STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 87-10179
Exam Date: 10/15/2020

1. Current Owner:
BENJAMIN R BOWEN 1153 IDLERS REST RD MOSCOW ID 83843-8124 AND/OR
STACEY BOWEN 1153 IDLERS REST RD MOSCOW ID 83843-8124

2. Accompanied by: Stacey Bowen
Phone No: 208-874-2898
Address: Same as above
Relationship to permit Holder: Permit holder

3. **SOURCE:** SURFACE RUNOFF

Tributary SINKS

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
87-7054	GROUNDWATER	DOMESTIC	LICENSE
87-10178	GROUNDWATER	DOMESTIC	Recommended Beneficial Use Claim – Active Status

Comments: Right 87-7054 uses groundwater for domestic purposes that overlap this right, but the domestic use is for a separate parcel and home located on the east side of the same 40 acre tract shared by this permits POU, and not a concern for overlap. Right 87-10178 is an active recommended beneficial use claim for the applicant's home, which uses groundwater for domestic purposes. The POU for 87-10178 does not directly overlap this right's POU, but the irrigation around the applicant's home under right 87-10178 does not include the irrigation from storage acreage included on this right, and not a concern for overlap.

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:**
SURFACE RUNOFF NW¼ NW¼, Sec. 22, Twp 40N, Rge 05W, B.M. LATAH County
SURFACE RUNOFF NW¼ NW¼, Sec. 22, Twp 40N, Rge 05W, B.M. LATAH County

Method of Determination: GPS. Pond 1 earthen dam location -116°57.487, 46°47.982, and Pond 2 earthen dam located at -116°57.542, 46°48.069.

PLACE OF USE: IRRIGATION STORAGE, RECREATION STORAGE, and AESTHETIC 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	
40N	05W	22						X											

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	
40N	05W	22						0.2											0.2

Total Acres: 0.2

Method of Determination: Field exam and Arcmap aerial imagery.

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: N/A

E. FLOW CALCULATIONS

Measured Method: N/A

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

V_{IR} = (Acres Irrigated) x (Irrigation Requirement) = 0.2 acres x 3.0 afa = 0.6 af

V_{DR} = [Diversion Rate (cfs)] x (Days in Irrigation season) x 1.9835 = N/A, there is no diversion rate applied to license.
V = Smaller of $V_{I.R}$ and $V_{D.R}$ = 0.6 af

2. Volume Calculations for Other Uses:
See 2ea attached pond analysis sheets
Maximum Diversion Volume = **0.6 af** (irrigation storage / from storage components) + **8.0 af** (recreation storage and aesthetic storage) = **8.6 af**

G. NARRATIVE/REMARKS/COMMENTS

Field exam performed on 10/15/2020 with the applicant, Stacey Bowen, showed two ponds receiving runoff water for multiple storage uses and irrigation from storage use. The applicants used the ponds for irrigation storage, recreation storage, aesthetic storage, and irrigation from storage purposes. Each pond's POD was an earthen dam, and there was no overflow discharge systems constructed for the ponds. There is no diversion rate applied to this water right.

Pond 1 has a surface area of 0.2 acres and a pond capacity of 0.6 af. The pond has a maximum depth of 8 feet, an average depth of 3.2 feet, a seepage rate of 0.2 af, and an evaporation rate of 0.2 af. The pond has a multi fill component equaling 0.3 af, which is ½ the irrigation from storage total volume of 0.6 af annually. The total volume required for pond equals 1.3 af, the sum of afore mentioned pond components.

Pond 2 has a surface area of 0.8 acres and a pond capacity of 5.1 af. The pond has a maximum depth of 16 feet, an average depth of 6.4 feet, a seepage rate of 0.9 af, and an evaporation rate of 1.0 af. The pond has a multi fill component equaling 0.3 af, which is ½ the irrigation from storage total volume of 0.6 af annually. The total volume required for pond equals 7.3 af, the sum of afore mentioned pond components. The Maximum diversion volume for this water right will be licensed at **8.6 af**, which is the sum of the two ponds total volume requirements = 1.3 af + 7.3 af = 8.6 af.

The applicant permitted for 8.0 af of both recreation and aesthetic annual volume. These are not additive, and the volume associated with each beneficial use equals the sum of 2 ponds capacity and seepage/evaporation values = 5.7 af (2 pond's capacity) + 2.3 af (2 ponds seepage/evaporation loss) = **8.0 af**, which will be applied to each recreation storage and aesthetic storage use annual volume at time of licensing.

The applicant used a portable generator driven water transfer pump and fire hoses to draw water from each pond, routing the fire hose to a nearby fenced in garden/orchard location. At the irrigation from storage POU, the applicant had mounted sprinklers on fence posts at intervals around the garden area, connected to hose bib splitters that received water from the fire hose. The applicant was able to draw water from either pond, and for computing purposes during licensing review, the irrigation from storage volume of 0.6 af was split evenly between the two ponds. This does not restrict the applicant from which pond is elected to draw the water, in so much that the maximum volume for irrigation from storage is not exceeded annually. During the field exam, the irrigated area was traced out on field maps; during licensing review, Arcmap aerial imagery was used to accurately trace out the irrigation from storage POU equal to 0.2 acres. The annual volume for irrigation from storage use equals 0.2 ac x 3.0 afa = **0.6 af**, which will be carried forward to the license.

Condition 259 was updated to reflect the pond components including a reduction in the multiple fill values associated with irrigation from storage. Condition R58 was replaced with condition X31, due to the irrigation occurring being less than a 1

acre area. All other conditions on permit will remain on license. Overlapping rights: right 87-7054 uses groundwater for domestic purposes that overlap this right, but the domestic use is for a separate parcel and home located on the east side of the same 40 acre tract shared by this permits POU, and not a concern for overlap. Right 87-10178 is an active recommended beneficial use claim for the applicant's home, which uses groundwater for domestic purposes. The POU for 87-10178 does not directly overlap this right's POU, but the irrigation around the applicant's home under right 87-10178 does not include the irrigation from storage acreage included on this right, and not a concern for overlap. There are no other concerns for overlap regarding this water right.

Have conditions of permit approval been met? X Yes ____ No

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use	Annual Volume
IRRIGATION STORAGE	01/01 to 12/31	0.6 AF
IRRIGATION FROM STORAGE	04/01 to 10/31	0.6 AF
RECREATION STORAGE	01/01 to 12/31	8.0 AF
AESTHETIC STORAGE	01/01 to 12/31	8.0 AF
	Totals:	8.6 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 _____ Date 10/21/2020

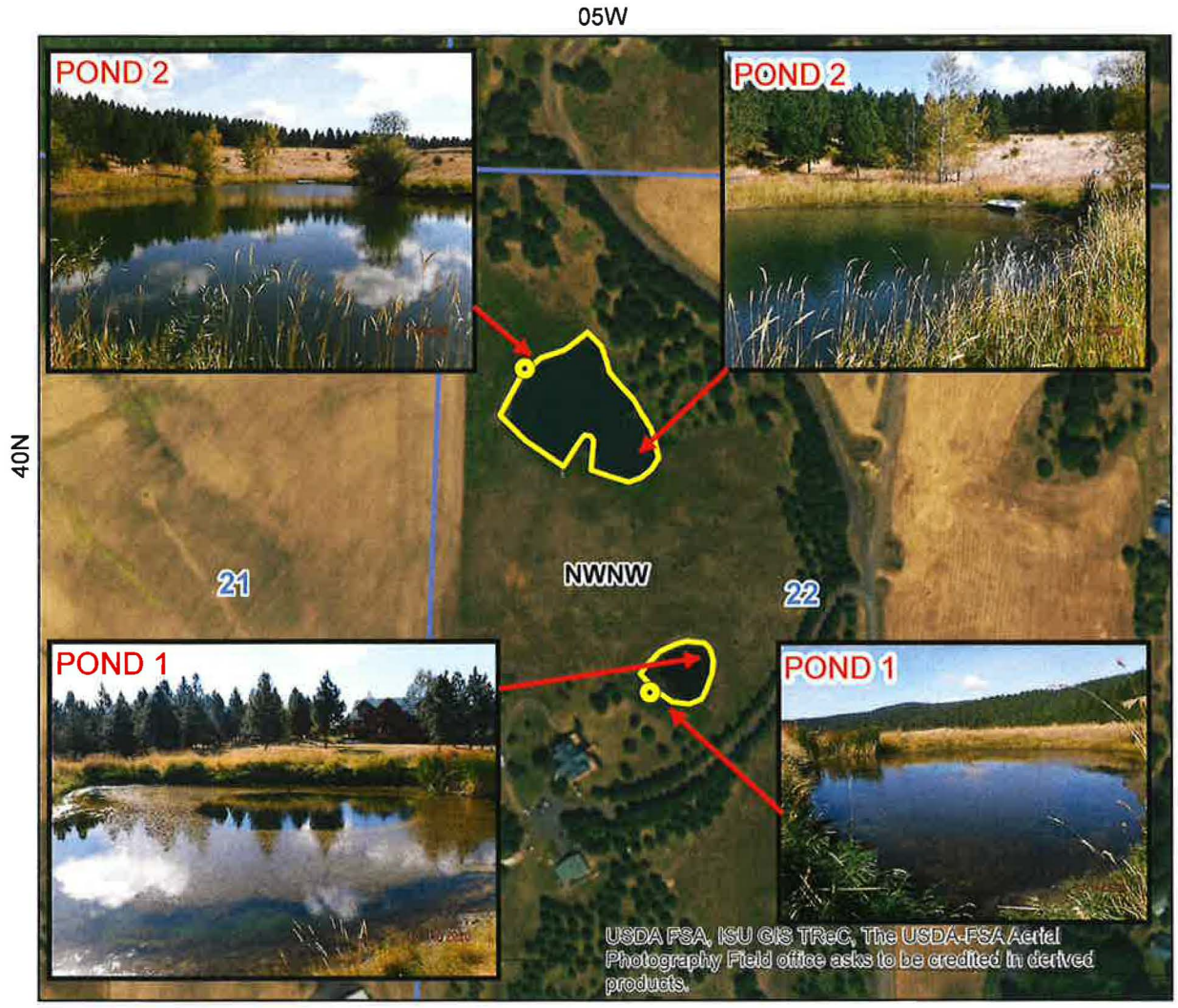
Reviewer _____ Date 10/30/2020

State of Idaho
Department of Water Resources

Attachment to Field Exam

87-10179

IRRIGATION STORAGE, RECREATION STORAGE, and AESTHETIC STORAGE system diagram



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

0 0.035 0.07 0.14 Miles

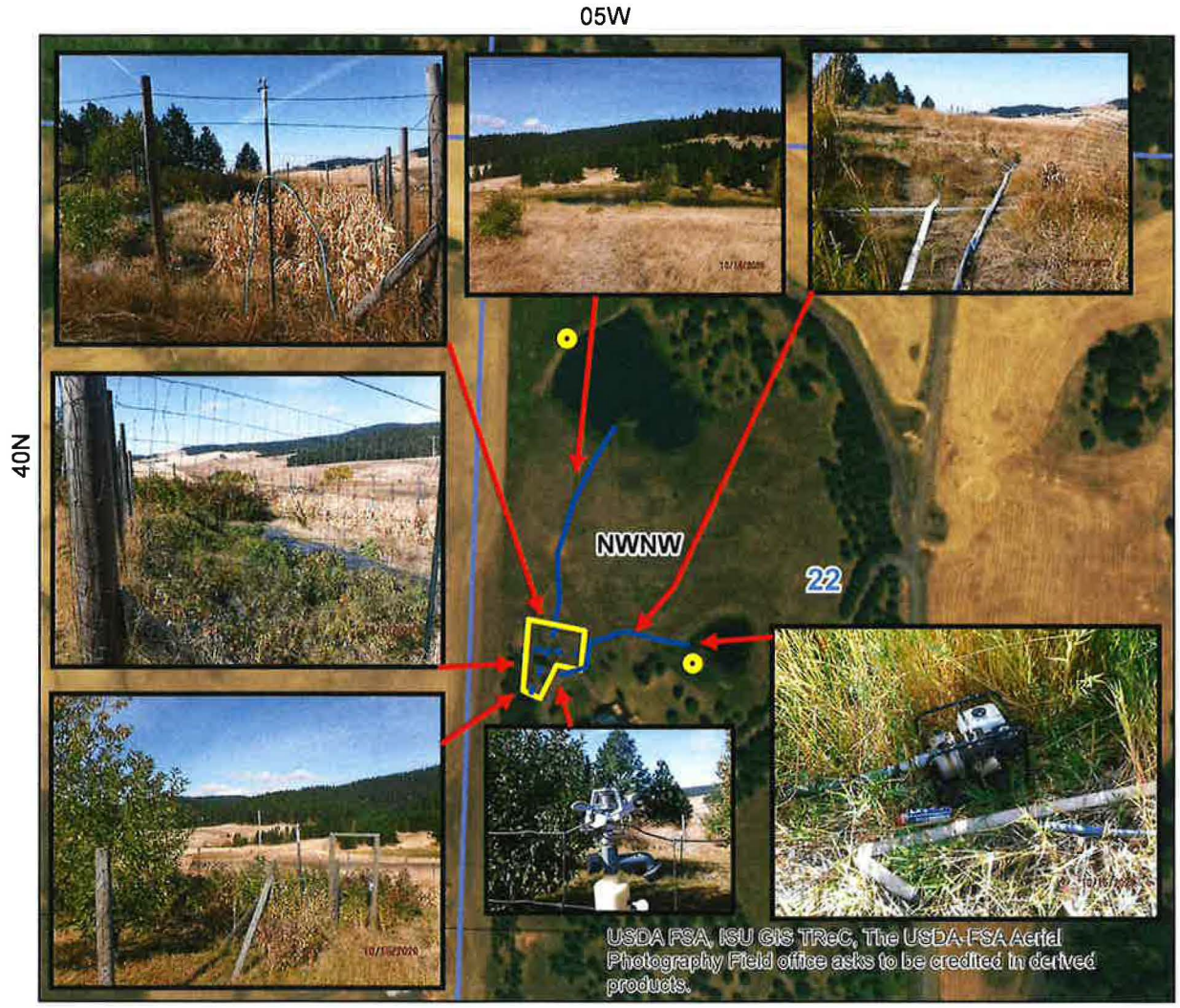
N

State of Idaho
Department of Water Resources

Attachment to Water Right License

87-10179

This map depicts the 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
Townships
PLS Sections
Quarter Quarters

0 0.035 0.07 0.14 Miles

N

Total Storage Calculations

FILE NUMBER	87-10179
REVIEWER	Luke Bates
DATE	10/20/2020

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

POND 1

Surface Area (AC.)	0.2	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	3.2	"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)	0.6	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)	0.3	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)	0.2	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	0.2	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	1.3	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.

Total Storage Calculations

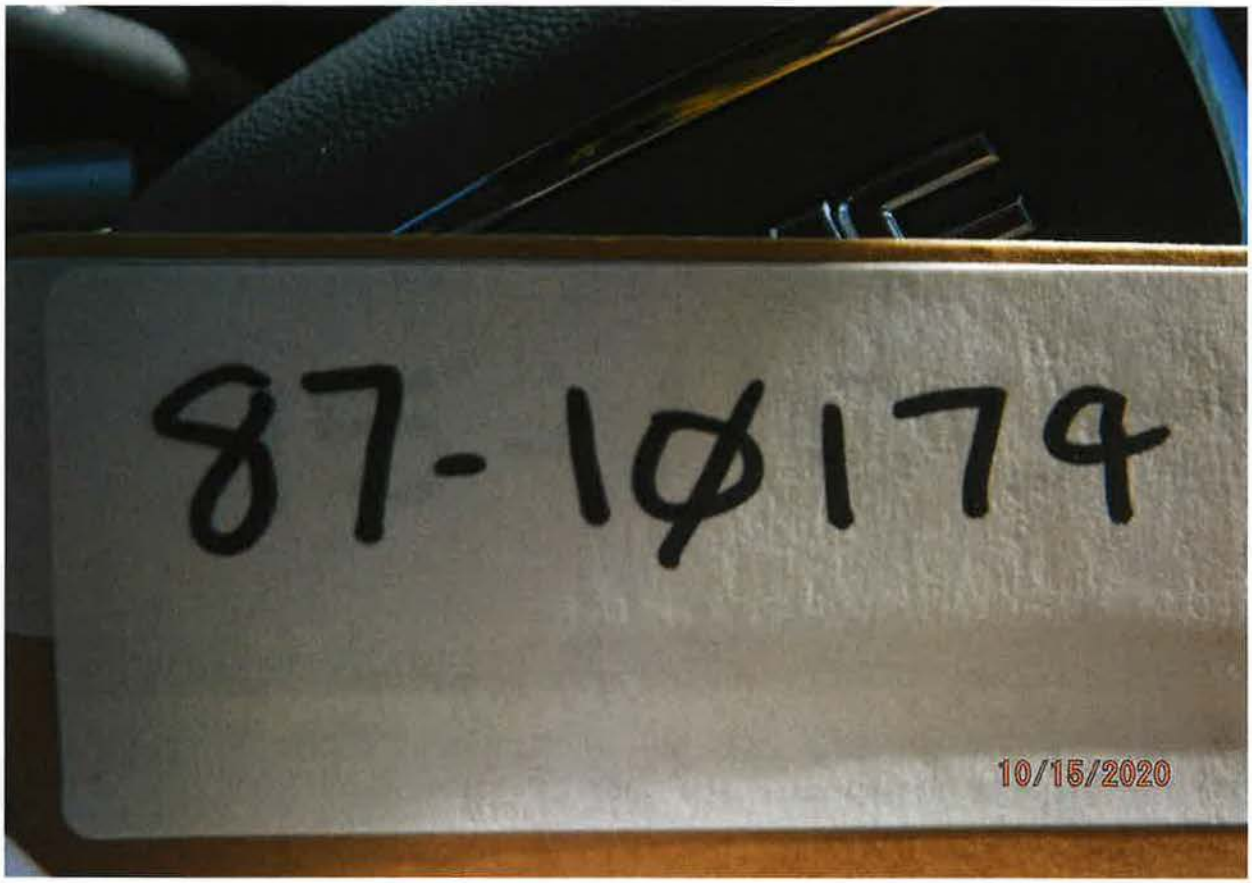
FILE NUMBER	87-10179
REVIEWER	Luke Bates
DATE	10/20/2020

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

POND 2

Surface Area (AC.)	0.8	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	6.4	"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)	5.1	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)	0.3	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)	0.9	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	1.0	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	7.3	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.



MULTIPLE STORAGE USES POU – POND 1

MULTIPLE STORAGE USES POU – POND 1

MULTIPLE STORAGE USES POU – POND 2

EARTHEN DAM POND 2

MULTIPLE STORAGE USES POU – POND 2

IRRIGATION FROM STORAGE SYSTEM – SCREENED HOSE AND WATER TRANSFER PUMP

FIRE HOSE PATH FROM POND 1 TO IRRIGATION FROM STORAGE POU (IN BACKGROUND)

IRRIGATION FROM STORAGE POU – 6 EA SPRINKLERS MOUNTED ON GREEN METAL FENCE POSTS

IRRIGATION FROM STORAGE POU (FENCED GARDEN)

FIRE HOSE FROM POND TO HOSE CONNECTION FOR SPRINKLER IRRIGATION FROM STORAGE USE