

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 98-7812

Exam Date: 8/16/2012

1. Current Owner: ROBERT JOHNSON
PO BOX 3238
BONNERS FERRY ID 83805
(208)267-6274
2. Accompanied by: Owner
Phone No: SAME
Address: SAME

3. SOURCE

UNNAMED STREAM

TRIBUTARY

KOOTENAI RIVER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: NONE
2. Other water rights with the same point of diversion: NONE

C. DIVERSION AND DELIVERY SYSTEM**1. LOCATION OF POINT(S) OF DIVERSION:**

UNNAMED STREAM L3 NE1/4SE1/4 Sec. 35, Twp 63N, Rge 01W, B.M. BOUNDARY County

Method of Determination: W 116 .25.189 N 48 45.990

PLACE OF USE: IRRIGATION

Twp Rge Sec	NE				NW				SW				SE				Totals
63N 01W 35	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	2.5
																	L 3

Total Acres: 2.5

PLACE OF USE: IRRIGATION STORAGE

Twp Rge Sec	NE				NW				SW				SE				Totals
63N 01W 35	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	X

PLACE OF USE: IRRIGATION FROM STORAGE

Twp Rge Sec	NE				NW				SW				SE				Totals
63N 01W 35	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	2.5
																	2.5

Total Acres: 2.5

Method of Determination:

3. ☒ Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.
- ☐ Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.
- ☐ Aerial Photo Attached (required for irrigation of 10+ acres).
- ☐ Photo of Diversion and System Attached

4. FLOW CALCULATIONS

☐ Additional Computation Sheets Attached

Measured Method:

See Attached Manning Equation Analysis. $Q = \underline{0.15 \text{ cfs}}$ Inlet Conditions

$$D = d'' = 0.167'$$

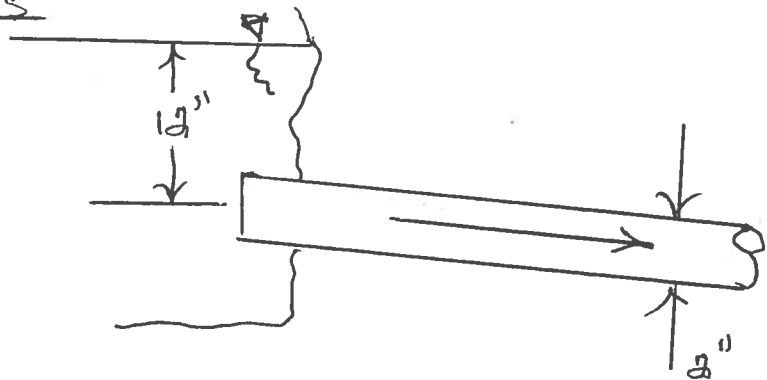
$$A = \frac{\pi D^2}{4} = 0.022 \text{ ft}^2$$

$$C = 0.6$$

$$Q = C A \sqrt{2gh}$$

$$= (0.6)(0.022) \sqrt{64.4(1)}$$

$$= \underline{\underline{0.11 \text{ cfs}}}$$



F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 2.5 \times 3 = 7.5 \text{ AF}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.08 \times 246 \times 1.9835 = 39 \text{ Af}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 7.5$$

2. Volume Calculations for Other Uses: NONE

G. NARRATIVE/REMARKS/COMMENTS: The pond is on stream and used only for irrigation of 2.5 acres at the time of this exam. The water is gravity feed in to a two inch pipe that drops forty feet over a run of 320 feet. The total length of the two inch pipe is 320 feet on this system.

Have conditions of permit approval been met? ☒ Yes ☐ No

H. RECOMMENDATIONS

1. Recommended Amounts

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
IRRIGATION	04/01 to 10/31	0.080 CFS	7.5 AF
IRRIGATION STORAGE	01/01 to 12/31		0.10 AF
IRRIGATION FROM STORAGE	04/01 to 10/31		~~7.50 AF~~ 0.1 AF
<u>Totals:</u>		0.080 CFS	7.60 AF

2. Recommended Amendments

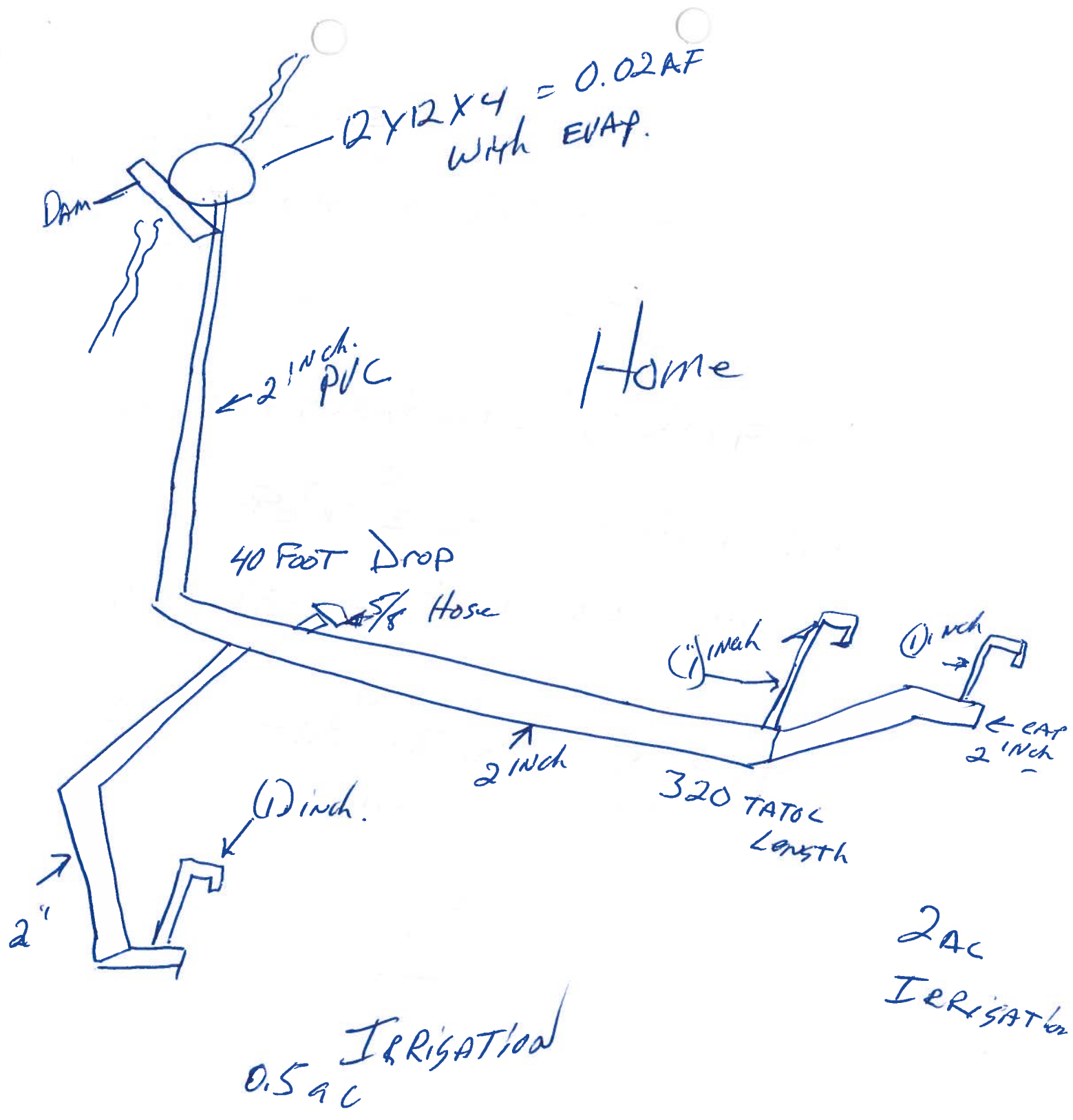
☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☐ Other

I. AUTHENTICATION

Field Examiner's Name *Eric J. [Signature]* Date 12-26-2012

Reviewer *Keith S. [Signature]* Date 12-28-2012



Pond size

$$12' \times 12' \times 4' = 576 \text{ cu ft}$$

$$576 / 43560 = 0.013 \text{ AF}$$

~~EVAPORATION~~ EVAPORATION = 0.01 AF/Y

TOTAL Pond size = $0.013 + 0.01 = 0.02 \text{ AF}$
ON STREAM Pond NO see PAGE.

*Evaporation +
Vegetation loss*
*Round
to
0.10*

GPS $-116^{\circ} 25.189$ $48^{\circ} 45.990$

$$\begin{array}{r} 1.67 \\ 4.15 \\ .09 \\ .79 \\ \hline 2.55 \end{array}$$

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

CHANGE IN ADDRESS

This form can be used to notify the Department of a change in
Address of the owners of record for the listed water rights.

(Please print or type)

[] Water Right Number(s): 98-7812

[] Names(s): Robert W Johnson

Sandra L Johnson

[] Old Mailing Address: 652 Arbula Dr

Crestline, CA

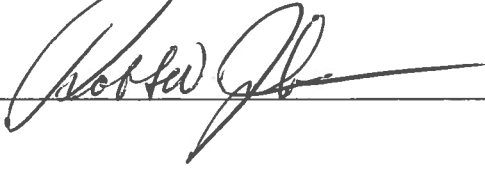
92325

[] New Mailing Address: P.O. Box 3238

Bonneville Ferry ID

83805

Telephone Number: () 208-267-6274

[] Signature(s) of Owner(s) 

(Include your title if on behalf of company or organization)

Date: 8/16/12

State of Idaho
Department of Water Resources
Water Right License
98-7812

SYSTEM

Water Service Area Boundary for Robert Johnson



0 0.035 0.07 0.14 Miles

— Pipe 2"

-  Point of Diversion
-  Place Of Use Boundary
-  Townships
-  PLS Sections
-  Quarter Quarters





USE.JPG



POND.JPG



POD.JPG



SYSTEM.JPG





Manning's Equation Calculator for Flow Rate in a Circular Conduit Flowing Full

READ ME

S = 0.1250 ft/ft
n = 0.009 manning's coefficient
d = 2.0 pipe diameter (inches)
D = 0.17 pipe diameter (feet)
r = 0.08 pipe radius (feet)
A = 0.02 area (ft²)
WP = 0.52 wetted perimeter (ft)
R = 0.04 hydraulic radius (ft)
Q = 0.15 flow rate (CFS)

Channel Slope

Slope Options
☐ Manual Entry ☒ Slope Calculator

Slope Calculator

Rise = 40 feet
Run = 320 feet
Slope, S = 0.1250 ft/ft

Pipe Material, (n):

plastic (pvc, abs)

Pipe Diameter (inches)

2.0 inches

Manning's Equation (1), is an empirical formula that solves for velocity (v) in a open channel under uniform flow. The continuity equation (2) when combined with equation (1) allows for the computation of the flow rate (Q) in an open channel under uniform flow.

In equations (1) and (3), n refers to Manning's Coefficient of Roughness and can be found in tabulated form for many open channel types. R is the hydraulic radius of the open channel and is equal to the area of the open channel divided by the wetted perimeter, $R = A/P$. S is the slope of the energy grade line which is often assumed to be equal to the slope of the channel.

Because Manning's Equation is empirical the units are not arbitrary. To obtain a velocity in ft/s and a flow rate in ft³/s, area must be reported in ft², hydraulic radius must be reported in ft, and S must be reported in ft/ft. Manning's Coefficient of Roughness is

$$(1) \ v = 1.49 \left(\frac{1}{n} \right) \left(R^{\frac{2}{3}} \right) \sqrt{S}$$

$$(2) \ Q = vA$$

$$(3) \ Q = 1.49 \left(\frac{1}{n} \right) (A) \left(R^{\frac{2}{3}} \right) \sqrt{S}$$

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Water Service Area Boundary for Robert Johnson



0 0.035 0.07 0.14 Miles

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