

   b) Has a map of the APE been included? ◉ Y ○ N

4. Describe the following major features of the proposed project.

   a) The length, diameter, and type of material for distribution lines

   * See Document

   b) The number, size, depth, and location of wells and related equipment and structures

   Upsize Well No. 1

   c) Storage facilities, pumping stations, and fire flow requirements

   Install new 234,000 gallon reservoir, upsize booster capacity to PRV.

   d) The location and type of treatment facilities

   N/A

e) Any other facets of the planned construction

Source / Storage improvements will be financed first, then the distribution improvements.

f) If relevant, explain how the drinking water project fits into a regional plan

N/A

g) The schedule of construction

Summer 2012

5. Are flow projections and their sources described for existing and projected (20-year minimum) for treatment and drinking water flows (40 year minimum for distribution)? ◉ Y ○ N

a) Is an evaluation of operation and maintenance changes resulting from system improvements included? ◉ Y ○ N

b) Is the contribution of flow to residential, commercial, and industrial sources characterized, including conservation measures (e.g., metering)? ◉ Y ○ N

c) Have any related problems been identified? If yes, describe below. ○ Y ◉ N

6. Have all environmental features affected by the proposed project been characterized and mitigation of any resulting environmental impacts discussed in the planning document? ◉ Y ○ N

NOTE: Section D.6 of the EID constitutes the heart of the environmental review for the selected alternative of any drinking water construction project. This information will be most important in determining whether a full environmental impact statement (EIS) will be required.

Has each of the following major human-made and natural features and related relevant questions for each feature been included? The list of major human-made and natural features should be considered for each proposed project.

NOTE: These questions should be answered as appropriate, and additional information provided when necessary. Much of the information provided in Section D of the EID can be referenced when completing Section F. Alternatively, the applicant may wish to combine Sections D and F of the EID outline into one section in the final document.

a) Physical aspects (topography, geology, and soils)

(1) Are there physical conditions (e.g., steep slopes, shrink-swell soils, etc.) that might be adversely affected by or might adversely affect construction of the facilities? ○ Y ◉ N

(2) Are there similar physical conditions in the planning area that might make development unsuitable? ○ Y ◉ N

(3) Are there any unusual or unique geological features that might be affected? ○ Y ◉ N

(4) Are there any hazardous areas (e.g., slides, faults) that might affect construction or development? ○ Y ◉ N

(5) Discussion

b) Climate

(1) Are there any unusual or special meteorological constraints in the planning area that might result in an air quality problem (e.g. may be an issue for certain types of treatment systems with emission considerations)? ○ Y ◉ N

(2) Are there any unusual or special meteorological constraints in the planning area that affect the feasibility of the proposed alternative? ○ Y ◉ N

(3) Discussion

c) Population

(1) Are the growth rates excessive because of:

(a) exceeding by 25% the 20-year population growth rate expectations for the state (Idaho Division of Financial Management), and ○ Y ◉ N

(b) having a change of greater than 500 estimated residential units over the life of the project? ○ Y ◉ N

(2) Do the plans call for sufficient extra capacity? ◉ Y ○ N ○ N/A

(3) Discussion

d) Economics and social profile

(1) Does documentation exist that suggests that the local populace can afford to build the project? ◉ Y ○ N

(2) Will certain landowners benefit substantially from the development of land due to distribution line routing or domestic drinking water treatment plant (DWTP) location and size? ○ Y ◉ N ○ Unknown

(3) Will the facilities adversely affect land values? ○ Y ● N

(4) Environmental justice (Executive Order No. 12898):

i) Will any low-income or minority groups be adversely affected by the proposed project? ○ Y ● N

ii) Are any benefits from this project going to accrue in a non-discriminatory manner? ● Y ○ N

(5) Discussion

e) Land use

(1) Is the location of the DWTP or other facilities incompatible with local land use plans? ○ Y ● N

(2) Will inhabited areas be adversely impacted by the project site? ○ Y ● N

(3) Will new development that is stimulated by a new drinking water facility have adverse effects on older, existing land uses (e.g., agriculture, forest land, etc.)? ○ Y ● N

(4) Will this project contribute to changes in land use in association with recreation, mining, or other large industrial or energy development? ○ Y ● N

(5) Discussion

*f) Floodplain development (no floodway construction is allowed)

(1) Has the community determined if any part of the planned drinking water project will be located within the a 100-year floodplain? (Attach maps used to arrive at decision.) ● Y ○ N

(2) If some part of the planned drinking water facility will be located within a 100-year floodplain, and no practicable alternative to this exists, has the community indicated that measures will be included in the design of the facilities to minimize or avoid adverse effects to the floodplain? ○ Y ○ N N/A

(3) Will the facility be able to fully function and operate during a 100-year flood event? ● Y ○ N

(4) If a 100-year floodplain will be impacted by the proposed project, has the applicant indicated how the public will be notified of this and how public input will be considered? ○ Y ○ N ● N/A

(5) If the project or some part of it will be in a 100-year floodplain is the borrower currently participating in the National Flood Insurance Program? ○ Y ○ N N/A

(6) Discussion

*g) Wetlands

(1) Is any portion of the project planning area located within wetlands as defined and mapped by the U.S. Fish and Wildlife Service or as determined through site visits by the U.S. Army Corps of Engineers (COE), the Soil Conservation Service, or a qualified private consultant? ◉ Y ○ N

(2) If part of the proposed project will be located in or will affect wetlands, as determined by maps and/or site investigations, will a 404 dredge and fill permit be required from the COE? (Attach maps, site investigations or correspondence used to reach decision.) ○ Y ◉ N

(3) Have alternatives to keeping the project outside the identified wetlands been proposed in the EID or engineering report/facility plan? ◉ Y ○ N

(4) If part of the proposed project will be located in an identified wetland, and no practicable alternative exists, has a wetlands assessment of measures to minimize or mitigate adverse affects been made? ◉ Y ○ N

(5) If a Wetland Delineation Report has been prepared for the proposed project site, did the COE concur with DEQ findings on the Wetland Delineation Report? ○ Y ○ N N/A

(6) Discussion

h) Wild and scenic rivers

(1) Does the planning area contain a designated or proposed wild and scenic river? ○ Y ◉ N

(2) Discussion

*i) Cultural resources

(1) Has the State of Idaho historic preservation officer (SHPO) and/or the tribal historic preservation officer (THPO) been consulted to determine if there are any properties (historic, architectural or, archaeological) in the planning area which are listed, or eligible for listing, on the National Register of Historic Places? ◉ Y ○ N

NOTE: Contact the appropriate THPO, as the lead authority for the Coeur d'Alene Tribe of Idaho and the Nez Perce tribal lands of Idaho. Contact the SHPO as the lead authority for all other tribal lands in Idaho.

(2) Has SHPO or THPO requested a site survey to determine the presence or absence of cultural resources in the proposed project area? ◉ Y ○ N

(3) If cultural resources have been identified in the project area, will the project have direct or indirect adverse impacts on any listed or eligible property? ○ Y ○ N N/A

(4) Has the community developed mitigation measures to avoid or reduce adverse impacts to cultural resources identified in the proposed project area? ○ Y ○ N ◉ N/A

(5) Discussion

*j) Flora and fauna

(1) Has a current U.S. Fish and Wildlife Service threatened and endangered species list specific to the proposed project site been provided? ○ Y ◉ N

(2) Are there any designated threatened or endangered species or critical habitats in the proposed project planning area? ○ Y ◉ N

(3) If listed species or habitats are present, has a biological assessment been prepared by a qualified expert for designated threatened or endangered species? ○ Y ○ N ◉ N/A

(4) Will the project have direct or indirect adverse impacts on any such designated species or habitats? ○ Y ◉ N

(5) Will the project have direct or indirect adverse impacts on other fish and wildlife, or their habitats, including migratory routes, wintering, or calving areas? ○ Y ◉ N

(6) Does the planning area include a sensitive habitat area designated by a local, state, or federal wildlife agency? ○ Y ◉ N

(7) If a Biological Assessment (BA) has been prepared for threatened or endangered species, did the applicable agency/agencies (U.S. Fish and Wildlife Service or National Marine Fisheries Service) concur with DEQ findings on the BA, if necessary? ○ Y ○ N N/A

(8) Discussion

k) Recreation and open space

(1) Will the project eliminate or modify recreational open space, parks, or areas of recognized scenic or recreational value? ○ Y ● N

(2) Is it feasible to combine the project with parks, bicycle paths, hiking trails, waterway access, and other recreational uses? ○ Y ● N

(3) Discussion

*l) Agricultural lands

(1) Does the planning area contain any important farmlands (prime, unique, statewide importance, local importance, etc.) as defined by the U.S. Department of Agriculure? ● Y ○ N

(2) If yes, will the project directly or indirectly encourage the irreversible conversion of environmentally significant agricultural lands to uses that result in the loss of these lands as an environmental or essential food production resource? ○ Y ● N ○ N/A

(3) Discussion

*m) Air quality

(1) Will there be any direct air emissions from the project (as from construction equipment) that will not meet federal and state emission standards contained in the air quality state implementation plan (SIP)? ○ Y ● N

(2) Is the project service area located in an area without an approved or conditionally approved SIP? ○ Y ● N

(3) Does the project violate national ambient air quality standards in an attainment or unclassified area? ○ Y ● N

(4) Will the facilities cause odor or noise nuisance problems? ○ Y ● N

(5) Discussion

n) Energy

(1) Are there additional cost-effective measures to reduce energy or water consumption or increase energy recovery which could be included in the project? ○ Y ● N

(2) Have air quality issues of energy recovery been addressed? ○ Y ○ N ● N/A

(3) Discussion

o) Regionalization

(1) Are there jurisdictional disputes or controversy over the project? ○ Y ● N

(2) Have intermunicipal agreements been signed? ○ Y ● N ○ N/A

(3) Have intermunicipal agreements been discussed with surrounding communities? ○ Y ● N ○ N/A

(4) Discussion

p) Water Quality

(1) Will the project adversely affect the quality or quantity of a ground water source? ○ Y ● N

(2) Does the project adversely affect a sole-source aquifer, stream flow source area or recharge area? ○ Y ● N

(3) Will the project adversely affect water rights? ○ Y ● N

(4) Will the project adversely affect a source water area for a public drinking water system? ○ Y ● N

(5) Will project construction and development served by the project result in nonpoint water quality problems (sedimentation, urban storm water, etc.)? ○ Y ● N

(6) Discussion

E. MAPS, CHARTS, AND TABLES

1. Do the maps, charts, and other graphic materials used in the EID help the reader clearly discern project features? ● Y ○ N
2. Are all graphs, charts, tables, and other graphics clearly labeled and referenced properly in the text of the EID? ● Y ○ N

F. ENVIRONMENTAL IMPACTS OF PROPOSED PROJECT

1. Are the direct, indirect, short-term, long-term, and cumulative impacts of the project upon human-made and natural features clearly identified (refer to Section D of this form)? ◉ Y ○ N

2. Are additional potential or existing impacts that are worthy of discussion in the EID noted? ◉ Y ○ N ○ N/A

3. Are there obvious areas of impact that have not been considered in this evaluation? List them below. ○ Y ◉ N ○ N/A

4. Have unavoidable adverse impacts that cannot be fully mitigated been listed and discussed? ○ Y ○ N ◉ N/A

G. MEANS TO MITIGATE ADVERSE ENVIRONMENTAL IMPACTS

1. Have mitigation measures been clearly listed for direct, indirect, short-term, long-term, and cumulative impacts? ◉ Y ○ N ○ N/A

2. Have means of achieving mitigation measures been given? ◉ Y ○ N ○ N/A
   a) The means to achieve the mitigation measures must identify and establish all the following:
      (1) The mitigation measures identified for implementation are enforceable, and
      (2) Verification that parties committing to mitigation measures has the authority and ability to fulfill the commitments, and
      (3) Appropriate monitoring is conducted during implementation of the mitigation measures

H. PUBLIC PARTICIPATION

1. During the planning process if the environmental review process has determined that something other than a categorical exclusion (with no support documentation) is appropriate, has the public been given at least 14 days to review and comment on the alternatives under consideration for the proposed project and commensurate environmental impacts of each alternative? This is to ensure that environmental information is available before decisions are made and actions are taken. The comment period begins with the date the public notice is published. The notice need not be published more than once, unless the project is highly controversial. If the project is deemed controversial, then the public notice will be tailored to suit the circumstance. Include a coy of the public notice in the EID. ◉ Y ○ N

2. Have dates and meeting locations for all public hearings and meetings concerning the engineering report or facility plan and EID been described in the EID? Include copies of the meeting minutes of when an alternative was selected. ◉ Y ○ N

3. Have all substantive issues raised by the public in meetings, hearings, and by correspondence been described in the EID? Include copies of public comments received. ○ Y ○ N ◉ N/A

4. Have substantive public concerns been addressed in the engineering report or facility plan and final environmental document? ○ Y ○ N ◉ N/A

5. Have significant substantive comments received from state and federal agencies been described and considered in the engineering report or facility plan and final environmental document? Include copies of state and federal agency comments received. ○ Y ○ N ◉ N/A

I. REFERENCES CONSULTED

Is there a list of all reference documents consulted in preparation of the EID? ◉ Y ○ N

J. AGENCIES CONSULTED

1. Is there a list of all agencies and agency experts or individuals consulted during the preparation of the EID? ◉ Y ○ N

2. Does the list of consulted agencies include dates the agency response was received or dates consultation was attempted? (Include correspondence such as emails on attempted consultations.) ◉ Y ○ N

K. MAILING LIST

1. Has a mailing list been included in the EID? ◉ Y ○ N

2. Does the mailing list include the names and addresses of all attendees of public meetings, affected local residents, relevant environmental groups, DEQ and local officials, and agencies that were consulted or who were provided information regarding the proposed project? ◉ Y ○ N

NOTE: Asterisk items are not required for projects identified as Tier II. Please see Form 5C for discussion of Tier II.