

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 86-12018
Exam Date: 11/14/2017

1. Current Owner:
JOHN DAHLQUIST 23886 HOWARD GULCH JULIAETTA ID 83535 (208) 276-3155
And / Or
KELLY DAHLQUIST 23886 HOWARD GULCH JULIAETTA ID 83535 (208) 276-3155
2. Accompanied by: JOHN DAHLQUIST
Phone No: (208) 276-3155
Address: 23886 HOWARD GULCH JULIAETTA ID 83535
Relationship to Permit Holder: (Same)

3. **SOURCE:**
SPRING (5)

TRIBUTARY:
HOWARD GULCH CREEK

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:**

SPRING NW¼SE¼NE¼ Sec. 12, Twp 36N, Rge 04W, B.M. NEZ PERCE County
 SPRING NW¼SE¼NE¼ Sec. 12, Twp 36N, Rge 04W, B.M. NEZ PERCE County
 SPRING NW¼SE¼NE¼ Sec. 12, Twp 36N, Rge 04W, B.M. NEZ PERCE County
 SPRING NW¼SE¼NE¼ Sec. 12, Twp 36N, Rge 04W, B.M. NEZ PERCE County
~~SPRING NW¼SE¼NE¼ Sec. 12, Twp 36N, Rge 04W, B.M. NEZ PERCE County~~ (Not Developed)

Method of Determination:

Method of Determination: Map-'Lapwai' U.S. Geological Survey 7.5' Quadrangle (Topographic) 1958, Photo Revised 1972
 ArcMap™ Geographic Information System (GIS) software, Garmin GPS Receiver

Water from three, developed, hill side, springs on the South side of Howard Creek is collected in semi-rigid flexible pipes and flows via gravity to a circular tub (400-500 gallon estimated capacity) before flowing into a PVC main line. The upper, or Western, end of the PVC mainline (white color) is smaller diameter than the lower Eastern (black color) end of the line. Water from the springs flows to the South side of a pond or can be diverted to a pump assisted irrigation system. Some overflow water from a fourth hill side spring, located further West and at slightly higher elevation, may also reach the tub and join the water from the first three springs. The exact location of the springs could not be determined because the collection pipes are underneath loose rock and vegetation. Road construction and land leveling, by a prior property owner, has also taken place on or near the springs.

Most water from the fourth developed spring enters a three inch diameter pipe that goes underneath a road before necking down to a separate flexible 1.5-inch diameter water line. The water line flows via gravity for approximately 100 yards across part of the Irrigation Place of Use (POU) to the North West side of the pond.

A fifth, undeveloped, spring lies in a small, low lying, area on the valley floor near Howard Gulch Creek and flows to the Creek. This spring is used only for Stockwater and is located near the Western edge of the Dahlquist property. Livestock and wildlife appear to have trampled the spring. The exact spring location could not be determined at the time of the Exam.

A Red Lion two Horsepower (HP) pump is connected via flexible hose to the PVC main line and used to boost the gravity flow from the tub that enters the main line. This pump pressurizes the above ground irrigation system that consists of one inch flexible hoses with 3/16" sprinkler heads. The sprinkler heads can be mounted on a wheeled platform.

The lined pond measures 71 feet by 36 feet and is six feet at maximum depth. Average depth was assessed as four feet. The Permit holder says the pond liner leaks. A 1/2 HP submersible pump in the pond is used to provide water to a buried water line that irrigates around the home. A second buried water line circuit is also used to irrigate around outbuildings.

A small cinder block collection box used for Stockwater (GPS coordinates -116 46 23.6 West, 46 28 49.8 North) is on the East end of the property. This was empty at the time of the Exam. The Permit holder said it has been supplied by Spring 1.

2.

PLACE OF USE: FIRE PROTECTION, FIRE PROTECTION STORAGE, STOCKWATER, STOCKWATER STORAGE

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
36N	04W	12				X													

PLACE OF USE: IRRIGATION FROM STORAGE

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
36N	04W	12				2.5													2.5

Total Acres: 2.5

PLACE OF USE: IRRIGATION STORAGE

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
36N	04W	12				X													

PLACE OF USE: IRRIGATION

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
36N	04W	12				2.5													2.5

Total Acres: 2.5

DIVERSION TO STORAGE same as IRRIGATION

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.

Well or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
N A	Franklin Electric	2	MODEL RLSP-200	Red Lion	14F140400320M
N A	Unknown	.5	Unknown	Unknown	Unknown

*Code to correspond with No. on map and aerial photo

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
Bucket	Plastic	Unknown	Unknown	N/A	5 GAL	N/A
Wristwatch	N/A	NA	N/A	N/A	N/A	N/A

2. Measurements: (See **NARRATIVE/REMARKS/COMMENTS** below)

E. FLOW CALCULATIONS (Theoretical Pump Equations) Submersible .5 HP pump assumed to be at pond average depth (4' feet below surface plus 4' lift to sprinkler heads. *Diversion To Storage (0.24 PERMIT) Irrigation (0.03) x (2.5) = 0.075 = 0.08 CFS Stockwater (0.02 CFS) per PROC. MEMO*)

Measured Method

(See Pump Equations Below)

NA Additional Computation Sheets Attached

		PUMP	EQUATIONS	WATER RIGHT	86-12018	
		HP	H in feet	Efficiency as a Decimal	Pumping lift in feet	System pressure in PSI
Q = t	HP*8.8*Eff/H	2.0	90.95238	0.7	10	35
Q =	0.136 CFS	60.0	GPM			

		PUMP	EQUATIONS	WATER RIGHT	86-12018	
		HP	H in feet	Efficiency as a Decimal	Pumping lift in feet	System pressure in PSI
Q = t	HP*8.8*Eff/H	.5	88.95238	0.7	8	35
Q =	0.035 CFS	15.7	GPM			

F. VOLUME CALCULATIONS1. Volume Calculations for Irrigation & *Irrigation From Storage*

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = (2.5) \times (4.0) = 10.0 \text{ AF}$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = (0.24) \times (214) \times (1.9835) = 101.87$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = 10.0 \text{ AF}$$

2. Volume Calculations for Other Uses:

0.6 AF STOCKWATER STORAGE (APP. PROC. MEMO #3 (0-50 HEAD) = .7 AF (0.5 AF BY PERMIT) + (0.1 AF EVAPORATION)

.5 AF STOCKWATER FROM STORAGE (.5 AF BY PERMIT)

10.3 AF IRRIGATION STORAGE (10.26 PER TOTAL STORAGE CALCULATIONS) (SEE ATTACHED) = 10.3 AF

.4 AF FIRE PROTECTION STORAGE (POND SIZE PER TOTAL STORAGE CALCULATIONS) (SEE ATTACHED + 0.1 AF EVAPORATION)

G. NARRATIVE/REMARKS/COMMENTS

Exam conducted 11/14/17 with Permit Holder (John Dahlquist). Domestic use was not developed due to drilled well availability. Stockwater use evidence included chickens and hay seen inside seen a manger. No specialized fire protection equipment (Pumps. Fire hoses, etc.) was seen.

Measurement of the springs flow rate was hindered by site conditions. Gravity flow water must travel at

least 100-200 feet via flexible synthetic pipe from Springs 1-3, before it can be measured at the tub. A whirlpool was observed in the tub, before water enters the PVC mainline, during flow measurements. The pond measurement point for Spring 4 is at least 100 yards from the site of the spring. The water system materials are not suitable for measurement with a portable flowmeter.

Time required to fill a five gallon bucket was checked for Springs 1-3 several times at the tub and at the pond entry point for Spring 4. The flow rate from Spring 5 is estimated at .01 CFS. Physical measurement of the flow rate from Spring 5 to Howard Gulch Creek is not feasible because water reaches the Creek over a broad area. Flow rates are summarized below:

<u>SPRING #</u>	<u>SECONDS FOR FILL OF 5 GAL BUCKET</u>	<u>MULTIPLIER TO EQUAL 60 SEC</u>	<u>GAL PER MIN</u>	<u>CFS</u>
1	13	4.62 (4.62) x 5	23.1	
2	12	5.0 (5.0) x 5	25.0	
3	6	10.0 (10.0) x 5	50.0	
4	9	6.67 (6.67) x 5	33.35	
* 5			4.5	
			~~135.95~~	0.30
			131.45	

*Spring Not Developed.

Evidence of recent land leveling and tree and brush removal was seen on the POU. This work appeared incomplete because a large mound of soil was piled up on the property. 2.5 acres of the six acres shown on the Permit have been placed into use for irrigation.

Theoretical calculations (see above) indicate that the 2 HP pump can deliver .136 CFS and the .5 HP submersible pump can deliver .035 CFS.

Water Right 86-12018 was permitted at 0.24 CFS. The Permit Holder's Proof of Beneficial use limits the License to .24 CFS. The Right should be licensed at .24 CFS, 10.6 AF, and 2.5 acres of Irrigation and Irrigation from Storage.

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>
FIRE PROTECTION	01/01 to 12/31	0.24 CFS	
STOCKWATER	01/01 to 12/31	0.02 CFS	
DIVERSION TO STORAGE	01/01 to 12/31	0.24 CFS	
IRRIGATION	02/15 to 11/30	0.08 CFS	10.0 AF
IRRIGATION FROM STORAGE	02/15 to 11/30	0.08 CFS	10.0 AF
IRRIGATION STORAGE	02/15 to 11/30		10.3 AF
FIRE PROTECTION STORAGE	01/01 to 12/31		0.4 AF
STOCKWATER STORAGE	01/01 to 12/31		0.6 AF
STOCKWATER FROM STORAGE	01/01 to 12/31		0.5 AF

Totals: 0.240 CFS 10.60 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 ☒ None

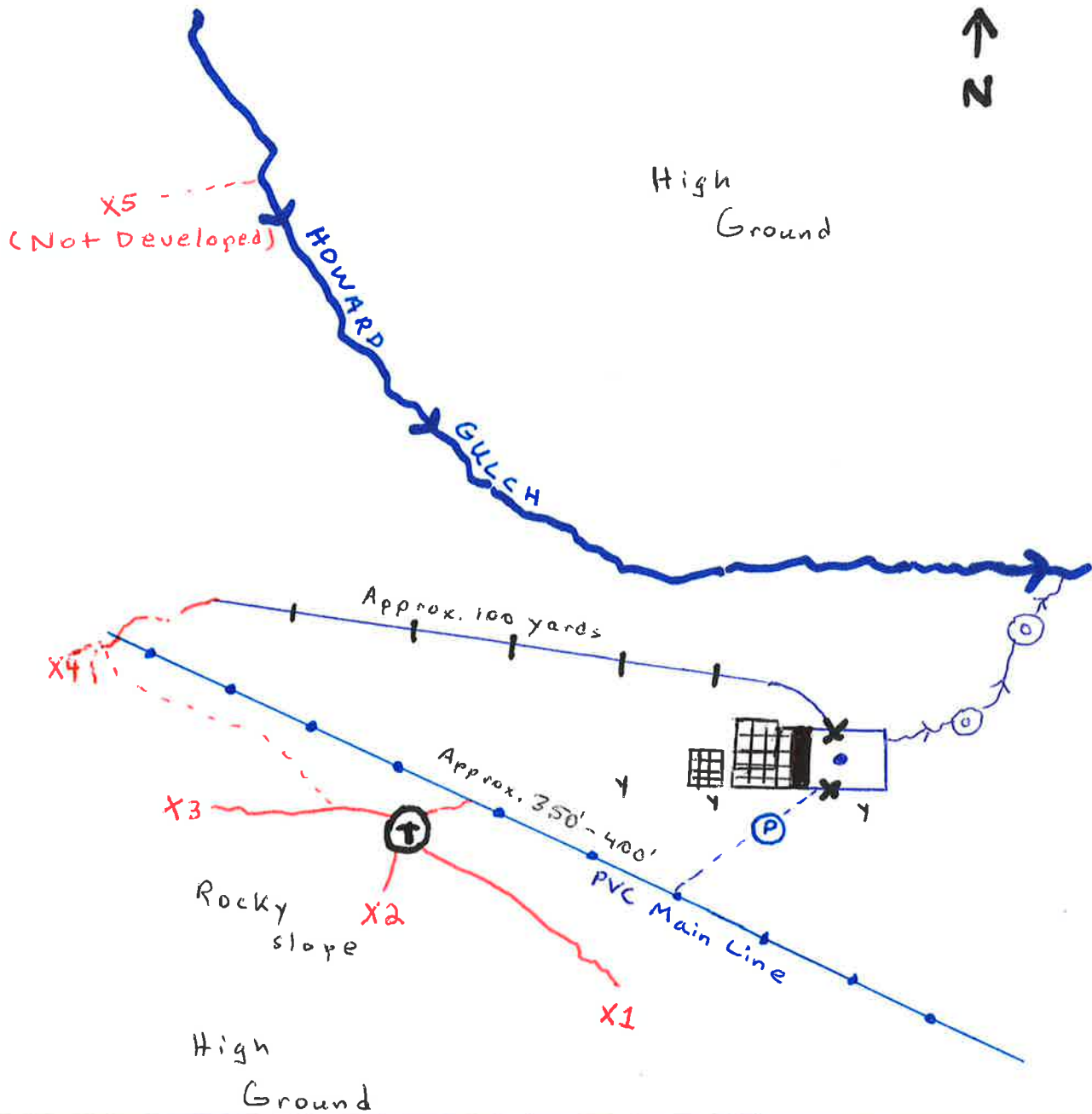
I. AUTHENTICATION

Field Examiner's Name William M. Mafey Date 08/01/2018

Reviewer Douglas Jones PE Date 9/12/18

86-12018

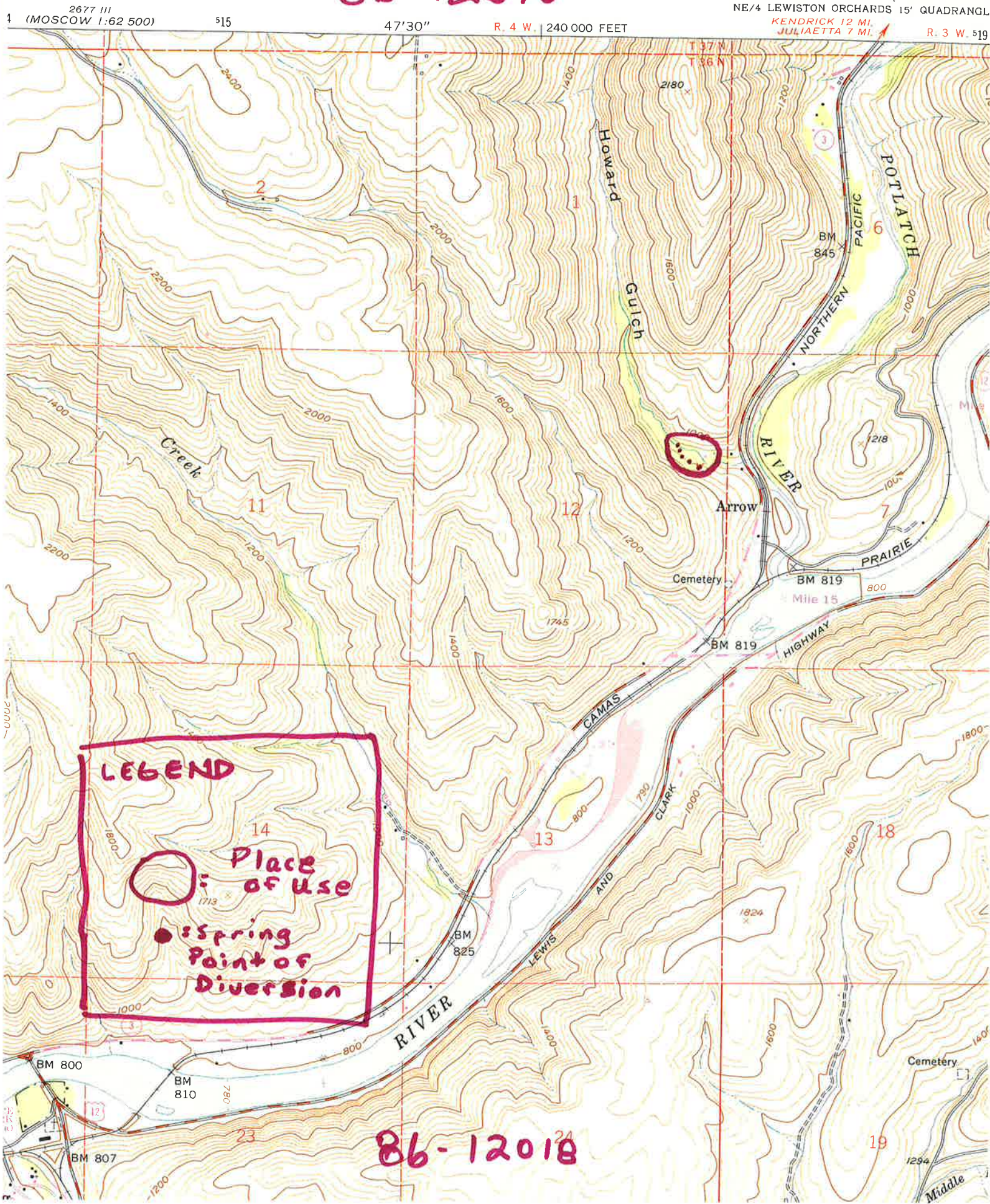
DELIVERY SYSTEM DIAGRAM (NOT TO SCALE)



- | | | |
|---------------------------------|----------|---|
| X1 = Spring | P = Pump | X = Discharge point to Pond |
| T = Tub | | + + = Flexible hose water line |
| House / Bldg. | | ~ = Semi-Rigid Pipe to Tub/Water Line |
| Deck over pond | | - - - = Ditch/Surface Flow to Tub/Creek |
| γ = Buried pipe hose connection | | Box with dot = Pond with Submersible Pump |

86-12018

LAPWAI QUADRANGLE
IDAHO-NEZ PERCE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
NE/4 LEWISTON ORCHARDS 15' QUADRANGLE
KENDRICK 12 MI.
JULIAETTA 7 MI.
R. 4 W. 240 000 FEET
R. 3 W. 519



State of Idaho
Department of Water Resources
Attachment to Water Right Field Exam
86-12018

This map depicts the FIRE PROTECTION place of use boundary for this water right at the time of the Field Exam.



0 0.02 0.04 0.08 Miles

- Right POD
- Right POU
- Taxlots



Tax parcel informaton provided by Nez Perce County.

State of Idaho
Department of Water Resources
Attachment to Water Right Field Exam
86-12018

This map depicts the STOCKWATER place of use boundary for this water right at the time of the Field Exam.



-  Point of Diversion
-  Place Of Use Boundary
-  PLS Sections
-  Taxlots

0 0.015 0.03 0.06 Miles



Tax parcel information provided by Nez Perce County.

State of Idaho
Department of Water Resources

Attachment to Water Right Field Exam

86-12018

This map depicts the IRRIGATION and IRRIGATION FROM STORAGE place of use boundary for this water right at the time of this approval and is attached to the approval document solely for illustrative purposes.



-  Point of Diversion
-  Place Of Use Boundary
-  PLS Sections
-  Taxlots

0 0.015 0.03 0.06 Miles



Tax parcel information provided by Nez Perce County.

State of Idaho
Department of Water Resources

Attachment to Water Right Field Exam

86-12018

This map depicts the FIRE PROTECTION STORAGE, IRRIGATION STORAGE, and STOCKWATER STORAGE place of use boundary for this water right at the time of this approval and is attached to the approval document solely for illustrative purposes.



- Point of Diversion
- Place Of Use Boundary
- PLS Sections
- Taxlots

0 0.0175 0.035 0.07 Miles



Tax parcel information provided by Nez Perce County.

Total Storage Calculations

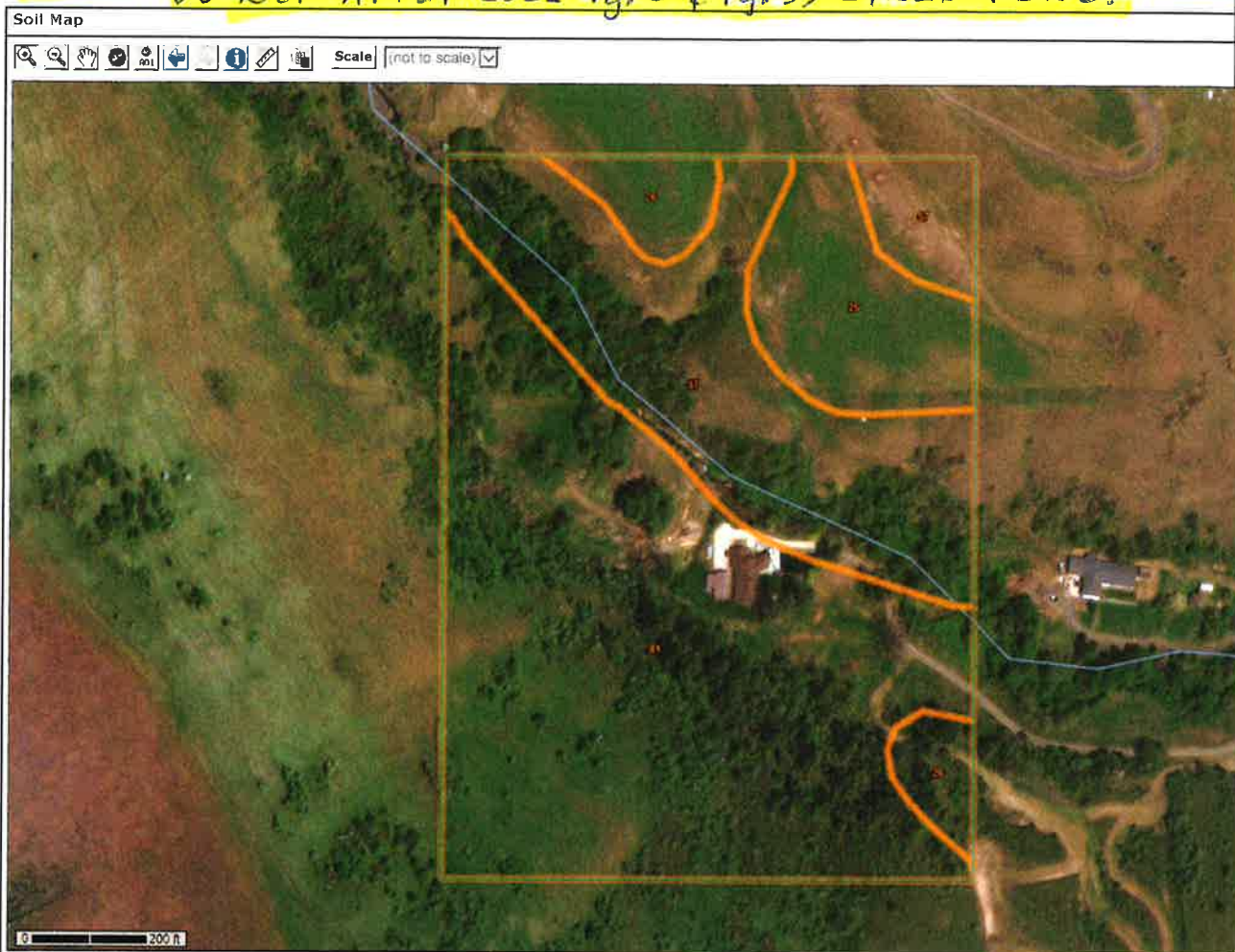
FILE NUMBER	86-12018
REVIEWER	Shaun Maxey
DATE	7/31/2018

This spreadsheet has been designed by Idaho Department of Water Resources to estimate the total seepage, evaporation and fill capacity required for a pond.

User Input
Calculated value
Formula Explanations

Surface Area (AC.)	0.06	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	4	"Average Pond Depth" depicts the actual depth of the pond either measured or estimated. Note: If you know the maximum depth and not the average depth, the Field Examiner's Handbook suggests multiplying the maximum depth by 0.4 to get the average depth, or you can use any method that seems reasonable to attain average depth.
Pond Capacity (AF)	0.24	Pond Capacity is calculated by multiplying the Pond Surface Area by the Average Pond Depth. If you know the capacity, divide the capacity by surface area and enter the average pond depth in the space above. Note: If pond capacity is determined using a method shown on the "Pond Capacity" sheet, the user may need to modify the value of "Pond Capacity" (cell B9) manually. Note that if the value is modified manually, the formula will be altered for future use.
Multiple Fill Volume Above Initial Fill to Fulfill From Storage Needs- "Multiple Fills" (AF)	9.76 10.26	The "Multiple Fill Volume Above Initial Fill" is the acre-feet of water required to meet a <i>from storage</i> component if the <i>from storage</i> component exceeds a one time fill. This section should not include the amount of water needed to fill the pond initially or the amount of water needed to maintain the pond level due to evaporation or seepage. For example: if a pond has a capacity of 5 acre feet and 2.5 acre feet of seepage and evaporation, but the pond is used for irrigation that requires 10 acre feet of from storage for the irrigation use, then you would insert 5 acre feet into this location (10 acre feet needed - 5 acre feet from the initial fill = 5 acre feet of additional storage needed). Note: You must have a "From Storage" component exceeding the initial fill on the permit to include a volume in this space.
Estimated Seepage Loss (AF)	0.0	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	0.1	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	10.6	The "Total Volume Required" is calculated by adding the Pond Capacity, Multiple Fills, Seepage Loss, and Evaporation Loss amounts to determine the total amount of storage required.

Highlighted Map Unit 57 Soil Classes & Map Unit 81 Soil Classes,
DO NOT APPLY (SEE Pg. 2 & Pg. 3) LINED POND.



Report — Engineering Properties

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007 (<http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba>). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Lewis and Nez Perce Counties, Idaho

Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth In	USDA texture	Classification Unified AASHTO	Pct Fragments		Percentage passing sieve number—				Liquid limit	Plastic index
						>10 inches	3-10 inches	4	10	40	200		
						L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H
26—Chard silt loam, 10 to 25 percent slopes													
Chard	90	B	0-15	Silt loam	CL-ML, A-4 CL	0- 0- 0	0- 0- 0	100- 100- 100	100- 100- 100	89- 92- 95	70- 73- 76	21-25 -30	4-6-8
			15-32	Loam, silt loam	ML, CL- A-4 ML	0- 0- 0	0- 0- 0	94- 96- 100	88- 92- 100	74- 80- 90	51- 56- 64	18-22 -26	3-5-7
			32-55	Loam, fine sandy loam, very fine sandy loam	SC-SM, A-4 CL-ML, SM	0- 0- 0	0- 0- 0	95- 96- 100	89- 93- 100	75- 80- 90	42- 47- 53	15-19 -23	1-4-6

Lewis and Nez Perce Counties, Idaho

			55-62	Sand, loamy fine sand, fine sand	SP-SM	A-2, A-3	0-0-0	0-0-0	0-0-0	95-97-100	90-93-100	67-72-79	5-8-11	0-0-18	NP-0
57—Kettenbach-Gwin complex, 35 to 75 percent slopes															
Kettenbach	40	C	0-4	Gravelly silt loam	CL, GC, GC-GM, ML	A-6, A-7, A-2	5-7-8	0-3-4		57-65-76	37-53-76	33-50-75	28-43-65	35-41-47	13-16-17
			4-10	Very gravelly silt loam, gravelly silty clay loam, gravelly silt loam	CL, GC	A-2, A-6, A-7	0-0-0	0-0-0		58-82-85	31-73-81	28-69-81	24-60-70	33-40-47	13-17-18
			10-25	Extremely gravelly silty clay loam, very gravelly silt loam, very cobbly silty clay loam	GC, CL, GW-GC	A-2, A-6, A-7	0-0-0	5-22-33		36-56-78	11-42-78	10-41-78	9-37-74	36-40-49	16-18-19
Gwin	20	D	25-35	Bedrock	—	—	—	—		—	—	—	—	—	—
			0-6	Very stony silt loam	CL, GC	A-6, A-2, A-7	9-12-14	14-17-18		60-69-80	39-57-80	36-54-79	31-46-68	35-40-45	13-16-17
			6-12	Extremely gravelly silty clay loam, very gravelly silt loam, very gravelly clay loam	CL, GC	A-2, A-6, A-7	0-0-0	25-25-27		54-58-78	25-33-78	23-33-78	21-29-73	36-43-49	16-21-22
Kettenbach, moist	20	C	12-22	Bedrock	—	—	—	—		—	—	—	—	—	—
			0-5	Gravelly silt loam	CL, GC, GC-GM, ML	A-6, A-7, A-2	5-7-8	0-3-4		57-65-76	37-53-76	33-50-75	28-43-65	35-41-47	13-16-17
			5-15	Very gravelly silt loam, gravelly silty clay loam, gravelly silt loam	CL, GC	A-2, A-6, A-7	0-0-0	0-0-0		58-82-85	31-73-81	29-72-81	25-64-73	33-42-47	13-19-20
			15-30	Extremely gravelly silty clay loam, very gravelly silt loam, very	GC, GW-GC, CL	A-2, A-6, A-7	0-0-0	5-22-33		36-56-78	11-42-78	10-41-78	9-37-74	36-40-49	16-18-19

cobbly
silty clay
loam

[illegible]

Linville

50

B

0-19

Silt loam

CL, CL- A-4, A-6

0- 0- 0 0- 3- 5

5 94- 76- (

68- 56- 29-3

36 9-13-1

19-67 Gravelly
silt loam

CL, GC A-6, A-7

0- 0- 0 0- 8-
12

67- 49-
74- 63-

44- 38- 30-3
50- 51- -41

35 13-16-

Kettenbach

35

C

0-4

Gravelly

CL, GC, A-6, A-7

5- 7- 8 0- 3- 4

57- 37-

33- 28- 35-4

41 13-16-

4-10 Very
gravelly
silt loam,
gravelly
silty clay
loam,
gravelly
silt loam

CL, GC, A-2, A-6
SC A-7

0- 0- 0 0- 0- 0

80-	31-	2
82-	73-	0

28- 24- 33-4
59- 60- -47

40 13-17-:

10-25 Extremely
gravelly
silty clay
loam,
very
gravelly
silt loam,
very
cobbly
silty clay
loam

GC, A-2, A-6,
GW- A-7

0-0-0 5-22-33

36- 11-
56- 42-

10- 9-37- 36-4
41- 74 -49

40 16-18-

25-35 Bedrock



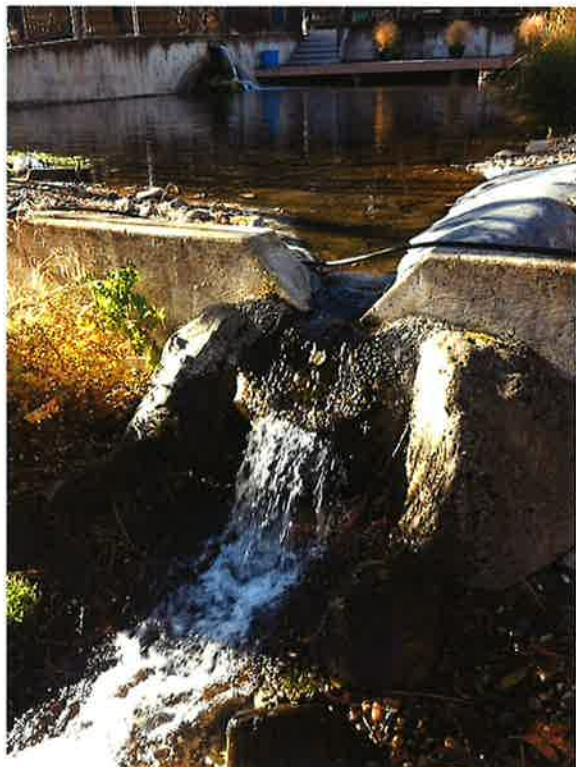
Pond with Gold Fish. View From deck above pond to East.



Spring 1, Spring 2, Spring 3 pond entry point



Pond entry point Spring 4. North west side of Pond.



Pond spillway with Spring 1, Spring 2 & Spring 3 entry point visible in rear.



1/2 HP Submersible Pump in pond.



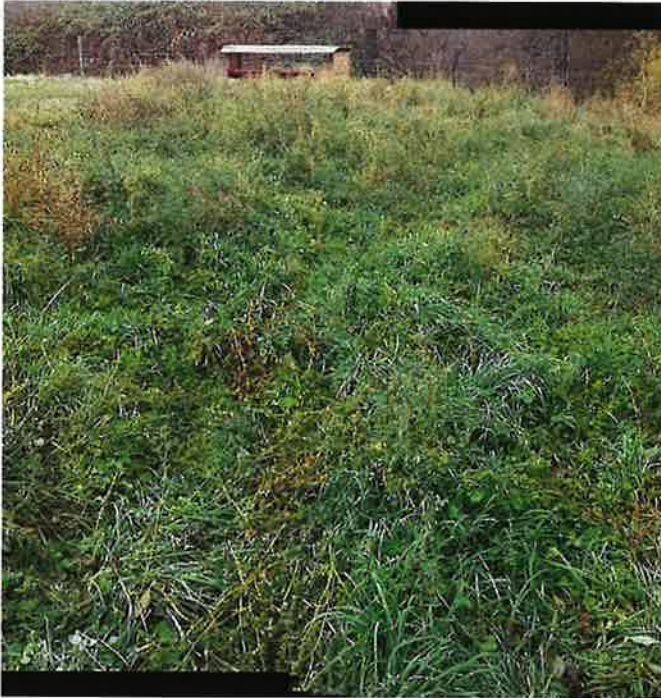
Pond view from deck. Outlet spillway visible in left rear.



Portion of Spring 3



Water below Spring 3



Portion of Irrigation. Place of Use. Covered livestock manger in rear. Feed present in manger.



Spring 4 vicinity. Pond located behind home.



Spring 4 (rocky area) with water line under road. Gravity Feed to portion of Irrigation POU near house and to pond.



Spring 4 water line to portion of Irrigation Place of Use & pond. Pond to Right of vehicles.



Spring water collection line.



Spring 4 Water Line. View south across road to hill side.



Spring 4 over flow leading past Permit holder to white pipeline. Pipeline leads to Spring 1,2,3 entry point on Pond. Spring 4 Water Line visible left rear.



Spring 5 (Available to livestock) drains to creek.