

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 95-11544
Exam Date: 06/02/2020

1. Current Owner:
HENKOSKI FAMILY TRUST PO BOX 750 ATHOL ID 83801-0750
2. Accompanied Mike Henkoski
Phone No: 208-683-9139
Address: Same as above
Relationship to permit Holder: Trustee

3. **SOURCE:**
GROUND WATER

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
95-9487	UNNAMED STREAM	IRRIGATION	PERMIT IN LICENSING REVIEW
95-9767	UNNAMED STREAM	IRRIGATION	STATUTORY CLAIM

Comments: WR 95-9768 has a 40 acre POU, but is limited to 1 acre of irrigation on partial decree. This acre is within the same 40 acre tract, but a different acre of irrigation from a different storage pond, and is not a concern for overlap. Water Permit 95-9487 is being licensed congruently with this water right with overlap in irrigated POU, but from an unnamed stream source; condition X35 is being used to describe overlap and limit irrigated acreage between two water rights to 1.7 acres

2. Other water rights with the same point-of-diversion: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
95-10343	GROUNDWATER	STOCKWATER	BENEFICIAL USE

Comments: WR 95-10343 and this water right, 95-11544, have the same well D0028427. Both water rights use well water for stockwater; water right 95-11544 is being licensed for only 10 head of sheep versus the permitted 20 head of sheep, in order to account for difference between the 10 head authorized by Beneficial Use Claim 95-10343, thus mitigating overlap concern.

C. DIVERSION AND DELIVERY SYSTEM

1. **LOCATION OF POINT(S) OF DIVERSION:**

GROUND WATER SE¼ NE¼, Sec. 36, Twp 53N, Rge 03W, B.M. KOOTENAI County

Method of Determination: POD located at -116°38.112, 47°53.982. Well D0028427.

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	
53N	03W	36				1.7													1.7

Total Acres: 1.7

PLACE OF USE: IRRIGATION STORAGE and FIRE PROTECTION 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	
53N	03W	36				X													

PLACE OF USE: STOCKWATER and FIRE PROTECTION

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
53N	03W	36				X													

Method of Determination: Field exam and Arcmap.

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 1:24,000 or greater.

☒ X☒ 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
D0028427	UNKOWN				

D. FLOW MEASUREMENTS

1.

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

2. Measurements: Unable to perform flow measurement due to inadequate piping requirements; pipe fed directly into pressure tank.

E. FLOW CALCULATIONS☒ X Additional Computation Sheets Attached

Measured Method: Theoretical pumping equation estimates pump to be at 485 feet, operating at 50 psi, with a diversion rate of 0.023 cfs, which is rounded down to **0.02 cfs** to account for department standards for significant figures (admin memorandum, application processing No.6). See attached theoretical pumping equation worksheet.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 1.7 \text{ ac} \times 3.0 \text{ af} = \mathbf{5.1 \text{ af}}$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.02 \text{ cfs} \times 214 \text{ days} \times 1.9835 = 8.5 \text{ af}$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = 5.1 \text{ af}$$

2. Volume Calculations for Other Uses:

See attached pond analysis sheet

STOCKWATER equals 10 sheep x 2 gpd x 365 days = 7,300 gallons / 325,850 gal per af = 0.02 af, which is rounded to **0.1 af** to account consumptive water use to the closest value while accounting for department significant figures standards

G. NARRATIVE/REMARKS/COMMENTS

The field exam was performed on 06/02/2020 with the applicant, Michael Henkoski, which showed a well (D0028427) diverting water direct to a pressure tank prior to either stockwater use, or flow to a small pond for multiple storage uses and irrigation from storage use. Near the well, applicant had a vaulted station holding water conveyance works and a pressure tank, which operated at 50 psi. Applicant stated he was diverting 6-7 gallons per minute, but with water flowing direct to pressure tank, we were unable to perform a 5-gal bucket test. A Theoretical Pumping Equation was used referencing the well log, and a diversion rate of **0.02 cfs** was derived, which will be carried forward to licensing.

At time of field exam, applicant was not using his small pond for stockwater storage nor stockwater from storage use. As such, both components were removed from license. Applicant stated he filled stockwater tanks from frost free hydrants to provide water for 20 goats. The annual volume for stockwater equals 10 sheep x 2 gpd x 365 days = 7,300 gallons / 325,850 gal per af = 0.02 af, which is rounded to 0.1 af to account consumptive water use to tenth decimal place, which is the closest value regarding precision of significant figures while accounting for department significant figures standards. **0.1 af** for stockwater annual use will be added when determining the overall Maximum Diversion Volume for the license. Note: Stockwater use was permitted for 20 head, but due to overlap of WR 95-10343 (Beneficial Use Claim) this water right is being licensed for the difference up to a total of 20 head of sheep. The result is 10 head of sheep per water right (95-10343 and 95-11544), in order to mitigate a stacking of beneficial use components and water rights.

The applicant has a small pond for Irrigation storage, and Fire Protection storage. The small pond has a surface area of 0.1 acres. The pond was excavated and lined, has a maximum depth of 4 feet, an average depth of 1.6 feet, and evaporation of 0.1 af. The pond has a multi fill component equaling irrigation from storage volume of 5.1 af annually. The total volume required for pond equals 5.4 af, the sum of afore mentioned pond components. Applicant added water from well to pond during times of low water, to enable irrigation from the pond related to the irrigation storage component on this license. This pond is associated with WR 95-9487, and its overlapping uses are mitigated by applied conditions to water right as listed in following paragraphs.

The applicant stated he used water from frost free hydrants to irrigate by hose, as well as using water from small ponds irrigation storage to irrigate. Water permit authorized 4.0 acres, but during field exam, irrigation area was documented on a map, and at time of licensing review arcmap was used to trace out irrigated acreage equaling 1.7 acres. 1.7 acres x 3.0 afa = 5.1 af, which will be the Irrigation, Irrigation Storage, and Irrigation from Storage Annual Volume. The three irrigation components annual volumes are not additive, and the annual volume applied to overall Maximum Diversion Volume is **5.1 af** for the three irrigation components.

Applicant used water from the well and frost free hydrants in the event of fire suppression. Applicant also has a fire protection storage component assigned to the small pond, which is for emergency fire suppression use only. No volume is applied to fire protection for licensing purposes, but the annual volume for fire protection storage equals 0.2

af, which is the pond capacity. **0.2 af** annual volume will be applied to the overall Maximum Diversion Volume at time of licensing. The overall Maximum diversion volume for this water right will be licensed equals 0.1 af (stockwater) + 5.1 af (irrigation components) + 0.2 af (fire protection storage) = **5.4 af**, which will be applied to license

At time of licensing review, aerial imagery for applicant's irrigation POU falls within the NENE quarter quarter, but upon investigation it appears there is a shift in aerial imagery observed on the DRG layer. As such, no amendment for POU is recommended for license, as the parcel line is shifted north on current imagery.

Conditions 26A, 046, and 219 was removed from license. Condition 220 was adapted to describe pond capacity and size. Condition 221 and 259 were added to describe the pond components derived from pond analysis sheet and that is a lined pond. Condition R66 was adapted to describe no more than 3.0 afa per acre for irrigation when combined with all other water rights at POU. Condition X35 was added limiting WRs 95-9487 and 95-11544 irrigation acreage to 1.7 acres when combined to mitigate overlap concerns. Condition F06 was added to describe overlap of WRs 95-10343 and 95-11544, which have the same POD.

WR 95-9768 has a 40 acre POU, but is limited to 1 acre of irrigation on partial decree. This acre is within the same 40 acre tract, but a different acre of irrigation from a different storage pond, and is not a concern for overlap. Water Permit 95-9487 is being licensed congruently with this water right with overlap in irrigated POU, but from an unnamed stream source; condition X35 is being used to describe overlap and limit irrigated acreage between two water rights to 1.7 acres. WR 95-10343 and this water right, 95-11544, have the same well D0028427. Both water rights use well water for stockwater; water right 95-11544 is being licensed for only 10 head of sheep versus the permitted 20 head of sheep, in order to account for difference between the 10 head authorized by Beneficial Use Claim 95-10343, thus mitigating overlap concern.

Have conditions of permit approval been met? X Yes No

H. RECOMMENDATIONS

1. Recommended Amounts

<u>Beneficial Use</u>	<u>Period of Use</u>	<u>Rate of Diversion</u>	<u>Annual Volume</u>
IRRIGATION	04/01 to 10/31	0.02 CFS	5.1 AF
IRRIGATION STORAGE	01/01 to 12/31		5.1 AF
IRRIGATION FROM STORAGE	04/01 to 10/31		5.1 AF
STOCKWATER	01/01 to 12/31	0.02 CFS	0.1 AF
FIRE PROTECTION	01/01 to 12/31	0.02 CFS	
FIRE PROTECTION STORAGE	01/01 to 12/31		0.2 AF
DIVERSION TO STORAGE	01/01 to 12/31	0.02 CFS	

Totals: 0.02 CFS 5.4 AF

2. Recommended Amendments

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

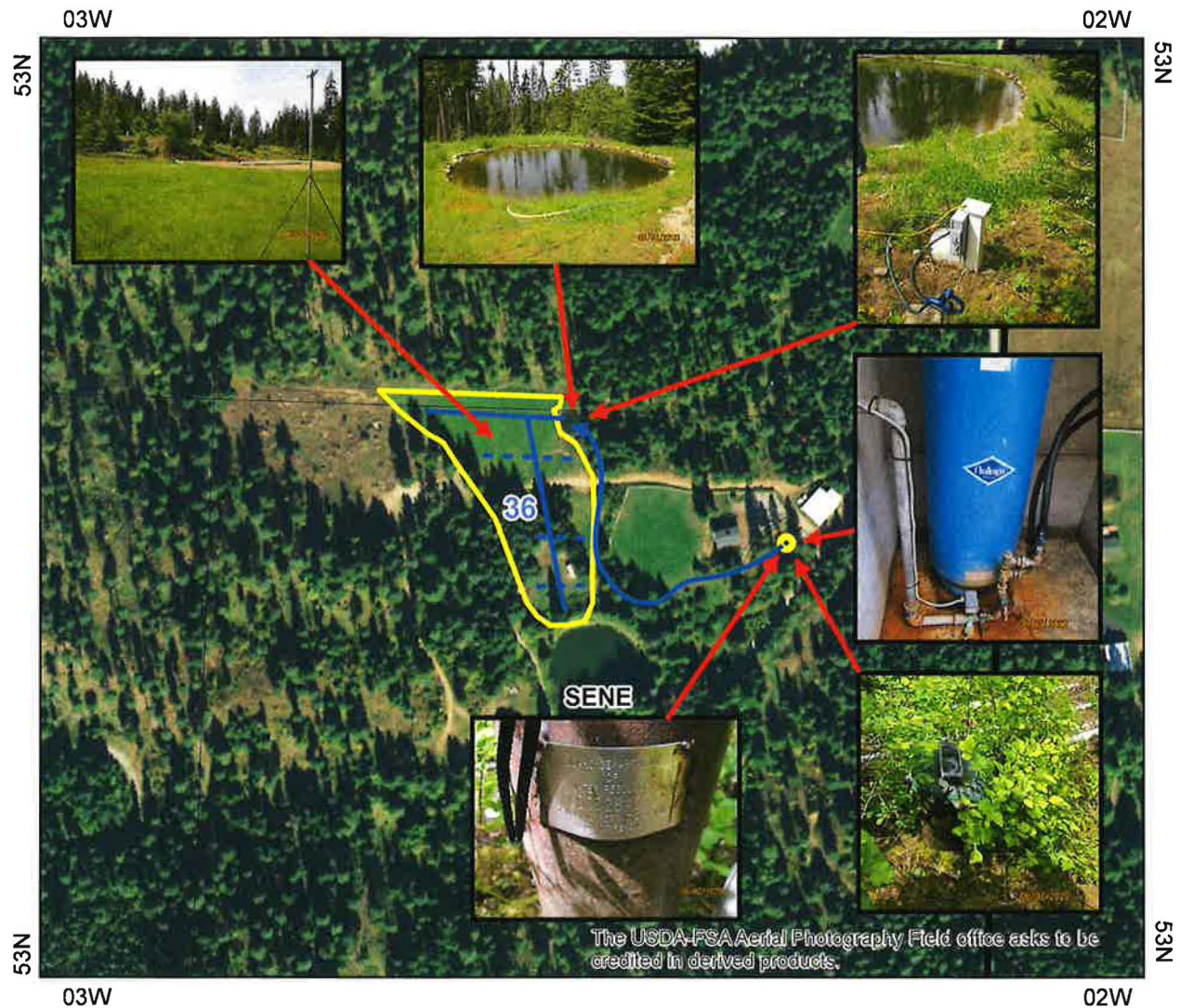
 Change P.U. as reflected above Add P.U. as reflected above X None

I. AUTHENTICATION Luke Bates - Water Resource Agent

Field Examiner's Name *Luke Bates* Date 6/9/2020
 Reviewer *Adam Fink* Date 6/11/2020

State of Idaho
Department of Water Resources
Attachment to Field Exam
95-11544

IRRIGATION and IRRIGATION FROM STORAGE system diagram.



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

0 0.035 0.07 0.14 Miles

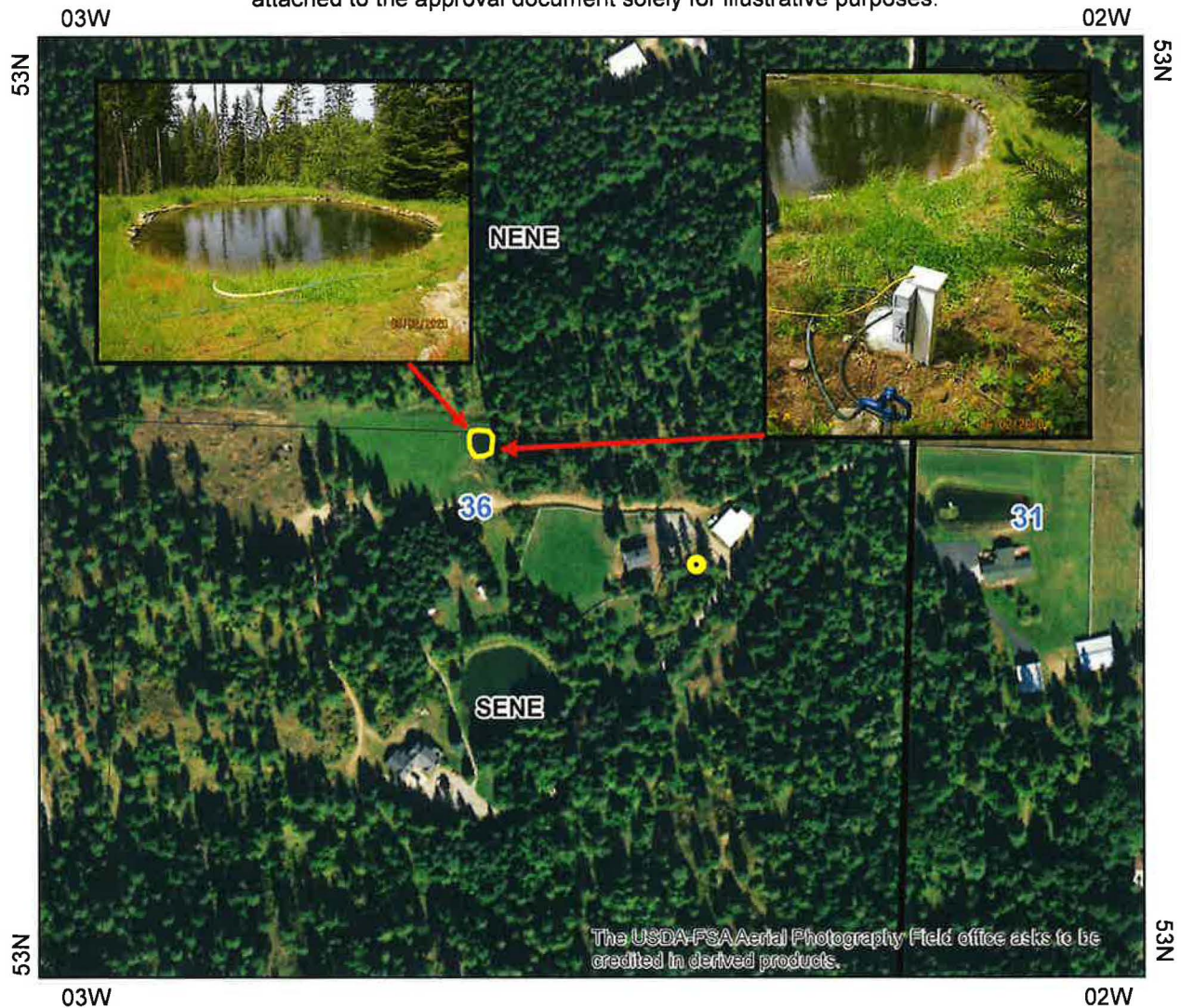


State of Idaho
Department of Water Resources

Attachment to Water Right License

95-11544

This map depicts the IRRIGATION STORAGE and FIRE PROTECTION 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.



03W

02W

53N

53N

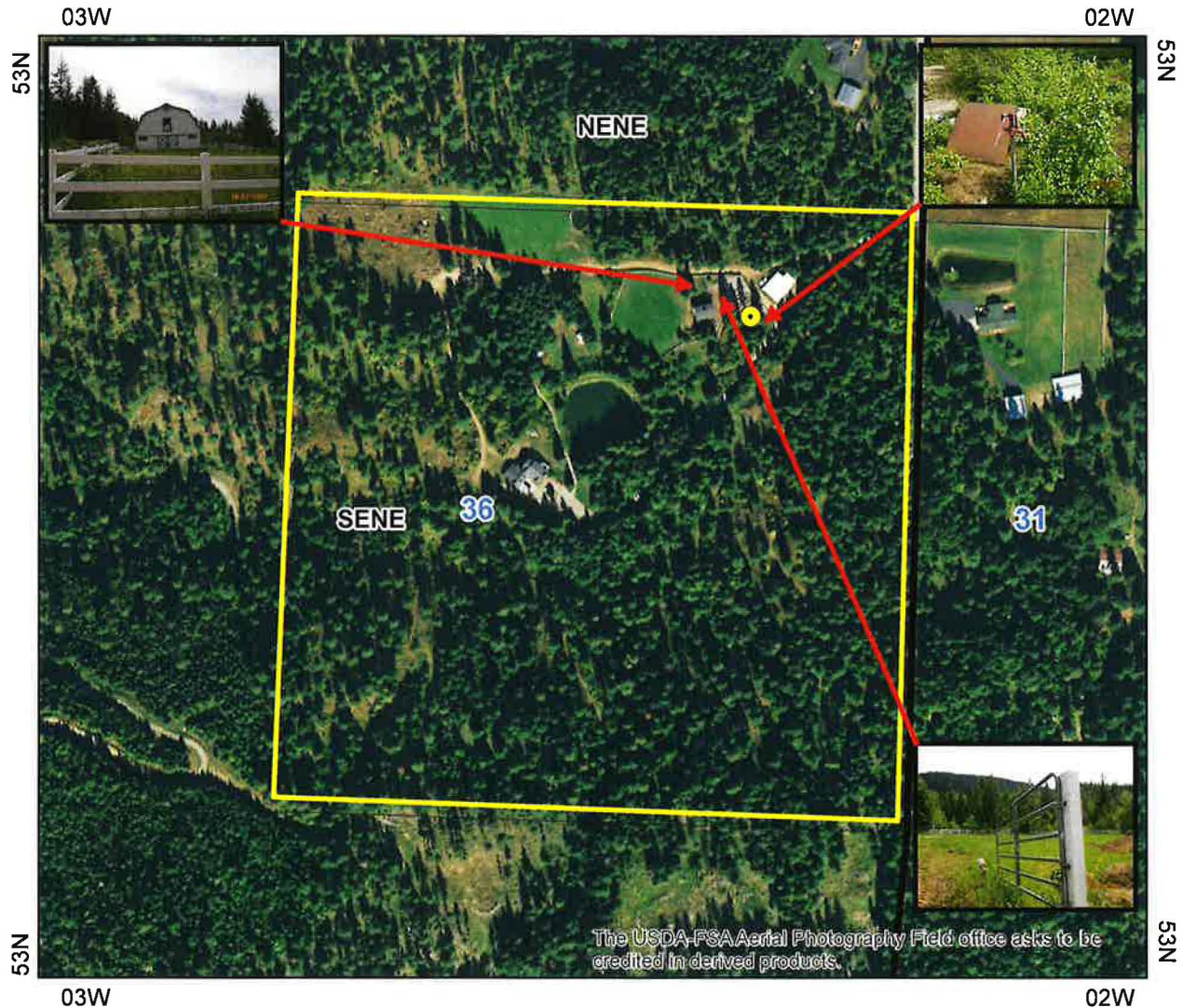
- Point of Diversion
- Place Of Use Boundary
- Townships
- PLS Sections
- Quarter Quarters

0 0.035 0.07 0.14 Miles



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STOCKWATER and FIRE PROTECTION system diagram.



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

0 0.045 0.09 0.18 Miles



Total Storage Calculations

FILE NUMBER	95-11544
REVIEWER	Luke Bates
DATE	6/9/2020

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.)	1.6	"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)	5.1	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)	5.4	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 - WELL D0028427



POD - WELL D0028427





PRESSURE TANK



WATER SYSTEM OPERATING AT 52 PSI



FIRE PROTECTION POU – FROST FREE HYDRANT



STOCKWATER POU



IRRIGATION POU

