

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 96-9501

Exam Date: 10/03/2016

1. Current Owner:
STEPHEN SOMMER PO BOX 2212 PRIEST RIVER ID 83856 AND
TONI SOMMER PO BOX 2212 PRIEST RIVER ID 83856
2. Accompanied by: Stephen Sommer
Phone No: 805-878-4245
Address: Same as above (updated after F.E. by change in address form)
Relationship to permit Holder: Permit Holder

3. SOURCE:

PEND OREILLE RIVER

Tributary

COLUMBIA RIVER

Method of Determination: DRG and GPS.

B. OVERLAP REVIEW

1. Other water rights with the same place of use: NO Overlap

Water Right No.	Source	Purpose of Use	Basis
NONE			

Comments: _____

2. Other water rights with the same point-of-diversion: NO Overlap

Water Right No.	Source	Purpose of Use	Basis
NONE			

Comments: _____

C. DIVERSION AND DELIVERY SYSTEM**1. LOCATION OF POINT(S) OF DIVERSION:**PEND OREILLE RIVER L4 (SW $\frac{1}{4}$ SW $\frac{1}{4}$), Sec. 30, Twp 56N, Rge 04W, B.M. BONNER County

Method of Determination: Arcmap and GPS. POD is a river pump located at -116°53.531, 48°10.101.

PLACE OF USE: IRRIGATION STORAGE, RECREATION STORAGE, and RECREATION

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
56N	04W	30											X L4						

PLACE OF USE: IRRIGATION FROM STORAGE

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
56N	04W	30											2.1 L4						2.1

Total Acres: 2.1

Method of Determination: Arcmap and GPS.

3.

X Delivery System Diagram Attached (required). Indicate all major components and distances between components. 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
RIVER PUMP	TURF BOSS	1.5			

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
NONE						

2. Measurements:

5 gallon bucket test was performed to determine diversion rate in units = gpm as listed below:

- Flow from pump at intake pipe to pond = (5 gal / 15.2 sec) x 60 sec = 19.7 gpm = **0.04 cfs**.

E. FLOW CALCULATIONS

X Additional Computation Sheets Attached

Measured Method: See attached pump curve

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 2.1 \text{ acres} \times 3.0 \text{ af} = 6.3 \text{ af}$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.04 \text{ cfs} \times 214 \text{ days} \times 1.9835 = 17.0$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = \mathbf{6.3 \text{ af}}$$

2. Volume Calculations for Other Uses:

$$\text{RECREATION STORAGE} = 20 \text{ gpm} \times 60 \text{ min/hr} \times 8 \text{ hr/day} \times 214 \text{ days} = 2,054,400 \text{ gallons} / 325/850 \text{ gal/af} = \mathbf{6.3 \text{ af.}}$$

See attached pond analysis sheet.

G. NARRATIVE/REMARKS/COMMENTS

Field exam with applicant, Stephen Sommer, showed water being diverted from the Pend O'reille River uphill to a pond being used for irrigation/recreation storage uses and irrigation from storage use. Recreation use is for fishing in pond. Applicant pulled river water using a 1.5 hp submersible pump, uphill in a 2 inch line to fill the pond. Water then flowed through the pond and back to an unnamed stream. Due to pipe diameter, flow measurements were not attainable, and a pump curve worksheet for Turf Boss pumps identified 20 gpm. During field exam, a 5 gallon bucket test was completed with results as follows: (5 gal / 15.2 sec) x 60 sec = 19.7 gpm = 0.04 cfs. As the pump curve worksheet and 5 gallon bucket test show same diversion, the 0.04 cfs will be carried to license. At time of permitting, applicant was approved for 0.20 cfs, but is

limited by pump installed at time of field exam. License will reflect **0.04 cfs** maximum diversion rate.

The pond on the applicant's property had a surface area of 0.1 acres with a maximum depth of 6 feet, which equals an average depth of 2.4 feet. Arcmap was used to trace out pond surface area, which equaled 0.1 acres. The pond had a seepage factor of 0.1 af, and an evaporation factor of 0.1 af. A new version of the pond analysis tool was used to issue this water right license (see attached). The pond analysis sheet shows a required volume of 6.7 af, and the applicant is authorized 6.3 af multiple fill volume for the irrigation from storage component of license. Overflow water from pond returned to an unnamed stream, and water system pipe from POD ran in channel and through culvert to provide water to pond from river.

Applicant had installed a concrete cistern in pond, with pump to use irrigation from storage from pond. At time of exam, irrigation was not taking place due to lateness of season, but green yard with hose fed sprinkler system was observed and a rough sketch was developed showing irrigation POU. During licensing review irrigation was traced out using arcmap equaling 2.1 acres. The irrigated area is considerably less than the 4 acres permitted for, and irrigation from storage volume was calculated as 2.1 acres x 3.0 af = **6.3 af**, which will be carried to license as the Maximum Diversion Volume.

At time of permit, applicant had applied for 0.4 af of volume for Recreation storage. The applicant has fish in his pond, and recreation storage is for fishing purposes. The diversion rate applied to recreation storage is congruent with that of the diversion to storage rate of 0.04 cfs. The diversion volume of 0.4 af is part of the pond system, and does not stack/add to maximum diversion volume. Applicant stated it took 8 hours of continuous pumping each day to maintain the pond full considering he also irrigated from pond 4 hours a day. The annual volume for the recreation storage component equals $20\text{gpm} \times 60\text{ min/hr} \times 8\text{ hr/day} \times 214\text{ days} = 2,054,400\text{ gallons} / 325/850\text{ gal/af} = \mathbf{6.3\text{ af}}$, which will be applied to license.

Condition 219 was replaced by condition 259 to describe pond storage, initial fill requirements, seepage and evaporation factors, and refills for irrigation values. Condition 220 was modified to reflect pond analysis computations for pond capacity and surface area requirements. Condition R66 was replaced with R58 to describe no more than 3.0 afa per acre at the field headgate for irrigation of the place of use. All other conditions from permit will be carried forward to licensing. There are no overlap concerns for this water right.

Have conditions of permit approval been met? X Yes No

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use	Rate of Diversion	Annual Volume
IRRIGATION STORAGE	01/01 to 12/31		6.3 AF
IRRIGATION FROM STORAGE	04/01 to 10/31		6.3 AF
RECREATION	01/01 to 12/31	0.04 CFS	6.3
RECREATION STORAGE	01/01 to 12/31		0.4 AF
DIVERSION TO STORAGE	01/01 to 12/31	0.04CFS	

Totals: 0.04 CFS 13.0 AF

2. Recommended Amendments

 Change P.D. as reflected above Add P.D. as reflected above X None

 Change P.U. as reflected above Add P.U. as reflected above X None

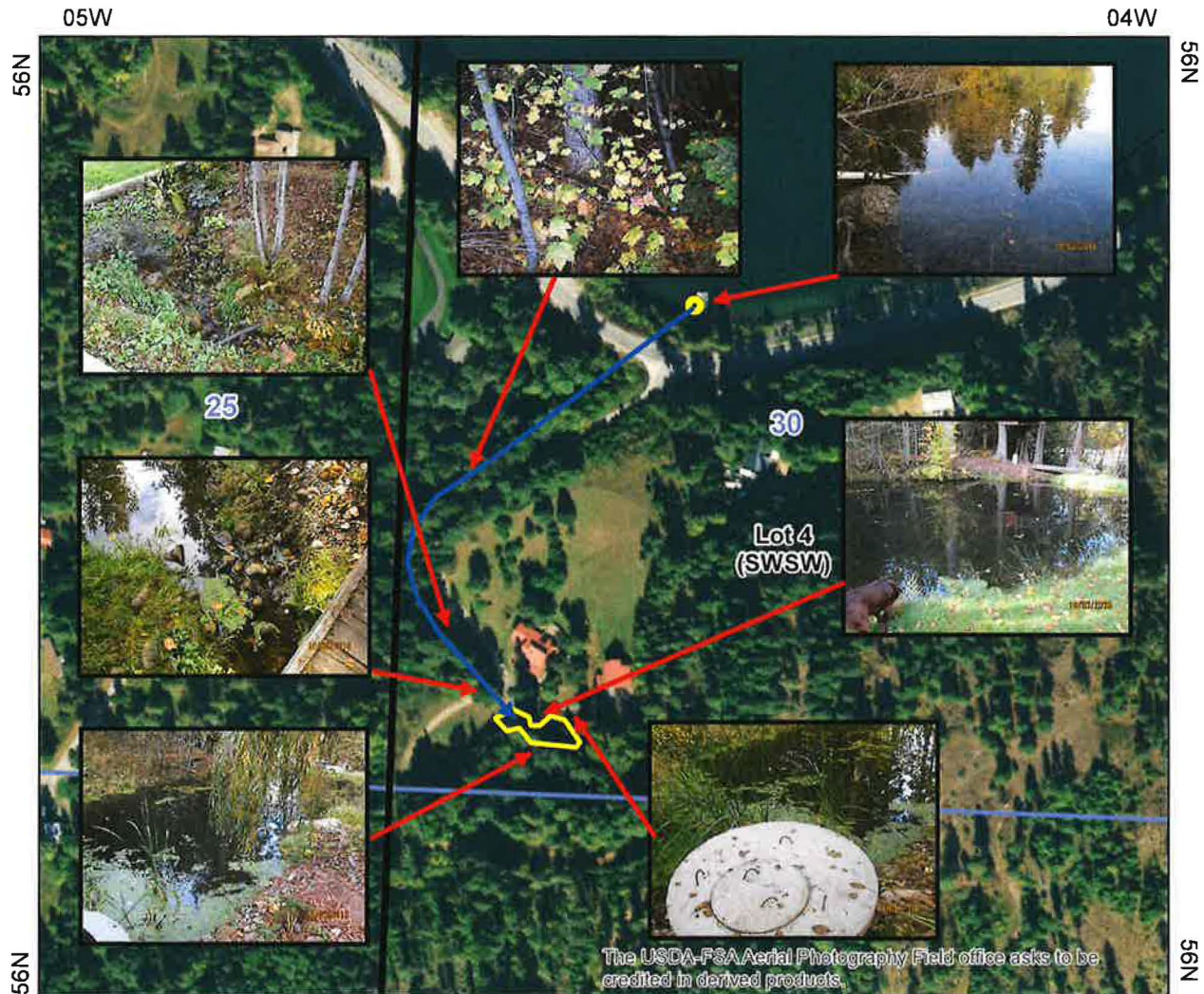
I. AUTHENTICATION Luke Bates - Water Resource Agent

Field Examiner's Name Adam Fink Date 5/27/2020

Reviewer [Signature] Date 5/27/2020

State of Idaho
Department of Water Resources
Attachment to Field Exam
96-9501

IRRIGATION STORAGE, RECREATION STORAGE, and RECREATION system diagram.



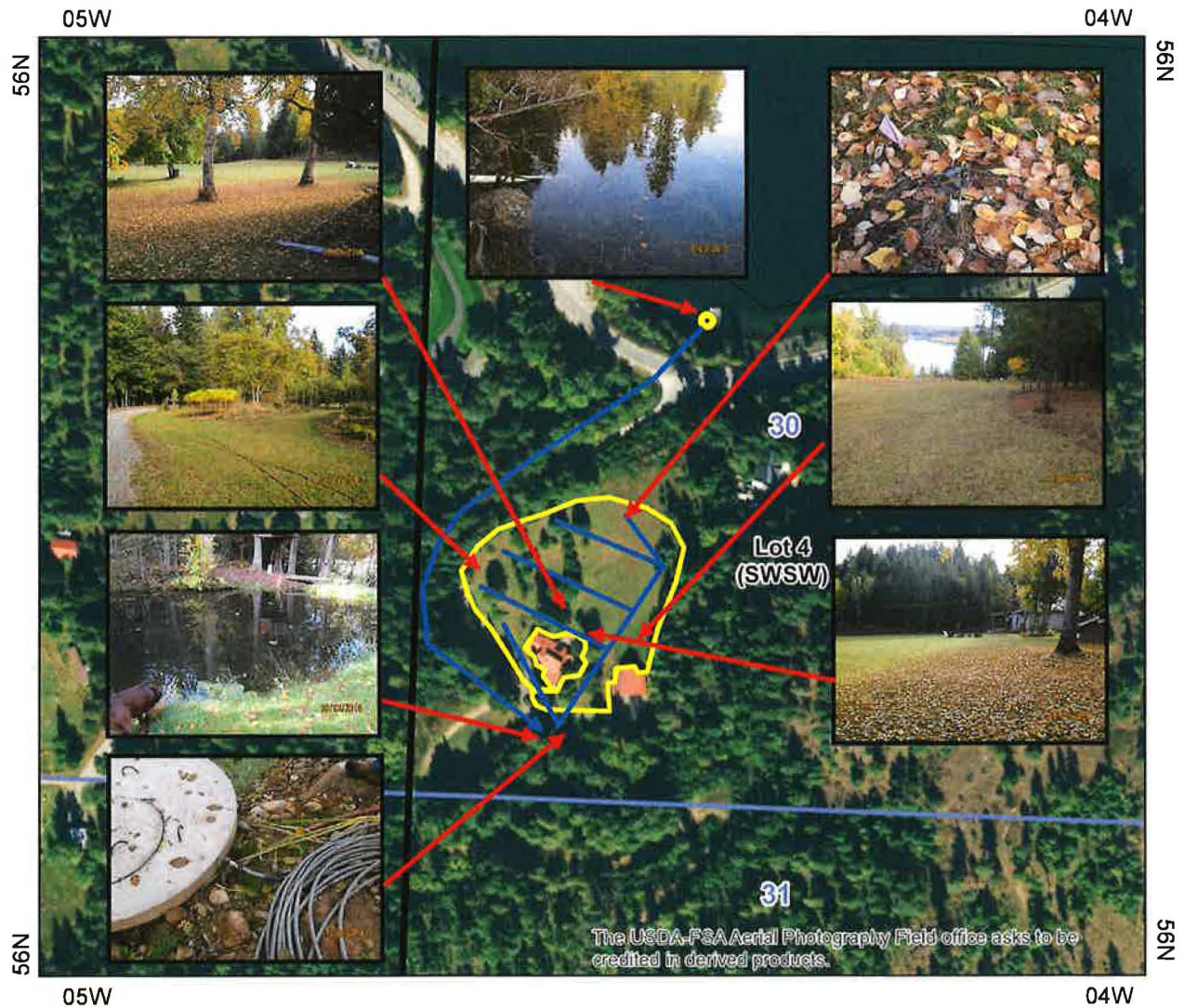
- 05W 04W
- Point of Diversion
 - Place Of Use Boundary
 - Townships
 - PLS Sections
 - Quarter Quarters

0 0.035 0.07 0.14 Miles



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IRRIGATION FROM STORAGE system diagram.



- 05W 04W
- Point of Diversion
 - Place Of Use Boundary
 - Townships
 - PLS Sections
 - Quarter Quarters

0 0.035 0.07 0.14 Miles



Total Storage Calculations

FILE NUMBER	96-9501
REVIEWER	Luke Bates
DATE	4/27/2020

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

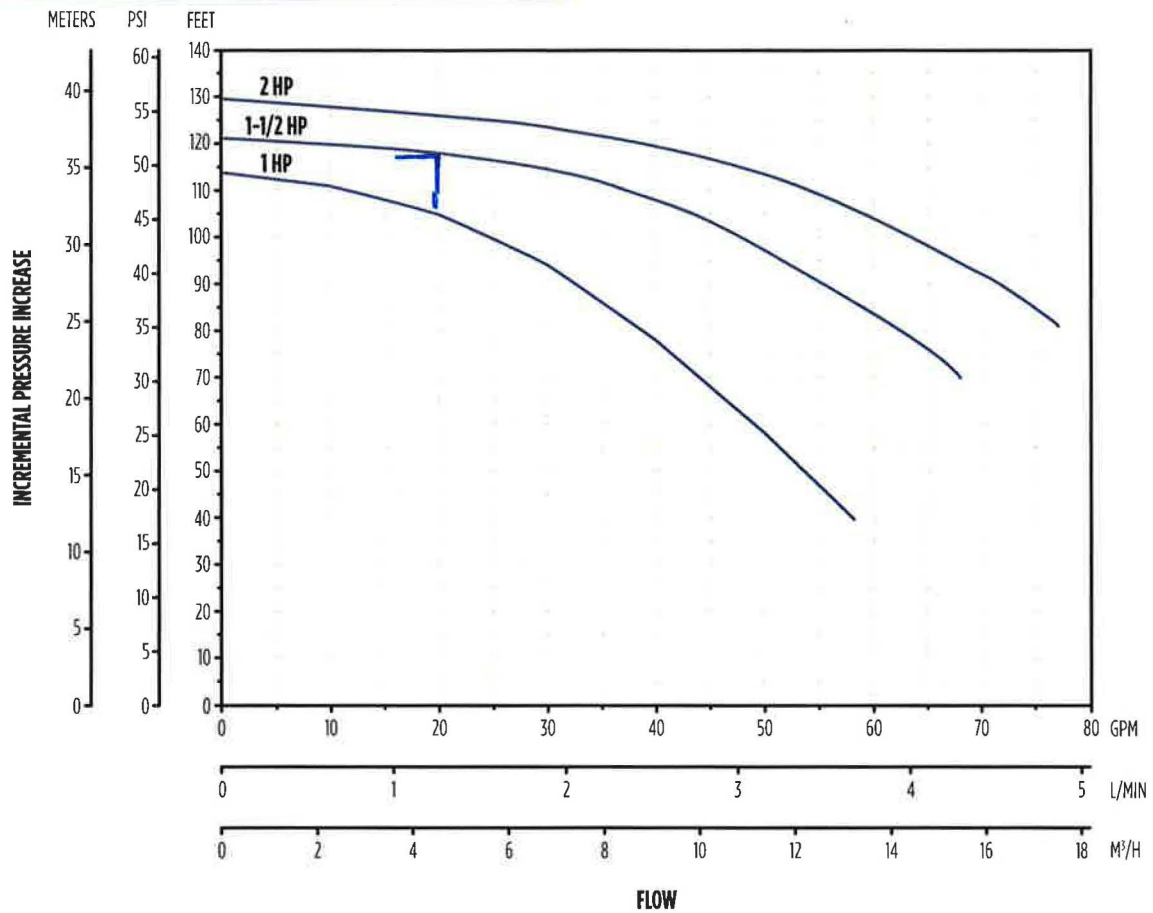
User Input
Calculated value
Formula Explanations

Surface Area (AC.)	0.1	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	2.4	"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)	0.2	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)	6.3	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)	0.1	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)	6.7	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.



SELF-PRIMING IRRIGATION PUMPS - TURF BOSS

PERFORMANCE



Model	HP	Total Suction Lift (ft)	Discharge Pressure (PSI)							Shut-off Pressure (PSI)
			20	25	30	35	40	45	50	
			Gallons Per Minute (GPM)							
FTB1C1	1	5	53.0	47.0	42.0	36.0	27.0	13.0	-	46
		10	49.0	45.0	38.0	32.0	23.0	-	-	44
		15	45.0	43.0	37.0	28.0	17.0	-	-	42
		20	38.0	37.0	33.0	24.0	-	-	-	40
		25	28.0	27.0	27.0	18.0	-	-	-	38
FTB1S1	1-1/2	5	65.0	64.0	63.0	58.0	48.0	37.0	-	50
		10	58.0	58.0	57.0	55.0	45.0	26.0	-	48
		15	50.0	49.0	48.0	48.0	40.0	-	-	46
		20	41.0	40.0	39.0	38.0	32.0	-	-	44
		25	29.0	28.0	28.0	27.0	17.0	-	-	42
FTB2C1	2	5	70.0	69.0	69.0	68.0	65.0	53.0	35.0	52
		10	61.0	60.0	60.0	59.0	58.0	47.0	-	50
		15	52.0	51.0	50.0	49.0	48.0	37.0	-	49
		20	41.0	40.0	39.0	38.0	35.0	-	-	47
		25	29.0	28.0	27.0	25.0	22.0	-	-	45



Intake pipe going into river.



Pipe along driveway going to pond.



Irrigation



Sprinkler head with connection for hose.



Irrigation



Sprinkler head in yard.



Irrigation



Lawn and shrubs.



Irrigation looking north towards river.



Irrigation of yard.



Irrigation south of house towards woods.



Pipe from river. Diversion to storage into pond.



Pond south of house. Stocked with fish.



Culvert/cistern in pond with pump to use irrigation from storage from pond.



Culvert/ cistern in pond.



Pond looking towards exit point into unnamed stream.



Exit point from pond into unnamed stream.



Waterline to pond going through culvert of unnamed stream where pond flows out.



Water line and view of pond out flow.