OREGON WATER RESOURCE DEPARTMENT
WATER CONSERVATION, REUSE AND STORAGE GRANT PROGRAM

I. Grant Information

Study Name: *Upper Grande Ronde Basin Watershed Storage*

Type of Grant Requested: ☐ Water Conservation ☐ Reuse ☐ Above Ground Storage
☒ Storage Other Than Above-Ground [Including Aquifer Storage and Recovery (ASR)]
Note: A Water Conservation and Reuse study may be submitted as a joint application. All other applications must only include one application type.

Program Funding Dollars Requested: $ 56,000.00 Total cost of planning study: $ 112,000.00
Note: Request may not exceed $500,000

II. Applicant Information

Applicant Name: ***Grande Ronde Model Watershed***		**Co- Applicant Name:**
Contact:	*Jeff Oveson*	Contact:
Address	*1114 J Avenue*	Address:
	La Grande, Oregon 97850	
Phone	*541-663-0570*	Phone:
Fax:	*541-962-1585*	Fax:
Email:	*jeff@grmw.org*	Email:

Fiscal Officer Name: ***Jeff Oveson***		**Principal Contact:** ***Jeff Oveson***	
Organization:	*Grande Ronde Model Watershed*	Organization:	*Grande Ronde Model Watershed*
Address:	*1114 J Avenue*	Address:	*1114 J Avenue*
	La Grande, Oregon 97850		*La Grande, Oregon 97850*
Phone:	*541-663-0570*	Phone:	*541-663-0570*
Fax:	*541-962-1585*	Fax:	*541-962-1585*
Email:	*jeff@grmw.org*	Email:	*jeff@grmw.org*

Certification:

I certify that this application is a true and accurate representation of the proposed work for a project planning study and that I am authorized to sign as the Applicant or Co-Applicant. By the following signature, the Applicant certifies that they are aware of the requirements of an Oregon Water Resources Department grant and are prepared to conduct the planning study if awarded.

Applicant Signature: _____ Date: 12/14/2011

Print Name: *Jeff Oveson* Title: *Executive Director*

III. Planning Study Summary

Please give a brief summary of the planning study using no more than 150 words.

The planning study will evaluate the potential application of managed underground storage (MUS) techniques in the Upper Grande Ronde Watershed in Union County. The goal of the study is to determine feasible ways to augment late season stream flows that are currently diminished by irrigation as well as to provide an alternative to mitigate potentially declining groundwater levels in the Columbia River Basalt Group (CRBG) aquifers of the upper Grande Ronde Valley. Specifically, the study will evaluate whether using the Oregon Water Resources Department (OWRD) artificial recharge (AR) and/or aquifer storage and recovery (ASR) rules can be used to employ aquifer storage technologies in the Upper Grande Ronde Watershed basin for these purposes.

OREGON WATER RESOURCE DEPARTMENT
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GRANT PROGRAM

I. Grant Information

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Print Name: *Jeff Oveson* Title: *Executive Director*

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IV. Grant Specifics

Section A. Common Criteria

Instructions: Answer all questions in this section by typing the answer below the question. It is anticipated that completed applications will result in additional pages.

1. Describe how the planning study will be performed. Include:
   a. A description of the planning schedule/timeline, which includes identifying all key tasks. (Section VI provides an opportunity for a "graphical" representation of the schedule.)

      The planning study could start in June of 2012 with a draft study completed in June of 2013 for review by appropriate agencies and project stakeholders. This is a conceptual study to evaluate potential groundwater storage and late season stream flow augmentation possibilities in the Upper Grande Ronde basin (see attached Location Map for location), which is fully allocated for irrigation use.

      The following work elements would be performed as part of the planning study and would be completed in tandem. For more detailed timelines see Section VI.

      - *A hydrologic determination of surface water availability for groundwater storage during high stream flow periods, including potential rates, durations, and volumes.*
      - *An evaluation of source water quality and treatment issues associated with groundwater storage during periods when source water may be available.*
      - *A hydrogeologic assessment of the potential suitability of alluvial and basalt aquifers in the watershed for groundwater recharge, storage, and recovery to augment stream flows and replenish potentially declining basalt aquifers that are being utilized for municipal purposes and for agricultural irrigation.*
      - *Identification of surface water rights that could be exchanged for new groundwater storage rights.*
      - *Evaluation of water conservation opportunities coupled with new groundwater storage options that would result in increased stream flows during low stream flow periods.*
      - *Identification of the potential environmental impacts of implementing the various storage alternatives.*
      - *Preliminary public outreach to inform and obtain comments from various entities and agencies that would be impacted by the proposed alternatives.*
      - *Written report summarizing the results of the study, identifying alternatives that should be considered for implementation, outlining conceptual costs of implementation, and providing recommendations for further evaluation and analysis.*

   b. When the planning study could begin.

      June 2012

2. Provide a description of the relevant professional qualifications and/or experience of the person(s) that will play key roles in performing the planning study. If the personnel have not been decided upon, include a

description of the professional qualifications and/or experience of the person(s) you anticipate will play key roles in performing the planning study.

The Grande Ronde Model Watershed (GRMW) is the principal project proponent for this study, and its executive director, Jeff Oveson, will administer the project funding and serve as the liaison to coordinate activities with various stakeholder groups.

The planning study is proposed to be completed by Anderson-Perry & Associates, Inc. (AP) and their staff of engineers and environmental scientists, in conjunction with GSI Water Solutions, Inc. (GSI) and their staff of geologists and hydrogeologists. AP has worked in Union County for over 30 years, and both firms have completed above-ground and below-ground storage projects in the area. Most recently, AP and GSI worked together to complete a very successful ASR project for Baker City and recently completed the 1069 grant funded study to evaluate AR and ASR opportunities for the Catherine Creek Watershed. GSI is currently working on eight ASR projects in Columbia River Basalt aquifers in Oregon, and also is working with the Walla Walla Watershed Council in implementing AR pilot projects at several locations in the Walla Walla Valley to restore stream flows.

AP contributes a broad-based familiarity with the surface water management issues that are relevant to Union County, having prepared many Water System Master Plans and Water Management and Conservation Plans for municipalities in the area. Factors analyzed in detailed planning documents completed by AP on behalf of the cities of La Grande, Union, Wallowa, and Lostine include groundwater availability and quality and the hydrology of stream flows in the watersheds. Additionally, AP is experienced in evaluating the relationship and interactions between wells and aquifers in the study area. AP also has an on-call agreement with the GRMW under which the firm has completed multiple hydrologic and environmental analyses for the implementation of bridge and culvert improvements for fish passage.

A document summarizing the resumes of the key personnel from both firms assigned to tasks associated with the study as described above is included as an attachment. Full, detailed resumes and descriptions of relevant past projects are available upon request from AP and GSI.

3. What local, state or federal project permitting requirements/issues do you anticipate in order for the planning study to be conducted?

There are no anticipated permitting requirements for completing the proposed study. However, there would be permitting requirements associated with implementing any of the alternatives being investigated. The proposed work elements include the identification of permitting requirements and the permitting pathway. See the response to question No. 6 in Section B for more details about anticipated permitting requirements associated with implementing the studied alternatives.

4. Are permits/governmental approvals required for the planning study? If yes, indicate whether you have obtained the necessary permits/governmental approval. If you have not obtained the necessary permits/governmental approval, describe the steps you have taken to obtain them.

There are no known permit or government approvals required to complete this study.

5. Describe your goal (which must be based on evaluating the feasibility of developing a water conservation, reuse or storage project) and how this study helps to achieve the goal.

The goal of this study is to evaluate the feasibility of developing a cost-effective alternative for storing water during periods when water is available in the Upper Grande Ronde Basin and 1) releasing it for beneficial (either in-stream or consumptive) use during periods when water shortages exist and 2) mitigate potentially declining aquifer water levels. This planning study is designed to determine potential water availability, identify potential below-ground storage

alternatives, evaluate/identify water conservation opportunities, and identify any water quality concerns that may need to be addressed in order for groundwater storage to be implemented. This is a conceptual-level study that would analyze available data and identify alternatives that could be implemented in a practical manner. Additional, detailed analyses that would be accomplished in a second phase of detailed planning will be required for each alternative selected for further consideration.

6. Describe the technical aspects of the planning study and why your approaches are appropriate for accomplishing the goal of the planning study.

   There are three noted technical areas that need to be evaluated for this planning study to determine the feasibility of MUS. The first is a water availability determination, which will include a hydrologic evaluation of water availability (e.g., rate and timing of availability), coupled with an evaluation of source water quality for the season in which the water is determined to be available for groundwater storage. This is an important first step in order to analyze the amount of water that may be available to be stored. The water quality component is significant because, during many seasons when excessive flows exist in the watersheds, the water is highly turbid and of lower quality. Problematic water quality issues may limit the ability during these seasons to utilize the water in a project that incorporates ASR or AR as a storage component.

   The second technical area is a hydrogeologic evaluation of potential aquifers in which AR or ASR could be effectively used to augment stream flows and/or mitigate groundwater level declines. A key part of this study will evaluate the feasibility of using water stored below ground to augment in-stream flows to conserve, maintain, and enhance aquatic life, fish life, and other ecological values. If there are seasons when high-quality water is available from portions of the watershed, then a suitable aquifer for underground storage needs to be identified. Identification of a suitable aquifer for implementing one or more MUS alternatives, along with a cost analysis of implementing an underground storage project, would be important in determining the potential results of further pursuing such an opportunity. Important characteristics to consider in evaluating the hydrogeologic suitability of aquifers for ASR or AR applications include the geologic framework, which determines recharge feasibility and the fate of recharged water; aquifer hydraulic characteristics, which determine storage volumes and recharge and recovery rates; and the presence of nearby pumping wells and potential connections with surface water, which may determine the quantity of water available for recovery for its intended uses.

   The third technical area to be considered is an identification of environmental impacts resulting from the potential implementation of the studied alternatives. This analysis will be completed for the general areas that may be affected by the identified alternatives and the environmental resources within those areas. Potential environmental impacts of the alternatives will consider direct, indirect, and cumulative effects. Environmental resources to be considered include land use, important farmland/formally classified lands, floodplains, wetlands, cultural resources, biological resources, water quality issues, socio-economic/environmental justice issues, and other applicable miscellaneous issues. In addition, potential mitigation measures will be identified where possible in an effort to suggest methods of minimizing impacts to identified resources.

7. Describe the level of involvement, interest and/or commitment of different entities associated with the planning study (attach letters of support). Describe how these entities will benefit or be impacted by the planning study.

   Several entities are interested in the successful completion of this study. The GRMW has been asked by Union County to pursue this study in an effort to alleviate needs for additional water in the areas noted. There is an increasing level of competition between resource agencies, producers, and other state, national, and local interests for this water during critical times. The

National Marine Fisheries Service (NMFS), the Oregon Department of Fish and Wildlife (ODFW), and the U.S. Fish and Wildlife Service (USFWS) are interested in determining if there is any way to augment late season stream flows in order to alleviate potential stress on threatened and endangered species that utilize these streams.

Many studies have been completed in the past in an effort to address water storage concerns. Most of these studies have determined that additional consumptive and in-stream water is needed and would be the solution to many of the problems of water supply and stream flows in these areas. Chapter 5: Management Plan of the 2004 Grande Ronde Subbasin Plan used the Ecosystem Diagnosis and Treatment (EDT) approach required by the Northwest Power and Conservation Council (NPCC) to identify the primary habitat attributes that limit the abundance of spring/summer Chinook, summer steelhead, and bull trout in the Grande Ronde Subbasin. The EDT results concluded that one of the priority attributes to be managed and mitigated in the Upper Grande Ronde watershed is low stream flows. The biological objective with respect to low flows proposed in the Subbasin Plan is "to enhance low flow conditions such that they mimic the natural hydrograph to the extent possible, given limitations posed by agriculturally dependent water use in the region." The strategies discussed to achieve this objective include exploring the feasibility of water storage facilities (above- or below-ground) to enhance late season stream flow. The 1995 United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Grande Ronde Cooperative River Basin Study for Union County estimated the combined irrigation rights for the main sources of surface water diversion (Catherine Creek and the Grande Ronde River) are 678 cubic feet per second (cfs). This 1995 River Basin study reported that typical late season Grande Ronde River flows at La Grande drop to near 30 cfs, but the irrigation rights total 300 cfs. The need for supplemental water, especially during the mid- to late summer and early fall, could not be greater for both fish populations and agricultural producers, and the current water available simply cannot meet those needs.

Project proponents will include Union County and state and federal resource agencies. These entities will be involved up-front in a project kickoff meeting to help provide input on specific aspects of the study to be completed. These project proponents will also provide input as needed throughout the course of the study as well as oversight and review of the feasibility document when it is completed.

Section B. Unique Criteria

Instructions: Answer the set of questions below that applies to the type of planning study that this grant will fund.

☐ Water Conservation or ☐ Reuse

1. Water Conservation or Reuse projects that may result from this planning study are requested to be included in the Water Resources Department's "Inventory of Potential Conservation Opportunities". Though you may have already submitted this information earlier in the year through a separate survey, we ask that all applicants complete the information on the form provided at the end of this application. ☐ I have filled out the application or ☐ I have not filled out the application.

2. Describe the water supply need(s) that the project associated with the planning study is intended to meet. Applicant should reference supporting documentation that would be available upon request.

3. Explain how the associated project will mitigate the need to develop new water supplies and/or use water more efficiently. Reference documentation and/or examples of the success of similar or comparable water conservation/reuse projects that would be available upon request.

4. Explain how the project associated with the planning study will meet the water supply need(s), and indicate what percentage of that need will be met. (For example: If your water supply need is 20,000 acre-feet of additional water and the project will supply 10,000 additional acre-feet, 50% of your need will be met).

5. Provide data and information on the associated project and the project's sources of water supply:
   a. The location of the associated project. (Include the basin, county, township, range and section.)
   b. The name(s) and river mile(s) of the source water and what they are tributary to, if applicable.
   c. Environmental flow needs and water quality requirements of supply source water bodies and water bodies downstream of associated and/or affected return flows.
   d. Reliance on return flows by downstream water right holders.

6. Provide a review of the local, state, and/or federal permitting requirements and issues posed by the implementation of the project associated with the planning study.

☐ Above-Ground Storage

Please answer the following three questions **BEFORE** proceeding:

Will the project divert greater than 500 acre-feet of surface water annually? ☐ Yes ☐ No

Will the project impound surface water on a perennial stream? ☐ Yes ☐ No

Will the project divert water from a stream that supports sensitive, threatened or endangered species? ☐ Yes ☐ No

If you answered "Yes" to any one of these questions, by signature on this application, you are committing to include the following required elements in your planning study.

Describe how you intend to address the required elements in your planning study:

a) **Analyses of by-pass, optimum peak, flushing and other ecological flows of the affected stream and the impact of the storage project on those flows.**

b) **Comparative analyses of alternative means of supplying water, including but not limited to the costs and benefits of water conservation and efficiency alternatives and the extent to which long-term water supply needs may be met using those alternatives.**

c) **Analyses of environmental harm or impacts from the proposed storage project.**

d) **Evaluation of the need for and feasibility of using stored water to augment in-stream flows to conserve, maintain and enhance aquatic life, fish life and any other ecological values.**

Is the proposed storage project for municipal use?

☐ Yes ☐ No

If you answered "Yes," then describe how you intend to address the following required element in your planning study:

e) **For a proposed storage project that is for municipal use, analysis of local and regional water demand and the proposed storage project's relationship to existing and planned water supply projects.**

Proceed in answering the following questions:

1. Describe when and to what extent the project associated with the planning study includes provisions for using stored water to augment instream flows to conserve, maintain and enhance aquatic life, fish life or other ecological values.

2. Describe the water supply need(s) that the project associated with the planning study in intended to meet. Applicant should reference supporting documentation that would be available upon request.

3. Explain how the project associated with the planning study will meet the water supply need(s), and indicate what percentage of that need will be met. (For example: If your water supply need is 20,000

acre-feet of additional water and the project will supply 10,000 additional acre-feet, 50% of your need will be met).

4. Present convincing argument that there are no other reasonably achievable alternatives that would be able to meet the water supply need(s). Applicant may reference supporting documentation that would be available upon request.

5. Provide data and information on the associated project and the project's sources of water supply:
   a. The location of the associated project. (Include the basin, county, township, range and section.)

   b. The name(s) and river mile(s) of the source water and what they are tributary to, if applicable.

   c. Whether the project will be off-channel or on-channel.

   d. Water availability to meet project storage. (Typically, the Department evaluates new storage projects using a 50 percent water availability analysis.)

   e. Proposed purposes and uses of stored water.

   f. Environmental flow needs and water quality requirements of supply source water bodies.

6. Provide a review of the local, state, and/or federal permitting requirements and issues posed by the implementation of the project associated with the planning study.

☒ Storage Other Than Above-Ground [Including Aquifer Storage and Recovery (ASR)]

Please answer the following three questions **BEFORE** proceeding:

Will the project divert greater than 500 acre-feet of surface water annually?	☒ Yes	☐ No
Will the project impound surface water on a perennial stream?	☐ Yes	☒ No
Will the project divert water from a stream that supports sensitive, threatened or endangered species?	☒ Yes	☐ No

If you answered "Yes" to any one of these questions, by signature on this application, you are committing to include the following required elements in your planning study.

Describe how you intend to address the required elements in your planning study:

a) **Analyses of by-pass, optimum peak, flushing and other ecological flows of the affected stream and the impact of the storage project on those flows.**

The study will include gathering and summarizing annual flow data for the watershed, along with the main diversion flows. This will provide an indication of anticipated flushing flows, flood flows, low flows, etc. This analysis will also identify critical flow periods that would benefit ecologically from the release of stored water.

b) **Comparative analyses of alternative means of supplying water, including but not limited to the costs and benefits of water conservation and efficiency alternatives and the extent to which long-term water supply needs may be met using those alternatives.**

The study will evaluate water delivery and use efficiencies for surface water users with an estimate of the amount of water that could be conserved by piping ditches and increasing irrigation efficiencies. Water rights allocations and senior water rights holders will also be identified as part of the study. The study will identify any conservation alternatives and provide potential water savings and cost.

c) **Analyses of environmental harm or impacts from the proposed storage project.**

An evaluation of the long-term environmental impact from the proposed storage project will address benefits to threatened and endangered species and critical habitat and identify, if any, long-term negative environmental impacts. Impacts from construction, including increased noise and transportation, resulting from this project are expected to be temporary.

d) **Evaluation of the need for and feasibility of using stored water to augment in-stream flows to conserve, maintain and enhance aquatic life, fish life and any other ecological values.**

The study will include an engineering report that will summarize existing studies completed by resource agencies, identify stream flows needed to enhance ecological values, and evaluate the feasibility and need for using stored water to augment in-stream flows based on flow data development and alternatives evaluated.

Is the proposed storage project for municipal use?

☐ Yes ☒ No

If you answered "Yes," then describe how you intend to address the following required element in your planning study:

e) **For a proposed storage project that is for municipal use, analysis of local and regional water demand and the proposed storage project's relationship to existing and planned water supply projects.**

N/A

Proceed in answering the following questions:

1. Water Conservation or Reuse projects that may result from this planning study are requested to be included in the Water Resources Department's "Inventory of Potential Conservation Opportunities". Though you may have already submitted this information earlier in the year through a separate survey, we ask that all applicants complete the information on the form provided at the end of this application.
   ☒ I have filled out the application or ☐ I have not filled out the application.

2. Describe the water supply need(s) that the project associated with the planning study is intended to meet. Applicant should reference supporting documentation that would be available upon request.

   The water supply analysis associated with the planning study is intended to determine ways to meet the need for augmented in-stream flows for resource-based needs. Several studies that have identified these needs include subbasin plans, National Oceanic and Atmospheric Administration (NOAA) Fisheries Draft Recovery Plan, the Ecosystem Diagnosis and Treatment, the Wallowa County/Nez Perce Tribe Salmon Habitat Recovery Plan, etc. These plans are available from the GRMW upon request; pertinent information from these documents is excerpted and described below.

   The 2004 Grande Ronde Subbasin Plan prepared for the NPCC and GRMW clearly describes the competition between natural resources and irrigation needs as follows: "Unlike the previous two biological objectives [enhance channel conditions and sediment conditions] which can (in our opinion) be achieved while sustaining the economic concerns of the human community, the limiting factors that result from low flow-related impacts are a much less tractable problem. Human use of water in the arid west comes at the direct cost to aquatic species, and any attempt to retain more water in-stream will come at the expense of existing water-dependent practices (i.e., irrigated farming)." In northeast Oregon, the April 2008 draft of the Oregon Snake River Chinook and Steelhead Conservation and Recovery Plan identified five limiting factors in all spring/summer Chinook and summer steelhead populations, two of which are water quantity (primarily low summer flows) and water quality (primarily temperature). The Snake River Expert Panel convened to deliberate regarding the limiting factors and threats posed to anadromous fish species concluded that the threat category with the most key concerns was land use within tributary habitats, specifically impaired upstream and downstream movement of steelhead, impaired physical habitat quality, and reduced water quantity and/or modified hydrograph. These changes in the hydrograph alter the natural pattern of flows over the seasons, causing inadequate flow and other flow conditions that inhibit the development and survival of salmonids. For example, water quantity, specifically low summer flows, is identified as a primary factor limiting Chinook salmon populations in the upper Grande Ronde River system.

   The OWRD Summer Streamflow Restoration Priorities, as described in the maps developed by OWRD and ODFW in 2001, rank Water Availability Basin (WAB) #0110275 (Grande Ronde) as having a high need for flow restoration. The 1993 Final Report on Stream and Riparian Conditions in the Grande Ronde Basin prepared for the GRMW identifies streamflow depletion that creates "gaps" in salmon habitat to be of high priority as near-term restoration opportunity in the Grande Ronde Basin. The scientific and resource management community that is responsible for the well being of both fish habitiat and economic concerns such as agriculture agrees that the need for additional water supply to these watersheds is crucial to economic and environmental interests.

3. Explain how the project associated with the planning study will meet the water supply need(s), and indicate what percentage of that need will be met. (For example: If your water supply need is 20,000

acre-feet of additional water and the project will supply 10,000 additional acre-feet, 50% of your need will be met).

The objective of the study is to identify feasible alternatives that will meet the greatest need for supplemental water that exists in the Upper Grande Ronde Basin. The feasibility of MUS alternatives will be analyzed relative to the objective of augmenting Upper Grande Ronde stream flows by between 1 and 10 cfs during the summer and early fall, when stream flows are inadequate for fish passage and ecological health. This flow range was identified as a potentially economically feasible range that would still provide benefit.

4. Present convincing argument that there are no other reasonably achievable alternatives that would be able to meet the water supply need(s). Applicant may reference supporting documentation that would be available upon request.

   The watershed identified for this study has water rights that exceed the in-stream flow and sustainable pumping capacity of the aquifers available during much of the irrigation season. The agricultural producers rely on water for growing crops and providing the basis for the livelihoods of much of the population in Union County. The NRCS has been working for years to improve the irrigation efficiencies of many of these producers and mitigating the effects of channelization, removal of shade trees from riparian areas, levees and dikes, removal of wetlands, and other agricultural practices that have negtively impacted fish habitat. According to the Salmon Recovery Plan referenced previously, many landowners have changed their approaches to farming and grazing to assist important ecosystem processes and functions to recover. Stream restoration and easement programs such as the Conservation Reserve Enhancement Program have allowed miles of stream adjacent to farmland in Union County to recover.

   Even through the continued implementation of conservation and efficiency projects, there is still insufficient water to meet the needs of both the producers and the in-stream natural resources. The Grande Ronde Subbasin Plan states that most surface and groundwater is used for irrigation, for which there are too many small water rights holders for accurate records to be kept. Despite the lack of details regarding appropriated water supply, information in the Subbasin Plan from Shad Hattan, OWRD Watermaster, makes clear that it is known that the water in the Grande Ronde River subbasin is fully appropriated; during the summer, there is no remaining unappropriated water. With all rights to existing water appropriated by landowners and other users and conservation/efficiency practices already widely employed, it will be very difficult to meet the water supply needs in the Grande Ronde basin without additional storage capacity.

5. Provide data and information on the associated project and the project's sources of water supply:
   a. The location of the associated project. (Include the basin, county, township, range and section.)

      The location of the associated project is the Grande Ronde River upstream of the City of La Grande. The focus area for the Grande Ronde River is located in but not fully limited to T2S, R37 and 38E and T3S R37 and 38E.

   b. The name(s) and river mile(s) of the source water and what they are tributary to, if applicable.

      The Grande Ronde River (209 river miles) is a tributary to the Snake River with its headwaters originating in the Elkhorn Mountains.

c. Water availability to meet project storage. (Typically, the Department evaluates new storage projects using a 50 percent water availability analysis.)

The water availability for storage will be evaluated as part of this analysis. The study will evaluate water availability under 50 percent exceedance and 80 percent exceedance flows to identify alternatives required to provide sufficient storage to augment stream flows between 1 and 10 cfs during the late summer and fall low flow seasons.

d. Proposed purposes and uses of stored water.

The purpose and use of stored water will be for in-stream flow augmentation, groundwater recharge, and groundwater storage and recovery.

e. Environmental flow needs and water quality requirements of source water.

Generally speaking, the additional environmental flow need has been initially identified at 10 cfs. The water quality requirements of the supply source are dependent on the type of storage facility being evaluated during the study, including AR and ASR.

f. Water quality, storage capacity, and geologic aspects of the associated aquifer(s) and/or recharge zones.

Target aquifers for the study are hosted by basalt flows of the CRBG and by alluvial sedimentary deposits overlying the CRBG. CRBG aquifers are used extensively in Oregon and Washington for ASR applications. Coarse-grained alluvial sedimentary deposits are commonly suitable for AR and/or ASR applications. The central objective of the study is to evaluate the suitability of each of these aquifer units for accomplishing the project goals

6. Provide a review of the local, state, and/or federal permitting requirements and issues posed by the implementation of the project associated with the planning study.

The permitting requirements that would need to be addressed for implementation of any project associated with this planning study would be dependent on the type of storage that is determined most feasible, whether it be implemented under the ASR or AR rules. These requirements could include water rights and permits from OWRD, fill/removal permits from the U.S. Army Corps of Engineers and the Oregon Department of State Lands, and planning permits from Union County (land use permits). Review of water quality and air quality is typical in conjunction with a fill/removal permit. National Environmental Policy Act (NEPA) documentation would most likely be required in the form of an Environmental Assessment or Environmental Impact Statement. A permit from the Department of Geology and Mineral Industries may be needed. Consultation with resource agencies such as NMFS, USFWS, and ODFW will also be needed in addition to consultation with tribal agencies and clearances for archeological resources.

Permitting requirements and issues associated with the implementation of any alternative under the ASR rules might include:

- *Agreements with entities holding surface water rights to participate in an ASR program, exchange of surface water rights for groundwater storage, or applying for a new surface water permit for streamflow enhancement, if allowed under the basin plan and source water is available for diversion relative to 80 percent exceedance flows.*
- *Land use approval for storage facility sites.*
- *ASR Limited License.*
- *Underground Injection Control (UIC) permit for each well proposed for ASR uses.*

- *Peak flow analysis.*
- *UIC permit for each well proposed for ASR uses.*
- *Agreements with landowners for siting diversion and storage facilities.*

Permitting requirements associated with the implementation of any alternative involving AR might include:

- *File for new surface water permit to appropriate surface water during high flow (winter/spring) periods.*
- *Secondary groundwater permit for beneficial use of water (depending on how implemented).*
- *Artificial Recharge Limited License for pilot testing.*
- *Artificial Recharge Permit upon completion of pilot testing.*
- *ODFW waiver requirements for source water that does not have an in-stream water right or minimum perennial flow. [WB1]*
- *Peak flow analysis.*
- *Land use approval for storage facility sites.*
- *Source water must satisfy DEQ permitting process.*
- *Agreements with landowners for use of land for recharge purposes.*

V. Match Funding Information

Applicants must demonstrate a minimum dollar-for-dollar match based on the total funding request. The match may include a) secured resources, b) previously expended resources, and/or c) pending resources. For secured funding, you must attach a letter of support from the match funding source that specially mentions the dollar amount shown in the "Amount/Dollar Value" column. For pending resources, documentation showing a request for the matching funds must accompany the application. For resources that have been previously expended, the expenditure must have occurred on or after July 1, 2011. Resources expended prior to July 1, 2011 are not eligible for match purposes.

The Type of matching funds may include:	The Status of matching funds may include:
• The value of in-kind labor, equipment rental and materials essential to the planning study provided by the applicant or partner*.	• Secured funding commitments from other sources.
• Cash is direct expenditures made in support of the planning study by the applicant.	• Associated and documented expenditures for the planning study from non-program sources incurred on or after July 1, 2011.
	• Pending commitments of funding from other sources. In such instances, Department funding will not be released prior to securing a commitment of the funds from other sources. Pending commitments of the funding must be secured within 12 months from the date of the award.

*"Partner" means a non-governmental or governmental person or entity that has committed funding, expertise, materials, labor, or other assistance to a proposed planning study. OAR 690-600-0010.

Match Funding Source (if in-kind, briefly describe the nature of the contribution)	**Type** (✓ **One)**	**Status** (✓ **One)**	**Amount/ Dollar Value**	**Date Match Funds Available** *(Month/Year)*
Grande Ronde Model Watershed (Bonneville Power Administration)	☒ cash ☐ in kind	☒ secured ☐ expended ☐ pending	*$56,000.00*	*June 2012*
	☐ cash ☐ in kind	☐ secured ☐ expended ☐ pending		
	☐ cash ☐ in kind	☐ secured ☐ expended ☐ pending		
	☐ cash ☐ in kind	☐ secured ☐ expended ☐ pending		
	☐ cash ☐ in kind	☐ secured ☐ expended ☐ pending		
	☐ cash ☐ in kind	☐ secured ☐ expended ☐ pending		
	☐ cash ☐ in kind	☐ secured ☐ expended ☐ pending		
	☐ cash ☐ in kind	☐ secured ☐ expended ☐ pending		
	☐ cash ☐ in kind	☐ secured ☐ expended ☐ pending		
	☐ cash ☐ in kind	☐ secured ☐ expended ☐ pending		

VI. Project Planning Study Schedule

Estimated Project Duration: June 2012 to June 2013

Place an "X" in the appropriate column to indicate when each element (key task) of the project will take place.

	2012		2013			
Project Planning Study Element (Key Tasks)	**3rd Qtr**	**4th Qtr**	**1st Qtr**	**2nd Qtr**	**3rd Qtr**	**4th Qtr**
Stream Flow and Water Availability Evaluation	X	X				
Water Quality and Treatment Evaluation		X	X			
Hydrogeological Evaluation of Basalt and Alluvial Aquifers	X	X	X			
Evaluation of Water Right Exchange Opportunities		X	X			
Evaluation of Conservation Opportunities		X	X			
Identification of Environmental Impacts		X	X			
Public Information Program and Agency Review			X			
Written Report		X	X	X		
Administration and Coordination	X	X	X	X		

VII. Project Planning Study Budget

Section A

Please provide an estimated line item budget for the project planning study. An example would include: labor, materials, equipment, contractual services and administrative costs.

Line Items *Note: Administrative costs may not exceed 10% of the total funding requested by the Department.*	**Unit * Number** *(e.g. # of hours)*	**Unit Cost** *(e.g. hourly rate)*	**In-Kind Match**	**Cash Match Funds**	**OWRD Grant Funds**	**Total Cost**
Study of Upper Grande Ronde Basin	*833*	*$120/hr*		*50,000.00*	*50,000.00*	*100,000.00*
Administrative Costs	*267*	*45*		*6,000.00*	*6,000.00*	*12,000.00*
Total for Section A				*56,000.00*	*56,000.00*	*112,000.00*
Percentage for Section A				***50%***	***50%***	***100%***

** Note: The "Unit" should be per "hour" or "day" – not per "project" or "contract."*

Section B

If Grant amount requested is $50,000 or greater, you MUST complete Section B. Elements (key tasks) in Section B should be the same as the elements (key tasks) in Section VI (Project Planning Study Schedule).

Project Planning Study Element (Key Tasks)	**In-Kind Match**	**Cash Match Funds**	**OWRD Grant Funds**	**Total Cost**
Stream Flow and Water Availability Evaluation		*3,100*	*3,100*	*6,200*
Water Quality and Treatment Evaluation		*7,600*	*7,600*	*15,200*
Hydrogeological Evaluation of Basalt and Alluvial Aquifers		*13,200*	*13,200*	*26,400*
Evaluation of Water Right Exchange Opportunities		*2,500*	*2,500*	*5,000*
Evaluation of Conservation Opportunities		*2,500*	*2,500*	*5,000*
Identification of Environmental Impacts		*2,800*	*2,800*	*5,600*
Public Information Program and Agency Review		*5,000*	*5,000*	*10,000*
Written Report		*13,300*	*13,300*	*26,600*
Administration and Coordination		*6,000*	*6,000*	*12,000*
Total for Section B		*56,000*	*56,000*	*112,000*

Totals in Section B must match the totals in Section A

APPLICATION CHECKLIST

Instructions: Use this form as an important cross-check to ensure that your application is complete. An incomplete application will jeopardize your application's review. **This form does not need to be included in your application packet.**

General

If submitting electronically the preferred format is either a Microsoft word or Adobe pdf

- ☐ Only one application is included with the packet (other applications must be sent separately).

Paper submissions only

- ☐ The application and attachments are on 8 ½" x 11" paper.
- ☐ The application and attachments are single sided.
- ☐ The application and attachments are not stapled or bound.

Section I – Grant Information

- ☐ All questions in this section have been answered.
- ☐ The Grant Dollars Requested and the Total Project Cost mirror the totals shown in Section VII.

Section II – Applicant Information

- ☐ All contact information – for the applicant(s) and fiscal officer – is complete and current.
- ☐ The certification is signed by an authorized signer.

Section III – Planning Study Summary

- ☐ A brief summary, of no more than 150 words, is complete.

Section IV – Grant Specifics

- ☐ All questions in Section A have been answered.
- ☐ If the type of planning study is Water Conservation, Reuse or Storage Other Than Above-Ground, a Request to be added to the Oregon Water Resources Department's Inventory of Potential Conservation Opportunities has been completed. (Form is located at the end of this document.)
- ☐ All applicable questions for the type of grant requested have been answered.

Section V – Match Funding Information

- ☐ Applicant has identified that at least 50% match has been sought, secured or expended.
- ☐ Letters of support are included for "secured" match funding sources.
- ☐ Documentation is included for "expended" match funds.
- ☐ Documentation is included for "pending" match funds.

Section VI – Project Planning Study Schedule

- ☐ Estimated project duration dates have been supplied.
- ☐ All elements (key tasks) of the project are listed.

Section VII – Project Planning Study Budget

- ☐ Section A is complete.
- ☐ Administration costs do not exceed 10% of the requested OWRD Grant Funds.
- ☐ If grant amount requested is $50,000 or greater, Section B has been completed.
- ☐ All elements (key tasks) listed in Section B mirror the elements listed in Section VI.

Request to be added to the Oregon Water Resources Department's

Inventory of Potential Conservation Opportunities

The purpose of this inventory is to catalogue potential conservation projects that water users themselves have identified but not yet pursued because of financial, institutional, or other barriers. For the purpose of this application, water storage other than above-ground are included as conservation opportunities and are most likely capital conservation projects.

As a water provider or user, you know your water demands and water conservation opportunities better than anyone. We would appreciate your assistance with this important data collection effort by completing this survey. Your participation will help provide the building blocks we need to begin to identify and achieve potential future water supplies. Please answer the questions as completely as possible, to the best of your ability. We appreciate your help with this important effort.

This inventory of already-identified, potential conservation projects includes both capital and programmatic projects. Capital projects are defined as one-time, large investments resulting in water savings. Examples include reclaimed water plants, reservoir covering, transmission line upgrades reducing leaks, or industrial engineering modifications to re-use process water. Programmatic projects are defined as ongoing investments resulting in water savings. Examples include facilitating upgrades to more efficient water using devices (e.g., distributing free showerheads, toilet rebates) and distribution system leak detection programs. The conservation inventory is primarily intended to include "planned" projects rather than projects that are currently being implemented. However, currently active programmatic projects may be listed if they will continue or expand in future years. The inventory of projects submitted will be compiled by county or basin.

Examples are provided below.

	Example **Capital Conservation Project**	**Example** **Programmatic Conservation Project**
Project Description Provide brief sentence	Line 3 miles of unlined ditch.	Toilet rebate program for residential customers
Estimated Future Savings Provide brief sentence, including information regarding savings seasonality.	20 acre feet of water per year	If we spend our full budget each year, we estimate 50,000 gallons of water save per year
Seasonality Indicate what part of the year savings are generated (e.g. year-round; summer only; etc.).	Peak (irrigation) season savings.	Savings should occur throughout the year.
Estimated Future Costs Provide brief sentence.	$500,000 total project costs.	$40,000 a year.
Implementation Schedule Provide brief sentence.	Not set. Have conducted cost and savings estimate, but still seeking funding.	We started the program in 2005 and plan to implement until 2015.
Project Funded? Designate either "yes", "no", or provide brief sentence if necessary	No. Pursuing grant funding.	Yes. IN our CIP through the next 5 years.

To add a project to the inventory of potential conservation opportunities, please provide the following information for each conservation project.

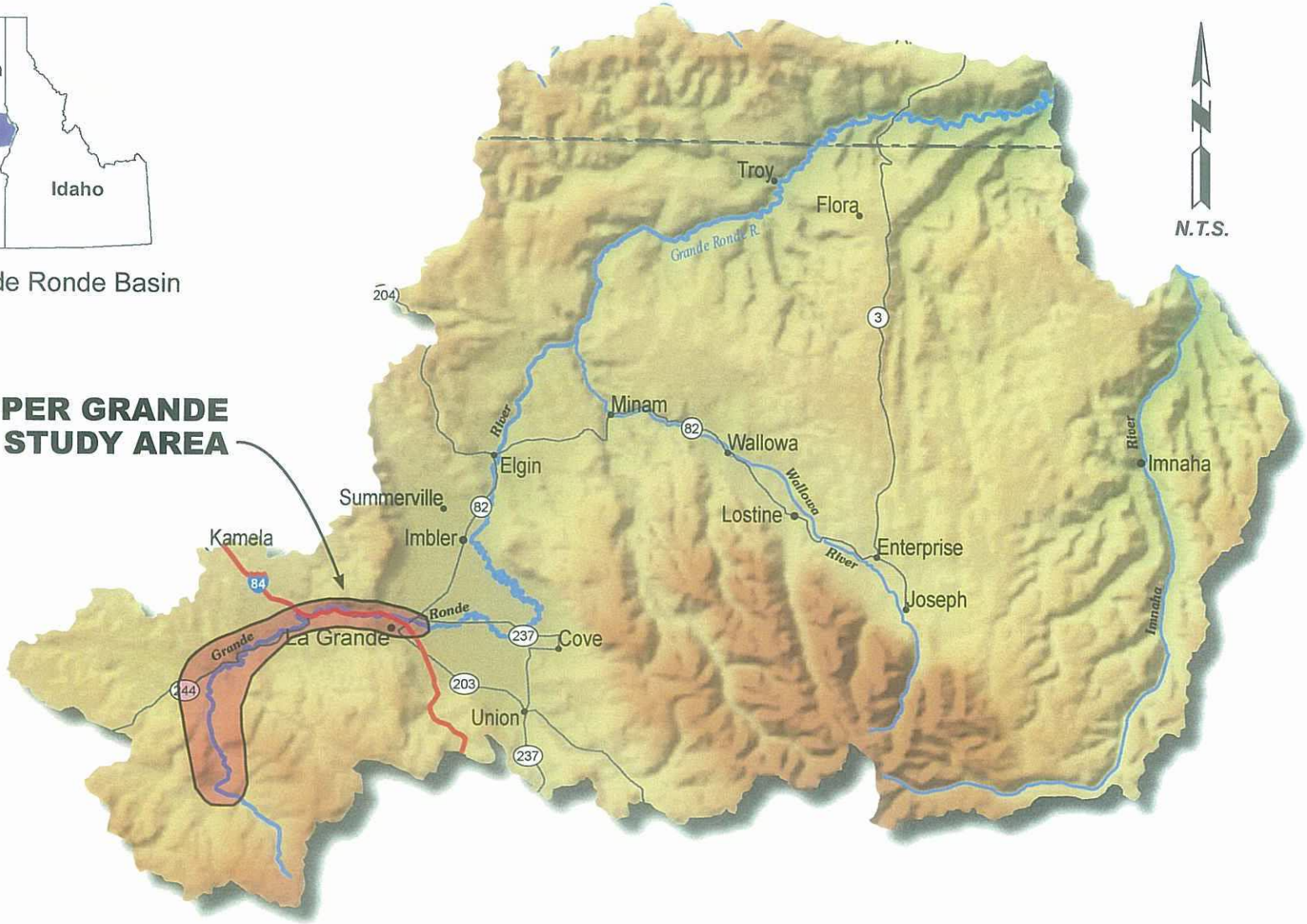
This is a ☐ Capital Conservation Project ☒ Programmatic Conservation Project	
Project #/Name	**Upper Grande Ronde Storage Planning Study**
Project Description	Planning study to evaluate the potential applications of managed underground storage technques in the Upper Grande Ronde watershed toward the goal of determining feasible ways to augment late season stream flows that are currently consumed by irrigation as well as to help mitigate declining groundwater tables. Conservation opportunities for existing water uses will be evaluated as part of the planning effort.
Estimated Future Savings	The planning study will identify conservation opportunities.
Seasonality	The primary conservation opportunity is during irrigation periods.
Estimated Future Costs	The cost of potential conservation activities will be identified during the planning study.
Implementation Schedule	Implementation of the proposed study will begin June 2012. Potential conservation activities could occur once the study is complete.
What are the barriers to implementation, e.g. funding?	Barriers to implementation include funding, cooperation of water rights holders, unforeseen environmental impacts, and overall cost-benefit values.
This is a ☐ Capital Conservation Project ☐ Programmatic Conservation Project	
Project #/Name	
Project Description	
Estimated Future Savings	
Seasonality	
Estimated Future Costs	
Implementation Schedule	
What are the barriers to implementation, e.g. funding?	

- Include this form with your application -

Job# 81-39-030 Dec. 9, 2011 lbauer

Location of Grande Ronde Basin

PROPOSED UPPER GRANDE RONDE BASIN STUDY AREA



anderson perry & associates, inc.

GRANDE RONDE MODEL WATERSHED
UPPER GRANDE RONDE BASIN STORAGE STUDY
1069 GRANT APPLICATION

LOCATION MAP

FIGURE
1

Resume Summaries for Key Anderson·Perry & Associates, Inc., and GSI Water Solutions, Inc., Personnel

Brett Moore, P.E. (Anderson·Perry [AP]) – Hydrologic Engineer

Brett is a professional engineer registered in Oregon and Utah with an M.S. in Water Resource Engineering from Brigham Young University. Brett is the director of AP's Natural Resources Group, a member of the Board of Directors, and is involved with the planning, design, and construction administration of natural resources management projects, including stream stabilization and restoration, watershed assessment, water diversion, piping, and water quantity and quality control. Brett has **16** years of engineering experience and has been responsible for the successful completion of many water resources projects. He specializes in stream restoration design, stream intake structures, fluvial geomorphology, and irrigation systems. Brett completed a major wetland improvements project using reclaimed water for the City of La Grande, which has received national recognition and awards. Brett was also a project engineer for the Grande Ronde Model Watershed's Upper Catherine Creek Storage Feasibility Study, which evaluated the feasibility of the use of managed underground storage (MUS) alternatives, aquifer storage and recovery (ASR), or artificial recharge (AR) for subsurface storage in the upper Catherine Creek watershed to protect and enhance stream flows. Brett's unique combination of technical skills in engineering, water resources, water quality, and permitting, along with his experience with interdisciplinary teams, allows him to solve problems effectively and practically.

Becky Sheridan, P.E. (AP) – Project Engineer

Becky is a project engineer registered in Oregon with a B.S. in Civil Engineering from the Oregon Institute of Technology. She has over **23** years of civil engineering experience in the planning, design, and construction of water, wastewater, stormwater, bridge, site development, subdivisions, and residential and commercial structural projects. Becky was a project engineer for the Grande Ronde Model Watershed's Upper Catherine Creek Storage Feasibility Study. Becky collected and analyzed existing stream flow data for evaluation of critical periods for water storage and stream flow enhancement and the protection of required ecological flows for stream health and fish migration for this project.

Lyle Umpleby (AP) – Technical Designer

Lyle is an irrigation system designer with AP who brings **15** years of experience working with rural landowners on irrigation efficiency projects. He holds a B.S. in Agricultural Engineering Technology from Oregon State University. In his 7 years at AP, Lyle has completed design on 28 irrigation efficiency projects for the Natural Resources Conservation Service (NRCS). Before joining AP, he was the district manager of the Powder Valley Water Control District in Baker County. His eight years of experience as district manager included management of irrigation storage and delivery systems, development of accounting and planning procedures, mapping of district water rights with GIS, coordination of water distribution and landowner water rights with the watermaster's office, and supporting the NRCS work to replace the District's south pipeline.

Chas Hutchins, P.E. (AP) – Staff Engineer

Chas is a staff engineer with AP who provides engineering services in various disciplines, including stream restoration, irrigation diversions, pipelines, and construction engineering. He holds a B.S. in Civil Engineering from Brigham Young University and has **8** years of

professional experience. Chas has completed a "Fluvial Geomorphology for Engineers" course with Dave Rosgen, a recognized expert in this arena. He has performed design and inspection services along with construction management and engineering services on various engineering projects. Daily inspection duties have included oversight of the installation of pressurized irrigation, storm drain, sanitary sewer, and culinary water systems.

Catie Kerns (AP) – Environmental Analyst

Catie is a natural resources specialist and the manager of AP's Natural Resources Group. Catie holds a B.S. in Environmental Economics, Policy, and Management from Oregon State University and has **6** years of experience with professional natural resources coordination in an interdisciplinary team environment. Catie oversees environmental processes and facilitates workflow from project conception to completion. Her work includes environmental planning, review, permitting, and mitigation for public and private projects. She prepares documents and oversees compliance for state and federal laws including the Endangered Species Act (ESA), Clean Water Act, National Historic Preservation Act, National Environmental Policy Act (NEPA), and their state counterparts. Such documents include NEPA Environmental Reports, State Environmental Policy Act Checklists, Environmental Compliance Plans, U.S. Army Corps of Engineers 404/Section 10 Permits, Water Quality Certifications, Biological Assessments, Wetland Mitigation Plans, Monitoring Plans, Critical Area Reports, etc. Catie also has experience in watershed planning, irrigation, range management, environmental economics, and natural resources facilitation. With a multidisciplinary background, Catie is able to efficiently identify potential issues and streamline the environmental process.

Sue Brady (AP) – Biologist

Sue is an environmental specialist/biologist in AP's Natural Resources Group and is involved in environmental review, permitting, and mitigation for public projects. Sue holds an M.S. in Marine Biology from the University of North Carolina at Wilmington and has over **17** years of experience in the environmental and biology fields. Sue has been involved in environmental reviews associated with a variety of project types, including irrigation improvements, road improvements, culvert replacement, mitigation site design and monitoring, and stream habitat improvements. Sue's responsibilities for these projects include preparing Biological Assessments and other ESA documentation, permit applications, and wetland delineations.

Adam Sussman (GSI) – Water Rights Specialist

Adam Sussman is a senior water resources consultant with more than **18** years of experience in water rights and water law, including the development and implementation of statewide policies and programs. His educational background includes an M.S. in Resource Geography from Oregon State University and a B.S. in Geography/Environmental Studies from the University of California at Santa Barbara. He has an extensive background in water rights issues, including in-depth knowledge of state statutes, administrative rules, and water resources policy, which is particularly helpful to clients who need assistance with water resources planning. He has experience working with water suppliers, consultants, attorneys, stakeholder groups, and private citizens to resolve complex contested water rights issues.

Jeff Barry, R.G., Certified Water Rights Examiner (CWRE) (GSI) – Senior Hydrogeologist

Jeff Barry is a senior hydrogeologist with more than **25** years of experience conducting hydrogeologic and groundwater resource evaluations. He holds an M.S. in Hydrogeology/ Hydrology from the University of Nevada at Reno and a B.S. in Resource Management from Humboldt State University and is a registered geologist and a certified water rights examiner in Oregon. Since 1990, he has been instrumental in the development of ASR in the Pacific Northwest and has assisted with the development of legislation and permitting requirements for ASR projects in Oregon. He is experienced in all aspects of aquifer storage program development under Oregon's ASR and AR rule sets from feasibility studies through full-scale operations. He also is experienced in production and collector well siting, design, installation, rehabilitation, and testing, as well as well field capacity and siting studies and permitting. He has a strong working knowledge of state regulatory programs related to groundwater protection and water rights. Jeff is the technical lead for the Umatilla Basin AR and ASR Feasibility Study, which is currently in initial pilot testing phases. Jeff is a founding principal of GSI.

Kevin Lindsey, Ph.D. (GSI) – Senior Hydrogeologist

Kevin Lindsey is a senior hydrogeologist with **29** years of experience in geology and hydrogeology, including geologic mapping; geologic database construction and modeling; geotechnical, vadose zone, and groundwater well logging; hydrogeologic characterization and monitoring of sediment and basalt aquifers; and teaching introductory and upper division geology courses. Most of this experience was gained in the Pacific Northwest as a postdoctoral researcher at Washington State University and the Hanford Site and as a private consultant. His educational background includes a Ph.D. from Washington State University, an M.S. from Idaho State University, and a B.S. from the University of Missouri-Columbia in the field of Geology. Kevin's expertise includes the hydrogeology of clastic sedimentary deposits and the Columbia Basin and the Columbia River Basalt Group. His work focuses on artificial recharge; assessment of groundwater quality, quantity, and supply; controls and characteristics of surface water-groundwater continuity; impacts to shallow groundwater development; and environmental monitoring and permitting for projects with the potential to affect groundwater. Kevin is managing several surface recharge projects in the Walla Walla Basin being conducted for ecological benefits.

Terry Tolan, R.G. (GSI) – Senior Hydrogeologist

Terry Tolan is a senior hydrogeologist with **29** years of experience working in the Pacific Northwest and holds an M.S. and B.S. in Geology from Portland State University. He is a recognized expert on the geology, hydrogeology, and structural geology of northwest Oregon, southwest Washington, and the Columbia Plateau. He specializes in the hydrogeology and stratigraphy of the Columbia River Basalt Group; geology and tectonics of the Willamette Valley, Portland/Tualatin Basins, and the Columbia Plateau; stratigraphy and hydrogeology of the suprabasalt sediments; volcanic geology; geologic mapping; geologic/hydrogeologic characterization; and water supply well design and construction. Terry is author or co-author of numerous maps and publications on the Columbia River Basalt Group.

Walter Burt, R.G. (GSI) – Senior Hydrogeologist

Walter Burt is a senior hydrogeologist with more than **22** years of experience managing groundwater resources projects in the Pacific Northwest. His educational background includes an

M.S. in Groundwater Hydrology/Geology from the University of Idaho and a B.A. in Environmental Studies/Geology from Middlebury College. He was involved with rulemaking for ASR in Washington State and has completed aquifer recharge concept evaluations, feasibility studies, and pilot testing in Oregon and Washington. He specializes in aquifer characterization and conceptual model development of complex aquifer systems in connection with surface water. He also is experienced in production well siting, design, installation, diagnostics, and rehabilitation. Walter was the lead hydrogeologist for the recently completed Senate Bill 1069-funded Upper Catherine Creek Storage Feasibility Study. He is a founding principal of GSI and is a registered geologist in Oregon and a licensed hydrogeologist in Washington.

Jason Melady, R.G., CWRE – Senior Hydrogeologist

Jason has over **10** years of experience conducting hydrogeologic investigations supporting water supply, AR, and ASR projects. He has worked on more than 10 AR and ASR projects ranging from feasibility assessments to pilot testing and operations. In addition to his technical background, Jason is a CWRE in the State of Oregon and has a broad understanding of water law and experience with AR and ASR project permitting. Recently, Jason assisted a project team complete an AR/ASR evaluation in the Catherine Creek watershed to assess the feasibility of storing excess wintertime stream flow for the purpose of stream flow enhancement during critical summer and fall fish migration periods.

UNION COUNTY
BOARD OF COMMISSIONERS

STEVE McCLURE, Commissioner
MARK D. DAVIDSON, Commissioner
WILLIAM D. ROSHOLT, Commissioner

1106 "K" AVENUE LA GRANDE, OR 97850 PHONE (541) 963-1001 FAX (541) 963-1079 TTY 1-800-735-1232

December 1, 2011

Bill Fujii
Grant Program Specialist
Water Conservation, Reuse and Storage Grant Program
Administrative Services Division
Water Resources Department
725 Summer Street NE, Suite A
Salem, Oregon 97301

Dear Mr. Fujii,

The Union County Board of Commissioners is writing in support of the Grande Ronde Model Watershed (GRMW) as it seeks to attain funding through the Oregon Department of Water Resources Conservation/Reuse/Storage Grant Programs (SB 1069).

Many of the streams and rivers in the Grande Ronde sub basin are flow-challenged in later summer, and at the same time critical to the health of farms, fish, and people of the region. It is time to examine and understand the potential for alternate forms of water storage that could serve to enhance the availability of water for these often competing uses.

The GRMW will work with their many partners including the Nez Perce Tribe, Confederated Tribes of the Umatilla Reservation, Bureau of Reclamation, Oregon Department of Geology and Mineral Industries, Oregon Department of Water Resources, both Union and Wallowa Soil & Water Conservation Districts, both Union and Wallowa County governments, local irrigators and other water dependent interests in assessing the potential for aquifer storage and/or aquifer storage and recovery in the aforementioned locations.

Demands on water resources are likely to increase. Understanding the potential of the aquifers of the Grande Ronde sub basin will enhance the opportunities of local partners to assure a plentiful supply of water for farms, fish and people in the future.

Sincerely,

Steve McClure	Mark D. Davidson	William D. Rosholt
Chairman	Commissioner	Commissioner

OREGON STATE SENATE
DAVID NELSON
STATE SENATOR
DISTRICT 29

December 4, 2011

Bill Fujii
Grant Program Specialist
Water Conservation, Reuse and Storage Grant Program
Administrative Services Division
Water Resources Department
725 Summer Street NE, Suite A
Salem, Oregon 97301

Dear Mr. Fujii,

I am pleased to support the Grande Ronde Model Watershed (GRMW) as it seeks to attain funding through the Oregon Department of Water Resources Conservation/Reuse/Storage Grant Program (SB 1069).

Many of the streams and rivers in the Grande Ronde sub basin are flow-challenged in later summer, and at the same time critical to the health of farms, fish, and people of the region. It is time to examine and understand the potential for alternate forms of water storage that could serve to enhance the availability of water for these often competing uses.

GRMW is well suited to coordinate this assessment and present options for storage and use to landowners, environmental interest and local municipalities through their network of partners from Tribal, local, state and federal governments.

Thank you for your consideration of the GRMW grant request.

Sincerely,

David Nelson

David Nelson
Oregon State Senator

Office: 900 Court St NE, Salem, OR 97301 - Phone: (503) 986-1729
District: 1407 NW Horn, Pendleton, OR 97801