

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 98-07694
Exam Date: 5/27/1998

1. Current Owner:

SCOTT BREMER 75164 HIGHWAY 2 MOYIE SPRINGS ID 83845-5038 (208) 267-4501

Or

MATTHEW BREMER 75164 HWY 2 MOYIE SPRINGS ID 83845 (208) 267-4501

2. Accompanied by: Matt Bremer

Relationship to Permit Holder: Co-owner

3. SOURCE:

SAND CREEK

TRIBUTARY:

KOOTENAI RIVER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 98-2052
2. Other water rights with the same point-of-diversion: None

C. DIVERSION AND DELIVERY SYSTEM1. LOCATION OF POINT(S) OF DIVERSION:

SAND CREEK SW¼SE¼ Sec. 29, Twp 62N, Rge 03E, B.M. BOUNDARY County

Method of Determination: Maps and GPS. POD located at -116° 05.843, 48° 41.325

2.

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	
62N	03E	32	12.0	36.0	17.0	10.0	25.0	6.5	1.1 L 1	16.0					2.6				126.2

Total Acres: 126.2

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	
62N	03E	29															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	
62N	03E	32	12.0	36.0	17.0	10.0	25.0	6.5	1.1 L 1	16.0					2.6				126.2

Total Acres: 126.2

Method of Determination: Google Earth, Bing maps, and Arcmap.

3.

Delivery System Diagram Attached (required). Indicate all major components and distances between components.

X Indicate weir size/pipe as applicable.X Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.X Aerial Photo Attached (required for irrigation of 10+ acres).X 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
DAM	GRAVITY SYSTEM				

*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
Flowmeter	Panametric	GE	PT878	08448	2mg	3/28/17

2. Measurements:

Flow measurement 1

Beginning totalizing in gallons of 11,576

Ending totalizing in gallons of 14,076

 $14,076 - 11,576 = 2,500 \text{ gal} / 10 \text{ min} = 250 \text{ gpm or } 0.56 \text{ cfs}$

Flow measurement 2

Beginning totalizing in gallons of 14,982

Ending totalizing in gallons of 21,792

 $21,792 - 14,982 = 6,810 \text{ gal} / 10 \text{ min} = 681 \text{ gpm or } 1.52 \text{ cfs}$

Flow measurement were performed showing what they were actually using now and the system capacity.

E. FLOW CALCULATIONS

Measured Method: See attached sprinkler nozzle performance data.

X Additional Computation Sheets Attached

95 sprinkler heads x 3.2 gpm is equal to 304 gpm or 0.68 cfs

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I,R} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 126.2 \text{ AC} \times 3.0 \text{ AF} = 378.6 \text{ AF}$$

$$V_{D,R} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.68 \text{ CFS} \times 214 \times 1.9835 = 288.6 \text{ AF}$$

$$V = \text{Smaller of } V_{I,R} \text{ and } V_{D,R} = 288.6 \text{ AF}$$

2. Volume Calculations for Other Uses: See attached pond analysis sheet

G. NARRATIVE/REMARKS/COMMENTS

Northern Region began reviewing why permits with proof submitted and no license numbers did not match permits with proof submitted with no license and no exam. It was found that a handful of permits had been examined during the 1990's and early 2000's where issues had been found and returned to Northern for re-exam. No evidence could be found that a re-exam ever occurred. We then began the process of trying to notify the permit holders and current land owners that a re-exam needed to occur. The applicant, Dennis Bremer, when googled, showed an obituary for him in Boundary County. A letter was mailed to Matthew & Scott Bremer, the owners of the property covered by the permit. Matt Bremer got in touch soon after letter arrived and was very helpful in the process of setting up and performing a re-exam.

This permit originally had a field exam performed on 5/27/98. The field examiner noted the system provided water for 2 homes and recommended 162.2 acres of irrigation. He also stated he performed an 8 gallon bucket test in 2.5 seconds and recommended a flow rate of 1.3 cfs. There is no clear understanding how he came up with the flow rate and the permit did not authorize domestic use. The applicant did have another right, 98-2052, which was for domestic use and irrigation. During license review in 2001, it was determined there was not enough information and the flow measurement was not an approved way to measure that large of a flow.

New field exam showed a dam on Sand Creek with 1.8 acre-feet of storage. From the dam, a buried 8 inch pvc pipe followed the creek down to the farm. A tough aspect of performing a re-exam is that use needs to be based on what was beneficially used before proof was submitted. In this case, proof was submitted on July 22, 1996. The farm had changed drastically since 1996 including the change to nursery stock from alfalfa and that nursery stock using drip irrigation instead of main line irrigation. Two separate flow measurement were performed during re-exam. One measurement was for what they are currently diverting on average which was 250 gpm. A 2nd measurement was performed at pipe capacity with an overflow open to return water back into creek. That was measured at 681 gpm using the GE Panemetric Flowmeter.

The question then arose of whether we license the right for 681 gpm or 250 gpm or the previous measurement of 1.3 cfs. It was decided we should try working with Matt Bremer and learning how the system was set up during the 1990's. During the field exam, numerous stacks of irrigation pipe were laying around. Mr. Bremer said they use to have a lot more pipe but were selling most of it off because they had switched to drip irrigation. They did still use mainline pipe for irrigation of hay and alfalfa fields. A nozzle was found and showed it be a Nelson 9. Mr. Bremer said those nozzles were bought at a farm auction and were not the ones used during the 1990's. Mr. Bremer contacted the person who set up the irrigation system with his father and said the system was setup to run at 30 psi and the original heads used were a rain bird L3030H 9/64" low pressure nozzles. Mr. Bremer said as a teen he was responsible for moving the irrigation sets and knew they ran 95 sections of pipe at once. Using that information we could find a diversion rate using the nozzle and psi and number of sections of pipe (3.2gpm x 95 sections = 304 gpm or 0.68 cfs).

We then discussed what would be a reasonable flow rate when trying to license this right in 2018. We decided to agree with Mr. Bremer's knowledge of the system from the 1990's and proceed with licensing this right with a diversion rate of 0.68 cfs. We then needed to evaluate the number of acres that were irrigated when proof was submitted in 1996. The field examiner who originally performed exam recommended the license should be issued for 162.2 acres. Using better technology available now, we were able to look at aerial photography that showed actual acreage was 126.2 acres. Aerial photography from google earth have been included in field exam report to show the farm over the years and the irrigation occurring.

Because the permit was in the name of Dennis Bremer, Matt and Scott filed a change in ownership on this permit and water right 98-2052 also in the name Dennis Bremer. A change in ownership will be performed during licensing so it can be issued in Matt and Scott's names. An amendment of permit will need to be performed at time of licensing to move the point of diversion, move the place of use for irrigation storage, and shift a little acreage around. Amendment of permit will be sent to Matt and Scott and once it is returned with the proper fee we can proceed in the licensing process.

All original conditions on this permit were deleted because they were obsolete and outdated. As mentioned above, water right 98-2052, for irrigation and domestic use covers the same ground as this permit. 98-2052 identifies a POD next to the farmhouses and is at a different location than this permit's POD. We added condition X35 to the license and are limiting the two rights to the irrigation of 126.2 acres. Condition R62 will limit this right and all other rights to 0.02 cfs and no more than 3.0 afa per acre. Condition 01M was added because the irrigation was greater than 5 acres and the diversion rate was greater than 0.24 cfs. Condition's 219 and 220 were added for the storage component of the water right and did not exist when the permit was issued. Condition 004 was added to license because there are multiple taxlots that form the farm.

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	0.68 CFS	
IRRIGATION FROM STORAGE	04/01 to 10/31		1.8 AF
IRRIGATION STORAGE	01/01 to 12/31		2.5 AF
<u>Totals:</u>		0.680 CFS	

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 Adam Fink Date 2/20/2018
 Reviewer Douglas Jones P.E. Date 6/19/18



State of Idaho

DEPARTMENT OF WATER RESOURCES

Northern Region • 7600 N. Mineral Drive, Suite 100 • Coeur d'Alene, Idaho 83815-7763
Phone: (208) 762-2800 • Fax: (208) 762-2819 • Website: www.idwr.idaho.gov

C.L. "BUTCH" OTTER
Governor

GARY SPACKMAN
Director

June 22, 2017

MATTHEW BREMER And/Or
SCOTT BREMER
75164 HWY 2
MOYIE SPRINGS ID 83845

RE: Field Exam Notice for Water Permit No. 98-7694

Dear Mr. Bremer:

The Idaho Department of Water Resources (IDWR) is attempting to contact the current owners of the properties known as parcel # RP62N03E322550A and # RP62N03E320162A. The Boundary County assessor's records show that you are the owners of these properties at this time, if you do not own the properties in question please disregard this notice.

IDWR has a permit on file, 98-7694 (copy enclosed), that authorizes use from Sand Creek for irrigation purposes within the aforementioned property boundaries. The next step in the water appropriation process is for a field examination to be conducted and a license to be issued that will characterize the extent of beneficial use that has occurred in connection with the irrigation uses.

Please contact me at (208) 762-2800 to schedule a time to meet or if you have any questions in regard to this matter.

Sincerely,

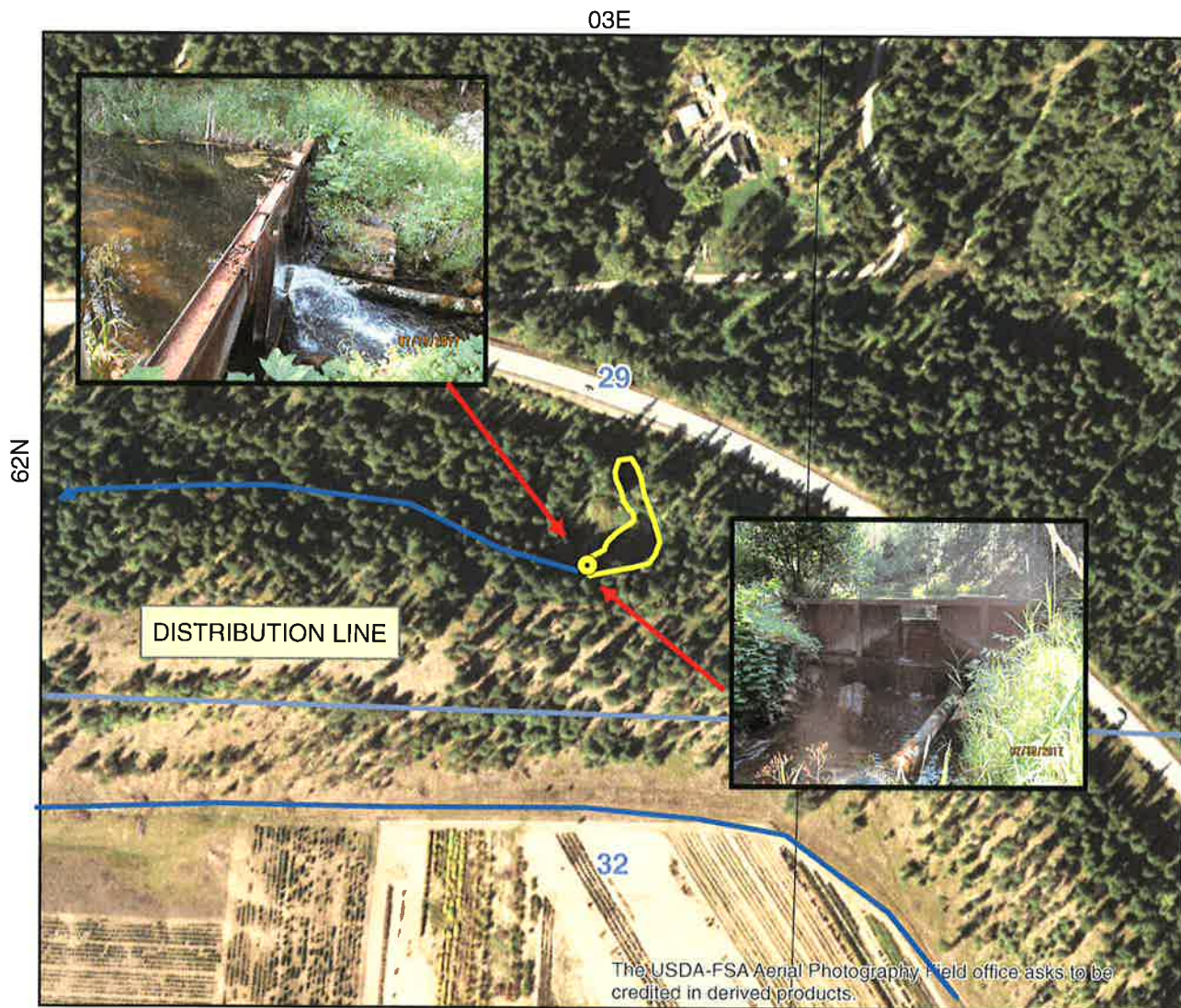
A handwritten signature in blue ink that reads "Adam Frederick". The signature is written in a cursive, flowing style.

Adam Frederick
Senior Water Resource Agent

Enclosure(s): Permit 98-7694
Map of Property
Map of Property Showing Tax Lot Ownership

State of Idaho
Department of Water Resources
Attachment to Field Exam
98-7694

IRRIGATION STORAGE / SYSTEM DIAGRAM



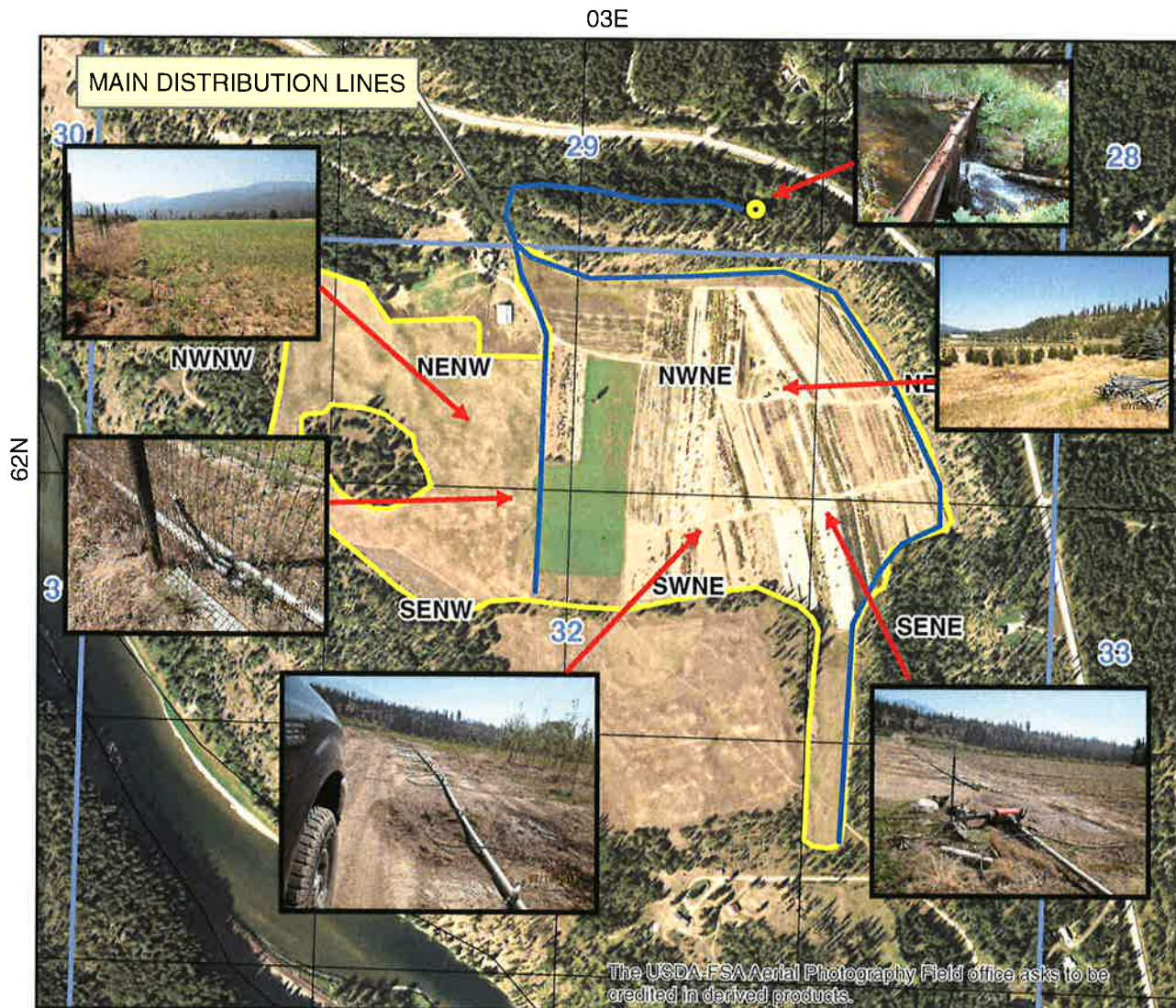
- Point of Diversion
- Place Of Use Boundary
- Townships
- PLS Sections

0 0.035 0.07 0.14 Miles



State of Idaho
Department of Water Resources
Attachment to Field Exam
98-7694

IRRIGATION and IRRIGATION FROM STORAGE / SYSTEM DIAGRAM



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

0 0.1 0.2 0.4 Miles





PERFORMANCE DATA

L3030H

L3030H

3/4" Full Circle, Brass, Low Angle Impact Sprinkler

Bearing: 3/4" Male NPT, Brass

Trajectory Angle: 10°

Operating Range: 25-60 psi

Flow Rate: 2.9-15.9 GPM

Radius: 34-48 ft.

FEATURES

- Heavy duty brass construction
- Stainless steel springs and fulcrum pin
- Chemically resistant washers
- Dual nozzle ports
- Two-year warranty

BENEFITS

- Low angle fights strong wind conditions
- Great choice for pivot or under tree applications
- Corrosion and grit resistant
- Built to last

Straight Bore Nozzle (SBN-3)

PSI @ Nozzle	NOZZLE SIZE									
	9/64"	5/32"	11/64"	3/16"	13/64"	7/32"	15/64"	1/4"	17/64"	
	Rad. GPM	Rad. GPM	Rad. GPM	Rad. GPM	Rad. GPM	Rad. GPM	Rad. GPM	Rad. GPM	Rad. GPM	Rad. GPM
40	42 3.60	43 4.40	43 5.30	44 6.30	45 7.60	45 8.90	45 10.00	45 11.40	45 12.40	
45	43 3.80	43 4.70	44 5.60	45 6.60	45 8.10	45 9.40	45 10.60	46 12.10	46 13.10	
50	43 4.00	44 4.90	45 5.90	45 7.00	46 8.50	46 9.90	46 11.10	46 12.80	46 13.80	
55	44 4.20	45 5.20	45 6.20	45 7.30	46 8.90	46 10.30	46 11.80	47 13.50	47 15.20	
60	45 4.40	45 5.40	45 6.50	46 7.80	46 9.30	47 10.80	47 12.40	47 14.10	48 15.90	

Low Pressure Nozzle (LPN-3)

PSI @ Nozzle	NOZZLE SIZE										
	9/64"	5/32"	11/64"	3/16"	13/64"	7/32"	15/64"	1/4"	17/64"	9/32"	
	Rad. GPM	Rad. GPM	Rad. GPM	Rad. GPM	Rad. GPM	Rad. GPM	Rad. GPM	Rad. GPM	Rad. GPM	Rad. GPM	Rad. GPM
25	34 2.90	35 3.50	35 4.20	36 5.00	36 5.80	35 6.60	35 7.50	36 8.50	36 9.50	36 10.50	
30	35 3.20	35 3.90	36 4.60	36 5.40	37 6.30	37 7.30	37 8.20	37 9.30	38 10.40	38 11.50	
35	35 3.40	36 4.20	36 5.00	37 5.90	37 6.80	38 7.80	38 8.90	38 10.00	39 11.20	38 12.40	
40	35 3.70	36 4.50	37 5.30	37 6.30	37 7.30	38 8.40	38 9.50	39 10.70	39 12.00	40 13.30	
45	36 3.90	36 4.70	37 5.70	37 6.70	36 7.70	38 8.90	38 10.10	39 11.40	39 12.70	40 14.10	
50	36 4.10	36 5.00	37 6.00	37 7.00	36 8.20	38 9.40	38 10.60	39 12.00	39 13.40	40 14.80	

Chart data shown on 10 ft. riser.

PART NUMBERS AND ORDERING INFORMATION

Nozzle Ordering Example

To order a 9/64" Brass Straight Bore Nozzle the part number would be:

MAKE YOUR
NOZZLE CHOICE

105842- +

CHOOSE YOUR
NOZZLE SIZE

09 =

ADD THEM TOGETHER TO
CREATE THE NOZZLE PART NUMBER

105842-09

Sprinkler Only

SPRINKLER

L3030H

A11640

For model L3030H, sprinkler and nozzle must be ordered separately.

Nozzle Only

NOZZLE	9/64"	5/32"	11/64"	3/16"	13/64"	7/32"	15/64"	1/4"	17/64"	9/32"
Brass Straight Bore Nozzle (105842-)	SBN-3	09	10	11	12	13	14	15	16	17
Brass Low Pressure Nozzle (104538-)	LPN-3	09	10	11	12	13	14	15	16	17
Brass Plug (100289)										18

Total Storage Calculations

FILE NUMBER	98-7694
REVIEWER	Adam Frederick
DATE	1/24/2018

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.)	0.23	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	8	"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)	1.8	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. <i>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.</i>
Multiple Fill Volume Above Initial Fill to Fulfill From Storage Needs- "Multiple Fills" (AF)	0	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). <i>Note: You must have a "From Storage" component exceeding the initial fill on the permit to include a volume in this space.</i>
Estimated Seepage Loss (AF)	0.3	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	0.4	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	2.5	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.



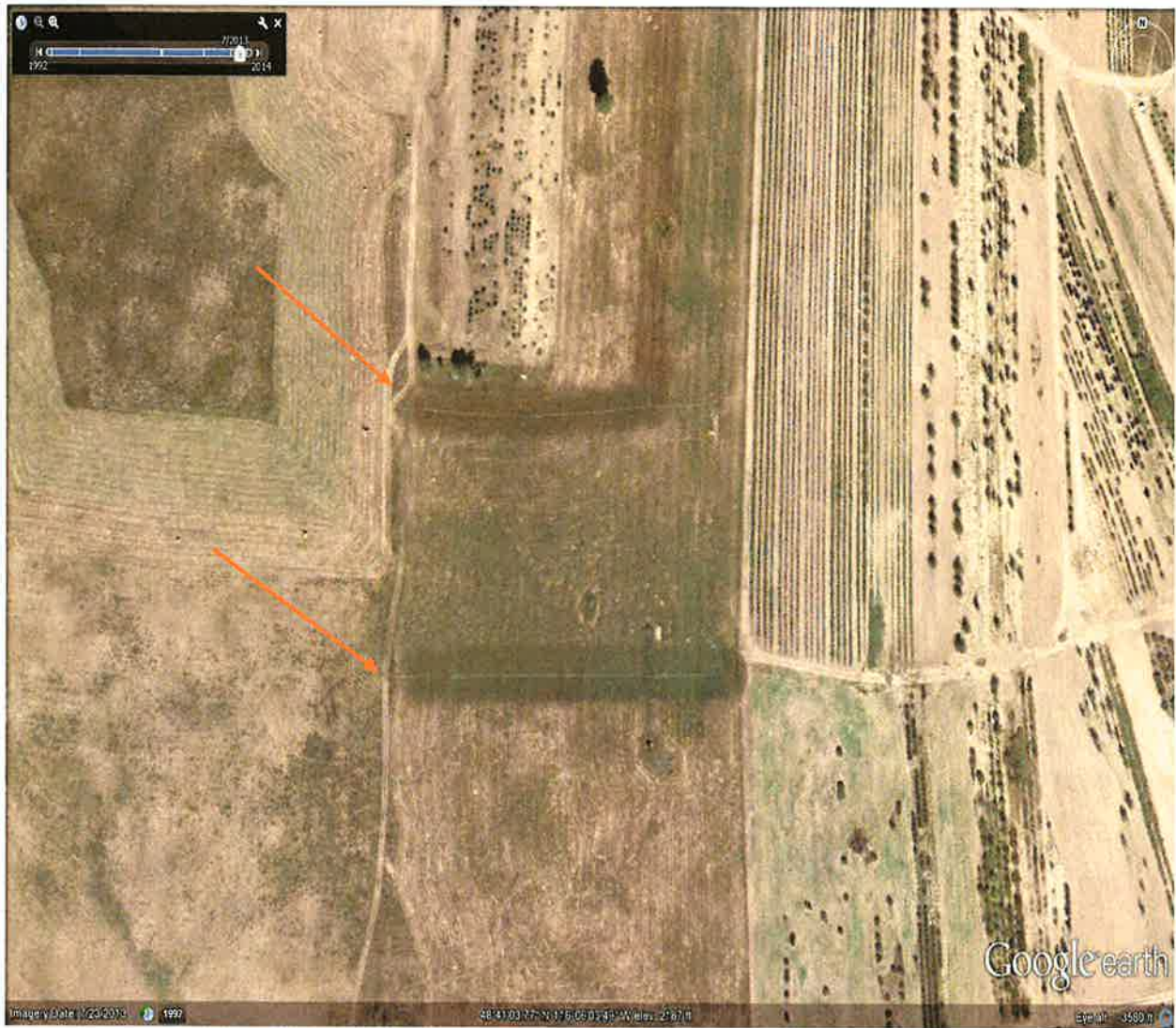
Ariel view from Google Earth 7-1995.



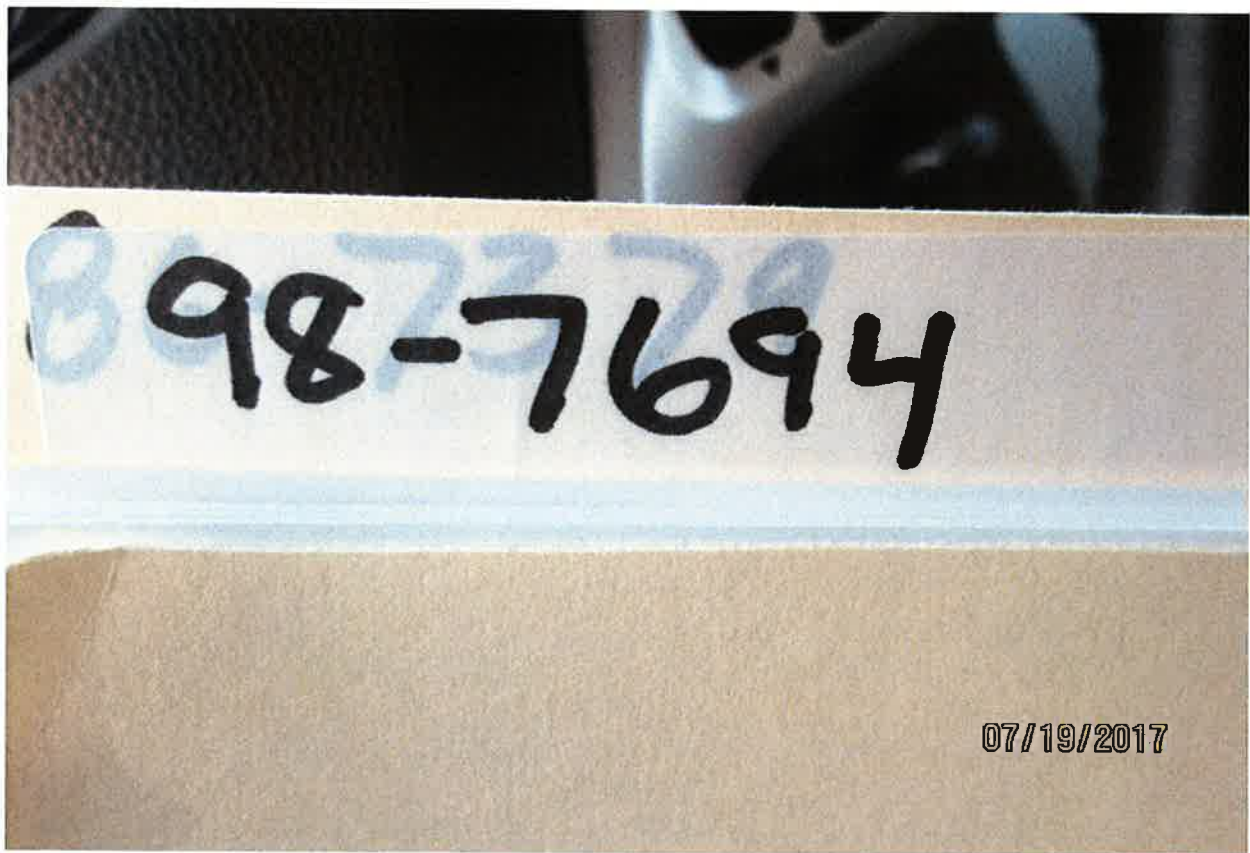
Ariel view from Google Earth 9-2004



Aerial view from Google Earth 7-2013



Close up view from Google Earth 7-2013 imagery showing irrigation.



POD on Sand Creek. Applicant had built 5 foot dam.



Just below dam, 8 inch pipe going to POU.



View of dam with minor impoundment behind.



Proper measurement site half way down hill from POD.



Panametric Flow Meter used to conduct measurement.



Flow measurement set up and meter running.





Place of use.





Place of use and sprinklers.





Drip irrigation for nursery stock.





Nursery irrigation.





Nursery stock.





Nursery stock.





Irrigated areas.



Riser location.



Nursery stock.



Mr. Bremer stated that irrigation pipe was used in 1996 for all irrigation. Since then, a drip system had been installed for nursery irrigation and pipe irrigation is still used for pasture fields.