

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

RECEIVED
APR 10 2019
DEPT OF WATER RESOURCES

A Beneficial Use Field Report is prepared by a water right examiner as the result of an examination to clearly confirm and establish the extent of the beneficial use of water established in connection with a permit during the development period authorized by the permit and any extensions of time previously approved.

A. GENERAL INFORMATIONPermit No. 63-34319

1. Owner City of Middleton Phone No. 208-585-3133
Current address PO Box 487, Middleton, ID 83644
2. Examiner's name Terry Scanlan EXAM DATE April 9, 2019
3. Accompanied by _____ Email _____
Address _____
Relationship to permit holder _____ Phone No. _____
4. Source Ground Water tributary to _____

B. OVERLAP REVIEW

1. Other water rights with the same place of use City municipal rights & Canyon County Water Co. rights, all n/a
2. Other water rights with the same source and point of diversion None

C. DIVERSION AND DELIVERY SYSTEM

1. Point(s) of Diversion:

Ident. No.	Gov't Lot	¼	¼	¼	Sec	Twp	Rge	County	Method of Determination/Remarks
	3		SE	SW	7	4N	2W	Canyon	2017 aerial photo, BUFE

2. Place(s) of Use: Method of determination 2017 aerial photo, BUFE

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
4N	2W	7												J					
														L3					

E. NARRATIVE/REMARKS/COMMENTS

The exam found an excavated pond with a 3.0 acres surface area and volume of approximately 36 acre feet.

The parameters of the permit allow licensing 37.2 af for pond storage and evaporative losses.

Seepage loss is not a factor since the pond naturally fills with shallow ground water. Evaporation from 3.0 acres of pond surface is 7.6 af.

The pond provides an aesthetic amenity to the citizens of Middleton.

Pond level will fluctuate with shallow groundwater level, which in turn is influenced by river level. Therefore, pond storage will be less when river is at low flow.

Water-bearing zone appropriated is from 0 to 17 feet.

Attachment A: permit record, proof of beneficial use

Attachment B: topographical map, 2017 aerial photo map

Attachment C: exam photos

Attachment D: evaporation calculations

Has the permit holder met all conditions of permit approval, including any mitigation requirements and/or measuring device installation requirements? ☒ Yes ☐ No If no, what must be done to meet the permit requirements?

Pond capacity (36 af +/-) exceeds 28 af capacity listed on condition of approval. Evaporation is less than 9.2 af listed on permit condition due to smaller pond surface area.

3. **Delivery System Diagram:** Indicate all major components and distances between components. Indicate weir size/ditch size/pipe diameter (inside), as applicable. Use the space provided or ☒ see attached.

Scale: 1" = _____

- ☒ Copy of USGS Quadrangle attached showing location(s) of point(s) of diversion and place(s) of use (required)
☒ Aerial photo attached (required for irrigation of 10+ acres)
☒ Photo of diversion and system attached

4.

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size

*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

2. **Measurements:** _____

Volume determined by taking soundings of pond depths and by using GIS determination of pond surface area. Pond depth ranged from 14 to 17 feet at 15 locations, all more than 50 feet off shore. Allowing for side slopes, average depth is 8 feet for 0 to 50 feet off shore (1.3 ac) and 15 feet in center (1.7 acres) for total capacity of 35.9 acre feet.

F. FLOW CALCULATIONS☐ Additional computation sheets attached

Measured Method:

G. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

 $V_{I,R} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) =$ _____ $V_{D,R} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation Season}) \times 1.9835 =$ _____ $V = \text{Smaller of } V_{I,R} \text{ and } V_{D,R} =$ _____

2. Volume Calculations for Other Uses:

Permit pond volume: 3.5 acres surface area x 8 feet average depth + 9.2 af evaporative loss = 37.2 af

Developed pond volume: 3.0 acres surface area x 12 feet average depth + 7.6 evaporative loss = 43.6 af

Recommend licensing for total permit volume of 37.2 af consisting of 7.6 af for evaporation loss and 29.6 af for storage volume

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use		Rate of Diversion	Annual Volume
	From	To	Q (cfs)	V (afa)
Aesthetic Storage	1/1	12/31		37.2 af
Totals:				37.2 af

2. Recommended Amendments

- ☐ Change P.D. as reflected on page 1 ☐ Add P.D. as reflected on page 1 ☒ None
☐ Change P.U. as reflected on page 1 ☐ Add P.U. as reflected on page 1 ☐ Other

I. AUTHENTICATION

Field Examiner's Signature

Terry M Scanlan

Date

4/10/2019

Reviewer

Date



ATTACHMENT A
PERMIT RECORD, PROOF OF BENEFICIAL USE

IDAHO Department of Water Resources



WATER RIGHT REPORT

4/8/2019

IDAHO DEPARTMENT OF WATER RESOURCES

Water Permit Report

WATER RIGHT NO. 63-34319

<u>Owner Type</u>	<u>Name and Address</u>
Current Owner	CITY OF MIDDLETON PO BOX 487 MIDDLETON, ID 83644 2085853133
Original Owner	FORTY TWO ACRES LLC C/O STEVE PEEL 11299 BASS LN CALDWELL, ID 83605 2084844455

Priority Date: 11/08/2016

Status: Lapsed

<u>Source</u>	<u>Tributary</u>
GROUND WATER	

<u>Beneficial Use</u>	<u>From</u>	<u>To</u>	<u>Diversion Rate</u>	<u>Volume</u>
AESTHETIC STORAGE	01/01	12/31		37.2 AFA
Total Diversion			37.2 AFA	

Location of Point(s) of Diversion:

GROUND WATER|SESW Lt 3|Sec. 07|Township 04N|Range 02W|CANYON County

AESTHETIC STORAGE Use:

Number of other uses: Aesthetic storage within a pond, pond is located within land that will be donated to the City of Middleton for use as a future park.

Place(s) of use:

Place of Use Legal Description: AESTHETIC STORAGE CANYON County

<u>Township</u>	<u>Range</u>	<u>Section</u>	<u>Lot</u>	<u>Tract</u>	<u>Acres</u>	<u>Lot</u>	<u>Tract</u>	<u>Acres</u>	<u>Lot</u>	<u>Tract</u>	<u>Acres</u>	<u>Lot</u>	<u>Tract</u>	<u>Acres</u>
04N	02W	7	3	SESW										

Conditions of Approval:

1. 220 The pond established by the storage of water under this right shall not exceed a total capacity of 28.0 acre-feet or a total surface area of 3.5 acres.
2. 219 Right 63-34319 authorizes a total annual storage volume of 37.2 acre-feet; 28 acre-feet to be used for the initial filling or carryover storage of the pond and 9.2 acre-feet for the replacement of losses caused by evaporation.
3. 123 Water stored under this right is subject to fluctuations of the water table caused by changes in the flow of local streams and by diversions under prior ground water rights. This right does not guarantee the maintenance of any particular ground water level.
4. 004 This right does not grant any right-of-way or easement across the land of another.
5. 26A Project construction shall commence within one year from the date of permit issuance and shall proceed diligently to completion unless it can be shown to the satisfaction of the Director of the Department of Water Resources that delays were due to circumstances over which the permit holder had no control.
6. 121 The Director retains jurisdiction to require the right holder to provide purchased or leased natural flow or stored water to offset depletion of Lower Snake River flows if needed for salmon migration purposes. The amount of water required to be released into the Snake River or a tributary, if needed for this purpose, will be determined by the Director based upon the reduction in flow caused by the use of water pursuant to this permit.

Dates:

Proof Due Date: 04/01/2019

Proof Made Date:

Approved Date: 03/30/2017

Moratorium Expiration Date:

Enlargement Use Priority Date:

Enlargement Statute Priority Date:

Application Received Date: 11/08/2016

Protest Deadline Date: 02/06/2017

Number of Protests: 0

Field Exam Date::

Date Sent to State Off:

Date Received at State Off:

Other Information:

State or Federal:

Owner Name Connector:

Water District Number: TBD

Generic Max Rate per Acre:

Generic Max Volume per Acre:

Swan Falls Trust or Nontrust:

Swan Falls Dismissed:

DLE Act Number:

Cary Act Number:

Mitigation Plan: False

ATTACHMENT B
TOPOGRAPHICAL MAP, 2017 AERIAL PHOTO
MAP

Path: S:\PROJECTS\A thru D\Projects\City of Middleton_9910160 Misc Water Right Task\PROJECT\GIS\AerialMap_Projects\63-34319 BUFE Map.mxd



300 East Mallard Drive, Suite 350
Boise, Idaho 83706
Tel (208) 383-4140 Fax (208) 383-4156

**Permit 63-34319
BUFE Aerial Map**

City of Middleton

DATE: 4/10/2019

CREATOR: LGraves

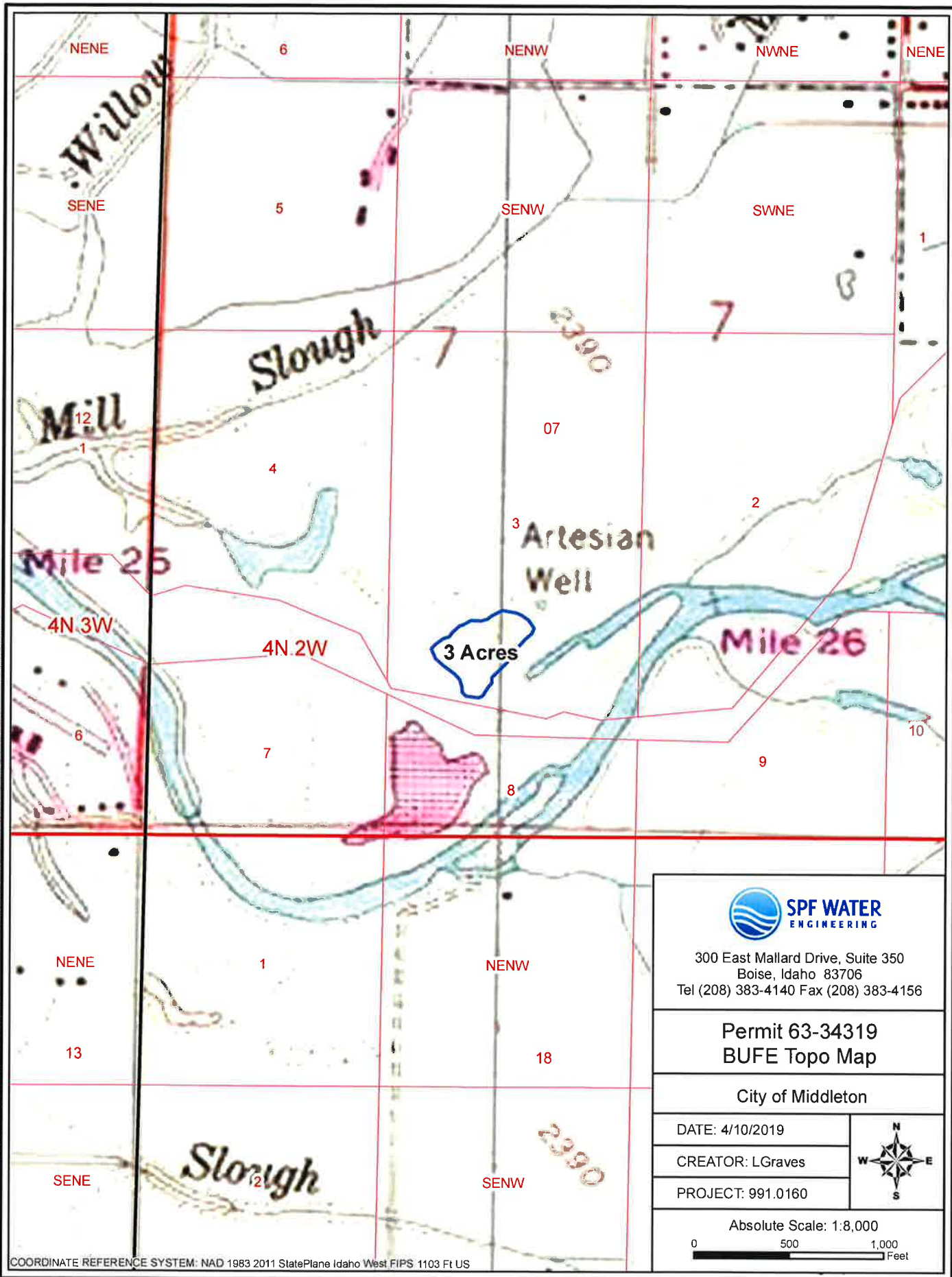
PROJECT: 991.0160



Absolute Scale: 1:0

0 50 100 200
Feet

Path: S:\PROJECTS\A thru D\Projects\City of Middleton\9910160 Misc Water Right Task\PROJECT\GIS\ArcMap_Projects\63-34319 BUFE Map (topo).mxd



SPF WATER
ENGINEERING

300 East Mallard Drive, Suite 350
Boise, Idaho 83706
Tel (208) 383-4140 Fax (208) 383-4156

Permit 63-34319
BUFE Topo Map

City of Middleton

DATE: 4/10/2019

CREATOR: LGraves

PROJECT: 991.0160



Absolute Scale: 1:8,000

0 500 1,000
Feet

ATTACHMENT C
EXAM PHOTOS



Photo taken from southeast side of pond looking west



Photo taken from southeast side of pond looking northwest



Photo taken from southeast side of pond looking north

ATTACHMENT D
EVAPORATION CALCULATIONS

Evaporation Loss Calculations

This spreadsheet has been designed by Idaho Department of Water Resources to estimate the annual evaporation losses from a pond.

FILE NUMBER	63-34319
REVIEWER	Lori Graves
DATE	4/8/2019

User Input
Calculated value
Formula Explanations

The acronyms used on the Kimberly Research Center website are defined below:
P = Precipitation
ET= Evapotranspiration
P _d = Precipitation deficit
P _d =ET-P

USING THIS SPREADSHEET

Use the link below to access the Kimberly Research Center website. This website provides the Precipitation Deficit for a station most representative of the pond under examination. The Precipitation Deficit is the total amount of free water surface evaporation minus the precipitation for a given area, which gives the total amount of evaporative losses incurred by the pond. There are several weather sites that are used throughout the state. IDWR staff can find the nearest site using Arc Map. The shape file containing the sites can be found at X:/Spatial/Climate/ETIdahostations.shp.

Instructions:

1. Use the link below to navigate to ET Idaho 2012.
2. Select the station which is most representative to your pond location.
3. Click Submit Query.
4. Under "Land Covers with Evapotranspiration Estimates," select "Open Water - Shallow Systems (ponds, streams)" or "Open Water - small stock ponds" depending on the pond size.
5. Click the link to "Precipitation Deficit."
6. Reference and copy (ctrl + C) the first subheading "Mean" values.
7. Click the "Paste Values from ET Idaho" button. The table will automatically enter a zero (0) for any negative precipitation deficit values.

Found at: <http://data.kimberly.uidaho.edu/ETIdaho/>

Precipitation Deficit

Station: Caldwell (NWS -- 101380)

Month	mm/day ¹	Days per month	mm/Month
Jan	-0.84	31	0.00
Feb	0.12	28	3.36
March	1.17	31	36.27
April	2.54	30	76.20
May	3.69	31	114.39
June	4.21	30	126.30
July	4.81	31	149.11
Aug	4.05	31	125.55
Sept	2.86	30	85.80
October	1.73	31	53.63
November	-0.08	30	0.00
December	-0.75	31	0.00

PLEASE NOTE: The seasonal average for precipitation deficit should not be used for calculations because precipitation often exceeds evaporation during wetter months of the year. If the pond is kept full, excess precipitation during wetter months does not serve to refill the pond during drier months.

For example, see Sandpoint KSPT (NWS -- 108137), the annual precipitation deficit is -106 mm. However, April through September have positive precipitation deficit values. To properly estimate the annual volume of water necessary to refill a pond due to evaporation losses, the table will automatically enter a zero (0) for each month that the precipitation value is reported as a negative value.

As described above, precipitation offsets evaporation in winter months, so the net effect is that wintertime precipitation deficit is usually zero.

Total mm/year = 770.61

56.99

$$[(770.61 \text{ mm/yr}) \div (304.8 \text{ mm/ft})] \times (\text{Surface area of pond, in acres}) = \text{Evaporation Loss in Acre Feet}$$

(770.61 ÷ 304.8) X 3.00 = 7.6 AFA