

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 63-32010

Exam Date: 5/21/2013

1. Current Owner: HOOT NANNEY FARMS INC
C/O MICHAEL L DIXON
RT 1 BOX 8542 FLOATING FEATHER RD
EAGLE ID 83616
(208)484-5528
2. Accompanied by: Michael Dixon
Phone No:
Address:
Relationship to Permit Holder: same

- | | |
|--------------------|------------------|
| 3. <u>SOURCE</u> | <u>TRIBUTARY</u> |
| LITTLE GULCH CREEK | BOISE RIVER |

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 63-2958 and 63-31988
2. Other water rights with the same point of diversion: none

C. DIVERSION AND DELIVERY SYSTEM**1. LOCATION OF POINT(S) OF DIVERSION:**

LITTLE GULCH CREEK L4 NW1/4NW1/4 Sec. 3, Twp 04N, Rge 01W, B.M.
ADA County

Method of Determination: aerial photographs, field exam

2.

PLACE OF USE: IRRIGATION

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	
04N	01W	3						38.0	38.0			39.0							115.0
								L 4											
04N	01W	4	40.0			38.0									39.0				117.0
			L 1																

Total Acres: 232

Method of Determination:

3. ☒ Delivery System Diagram Attached (required). Indicate all major components and distances between components. 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.
- ☒ Aerial Photo Attached (required for irrigation of 10+ acres).
- ☒ Photo of Diversion and System Attached

4.

<u>Well or Diversion</u> <u>ID No.*</u>	<u>Motor Make</u>	<u>Hp</u>	<u>Motor Serial No.</u>	<u>Pump Make</u>	<u>Pump Serial No. or Discharge</u> <u>Size</u>
--	-------------------	-----------	-------------------------	------------------	--

POD

*Code to correspond with No. on map and aerial photo

D. FLOW MEASUREMENTS

1.

<u>Measurement</u> <u>Equipment</u>	<u>Type</u>	<u>Make</u>	<u>Model No.</u>	<u>Serial No.</u>	<u>Size</u>	<u>Calib. Date</u>
--	-------------	-------------	------------------	-------------------	-------------	--------------------

2. Measurements:

"orange peel" flow test = 10'/10 seconds = 1'/sec

E. FLOW CALCULATIONS☒ Additional Computation Sheets Attached

Observation – flow > 1 cfs

Measured Method:

Quantity = area x velocity

Q = 0.58 sq. ft x 1 ft/sec = 0.58 cfs

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 232 \times 4.5 = 1044 \text{ af}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 1 \times 1.9835 \times 260 = 515.71 \text{ af}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 515.7$$

2. Volume Calculations for Other Uses: not applicable

G. NARRATIVE/REMARKS/COMMENTS

A permit was issued for water from Little Gulch Creek to supplement ground water irrigation of 240 acres. The applicant, Mike Dixon, accompanied me and Sr. Water Resource Agent, Angie Grimm, on the exam.

The creek is adjacent to Beacon Light Rd on the north side. The creek flows south under the road through a 22" concrete pipe to a pond. In the pond, the creek water is co-mingled with water from two wells authorized per water right numbers 63-2958 and 63-31988. The pond has a surface area of approximately 0.6 af and an average depth of 12" for a total volume of 2.9 af.

There are two high pressure turbine pumps, a 50 hp and a 75 hp, that deliver water to the place of use through 12" PVC mainlines. From there, a total of twelve ¼-mile wheel lines irrigate the fields. Each wheel line has 32 9/64" nozzles. Mr. Dixon says the pressure at the nozzles average 65 to 70 psi.

At the southwest end of the pond, there is an old weir that facilitates pond overflow. The overflow flows back into the historic creek canal which according to the applicant was tiled an unknown number of years ago.

Ms. Grimm and I, conducted an "orange peel", or in this case, a "bottle top" flow test and got a resultant flow of 10'/10 seconds, or a velocity of 1 ft per second. We measured the water in the 22" pipe, which was difficult to access. The water was 5" deep and 18" wide for an area of 0.46 square feet. On a drive-by on 7/9/2013, the water level in the pipe was 7" and the pipe was wetted to 9". I calculate the quantity using the 9 inches of water. Using the measurement collected and the flow equation $Q [\text{flow}] = V [\text{velocity}] \times A [\text{area}]$, a flow of 0.58 cfs was calculated. This result was much less than the 1 cfs permitted, however, it was not a reliable measurement or calculation. The measurement was taken where the creek was wider [area was greater] and the velocity slower than it would have been at the 22" culvert. Hence, the flow calculation result was less than the actual flow. Both Ms. Grimm and I thought the flow through the culvert and into the pond was at least 1 cfs, based on prior experience.

Ideally, we should have conducted the test as the water flowed through the culvert north of Beacon Light Rd and into the pond, at the actual POD, however, but we could not get close enough to the pond edge at the POD for the measurement to be meaningful. We tried to take the measurement through another culvert but the material got hung up in the culvert. So, we took it at the only place we had a straight length of creek.

Mr. Dixon said that he irrigates using all of the wheel lines at once, and there were at least four of the ¼ miles lines operating the day of the exam, but not twelve. Mr. Dixon states that each wheel line has thirty-two, 9/64" nozzles, and that the pressure at the nozzles was 65 – 70 psi.

There are no POD overlapping rights. POU overlaps are 63-2958 and 63-31988, which are limited to 2.4 cfs for the irrigation of 240 acres from ground water. There aren't 240 acres in the place of use after deducting the pond, roads and other areas not irrigated. I recommend the license be issued for the

permitted quantity of 1 cfs and a POU of 232 acres, with a volume of 515.7, which is the lesser of the Vr and Vd calculations.

Have conditions of permit approval been met? ☒ Yes ☐ No

Condition no. 4 is waived per an order issued by the Department in 2007. Replace with conditions 01M.

Combined use condition to be added: limited to the irrigation of 240 acres and a volume of 1080 af when combined with 63-2958 and 31988.

H. RECOMMENDATIONS

- 1) Permit amount 1 cfs
- 2) Beneficial use limit 4.8 cfs
- 3) System measurement 0.58 cfs *
- 4) Proof fee amount 1 cfs

* measurement was unreliable and underestimates flow. See narrative for details.

1. Recommended Amounts

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
IRRIGATION	03/01 to 11/15	1.000 CFS	515.7 AF
<u>Totals:</u>		1.000 CFS	515.7 AF

2. Recommended Amendments

☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☐ Other

I. AUTHENTICATION

Field Examiner's Name Wally Uusic Date 7-30-13

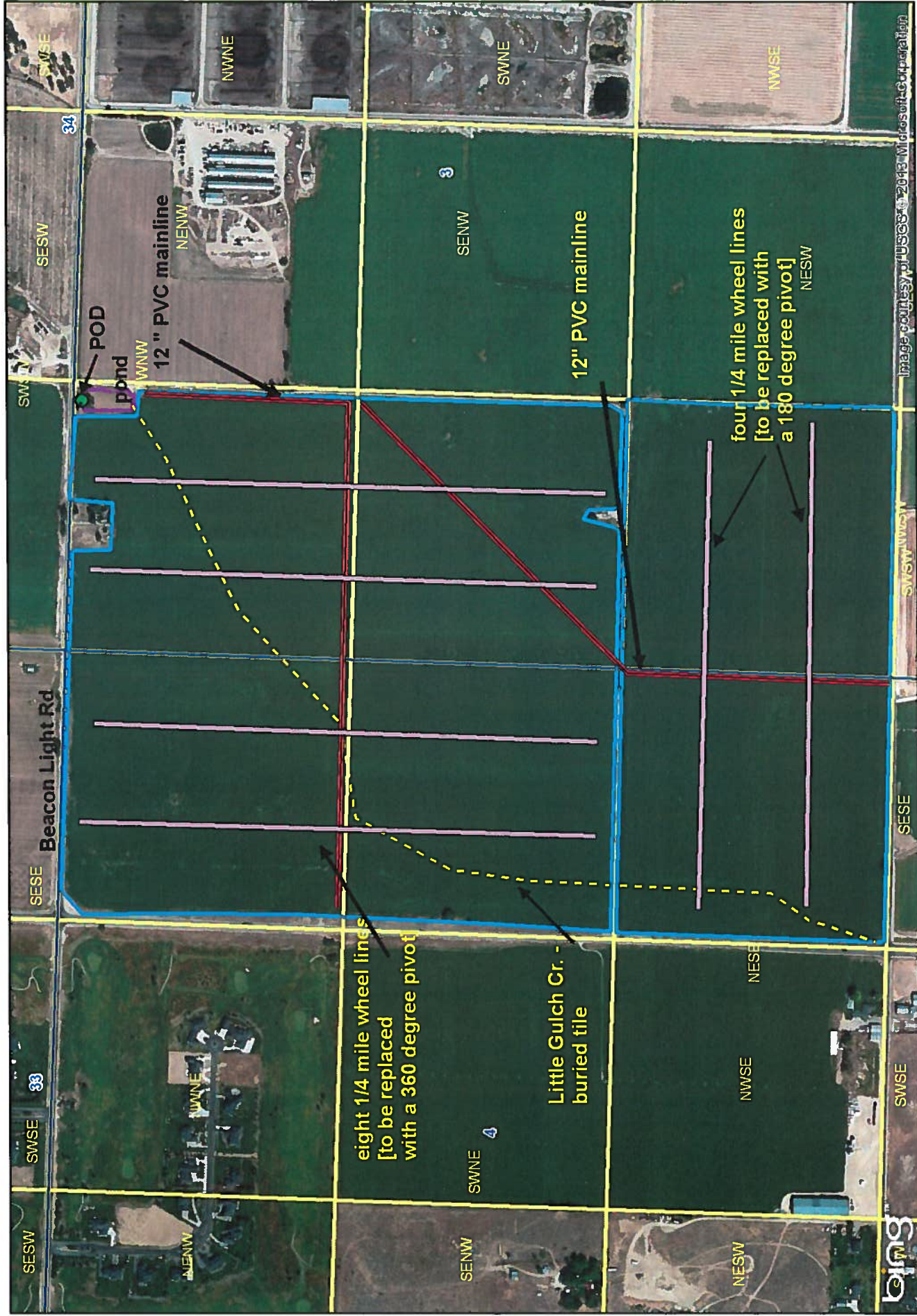
Reviewer _____ Date _____

63-32010

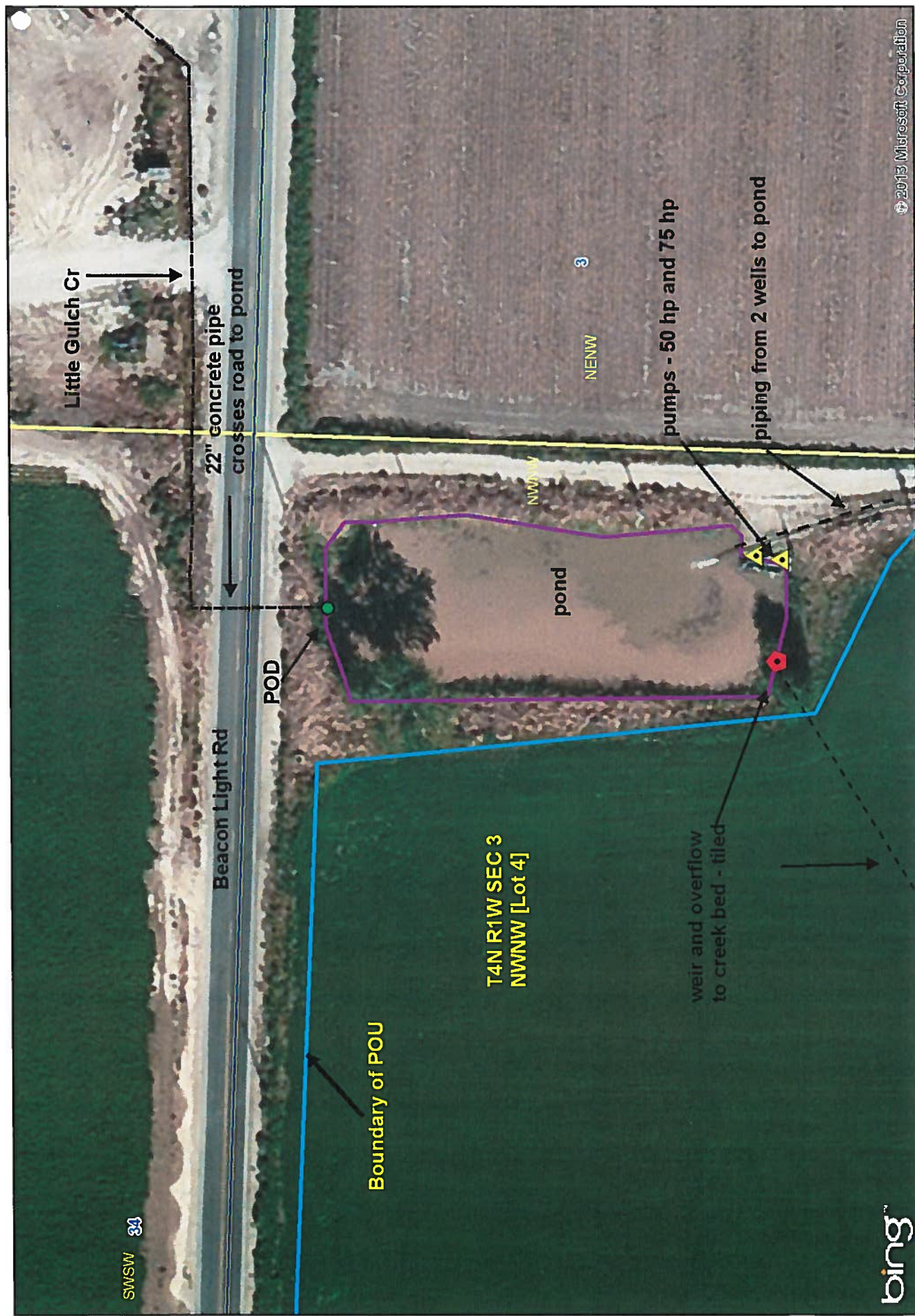
Additional Computation
Sheet
p. 34**Cross Sectional Area of Flow Calculator
for Water Flowing in Circular Conduit****READ ME****Was the Diameter or Radius of the Pipe Measured?**☒ Diameter 22" ☐ Radius**Was Sediment Observed & Measured in the Pipe?**☐ Sediment ☒ No Sediment**Converter: Inches --> Feet (Use as Needed)**X = inches = 0.00 feet**Input Observed Conditions (Units Must be in Feet)**D = 0.92 feet (radius of pipe) 11"h = 0.75 feet (depth of water) 9"**Cross Sectional Area of Flow** $A_{\text{FLOW}} = 0.58$ square feet**X-Section**
— Conduit Wall
— Water Surface

$$Q = (\text{area})(\text{velocity})$$

$$Q = (.58)(1) = .58 \text{ cfs}$$



HOOT NANNY FARMS 63-32010 . 2011 Bing photography.
POU outlined in blue, mainlines are red, wheel lines are lavender



HOOT NANNY FARMS 63-32010 . LITTLE GULCH CR SOURCE. 2011 Bing photography.
Blowup of POD and associated structures.

63-32010 – Field exam photographs



The 22" diameter culvert on the north side of Beacon Light Rd. Little Gulch Creek flows under the road to the applicant's pond.



Little Gulch Creek flows into this pond where it is co-mingled with ground water pumped from two wells. The wells are the PODs for water right nos. 63-2958 and 63-31988.



The pump station seen, with the 50 hp and the 75 hp turbines.



Close up of the turbines located at the southeast corner of the pond.



A weir at the pond overflow, in the southwest corner of the pond. The overflow water discharges through a drain into the creek that was tiled many years ago.



Looking southeast at a portion of the POU. Irrigation was evident on the entire 240 acre place of use, and wheel lines were operating on the day of the exam.