

PROPOSAL FOR ELEMENTS OF BIG WOOD GROUND WATER MANAGEMENT PLAN
BIG WOOD LITTLE WOOD WATER USERS ASSOCIATION and BIG WOOD CANAL COMPANY

October 29, 2021

Through intensive investigation over the past years, and development of the Big Wood Basin hydrologic model, coupled with extensive analysis and subsequent theoretical evaluations by expert and lay persons involved, the following common understandings have been derived.

- A. Surface and ground water are highly connected and are essentially the same source. Due to the relatively small volume and alluvial nature of the basin, ground water pumping can rapidly deplete or alter surface water flows in the basin, especially in years of low river flows as a result of below average snowpack. In point of fact, groundwater pumping activities from the confined aquifer have drastically reduced output of historic artesian wells within the lower Bellevue Triangle, as well as highly influenced the observed flows at Silver Creek and to some extent at Stanton Crossing.
- B. The holding characteristics of the Big Wood aquifer in terms of retention period of recharge activities is relatively short. Recharge activities in the basin to support flows at Silver Creek in part represent a mere reallocation of the Big Wood River water resource from the west to the east outlets of the Big Wood Basin, with the majority of the positive impact to the unconfined aquifer, which exhibits a shorter retention time. This activity results in decreased seasonal fill of Magic Reservoir and impacts senior surface water rights held downstream of Magic Reservoir on the Big Wood River whose priority of delivery are based on inflows into Magic Reservoir during the irrigation season.
- C. There are five sources of water storage within the basin. A) Snowpack, B) Mountain Block Recharge, C) Big Wood Basin Aquifer, D) Camas Aquifer, E) Magic Reservoir. To some extent, a sixth source from outside the basin might be delivery of Snake River water to a small number of senior surface water rights on the Little Wood River below Shoshone, via the Milner-Gooding Canal.
- D. Flows in the Little Wood River, and thus adequate supplies of irrigation water to senior surface water users on the Little Wood River, are enhanced by irrigation return flows and deliveries from Magic Reservoir. When Magic Reservoir is releasing irrigation water, the Little Wood River below Richfield is partially sustained by BWCC deliveries and irrigation return flows, with coordinated management by District 37 Watermaster and BWCC management. A more efficient and reliable irrigation season from Magic Reservoir should be a major goal for all because Magic Reservoir benefits the entire system of Silver Creek/Little Wood users by supplementing lower river flows that can be used for irrigation. This in turn frees up water that can be utilized by upper system irrigators or left in the stream to support environmental and recreational values.
- E. The health of the upper basin aquifers are key to adequate spring runoff providing surface flows into Magic Reservoir and into Silver Creek/Little Wood River. If the aquifers are depleted by heavy and late season pumping activities, surface flows are affected and it is logical that significant spring runoff from the Big Wood River is absorbed by a thirsty aquifer.

- F. Given the obvious commonality of the water source, under the strict interpretation of priority water laws of the State of Idaho, all commercial and irrigation wells within the basin are junior to senior surface rights established prior to commercial or irrigation well development.
- G. The potential economic impact of curtailment of irrigation and commercial wells within the Big Wood Basin should be evident. The short curtailment of Bellevue Triangle ground water experienced in July 2021 should serve to highlight the potentially severe adverse consequences of not producing an acceptable Management Plan. Fortunately for the ground water pumping community, the resumption of ground water pumping with only minor stress to crops, coupled with favorable commodity prices, contributed to a relatively successful year for upper valley ground water pumpers. Although a one-time agreement was negotiated in July 2021 given the economic, political and late season impact of the Director's order, it must be assumed that any similar future agreement will be impossible. To avoid this type of conflict and other negative outcomes, it is emphasized here that BLWWUA, BWCC, and other cooperating water users strongly support NOT just a ground water management plan, but rather a *watershed* supply management plan that serves all water users.
- H. It is the position of BWLWWUA and BWCC that there has been significant harm due to ground water pumping over the past several decades, especially in years of below normal snowpack, to the senior surface water users within the entire basin. A Watershed Supply Management Plan should provide the benefit to the senior surface water users of receiving the water they are entitled to under the priority doctrine and provide the junior ground water pumpers the conditional benefit of a safe harbor from delivery calls.
- I. The extreme shortfall in surface water supplies in 2021 negatively affected the health of our perennial streams. Low water levels and the resulting reduced dissolved oxygen and elevated water temperatures contributed to fish kills and damage to riparian habitats. The resulting loss in recreational activities surely had an economic impact beyond the negative impacts to quality of life for those who live nearby and value the riparian system. Other past years of limited natural supply have also likely had negative riparian impacts and resulted in economic losses to the recreation sector, which remain largely unquantified.
- J. Agriculture is a risky business. Production activities are susceptible to many challenges, including weather, markets, pests, disease.... Most of the crops planted worldwide are done so with only a prayer of the good graces of Mother Nature to provide adequate and timely moisture. We are blessed in that our water supply can be monitored and estimated to a certain extent to allow wise planting decisions. Although it has been the good fortune of the upper watershed communities that ground water availability has been a certainty, that assumption must change in consideration of priority doctrine and the obvious commonality of the water resource, but most of all, change in consideration of a healthy, sustainable aquifer and river system. As a by-product of improved attention to water management, all users in the basin would have a more equitable opportunity to prosper and the place we call home can continue to support us.
- K. There is no free water in Idaho, whether that water is pulled from the aquifer on site or transported from storage to a user's head gate. As witnessed in 2021 testimony, nearly all irrigated acres require infrastructure investment and system pressurization to efficiently apply water to the crop, regardless of the source of water. Stated plainly, we all have investment in equipment and daily seasonal pressurization costs. Pumpers have lift costs; however, in

contrast, Magic Reservoir stockholders presently pay an annual assessment of \$33.50 per share, which in a full season of delivery equates to a cost of \$10 per acre-foot at the reservoir. In gross analysis, given an average delivery loss of 50% within the delivery system, that would equate to \$20 per acre-foot at the users' head gate. The extreme nature of the water shortage in 2021 produced a cost to Magic Reservoir stockholders of approximately \$90 per acre-foot, with only marginal crop production. On the other hand, upper basin water users and lower Big and Little Wood River users enjoyed nearly a full season of production given the settlement agreement of July 10, 2021. All should take note that in the world of crop production, money is cheaper than water. Nothing is produced in our desert environment without irrigation water, and lack of water quickly turns into millions of dollars in lost income.

BWLWWUA and BWCC offer the following elements which support the development of a holistic watershed management plan.

1) Snowpack Monitoring and Reporting Program

We support establishment of an annual snowpack monitoring and reporting program conducted by the Idaho Department of Water Resources and cooperating agencies. Beginning in February of each year and as early as possible in each month following through early June, IDWR will provide an analysis of the potential water supply. From these reports, coupled with a water supply index discussed below, all water users can determine their potential water supply and make their own management decisions. We understand that the best available forecasting at this time may be the data produced by Natural Resources Conservation Service Snotel data and Bureau of Reclamation stream flow data and the application of those forecasts to identify analog years. We support further development and refinement of data gathering, forecasting and analytical techniques, which may include development of new and additional snowpack modeling and incorporating satellite imagery, to better estimate the extent of snowpack coverage across the watershed and the resulting available water supply at given times of the snow melt season.

2) Basin Water Budget and Supply Index, Annual Stream Flow Targets

A basin water budget and supply index should be developed to provide a forecast of the water that may be available for diversion for each user group for the upcoming irrigation season. The technical working group will develop a projection of what anticipated surface water priority cuts could occur based upon the forecasted water supply. Based upon these projected surface water priority cuts, target stream flows will be developed along the Big Wood River and Silver Creek/Little Wood River for the upcoming irrigation season. Target stream flows should reflect the projected supply through time and may change through the irrigation season, but in all cases should support as many senior surface users as supplies allow. Furthermore, routinely conceding stream flow targets to the absolute minimums proposed below, when there is sufficiently greater water available, jeopardizes not only younger senior surface water rights, but also jeopardizes important environmental and recreational values. Ground water users shall have access to ground water in as much as the stream flow targets can be met and ground water withdrawals do not injure senior rights supplied by hydraulically-connected sources.

The absolute minimum flow targets judged to serve the senior-most senior users¹ are:

- Silver Creek/Little Wood Users—Flow at Station 10 when combined with return flows from Magic Reservoir shall not be less than 60 cfs²
- Big Wood Below Magic Reservoir Users—Combined flow from Stanton Crossing, Willow Creek, and Camas Creek shall not be less than 62 cfs

Some level of flexibility could be built into stream flow targets depending on the available water supply each year. For example, if ground water users cannot meet the stream flow targets in dry years, but wish to continue some amount of withdrawal, they will provide Snake River water to lower system users and/or arrange for appropriate water transfers of surface water from elsewhere in the system to service rights between the headwaters of Silver Creek and the Milner-Gooding Canal. (See additional discussion in other elements described below.) In no case shall ground water users rely solely on return flows from Magic Reservoir, supplemented with supplies of Snake River water, to reach stream flow targets when local supplies are adequate to keep the Little Wood River alive.

Stream flow targets must not be supported by direct injection of well water into the stream, but rather by maintaining healthy aquifer levels to support stream flows and non-diversion of water rights or other means to reduce consumptive use. Any management actions taken in order to maintain stream flow targets should be conducted in consultation with WD37 staff, including the Watermaster.

3) Water Right Accounting Program

We support further exploration and study of the potential benefits of a water right accounting program to support the efficient administration and delivery of water rights across the watershed. Given that IDWR has conducted some preliminary work evaluating an accounting program for the lower Big Wood and Little Wood system, it may be helpful to start there, but we envision potential benefits from applying the approach in the upper system too.

4) Duty of All Users to Conserve

All consumptive users, including commercial, industrial, and municipal water users, like irrigators, shall monitor the anticipated surface water supply and exercise water use measures appropriate to the predicted supply so as to avoid overtaxing the resource.

¹ These stream flow targets represent a concession from strict Time-Priority management. These values serve the most senior of the senior surface rights, but do not serve all the surface water rights in the system that are senior to ground water rights.

² Delivery of surface water on the Little Wood can utilize return flows from Magic Reservoir that enter the Little Wood River at several locations below Richfield. When return flows are relatively robust, less water will be required at Station 10 to meet the 60 cfs target, potentially allowing for increased use by upstream junior users. As BWCC operations become more efficient in the future, return flows will likely diminish, requiring a larger fraction of the target flow, and perhaps the entire target flow, to be present at Station 10.

We recognize the negative economic impacts of variable, unanticipated, or widespread curtailment on ground water use. There are a number of tools identified by the ground water districts (i.e., volume reduction per groundwater district/members, fallowing fields, increase in planting of crops requiring less water (such as grains) rather than high water use crops, participation in CREP/MOUs, groundwater conversion to surface water use, removal of end guns) that could be implemented to reduce total consumptive ground water use and reduce the potential for unanticipated and widespread curtailment.

5) Aquifer and Surface Water Monitoring

Continued monitoring and data gathering, and coordination from all available historical and ongoing sources across the watershed must be maintained. We support the identification of sentinel wells within the Bellevue Triangle to assess the health of the aquifer. Wells that assess the health, interaction, and correlation of both the confined and unconfined aquifers to surface supplies should be included in this array. Evaluation of the need for additional surface water measurement tools across the watershed should be pursued. For example, deployment of near-real time measuring devices across the watershed will generate data to provide a better understanding of the interaction of ground water pumping and aquifer health and thus a more applicable gauge of success of any management actions undertaken. Additionally, such data will assist in verification of the Wood River Valley ground water model. Relying on actual physical measurements where available will help to improve the WRV model 1.1 and improve our ability to predict water availability.

6) Season of Use

It will be a basic goal for all user groups within the entirety of the Big Wood/Little Wood Basin to support water delivery for sufficient irrigation water to finish a small grains crop. That date is generally accepted to be irrigation water through July 15 in any given year. While this is the goal, it must be acknowledged that it may not be attainable every year especially for many junior priority water rights. This goal is not preclusive of the production of any other crop, but serves to identify a minimum standard of common agricultural production economics in the area.

In all cases, care must be taken to conserve available water resources. In no year shall agricultural consumptive ground water use begin prior to May 1st or continue past September 15th. Agricultural consumptive use of ground water in a short water season must be limited in order to preserve aquifer carryover. In a year that forecasted or actual basin water supply is less than 80% of normal, as determined by the TWG-developed basin water budget supply index, agricultural consumptive use of ground water will cease no later than August 15 of that year.

7) Conservation and Efficiency Fund

We propose an annual assessment fee to be applied to each acre-foot of measured withdrawal of ground water, including irrigation, commercial, industrial, and municipal, within the upper Big Wood and Camas Basins. We propose a fee of \$10 per acre-foot of ground water withdrawn to be assessed and paid prior to the following season. Those funds would be placed in a conservation fund to allocate on a cost benefit basis to improve the efficiency of water delivery

systems throughout the basin. Funds would be administered and allocated by a committee formed for that purpose, or possibly by the Big Wood River Ground Water Management Area Advisory Committee, to support basin wide conservation programs, efficiency improvement projects, infrastructure improvements, support resource measurement and monitoring, aquifer recharge, and/or to obtain and permanently retire water rights, and other water resource enhancement projects. Every effort will be made by the committee and those water users seeking funding from the account to multiply those dollars by seeking additional funds from private, state and federal conservation cost-sharing programs.

8) Below Average Years—Relief from Snake River

If ground water users wish to maintain a minimum level of access to ground water in below normal supply years, ground water users may be able to offset some of their consumptive use with Snake River water for the lowermost users on the system. In this case, the ground water user community will secure a minimum of 3150 acre-feet of water from the Snake River system to be delivered via the Milner-Gooding Canal to senior surface water users on the Big and Little Wood Rivers below Shoshone, Idaho.

It shall be the responsibility of the ground water users to procure available Snake River water, seek agreement with American Falls Reservoir District #2 to deliver the water, and to obtain approval of any other necessary permits. In the event that the full 3150 acf of water is not needed by Water District 37 users, ground water pumpers have the option of offering the remaining water to other uses and entities outside of Water District 37. While this approach may provide junior ground water users some relief, they would still need to provide enough water to supply the surface rights between the headwaters of Silver Creek and Shoshone and keep the stream alive by supporting riparian values to the confluence of the Milner-Gooding Canal and the Little Wood River. Ground water users shall not rely on supplies of Snake River water to mitigate their consumptive use when local supplies are adequate. The sources of senior surface water rights lie within the Big Wood River watershed and every effort to maintain those traditional sources should be made.

9) Period of Commitment

Acceptance of our proposal would constitute a three-year commitment, with annual review and evaluation of effectiveness or ineffectiveness by the Big Wood River Ground Water Management Committee in consultation with Idaho Water Resources Department.