STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 98-7852
Exam Date: 09/23/2016

1. Current Owner:
SPENCER HITTLE 96 JUNIPER LN BONNERS FERRY ID 83805

2. Accompanied by: Spencer Hittle
Phone No: 208-946-9230
Address: Same as above
Relationship to permit Holder: Permit Holder

3. **SOURCE:** RUBY CREEK

Tributary DEEP CREEK

Method of Determination: Arcmap and DRG

B. OVERLAP REVIEW

1. Other water rights with the same place of use: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
98-7146	GROUND WATER	DOMESTIC	LICENSE
98-7147	RUBY CREEK	IRRIGATION	LICENSE
98-2043	DEEP CREEK	IRRIGATION	LICENSE
98-7750	MUNICIPAL	GROUND WATER	LICENSE

Comments: WR 98-7146 and 98-7750 use ground water for domestic and municipal purposes respectively; WR 98-7147 uses water from Ruby Creek, for property owned by Marti E. and Vernon J. Mortensen, for irrigation purposes bordering the applicant's property; WR 98-7147 uses water from from same historic ditch transporting water from Ruby Creek as this water right; WR 98-2043 uses water from Deep Creek for Irrigation purposes by Terril and Beverly K Raaum.

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

Water Right No.	Source	Purpose of Use	Basis

Comments: _____

C. DIVERSION AND DELIVERY SYSTEM

1. **LOCATION OF POINT(S) OF DIVERSION:**
RUBY CREEK SE¼ SE¼, Sec. 24, Twp 61N, Rge 01W, B.M. BOUNDARY County

Method of Determination: Arcmap and GPS. POD is a gravity diversion fed pipe in creek located at -116°24.072, 48°37.174.

PLACE OF USE: IRRIGATION and 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	
61N	01E	19							0.3 L2										0.3

Total Acres: 0.3

PLACE OF USE: IRRIGATION STORAGE, STOCKWATER STORAGE, WILDLIFE STORAGE, and RECREATION 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	
61N	01E	19							X L2										

PLACE OF USE: STOCKWATER 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	
61N	01E	19							X L2										

Method of Determination:

3.

Delivery System Diagram Attached (required). Indicate all major components and distances between components.
__X__ 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
__X__ 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
N/A					

D. FLOW MEASUREMENTS

1.

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

2. Measurements: Water entered vertical pipe located in Ruby Creek, where it was diverted across road and into a pre-existing ditch that routed to applicant's property. At time of field exam, water was low in Ruby Creek, and no water was being diverted into the pipe, resulting in no flow measurements being taken. During higher water periods, the pipe system is underwater at point of discharge into ditch, and there was no minimum requirement of pipe length to perform flow measurements. As a result, the DIVERSION RATE TO STORAGE will use department standards for irrigation for less than 5 acres, and stockwater for 25 goats, which combined equals 0.03 cfs (irrigation of 0.3 acres) + 0.02 cfs (25 goats) = **0.05 cfs**, which will be applied to license. This will also be the Maximum Diversion rate applied to license.

E. FLOW CALCULATIONS

Measured Method: NONE

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$V_{I.R}$ = (Acres Irrigated) x (Irrigation Requirement) = 0.03 ac x 3.0 afa = **0.10 af**

$V_{D.R}$ = [Diversion Rate (cfs)] x (Days in Irrigation season) x 1.9835 = 0.03 cfs x 214 days x 1.9835 = 12.7

V = Smaller of $V_{I.R}$ and $V_{D.R}$ = 0.10 af

2. Volume Calculations for Other Uses:

See attached pond analysis sheet.

STOCKWATER FROM STORAGE = 25 goats x 2 gpd x 365 days = 18,250 gal / 325,850 gal/af = 0.06 af = **0.1 af** rounded to account for significant figures (admin memo No. 6).

This is a surface water right, so no volume will be included on the water right license.

G. NARRATIVE/REMARKS/COMMENTS

Field exam performed with applicant, Spencer Hittle, showed water being drawn from Ruby Creek to fill a pond for multiple storage purposes, irrigation purposes, and irrigation/stockwater from storage purposes. At the POD, water from Ruby Creek diverted into a 4 inch pipe that was routed into a 12 inch culvert pipe, connected to a 10 inch pipe that crossed under a road to a pre-existing ditch. Water then flowed down the ditch to the applicant's storage pond, from which water discharges when full, flowing downgrade into a pond on a neighbor's property. At time of field exam, water was low in Ruby Creek, and no water was being diverted into the pipe, resulting in no flow measurements being taken. As a result, the department's standard diversion rates for irrigation for less than 5 acres, and stockwater for 25 goats, will be used equaling 0.03 cfs (irrigation of 0.3 acre) + 0.02 cfs (25 goats) = **0.05 cfs**, which will be applied to license as both the Diversion to Storage diversion rate and the Maximum Diversion Rate. A non-official drive by exam was conducted on 5/5/2020 showed an upgraded corrugated pipe vertically placed at POD to divert water into original diversion conveyance system.

The irrigation component was removed from license, as the 0.03 cfs for 0.3 acres of irrigation determined at time of license is drawn from the pond as irrigation from storage. The diversion rate for stockwater from storage was removed from license. Both the irrigation and stockwater diversion rates are captured in the total Diversion to Storage component of the license, which is equal to 0.05 cfs.

The Irrigation Storage, Stockwater Storage, Wildlife Storage and Recreation Storage POU was identified as a pond. At time of field exam, the pond was dry due to lateness of season. Arcmap, year 2013 aerial imagery, was used to trace out surface area, equaling = 0.3 acres. A pond analysis worksheet was completed identifying the following pond elements: pond max depth of 12 feet, an average depth of 4.8 feet, a capacity of 1.4 af, an estimated seepage loss of 0.4 af, and an estimated evaporation loss of 0.3 af. From the pond analysis worksheet, 2.1 af is the total required volume based on afore mentioned factors, but the applicant is limited to 0.4 af authorized at time of permitting, and the Maximum Diversion Volume of **0.4 af** will be carried forward to licensing.

Irrigation acreage was difficult to determine, as applicant used water from pond to irrigate. Arcmap aerial imagery was used to trace out irrigation Place of Use equaling 0.3 acres co-located with the pond. The irrigation annual volume equals: 0.3 acres x 3.0 afa = **0.9 af**, but as this is a surface water right, no volume will be applied to irrigation component.

Applicant used stockwater from storage for 25 head of goats. There were goats observed at property during field exam, and stockwater from storage annual volume equals: 25 goats x 2 gpd x 365 days = 18,250 gal / 325,850 gal/af = 0.06 af = **0.1 af** rounded to account for significant figures (admin memo No. 6), which is used from the pond and is not additive to the maximum diversion volume identified as 0.4 af defined as this water right's maximum diversion volume.

Condition 26A was removed from license. Condition 220 was added to describe pond size and capacity. Condition 259 was added to describe pond elements, annual storage volume, and irrigation and stockwater from storage component volumes. Condition X02 was modified from 25 mixed head stock to 25 goats for stockwater use. All other conditions will remain on license. WR 98-7146 and 98-7750 use ground water for domestic and municipal purposes respectively, and are not a factor for overlap concern. WR 98-7147 uses water from Ruby Creek, for property owned by Marti E. and Vernon J. Mortensen, for irrigation purposes bordering the applicant's property; WR 98-7147 uses water from Ruby Creek, but is not a concern for overlap. WR 98-2043 uses water from Deep Creek for Irrigation purposes by Terril and Beverly K Raaum, but is not a concern from overlap.

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		0.4 AF
IRRIGATION FROM STORAGE	04/01 to 10/31		0.4 AF
STOCKWATER STORAGE	01/01 to 12/31		0.1 AF
STOCKWATER FROM STORAGE	01/01 to 12/31		0.1 AF
WILDLIFE STORAGE	01/01 to 12/31		0.4 AF
RECREATION STORAGE	01/01 to 12/31		0.4 AF
DIVERSION TO STORAGE	01/01 to 12/31	0.05 CFS	
	Totals:	0.05 CFS	0.4 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 F. [signature] Date 5/19/2020

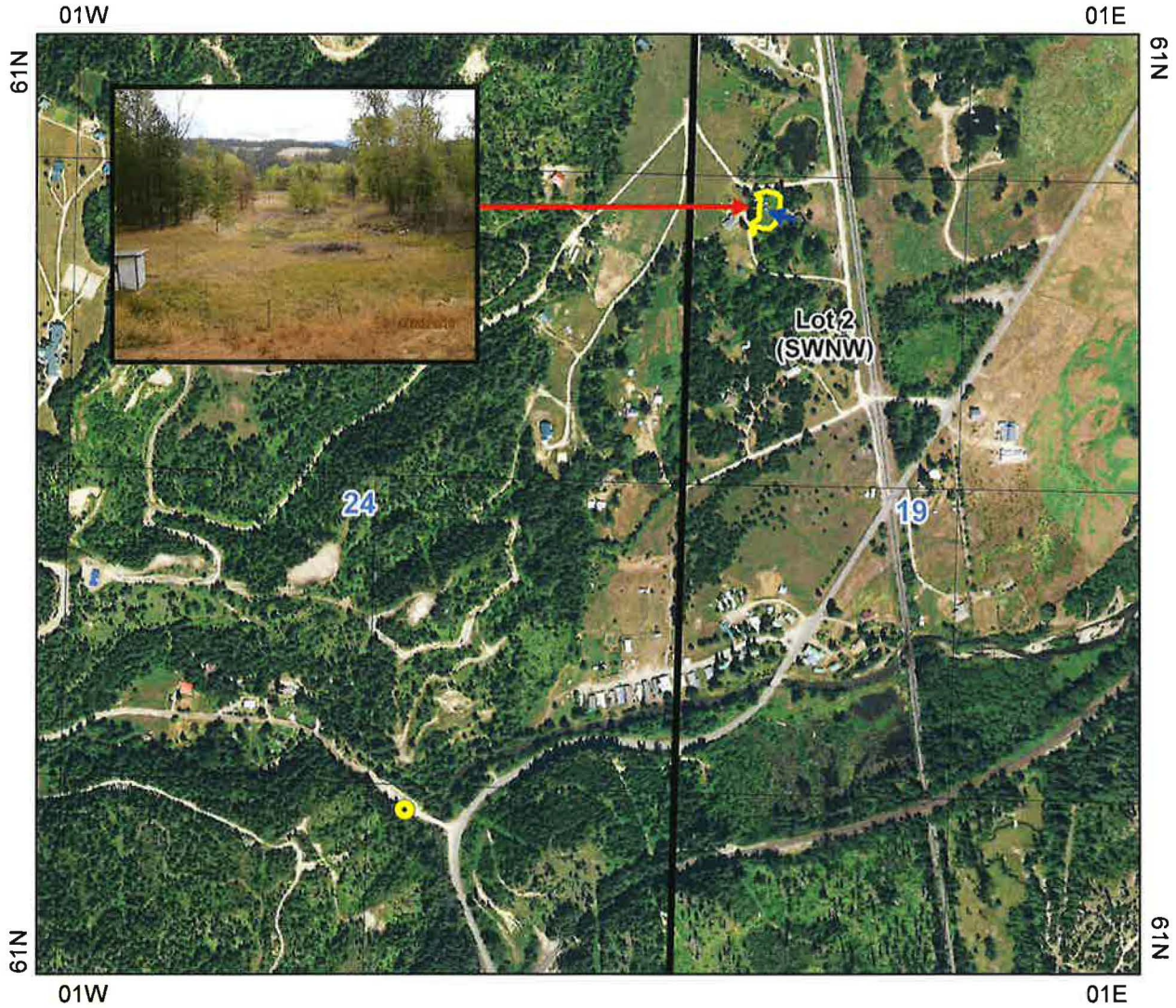
Reviewer [signature] Date 5/19/2020

State of Idaho
Department of Water Resources

Attachment to Field Exam

98-7852

IRRIGATION FROM STORAGE system diagram.



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

0 0.075 0.15 0.3 Miles

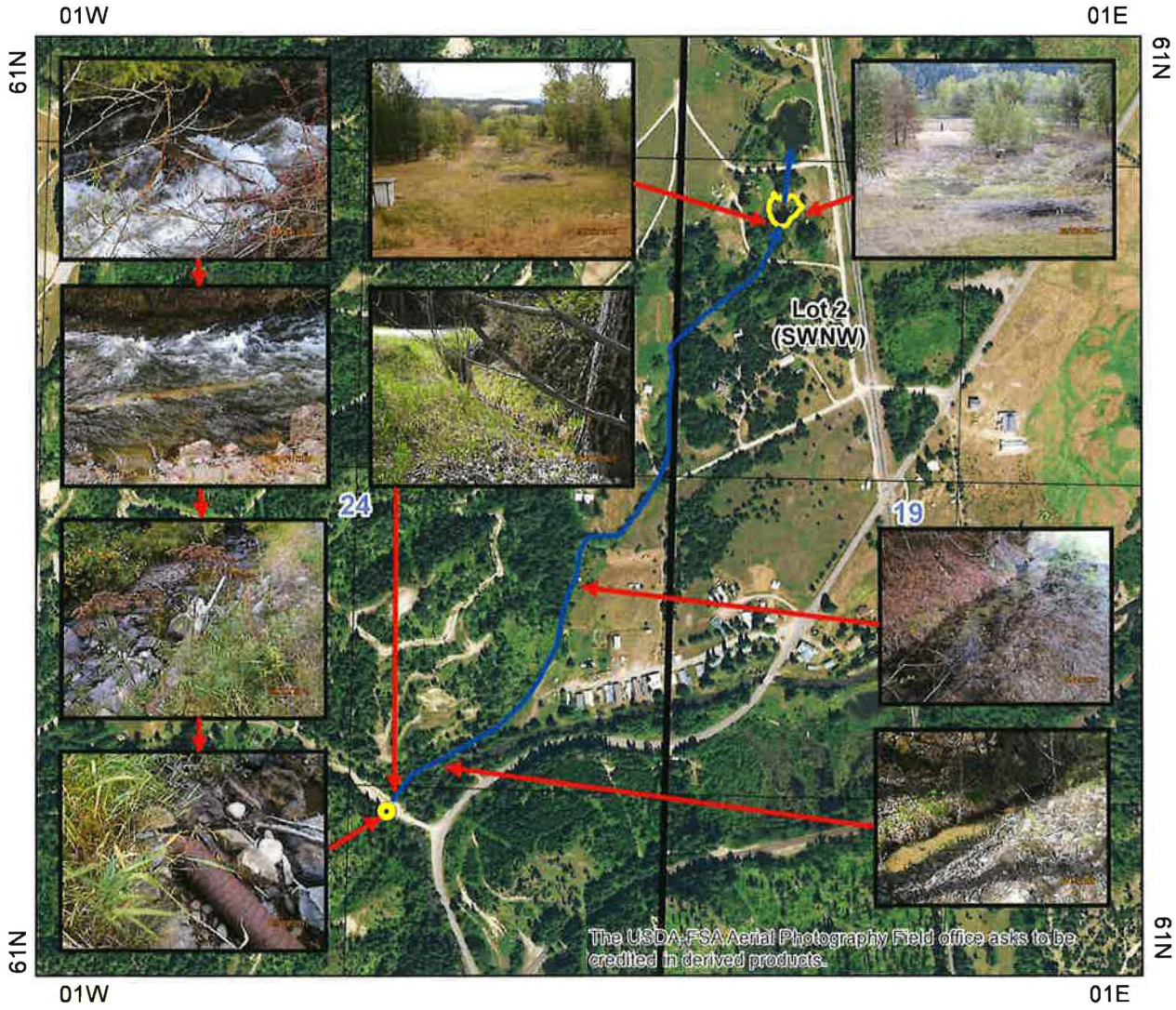
N

State of Idaho
Department of Water Resources

Attachment to Field Exam

98-7852

IRRIGATION STORAGE, STOCKWATER STORAGE, WILDLIFE STORAGE, and RECREATION STORAGE system diagram.



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

0 0.075 0.15 0.3 Miles

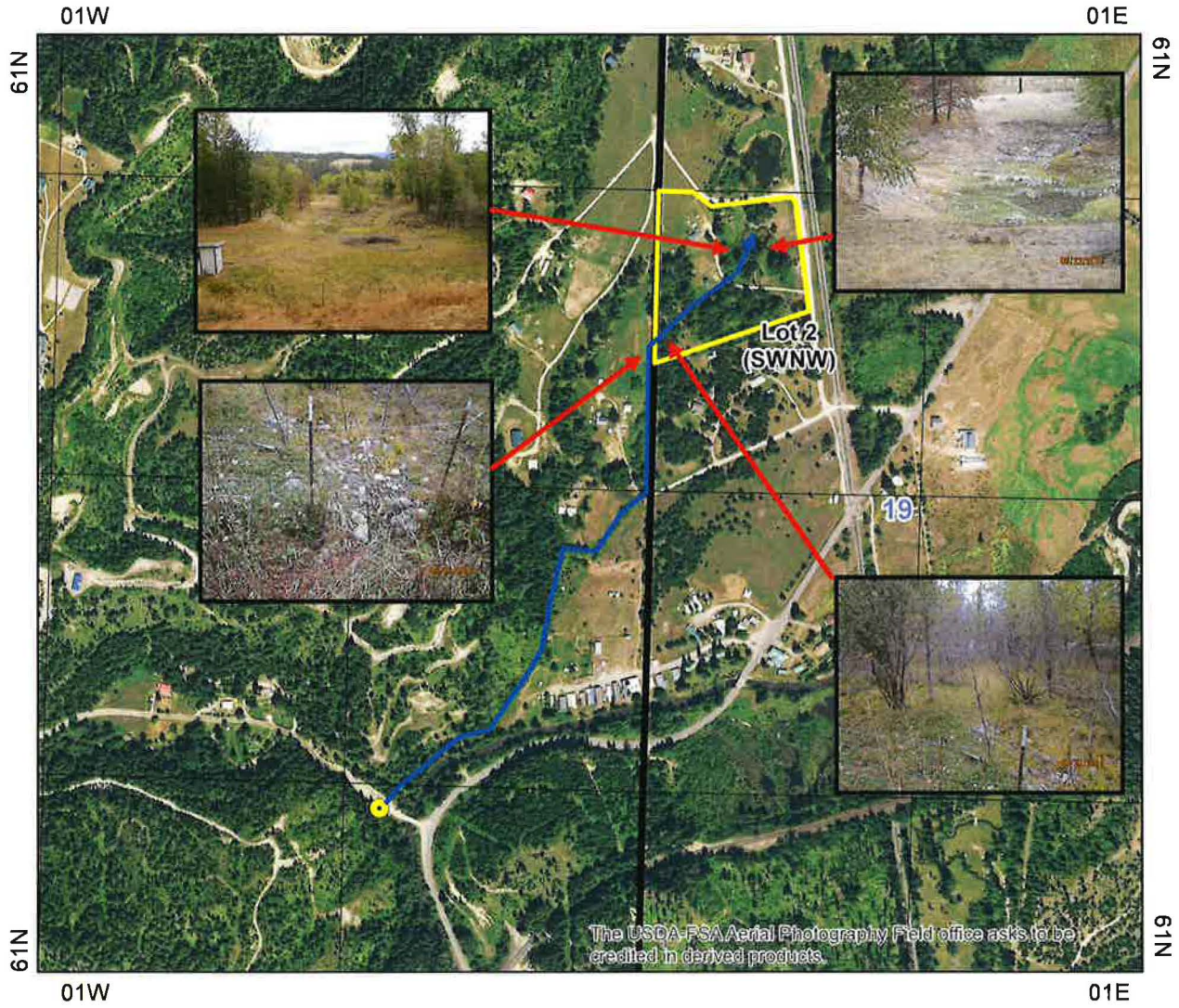
N

State of Idaho
Department of Water Resources

Attachment to Field Exam

98-7852

STOCKWATER FROM STORAGE system diagram.



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

0 0.075 0.15 0.3 Miles

N

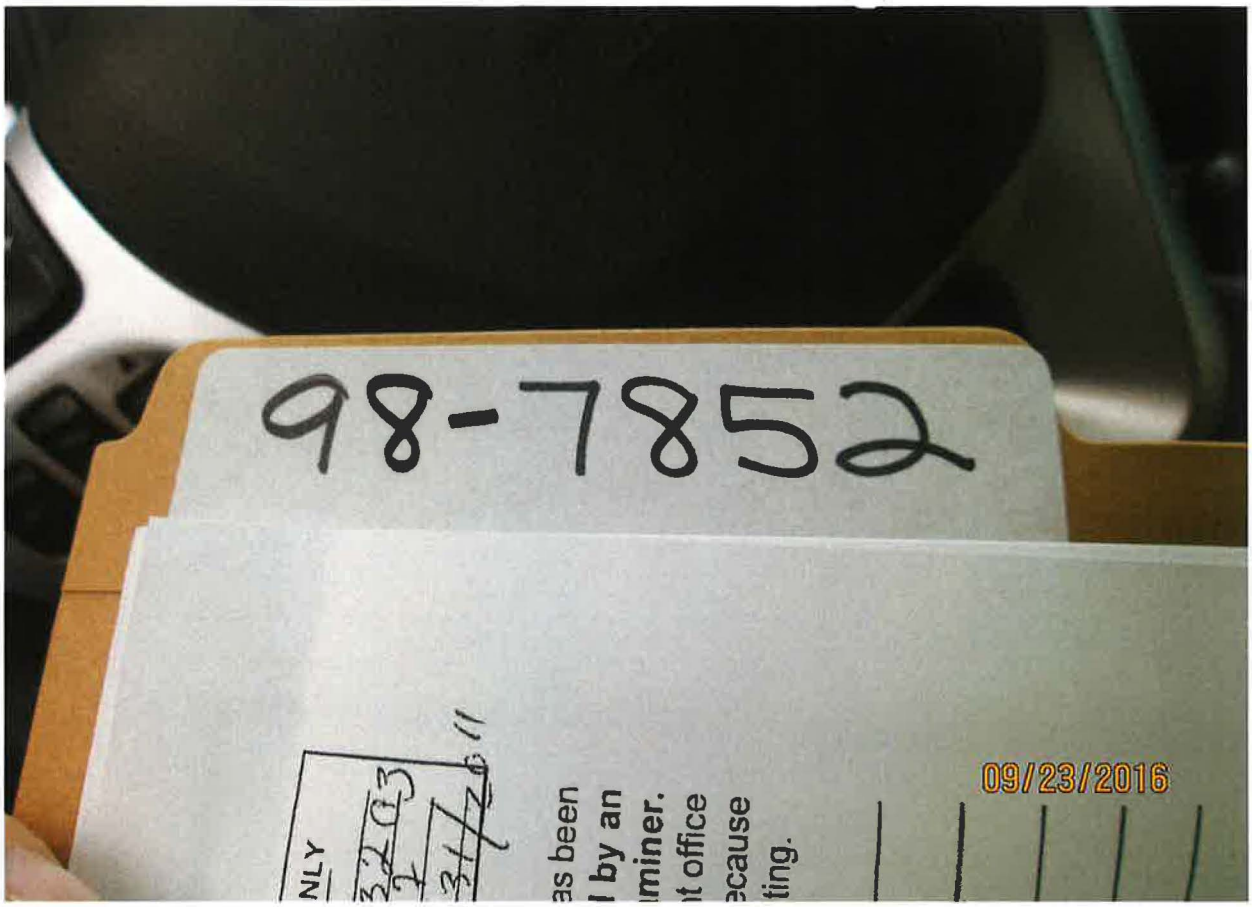
Total Storage Calculations

FILE NUMBER	98-7852
REVIEWER	Luke Bates
DATE	5/12/2020

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.)	0.3	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	4.8	"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)	1.4	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)	0	The "Multiple Fill Volume Above Initial Fill" is the acre-feet of water required to meet a *from storage* component if the *from storage* 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)	0.4	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	0.3	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	2.1	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.



POD – PIPE IN DEEP CREEK

DIVERSION SYSTEM – PIPE DURING HIGH WATER SEASON

DIVERSION SYSTEM – PIPE AT LOW WATER SEASON

WATER CONVEYANCE SYSTEM – PIPE CROSSING ROAD

WATER CONVEYANCE SYSTEM – PRE EXISTING DITCH AT LOW WATER SEASON

WATER EXITING PIPE UNDER ROAD AT HIGH WATER FLOW

PRE EXISTING DITCH DURING HIGH WATER FLOW

POU – STORAGE POND, LATE IN SEASON

POU – STOCKWATER GOATS

POU