



## Technical Memorandum

**To:** Craig Horrell, Chair Basin Study Work Group  
Mike Britton, Chair, Deschutes Basin Board of Control

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**Date:** December 10, 2018

**Re: Task 3 - Upper Deschutes Basin Study – Evaluate Water Right, Legal and Policy Opportunities and Impediments Associated with Several Potential Actions in Whychus Creek (Groundwater-Surface Water Exchanges, Below Ground Storage, and Drought Declarations)**

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## Introduction

As part of the Upper Deschutes Basin Study (Basin Study), GSI Water Solutions, Inc. (GSI) was assigned the following scope of work:

- Task 3 - Evaluate water right, legal and policy opportunities and impediments associated with several potential actions in Whychus Creek; groundwater-surface water exchanges in Whychus Creek; below ground storage (aquifer recharge) in Whychus Creek; and drought declarations

GSI has developed the following Technical Memorandum (memo) that evaluates water right, legal and policy opportunities and impediments, from a water rights perspective associated with groundwater-surface water exchanges and below ground storage/recharge in the Whychus Sub-Basin. Additionally, an evaluation of legal tools and resources available during a drought is included. Information from this memo will be combined with other Basin Study information to develop water resources management scenarios that can be evaluated for benefits, costs, and feasibility.

The topics for this memo were developed by the Whychus Creek sub-group during development of the Plan of Study for the Basin Study.

## Background

Seasonal low streamflow is often a limiting factor for water quality and fisheries in Whychus Creek. Natural flow conditions exist in the creek from the headwaters to approximately river mile 25 where irrigation diversions divert large proportions of the flow. The resulting reduced streamflow impacts the water quality throughout much of the irrigation season from below the Three Sisters Irrigation District (TSID) diversion through the City of Sisters and below Camp Polk Road to the point where groundwater re-enters the Creek near Alder Springs. Although recent projects have restored streamflow to this reach, Whychus Creek still has water quality challenges through the summer season.

The Plan of Study for the Basin Study<sup>1</sup> identifies improving stream flow in this reach of Whychus Creek as a priority. It identifies the use of groundwater instead of surface water as one possible alternative for further exploration. The Whychus Creek sub-group was specifically interested in evaluating the feasibility of using this tool for short periods during dry years. This memo identifies and evaluates the water right and policy opportunities and impediments associated with the use of groundwater instead of surface water. It also evaluates below ground storage/recharge in the Whychus Creek Sub-Basin. Ultimately, the Whychus Creek sub-group was concerned that increased groundwater pumping could impact the quantity and quality of spring discharges; thus the idea of “recharging” the aquifer as a “companion” to groundwater pumping was identified as an area of interest.

This is a high-level evaluation of these opportunities that is intended to summarize the concepts and identify impediments that may exist and is not intended to predict the outcome associated with pursuing these opportunities. Additional in-depth analyses of these concepts would be required to determine if any of these alternatives should be pursued further. It should also be noted that there may be other opportunities and impediments that are outside the scope of this memo.

### 1. Opportunities to Use Groundwater Instead of Surface Water

The following discussion considers two water right mechanisms that could allow the use of groundwater instead of surface water, thereby increasing streamflow in Whychus Creek<sup>2</sup>. These mechanisms are a water right substitution and a water right exchange.

Each concept would involve the TSID infrastructure and water rights. TSID owns and maintains a diversion structure on Whychus Creek and pipelines and ditches that deliver water from the creek to the two main storage reservoirs: Watson and McKenzie reservoirs (Figure 1). TSID also owns and operates two wells with a supplemental irrigation water right.

#### 1.1 Substitution

A potential opportunity to increase streamflow is to “substitute” the use of a supplemental groundwater right for the primary surface water right. This process could potentially leave a corresponding quantity of natural flow instream.

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<sup>1</sup> The Upper Deschutes Basin Study, Plan of Study defines this area as the Deschutes Basin upstream from the confluence of the Deschutes, Crooked, and Metolius Rivers, and includes the rivers' associated tributaries and storage projects.

<sup>2</sup> This high level evaluation acknowledges that there may be existing groundwater pumping stress on the system that would have to be further understood in relationship to implementing one of these concepts.

Substitution of a primary surface water right and a supplemental groundwater right is authorized under Oregon Revised Statute (ORS) 540.524 and Oregon Administrative Rules (OAR) 690-380-2330. Substitutions can be completed using surface water certificates and groundwater permits or certificates. A water right holder can request to revert back (un-wind) a substitution to make the surface water the primary source again. The Oregon Water Resources Department (OWRD) will review a substitution application to determine whether the change would cause injury to existing water rights (from any affected source), or enlarge the underlying primary water right.

TSID holds primary irrigation rights from surface water and supplemental groundwater rights for appropriation of up to 13.4 cubic feet per second (cfs) from two groundwater wells adjacent to the TSID Watson Reservoir. It should be noted that this location is up gradient of the Sisters Fault, and pumping may interfere with springs along McKinney Butte. In addition to TSID's supplemental rights, multiple farmers within the district (primarily in the Lower Bridge Sub-District) also hold an additional approximately 16 cfs of supplemental groundwater rights from up to 10 privately owned wells. Pumping in this location may have less effect on springs. According to ORS 540.524 "the holder of both a primary water right originating from a surface water source and a supplemental water right permit or certificate originating from a ground water source may substitute the use of the supplemental water right for the primary water right." Privately-held groundwater rights may not be available for substitution because the statute indicates that groundwater and surface water rights must be held by a single person/entity and this may preclude substitution of a primary right held by a district with a privately-held groundwater right.

**Protection of In-Stream Flow.** Water left in the stream as the result of a substitution is not "protected" from diversion by other water right holders. However, based on information supplied by OWRD, there are very few surface water rights that divert water on Whychus Creek below the TSID diversion. (Most such rights no longer divert water or are being transferred instream). Downstream water right holders, therefore, would not likely divert the water left instream by TSID. Further review of the current status of water rights on Whychus Creek below the TSID diversion should be incorporated into any plans to proceed forward with this concept.

**Cost Information.** TSID's current system is gravity fed with little to no pumping required to deliver water to the patrons. The addition of electrical and operation costs associated with groundwater pumping will be a financial challenge that will need to be addressed as part of an overall project planning effort. Moreover, since TSID's surface water diversion is also used to generate hydroelectric power, reduced surface water diversion would result in reduced revenue. If you assume that 13.4 cfs of supplemental groundwater is substituted for surface water, according to the TSID Manager the estimated groundwater pumping costs would be approximately \$22,000 per month (approximately \$1,666 per cfs). According to the TSID Manager, lost hydroelectric revenue would be approximately \$7200 per month, for a total cost of \$29,200 per month. (Personal communications with TSID Manager.) This would equate to \$35.44 per acre-foot per month, based on 13.4 cfs (or 823.9 acre-feet).

### Potential Next Steps

If this concept is considered for further analysis, the scenarios that could be evaluated include:

- 1) Substitute TSID supplemental groundwater right for primary surface water rights.

- 2) Work with OWRD to determine if substitution could be flexibly managed so that it only “kicks-on” when flows drop below a certain pre-determined level.
- 3) If concerns regarding injury to existing water right holder(s) arise, consider developing one or more new groundwater wells (potentially located at the TSID McKenzie Reservoir) and transfer the groundwater right to those wells to address injury concerns.
- 4) Identify other potential injury and water right enlargement issues. For all scenarios, evaluate the financial considerations – restoration funding opportunities vs. increased costs for pumping and forgone hydroelectric generation revenue.

## 1.2 Groundwater–Surface Water Exchange

Another potential opportunity for TSID to use groundwater instead of surface water would be for the district to “exchange” its use of surface water for irrigation with a groundwater right for flow augmentation. In other words, under the exchange the groundwater permit for flow augmentation would be protected instream as surface water and the surface water right for irrigation would be used from wells (groundwater).

An exchange allows a water right holder to use water from a source other than the source authorized by their water right by exchanging sources with the holder of a water right that authorizes use from the new source, under a number of circumstances.<sup>3</sup> The water user must provide an equal amount of water to the holder of the second water right. Surface water, groundwater and stored water can all be eligible sources for an exchange. ORS 540.537 states: “The Water Resources Commission shall issue an order allowing an exchange unless the commission finds any of the following: a) the proposed exchange would adversely affect other appropriators, b) the proposed exchanges would be too difficult to administer, c) the proposed exchange would adversely affect the public interest..., or d) a sufficient quantity of water would not be available to replace the water to be used under the exchange.” The authorization for water right exchanges is provided in ORS 540.533 – 540.543 and OAR 690-380-2260.

There has been one effort to begin to implement such an exchange in the subbasin. In 2005, TSID and the Deschutes River Conservancy (DRC) filed an exchange application in an attempt to use this process to improve flow in Whychus Creek. The DRC applied for a new groundwater permit for flow restoration and TSID applied for the water right exchange. OWRD’s review of the permit application found that the use of groundwater would cause injury to an existing storage right that authorized the use of water from a spring. The agency was, therefore not able to issue the groundwater permit and the concept was not able to move forward for lack of a groundwater right for flow augmentation.

**Regulatory Challenge.** In addition to the previous inability to obtain a new groundwater right, there appears to be a more significant regulatory challenge to implementing such an exchange.

The exchange statute states in ORS 540.533 (1) the person applying for the exchange must hold a water right established by a decree, certificated right or “[i]s applying for or holds a permit issued under ORS 537.211 for use of water for an in-stream purpose.” (Subsection (c)). ORS 537.211 pertains to issuance of surface water permits. Accordingly,

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<sup>3</sup> A water right hold can apply for an exchange if: a) the source of the person’s appropriation is at times insufficient to fully satisfy the appropriation; b) better conservation and use of the water of the state can be accomplished; or c) the person can develop water for appropriation under the permit for use of water for an instream purpose, but cannot economically convey the water to its point of use.

groundwater permits issued under 537.625 are not included in the list of qualifying water rights included in the exchange statute cited above (ORS 540.533).

### Potential Next Steps

If this concept is deemed worthy of further analysis, a likely next step is to explore 1) the status of the permits in question and whether they can be certificated, which would enable OWRD to authorize an exchange within their existing authorities, or 2) whether revision of the exchange statutes under ORS 540.533 to allow a groundwater permit for exchange would be beneficial.

### 1.3 Other Potential Issues

In 2016, the Deschutes National Forest and Upper Deschutes Watershed Council completed a stream restoration project on Whychus Creek located between the TSID diversion and the City of Sisters. This project was focused on restoring natural floodplain dynamics, including multiple channels and expanded riparian forest, in the reach of Whychus Creek that was historically channelized and bermed. Pre-project losses existed but were unquantified.

Agencies and partners are interested in gaining further understanding of the relationship between water restored instream at the TSID diversion and flows measured at the gage located in the City of Sisters.

## 2. Whychus Creek – Groundwater Storage Concepts

Whychus Creek is a snowmelt dominated system with groundwater providing a significant base flow. Historically, peak streamflows in Whychus Creek have occurred in late spring and early summer and coincide well with irrigation demands. However, droughts and the effects from future climate variability are expected to alter the timing of peak surface water flows. As an example, in 2015, precipitation levels had been at near normal during the winter months but the snowpack was thin and temperatures were unseasonably warm, which resulted in low meltwater runoff and streamflows that peaked too early in the irrigation season. As a result, the irrigation season for TSID started at 40 percent of normal water supply and Deschutes County declared a drought emergency in May of that year.

One possible solution to address this issue is to capture surface water flows during the high flow (winter) periods and store the water. Stored water could be used to recharge the aquifer and potentially increase flows from springs. (Additionally, stored water can be used for irrigation purposes to reduce demands for surface water.) OWRD has two programs to authorize storage of water in aquifers: artificial recharge (AR) and aquifer storage and recovery (ASR).

Below are findings from a basic evaluation of AR and ASR opportunities in the Whychus Creek area. This evaluation is a desktop-level study that focuses on existing TSID infrastructure (Figure 1) and water rights, the regulatory framework, and local hydrogeologic conditions.

### 2.1 AR and ASR Basics

Both AR and ASR programs involve diverting water typically from a surface water source for storage in the ground and later retrieval and use.

AR refers to the process of adding water to an aquifer by means of surface infiltration through a spreading basin or through injection wells. This water is then recovered through downgradient well(s) or can also be allowed to discharge into a stream to enhance natural return flows. A permit to appropriate water with “artificial groundwater recharge” listed as the type of use is required. A secondary groundwater permit is also required to pump the recharged water from storage for use.

ASR refers to the process of storing surface water in an aquifer through an injection well. Recovery of the stored water is typically completed from the same well. The ASR statutes allow water users to use any existing water right to store water in an aquifer (such as a municipal or irrigation right). Initially, a *limited use license* (limited license) is required for ASR testing to determine if recovery of the water injected into an aquifer is feasible. An ASR *permit* is required for ongoing storage and recovery of water under an ASR project, which can only be obtained after the completion of a testing program. The ASR permit is paired with a source water right for recovery and use of the water consistent with the beneficial use indicated by the water right.

### AR and ASR Regulations

The AR program is authorized under OAR 690-350-0120 to 0130. The ASR program is authorized under OAR 690-350-0010 to 0030. The primary distinctions between these programs include the following:

	<b>Artificial Recharge (AR)</b>	<b>Aquifer Storage and Recovery (ASR)</b>
<b>Recharge Method</b>	Surface infiltration via spreading basins <sup>4</sup>	Injection via wells only
<b>Recharge Source Water Right</b>	New or existing water right with "artificial groundwater recharge" designated as the authorized use	Any new or existing right
<b>Water Quality</b>	Recharge water cannot degrade groundwater quality	Recharge water quality must meet drinking water standards
<b>Recovery Authorization</b>	New secondary water right required for use of stored water	Can use the same right that authorizes storage under the same terms as this original right

OWRD regulates the licensing and permitting of AR and ASR projects, however the Department collaborates with the Oregon Health Authority (OHA) Drinking Water Program, and the Department of Environmental Quality (DEQ) Water Quality Program. OWRD is the lead agency but relies on OHA and DEQ to provide comments and recommend conditions. The following bullets list some key details associated with each step of the regulatory process for an AR and ASR authorization.

- **Source Water Diversion and Storage Permit:** Authorization from OWRD is required to divert and store water under the ASR and AR rules. OWRD also requires a period of initial testing for AR or ASR projects to confirm feasibility and assess impacts to surface water and the aquifer used for the project. This initial testing is completed under a limited license, which is a temporary authorization issued by OWRD. ASR limited licenses are issued for 5 years and are renewable. AR limited licenses are issued for a variety of lengths, and are not renewable. If further testing is required under an AR limited license, the operator must apply for a new AR limited license. An ASR limited license has no priority date and the underlying source water right retains its priority date. AR limited licenses appropriate water and do have a priority date, which is junior to other existing users.

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<sup>4</sup> Although AR is typically accomplished through surface infiltration, OWRD rules allow for well recharge under AR rules.

- Land Use: A storage and recharge facility will require access to land for a facility. Submittal of a Land Use Compatibility Statement (LUCS) indicating that an injection and storage facility is compatible with the designated land use is required.
- Water Quality Requirements:
  - For AR- AR rules require the water quality of the recharge water not impair or degrade the native groundwater quality. Water quality testing of each water type is required.
  - For ASR- ASR rules require the recharge water meet the EPA's drinking water Maximum Contaminant Levels (MCL) for the direct injection of water into an aquifer. Specifically, allowable concentrations in recharge water are limited to one-half the MCL for most constituents. In many cases, ASR projects use treated drinking water as a recharge source water. When a water supply source for ASR is raw surface water, the surface water must be treated for microbial constituents. This can be accomplished with conventional treatment but can also be accomplished through the shallow infiltration of raw surface water to induce natural filtration. Under the infiltration treatment method, the treated water is then extracted and used as recharge water in the injection well of an ASR system. Given the good water quality in many streams, this may be the only treatment necessary to meet drinking water standards for ASR use.
- For injection well projects only (AR or ASR) - Injection Well UIC Permit: Injection of water using a well requires registration of the well as a Class V (5R21) injection system under the underground injection control (UIC) rules by submitting a UIC application to the DEQ. In general, UIC rules require compliance with the Environmental Protection Agency's (EPA) Safe Drinking Water Act (SDWA) for water used for injection under either an ASR or AR project.

Permitting for AR and ASR projects is initially approved under a limited license. The initial application package for a limited license requires the submittal of a feasibility study, a system design and project work plan, and a monitoring program. Field testing and annual reporting is required by OWRD to assess if the project is operating as expected. Following a successful testing period the applicant applies for a full permit.

## 2.2 Feasibility of AR or ASR in the Whychus Creek Basin

The feasibility of implementing an AR or ASR project is dependent on a number of geologic and hydrogeologic characteristics of the target aquifer, locations of groundwater discharges, groundwater quality, and the location of existing groundwater users. This preliminary assessment focuses on available geologic information to evaluate fatal flaws that would affect the viability of a groundwater storage project. The local geologic deposits primarily fall into three main geologic units and their distribution is shown in Figure 2 (modified from Sherrod et al, 2004). Basic geologic features described in Lite and Gannett (2002) are described below.

- Alluvium and glacial outwash deposits (Qs). The Qs deposits are composed mainly of sand and gravel and blanket most of the area surrounding the town of Sisters. Well logs indicate the thickness to range between 30 and 100 feet. These deposits are highly permeable.
- Cascade Range Basalts (Qb & Qba). Underlying and interfingered with the Qs deposits in the area of Sisters and exposed in places to the southwest are basalt (Qb) and basaltic andesite (Qba) flows of the Cascade Range. The shallow basalt deposits are known to be fractured and highly permeable.

- Deschutes Formation (Tb & Ts). Underlying the Qs deposits in the area of Sisters and exposed in places to the northeast are basalt flows (Tb) and sedimentary deposits (Ts) of the Deschutes Formation. The permeability of deposits is relatively high in coarse-grained sediments and vesicular or brecciated lava flows. Based on discussions with OWRD groundwater staff and available reports, aquifers within this unit are hydraulically connected to springs in the McKinney Butte area, although to varying degrees based on exact locations. For example, east of the Sisters fault zone the connection is not as efficient as west of the fault zone for the same aquifer(s).
- Underlying the Cascade Range and Deschutes Formation deposits are deposits of the John Day Formation. The John Day Formation deposits have very low permeability and are considered the lower boundary of the regional groundwater flow system.

In general, all the units above the John Day Formation in the vicinity of TSID's infrastructure have potential for groundwater recharge, but groundwater storage capacity and recoverability is not well understood based on available information. Surface alluvial and glacial outwash deposits (Qs) are very permeable (Lite and Gannett 2002). A highly permeable unit would allow for high recharge, but it may not have the characteristics necessary for storage and recovery of recharged water. A water well (DESC 50) monitored by OWRD in the mid-1990's (USGS, 1997) appears to be in hydraulic connection with this unit suggested by possible correlation to irrigation canal leakage, and may suggest potential for AR via surface infiltration in this location. One potential limitation to this unit with regard to storage potential is its limited presence and it appears to be relatively thin in most locations, which may limit storage potential. Additional analysis of storage capacity and recoverability of stored water is needed to fully assess the viability of groundwater storage within this unit.

Volcanic units within more recent flows from the Cascade Range (Qb and Qba) and volcanic units within the Deschutes Formation (Tb) also appear to be very productive in a number of locations based on GSI's review of well yield described in well logs in the area (DESC 3088, 57902, and 3023), suggesting potentially high recharge rate may be possible. A statewide hydrogeologic suitability assessment for ASR by Woody (2008) includes an evaluation of ASR in the Sisters area based on review of a single well completed in a basalt unit (DESC 3023) by the City of Sisters. A volumetric analysis developed by the study suggests a high aquifer storage capability relative to available source water (positive indication for ASR), however the high transmissivity of the aquifer works against retaining water in storage over time for later retrieval (negative indication for ASR) these factors contributed to the overall finding of low ASR potential in the Sisters area (see Table B-1 in Woody, 2008). An additional well completed slightly deeper in the same general vicinity by the City in 2007 (DESC 57902) indicates an even higher well capacity with depth. A higher aquifer transmissivity suggests groundwater recharge could be conducted at a relatively high rate, but also has the potential to allow migration of stored water over longer periods of storage. Because of potential hydraulic connection with area springs near McKinney Butte, additional hydrogeologic assessment should be completed to understand storage capacity, stored water migration, and the potential for stored water to increase spring flow as a result of groundwater storage, which depending on timing, may or may not be an intended outcome.

This general vicinity is also within the Sisters fault zone and geologic units are offset in many locations by north-northwest trending normal faults (Figure 2). In some locations, these faults may limit or reduce efficiency of the hydraulic continuity from one fault block to another. It is uncertain whether the Sisters fault zone has a direct influence on regional groundwater flow but the documented change in groundwater gradient in the vicinity of the fault indicates a

permeability contrast (Lite and Gannett, 2002). Lite and Gannett (2002) also point out that this area is also at the eastern edge of a precipitation gradient which obscures direct effects of the faults.

Overall, in this reconnaissance-level review, the available geologic information and information from well logs in the vicinity of TSID's infrastructure indicate the potential for groundwater recharge and do not suggest obvious fatal flaws from a feasibility perspective. Additional site specific geologic and hydrogeologic information should be evaluated to assess the hydraulic connection with surface water, and the potential recharge rates and storage volumes that may be feasible. If stored water is to be recovered, recovery rates should also be assessed.

### 2.3 Approach to AR and ASR in the Basin

This section describes several concepts for capturing surface water flows during the winter or high flow periods and storing the water through either an AR or ASR project. Figure 1 shows TSID's distribution system, which has the capability of delivering water throughout a large portion of the basin. In addition, there are two primary reservoirs within the district's distribution system and two TSID groundwater supply wells adjacent to the Watson Reservoir (Figure 3). The wells are reported to be very productive and are completed in the Deschutes formation to a depth of approximately 300 feet. The AR and ASR project opportunities considered below involve the use of TSID's existing infrastructure system and groundwater wells. The concepts below were developed based on the following assumptions:

- Groundwater storage/recharge sites are to be located near existing infrastructure and at locations upstream and are located hydraulically up gradient of users to optimize benefits to instream flow and downstream users.
- TSID's diversion facility, conveyance, and surface storage is available for use during non-irrigation season.
- Diversion of water from Whychus Creek during non-irrigation season is feasible.

#### AR and ASR Recharge Source Water

Typically, a major consideration in assessing the feasibility of an AR or ASR project is the availability of source water for recharge. Source water can be provided by an existing water right for ASR or a new water right for ASR or AR. OWRD would assess the availability of water for an application for a new water right for an AR project. An initial assessment of water availability for Whychus Creek between November and April (when recharge would be expected to occur) indicates that no water is available at 50 percent exceedance. Therefore, a "new" appropriation for a recharge project is unlikely.

Based on the lack of water availability for a new appropriation from Whychus Creek, an existing water right will likely be required to authorize water use for an AR or ASR project. TSID holds a number of senior water rights (priority dates back to 1869) for irrigation, which allow a total diversion rate from Whychus Creek of approximately 150 cfs. The authorized irrigation season associated with TSID's water rights on Whychus Creek is year-round. TSID's existing Whychus Creek water rights could be used to authorize recharge during periods of high flow and low demand. If the stored water would be recovered to replace use of surface water, an ASR project could use TSID's existing irrigation right to appropriate the source water, without a change to the authorized use. An AR water right must identify "artificial recharge" as the authorized use, so all or a portion of the district's right would need to be transferred to make artificial recharge an authorized use. If the water stored through AR was only intended to recharge the aquifer, the lands associated with the portion of the right transferred could not

receive water for irrigation purposes. If some or all of the stored water was recovered to replace use of surface water, stored water could be used to irrigate those TSID lands.

An additional option for obtaining authorization for AR source water is a limited license. A limited license, which would be "junior" in priority date to all existing rights on the stream, could potentially be issued, with appropriate resource protection conditions, if the Watermaster indicated there were periods of time that water is available for appropriation. The limited license could potentially be used to "test" AR as a means of storing water to increase stream/spring discharges or potentially for future use. (See Attachment 1 – Approved Limited Water Use License LL-1433 for use of the Walla Walla River for AR testing).

#### Surface Infiltration Concept

A potential AR project would use surface infiltration to recharge the shallow groundwater system using water diverted from Whychus Creek during the winter or high flow periods. One option is to divert water from Whychus Creek with conveyance to Watson Reservoir using existing TSID infrastructure. From that location, water could be conveyed to infiltration basins immediately downgradient of the reservoir, near Lazy Z Ranch or other selected areas.

Surface infiltration would take place when surplus water from the creek is available, likely from November or December to March or April. Site specific data is not available to determine the storage capacity of the alluvial geologic unit. However, given the geologic descriptions in available well logs, information from the well monitored by OWRD during the 1990's (DESC 50), and our understanding of the permeability of these sediments, infiltration capacity is expected to be moderate to relatively high. Additional assessment is needed to assess the potential volumes of water that could be stored. Site specific evaluation is also needed to assess if stored groundwater may increase discharge at local springs, and if so, where and when surface discharge may occur. If recovery of stored water is anticipated, an assessment of recoverability should be completed.

As described above, in order to have a permanent authorization to divert water for AR, a portion of TSID's irrigation water rights would need to be modified through a water right transfer to authorize use for AR purposes. As previously described, it may also be possible to "test" the AR concept with use of a limited license.

#### Well Recharge Concept

ASR could be used if stored water would be used to replace the use of surface water. ASR is not, however, expected to be a viable mechanism solely to recharge the aquifer, because recovery is a component of an ASR project.

A potential well recharge project would include injecting water from Whychus Creek into targeted water-bearing zones of the deeper Deschutes Formation via well(s) (TSID's two existing wells and/or others). However, for direct injection of water into an aquifer, the surface water must meet drinking water standards (MCL and microbiological inactivation). In other irrigation ASR projects in the state, this treatment has been accomplished through the use of a shallow infiltration and extraction system, likely near (or possibly inside of) Watson Reservoir. A shallow extraction well system would capture seepage from Watson Reservoir or a seepage basins near the reservoir, and filtered water would be injected into the aquifer through the TSID wells. Recharge is typically accomplished via the pump column or dedicated injection piping.

Well recharge would take place when surplus water from Whychus Creek is available, likely from November or December to March or April. Site specific data is needed to determine the overall storage capacity of the volcanic units within the Deschutes Formation (Tb), but given the

available information suggesting relatively high capacity of local wells completed in this geologic unit, we anticipate recharge and potential storage of a significant volume of water may be possible. Again, an important factor in storage is understanding groundwater losses in the local system that would then not be recoverable. According to OWRD groundwater staff, given the heterogeneities within the deposits identifying losses in the local system may be a formidable task.

### **Alternative Uses of Stored Water**

The descriptions of AR (surface infiltration) and ASR (well recharge) projects above, describe the simplest approaches to these types of projects. More complex projects that exchange stored water for live flow diversions and allow protection of live instream flows at senior priority dates could potentially be devised. A detailed assessment of TSID's water rights, of the Whychus Creek surface water users, or additional options for use of the stored water was not completed as part of this assessment, but the feasibility of this concept could be explored further.

### **2.4 Next Steps**

The following data needs have been identified or were not assessed, and additional evaluation will be required before determining whether an AR or ASR project would be recommended

- Detailed analysis of the aquifer characteristics (including identifying losses in the local system to determine the aquifer's capacity to store water), including site specific storage capacity and recoverability assessment.
- Whychus Creek water quality, native groundwater quality of target storage aquifer, and a geochemical compatibility assessment.
- Source water treatment requirements and costs, if necessary.
- Costs associated with recovering stored groundwater for exchange and funding source to offset increased operational costs to TSID.
- Potential costs associated with reduced hydroelectric power generation by TSID.
- Potential impacts (positive or negative) to local springs and existing water rights.

### **2.5 Conclusions and Next Step Recommendations**

Based on available information, limited opportunities appear to exist to use below ground storage solely to recharge the aquifer and potentially increase flows from local springs. AR would be the mechanism that could be used to implement such a project, and a limited license (temporary authorization) could potentially be obtained to test the AR concept. To implement such a project on a permanent basis would require obtaining an existing water right (such as the transfer of an existing water right).

While not the focus of the Whychus Creek sub-group, we note that if the stored water was going to be recovered, in whole or in part, an AR project could potentially use some of TSID's existing water rights to divert, and store wintertime surface water from Whychus Creek. The stored water would be used as a replacement water supply during summer months under a new water right for the use of stored water. Again, a limited license may be a good option for testing this AR concept.

In addition, the available geologic and hydrogeologic information described in this memorandum indicate potentially favorable characteristics for relatively high groundwater recharge rates that may allow storage of water in the local aquifers. Additional site specific

assessment is needed to evaluate if recharge and recovery rates, storage volumes, and recoverability characteristics provide sufficient benefit to warrant implementation. Several other elements will be required to complete a detailed evaluation.

### 3. Drought – Response Tools and Resources

#### 3.1 Drought Declaration Process

During a drought, the Governor has the authority to make a drought declaration within a county to assist with drought response. A county may request that the Governor make a drought declaration by submitting a written request to the Office of Emergency Management or the Governor can declare it of her own volition. A county request must be signed by the county governing body and include a preliminary assessment of property damage or loss. During a drought, OWRD is responsible for coordinating with other agencies and communicating information regarding water supply shortages.

Two inter-agency groups evaluate whether a “severe and continuing drought” exists or is likely to exist. These groups are the Water Supply Availability Committee (WSAC) and the Drought Readiness Council. The WSAC uses indicators, including but not limited to snowpack, precipitation, storage in key reservoirs, and soil moisture conditions to evaluate drought conditions, then the Drought Readiness Council reviews local requests for drought assistance and makes recommendations to the Governor. In 2015, Oregon’s Drought Council made drought declarations in 26 counties.

Counties can also obtain assistance from federal resources. In 2015, the federal government declared a drought emergency for 13 Oregon Counties. Federal drought designations are issued by the U.S. Secretary of Agriculture for counties within Oregon when the U.S. Drought Monitor calculates “severe” drought for eight consecutive weeks. Counties contiguous to those where a federal drought declaration is made are also eligible for federal drought assistance.

#### 3.2 Legal Tools Available During Drought

When a drought is declared by the Governor, legal tools become temporarily available to water users and managers within the designated drought area to mitigate the effects of drought. Emergency water use permits (temporary drought permits) allow a water user to temporarily use water from an alternate source with a junior priority. Temporary drought transfers allow a water right holder who cannot exercise his or her right because of drought to temporarily change the character of use, place of use, or point of diversion of another right to make up this deficiency. Water users who hold a primary surface water right and a supplemental groundwater right on the same lands may substitute the supplemental right for the primary right, providing access to groundwater that often has less user competition and is less affected during a drought. Before a drought is declared, water users may enter an agreement that determines distribution of water during times of drought.

Legal Tools to Manage Water Rights During Drought			
Emergency Water Use Permits	Temporary Drought Transfers	Temporary Ground Water Substitutions	Options or Agreements for Use of Existing Rights
<ul style="list-style-type: none"> <li>• Temporary junior water right</li> <li>• Temporarily use water from an alternate source</li> <li>• Alternate source usually groundwater</li> <li>• Expedited review</li> <li>• No contested hearing</li> <li>• Cannot cause injury to existing users</li> <li>• Cannot harm public interest</li> </ul>	<ul style="list-style-type: none"> <li>• Temporarily change in character of use, place or use, or point of diversion of another water right</li> <li>• Transfer only to land without an existing water right</li> <li>• Expedited review</li> <li>• Cannot cause injury to existing users</li> </ul>	<ul style="list-style-type: none"> <li>• Substitute a supplemental groundwater right for a primary surface water right</li> <li>• Mechanism to access ground water</li> <li>• Subject to contested hearing (10-day protest period)</li> </ul>	<ul style="list-style-type: none"> <li>• Private water agreements formally authorize use during times of drought</li> <li>• Example: one landowner curtails use and sells excess to another</li> <li>• May not exceed use authorized under the rights involved</li> <li>• Must provide notice to the Department</li> <li>• Cannot cause injury to existing users</li> <li>• Cannot harm public interest</li> </ul>

In addition to the availability of these legal tools to help manage drought, the Governor may impose restrictions on certain water uses through an Executive Order, which requires state agencies to reduce water use at state-owned facilities or requires local jurisdictions to implement water conservation plans. The Water Resources Commission can also direct state agencies “and political subdivision within any drainage basin or subbasin” to develop a water conservation plan or water curtailment plan (ORS 536.780). If drought persists or reaches levels of a severe water emergency (ex. drinking water supplies are threatened) local emergency management staff may request that a state declaration of emergency is issued, initiating broader action and deployment of resources from state agencies.

### 3.3 Federal Resources Available During Drought

To assist at the federal level, U.S. Department of Agriculture (USDA) Drought Programs and Assistance includes Farm Service Resources, Conservation and Livestock Assistance, Crop Insurance Assistance, and Credit Assistance programs. Specifically, the Farm Service Agency's Emergency Conservation Programs provide funding to rehabilitate farmland and forest land damaged by drought, and the Emergency Loan Program helps producers recover from losses due to drought. The Livestock Forage Disaster Program provides compensation for grazing losses on federal land due to drought. The federal noninsured Crop Disaster Assistance Program provides financial assistance for non-insurable crop losses due to drought and the Tree Assistance Program offers assistance to orchards and nurseries to rehabilitate post drought. The U.S. Small Business Administration also provides loans to non-farm businesses and non-profits.

Farm Service Agency Disaster Assistance Programs for Drought					
Emergency Conservation Program	Emergency Forest Restoration Program	Emergency Loan Program	Livestock Forage Disaster Program	Noninsured Crop Disaster Assistance Program	Tree Assistance Program
Funding to rehabilitate farmland	Funding to owners of private forest land to restore forest health	Loans to help producers recover from production and physical losses	Compensation for grazing losses on federal land	Assistance for non-insurable crop losses	Assistance in rehabilitation of trees, bushes, and vines

## References

Gannett, M.W., Lite, Jr., K.E., Morgan, D.S., and Collins, C.A., 2001, Ground-water hydrology of the upper Deschutes Basin, Oregon: U.S. Geological Survey Water-Resources Investigations Report 00-4162, 74 p.

Sherrod, D.R., Taylor, E.M., Ferns, M.L., Scott, W.E., Conrey, R.M., and Smith, G.A., 2004, Geologic map of the Bend 30- x 60-minute quadrangle, central Oregon: U.S. Geological Survey, Geologic Investigations Series Map I-2683, scale 1:100,000

Woody, Jennifer, 2008, "A Preliminary Assessment of Hydrogeologic Suitability for Aquifer Storage and Recovery (ASR) in Oregon", Oregon State University, Graduate Theses and Dissertations. 277 p.

United States Geological Survey, 1997, Ground-Water and Water-Chemistry Data for the Upper Deschutes Basin, Oregon, Open-File Report 97-197. 30 p.

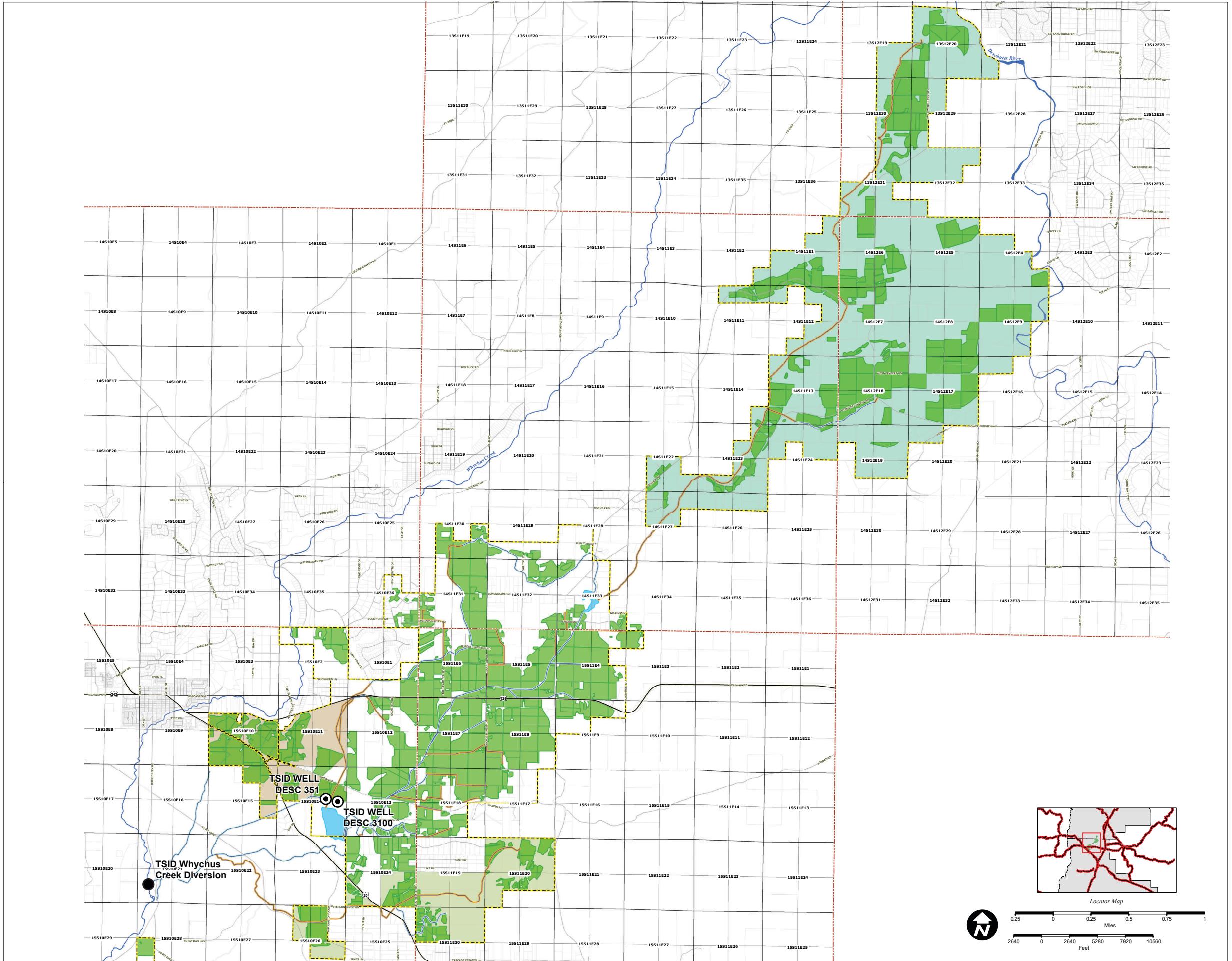
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**Figure 1**  
District Map



**FIGURE 1****District Map**

Whychus Creek Groundwater  
Storage Assessment

**LEGEND****District Features**

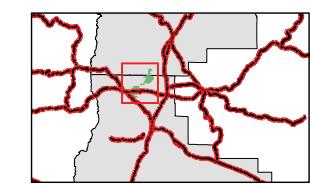
- Well Location
- Point of Diversion
- District Boundary
- Lower Bridge Subdistrict
- Fry Rear Subdistrict
- Lazy Z Subdistrict
- Place of Use
- Reservoir
- Canal
- Piped Canal
- Open Canal

**Base Map**

- Township Range
- Section
- Quarter
- Quarter Quarter
- Taxlot
- State Road
- Railroad
- Road
- River

**NOTE:**

Map provided by Three Sisters Irrigation District



0.25 0 0.25 0.5 0.75 1  
Miles  
2640 0 2640 5280 7920 10560  
Feet

**GSS**  
Geo-Spatial Solutions Inc.

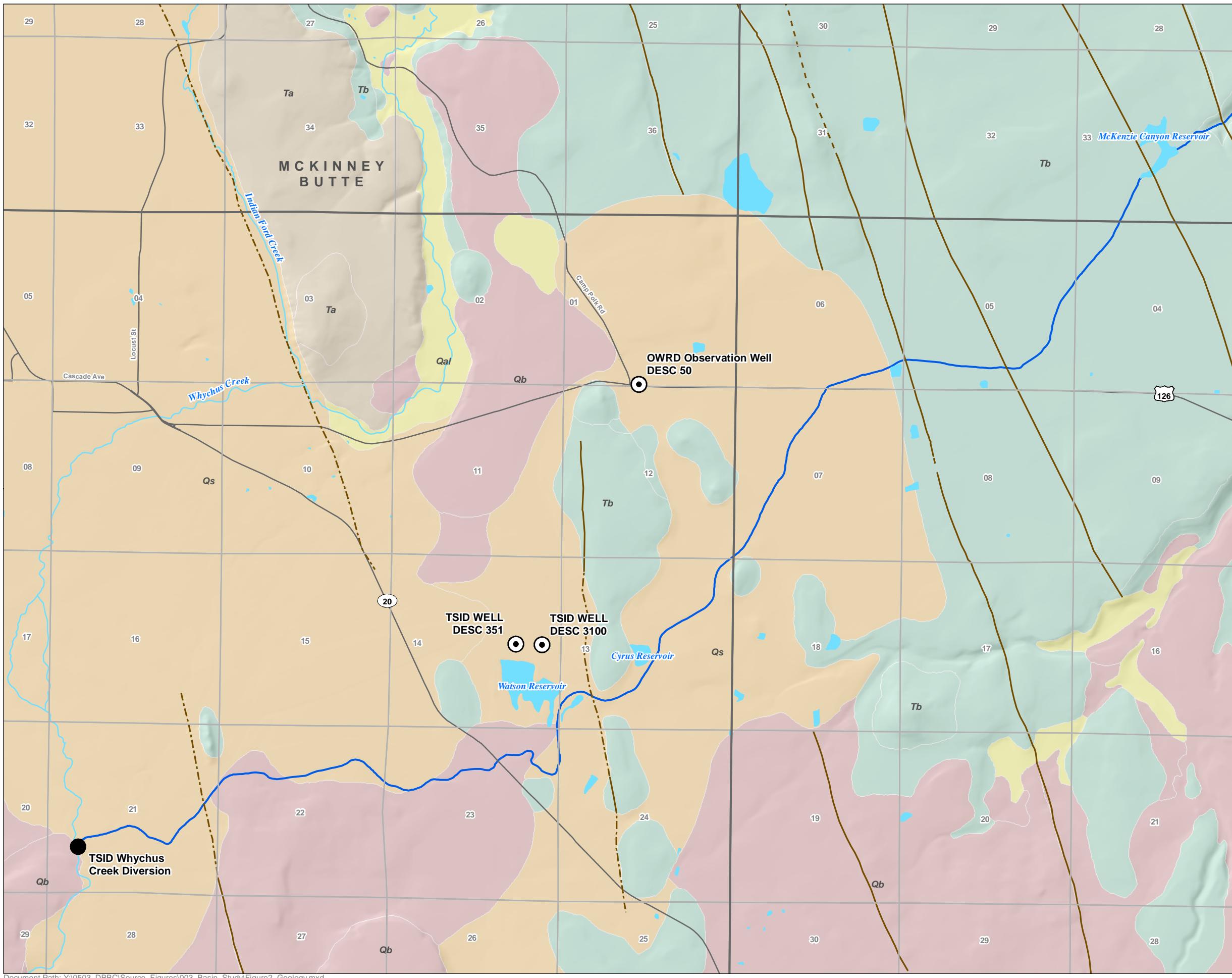
Copyright © 2010 Geo-Spatial Solutions, Inc. All Rights Reserved.  
Printed in the United States of America.



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**Figure 2**  
Geologic Overview

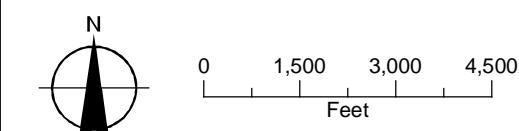


**FIGURE 2**
**Geologic Overview**  
**Whychus Creek Groundwater Storage Assessment**
**LEGEND**

- Well
- Point of Diversion (POD)
- ~~~~ Major Road
- ~~~~ Canal
- ~~~~ Watercourse
- ~~~~ Waterbody
- Faults**
- Certain
- - - Concealed
- - - Approximate
- Surficial Geology**
- Qal, Alluvial Deposits (Holocene)
- Qb, Basalt (Holocene and Pleistocene)
- Qs, Alluvium and Glacial Outwash Deposits (Holocene and Pleistocene)
- Ta, Andesite (Pliocene and Miocene)
- Tb, Basalt (Pliocene and Miocene)

**NOTE:**

Modified from Sherrod, D.R., Taylor, E.M., Ferns, M.L., Scott, W.E., Conrey, R.M., and Smith, G.A., 2004, Geologic map of the Bend 30- x 60-minute quadrangle, central Oregon: U.S. Geological Survey, Geologic Investigations Series Map I-2683, scale 1:100,000



Date: November 19, 2018  
Data Sources: USGS, DOGAMI, ESRI





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**Figure 3**  
Well Locations

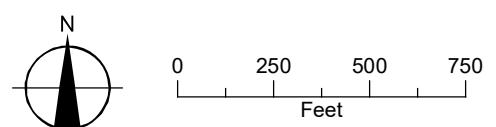


**FIGURE 3**  
**Well Location Map**  
Whychus Creek Groundwater  
Storage Assessment



**LEGEND**

- Well (Black Circle)
- TSID Conveyance (Blue Line)
- Tax Lot (Yellow Box)



Date: July 29, 2016  
Data Sources: USGS, Deschutes Co.,  
Air Photo 2014 USDA





**Attachment 1**

---

**Approved Limited License LL-1433**



# Oregon Water Resources Department



## **Final Order Limited License Application LL-1433 Hudson Bay District Improvement Company**

### ***Appeal Rights***

This is a final order in other than a contested case. This order is subject to judicial review under ORS 183.484. Any petition for judicial review must be filed within the 60-day time period specified by ORS 183.484(2). Pursuant to ORS 536.075 and OAR 137-004-0080 you may either petition for judicial review or petition the Director for reconsideration of this order. A petition for reconsideration may be granted or denied by the Director, and if no action is taken within 60 days following the date the petition was filed, the petition shall be deemed denied.

### ***Requested Water Use***

On August 31, 2012, the Water Resources Department received completed Limited License request **1433** from Hudson Bay District Improvement Company for the use of up to 45 cubic feet per second from the Walla Walla River, located in the SW ¼, NE ¼, Section 12, Township 5 North, Range 35 East, W.M., for the purpose of artificial groundwater recharge testing, for the period of November 1, 2012 through December 31, 2017.

### ***Authorities***

The Department may approve a limited license pursuant to its authority under ORS 537.143, 537.144 and OAR 690-340-0030.

ORS 537.143(2) authorizes the Director to revoke the right to use water under a limited license if it causes injury to any other water right or a minimum perennial streamflow.

A limited license will not be issued for more than five consecutive years for the same use, as directed by ORS 537.143(8).

### ***Findings of Fact***

1. The forms, fees and map have been submitted, as required by OAR 690-340-0030(1).
2. The Department provided public notice of the application, on September 11, 2012 as required by OAR 690-340-0030(2).
3. This limited license request is limited to an area within a single drainage basin as required by OAR 690-340-0030(3).
4. The Department has determined that there is water available for the requested use.

5. The Department has determined that the proposed source has not been withdrawn from further appropriation.
6. Because this use is from surface water and has the potential to impact fish, the Department finds that fish screening is required to protect the public interest.
7. Because the use requested is longer than 120 days and because the use is in an area that has sensitive, threatened or endangered fish species, the use is subject to the Department's rules under OAR 690-33. These rules aid the Department in determining whether a proposed use will impair or be detrimental to the public interest with regard to sensitive, threatened, or endangered fish species.
8. The Department has determined that the use is not subject to its rules under OAR 690-350. However, artificial groundwater recharge testing must be done in a manner that provides a test with results and supplemental information for the user's artificial groundwater recharge permit application. Consistent with this intent, the Department has added conditions pertaining to testing, monitoring, reporting and coordination with Oregon Department of Environmental Quality (ODEQ), Oregon Department of Fish and Wildlife (ODFW) and this Department.
9. The Department has received comments related to the possible issuance of the limited license from ODEQ requesting changes to the proposed monitoring plan. These changes pertained to sampling and reporting. The water quality monitoring plan was revised and approved by ODEQ on November 28, 2012. The Department has received comments from ODFW in support of this license and recommending conditions related to instream water rights and bypass flows. The Department's Groundwater Section determined the testing and water quantity monitoring plan submitted as an addendum to the application on January 3, 2013 is sufficient for artificial groundwater recharge testing. The authorization of Limited License **1433** is conditioned to satisfactorily address issues raised in those comments.
10. Pursuant to OAR 690-340-0030(4)(5), conditions have been added with regard to notice and water-use measurement.

#### ***Conclusions of Law***

The proposed water use will not impair or be detrimental to the public interest pursuant to OAR 690-340-0030(2), as limited in the order below.

#### ***Order***

Therefore, pursuant to ORS 537.143, ORS 537.144, and OAR 690-340-0030, application for Limited License **1433** is approved as conditioned below.

1. The period and rate of use for Limited License **1433** shall be from March 7, 2013, through December 31, 2017 for the use of up to 45 cubic feet per second from the Walla Walla River, for the purpose of artificial groundwater recharge testing. The season of use is limited to November 1 through May 15. This limited License **1433** replaces and supersedes LL-1189 which is of no further force or effect.

2. The licensee shall give notice to the Watermaster in the district where use is to occur not less than 15 days or more than 60 days in advance of using the water under this license. The notice shall include the location of the diversion, and the volume of water to be diverted and the intended use and place of use.
3. When water is diverted under this license, the use is limited to times when the following minimum streamflows are met in the Tum A Lum reach of the Walla Walla River, between the Little Walla Walla River diversion and Nursery Bridge Dam and flowing past Nursery Bridge Dam: November – 64 cfs, December and January – 95 cfs, February to May 15 – 150 cfs. Nursery Bridge Dam is located just downstream of Nursery Bridge and is downstream of the Little Walla Wall diversion. The District 5 Watermaster, based on gage and/or flow measurements, shall make the determination that the above described streamflows are flowing past Nursery Bridge Dam. Diversion under this license shall cease when said streamflows are unmet.
4. The Licensee shall follow the operation, water quality and water level monitoring plans described in the document entitled “Hydrogeologic Setting and Source Water and Groundwater Monitoring and Reporting Plan for the Hudson Bay District Improvement Company Multi-Site Alluvial Aquifer Limited License Application **LL-1433**, Umatilla County, Oregon” and dated January 3, 2013. This plan may be modified after review and approval of changes by the Department.
5. The licensee shall comply with all ODEQ water-quality requirements. If monitoring data or other information result in identification of potential water-quality concerns, ODEQ may seek modifications to the monitoring and test plan and/or require a permit of its own to address the water-quality concerns prior to resumption of artificial groundwater recharge testing.
6. Before water use may begin under this license, the licensee shall install a totalizing flow meter at each point of diversion and at the entry point to each recharge test site. The totalizing flow meters must be maintained in good working order. In addition the licensee shall maintain a record of all water use, including the total number of hours of diversion, the total volume diverted, and the categories of beneficial use to which the water is applied. During the period of the limited license, the record of use shall be available for review by the Department upon request, and shall be submitted to the Department annually and to Watermaster upon request. This record shall include the amount of water diverted from the Walla Walla River, and the amount delivered to each recharge area.
7. The Director may revoke the right to use water for any reason described in ORS 537.143(2), and OAR 690-340-0030(6). Such revocation may be prompted by field regulatory activities or by any other reason.
8. Use of water under a limited license shall not have priority over any water right exercised according to a permit or certificate, and shall be subordinate to all other authorized uses that rely upon the same source.
9. The licensee shall install, maintain and operate fish screening and by-pass devices as required by the Oregon Department of Fish and Wildlife to prevent fish from entering the proposed diversion. See copy of enclosed fish screening criteria for information.

10. In supporting this license, ODFW retains the prerogative to pursue a future instream water right for the Walla Walla River.
11. The licensee is required to provide a written annual report by February 15th of each year. This report will detail recharge testing. Reporting shall include, but is not limited to, the results of testing efforts that relate to water quality, water quantity, and operations. Water level data shall be submitted in a Department-specified digital format. The licensee shall consult with ODEQ and OWRD to identify additional specific reporting elements. The first report is due in February 2014. The annual report shall be sealed and signed by a professional(s) registered or allowed, under Oregon law, to practice geology.

**NOTE:** This water-use authorization is temporary. Applicants are advised that issuance of this final order does not guarantee that any permit for the authorized use will be issued in the future; any investments should be made with that in mind.

Issued March 11 2013



E. Timothy Wallin, Water Rights Program Manager, *for*  
Phillip C. Ward, Director

Enclosures - limited license

cc: Tony Justus, District 5 Watermaster  
Bill Duke, ODFW  
Phil Richerson, ODEQ  
File

If you need further assistance, please contact the Water Rights Section at the address, phone number, or fax number below. When contacting the Department, be sure to reference your limited license number for better service.

Remember, the use of water under the terms of this limited license is not a secure source of water. Water use can be revoked at any time. Such revocation may be prompted by field regulatory activities or many other reasons.

Water Rights Section  
Oregon Water Resources Department  
725 Summer Street NE, Suite A  
Salem OR 97301-1271  
Phone: (503) 986-0817      Fax: (503) 986-0901

# FISH SCREENING CRITERIA FOR WATER DIVERSIONS

This summary describes ODFW fish screening criteria for all fish species.

**Screen material openings for ditch (gravity) and pump screens** must provide a minimum of 27% open area:

**Perforated plate:** Openings shall not exceed 3/32 or 0.0938 inches (2.38 mm).

**Mesh/Woven wire screen:** Square openings shall not exceed 3/32 or 0.0938 inches (2.38 mm) in the narrow direction, e.g., 3/32 inch x 3/32 inch open mesh.

**Profile bar screen/Wedge wire:** Openings shall not exceed 0.0689 inches (1.75 mm) in the narrow direction.

**Screen area** must be large enough to prevent fish impact. Wetted screen area depends on the water flow rate and the approach velocity.

**Approach velocity:** The water velocity perpendicular to and approximately three inches in front of the screen face.

**Sweeping velocity:** The water velocity parallel to the screen face.

**Bypass system:** Any pipe, flume, open channel or other means of conveyance that transports fish back to the body of water from which the fish were diverted.

**Active pump screen:** Self cleaning screen that has a proven cleaning system.

**Passive pump screen:** Screen that has no cleaning system other than periodic manual cleaning.

**Screen approach velocity for ditch and active pump screens** shall not exceed 0.4 fps (feet per second) or 0.12 mps (meters per second). The wetted screen area in square feet is calculated by dividing the maximum water flow rate in cubic feet per second (1 cfs = 449 gpm) by 0.4 fps.

**Screen sweeping velocity for ditch screens** shall exceed the approach velocity. Screens greater than 4 feet in length must be angled at 45 degrees or less relative to flow. An adequate bypass system must be provided for ditch screens to safely and rapidly collect and transport fish back to the stream.

**Screen approach velocity for passive pump screens** shall not exceed 0.2 fps or 0.06 mps. The wetted screen area in square feet is calculated by dividing the maximum water flow rate by 0.2 fps. Pump rate should be less than 1 cfs.

*For further information please contact:*

Bernie Kepshire  
Oregon Department of Fish and Wildlife  
7118 NE Vandenberg Avenue  
Corvallis, OR 97330-9446  
(541)757-4186 x255  
[bernard.m.kepshire@state.or.us](mailto:bernard.m.kepshire@state.or.us)



State of Oregon  
Water Resources Department  
725 Summer Street NE, Suite A  
Salem, Oregon 97301  
(503) 986-0900

## Application for Limited Water Use License

*A summary of review criteria and procedures that are generally applicable to these applications is available at [www.wrd.state.or.us/OWRD/PUBS/forms.shtml](http://www.wrd.state.or.us/OWRD/PUBS/forms.shtml).*

RECEIVED

License No. 16-1433

AUG 31 2012

Applicant(s): Hudson Bay District Improvement Company

WATER RESOURCES DEPT  
SALEM, OREGON

Contact Person: Jon Brough, District Manager/John Zerba, Secretary/Treasurer

Mailing Address: P.O. Box 110

Milton-Freewater                            OR                            97862  
City    State                                    Zip

Telephone No: (541) 938-6105

I (We) make application for a Limited License to use or store the following described surface waters or groundwater-not otherwise exempt, or to use stored water of the State of Oregon for a use of a short-term or fixed duration:

1. SOURCE(S) OF WATER for the proposed use: Walla Walla River a tributary of the Columbia River.
2. TOTAL AMOUNT OF WATER to be diverted: up to 45 cubic feet per second, or        gallons per minute. If water is to be used from more than one source, give the quantity from each: N/A.
3. INTENDED USE(S) OF WATER: (check all that apply)  
 Road construction or maintenance  
 General construction  
 Forestland and rangeland management; or  
 Other: Artificial Groundwater Recharge testing
4. DESCRIPTION OF PROPOSED PROJECT: Include a description of the intended place of use as shown on the accompanying site map, the method of water diversion, the type of equipment to be used (including pump horsepower, if applicable), length and dimensions of supply ditches and pipelines:

The purpose of this limited license is to test artificial groundwater recharge at multiple sites within the Walla Walla Basin. Water will be diverted from the Walla Walla River when available during winter months, through a series of pipes and ditches to 7 proposed sites west of Highway 11. Five of the proposed sites will be infiltration galleries, one existing site is an infiltration gallery/infiltration basin, and one proposed site will be an infiltration basin. (See Attachment A for complete project description.)

5. PROJECT SCHEDULE: (List day, month, and year)

Date water use will begin November 1, 2012

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AUG 31 2012

Date project will be completed December 31, 2017

WATER RESOURCES DEPT  
SALEM, OREGON

Date water use will be completed December 31, 2017  
Is this project fully or partially funded by the American Recovery and Reinvestment Act? (Federal stimulus dollars)  Yes  No

**PLEASE READ CAREFULLY**

NOTE: A completed water availability statement from the local watermaster, Land Use Information Form completed by the local Planning Department, fees and site map meeting the requirements of OAR 690-340-030 must accompany this request. The fee for this request is \$250 for the first point of diversion plus \$25 for each additional point of diversion. Please review the Department's fee schedule to view fees required to request a limited license for Aquifer Storage and Recovery testing purposes or for Artificial Groundwater Recharge testing purposes.

Failure to provide any of the required information will result in return of your application. The license, if granted, will not be issued or replaced by a new license for a period of more than five consecutive years. The license, if granted, will be subordinate to all other authorized uses that rely upon the same source, or water affected by the source, and may be revoked at any time it is determined the use causes injury to any other water right or minimum perennial streamflow.

If water source is a well, well logs or adequate information for the Department to determine aquifer, well depth, well seal and open interval, etc. are required. The licensee shall indicate the intended aquifer. If for multiple wells, each map location shall be clearly tied to a well log.

If a limited license is approved, the licensee shall give notice to the Department (Watermaster) at least 15 days in advance of using the water under the Limited License and shall maintain a record of use. The record of use shall include, but need not be limited to, an estimate of the amount of water used, the period of use and the categories of beneficial use to which the water is applied. During the period of the Limited License, the record of use shall be available for review by the Department upon request.

**REMARKS:**

Water will be withdrawn from the Walla Walla River during the winter months, when available, and transported via a series of pipes and ditches, to seven proposed sites west of Highway 11 in Milton-Freewater. The 45 cfs requested is proposed to be used interchangeably between all sites. This application will supersede the existing limited license LL1189 and will include the existing Hulette Johnson site.

SIGNATURE of Applicant: J. C. Juhl

DATE: 8-23-12

Title: Sec-Treas

**Mapping Requirements (OAR 690-340-0030):**

(1) A request for a limited license shall be submitted on a form provided by the Water Resources Department, and shall be accompanied by the following:

(c) A site map of reproducible quality, drawn to a standard, even scale of not less than 2 inches = 1 mile, showing:

(A) The locations of all proposed points of diversion referenced by coordinates or by bearing and distance to the nearest established or projected public land survey corner;

(B) The general course of the source for the proposed use, if applicable;

(C) Other topographical features such as roads, streams, railroads, etc., which may be helpful in locating the diversion points in the field.

# Land Use Information Form



Oregon Water Resources Department  
725 Summer Street NE, Suite A  
Salem, Oregon 97301-1266  
(503) 986-0900  
[www.wrd.state.or.us](http://www.wrd.state.or.us)

## NOTE TO APPLICANTS

In order for your application to be processed by the Water Resources Department (WRD), this Land Use Information Form must be completed by a local government planning official in the jurisdiction(s) where your water right will be used and developed. The planning official may choose to complete the form while you wait, or return the receipt stub to you. Applications received by WRD without the Land Use Form or the receipt stub will be returned to you. Please be aware that your application will not be approved without land use approval.

**This form is NOT required if:**

- 1) Water is to be diverted, conveyed, and/or used only on federal lands; **OR**
- 2) The application is for a water right transfer, allocation of conserved water, exchange, permit amendment, or ground water registration modification, and all of the following apply:
  - a) The existing and proposed water use is located entirely within lands zoned for exclusive farm-use or within an irrigation district;
  - b) The application involves a change in place of use only;
  - c) The change does not involve the placement or modification of structures, including but not limited to water diversion, impoundment, distribution facilities, water wells and well houses; and
  - d) The application involves irrigation water uses only.

## NOTE TO LOCAL GOVERNMENTS

The person presenting the attached Land Use Information Form is applying for or modifying a water right. The Water Resources Department (WRD) requires its applicants to obtain land-use information to be sure the water rights do not result in land uses that are incompatible with your comprehensive plan. Please complete the form or detach the receipt stub and return it to the applicant for inclusion in their water right application. You will receive notice once the applicant formally submits his or her request to the WRD. The notice will give more information about WRD's water rights process and provide additional comment opportunities. You will have 30 days from the date of the notice to complete the land-use form and return it to the WRD. If no land-use information is received from you within that 30-day period, the WRD may presume the land use associated with the proposed water right is compatible with your comprehensive plan. Your attention to this request for information is greatly appreciated by the Water Resources Department. If you have any questions concerning this form, please contact the WRD's Customer Service Group at 503-986-0801.

RECEIVED BY OWRD

SEP 06 2012

SALEM, OR

WR / FS

# Land Use Information Form



**Oregon Water Resources Department**  
 725 Summer Street NE, Suite A  
 Salem, Oregon 97301-1266  
 (503) 986-0900  
[www.wrd.state.or.us](http://www.wrd.state.or.us)

Applicant(s): Hudson Bay District Improvement Company

Mailing Address: P.O. Box 110

City: Milton-Freewater State: OR Zip Code: 97862 Daytime Phone: (541) 938-6105

## A. Land and Location

Please include the following information for all tax lots where water will be diverted (taken from its source), conveyed (transported), and/or used or developed. Applicants for municipal use, or irrigation uses within irrigation districts may substitute existing and proposed service-area boundaries for the tax-lot information requested below.

Township	Range	Section	1/4 1/4	Tax Lot #	Plan Designation (e.g., Rural Residential/RR-5)	Water to be:	Proposed Land Use:
—	—	—	—	—	<u>See Attached Map</u>	<input checked="" type="checkbox"/> Diverted <input checked="" type="checkbox"/> Conveyed <input checked="" type="checkbox"/> Used	<u>Aquifer Recharge</u>
—	—	—	—	—	—	<input type="checkbox"/> Diverted <input type="checkbox"/> Conveyed <input type="checkbox"/> Used	—

List all counties and cities where water is proposed to be diverted, conveyed, and/or used or developed:

Umatilla County  
City of Milton-Freewater

## B. Description of Proposed Use

Type of application to be filed with the Water Resources Department:

- Permit to Use or Store Water  Water Right Transfer  Permit Amendment or Ground Water Registration Modification  
 Limited Water Use License  Allocation of Conserved Water  Exchange of Water

Source of water:  Reservoir/Pond  Ground Water  Surface Water (name) Walla Walla River

Estimated quantity of water needed: up to 45  cubic feet per second  gallons per minute  acre-feet

Intended use of water:  Irrigation  Commercial  Industrial  Domestic for \_\_\_\_\_ household(s)  
 Municipal  Quasi-Municipal  Instream  Other Artificial Groundwater Recharge Testing

Briefly describe:

Water will be diverted from the Walla Walla River when available during winter months and conveyed through pipes and ditches to proposed sites west of Highway 11, for the purpose of artificial groundwater recharge testing.

Note to applicant: If the Land Use Information Form cannot be completed while you wait, please have a local government representative sign the receipt at the bottom of the next page and include it with the application filed with the Water Resources Department.

RECEIVED BY OWRD

See bottom of Page 3. →

SEP 06 2012

# For Local Government Use Only

The following section must be completed by a planning official from each county and city listed unless the project will be located entirely within the city limits. In that case, only the city planning agency must complete this form. This deals only with the local land-use plan. Do not include approval for activities such as building or grading permits.

## Please check the appropriate box below and provide the requested information

- Land uses to be served by the proposed water uses (including proposed construction) are allowed outright or are not regulated by your comprehensive plan. Cite applicable ordinance section(s): **Title 10, Chapter 4**.
- Land uses to be served by the proposed water uses (including proposed construction) involve discretionary land-use approvals as listed in the table below. (Please attach documentation of applicable land-use approvals which have already been obtained. Record of Action/land-use decision and accompanying findings are sufficient.) **If approvals have been obtained but all appeal periods have not ended, check "Being pursued."**

Type of Land-Use Approval Needed (e.g., plan amendments, rezones, conditional-use permits, etc.)	Cite Most Significant, Applicable Plan Policies & Ordinance Section References	Land-Use Approval:	
		<input type="checkbox"/> Obtained	<input type="checkbox"/> Being Pursued
		<input type="checkbox"/> Denied	<input type="checkbox"/> Not Being Pursued
		<input type="checkbox"/> Obtained	<input type="checkbox"/> Being Pursued
		<input type="checkbox"/> Denied	<input type="checkbox"/> Not Being Pursued
		<input type="checkbox"/> Obtained	<input type="checkbox"/> Being Pursued
		<input type="checkbox"/> Denied	<input type="checkbox"/> Not Being Pursued
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		<input type="checkbox"/> Obtained	<input type="checkbox"/> Being Pursued
		<input type="checkbox"/> Denied	<input type="checkbox"/> Not Being Pursued

Local governments are invited to express special land-use concerns or make recommendations to the Water Resources Department regarding this proposed use of water below, or on a separate sheet.

Name: Gina Hartzheim Title: City Planner

Signature: Gina Hartzheim Phone: 541-938-8234 Date: 9/4/12

Government Entity: City of Milton-Freewater

**Note to local government representative:** Please complete this form or sign the receipt below and return it to the applicant. If you sign the receipt, you will have 30 days from the Water Resources Department's notice date to return the completed Land Use Information Form or WRD may presume the land use associated with the proposed use of water is compatible with local comprehensive plans.



## Receipt for Request for Land Use Information

Applicant name: \_\_\_\_\_

City or County: \_\_\_\_\_ Staff contact: \_\_\_\_\_

Signature: \_\_\_\_\_ Phone: \_\_\_\_\_ Date: **RECEIVED BY OWRD**

SEP 06 2012

# Land Use Information Form



Oregon Water Resources Department  
725 Summer Street NE, Suite A  
Salem, Oregon 97301-1266  
(503) 986-0900  
[www.wrd.state.or.us](http://www.wrd.state.or.us)

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SEP 4 2012

## NOTE TO APPLICANTS

WATER RESOURCES DEPT  
SALEM, OREGON

In order for your application to be processed by the Water Resources Department (WRD), this Land Use Information Form must be completed by a local government planning official in the jurisdiction(s) where your water right will be used and developed. The planning official may choose to complete the form while you wait, or return the receipt stub to you. Applications received by WRD without the Land Use Form or the receipt stub will be returned to you. Please be aware that your application will not be approved without land use approval.

**This form is NOT required if:**

- 1) Water is to be diverted, conveyed, and/or used only on federal lands; OR
- 2) The application is for a water right transfer, allocation of conserved water, exchange, permit amendment, or ground water registration modification, and all of the following apply:
  - a) The existing and proposed water use is located entirely within lands zoned for exclusive farm-use or within an irrigation district;
  - b) The application involves a change in place of use only;
  - c) The change does not involve the placement or modification of structures, including but not limited to water diversion, impoundment, distribution facilities, water wells and well houses; and
  - d) The application involves irrigation water uses only.

## NOTE TO LOCAL GOVERNMENTS

The person presenting the attached Land Use Information Form is applying for or modifying a water right. The Water Resources Department (WRD) requires its applicants to obtain land-use information to be sure the water rights do not result in land uses that are incompatible with your comprehensive plan. Please complete the form or detach the receipt stub and return it to the applicant for inclusion in their water right application. You will receive notice once the applicant formally submits his or her request to the WRD. The notice will give more information about WRD's water rights process and provide additional comment opportunities. You will have 30 days from the date of the notice to complete the land-use form and return it to the WRD. If no land-use information is received from you within that 30-day period, the WRD may presume the land use associated with the proposed water right is compatible with your comprehensive plan. Your attention to this request for information is greatly appreciated by the Water Resources Department. If you have any questions concerning this form, please contact the WRD's Customer Service Group at 503-986-0801.

# Land Use Information Form



Oregon Water Resources Department  
725 Summer Street NE, Suite A  
Salem, Oregon 97301-1266  
(503) 986-0900  
[www.wrd.state.or.us](http://www.wrd.state.or.us)

Applicant(s): Hudson Bay District Improvement Company

Mailing Address: P.O. Box 110

City: Milton-Freewater

State: OR

Zip Code: 97862

Daytime Phone: (541) 938-6105

## A. Land and Location

Please include the following information for all tax lots where water will be diverted (taken from its source), conveyed (transported), and/or used or developed. Applicants for municipal use, or irrigation uses within irrigation districts may substitute existing and proposed service-area boundaries for the tax-lot information requested below.

Township	Range	Section	1/4 ¼	Tax Lot #	Plan Designation (e.g., Rural Residential/RR-5)	Water to be:	Proposed Land Use:
—	—	—	—	—	<u>See Attached Map</u>	<input checked="" type="checkbox"/> Diverted <input checked="" type="checkbox"/> Conveyed <input checked="" type="checkbox"/> Used	<u>Aquifer Recharge</u>
—	—	—	—	—	—	<input type="checkbox"/> Diverted <input type="checkbox"/> Conveyed <input type="checkbox"/> Used	—

List all counties and cities where water is proposed to be diverted, conveyed, and/or used or developed:

Umatilla County

City of Milton-Freewater

## B. Description of Proposed Use

Type of application to be filed with the Water Resources Department:

- Permit to Use or Store Water     Water Right Transfer     Permit Amendment or Ground Water Registration Modification  
 Limited Water Use License     Allocation of Conserved Water     Exchange of Water

Source of water:  Reservoir/Pond     Ground Water     Surface Water (name) Walla Walla River

Estimated quantity of water needed: up to 45     cubic feet per second     gallons per minute     acre-feet

Intended use of water:  Irrigation     Commercial     Industrial     Domestic for \_\_\_\_\_ household(s)  
 Municipal     Quasi-Municipal     Instream     Other Artificial Groundwater Recharge Testing

Briefly describe:

Water will be diverted from the Walla Walla River when available during winter months and conveyed through pipes and ditches to proposed sites west of Highway 11, for the purpose of artificial groundwater recharge testing.

Note to applicant: If the Land Use Information Form cannot be completed while you wait, please have a local government representative sign the receipt at the bottom of the next page and include it with the application filed with the Water Resources Department.

See bottom of Page 3. →

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**For Local Government Use Only**

SEP 4 2012

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WATER RESOURCES DEPT  
SALEM, OREGON

**Please check the appropriate box below and provide the requested information**

- Land uses to be served by the proposed water uses (including proposed construction) are allowed outright or are not regulated by your comprehensive plan. Cite applicable ordinance section(s): Title 10, Chapter 4.
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Name: Gina Hartzheim Title: City Planner

Signature: Gina Hartzheim Phone: 541-938-8234 Date: 9/4/12

Government Entity: City of Milton-Freewater

Note to local government representative: Please complete this form or sign the receipt below and return it to the applicant. If you sign the receipt, you will have 30 days from the Water Resources Department's notice date to return the completed Land Use Information Form or WRD may presume the land use associated with the proposed use of water is compatible with local comprehensive plans.

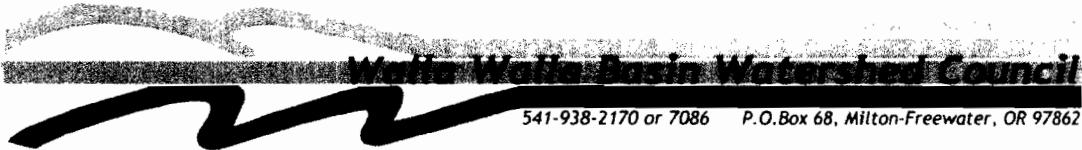


**Receipt for Request for Land Use Information**

Applicant name: \_\_\_\_\_

City or County: \_\_\_\_\_ Staff contact: \_\_\_\_\_

Signature: \_\_\_\_\_ Phone: \_\_\_\_\_ Date: \_\_\_\_\_



541-938-2170 or 7086 P.O.Box 68, Milton-Freewater, OR 97862

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Jerry Sauter  
Oregon Water Resources Department  
725 Summer Street NE, Suite A  
Salem, OR 97301

AUG 31 2012

WATER RESOURCES DEPT  
SALEM, OREGON

RE: Limited License Application in the Name of Hudson Bay District Improvement Company

Dear Mr. Sauter:

The enclosed limited license application requests a geographical expansion of the shallow aquifer recharge program that the Walla Walla Basin Watershed Council (WWBWC) has been implementing for public benefit with its partner Hudson Bay District Improvement Company (HBDIC) under its existing limited license (LL-1189). The Walla Walla Basin has experienced groundwater level declines, resulting in agricultural and domestic wells going dry, declining base flow in the Walla Walla River and its tributaries, and springs and spring-fed creeks going dry. The WWBWC has been collecting surface water and groundwater level data throughout the valley and this data, especially when coupled with the longer data sets from Oregon Water Resources Department monitoring sites, demonstrates these declines. Conversely, we have also been able to show the improvements to groundwater levels and spring creek flows in the vicinity and for as much as five miles to the northwest of our pilot project recharge site, which we initiated in 2004.

This Limited License application requests the use of up to 45 cfs from the Walla Walla River for Artificial Groundwater Recharge (AR) testing during the period of November 1 through May 15. The requested rate is not additive to the 50 cfs authorized under AR limited license LL-1189. We are including 7 recharge sites in this application, including our original HBDIC site. Should this application be approved it will supersede our existing Limited License. The 7 recharge sites are spread across approximately 5 square miles North and West of Milton-Freewater and the sites have been selected based on groundwater and surface decline data, geological capacity, and ease of water delivery. The WWBWC anticipates that in the next year or two we will be submitting an additional application for AR projects in the vicinity of the Little Walla Walla Distributary system, and an application for AR projects on the east side of the Walla Walla River. The cumulative water applied for in these three applications will likely be less than 90 cfs.

The Walla Walla valley irrigation community has made great progress in water management changes over the last decade to enable a minimal instream flow for passage and habitat for ESA listed aquatic species. However, a declining aquifer is preventing the full realization of those improvements as several reaches of the river are perched above the aquifer and experience significant losses of stream flow. A comprehensive groundwater recharge program is necessary to stabilize and improve streamflows for fish and to ensure a future of irrigated agriculture in the valley. Should any questions arise as you are

reviewing the enclosed application and attachments, please contact myself or Steven Patten, the project technical lead, at 541-938-2170, or email at [brian.wolcott@wwbcc.org](mailto:brian.wolcott@wwbcc.org)

Sincerely,



Brian Wolcott  
Executive Director  
Walla Walla Basin Watershed Council

Enclosures

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WATER RESOURCES DEPT  
SALEM, OREGON

LL-1433

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**Attachment A****DESCRIPTION OF PROPOSED PROJECT**WATER RESOURCES DEPT  
SALEM, OREGON

The Hudson Bay District Improvement Company (HBDIC) is proposing to divert water from the Walla Walla River at the Little Walla Walla River Diversion at approximately river mile 45.7 (SW ¼ NE ¼ Sec. 12 T5N R35E W.M.). This water would be delivered to multiple locations for the purpose of continued testing of alluvial artificial groundwater recharge (alluvial AR). The goal of continued alluvial AR testing is to evaluate the ability of the aquifer system to store and transmit recharged groundwater at multiple locations, and test the ability of these projects to replace the loss of floodplain function resulting from land development. Successful alluvial AR will replenish lost groundwater storage, ultimately benefitting streams through revitalized base flows. The alluvial AR testing proposed under this limited license application will build on previous alluvial AR results collected by HBDIC and the Walla Walla Basin Watershed Council at one location (Hulette Johnson) within the HBDIC system.

The Little Walla Walla River Diversion has a capacity of up to approximately 150 cfs. Water will be diverted at a rate of up to 45 cfs during the winter and spring months (November 1st – May 15<sup>th</sup>) at times when water is available. Diversion under this limited license is proposed to be limited to times when the following minimum streamflows (measured at Nursery Bridge) are met:

Time Period	Minimum Streamflows (cfs)
November 1 through November 31	64
December 1 through January 31	95
February 1 through May 15	150

The water will be conveyed to seven proposed places of use via pipes and ditches, as shown in the attached Map 1. One proposed place of use (Hulette Johnson) contains both infiltration galleries and infiltration basins, which are currently in existence. The remaining six proposed places of use are in development and will include five infiltration galleries (Anspach, Barrett, Dugger Creek, ODOT and Trumbull) and one infiltration basin (NW Umapine). The place of use for each site is listed below in Table 1 and each site can be found on Attachment B:

**Table 1.** Place of use locations for the aquifer recharge sites.

Site Name	Township	Range	Section	Tax Lot
Anspach	5N	35E	2	200
Barrett	5N	35E	3	400
Dugger Creek	6N	35E	30	500 & 1800
H. Johnson	6N	35E	33	900
NW Umapine	6N	34E	24	1000
ODOT	6N	35E	34	1500
Trumbull	6N	35E	27	900, 1000 & 1100

66-1433

The Source and Ground Water Monitoring Plan for the  
Walla Walla Basin Watershed Council's  
Limited License Application  
will be submitted following completion  
of a review by DEQ

This monitoring plan will also include site specific and area-wide hydrogeologic information.

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WATER RESOURCES DEPT  
SALEM, OREGON

LL-1433

#### Attachment D. Aquifer Recharge Monitoring Wells

Recharge Site	Well ID	Well Type	Well Location (TRS)	Well Location (UTM Zone 11T)	
				Easting	Northing
Anspach	GW_23	Multi-use	5N 35E S3 Q-NE QQ-SE	390432.546	5088757.822
Anspach	GW_135	Multi-use	5N 35E S2 Q-NW QQ-NW	390848.356	5088932.953
Anspach	PMW2	Monitoring Well	5N 35E S2	n/a	n/a
Barrett	GW_62	Multi-use	5N 35E S3 Q-NE QQ-SE	389834.806	5089059.234
Trumbull	PMW3	Monitoring Well	6N 35E S34	n/a	n/a
Dugger Creek	GW_36	Multi-use	6N 35E S30 Q-SE QQ-NW	384946.272	5091616.019
Dugger Creek	GW_119	Monitoring Well	6N 35E S30 Q-NE QQ-SW	384949.15	5092104.046
Dugger Creek	PMW1	Monitoring Well	6N 34E S25	n/a	n/a
Hulette Johnson	GW_39	Multi-use	6N 35E S33 Q-NE QQ-SE	388823.228	5090045.31
Hulette Johnson	GW_40	Multi-use	6N 35E S33 Q-SE QQ-NE	388846.149	5089945.789
Hulette Johnson	GW_41	Multi-use	6N 35E S33 Q-NE QQ-SE	388830.34	5090133.816
Hulette Johnson	GW_45	Monitoring Well	6N 35E S33 Q-NE QQ-SE	388555.543	5090167.255
Hulette Johnson	GW_46	Monitoring Well	6N 35E S33 Q-NE QQ-SW	388335.675	5090331.38
Hulette Johnson	GW_47	Monitoring Well	6N 35E S33 Q-NE QQ-SW	388325.733	5090362.964
Hulette Johnson	GW_48	Monitoring Well	6N 35E S33 Q-NE QQ-SW	388432.429	5090413.757
Hulette Johnson	GW_118	Monitoring Well	6N 35E S28 Q-SW QQ-SW	387655.395	5090858.899
Hulette Johnson	GW_35	Multi-use	6N 35E S33 Q-NW QQ-NE	388031.533	5090796.498
ODOT Prunedale	GW_41	Multi-use	6N 35E S33 Q-NE QQ-SE	388830.34	5090133.816
ODOT Prunedale	GW_48	Monitoring Well	6N 35E S33 Q-NE QQ-SW	388432.429	5090413.757
ODOT Prunedale	GW_35	Multi-use	6N 35E S33 Q-NW QQ-NE	388031.533	5090796.498
NW Umapine	GW_31	Multi-use	6N 35E S19 Q-SE QQ-NW	385163.051	5093209.972
NW Umapine	GW_34	Multi-use	6N 34E S24 Q-NW QQ-SE	383288.818	5093418.243
NW Umapine	GW_63	Multi-use	6N 34E S25 Q-NW QQ-SE	383280.245	5091893.17
NW Umapine	PMW5	Monitoring Well	6N 34E S25	n/a	n/a
Trumbull	GW_117	Monitoring Well	6N 35E S27 Q-SE QQ-SW	389825.547	5090864.475
Trumbull	PMW4	Monitoring Well	6N 35E S28	n/a	n/a

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WATER RESOURCES DEPT  
SALEM, OREGON

CL-1433

## **Land Use Information Form**



**Oregon Water Resources Department**  
725 Summer Street NE, Suite A  
Salem, Oregon 97301-1266  
(503) 986-0900  
[www.wrd.state.or.us](http://www.wrd.state.or.us)

**Applicant:** Hudson Bay District Improvement Company  
**First**

First

Last

**Mailing Address:** P.O. Box 110

**Milton-Freewater**      OR      97862      Daytime Phone: (541) 938-6105  
City      State      Zip

## A. Land and Location

Please include the following information for all tax lots where water will be diverted (taken from its source), conveyed (transported), and/or used or developed. Applicants for municipal use, or irrigation uses within irrigation districts may substitute existing and proposed service-area boundaries for the tax-lot information requested below.

Township	Range	Section	1/4 1/4	Tax Lot #	Plan Designation (e.g., Rural Residential/RR-5)	Water to be:	Proposed Land Use:
SEE	ATTACHED	FORM	"A"			<input checked="" type="checkbox"/> Diverted <input checked="" type="checkbox"/> Conveyed <input type="checkbox"/> Used	Aquifer Recharge
						<input checked="" type="checkbox"/> Diverted <input checked="" type="checkbox"/> Conveyed <input type="checkbox"/> Used	Aquifer Recharge
						<input checked="" type="checkbox"/> Diverted <input checked="" type="checkbox"/> Conveyed <input type="checkbox"/> Used	Aquifer Recharge
						<input checked="" type="checkbox"/> Diverted <input checked="" type="checkbox"/> Conveyed <input type="checkbox"/> Used	Aquifer Recharge

List all counties and cities where water is proposed to be diverted, conveyed, and/or used or developed:

**Umatilla County  
City of Milton-Freewater**

## **B. Description of Proposed Use**

Type of application to be filed with the Water Resources Department:

- Permit to Use or Store Water       Water Right Transfer  
 Limited Water Use License       Allocation of Conserved Water

Source of water:  Reservoir/Pond  Ground Water  Surface Water (name) Walla Walla River

**Estimated quantity of water needed:** up to 45  cubic feet per second  gallons per minute  acre-feet

Intended use of water:  Irrigation     Commercial     Industrial     Domestic for \_\_\_\_\_ household(s)  
 Municipal     Quasi-Municipal     Instream  
 Other Artificial Groundwater Recharge Testing

**Briefly describe:**

Water will be diverted from the Walla Walla River when available during winter months and conveyed through pipes and ditches to proposed sites west of Highway 11, for the purpose of artificial groundwater recharge testing.

**Note to applicant:** If the Land Use Information Form cannot be completed while you wait, please have a local government representative sign the receipt at the bottom of the next page and include it with the application filed with the Water Resources Department.

**See bottom of Page 3. →**

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## For Local Government Use Only

WATER RESOURCES DEPT  
SALEM, OREGON

The following section must be completed by a planning official from each county and city listed unless the project will be located entirely within the city limits. In that case, only the city planning agency must complete this form. This deals only with the local land-use plan. Do not include approval for activities such as building or grading permits.

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Local governments are invited to express special land-use concerns or make recommendations to the Water Resources Department regarding this proposed use of water below, or on a separate sheet.

Name: Carol Johnson Title: Planner

Signature: Carol Johnson Phone: 541-278-4331 Date: 8-24-12

Government Entity: Umatilla County

Note to local government representative: Please complete this form or sign the receipt below and return it to the applicant. If you sign the receipt, you will have 30 days from the Water Resources Department's notice date to return the completed Land Use Information Form or WRD may presume the land use associated with the proposed use of water is compatible with local comprehensive plans.

### Receipt for Request for Land Use Information

Applicant name: \_\_\_\_\_

City or County: \_\_\_\_\_ Staff contact: \_\_\_\_\_

Signature: \_\_\_\_\_ Phone: \_\_\_\_\_ Date: \_\_\_\_\_

## LAND USE INFORMATION FORM

APPLICANT: HUDSON BAY DISTRICT IMPROVEMENT COMPANY  
P.O. BOX 100  
MILTON-FREEWATER, OR 97862  
(541) 938-6105

### ATTACHMENT A. LAND AND LOCATION

TOWNSHIP	RANGE	SECTION	1/4 1/4	TAX LOT	PLAN DESIGNATION (e.g., Rural Residential/RR-5)	WATER TO BE	PROPOSED LAND USE
5N	35E	2	NWNW	200	EFU	Diverted Conveyed	Aquifer Recharge
5N	35E	3	NWNE	400	//	Diverted Conveyed	Aquifer Recharge
6N	35E	27	SWSW	900, 1000, 1100	//	Diverted Conveyed	Aquifer Recharge
6N	35E	33	SWNE, SENE	900	//	Diverted Conveyed	Aquifer Recharge
6N	35E	30	SENW NESW	500 1800	//	Diverted Conveyed	Aquifer Recharge
6N	34E	24	SWSE	1000	//	Diverted Conveyed	Aquifer Recharge
6N	35E	34	SWNW	1500	//	Diverted Conveyed	Aquifer Recharge

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WATER RESOURCES DEPT  
SALEM, OREGON

LL-1433

***This page to be completed by the local Watermaster.***

**WATER AVAILABILITY STATEMENT**

Name of Applicant: Hudson Bay I C Limited License Number: LL-1433

1. To your knowledge, has the stream or basin that is the source for this application ever been regulated for prior rights?

Yes  No

If yes, please explain:

Regulation to priority has occurred in the past. The system is typically short of water from July thru October. Regulation has not occurred recently due to water being bypassed for a USFWS enforcement order.

2. Based on your observations, would there be water available in the quantity and at the times needed to supply the use proposed by this application?

Yes  No

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3. Do you observe this stream system during regular fieldwork?

AUG 30 2012

Yes  No

If yes, what are your observations for the stream?

**SALEM, OR**

Typically, there can be water available November thru June. The period requested is reasonable.

4. If the source is a well and if WRD were to determine that there is the potential for substantial interference with nearby surface water sources, would there still be ground water and surface water available during the time requested and in the amount requested without injury to existing water rights?

Yes  No  N/A

What would you recommend for conditions on a limited license that may be issued approving this application?

Allow diversion only when by-pass flows are met below Nursery Bridge Dam. Restrict with by-pass flows similar to the flows in Permit 53662.

5. Any other recommendations you would like to make?

Signature Tony Justo WM District #: 5 Date: 8-27-2012

***This page to be completed by the local Watermaster.***

**WATER AVAILABILITY STATEMENT**

Name of Applicant: Hudson Bay I C Limited License Number: LL-1433

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Yes  No

If yes, please explain:

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2. Based on your observations, would there be water available in the quantity and at the times needed to supply the use proposed by this application?

Yes  No

3. Do you observe this stream system during regular fieldwork?

Yes  No

If yes, what are your observations for the stream?

Typically, there can be water available November thru June. The period requested is reasonable.

4. If the source is a well and if WRD were to determine that there is the potential for substantial interference with nearby surface water sources, would there still be ground water and surface water available during the time requested and in the amount requested without injury to existing water rights?

Yes  No  N/A

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5. Any other recommendations you would like to make?

**RECOMMENDED**

AUG 31 2012

WATER RESOURCES DEPT  
SALEM, OREGON

Signature Tony Justo WM District #: 5 Date: 8-27-2012