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Department of Water Resources  
Eastern Region

March 24, 2014

RMEA 13-0021

Idaho Department of Water Resources  
Attn: James Cefalo  
900 N Skyline Dr. Suite A  
Idaho Falls, Idaho 83402

Re: Amended Mitigation Plan for Water Right Nos. 11-7491, 11-7641, 11-7718,  
and 11-7719

Dear James,

Enclosed please find an Amended Water Management and Operations Plan for Mitigation for the four water rights listed above. These water rights provide commercial and domestic water for Sam's Hollow Water Company and Canyon Estates Property Owners Association to serve their respective subdivisions.

A mitigation plan has already been established and has been active since the permits were approved in 2004. We propose amending the existing plan by changing the method of delivering the mitigation water to Bear Lake.

The proposed changes have been discussed with all involved entities, including those tied through settlement agreements, and it meets with approval.

Thank you,

A handwritten signature in blue ink that reads "Kristin Moore".

Kristin Moore  
Water Rights Analyst

Enclosures

cc: Claudia Conder, PacifiCorp  
Brent Skinner, Sam's Hollow Water Company  
Jim McKinnis, Canyon Estates Property Owners Association  
David Cottle, Bear Lake Watch and Fish Haven Water Users Company

# **Amended Water Management and Operations Plan for Mitigation**

Water Right Nos. 11-7491, 11-7641, 11-7718, and 11-7719

Sam's Hollow Water Company

March 24, 2014

## **Introduction**

A Water Management and Operations Plan for Mitigation<sup>1</sup> was revised on April 24, 2006 for Sam's Hollow Water Company (hereinafter "Sam's Hollow"). This plan detailed the mitigation efforts for water right nos. 11-7481<sup>2</sup> and 11-7491 (hereinafter "Permits"). Since the plan was approved, Sam's Hollow has proceeded each year to provide mitigation for the Permits as originally detailed. Annual reports have been submitted by Brockway Engineering P.L.L.C. to demonstrate that the mitigation obligations are met.

The original mitigation plan filed in 2006 obligates Sam's Hollow to divert their Fish Haven Water Users Company (hereinafter "FHWUC") shares, on rotation, down the designated ditches, (Upper North Ditch, Number 1 Ditch and Number 3 Ditch) into a pipeline, which then delivers the measured mitigation water to Bear Lake. After several years of following this original plan, Sam's Hollow, and other parties interested in the natural state of Fish Haven Creek, wish to make mitigation improvements.

The purpose of this amended plan is to propose an alternative means of mitigating the Permits by leaving Sam's Hollow's shares of FHWUC in Fish Haven Creek for delivery of mitigation to Bear Lake. This plan will also detail accounting of water supply, monitoring, reporting, diversion, depletion, measurement, and water conservation. Not all sections of the existing plan are proposed to be amended; therefore, those sections are included herein as originally described.

## **Water Supply Available for Mitigation and Monitoring<sup>1</sup>**

The water supply available to Sam's Hollow for use on the lands of the Bear Lake Haven Subdivision is via shares in FHWUC. These shares can be diverted down any of the three ditches, Upper North Ditch, Number 1 Ditch, and Number 3 Ditch. Each of these diversions is instrumented with water measuring flumes and flow measurements are monitored by either arrangement with Fish Haven Water Users Company staff or by Sam's Hollow at the following times:

- Immediately after water is turned into the ditch in the spring
- Before and immediately after the discharge is changed or shut off

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<sup>1</sup> Text in this section, and others with this footnote, are excerpts from the Water Management and Operations Plan for Mitigation – Revised; Prepared for Sam's Hollow Water Company by Charles E. Brockway, P.E., Ph.D., Brockway Engineering, PLLC, Revised April 24, 2006. Some sections may include additional new text.

<sup>2</sup> Water right 11-7481 has been split and is renumbered to water rights 11-7641 and 11-7719 (now owned by Canyon Estates Property Owners Association) and 11-7718 (owned by Sam's Hollow). All water rights are mitigated under the same plan and through Sam's Hollow Water Company.

- Immediately before the discharge is shut off at the end of the irrigation season.
- The staff gage readings and discharge rating tables will be used to calculate the discharge volume between staff gage readings for filing in the Company office.

Compilations of the historical water available for diversion to Sam's Hollow Water Company through each ditch will be made each month based on the shares applicable to the Sam's Hollow service area. Measurements and historical monthly water availability will be made each year for the irrigation season.

Build-out of the subdivision will likely occur over at least 10 years and a database of Fish Haven Creek diversion will be compiled. The seasonal water availability for Sam's Hollow will be compared with selected snow course data and/or Bear River forecast data to determine indicators of expected water availability for pending irrigation seasons. A determination will be made by April 1 of each year as to the estimated water available for mitigation for the pending irrigation season. An estimate of expected depletion from the project ground water based on the number of units on-line for the next season will be made by April 1 of each year using procedures approved in the Bear River Ground Water Management Plan.

The president of Sam's Hollow Water Company will be responsible for securing measurements on water diversions from Fish Haven Creek, either from FHWUC or by continual measurement by Sam's Hollow of diversion discharge in the event the FHWUC fails to continue the monitoring program. Sam's Hollow instituted a flow measurement protocol for the Fish Haven ditches and will continue to monitor these ditch flows if FHWUC fails to continue the water measurement program and provide the flow data to Sam's Hollow. In addition to measuring diversion discharge, Sam's Hollow is also responsible for monitoring the return flows to Fish Haven Creek as described below. The President will be responsible for providing measurement of well discharge and volume flows within the water supply system. The Manager will operate the mitigation return system and collect the measurements to assure that the required mitigation water is being returned to Bear Lake.

### Reporting<sup>1</sup>

The President of Sam's Hollow Water Company will continue to be responsible for monitoring and management of the water system and mitigation system. An annual report will be prepared, which will include the following elements:

- The number and type of units being served by the water system
- Monthly and annual water use by each of the wells in the system
- Monthly and annual water received under shares at each ditch diversion from Fish Haven Water Users Company
- Irrigated acres within the project
- Estimated annual depletion attributable to the project
- Measured flow returned to Bear Lake via the bypass at Upper North Ditch, Number 1 Ditch, and Number 3 Ditch

This report will be submitted to Idaho Department of Water Resources and made available to members of Sam's Hollow and FHWUC.

## **Mitigation Water Return System**

Under the current mitigation plan, water is diverted through the three available ditches and taken in turn at the normal points of diversion along each ditch. At the present level of build-out, all mitigation water is conveyed through a pipeline at the end of the Number 1 Ditch, where it is measured and returned to Bear Lake. Water is only sent to Bear Lake during Sam's Hollow's normal rotation periods as established by customary operating practices. As build-out progresses and additional mitigation water is needed, additional pipes will be required from the upper two ditches under the existing mitigation plan.

This amended plan proposes to change the current methods of returning mitigation water to Bear Lake. The mitigation water will be diverted at the ditch diversion as usual, at the beginning or end of a normal ditch rotation period, and returned immediately to the creek via a bypass pipe. A ramp flume and measuring device are installed on the bypass pipe to allow for monitoring of the return flow, which will record the amount of water being attributed to mitigation. Operation and measuring directions for bypass pipe from McMillen Engineering are included in Appendix A.

## **Ensuring Non-Diversion of Mitigation Water**

Fish Haven Water Users Company diverts through five ditches, as shown on the map in Appendix B, in downstream order: Upper North, Upper South, Number 2 Ditch, Number 3 Ditch, and Number 1 Ditch. Sam's Hollow diverts their shares through the Upper North, Number 3 Ditch, and Number 1 Ditch. There are no other diversions on Fish Haven Creek between the Upper North Ditch and Bear Lake.

The Number 1 Ditch, the most downstream diversion, will be the primary diversion for measuring mitigation water. There are no downstream diversions from the Number 1 Ditch that can re-divert the water dedicated to mitigation before it discharges into Bear Lake.

If perchance another ditch is required to be used temporarily, FHWUC agrees to bypass the volume of mitigation water at each downstream diversion when Sam's Hollow's shares are in rotation, during which time, mitigation quantities will be communicated to downstream diversions. This agreement can be found in Appendix C; it is called "First Amendment to Fish Haven Water Users Company and Sam's Hollow Water Company Agreement" dated December 18, 2013.

## **Mitigation Depletion Calculation**

The volume of mitigation water required to be returned to Bear Lake will depend on the number of units currently connected to the water supply system. The procedures<sup>3</sup> explained in the existing mitigation plan to determine the mitigation volumes will continue to be used. A copy of the procedures can be found in Exhibit C of the Settlement Agreement between Sam's Hollow Water Company and Pacificorp in Appendix D.

## **Flow Measurement Sites<sup>1</sup>**

Discharge and flow measurement sites are already equipped with approved measuring devices. Measurements will be made on all wells, all ditches from Fish Haven Creek, and all bypass pipes

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<sup>3</sup> Procedures outlined in Exhibit #14 of the hearing, Narrative in Support of Application for Permit, Sam's Hollow Water Company Phase 1 and Phase 2, revised October 7, 2003.

returning flows to Fish Haven Creek.

#### **Notification<sup>1</sup>**

By May 1 of each year, a determination of the adequacy of available mitigation water will be made and, if the estimated depletion exceeds the estimated available supply, the members will be notified by Sam's Hollow Water Company of the need to implement conservation measures. This notification will be by registered mail to each member outlining the measures to be implemented.

#### **Conservation Measures<sup>1</sup>**

In the event conservation measures have to be implemented, Sam's Hollow Water Company will determine the required measures based on estimated depletion calculated using the Ground Water Management Plan guidelines (Exhibit #14) and the estimated available water for mitigation from the canal system. Specific measures will be determined at the time and can include:

1. Curtailment of additional crop irrigation
2. Full or partial curtailment of landscape irrigation
3. Reduction or curtailment of water use for any recreational or aesthetic facilities

Enforcement of any conservation measures will be performed by the Manager as dictated by the Board of Sam's Hollow Water Company.

This Fish Haven Water Users Company water right is a statutory claim (11-4022). This claim is for beneficial use for diversion of 29.6 cfs for irrigation of 1212 acres with a priority date of May 18, 1871. This claim has not been adjudicated by the Idaho Department of Water Resources. Mr. Pete Peterson, Watermaster for the Bear River, indicated that in the Bear River system, natural flow rights with priority of May 18, 1871 have never been cut off. Sam's Hollow Water Company has 140.5 shares or 11 percent of the reported 1283.02 shares of Fish Haven Water Users Company applicable to approximately 120 acres of irrigated land within the project. It is estimated that Sam's Hollow Water Company would have to provide 110 acre feet annually returned to Bear Lake to mitigate for the full project (Phase 1 and Phase 2) build out.

Sam's Hollow Water Company's shares have historically irrigated pasture grass, which consumes 1.18 acre-feet per acre annually. To provide 110 acre feet annually for full mitigation, 93.1 acres will no longer be irrigated ( $93.1 \text{ ac} \times 1.18 \text{ ac-ft/ac} = 110 \text{ ac-ft annually}$ ). Acres will be dried up gradually with the rate of development.

In the event the water available to Fish Haven Water Users under statutory claim #11-4022 is modified, the appropriate changes in the mitigation plan will be determined and incorporated. Ample time will be available to secure additional water for mitigation either from additional shares in the Fish Haven system or other transfers since full build out may take 20 years. If additional water for mitigation is necessary but not available in a timely manner, annual ground water use by the project will be curtailed to assure compliance to the mitigation plan. This could entail, at a minimum, ground water extraction only for in-house use.

Amended Water Management and Operations Plan for Mitigation  
Sam's Hollow Water Company

**Appendices**

- A. McMillen Engineering Memo
- B. Fish Haven Water Users Company Diversions - Map
- C. First Amendment to Fish Haven Water Users Company and Sam's Hollow Water Company Agreement
- D. Settlement Agreement between Sam's Hollow Water Company and Pacificorp

Amended Water Management and Operations Plan for Mitigation  
Sam's Hollow Water Company

**Appendix A**

**McMillen Engineering Memo  
on Fish Haven Bypass Flume Measurement**

|          |                                             |          |                                          |
|----------|---------------------------------------------|----------|------------------------------------------|
| To:      | Trout Unlimited                             | Project: | Fish Haven Creek                         |
| From:    | Dan Axness, PE<br>McMillen Engineering, LLC | Cc:      | Mort McMillen, PE<br>Collin Turbert, EIT |
| Date:    | March 23, 2011                              | Job No:  |                                          |
| Subject: | Fish Haven Bypass Flume Measurement         |          |                                          |

**PURPOSE**

The purpose of this technical memorandum is to describe how to use the installed flume measuring devices on the Fish Haven fish screen bypass pipes.

**BACKGROUND INFORMATION**

Fish Haven Creek is located in Bear Lake County in the southeastern corner of Idaho to the west of Bear Lake. Historically, Fish Haven Creek has been an important spawning tributary to Bear Lake for Bonneville Cutthroat Trout (BCT), the only native trout species to the system. Before the project there were multiple migration barriers in Fish Haven Creek that restricted the ability of BCT to migrate upstream and spawn. In order to remedy this problem and improve passage conditions in Fish Haven Creek, five new fish screens and improvements to the existing diversion structures were designed and constructed at existing irrigation diversion sites. The fish screens were designed to allow fish to pass upstream or downstream while ensuring that fish do not enter the irrigation ditches. If the fish enter the screen structure they are diverted into the bypass pipe and back into the stream.

**BYPASS FLOW MEASUREMENT PURPOSE**

A ramp flume and measuring device slot was installed at the ends of the bypass pipes for all five screens. These devices were installed to allow easy and accurate measurements of the flow rate of the water returning to the channel through the bypass pipe for fish passage. By placing a data logger in the measuring device slot the flow rate of the water in the bypass is able to be determined. It is important to monitor this parameter to insure that the bypass pipe is meeting criteria for the amount of water being returned to the channel after being diverted. Please contact Kirk Dahle at Trout Unlimited if the amount of diverted water is not meeting the established criteria at 435-755-7140.

## HOW TO USE THE DEVICES

The designed ramp flume allows us to determine the bypass flow rate based on the height of the water upstream of the flume at the data logger. The TruTrack WT-HR data loggers are able to take readings of the water height at any desired time interval. Figure 1 shows a schematic of the layout for the ramp flume with the data loggers being placed at the gaging station. As the figure shows in order to determine the height of the water above the flume ( $h_1$ ) at the gaging station the variable  $p_1$  needs to be determined. To do this the bypass channel flow needs to be limited so that barely any water is going over the flume. Once this is established the data loggers should be used to determine the water height at that time, which will be the value of  $p_1$ . Once this value has been determined all future water heights taken from the data logger should have  $p_1$  subtracted from them in order to determine  $h_1$ .

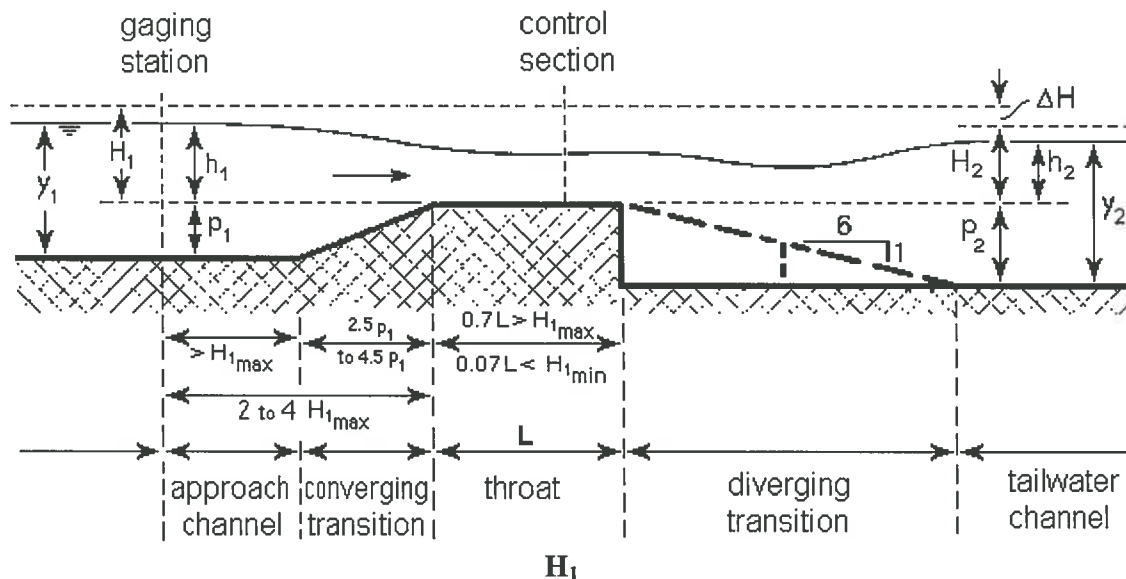


**Figure 1 – Flume Setup Definition Sketch**

Table 1 lists the various flow rates based on the height of water above the flume ( $h_1$ ) upstream at the data loggers.

**Table 1 – Discharge Based on Depth**

| <b>Height at<br/>Gage, <math>h_1</math><br/>(FT)</b> | <b>Flow Rate<br/>(CFS)</b> | <b>Height at<br/>Gage, <math>h_1</math><br/>(FT)</b> | <b>Flow Rate<br/>(CFS)</b> | <b>Height at<br/>Gage, <math>h_1</math><br/>(FT)</b> | <b>Flow Rate<br/>(CFS)</b> |
|------------------------------------------------------|----------------------------|------------------------------------------------------|----------------------------|------------------------------------------------------|----------------------------|
| 0.10                                                 | 0.08                       | 0.29                                                 | 0.50                       | 0.48                                                 | 1.18                       |
| 0.11                                                 | 0.10                       | 0.30                                                 | 0.53                       | 0.49                                                 | 1.22                       |
| 0.12                                                 | 0.11                       | 0.31                                                 | 0.56                       | 0.50                                                 | 1.26                       |
| 0.13                                                 | 0.13                       | 0.32                                                 | 0.59                       | 0.51                                                 | 1.30                       |
| 0.14                                                 | 0.15                       | 0.33                                                 | 0.62                       | 0.52                                                 | 1.35                       |
| 0.15                                                 | 0.16                       | 0.34                                                 | 0.65                       | 0.53                                                 | 1.39                       |
| 0.16                                                 | 0.18                       | 0.35                                                 | 0.68                       | 0.54                                                 | 1.44                       |
| 0.17                                                 | 0.20                       | 0.36                                                 | 0.72                       | 0.55                                                 | 1.48                       |
| 0.18                                                 | 0.22                       | 0.37                                                 | 0.75                       | 0.56                                                 | 1.53                       |
| 0.19                                                 | 0.24                       | 0.38                                                 | 0.79                       | 0.57                                                 | 1.57                       |
| 0.20                                                 | 0.26                       | 0.39                                                 | 0.82                       | 0.58                                                 | 1.62                       |
| 0.21                                                 | 0.29                       | 0.40                                                 | 0.86                       | 0.59                                                 | 1.67                       |
| 0.22                                                 | 0.31                       | 0.41                                                 | 0.90                       | 0.60                                                 | 1.71                       |
| 0.23                                                 | 0.33                       | 0.42                                                 | 0.94                       | 0.61                                                 | 1.76                       |
| 0.24                                                 | 0.36                       | 0.43                                                 | 0.97                       | 0.62                                                 | 1.81                       |
| 0.25                                                 | 0.39                       | 0.44                                                 | 1.01                       | 0.63                                                 | 1.86                       |
| 0.26                                                 | 0.41                       | 0.45                                                 | 1.05                       | 0.64                                                 | 1.91                       |
| 0.27                                                 | 0.44                       | 0.46                                                 | 1.09                       | 0.65                                                 | 1.97                       |
| 0.28                                                 | 0.47                       | 0.47                                                 | 1.13                       | 0.66                                                 | 2.02                       |

The following steps outline how to set up and use the data loggers:

- 1) Install and start the OmniLog software which can be downloaded from [http://www.trutrack.com/omnilog\\_download.html](http://www.trutrack.com/omnilog_download.html)
- 2) Connect the download cable (provided) to the logger and connect it to a spare Comm Port on the computer and start the OmniLog Software
- 3) Select the Start Logger tab of the Logger Control function and select the parameters desired (sample period, when to start, stop when full or loop etc.)
- 4) Disconnect the data logger from the computer and place in the flow measurement slot on the bypass pipe
- 5) Once the selected time period has expired retrieve the data logger and reconnect it to the computer as described in step 2
- 6) Select the Download tab of the Logger Control function
- 7) Make sure the correct parameters are selected and press download data
- 8) Review the data and use the above table to determine the corresponding flow rates

The user manual should be referenced for clarity on the above mentioned steps. It is important to intermittently check the device to make sure that there is no debris stuck on the data logger and that the ramp flume is also clean of debris.

**APPENDIX A  
- PHOTOS -**

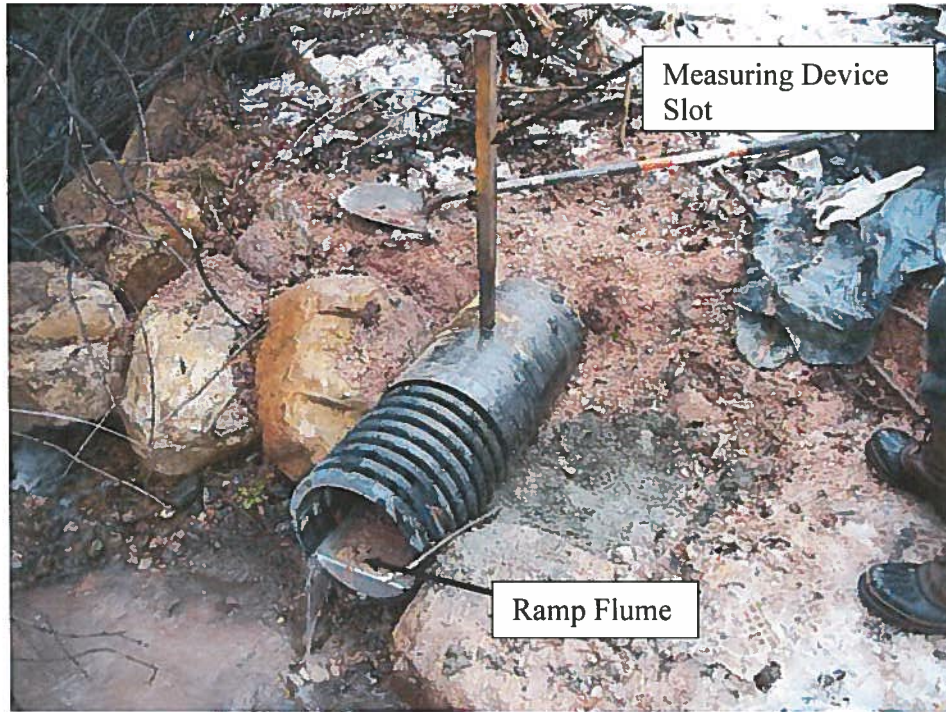


**Photo 1 – Bypass Pipe with Flume and Flow Measuring Device Slot**

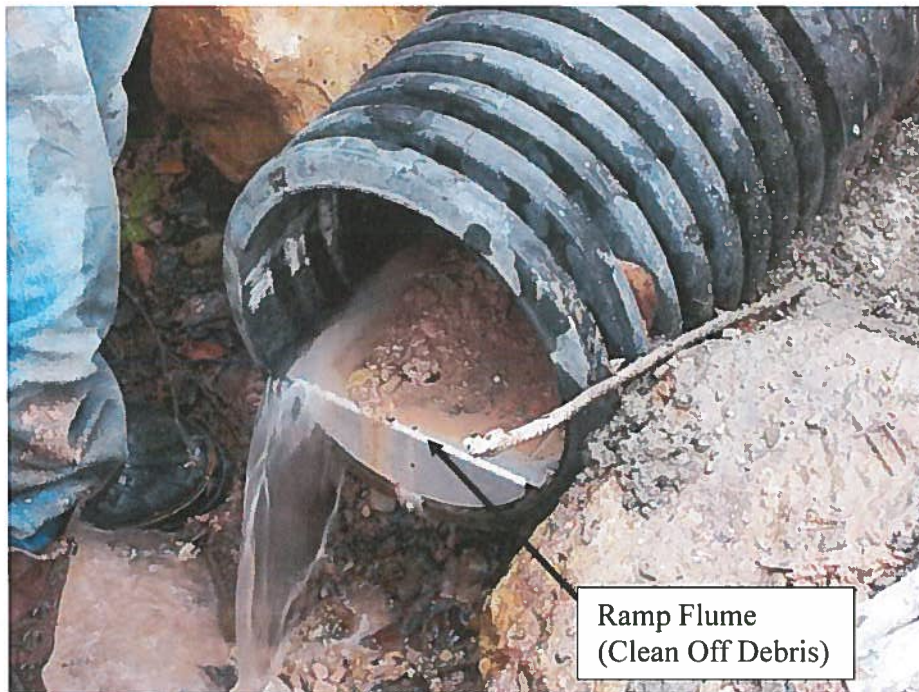
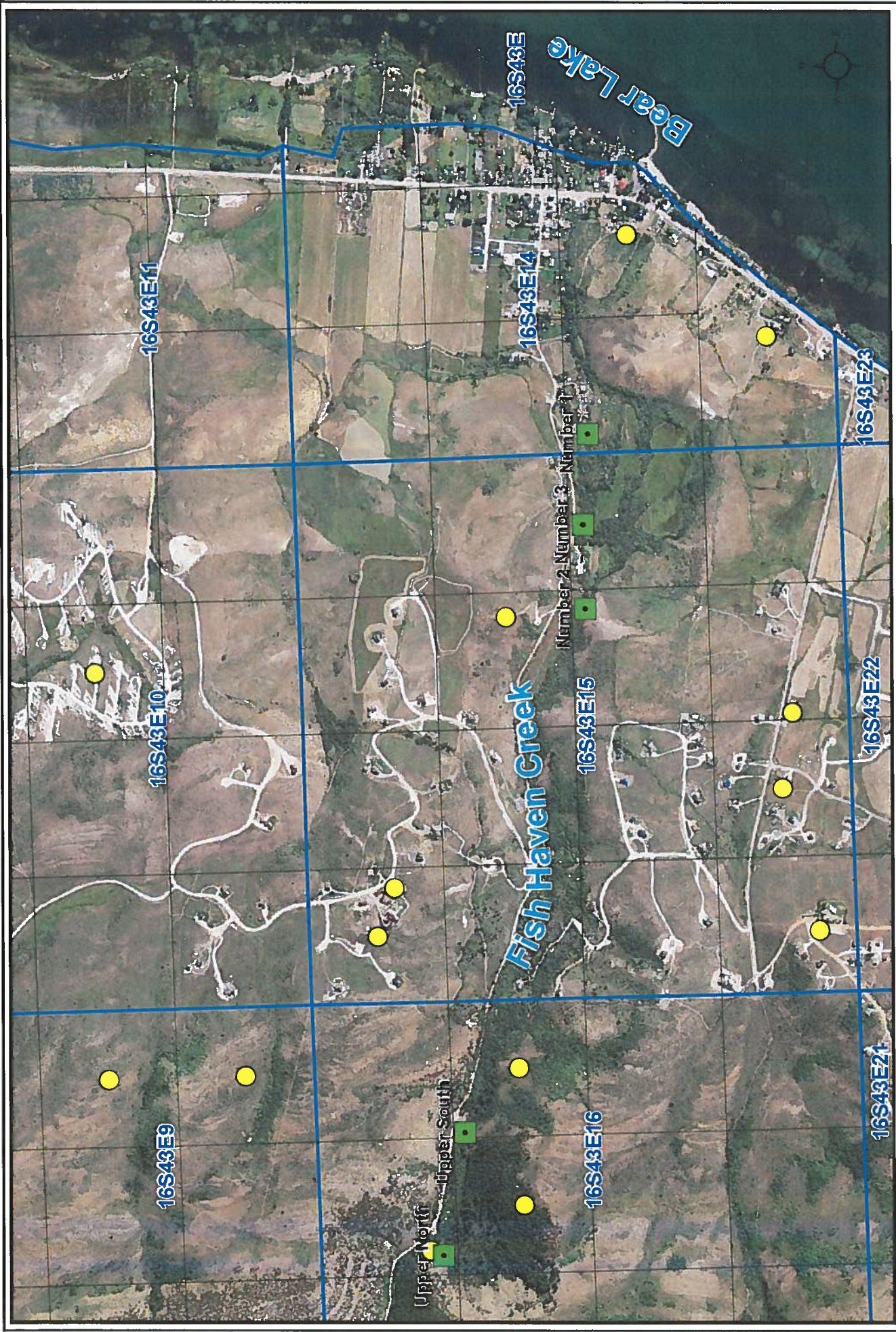


**Photo 2 – Bypass Pipe Flume**

Amended Water Management and Operations Plan for Mitigation  
Sam's Hollow Water Company

**Appendix B**

**Fish Haven Water Users Company Diversions  
on Fish Haven Creek**



- FWIUC POD
- WR POD
- QQ
- Section

# Fish Haven Water Users Company Diversions on Fish Haven Creek

Amended Water Management and Operations Plan for Mitigation  
Sam's Hollow Water Company

**Appendix C**

**First Amendment to Fish Haven Water Users Company  
and Sam's Hollow Water Company Agreement**

**FIRST AMENDMENT TO FISH HAVEN WATER USERS COMPANY AND  
SAMS HOLLOW WATER COMPANY AGREEMENT**

THIS FIRST AMENDMENT (the "Amendment") is made and entered into this 12<sup>th</sup> day of December, 2013, by and between the Fish Haven Water Users Company, an Idaho corporation (the "Company") and Sam's Hollow Water Company, an Idaho corporation ("Developer"). "Project" refers to the development served by the Sam's Hollow Water Co.

**RECITALS**

- A. On March 14, 2002, the Company and the Developer entered into an agreement (hereinafter "Agreement") that permitted the Developer to use its shares of the Company for mitigation purposes, provided the Developer complies with all of the terms of the Agreement.
- B. Developer acquired water right permit nos. 11-7481 and 11-7491 through the Idaho Department of Water Resources. A mitigation plan was submitted along with the permit applications that proposed using the Company shares from Fish Haven Creek as mitigation for depletions caused by ground water pumping.
- C. The mitigation plan proposed diverting the shares in the ordinary course of water delivery as established by customary operating practices. Developer is responsible for measurement, delivery, and reporting of the shares once diverted into the Fish Haven conveyance system.
- D. The Developer, through a joint effort involving The Reserve LLC, the Company, Trout Unlimited and Bear Lake Watch, Inc. has designed, developed and implemented Improvements to all 5 Ditches of the Fish Haven Water Users Co. These Improvements include fish friendly diversions, new headgates and bypass returns installed with flow measuring devices.
- E. These improvements provide multiple benefits to the Fish Haven Water Users Co., Bonneville Cutthroat Trout restoration efforts and the local community;
- F. The stream gauging and recording devices installed as part of these improvements also accurately measure the water diverted at each of the five ditches and the water returned to the Creek below each diversion.
- G. Lower Fish Haven Creek runs dry during a portion of the irrigation season, which is a concern to several entities.
- H. An alternate mitigation plan has been considered, where all parties with interest in Fish Haven Creek may be satisfied.

**AGREEMENT**

NOW THEREFORE, in and for the mutual promises of the Parties and other good and valuable consideration, the parties agree as follows:

- 1. Usage of Water (Amendment to Agreement item 2b).

An acceptable method of returning mitigation water directly to Bear Lake is to leave the water in Fish Haven Creek in lieu of piping it to the lake.

2. Delivery of Water (Amendment to Agreement item #3).
  - a. Mitigation water shall be delivered to the Company's existing headgates, measured, and returned through a pipe, in rotation according to the Company's normal operating practices. It shall be the Developer's sole responsibility to cause adequate mitigation water to be left in Fish Haven Creek. The volume of such mitigation water shall be determined by the Developer and communicated to and coordinated with the appropriate Ditch Director. With the concurrence of Developer and Ditch Director, and with input from shareholders on the appropriate ditch, the mitigation water may be left in the creek at the beginning or end of the normal rotation for that ditch.
  - b. Water left in Fish Haven Creek for the purposes of mitigation is not for use by any downstream ditch for irrigation. Such volume of mitigation water must be bypassed at each diversion and recorded at each downstream stream gauging and recording device to meet the Developer's requirements with IDWR and the intent of the improvements made to the diversions.
3. Obligations of Developer (Addendums to Agreement item #5)
  - a. Developer shall be responsible for proper operation and maintenance of stream gauging and recording devices.
  - b. Should the present stage recorders, which accurately measure up to 2 cfs, be deemed by the Company to be inadequate to measure the amount of mitigation water required at full build out by the Sam's Hollow Mitigation Plan, the Developer agrees to install stage recorders with the capacity to accurately measure the required mitigation flow.
4. The Recitals and sections of the 2002 Agreement, not herein amended, remain pertinent and binding.
5. The Developer will modify their Agreement with PacifiCorp and their Operations Manual and Mitigation Plan with Idaho Department of Water Resources (IDWR) to reflect this Amendment in order to keep all reporting and monitoring requirements current.
6. The Developer will continue to make annual reports to Company, IDWR and PacifiCorp.
7. Authority of the Parties. With regard to corporate parties, the persons signing this Amendment warrant that they have full authority to do so and that their corporation has undertaken and obtained whatever corporate formalities and approvals are necessary to enter into this Amendment.
8. Binding Effect. All of the terms, conditions and covenants of this Amendment shall be binding upon the parties and shall inure to the benefits of all successors and assigns of the parties hereto.
9. Multiple Counterparts. This Amendment may be executed in multiple counterparts, which taken together shall constitute one and the same document.

10. Conflicting Provisions. In the event that any provision of this Amendment conflicts with the existing provisions of the Agreement, the parties agree that the terms of this Amendment shall govern and control.

IN WITNESS WHEREOF, the parties have entered into this Amendment effective as of the date first set forth below.

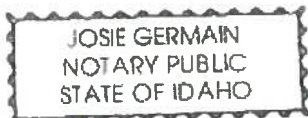
FISH HAVEN WATER USERS COMPANY

By William Dwyer Stack  
\_\_\_\_\_, President

State of Idaho  
County of Beauregard <sup>SS</sup>

On this 10 day of January, 2014, before me, the undersigned Notary Public, in and for said State and County, personally appeared William Dwyer Stack, known or identified to me to be the President of Fish Haven Water Users Company, whose name is subscribed to the within instrument and acknowledged to me that he is authorized and instructed to execute and has executed the same on behalf of said Company, and further acknowledged to me that said Company executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and seal the day and year in this Certificate first above written.



SEAL

Josie Germain  
Notary Public  
Residing at: Beauregard County  
My Commission Expires: 2/16/2019

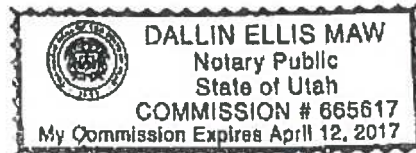
SAM'S HOLLOW WATER COMPANY

By [Signature]  
JOEL LARSON, PRESIDENT

State of UTAH

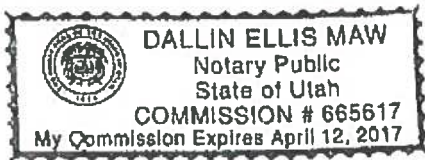
County of Cache

: 55



On this 10 day of December, 2013, before me, the undersigned Notary Public, in and for said State and County, personally appeared Joel Larson, known or identified to me to be the President of Sam's Hollow Water Company, L.L.C., whose name is subscribed to the within instrument and acknowledged to me that he is authorized and instructed to execute and has executed the same on behalf of said Company, and further acknowledged to me that said Company executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and seal the day and year in this Certificate first above written.



SEAL

Dallin Maw  
Notary Public  
Residing at:  
My Commission Expires: Apr. 12, 2017

Amended Water Management and Operations Plan for Mitigation  
Sam's Hollow Water Company

**Appendix D**

**Settlement Agreement between Sam's Hollow Water  
Company and PacifiCorp**

## SETTLEMENT AGREEMENT

This SETTLEMENT AGREEMENT is made this 7<sup>th</sup> day of October, 2003, by and between SAM'S HOLLOW WATER COMPANY, an Idaho nonprofit corporation ("Sam's Hollow"), and PACIFICORP, an Oregon Corporation doing business in the State of Idaho ("PacifiCorp"). Sam's Hollow and PacifiCorp are collectively referred to as the "Parties."

WHEREAS, Sam's Hollow is organized to own and operate a water delivery system and manage water and water rights for its members who are property owners in Bear Lake Haven Development. The service area of Sam's Hollow will include two phases of development ("Phase I" and "Phase II") in the Bear Lake Haven Development (the "Subdivision"); and

WHEREAS, Sam's Hollow will serve domestic and irrigation water for 36 residences, 256 condominium units, and 4 commercial enterprises in Phase I of the Subdivision under Application for Permit No. 11-7481, filed with the Idaho Department of Water Resources ("IDWR") by Sam's Hollow in October 2001. Application for Permit No. 11-7481 was subsequently amended in May of 2002 (the "Phase I Application"). The Phase I Application and Mitigation Plan, which is attached hereto as Exhibit "A," requests IDWR approval to divert 1.19 cfs and 136.7 acre feet of groundwater per year; and

WHEREAS, Sam's Hollow will serve domestic and irrigation water for 241 single family homes in Phase II of the Subdivision under Application for Permit No. 11-7491, filed with IDWR in January of 2002 (the "Phase II Application"). The Phase II Application and Mitigation Plan, which is attached hereto as Exhibit "B," requests IDWR approval for the right to divert 1.22 cfs and 197 acre feet of groundwater per year. (Collectively the mitigation plans filed with the Applications are referred to herein as the "Mitigation Plans"); and

WHEREAS, PacifiCorp protested the Applications because it claims that unmitigated withdrawal and use of groundwater under the Applications will interfere with its water rights and contracts in and for Bear Lake water, and for other reasons stated in its Protests; and

WHEREAS, the Parties recognize that groundwater in the aquifer underlying the Subdivision is tributary to Bear Lake and the Bear River, as is Fish Haven Creek, and that the additional consumptive use of water under the Applications will result in reductions of the inflow to PacifiCorp's water rights decreed in the matter of *Utah Power & Light Company v. The Last Chance Canal Company, Limited, et al.* in Equity No. 203, July 14, 1920, in Bear Lake unless mitigated; and

WHEREAS, Sam's Hollow owns 140.5 shares (the "Shares") in the Fish Haven Water Users Company (the "Irrigation Company") which provides irrigation water to its shareholders from Fish Haven Creek pursuant to a Claim to a Water Right filed under Section 42-243, Idaho Code and historically the Shares have been used to flood irrigate at least 120 acres of hay and pasture. The Mitigation Plans anticipate the use of the Shares for mitigation of depletion to Bear Lake due to withdrawal and use of groundwater under the Applications; and

WHEREAS, IDWR issued an Order adopting the Bear River Ground Water Management Plan in February of 2003, requiring mitigation for new ground water development (the "Ground Water Management Plan"). Sam's Hollow intends to amend the Mitigation Plans to be consistent with this Settlement Agreement and fully comply with the Ground Water Management Plan; and

WHEREAS, the Parties now wish to settle PacifiCorp's protest by ensuring that PacifiCorp's concerns regarding the Mitigation Plans are adequately addressed.

NOW THEREFORE, in and for the mutual promises of the Parties and other good and valuable consideration, the Parties agree as follows:

1. Quantified in acre feet, Sam's Hollow shall return a sufficient amount of water per year delivered under its Shares directly to Bear Lake and remove from irrigation a sufficient number of historically irrigated acres of land as is necessary to fully satisfy all annual depletions and return flows associated with the Phase I and Phase II Applications. The Parties acknowledge that the Subdivision will be developed over time and that all of the water requested by the Applications will not be used until the Subdivision is fully developed.

With each annual increment of development in the Subdivision, Sam's Hollow will retire a sufficient number of previously irrigated acres of land and return to Bear Lake a sufficient volume and flow of water previously diverted for irrigation under its Shares in order to mitigate for depletion caused by such annual increment of development. Until the Subdivision is fully developed, by December 31<sup>st</sup> of each year, Sam's Hollow will report to IDWR and PacifiCorp the previous year's Subdivision development, ground water pumped volume, the acreage retired, and the flow and volume of water delivered under the Shares to be returned to Bear Lake.

Until full build-out of the Subdivision, Sam's Hollow will continue to irrigate that portion of land not retired for mitigation with that volume of water delivered under the Shares not committed to be returned to Bear Lake for mitigation.

2. Recognizing that the return flow from the historic irrigation under the Shares makes up a part of the downstream water rights of PacifiCorp and others and must be the same after the Subdivision is developed as it was under the historic irrigation practices using the Shares, upon full development of the Subdivision, Sam's Hollow shall deliver the following water to Bear Lake:

- (a) all of the diversion delivered by the Irrigation Company in turn and on a rotational basis in accordance with its historic and customary practices that is associated with the 42.7 acres of land removed from irrigation for the Phase I Application, minus adjustments for historical return flows that continue to occur, if any; and
- (b) all of the diversion delivered by the Irrigation Company in turn and on a rotational basis in accordance with its historic and customary practices that is associated with the 50.6 acres of land removed from irrigation for the Phase II Application, minus adjustments for historical return flows that continue to occur, if any.

3. When Phase I of the Subdivision is fully developed, Sam's Hollow shall have removed from irrigation 42.7 acres of irrigated land historically irrigated with the Shares as mitigation for depletion and shall be returning 50.4 acre feet of water per year under its Shares directly to Bear Lake as mitigation associated with the Phase I Application. The minimum average flow rate requirement for the delivery of water to Bear Lake as mitigation associated with the Phase I Application at full build-out shall be 0.25 cfs for 102.3 days.

4. When Phase II of the Subdivision is fully developed, Sam's Hollow shall have removed from irrigation an additional 50.6 acres of irrigated land historically irrigated with Shares as mitigation for depletion and shall be returning an additional 59.7 acre feet of water per year under its Shares directly to Bear Lake as mitigation associated with the Phase II Application. The minimum average flow rate requirement for the delivery of additional water to Bear Lake as mitigation associated with the Phase II Application at full build-out shall be 0.29 cfs for 102.3 days.

5. It is Sam's Hollow's intent to return all historical return flows associated with acreage removed from irrigation described in Paragraphs 3 and 4 above. It is not Sam's Hollow's intent to enlarge the original Irrigation Company water right or its use under the Shares. If water features are included in the final Subdivision design, opportunities for delivery of the historical return flows through the water features can be incorporated.

6. The mitigation calculations utilized to arrive at the amounts identified in paragraphs 2 and 3 above are set forth in Exhibit "C" which is attached hereto and made a part hereof. These calculations assume 100% depletion for the water entering the St. Charles wastewater lagoons (the "Wastewater Lagoons") from the condominium and commercial units in Phase I and the residences in Phase II. If the Wastewater Lagoons are not fully contained, the depletion for Phase I and Phase II of the Subdivision will be reduced and the calculations revised to correspond with the corrected depletion percentage for the Wastewater Lagoons. The corrected depletion percentage for the Wastewater Lagoons shall also be utilized in calculating the annual depletion for the Subdivision until full development of the Subdivision is achieved.

7. Sam's Hollow shall properly install and maintain accurate water measurement devices on all of the underground points of diversion for both Phase I and Phase II of the Subdivision and on the delivery system conveying mitigation water to Bear Lake. The water measurement devices shall have recording and totalizing capability.

8. Sam's Hollow shall annually supply PacifiCorp and IDWR with records of all water monitoring undertaken to comply with Paragraph 6 above.

9. Sam's Hollow agrees to abide by the "Guidelines for Mitigation of New Ground Water Development in the Lower Bear River Basin in Idaho," dated October 4, 2003 and attached to this Settlement Agreement as Exhibit "D."

10. In exchange for Sam's Hollow's agreement to comply with paragraphs 1 through 9 above, PacifiCorp hereby withdraws its protests to the Applications.

11. When executed, the Parties agree to forward a copy of this Settlement Agreement to IDWR for placement in the files of the Applications.

12. Each Party agrees to cooperate with the other in good faith and prepare and file necessary documents, or take other action, to promptly achieve the purposes of this Settlement Agreement.

13. The Parties understand the content of this Agreement, and have consulted their attorneys thereon, and enter into this Agreement voluntarily and of their own free will.

14. Should any of the provisions set forth herein be determined to be invalid by any court or agency, such determination shall not affect the enforceability of the other provisions herein and to this end, the provisions of this Agreement are declared to be severable.

15. This Agreement and release shall inure to the benefit of the Parties, and shall be binding upon the Parties and their assigns, employees, agents, representatives and successors.

16. This Agreement sets forth the entire understanding and agreement between the Parties with respect to the subject matter herein and supersedes any prior or contemporaneous oral and/or written agreement or representations, if any, between the Parties. Its terms may not be modified or supplemented, except by mutual written agreement executed by PacifiCorp and Sam's Hollow. All executed copies of this Agreement shall constitute duplicate originals and shall be equally admissible in evidence.

This Agreement is executed on the date written above.

SAM'S HOLLOW WATER COMPANY

PACIFICORP

By: Connie [Signature]

By: [Signature]  
CONNIE BALDWIN

Its: Secretary

Its: WATER RESOURCES  
SPECIALIST

8. Sam's Hollow agrees to abide by the "Guidelines for Mitigation of New Ground Water Development in the Lower Bear River Basin in Idaho," dated September 29, 2003 and attached to this Settlement Agreement as Exhibit "C."

11 40. When executed, the Parties agree to forward a copy of this Settlement Agreement to IDWR for placement in the files of the Applications.

12 N. Each Party agrees to cooperate with the other in good faith and prepare and file necessary documents, or take other action, to promptly achieve the purposes of this Settlement Agreement.

1) 12 The Parties understand the content of this Agreement, and have consulted their attorneys thereon, and enter into this Agreement voluntarily and of their own free will.

~~14~~ 13. Should any of the provisions set forth herein be determined to be invalid by any court or agency, such determination shall not affect the enforceability of the other provisions herein and to this end, the provisions of this Agreement are declared to be severable.

15 ~~14~~ This Agreement and release shall inure to the benefit of the Parties, and shall be binding upon the Parties and their assigns, employees, agents, representatives and successors.

15. This Agreement sets forth the entire understanding and agreement between the Parties with respect to the subject matter herein and supersedes any prior or contemporaneous oral and/or written agreement or representations, if any, between the Parties. Its terms may not be modified or supplemented, except by mutual written agreement executed by PacifiCorp and Sam's Hollow. All executed copies of this Agreement shall constitute duplicate originals and shall be equally admissible in evidence.

**This Agreement is executed on the date written above.**

**PACIFICORP**

**By:**

**Its:**

**By:**

**Its:**

Attest:

**EXHIBIT "A"**

Application for Amendment of Permit No. 11-7481 and Mitigation Plan

STATE OF IDAHO  
DEPARTMENT OF WATER RESOURCES

Ident. No. 11-7481

## APPLICATION FOR AMENDMENT OF A PERMIT

To appropriate the public waters of the State of Idaho

Name of applicant Sam's Hollow Water Company Phone 208 232 6101Address 201 E. Center Street, Pocatello, ID 83201I am the owner and holder of Permit to Appropriate the public Waters of the State of Idaho No. 11-74 and request that the permit and permit map be amended and / or changed as follows:Purpose of Amendment: ☐ Change point of diversion ☐ Add point of Diversion  
☒ Change Place of use ☐ Change nature of use ☐ Change period of use ☒ Other1. Point of diversion is 1/4 SE 1/4, SW 1/4, Section 11Township 16S Range 43E B.M.  County of Bear LakeOther points of diversion, if any: NW1/4 NE1/4 Sec 15, SW1/4 SE 1/4 Sec 10 T16S R43E

2. Period and nature of use: (Irrigation, domestic, stockwatering, industrial, etc.):

Amount 0.94/86.7 for Domestic purposes from 1/1 to 12/31 (both dates inclusive)  
(cfs or acre-feet per annum) (water use) (Begin month) (End month)Amount 0.23/48.1 for Irrigation purposes from 4/1 to 10/15 (both dates inclusive)  
(cfs or acre-feet per annum) (water use) (Begin month) (End month)Amount .02/2.8 for Commercial purposes from 1/1 to 12/31 (both dates inclusive)  
(cfs or acre-feet per annum) (water use) (Begin month) (End month)Amount  for  purposes from  to  (both dates inclusive)  
(cfs or acre-feet per annum) (water use) (Begin month) (End month)

3. Place of use or land to be irrigated:

| TWP | RANGE | SEC | NE 1/4 |        |        |        | NW 1/4 |        |        |        | SW 1/4 |        |        |        | SE 1/4 |        |        |        | TOTALS |
|-----|-------|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|     |       |     | NE 1/4 | NW 1/4 | SW 1/4 | SE 1/4 | NE 1/4 | NW 1/4 | SW 1/4 | SE 1/4 | NE 1/4 | NW 1/4 | SW 1/4 | SE 1/4 | NE 1/4 | NW 1/4 | SW 1/4 | SE 1/4 |        |
| 16S | 43E   | 11  |        |        |        |        |        |        |        |        |        |        | D1.6   | D4.8   |        |        | DC1.3  |        | 7.7    |
|     |       | 14  |        | DC1.6  |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 1.6    |
|     |       | 15  | D0.3   | D1.5   | D0.4   | D      |        |        |        |        |        |        |        |        |        |        |        |        | 2.2    |
|     |       |     |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|     |       |     |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|     |       |     |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|     |       |     |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|     |       |     |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |

Total number of acres to be irrigated 11.511. a. Who owns the property at the point of diversion? Applicantb. Who owns the land to be irrigated or place of use? Applicantc. If the property is owned by a person other than the applicant, describe the arrangement enabling the applicant to make this filing: The owners of lots within the Subdivision will be members of Sam's Hollow Water Company

Show 1/4 1/4, section, township, range and ditches. (the smallest subdivision represents 40 acres)

[illegible]

Scale: 2 inches equal 1 mile

Signed this 20<sup>th</sup> day of May, 192002 Russell C. Budge Attorney  
and agent for Applicant

## ACTION OF THE DEPARTMENT OF WATER RESOURCES

| <b>Published in</b>                      | <b>Publication dates</b> |
|------------------------------------------|--------------------------|
| Journal of Management Education<br>37(6) | June 2013                |

I, \_\_\_\_\_, of the Department of Water Resources hereby

Witness my hand this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_

**SIGNATURE**



Narrative in Support of Application for Permit  
Sam' Hollow Water Company Phase I  
Revised April 29, 2002

Bear Lake County

This narrative is being revised to reflect changes in the service area for the proposed project which reduces the number of residential lots from 63 to 36. The commercial area and condominium units will remain the same. The calculation of depletions to the Bear River and Bear Lake is based on procedures developed by Robert Hill and outlined in papers on "Procedures for Estimating Depletion of Municipal, Dairy, and Agricultural Crop Water Use in the Lower Bear River Basin In Idaho" presented in 1997 and 1998.

Sam's Hollow Water Company is organized to own and operate a central water system and manage water and water rights for Members of the Corporation. The ultimate service area of the Company will include two phases of subdivision development. In Phase 1, the Company will supply domestic and irrigation water from two or more wells in Sections 11 and 15 T16S R43E B.M. near Fish Haven in Bear Lake County, Idaho. Sam's Hollow Water Company is an Idaho Nonprofit Corporation.

In Phase 1, the Company will serve domestic and irrigation water for 36 residences, 256 condominium units, and 4 commercial enterprises in Phase 1 of the project.

The wells will provide ground water for the system as shown on the enclosed map. Wells No 1 and No 2 were drilled by Johnson Development Co in 2000 and 2001 as test wells to determine the yield of the local aquifer. All water rights pertinent to the water system will be owned by Sam's Hollow Water Company.

Member's of Sams' Hollow Water Company own shares in the Fish Haven Irrigation Company which provides water from Fish Haven Creek for irrigation of lands within the project. It is recognized that groundwater in the aquifer underlying the project is tributary to Bear Lake as is Fish Haven Creek. Additional consumptive use of water from the aquifer by pumping for the project can result in reductions of inflow to Bear Lake.

It is estimated that the total annual diversion from ground water for project use under Phase 1 will equal 136.7 acre feet and the project will irrigate 11.5 acres of turf and landscaping around facilities and buildings.

An estimate of additional depletion of the water resource was made using procedures developed by Dr. Robert Hill. This procedure estimates depletions from home sites and condominiums, commercial development, and irrigation around facilities and accounts for depletions from in-house use, wastewater treatment facilities, and irrigation consumptive use. It is estimated that the total depletion from planned facilities in Phase I of the project will equal 27.1 acre feet per year. To mitigate for additional depletion from ground water by the project, it is proposed to divert the Sam's Hollow Water Company shares of Fish Haven Irrigation Company but return sufficient volume of the diverted water directly to Bear Lake to mitigate for additional consumptive use on the project. Historically, water for project lands has been diverted through three ditches operated by the Fish Haven Water Users, namely the Upper North Ditch, and Ditches #1 and #3.

Sufficient water thus diverted to project lands will be returned by pipeline and/or ditches to Bear Lake and will not be used for irrigation. It is therefor proposed to return 27.1 acre feet of water diverted from Fish Haven Creek during the irrigation season directly to Bear Lake to mitigate for any increased depletion by the project.

A water measurement and monitoring program will be maintained to assure that sufficient irrigation water diverted under Company owned shares in the Fish Haven Irrigation Company does, in fact, reach Bear Lake through pipelines and ditches constructed as part of the project. A pipeline with in-line totalizing flow meter will be installed at the lower end of the project to measure the flow being returned directly to Bear Lake. Reports of volumes of water returned to Bear Lake will be supplied to IDWR and any other interested parties.

Negotiations with the Board of Fish Haven Irrigation Company to allow use of diverted shares for return to Bear Lake to mitigate for increased project consumptive use have been held and they are in agreement with the proposal

Shares of Fish Haven Ditch Company which are owned by members of Sam's Hollow Water Company include 140.5 shares currently owned by Howard Johnson. There are 99.5 shares in the Upper North Ditch, 20 shares in the Number 1 Ditch, and 21 shares in the Number 3 ditch. Based on rotation data supplied by Leon Howell and Harry Michaelson of the Fish Haven Ditch Co., water from these three ditches would be available to the project on a rotation basis with the Upper North Ditch on 12.4 days out of a 31 day rotation period, Number 1 ditch would be on 2.5 days out of a 12.65 day rotation and Number 3 ditch would be on 2.6 days out of a 31.65 day rotation. For a 150 day irrigation season, these three ditches would be on about 60.2, 29.6, and 12.4 days respectively or a total of 102.3 days total when one or more ditches would be delivering water to project lands. To mitigate for the project consumptive use of 21.7 acre feet, an average flow of 0.13 cfs or 6.5 miners inches for the 102.3 days would have to be returned directly to Bear Lake.

Using procedures developed by Robert Hill, mitigation of the 21.7 af of depletion would require that 22.9 acres of historically irrigated land be dried up. This would consist of any irrigated areas within the project upon which structures or roads would be built and other irrigated land taken out of production.

Documentation of the amount of water available to the project through any of the three ditches will require water measurement and accounting of water deliveries throughout the season. Sam's Hollow Water Company will assist in installing additional water measurement and monitoring equipment on ditches diverting from Fish Haven Creek and will install a water measuring and flow totalizing device on the return pipe or ditch to Bear Lake to assure that the required mitigation water does return to the lake. Diversions to project lands under the project's shares will continue as determined by the Board of Fish Haven Water Users and a water accounting program will be implemented by Sam's Hollow Water Company to account for all water mitigation water diverted directly to Bear Lake.

# WATER REQUIREMENTS AND WATER BALANCE ANALYSIS FOR

Bear Lake Haven Subdivision Phase 1

Brockway Engineering, PLLC April 2002

REVISED w/o Kearn  
29-Apr-02

## DOMESTIC POTABLE WATER - Home Sites

Potable water supplied municipal system

Daily / annual volume based on per-capita volume and peaking factors

|                                |           |         |       |       |
|--------------------------------|-----------|---------|-------|-------|
| No. of lots                    | 36        |         |       |       |
| Average occupancy              | 3         | persons |       |       |
| Average daily demand - potable | 100       | gpcd    |       |       |
| Peak Day Factor                | 3         |         |       |       |
| Peak Hour Factor               | 4.5       |         |       |       |
| Daily volume                   | 10,800    | gpd     |       |       |
| Annual volume*                 | 3,942,000 | gal =   | 12.10 | ac-ft |
| Peak day volume                | 32,400    | gpd =   |       |       |
| Average Daily Flow             | 8         | gpm     |       | 0     |
| Average Peak Day Flow          | 23        | gpm     |       |       |
| Peak Hour Flow                 | 34        | gpm     |       |       |
| IDWR diversion guidelines      | 117       | gpm or  | 0.26  | cfs   |
| Daily consumptive use          | 2,160     | gpd     |       |       |
| Annual consumptive use volume  | 788,400   | gal =   | 2.42  | ac-ft |

## DOMESTIC POTABLE WATER - Condominium

Potable water supplied municipal system

Daily / annual volume based on per-capita volume and peaking factors

|                                |            |         |       |       |
|--------------------------------|------------|---------|-------|-------|
| Number of Buildings            | 64         |         |       |       |
| No. of Units                   | 256        |         |       |       |
| Average occupancy              | 4          | persons |       |       |
| Average daily demand - potable | 65         | gpcd    |       |       |
| Peak Day Factor                | 3          |         |       |       |
| Peak Hour Factor               | 4.5        |         |       |       |
| Daily volume                   | 66,560     | gpd     |       |       |
| Annual volume*                 | 24,294,400 | gal =   | 74.56 | ac-ft |
| Peak day volume                | 199,680    | gpd =   | 139   | gpm   |
| Average Daily Flow             | 46         | gpm     |       |       |
| Average Peak Day Flow          | 139        | gpm     |       |       |
| Peak Hourly Flow               | 208        | gpm     |       |       |
| IDWR diversion guidelines      | 305        | gpm or  | 0.68  | cfs   |
| Daily consumptive use          | 13,312     | gpd     |       |       |
| Annual consumptive use volume  | 4,858,880  | gal =   | 14.91 | ac-ft |

\* Note - Annual volume assuming 100% occupancy which will not occur.

## IRRIGATION

Irrigation water delivered . municipal system  
Crop ET data from Allen and Brockway (1983) - Lifton station

|                                          |           |        |                             |          |
|------------------------------------------|-----------|--------|-----------------------------|----------|
| Irrigated Area per lot                   | 5000      | ft^2   |                             |          |
| Irrigated area per condominium bldg      | 5000      | ft^2   |                             |          |
| Total irrigated area                     | 11.5      | acres  |                             |          |
| Crop consumptive use - Pasture grass     | 30.20     | inches | (Allen and Brockway, 1983)  |          |
| Irrigation efficiency - typical domestic | 60%       |        |                             |          |
| Annual consumptive volume                | 28.9      | ac-ft  |                             |          |
| Annual diversion volume                  | 48.1      | ac-ft  |                             |          |
| Peak month average daily ET              | 0.235     | inches | } Allen and Brockway (1983) |          |
| Standard deviation of monthly ET         | 0.0070866 | inches |                             |          |
| Peak day factor                          | 1.5       |        |                             |          |
| Exceedance level                         | 90%       |        |                             |          |
| Maximum daily design ET                  | 0.366     | inches |                             |          |
| Maximum design discharge                 | 0.30      | cfs or | 137                         | gpm      |
|                                          |           |        | 11.9                        | gpm / ac |
|                                          |           |        | 1.33                        | "/ac     |
| IDWR diversion guideline (0.02 cfs/acre) | 0.23      | cfs or | 103.03                      | gpm      |
| Use .03 cfs/ac for < 5 acres             |           |        |                             |          |

## POTABLE WATER - Commercial

Potable water supplied municipal system  
Daily / annual volume based on per-capita volume and peaking factors

|                                        |         |                 |      |       |
|----------------------------------------|---------|-----------------|------|-------|
| Estimated Amount of Commercial Footage | 10,000  | sq ft           |      |       |
| GPD per 1,000 sq ft of Commercial Use  | 250     | gpd/1,000 sq ft |      |       |
| Peak Day Factor                        | 4       |                 |      |       |
| Peak Hour Factor                       | 4.5     |                 |      |       |
| Daily volume                           | 2,500   | gpd             |      |       |
| Annual volume*                         | 912,500 | gal =           | 2.80 | ac-ft |
| Peak day volume                        | 10,000  | gpd =           | 7    | gpm   |
| Average Daily Flow                     | 2       | gpm             |      |       |
| Average Peak Day Flow                  | 7       | gpm             |      |       |
| Peak Hourly Flow                       | 8       | gpm             |      |       |
| Daily consumptive use                  | 500     | gpd             |      |       |
| Annual consumptive use volume          | 182,500 | gal =           | 0.56 | ac-ft |

\* Note - Annual volume assuming 100% occupancy which will not occur.

## System Design Flowrates

|                                       |       |     |
|---------------------------------------|-------|-----|
| Peak Flow from Domestic -In House Use | 242   | gpm |
| Peak Flow from Irrigation Use         | 137   | gpm |
| Peak Flow from Commercial Use         | 8     | gpm |
| Fire Flow Requirement                 | 1000  | gpm |
| Total System Demand - Peak            | 1,386 | gpm |

| System Annual Volume Reqs | Diversion | Consumptive IDW | Depletion( Hill) |
|---------------------------|-----------|-----------------|------------------|
| Domestic In-house         | 12.1      | 2.4 ac ft       | 0.97             |
| Condominium               | 74.6      | 14.9 ac ft      | 10.80            |
| Irrigation                | 48.1      | 28.9 ac ft      | 14.35            |
| Commercial                | 2.8       | 0.6 ac ft       | 0.94             |
| Total non-irrigation      | 89.5      | 17.9 ac ft      | 12.7             |
| Total                     | 137.6     | 46.8 ac ft      | 27.1             |

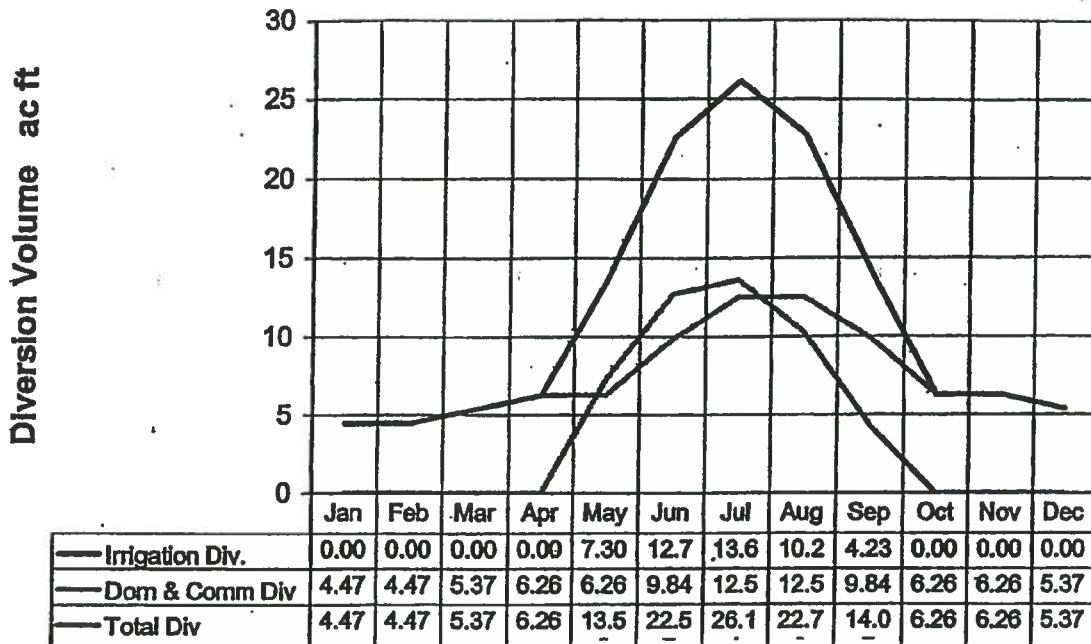
#### Seasonal Diversion Requirement

|       | Irrigation                   |                            |                  | Other                |                  |                      | Total  |
|-------|------------------------------|----------------------------|------------------|----------------------|------------------|----------------------|--------|
|       | Monthly<br>Alfa.ET<br>mm/day | Monthly<br>Req/t<br>Inches | Monthly<br>Ratio | Monthly<br>Req<br>af | Monthly<br>Ratio | Monthly<br>Req<br>af |        |
| Jan   | 0                            | 0.00                       | 0.00             | 0.00                 | 0.05             | 4.47                 | 4.47   |
| Feb   | 0                            | 0.00                       | 0.00             | 0.00                 | 0.05             | 4.47                 | 4.47   |
| Mar   | 0                            | 0.00                       | 0.00             | 0.00                 | 0.06             | 5.37                 | 5.37   |
| Apr   | 0                            | 0.00                       | 0.00             | 0.00                 | 0.07             | 6.26                 | 6.26   |
| May   | 3.29                         | 4.02                       | 0.15             | 7.30                 | 0.07             | 6.26                 | 13.56  |
| Jun   | 5.93                         | 7.00                       | 0.26             | 12.73                | 0.11             | 9.84                 | 22.57  |
| Jul   | 6.14                         | 7.49                       | 0.28             | 13.62                | 0.14             | 12.52                | 26.14  |
| Aug   | 4.63                         | 5.65                       | 0.21             | 10.27                | 0.14             | 12.52                | 22.79  |
| Sep   | 1.97                         | 2.33                       | 0.09             | 4.23                 | 0.11             | 9.84                 | 14.07  |
| Oct   | 0                            | 0.00                       | 0.00             | 0.00                 | 0.07             | 6.26                 | 6.26   |
| Nov   | 0                            | 0.00                       | 0.00             | 0.00                 | 0.07             | 6.26                 | 6.26   |
| Dec   | 0                            | 0.00                       | 0.00             | 0.00                 | 0.06             | 5.37                 | 5.37   |
| Total |                              | 26.49                      | 1.00             | 48.15                | 1.00             | 89.46                | 137.61 |

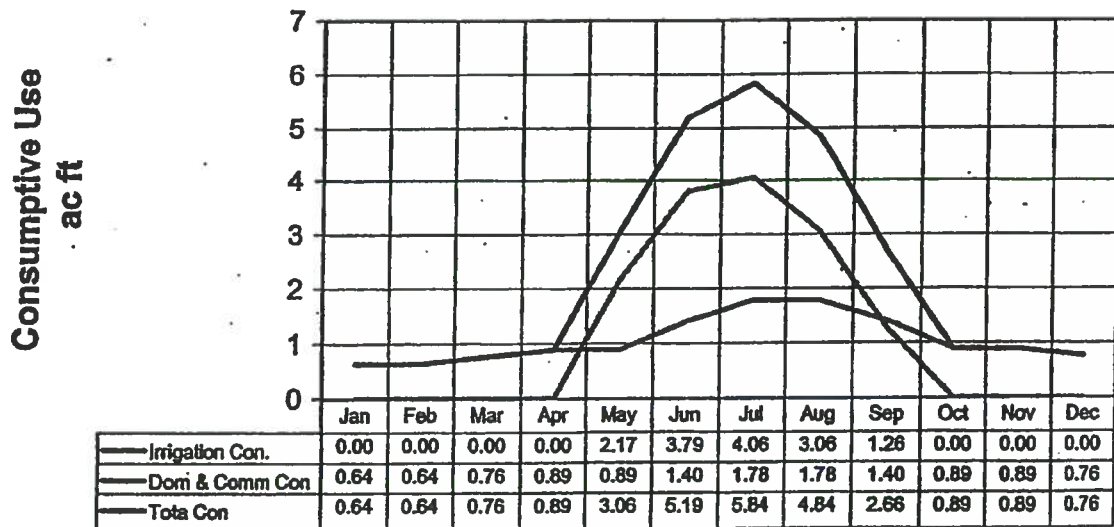
#### Seasonal Consumptive Requirement (Based on R. Hill Depletion)

|       | Irrigation                   |                            |                  | Other                |                  |                      | Total |
|-------|------------------------------|----------------------------|------------------|----------------------|------------------|----------------------|-------|
|       | Monthly<br>Alfa.ET<br>mm/day | Monthly<br>Req/t<br>Inches | Monthly<br>Ratio | Monthly<br>Req<br>af | Monthly<br>Ratio | Monthly<br>Req<br>af |       |
| Jan   | 0                            | 0.00                       | 0.00             | 0.00                 | 0.05             | 0.64                 | 0.64  |
| Feb   | 0                            | 0.00                       | 0.00             | 0.00                 | 0.05             | 0.64                 | 0.64  |
| Mar   | 0                            | 0.00                       | 0.00             | 0.00                 | 0.06             | 0.76                 | 0.76  |
| Apr   | 0                            | 0.00                       | 0.00             | 0.00                 | 0.07             | 0.89                 | 0.89  |
| May   | 3.29                         | 4.02                       | 0.15             | 2.17                 | 0.07             | 0.89                 | 3.06  |
| Jun   | 5.93                         | 7.00                       | 0.26             | 3.79                 | 0.11             | 1.40                 | 5.19  |
| Jul   | 6.14                         | 7.49                       | 0.28             | 4.06                 | 0.14             | 1.78                 | 5.84  |
| Aug   | 4.63                         | 5.65                       | 0.21             | 3.06                 | 0.14             | 1.78                 | 4.84  |
| Sep   | 1.97                         | 2.33                       | 0.09             | 1.26                 | 0.11             | 1.40                 | 2.66  |
| Oct   | 0                            | 0.00                       | 0.00             | 0.00                 | 0.07             | 0.89                 | 0.89  |
| Nov   | 0                            | 0.00                       | 0.00             | 0.00                 | 0.07             | 0.89                 | 0.89  |
| Dec   | 0                            | 0.00                       | 0.00             | 0.00                 | 0.06             | 0.76                 | 0.76  |
| Total |                              | 26.49                      | 1.00             | 14.35                | 1.00             | 12.71                | 27.06 |

### Bear Lake Haven Phase I Water Diversion Requirements



### Bear Lake Haven Phase I Water Consumptive Requirements or Depletion based on R. Hill



**Equivalent Acreage for Project Consumptive Use**

|                                 |                                           |
|---------------------------------|-------------------------------------------|
| Consumptive Use /acre           | 30.20 inches (Allen and Brockway, 1983)   |
|                                 | 2.52 af/year                              |
| Project Total Consumptive Use   | 46.8 acre feet (Allen and Brockway, 1983) |
| Equivalent Irrigated Acreage    | 18.6 acres                                |
| Project Depletion based on Hill | 27.1 af/year                              |
| Equivalent Irrigated Acreage    | 22.9 acres                                |

**Fish Haven Ditch Company-Water Shares****Based on data supplied by Leon Howell and Harry Michaelson**

|                                |                                          |                                       |
|--------------------------------|------------------------------------------|---------------------------------------|
| Water right number             | 11-04022                                 | Statutory claim-priority May 18, 1871 |
| Diversion Rate                 | 29.6 cfs                                 |                                       |
| Acreage Irrigated-claim        | 1920 acres                               |                                       |
| Claimed place of use           | All of Sections 14, 15, and 16 T16S R43E |                                       |
| Total Shares on System         | 1600                                     | Based on stock certificates           |
| Total Shares on Johnson Prop.  | 140.5                                    |                                       |
| Approx. Johnson share of flow  | 8.78 percent                             |                                       |
| Approx. Johnson share of right | 2.60 cfs                                 |                                       |
| Total share of right on prop.  | 2.60 cfs                                 |                                       |

Estimated Irrig. Season 150 days  
**Upper North Ditch-31 days to rotate to all users**

|                                   |             |
|-----------------------------------|-------------|
| Days in rotation                  | 31          |
| Shares on Johnson Property        | 99.5        |
| Water available for 3 hours/share | 298.5 hours |
|                                   | 12.4 days   |
| Days on in rotation               | 12.4        |
| Days off in rotation              | 18.6        |
| Total days on in season           | 60.2        |

**Number 1 Ditch**

|                                   |          |
|-----------------------------------|----------|
| Days in rotation                  | 12.65    |
| Shares on Johnson Property        | 20       |
| Water available for 3 hours/share | 60 hours |
|                                   | 2.5 days |
| Days on in rotation               | 2.5      |
| Days off in rotation              | 10.2     |
| Total days on in season           | 29.6     |

**Number 3 Ditch**

|                                   |          |
|-----------------------------------|----------|
| Days in rotation                  | 31.65    |
| Shares on Johnson Property        | 21       |
| Water available for 3 hours/share | 63 hours |
|                                   | 2.6 days |
| Days on in rotation               | 2.6      |
| Days off in rotation              | 29.0     |
| Total days on in season           | 12.4     |

|                                                            |                           |
|------------------------------------------------------------|---------------------------|
| Consumptive Volume( depletion) to be returned to Bear Lake | 27.1 acre feet            |
| Number of days shares available                            | 102.3 days in all ditches |
| Average flow for mitigation                                | 0.26 af/day for 102days   |
|                                                            | 0.13 cfs for 102days      |
|                                                            | 60 gpm for 102days        |

**DEPLETION ANALYSIS FOR PHASE I BEAR LAKE HAVEN SUBDIVISION  
USING "PROCEDURES FOR ESTIMATING DEPLETION OF MUNICIPAL, DAIRY,  
AND AGRICULTURAL CROP WATER USE IN THE LOWER BEAR RIVER BASIN  
IN IDAHO" BY ROBERT W.HILL P.E.**

**Paper presented at Public Hearings July 2, 1997 in Preston and Soda Springs, ID  
and supplemented with 1998 paper**

**Calcs for Bear Lake Haven Subdivision by Brockway Engineering, PLLC April 29, 2002  
Based on precip., Consumptive Use, and Depletion for Bear Lake County, ID by R. Hill**

**DOMESTIC POTABLE WATER - Home Sites**

Potable(culinary) water supplied from municipal system

Wastewater treatment by on-site systems (septic tank/drainfield-non consumptive)

|                                                             |               |                                             |                          |              |
|-------------------------------------------------------------|---------------|---------------------------------------------|--------------------------|--------------|
| No. of lots                                                 | 36            | municipal water & individual on-site sewage |                          |              |
| Average occupancy                                           | 4             | persons                                     |                          |              |
| Average daily diversion demand - potable                    | 100           | gpcd                                        |                          |              |
| Average daily demand-potable/connection                     | 400           | gpd                                         | Utah avg day design vol. |              |
| Daily Home Site volume                                      | 14,400        | gpd                                         |                          |              |
| Average annual percent occupancy                            | 40.2          | %                                           |                          | 0            |
| Annual volume used                                          | 2,111,040     | gal =                                       | 6.48                     | ac-ft        |
| Percent depletion of culinary water-in house                | 5             | percent                                     |                          |              |
| Annual volume of culinary water in-house depletion          | 105552        | gal =                                       | 0.32                     | ac-ft        |
| Wastewater from culinary in-house water use(to drain field) | 2,005,488     |                                             |                          |              |
| Est. percent depletion from drain field treatment**         | 10            | %                                           |                          |              |
| Volume of depletion from wastewater disposal(drainfields)   | 211104        | gal =                                       | 0.65                     | ac-ft        |
| <b>Annual vol.depletion of culinary water-Homesites</b>     | <b>316656</b> | <b>gal =</b>                                | <b>0.97</b>              | <b>ac-ft</b> |

**DOMESTIC POTABLE WATER - Condominium**

Potable(culinary) water supplied from municipal system

Wastewater treatment in regional system (lagoons)

|                                                            |                  |             |                          |              |
|------------------------------------------------------------|------------------|-------------|--------------------------|--------------|
| Number of Buildings                                        | 64               |             |                          |              |
| No. of Units                                               | 256              |             |                          |              |
| Average occupancy                                          | 4                | persons     |                          |              |
| Average daily demand - potable                             | 70               | gpcd        |                          |              |
| Average daily demand-potable/unit                          | 280              | gpd         | Utah avg day design vol. |              |
| Avg. Daily Condominium volume                              | 71,680           | gpd         |                          |              |
| Average annual percent occupancy                           | 40.2             | %           |                          |              |
| Annual volume used                                         | 10,508,288       | gal =       | 32.25                    | ac-ft        |
| Percent depletion of culinary water-in-house               | 5                | percent     |                          |              |
| Annual in-house depletion of culinary water-               | 525414.4         | gal=        | 1.61                     | ac-ft        |
| Wastewater to regional sewer system-lagoons***             | 9,982,874        | gal=        | 30.64                    | ac-ft        |
| Percent of wastewater to lagoon evaporated                 | 30               | percent     |                          |              |
| Annual wastewater evaporated                               | 2994862.1        | gal=        | 9.19                     | ac-ft        |
| <b>Annual vol.depletion of culinary water-Condominiums</b> | <b>3520276.5</b> | <b>gal=</b> | <b>10.80</b>             | <b>ac-ft</b> |

## POTABLE WATER - Commercial

Potable water supplied by municipal system

Wastewater treatment in regional system (lagoons)

Estimated Amount of Commercial Footage

GPD per 1,000 sq ft of Commercial Use

Average daily volume demand

Average annual percent occupancy

Annual volume\*

Percent depletion of culinary water-in-house

Annual in-house depletion of culinary water-

Wastewater to regional sewer system-lagoons\*\*\*

Percent of wastewater to lagoon evaporated

Annual wastewater evaporated

|          |                 |      |       |
|----------|-----------------|------|-------|
| 10,000   | sq ft           |      |       |
| 250      | gpd/1,000 sq ft |      |       |
| 2,500    | gpd             |      |       |
| 100      | %               |      |       |
| 912,500  | gal =           | 2.80 | ac-ft |
|          | 5 percent       |      |       |
| 45625    | gal=            | 0.14 | ac-ft |
| 866,875  | gal=            | 2.66 | ac-ft |
|          | 30 percent      |      |       |
| 260062.5 | gal=            | 0.80 | ac-ft |
| 305687.5 | gal=            | 0.94 | ac-ft |

Annual vol.depletion of culinary water-Commercial

## IRRIGATION

Irrigation water delivered by municipal system

Dpl=Et - SMco - Pef    Dpl=depletion, Et=crop water use, Smco=soil moisture carryover

Pef=Effective precipitation( May-September)

Crop water use (Et)and Effective Precipitation(Pef) for Soda Springs, ID from R. Hill, 1997

|                                       |       |                                     |  |
|---------------------------------------|-------|-------------------------------------|--|
| Irrigated Area per lot                | 5000  | ft^2                                |  |
| Irrigated area per condominium bldg   | 5000  | ft^2                                |  |
| Total irrigated area                  | 11.5  | acres                               |  |
| Crop consumptive use - Pasture grass  | 15.00 | inches (Bear Lake County Hill 1998) |  |
| Annual vol. Depletion from Irrigation | 14.35 | ac-ft                               |  |

### Annual Project Depletion

|                                |       |       |
|--------------------------------|-------|-------|
| Culinary-Homesites             | 1.0   |       |
| Culinary-Condominiums          | 10.8  |       |
| Commercial                     | 0.94  |       |
| Irrigation                     | 14.35 |       |
| Total Annual Project Depletion | 27.1  | ac-ft |

## Equivalent Acreage for Project Consumptive Use

Depletion for pasture grass\*\*    14.20 inches (Bear Lake County) Hill 1998  
or    1.18 af/year

Project Total Annual Depletion    27.1 acre feet  
Equivalent Irrigated Acreage    22.9 acres

\*\* Includes carry-over soil moisture and adjustment for non-growing season Et (Hill, 1998, personal comm.)

\*\*\* Regional sewer system includes lagoons with outflow to wetlands and Bear Lake

\* Depletion from on-site sewage disposal assumes some effluent may reach ground surface and contribute to vegetation Et or evaporation

**EXHIBIT "B"**

Application for Permit No. 11-7491 and Mitigation Plan

STATE OF IDAHO  
DEPARTMENT OF WATER RESOURCES  
**APPLICATION FOR PERMIT**

To appropriate the public waters of the State of Idaho

1. Name of applicant Sam's Hollow Water Company Phone 208 232 6101  
Post Office address 201 E. Center Street, Pocatello, ID 83201
2. Source of water supply Ground Water which is a tributary of \_\_\_\_\_
3. Location of point of diversion is \_\_\_\_\_ 1/4 of SW 1/4 of NE 1/4, Govt. Lot \_\_\_\_\_  
Sec. 10 Township 16S Range 43E B.M. Bear Lake County; additional  
points of diversion, if any: NW 1/4 NW 1/4 Sec 11, NW 1/4 SW 1/4 Sec 2
4. Water will be used for the following purposes:  
Amount 1.22 for Domestic purposes from 1-1 to 12-31 (both dates inclusive)  
(cfs or acre-feet per annum)  
Amount \_\_\_\_\_ for \_\_\_\_\_ purposes from \_\_\_\_\_ to \_\_\_\_\_ (both dates inclusive)  
(cfs or acre-feet per annum)  
Amount \_\_\_\_\_ for \_\_\_\_\_ purposes from \_\_\_\_\_ to \_\_\_\_\_ (both dates inclusive)  
(cfs or acre-feet per annum)  
Amount \_\_\_\_\_ for \_\_\_\_\_ purposes from \_\_\_\_\_ to \_\_\_\_\_ (both dates inclusive)  
(cfs or acre-feet per annum)
5. Total quantity being appropriated is (a) 1.22 and/or (b) \_\_\_\_\_  
cubic feet per second acre-feet per annum
6. Proposed diverting works:
  - a. Description of ditches, flumes, pumps, headgates, etc. \_\_\_\_\_  
Three wells and central pipeline distribution system and storage tanks
  - b. Height of storage dam \_\_\_\_\_ feet; active reservoir capacity \_\_\_\_\_ acre-feet; total  
reservoir capacity \_\_\_\_\_ acre-feet; period of year when water will be diverted to storage:  
\_\_\_\_\_ to \_\_\_\_\_ inclusive.
  - c. Proposed well diameter is 8 inches; proposed depth of well is 400 feet
  - d. Is groundwater with a temperature of greater than 85 degrees being sought? No
  - e. If well is already drilled, when? \_\_\_\_\_; Drilling firm \_\_\_\_\_;  
Well was drilled for (well owner) \_\_\_\_\_
7. Time required for completion of works and application of water to proposed beneficial use is 5 years (minimum 1 year)
8. Description of proposed uses (If irrigation only, go to item 9):
  - a. Hydropower; show total feet of head and proposed capacity in KW. \_\_\_\_\_
  - b. Stockwatering; list number and kind of livestock. \_\_\_\_\_
  - c. Municipal; show name of municipality. \_\_\_\_\_
  - d. Domestic; show number of households Phase II development, 241 single family homes;
  - e. Other; describe fully. \_\_\_\_\_

9. Description of place of use:

- a. If water is for irrigation, indicate acreage in each subdivision in the tabulation below.
- b. If water is used for other purposes, place a symbol of the use (example: D for Domestic) in the corresponding place of use below. See instructions for standard symbols.

| TWP | RANGE | SEC | NE 1/4 |        |        |        | NW 1/4 |        |        |        | SW 1/4 |        |        |        | SE 1/4 |        |        |        | TOTALS |
|-----|-------|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|     |       |     | NE 1/4 | NW 1/4 | SW 1/4 | SE 1/4 | NE 1/4 | NW 1/4 | SW 1/4 | SE 1/4 | NE 1/4 | NW 1/4 | SW 1/4 | SE 1/4 | NE 1/4 | NW 1/4 | SW 1/4 | SE 1/4 |        |
| 16S | 43E   | 2   |        |        |        |        |        |        |        |        | D      | D      | D      | D      |        | D      |        |        |        |
|     |       | 10  | D      | D      | D      | D      |        |        |        |        |        |        |        |        |        |        |        |        |        |
|     |       | 11  |        | D      | D      |        | D      | D      |        |        |        |        |        |        |        |        |        |        |        |
|     |       |     |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|     |       |     |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|     |       |     |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|     |       |     |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|     |       |     |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |

Total number of acres to be irrigated \_\_\_\_\_

10. Describe any other water rights used for the same purposes as described above. None

11. a. Who owns the property at the point of diversion? Applicant

b. Who owns the land to be irrigated or place of use? Johnson Dev. Co

c. If the property is owned by a person other than the applicant, describe the arrangement enabling the applicant to make this filing: The owners of lots within the subdivisions will be members of Sam's Hollow Water Company

12. Remarks: Sam's Hollow Water Company will serve all lots within the service area with a common central water system with three wells. Sam's Hollow Water Company will also operate a common central water system in Phase I of this project but under a different water right. See attached Narrative

13. MAP OF PROPOSED PROJECT ATTACHED \_\_\_\_\_ show clearly the proposed point of diversion, place of use, section number, township and range number.

BE IT KNOWN that the undersigned hereby makes this application for permit to appropriate the public waters of the State of Idaho as herein set forth.

Randall C. Budge, Attorney and Agent  
(Applicant) For Applicant.

Received by HWT Date 1-11-02 Time \_\_\_\_\_ Preliminary check by \_\_\_\_\_  
Fee \$ 290.00 Received by HWT # E027374 Date 1-11-02  
Publication prepared by SC Date 5/7 & 5/14/03 Published In News Examiner  
Publication approved \_\_\_\_\_ Date \_\_\_\_\_

A topographic map of a portion of Township 16 South, Range 43 East, B.M. The map shows a grid of land parcels, with Phase I and Phase II subdivisions labeled. Phase I is located in the lower central area, and Phase II is located in the upper central area. Two wells are marked: WELL #8 in the upper right and WELL #9 in the lower left. A 'PLACE OF USE' is indicated in the lower right. The map includes contour lines, a north arrow, and a scale bar. The map is titled 'A PORTION OF TOWNSHIP 16 SOUTH, RANGE 43 EAST, B.M.' at the top. The map is dated '1995' in the bottom right corner. The map is prepared by 'Brockway Engineering, PLLC' as indicated in the bottom left corner.

**Brockway Engineering, PLLC**

**Narrative in Support of Application for Permit  
Sam' Hollow Water Company  
Bear Lake Haven Phase II**

**Bear Lake County**

**Revised April 29, 2002**

Sam's Hollow Water Company was organized in 2001 to own and operate a central water system and manage water and water rights for Members of the Corporation. The Company is currently organized to supply domestic and irrigation water from two wells in Sections 11 and 15, T16S, R43E B.M. for Phase I of the Bear Lake Haven Project near Fish Haven in Bear Lake County, Idaho. The Company service area will be expanded to serve additional homes in Phase II of the Project located in Sections 2, 10 and 11, T16S, R43E. Sam's Hollow Water Company is an Idaho Nonprofit Corporation.

The Company currently is scheduled to serve domestic and irrigation water for 36 single family homes, 256 condominiums, and 10,000 sq ft of commercial area in Phase I of the project. The common water system for Phase II of the project will serve 241 single-family residences as shown on the accompanying map. Fifteen (15) lots in Phase II will be served by individual wells. The wells on the fifteen lots will be developed by individual lot owners under Sec 42-111a of the Idaho Code and will therefore be exempt from permit requirements.

Two wells, No. 1 and 2, were drilled and tested in the Phase I area in 2000 and 2001 by Johnson Development Co. These were drilled as test wells to determine the yield of the local aquifer and pumping rates of 160 gpm and 580 gpm were obtained. Three additional wells are proposed for Phase II of the project as shown on the attached map. Geologic evidence indicates that the aquifer underlying the Phase 2 lands is similar to that underlying the Phase I land where the two test wells were drilled. It is expected therefore that additional wells necessary for Phase II of the project can be obtained. All water rights pertinent to the water system will be owned by Sam's Hollow Water Company.

Application for Permit No. 11-7481 was submitted by Sam's Hollow Water Company in October 2001 to IDWR for a water right for Phase I of the project. This application included a mitigation plan whereby consumptive depletions to Bear Lake would be mitigated by utilization of surface water rights from Fish Haven Creek, which are applicable to lands of members of the Company. This application for ground water to supply 241 homes in Phase II of the project contemplates similar use of Fish Haven Creek irrigation rights for mitigation.

Member's of Sam's' Hollow Water Company own shares in the Fish Haven Irrigation Company which provides water from Fish Haven Creek for irrigation of lands within the project. It is recognized that groundwater in the aquifer underlying the project is tributary to Bear Lake as is Fish Haven Creek. Additional consumptive use of water from the aquifer by pumping for the project can result in reductions of inflow to Bear Lake.

For Phase II of the Bear Lake Haven Project, it is estimated that the total annual diversion from ground water for project use will equal 197.0 acre feet and that the total annual depletion from irrigation of 27.9 acres of irrigation associated with houses and facilities and domestic in-house use will equal 41.1 acre feet. An estimate of additional depletion of the water resource was made using procedures developed by Dr. Robert Hill. This procedure estimates depletions from home sites and condominiums, commercial development, and irrigation around facilities and accounts for depletions from in-house use, on-site wastewater treatment facilities, and irrigation consumptive use. The total depletion from planned facilities in Phase 2 of the project utilizing the Hill estimating procedure will equal 41.1 acre feet per year.

To mitigate for additional consumptive use of ground water by the project, it is proposed to divert the Sam's Hollow Water Company shares of Fish Haven Irrigation Company but return sufficient volume of the diverted water directly to Bear Lake to mitigate for additional consumptive use on the project. Historically, water for project lands has been diverted through three ditches operated by the Fish Haven Water Users, namely the Upper North Ditch, and Ditches #1 and #3. Sufficient water thus diverted to project lands will be returned by pipeline and/or ditches to Bear Lake and will not be used for irrigation. It is therefor proposed to return 41.1 acre feet of water diverted from Fish Haven Creek during the irrigation season directly to Bear Lake to mitigate for any increased depletion by the project.

A water measurement and monitoring program will be maintained to assure that sufficient irrigation water diverted under Company owned shares in the Fish Haven Irrigation Company does, in fact, reach Bear Lake through pipelines and ditches constructed as part of the project. A pipeline with in-line totalizing flow meter will be installed at the lower end of the project to measure the flow being returned directly to Bear Lake. Reports of volumes of water returned to Bear Lake will be supplied to IDWR and any other interested parties.

Negotiations with the Board of Fish Haven Irrigation Company to allow use of diverted shares for return to Bear Lake to mitigate for increased project consumptive use have been held and they are in agreement with the proposal.

Shares of Fish Haven Ditch Company, which are owned by members of Sam's Hollow Water Company, include 140.5 shares currently owned by Howard Johnson. There are 99.5 shares in the Upper North Ditch, 20 shares in the Number 1 Ditch, and 21 shares in the Number 3 ditch. Based on rotation data supplied by Leon Howell and Harry Michaelson of the Fish Haven Ditch Co., water from these three ditches would be available to the project on a rotation basis with the Upper North Ditch on 12.4 days out of a 31-day rotation period. Number 1 ditch would be on 2.5 days out of a 12.65-day rotation, and Number 3 ditch would be on 2.6 days out of a 31.65-day rotation. For a 150 day irrigation season, these three ditches would be on about 60.2, 29.6, and 12.4 days respectively or a total of 102.3 days total when one or more ditches would be delivering water to project lands. To mitigate for the Phase II project consumptive use of 41.1 acre feet, an average flow of 0.20 cfs or 10 miners inches for the 102.3 days would have to be returned directly to Bear Lake.

Using procedures developed by Robert Hill, mitigation of the 41.1 af of depletion would require that 34.7 acres of historically irrigated land be dried up. This would consist of any irrigated areas within the project upon which structures or roads would be built and other irrigated land taken out of production. The mitigation plan for Phase I of the project required mitigation for 21.7 af/year or an average flow of .13 cfs or 6.5 miners inches for the 102.3 days for which irrigation water is normally available to the Project. The combined Phase I and Phase II mitigation for depletion is therefore 41.1 + 21.7 or 62.8 af/year. An average flow of 0.33 cfs or 16.5 miners inches for the 102.3 days will be required to be returned to Bear Lake.

Documentation of the amount of water available to the project through any of the three ditches will require water measurement and accounting of water deliveries throughout the season. Sam's Hollow Water Company will assist in installing additional water measurement and monitoring equipment on ditches diverting from Fish Haven Creek, and will install a water measuring and flow totalizing device on the return pipe or ditch to Bear Lake to assure that the required mitigation water does return to the lake. Diversions to project lands under the project's shares will continue as determined by the Board of Fish Haven Water Users and a water accounting and reporting program will be implemented by Sam's Hollow Water Company to account for all water mitigation water diverted directly to Bear Lake.

To estimate the affect of the additional wells in the aquifer on water levels and local well interference, observation wells were measured during the pumping tests of wells #1 and #2. A calculation of the drawdown effects of pumping an 8-inch diameter well at estimated maximum-pumping levels was performed.

During the pumping test of well #1 in November 2000, the well was pumped at a maximum rate of 138 gpm with a measured drawdown of approximately 88 feet. Two observation wells were measured during the eight-hour test. Observation well #1 was located in Fish Haven near the condominium complex south of the highway approximately 3382 feet south west of the pumped well. Depth to water was 4' 7" prior to the pumping test and did not change during the eight hours of pumping well #1. Observation well #2 was an unused 8 inch diameter well with a hand pump located 1065.7 feet north east of the pumped well near the intersection of the cemetery road and the highway. Depth to water before the pumping test was 15' 28 1/2". The water level in the well did not change during the pumping test of well #1.

Utilizing the drawdown and discharge data from the pumped wells, a computer program based on the Theis equation was used to estimate drawdown at various distances from a pumped well. This analysis showed the estimated drawdown at distances up to 1000 feet from an 8-inch diameter well pumping continuously at 300 gpm. The design maximum discharge for Phase II is 1.22 cfs (547 gpm) pumping from two or three wells.

The drawdown from a well pumping 300 gpm continuously for 50 days would be 1.84 feet at a distance of 1000 feet from the well. This estimate is conservative since the production wells will not pump continuously but will cycle on and off depending on the demand. A more likely scenario is that an individual well would pump one half the average daily domestic demand plus the irrigation demand of 200 gpm for 24 to 48 hours.

In which case, the drawdown caused by the pumped well would be imperceptible at 500 feet from the well.

The aquifer yield for both Phase I and Phase II is more than adequate to supply the domestic and irrigation demands of the project and local well interference will not be significant. Planned locations for wells in Phase II and Phase I are more than 1000 feet from any domestic or municipal wells.

# Well Interference Analysis Bear Lake Haven Wells

## Estimated Well Drawdown

C.E. BROCKWAY Jan 4, 2002 Brockway Engineering, L.C.

Wellint.xls

AQUIFER PROPERTIES BASED ON INITIAL PUMP TEST-Well No 1

EST. HOLE DIA. 8 INCHES

ES FORMULA  $S=114.6^{\circ}Q/T^{\circ}W(U)$

DI. DOWN IN FT

PUMPING RATE GPM

T= COEFFICIENT OF TRANSMISSIBILITY GPD/FT

W(U)= WELL FUNCTION OF 'U'

$W(U)=-.5772-LOGeU+U-U^2/(2^{\circ}2!)+U^3/(3^{\circ}3!)-U^4/(4^{\circ}4!)+...$

$U=1.87^{\circ}r^2S/(T^{\circ}t)$

r=DISTANCE IN FT. FROM CENTER OF PUMPED WELL TO DRAWDOWN POINT

S=COEFFICIENT OF STORAGE

T=COEFFICIENT OF TRANSMISSIBILITY, GPD/FT

t= TIME SINCE PUMPING STARTED, DAYS

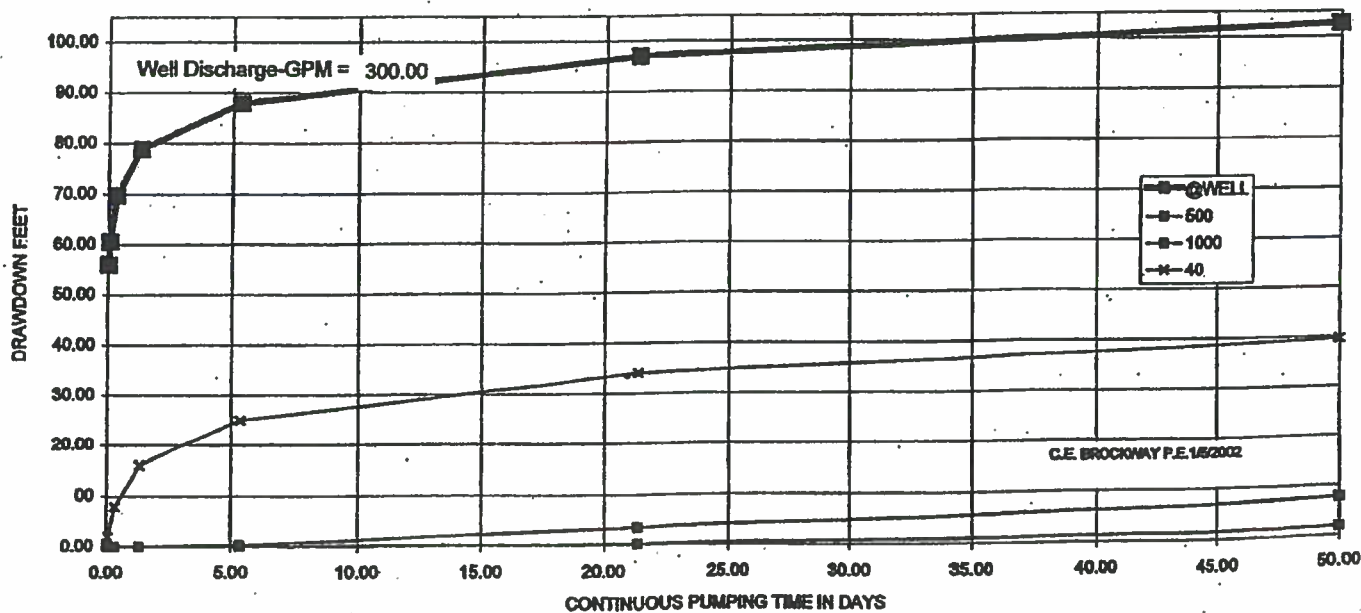
INPUT

r1= 0.333 FT K= 2.00 FT/DAY <-----  
r2= 40 FT K= 2.3148E-05 CFS/FT^2  
r3= 500 FT K= 1.49E+01 GPD/FT^2  
r4= 1000 FT WRIGHT SAT. DEPTH EST.= 350 FT  
r5= 5280 FT TRANSMISSIVITY= 5222 GPD/FT  
S= 0.12 TRANSMISSIVITY= 8.08E-03 FT^2/SEC  
T= 5222 GPD/FT TRANSMISSIVITY= 698.1 FT^2/DAY  
Q/Well 300.00 GPM = 0.668 CFS

| TIME  | TIME  | U          | WELL    | DRAW   | SPEC.  | U         | WELL   | DRAW   | U         | WELL   | DRAW | U         | WELL   | DRAW   |
|-------|-------|------------|---------|--------|--------|-----------|--------|--------|-----------|--------|------|-----------|--------|--------|
| HOURS | DAYS  | 0.33333333 | FUNCT.  | DOWN   | CAP    | W/2       | FUNCT. | DOWN @ | W/3       | FUNCT. | DOWN | W/4       | FUNCT. | DOWN @ |
|       |       |            | W(U)1   | @WELL  | GPM/FT | 40        | W(U)2  | 40     | 600       | W(U)3  | 500  | 1000      | W(U)4  | 1000   |
| 1     | 0.04  | 1.146E-04  | 8.4970  | 55.84  | 5      | 1.650E+00 | 0.0802 | 0.53   | 2.578E+02 | 0.0000 | 0.00 | 1.031E+03 | 0.0000 | 0.00   |
| 2     | 0.08  | 5.730E-05  | 9.1901  | 60.60  | 5      | 8.251E-01 | 0.2989 | 1.95   | 1.289E+02 | 0.0000 | 0.00 | 5.157E+02 | 0.0000 | 0.00   |
| 8     | 0.33  | 1.432E-05  | 10.5784 | 69.83  | 4      | 2.063E-01 | 1.1975 | 7.88   | 3.223E+01 | 0.0000 | 0.00 | 1.288E+02 | 0.0000 | 0.00   |
| 32    | 1.33  | 3.581E-06  | 11.9627 | 78.76  | 4      | 6.157E-02 | 2.4386 | 16.05  | 8.057E+00 | 0.0000 | 0.00 | 3.223E+01 | 0.0000 | 0.00   |
| 128   | 5.33  | 8.953E-07  | 13.3490 | 87.89  | 3      | 1.289E-02 | 3.7868 | 24.93  | 2.014E+00 | 0.0480 | 0.32 | 8.057E+00 | 0.0000 | 0.00   |
| 512   | 21.33 | 2.238E-07  | 14.7353 | 97.01  | 3      | 3.223E-03 | 6.1635 | 33.99  | 5.038E-01 | 0.5555 | 3.66 | 2.014E+00 | 0.0480 | 0.32   |
| 1200  | 50.00 | 9.549E-08  | 15.5870 | 102.62 | 3      | 1.376E-03 | 6.0134 | 39.59  | 2.149E-01 | 1.1644 | 7.67 | 8.594E-01 | 0.2793 | 1.84   |

| HOURS | DAYS  | @WELL   | 40     | 500   | 1000  | DISTANCE FEET |
|-------|-------|---------|--------|-------|-------|---------------|
| 1     | 0.04  | -55.84  | -0.53  | 0.00  | 0.00  |               |
| 2     | 0.08  | -60.60  | -1.95  | 0.00  | 0.00  |               |
| 8     | 0.33  | -69.83  | -7.88  | 0.00  | 0.00  |               |
| 32    | 1.33  | -78.76  | -16.05 | 0.00  | 0.00  |               |
| 128   | 5.33  | -87.89  | -24.93 | -0.32 | 0.00  |               |
| 512   | 21.33 | -97.01  | -33.99 | -3.66 | -0.32 |               |
| 1200  | 50.00 | -102.62 | -39.59 | -7.67 | -1.84 |               |

ESTIMATED DRAWDOWN FROM AN 8 IN. DIA WELL-BEAR LAKE HAVEN



## Hydraulic and Nutrient Loadings and Limits

J. R. Simplot Company - Aberdeen Plant land application - Pratt site

3-Jan-02

Brockway Engineering, PLLC

### YEAR-ROUND SOIL UTILIZATION

Total available site acres (approximate) 1440 acres  
 Weighted average soil WHC in 60" 11 inches  
 Total soil storage volume 430.1 MG  
 Irrigation application efficiency 0.85

Crop uptake (lb/ac):  
 NVDS 1500  
 TKN 360  
 Total P 31  
 Total K 300

### Growing Season

Process water daily flow 1.1 MGD  
 Operating days in GS, 4/1-10/31 193 days  
 Process water flow 212.3 MG  
 Average crop ET - alfalfa 37.48 inches  
 Precipitation - assume minimal 1.0 inches  
 Irrigation water requirement 36.45 inches  
 Amount supplied by process water 5.43 inches  
 Required supplemental water 31.02 inches = 1212.8 MG

| Parameter | Process C (mg/l) | Supplemental C (mg/l) | Total load (lbs) | Per-acre Limit* | Units             | Acres Required |
|-----------|------------------|-----------------------|------------------|-----------------|-------------------|----------------|
| COD       | 3000             | 0                     | 5311746          | 50              | Average lb/ac/day | 550            |
| NVDS      | 1000             | 367                   | 5482574          | 2250            | Total lb/ac/year  | 2437           |
|           |                  |                       |                  | 4000            |                   | 1371           |
| TKN       | 150              | 1.2                   | 277725           | 540             | Total lb/ac/year  | 514            |
| Total P   | 27               | 0.03                  | 48109            | 46.5            | Total lb/ac/year  | 1035           |
| Total K   | 300              | 3.9                   | 570621           | 450             | Total lb/ac/year  | 1268           |

\* Annual

### Non-Growing Season

Process water daily flow 1.1 MGD  
 Operating days in NGS, 11/1 - 3/31 137 days  
 Process water flow 150.7 MG  
 ET 3.00 inches  
 Precipitation 3.57 inches

Process water applied 3.85 inches  
 Limit - 50% of soil storage 5.50 inches

| Parameter | Process C (mg/l) | Supplemental C (mg/l) | Total load (lbs) | Per-acre Limit* | Units             | Acres Required |
|-----------|------------------|-----------------------|------------------|-----------------|-------------------|----------------|
| COD       | 3000             | n/a                   | 3770514          | 50              | Average lb/ac/day | 391            |
| NVDS      | 1000             | n/a                   | 1256838          | 2250            | Total lb/ac       | 559            |
| TKN       | 150              | n/a                   | 188526           | 540             | Total lb/ac       | 349            |
| Total P   | 27               | n/a                   | 33935            | 47              | Total lb/ac       | 730            |
| Total K   | 300              | n/a                   | 377051           | 450             | Total lb/ac       | 838            |

\* NGS only

**EXHIBIT "C"**

**Narratives and Depletion Analysis in Support of Sam's Hollow  
Phase I and Phase II Applications, Revised October 7, 2003**

**Narrative in Support of Application for Permit  
Sam' Hollow Water Company Phase I  
Revised October 7, 2003**

**Bear Lake County**

This narrative is being revised to reflect changes in the service area for the proposed project which reduces the number of residential lots from 63 to 36. This revision also evaluates the depletion from Phase 1 assuming that the St Charles sewage lagoons are complete containment facilities. The commercial area and condominium units will remain the same size and sewage effluent from these units will be directed to the St Charles sewage lagoons. The calculation of depletions to the Bear River and Bear Lake is based on procedures developed by Robert Hill and outlined in papers on "Procedures for Estimating Depletion of Municipal, Dairy, and Agricultural Crop Water Use in the Lower Bear River Basin In Idaho" presented in 1997 and 1998.

Sam's Hollow Water Company is organized to own and operate a central water system and manage water and water rights for Members of the Corporation. The ultimate service area of the Company will include two phases of subdivision development. In Phase 1, the Company will supply domestic and irrigation water from two or more wells in Sections 11 and 15, T16S, R43E, B.M. near Fish Haven in Bear Lake County, Idaho. Sam's Hollow Water Company is an Idaho Nonprofit Corporation.

In Phase 1, the Company will serve domestic and irrigation water for 36 residences, 256 condominium units, and 4 commercial enterprises in Phase 1 of the project.

The wells will provide ground water for the system as shown on the enclosed map. Wells No 1 and No 2 were drilled by Johnson Development Co in 2000 and 2001 as test wells to determine the yield of the local aquifer. All water rights pertinent to the water system will be owned by Sam's Hollow Water Company.

Members of Sam's Hollow Water Company own shares in the Fish Haven Irrigation Company which provides water from Fish Haven Creek for irrigation of lands within the project. It is recognized that groundwater in the aquifer underlying the project is tributary to Bear Lake as is Fish Haven Creek. Additional consumptive use of water from the aquifer by pumping for the project can result in reductions of inflow to Bear Lake.

It is estimated that the total annual diversion from ground water for project use under Phase 1 will equal 136.7 acre feet and the project will irrigate 11.5 acres of turf and landscaping around facilities and buildings.

An estimate of additional depletion of the water resource was made using procedures developed by Dr. Robert Hill. This procedure estimates depletions from home sites and condominiums, commercial development, and irrigation around facilities and accounts for depletions from in-house use, wastewater treatment facilities, and irrigation consumptive use. It is estimated that the total depletion from planned facilities in Phase I of the project will equal 50.4 acre feet per year. To mitigate for additional depletion from ground water by the project, it is proposed to divert the Sam's Hollow Water Company shares of Fish Haven Irrigation Company but return sufficient volume of the diverted

water directly to Bear Lake to mitigate for additional consumptive use on the project. Historically, water for project lands has been diverted through three ditches operated by the Fish Haven Water Users, namely the Upper North Ditch, and Ditches #1 and #3. Sufficient water thus diverted to project lands will be returned by pipeline and/or ditches to Bear Lake and will not be used for irrigation. It is therefore proposed to return 50.4 acre feet of water diverted from Fish Haven Creek during the irrigation season directly to Bear Lake to mitigate for any increased depletion by the project.

A water measurement and monitoring program will be maintained to assure that sufficient irrigation water diverted under Company owned shares in the Fish Haven Irrigation Company does, in fact, reach Bear Lake through pipelines and ditches constructed as part of the project. A pipeline with in-line totalizing flow meter will be installed at the lower end of the project to measure the flow being returned directly to Bear Lake. Reports of volumes of water returned to Bear Lake will be supplied to IDWR and any other interested parties.

Negotiations with the Board of Fish Haven Irrigation Company to allow use of diverted shares for return to Bear Lake to mitigate for increased project consumptive use have been held and they are in agreement with the proposal

Shares of Fish Haven Ditch Company which are owned by members of Sam's Hollow Water Company include 140.5 shares currently owned by Howard Johnson. There are 99.5 shares in the Upper North Ditch, 20 shares in the Number 1 Ditch, and 21 shares in the Number 3 ditch. Based on rotation data supplied by Leon Howell and Harry Michaelson of the Fish Haven Ditch Co., water from these three ditches would be available to the project on a rotation basis with the Upper North Ditch on 12.4 days out of a 31 day rotation period, Number 1 ditch would be on 2.5 days out of a 12.65 day rotation and Number 3 ditch would be on 2.6 days out of a 31.65 day rotation. For a 150 day irrigation season, these three ditches would be on about 60.2, 29.6, and 12.4 days respectively or a total of 102.3 days total when one or more ditches would be delivering water to project lands. To mitigate for the project consumptive use of 27.1 acre feet, an average flow of 0.25 cfs or 12.5 miners inches for the 102.3 days would have to be returned directly to Bear Lake.

Using procedures developed by Robert Hill, mitigation of the 50.4 af of depletion would require that 42.7 acres of historically irrigated land be dried up. This would consist of any irrigated areas within the project upon which structures or roads would be built and other irrigated land taken out of production.

Documentation of the amount of water available to the project through any of the three ditches will require water measurement and accounting of water deliveries throughout the season. Sam's Hollow Water Company will assist in installing additional water measurement and monitoring equipment on ditches diverting from Fish Haven Creek and will install a water measuring and flow totalizing device on the return pipe or ditch to Bear Lake to assure that the required mitigation water does return to the lake. Diversions to project lands under the project's shares will continue as determined by the Board of Fish Haven Water Users and a water accounting program will be implemented by Sam's Hollow Water Company to account for all mitigation water diverted directly to Bear Lake.

**DEPLETION ANALYSIS FOR PHASE I BEAR LAKE HAVEN SUBDIVISION REV  
USING "PROCEDURES FOR ESTIMATING DEPLETION OF MUNICIPAL, DAIRY,  
AND AGRICULTURAL CROP WATER USE IN THE LOWER BEAR RIVER BASIN  
IN IDAHO" BY ROBERT W.HILL P.E. 10/3/2003**

**Paper presented at Public Hearings July 2, 1997 in Preston and Soda Springs, ID  
and supplemented with 1998 paper**

Calcs for Bear Lake Haven Subdivision by Brockway Engineering, PLLC Jan. 29, 2002  
Based on precip., Consumptive Use, and Depletion for Bear Lake County, ID by R. Hill  
Assumes St Charles Sewage Lagoons are 100% Evaporative

**DOMESTIC POTABLE WATER - Home Sites**

Potable(culinary) water supplied from municipal system

Wastewater treatment by on-site systems (septic tank/drainfield-non consumptive)

|                                                              |                 |                                             |                          |              |
|--------------------------------------------------------------|-----------------|---------------------------------------------|--------------------------|--------------|
| No. of lots                                                  | 36              | municipal water & Individual on-site sewage |                          |              |
| Average occupancy                                            | 4               | persons                                     |                          |              |
| Average daily diversion demand - potable                     | 100             | gpcd                                        |                          |              |
| Average daily demand-potable/connection                      | 400             | gpd                                         | Utah avg day design vol. |              |
| Daily Home Site volume                                       | 14,400          | gpd                                         |                          |              |
| Average annual percent occupancy                             | 40.2            | %                                           |                          |              |
| Annual volume used                                           | 2,112,912       | gal =                                       | 6.48                     | ac-ft        |
| Percent depletion of culinary water-in house                 | 5               | percent                                     |                          |              |
| Annual volume of culinary water in-house depletion           | 105645.6        | gal =                                       | 0.32                     | ac-ft        |
| Wastewater from cullinary in-house water use(to drain field) | 2,007,266       |                                             |                          |              |
| Est. percent depletion from drain field treatment**          | 10              | %                                           |                          |              |
| Volume of depletion from wastewater disposal(drainfields)    | 211291.2        | gal =                                       | 0.65                     | ac-ft        |
| <b>Annual vol.depletion of culinary water-Homesites</b>      | <b>316936.8</b> | <b>gal =</b>                                | <b>0.97</b>              | <b>ac-ft</b> |

**DOMESTIC POTABLE WATER - Condominium**

Potable(culinary) water supplied from municipal system

Wastewater treatment in regional system (lagoons)

|                                                            |                 |             |                          |              |
|------------------------------------------------------------|-----------------|-------------|--------------------------|--------------|
| Number of Buildings                                        | 64              |             |                          |              |
| No. of Units                                               | 256             |             |                          |              |
| Average occupancy                                          | 4               | persons     |                          |              |
| Average daily demand - potable                             | 70              | gpcd        |                          |              |
| Average daily demand-potable/unit                          | 280             | gpd         | Utah avg day design vol. |              |
| Avg. Daily Condominium volume                              | 71,680          | gpd         |                          |              |
| Average annual percent occupancy                           | 40.2            | %           |                          |              |
| Annual volume used                                         | 10,507,141      | gal =       | 32.25                    | ac-ft        |
| Percent depletion of culinary water-in-house               | 5               | percent     |                          |              |
| Annual In-house depletion of culinary water-               | 525357.06       | gal=        | 1.61                     | ac-ft        |
| Wastewater to regional sewer system-lagoons***             | 9,981,784       | gal=        | 30.64                    | ac-ft        |
| Percent of wastewater to lagoon evaporated                 | 100             | percent     |                          |              |
| Annual wastewater evaporated                               | 9981784.1       | gal=        | 30.64                    | ac-ft        |
| <b>Annual vol.depletion of culinary water-Condominiums</b> | <b>10507141</b> | <b>gal=</b> | <b>32.25</b>             | <b>ac-ft</b> |

## POTABLE WATER - Commercial

|                                                          |               |                 |             |              |
|----------------------------------------------------------|---------------|-----------------|-------------|--------------|
| Potable water supplied by municipal system               |               |                 |             |              |
| Wastewater treatment in regional system (lagoons)        |               |                 |             |              |
| Estimated Amount of Commercial Footage                   | 10,000        | sq ft           |             |              |
| GPD per 1,000 sq ft of Commercial Use                    | 250           | gpd/1,000 sq ft |             |              |
| Average daily volume demand                              | 2,500         | gpd             |             |              |
| Average annual percent occupancy                         | 100           | %               |             |              |
| Annual volume*                                           | 912,500       | gal =           | 2.80        | ac-ft        |
| Percent depletion of culinary water-in-house             | 5             | percent         |             |              |
| Annual In-house depletion of culinary water-             | 45625         | gal=            | 0.14        | ac-ft        |
| Wastewater to regional sewer system-lagoons***           | 866,875       | gal=            | 2.66        | ac-ft        |
| Percent of wastewater to lagoon evaporated               | 100           | percent         |             |              |
| Annual wastewater evaporated                             | 866875        | gal=            | 2.66        | ac-ft        |
| <b>Annual vol.depletion of culinary water-Commercial</b> | <b>912500</b> | <b>gal=</b>     | <b>2.80</b> | <b>ac-ft</b> |

## IRRIGATION

Irrigation water delivered by municipal system

Dpl=Et - SMco - Pef    Dpl=depletion, Et=crop water use, Smco=soil moisture carryover

Pef=Effective precipitation( May-September)

Crop water use (Et)and Effective Precipitation(Pef) for Soda Springs, ID from R. Hill, 1997

|                                              |              |                             |           |  |
|----------------------------------------------|--------------|-----------------------------|-----------|--|
| Irrigated Area per lot                       | 5000         | ft^2                        |           |  |
| Irrigated area per condominium bldg          | 5000         | ft^2                        |           |  |
| Total irrigated area                         | 11.5         | acres                       |           |  |
| Crop consumptive use - Pasture grass         | 21.00        | inches (Bear Lake County)?? |           |  |
| Precipitation                                |              |                             |           |  |
| Oct-Apr                                      |              | inches (Bear Lake County)   |           |  |
| May-Sep                                      |              | inches (Bear Lake County)   |           |  |
| Annual Total                                 |              | inches (Bear Lake County)   |           |  |
| Useable**                                    |              | inches (Bear Lake County)   |           |  |
| Depletion (Sprinkler-Turf Grass)**           | 15.00        | inches (Bear Lake County)   | Hill 1998 |  |
| <b>Annual vol. Depletion from Irrigation</b> | <b>14.35</b> | <b>ac-ft</b>                |           |  |
| <b>Annual Project Depletion</b>              |              |                             |           |  |
| Culinary-Homesites                           | 1.0          |                             |           |  |
| Culinary-Condominiums                        | 32.2         |                             |           |  |
| Commercial                                   | 2.80         |                             |           |  |
| Irrigation                                   | 14.35        |                             |           |  |
| <b>Total Annual Project Depletion</b>        | <b>50.4</b>  | <b>ac-ft</b>                |           |  |

## Equivalent Acreage for Project Consumptive Use

|                                     |             |                           |           |
|-------------------------------------|-------------|---------------------------|-----------|
| Depletion for pasture grass**       | 14.20       | inches (Bear Lake County) | Hill 1998 |
| or                                  | 1.18        | af/year                   |           |
| Project Total Annual Depletion      | 50.4        | acre feet                 |           |
| <b>Equivalent Irrigated Acreage</b> | <b>42.6</b> | <b>acres</b>              |           |

\*\* Includes carry-over soil moisture and adjustment for non-growing season Et (Hill, 1998, personal comm.)

\*\*\* Regional sewer system includes lagoons with no outflow to wetlands and Bear Lake

Depletion from on-site sewage disposal assumes some effluent may reach ground surface and contribute to vegetation Et or evaporation

Narrative in Support of Application for Permit  
Sam' Hollow Water Company  
Bear Lake Haven Phase II

Bear Lake County

Revised October 7, 2003

Sam's Hollow Water Company was organized in 2001 to own and operate a central water system and manage water and water rights for Members of the Corporation. The Company is currently organized to supply domestic and irrigation water from two wells in Sections 11 and 15, T16S, R43E B.M. for Phase I of the Bear Lake Haven Project near Fish Haven in Bear Lake County, Idaho. The Company service area will be expanded to serve additional homes in Phase II of the Project located in Sections 2, 10 and 11, T16S, R43E. Sam's Hollow Water Company is an Idaho Nonprofit Corporation.

The Company currently is scheduled to serve domestic and irrigation water for 36 single family homes, 256 condominiums, and 10,000 sq ft of commercial area in Phase 1 of the project. The common water system for Phase II of the project will serve 241 single-family residences as shown on the accompanying map. Fifteen (15) lots in Phase II will be served by individual wells. The wells on the fifteen lots will be developed by individual lot owners under Sec 42-111a of the Idaho Code and will therefore be exempt from permit requirements.

Two wells, No. 1 and 2, were drilled and tested in the Phase I area in 2000 and 2001 by Johnson Development Co. These were drilled as test wells to determine the yield of the local aquifer and pumping rates of 160 gpm and 580 gpm were obtained. Three additional wells are proposed for Phase II of the project as shown on the attached map. Geologic evidence indicates that the aquifer underlying the Phase 2 lands is similar to that underlying the Phase I land where the two test wells were drilled. It is expected therefore that additional wells necessary for Phase II of the project can be obtained. All water rights pertinent to the water system will be owned by Sam's Hollow Water Company.

Application for Permit No. 11-7481 was submitted by Sam's Hollow Water Company in October 2001 to IDWR for a water right for Phase I of the project. This application included a mitigation plan whereby consumptive depletions to Bear Lake would be mitigated by utilization of surface water rights from Fish Haven Creek, which are applicable to lands of members of the Company. This application for ground water to supply 241 homes in Phase II of the project contemplates similar use of Fish Haven Creek irrigation rights for mitigation.

Members of Sam's Hollow Water Company own shares in the Fish Haven Irrigation Company which provides water from Fish Haven Creek for irrigation of lands within the project. It is recognized that groundwater in the aquifer underlying the project is tributary to Bear Lake as is Fish Haven Creek. Additional consumptive use of water from the aquifer by pumping for the project can result in reductions of inflow to Bear Lake.

For Phase II of the Bear Lake Haven Project, it is estimated that the total annual diversion from ground water for project use will equal 197.0 acre feet and that the total annual depletion from irrigation of 27.9 acres of irrigation associated with houses and facilities and domestic in-house use will equal a maximum of 59.7 acre feet. An estimate of additional depletion of the water resource was made using procedures developed by Dr. Robert Hill. This procedure estimates depletions from home sites and condominiums, commercial development, and irrigation around facilities and accounts for depletions from in-house use, on-site wastewater treatment facilities, evaporation from lagoons receiving waste water from 152 of the lots, and irrigation consumptive use. The total depletion from planned facilities in Phase 2 of the project utilizing the Hill estimating procedure will equal a maximum of 59.7 acre feet per year assuming the St. Charles sewage lagoons are full containment (100% evaporation) systems.

To mitigate for additional consumptive use of ground water by the project, it is proposed to divert the Sam's Hollow Water Company shares of Fish Haven Irrigation Company but return sufficient volume of the diverted water directly to Bear Lake to mitigate for additional consumptive use on the project. Historically, water for project lands has been diverted through three ditches operated by the Fish Haven Water Users, namely the Upper North Ditch, and Ditches #1 and #3. Sufficient water thus diverted to project lands will be returned by pipeline and/or ditches to Bear Lake and will not be used for irrigation. It is therefore proposed to return 59.7 acre feet of water diverted from Fish Haven Creek during the irrigation season directly to Bear Lake to mitigate for any increased depletion by the project.

A water measurement and monitoring program will be maintained to assure that sufficient irrigation water diverted under Company owned shares in the Fish Haven Irrigation Company does, in fact, reach Bear Lake through pipelines and ditches constructed as part of the project. A pipeline with in-line totalizing flow meter will be installed at the lower end of the project to measure the flow being returned directly to Bear Lake. Reports of volumes of water returned to Bear Lake will be supplied to IDWR and any other interested parties.

Negotiations with the Board of Fish Haven Irrigation Company to allow use of diverted shares for return to Bear Lake to mitigate for increased project consumptive use have been held and they are in agreement with the proposal

Shares of Fish Haven Ditch Company, which are owned by members of Sam's Hollow Water Company, include 140.5 shares currently owned by Howard Johnson. There are 99.5 shares in the Upper North Ditch, 20 shares in the Number 1 Ditch, and 21 shares in the Number 3 ditch. Based on rotation data supplied by Leon Howell and Harry Michaelson of the Fish Haven Ditch Co., water from these three ditches would be available to the project on a rotation basis with the Upper North Ditch on 12.4 days out of a 31-day rotation period. Number 1 ditch would be on 2.5 days out of a 12.65-day rotation, and Number 3 ditch would be on 2.6 days out of a 31.65-day rotation. For a 150 day irrigation season, these three ditches would be on about 60.2, 29.6, and 12.4 days respectively or a total of 102.3 days total when one or more ditches would be delivering water to project lands. To mitigate for the Phase II project consumptive use of 59.7 acre feet, an average flow of 0.29 cfs or 14.5 miners inches for the 102.3 days would have to be returned directly to Bear Lake.

Using procedures developed by Robert Hill, mitigation of the 59.7 af of depletion would require that 50.6 acres of historically irrigated land be dried up. This would consist of any irrigated areas within the project upon which structures or roads would be built and other irrigated land taken out of production. The mitigation plan for Phase I of the project required mitigation for 50.4 af/year or an average flow of .25 cfs or 12.5 miners inches for the 102.3 days for which irrigation water is normally available to the Project. The combined Phase I and Phase II mitigation for depletion is therefore a maximum of  $59.7 + 50.4$  or 110.1 af/year. An average flow of 0.54 cfs or 27 miners inches for the 102.3 days will be required to be returned to Bear Lake.

Documentation of the amount of water available to the project through any of the three ditches will require water measurement and accounting of water deliveries throughout the season. Sam's Hollow Water Company will assist in installing additional water measurement and monitoring equipment on ditches diverting from Fish Haven Creek, and will install a water measuring and flow totalizing device on the return pipe or ditch to Bear Lake to assure that the required mitigation water does return to the lake. Diversions to project lands under the project's shares will continue as determined by the Board of Fish Haven Water Users and a water accounting and reporting program will be implemented by Sam's Hollow Water Company to account for all water mitigation water diverted directly to Bear Lake.

To estimate the affect of the additional wells in the aquifer on water levels and local well interference, observation wells were measured during the pumping tests of wells #1 and #2. A calculation of the drawdown effects of pumping an 8-inch diameter well at estimated maximum-pumping levels was performed.

During the pumping test of well #1 in November 2000, the well was pumped at a maximum rate of 138 gpm with a measured drawdown of approximately 88 feet. Two observation wells were measured during the eight-hour test. Observation well #1 was located in Fish Haven near the condominium complex south of the highway approximately 3382 feet south west of the pumped well. Depth to water was 4' 7" prior to the pumping test and did not change during the eight hours of pumping well #1. Observation well #2 was an unused 8 inch diameter well with a hand pump located 1065.7 feet north east of the pumped well near the intersection of the cemetery road and the highway. Depth to water before the pumping test was 15' 28 1/2". The water level in the well did not change during the pumping test of well #1.

Utilizing the drawdown and discharge data from the pumped wells, a computer program based on the Theis equation was used to estimate drawdown at various distances from a pumped well. This analysis showed the estimated drawdown at distances up to 1000 feet from an 8-inch diameter well pumping continuously at 300 gpm. The design maximum discharge for Phase II is 1.22 cfs (547 gpm) pumping from two or three wells.

The drawdown from a well pumping 300 gpm continuously for 50 days would be 1.84 feet at a distance of 1000 feet from the well. This estimate is conservative since the production wells will not pump continuously but will cycle on and off depending on the demand. A more likely scenario is that an individual well would pump one half the average daily domestic demand plus the irrigation demand of 200 gpm for 24 to 48 hours.

In which case, the drawdown caused by the pumped well would be imperceptible at 500 feet from the well.

The aquifer yield for both Phase I and Phase II is more than adequate to supply the domestic and irrigation demands of the project and local well interference will not be significant. Planned locations for wells in Phase II and Phase I are more than 1000 feet from any domestic or municipal wells.

# DEPLETION ANALYSIS FOR PHASE 2 SAM'S HOLLOW WATER COMPANY REV

9/16/2003

Using "Procedures for Estimating Depletion of Municipal, Dairy, and Agricultural Crop Water Use in the Lower Bear River Basin in Idaho" by Robert W. Hill P.E.

Paper presented at Public Hearings July 2, 1997 in Preston and Soda Springs, ID and supplemented with 1998 paper

Calcs for Bear Lake Haven Subdivision by Brockway Engineering, PLLC Jan. 30, 2002

Based on precip., Consumptive Use, and Depletion for Bear Lake County, ID by R. Hill

Lot numbers within St Charles Sewer Dist obtained from Alex Hudson, 9/16/03

## DOMESTIC POTABLE WATER - Home Sites with On-Site Sewage Disposal

Potable(culinary) water supplied from municipal system

Wastewater treatment by on-site systems (septic tank/drainfield-non consumptive)

|                                                             |           |                                             |                          |       |
|-------------------------------------------------------------|-----------|---------------------------------------------|--------------------------|-------|
| No. of lots                                                 | 54        | municipal water & Individual on-site sewage |                          |       |
| Average occupancy                                           | 4         | persons                                     |                          |       |
| Average daily diversion demand - potable                    | 100       | gpcd                                        |                          |       |
| Average daily demand-potable/connection                     | 400       | gpd                                         | Utah avg day design vol. |       |
| Daily Home Site volume                                      | 21,600    | gpd                                         |                          |       |
| Average annual percent occupancy                            | 40.2      | %                                           |                          |       |
| Annual volume used                                          | 3,166,560 | gal =                                       | 9.72                     | ac-ft |
| Percent depletion of culinary water-in house                | 5         | percent                                     |                          |       |
| Annual volume of culinary water in-house depletion          | 158328    | gal =                                       | 0.49                     | ac-ft |
| Wastewater from culinary in-house water use(to drain field) | 3,008,232 |                                             |                          |       |
| Est. percent depletion from drain field treatment**         | 10        | %                                           |                          |       |
| Volume of depletion from wastewater disposal(drainfields)   | 316656    | gal =                                       | 0.97                     | ac-ft |
| Total depletion from home sites on septic tank/drainfields  | 474984    | gal =                                       | 1.46                     | ac-ft |

## DOMESTIC POTABLE WATER - Home Sites with St Charles Sewer District Service

Potable(culinary) water supplied from municipal system

Wastewater to St Charles Sewer District

|                                                     |           |                                |                          |       |
|-----------------------------------------------------|-----------|--------------------------------|--------------------------|-------|
| No. of lots                                         | 152       | municipal water & sewer system |                          |       |
| Average occupancy                                   | 4         | persons                        |                          |       |
| Average daily diversion demand - potable            | 100       | gpcd                           |                          |       |
| Average daily demand-potable/connection             | 400       | gpd                            | Utah avg day design vol. |       |
| Daily Home Site volume                              | 60,800    | gpd                            |                          |       |
| Average annual percent occupancy                    | 40.2      | %                              |                          |       |
| Annual volume used                                  | 8,913,280 | gal =                          | 27.36                    | ac-ft |
| Percent depletion of culinary water-in house        | 5         | percent                        |                          |       |
| Annual volume of culinary water in-house depletion  | 445664    | gal =                          | 1.37                     | ac-ft |
| Wastewater from culinary in-house water use(sewer)  | 8,467,616 |                                |                          |       |
| Est. percent depletion from Lagoons**               | 100       | %                              |                          |       |
| Volume of depletion from wastewater disposal(sewer) | 8913280   | gal =                          | 27.36                    | ac-ft |
| Total depletion from home sites on sewer            | 9358944   | gal =                          | 28.72                    | ac-ft |

Annual vol.depletion of culinary water-Homesites

9833928 gal = 30.18 ac-ft

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**DOMESTIC POTABLE WATER - Condominium**

Potable(culinary) water supplied from municipal system  
 Wastewater treatment in regional system (lagoons)

|                                                |      |            |              |       |
|------------------------------------------------|------|------------|--------------|-------|
| Number of Buildings                            | 0    |            |              |       |
| No. of Units                                   | 0    |            |              |       |
| Average occupancy                              | 4    | persons    |              |       |
| Average daily demand - potable                 | 70   | gpcd       | Utah avg day |       |
| Average daily demand-potable/unit              | 280  | gpd        |              |       |
| Avg. Daily Condominium volume                  | 0    | gpd        |              |       |
| Average annual percent occupancy               | 40.2 | %          |              |       |
| Annual volume used                             | 0    | gal =      | 0.00         | ac-ft |
| Percent depletion of culinary water-in-house   |      | 5 percent  |              |       |
| Annual in-house depletion of culinary water-   |      | 0 gal=     | 0.00         | ac-ft |
| Wastewater to regional sewer system-lagoons*** |      | 0 gal=     | 0.00         | ac-ft |
| Percent of wastewater to lagoon evaporated     |      | 30 percent |              |       |
| Annual wastewater evaporated                   |      | 0 gal=     | 0.00         | ac-ft |

**Annual vol.depletion of culinary water-Condominiums****POTABLE WATER - Commercial**

Potable water supplied by municipal system  
 Wastewater treatment in regional system (lagoons)

|                                                |     |                 |      |       |
|------------------------------------------------|-----|-----------------|------|-------|
| Estimated Amount of Commercial Footage         | 0   | sq ft           |      |       |
| GPD per 1,000 sq ft of Commercial Use          | 250 | gpd/1,000 sq ft |      |       |
| Average daily volume demand                    | 0   | gpd             |      |       |
| Average annual percent occupancy               | 100 | %               |      |       |
| Annual volume*                                 | 0   | gal =           | 0.00 | ac-ft |
| Percent depletion of culinary water-in-house   |     | 5 percent       |      |       |
| Annual in-house depletion of culinary water-   |     | 0 gal=          | 0.00 | ac-ft |
| Wastewater to regional sewer system-lagoons*** |     | 0 gal=          | 0.00 | ac-ft |
| Percent of wastewater to lagoon evaporated     |     | 100 percent     |      |       |
| Annual wastewater evaporated                   |     | 0 gal=          | 0.00 | ac-ft |

**Annual vol.depletion of culinary water-Commercial****IRRIGATION**

Irrigation water delivered by municipal system

$Dpl = Et - SMco - Pef$      $Dpl$ =depletion,  $Et$ =crop water use,  $Smco$ =soil moisture carryover

$Pef$ =Effective precipitation( May-September)

Crop water use ( $Et$ )and Effective Precipitation( $Pef$ ) for Soda Springs, ID from R. Hill, 1997

|                                          |         |                                     |  |  |
|------------------------------------------|---------|-------------------------------------|--|--|
| Irrigated Area per lot                   | 5000    | ft^2                                |  |  |
| Irrigated area for all lots              | 1030000 | ft^2                                |  |  |
| Irrigated area per condominium bldg      | 5000    | ft^2                                |  |  |
| Irrigated area for all condominium bldgs | 0       | ft^2                                |  |  |
| Irrigated area for commercial            | 0       | ft^2                                |  |  |
| Total irrigated area                     | 23.6    | acres                               |  |  |
| Depletion (Sprinkler-Turf Grass)**       | 15.00   | inches (Bear Lake County) Hill 1998 |  |  |

**Annual vol. Depletion from Irrigation**                      29.56    ac-ft

**Annual Project Depletion**

|                       |      |
|-----------------------|------|
| Culinary-Homesites    | 30.2 |
| Culinary-Condominiums | 0.0  |

|                                       |              |              |
|---------------------------------------|--------------|--------------|
| <b>Commercial</b>                     | <b>0.00</b>  |              |
| <b>Irrigation</b>                     | <b>29.56</b> |              |
| <b>Total Annual Project Depletion</b> | <b>59.7</b>  | <b>ac-ft</b> |

### **Equivalent Acreage for Project Consumptive Use**

|                                     |                                           |
|-------------------------------------|-------------------------------------------|
| Depletion for pasture grass**       | 14.20 inches (Bear Lake County) Hill 1998 |
|                                     | 1.18 af/year                              |
| Project Total Annual Depletion      | 59.7 acre feet                            |
| <b>Equivalent Irrigated Acreage</b> | <b>50.5 acres</b>                         |

\*\* Includes carry-over soil moisture and adjustment for non-growing season Et (Hill, 1998, personal comm.)

\*\*\* Regional sewer system includes lagoons with outflow to wetlands and Bear Lake

\* Depletion from on-site sewage disposal assumes some effluent may reach ground surface and contribute to vegetation Et or evaporation

## **EXHIBIT "D"**

### **Guidelines for Mitigation of New Groundwater Development in the Lower Bear River Basin in Idaho**

#### **Introduction**

Depletion of water by agricultural and other uses forms the basis for water rights accounting within the Bear River Basin (Amended Bear River Compact). Hydrologic realities on the Bear River below Bear Lake mandate that a careful accounting be made of any and all appropriated waters. Thus, depletions must be determined for any new applications to appropriate in order to fulfill the accounting requirements. Procedures for developing depletion estimates for Bear Lake, Caribou and Franklin Counties of Idaho areas in the Bear River Basin are included in the report "Procedures for Estimating Depletion in the Lower Bear River Basin in Idaho" (Jan 2003).

#### **Mitigation Guidelines**

1. New development must be depletion neutral. The depletion from new development must be mitigated by the retirement of a historical use of equal depletion. For example, this could be accomplished by the purchase of an existing agricultural water right and drying up of sufficient acreage to offset the depletion.
2. The effects of return flow (surface and/or sub-surface) must be the same with the new water use as occurred with the historical water use, since return flow contributes to downstream existing water rights.
3. The historical water right must not be enlarged per IDWR criteria.
4. Mitigation water shall be equivalent to the historical diversion minus adjustments (if any) to satisfy the preceding conditions. For example, an adjustment could be a credit for the continuation of historical return flows.
5. Monitoring of mitigation water (flow rate and/or volume) may require the use of an accurate water measurement device with totalizing capability. Records of mitigation water volume must be shared annually with PacifiCorp throughout the duration of the new use.
6. In dry years, if the well pumpage (accumulated volume or average flow rate) to satisfy the new use exceeds the water available from the historical right, then water use restrictions must be implemented to reduce demand to match supply. If this is insufficient to remedy the overdraft, the resulting deficit shall be carried over to the next water year (not to exceed three successive years) for remedy.
7. A mitigation plan shall be prepared which addresses each of the requirements of

paragraphs 1 - 6 above. A suggested outline for the mitigation plan is: I. Overview of Proposed Development; II. Summary Depletion Estimates; III. Mitigation Water Disposition (A. Source and Quantity, B. Depletion Accounting, and C. Return Flow Accounting); IV. Monitoring Provision; V. Other Considerations; VI. Attachments (including documentation of calculations).

### **Mitigation Example**

The application is for groundwater to supply a proposed Resort/Recreation development in Bear Lake County (similar to Example III.C.1. of "Procedures ...", Jan 2003). The estimated depletion is 52 acre feet annually. The "new" depletion is offset by the purchase of an existing agricultural well and drying up of 30 acres ( $30 = 52 / 1.74$ , see Table 1, of "Procedures ...") of historically sprinkle irrigated alfalfa supplied by the well. The monitoring, in this situation, consists of verifying that the well is not used and that the specific alfalfa acreage has been "dried up" and remains non-irrigated through the duration of the new development. The mitigation water is equivalent to the historical diversion, pumpage, from the well.