

STATE OF IDAHO  
DEPARTMENT OF WATER RESOURCES  
**BENEFICIAL USE FIELD REPORT**

**A. GENERAL INFORMATION**

Permit No: 47-7313

Exam Date: 10/27/1987

1. Current Owner: OREGON TRAIL SUBDIVISION PROPERTY OWNERS  
C/O FRED KAMBRICH  
RT 3 BOX 417  
BUHL ID 83316

2. Accompanied by: See Remarks

**3. SOURCE****TRIBUTARY**

GROUND WATER

**B. OVERLAP REVIEW**

1. Other water rights with the same place of use: 47-11797 (domestic decree for use on lot # 6), 47-7394 (irrigation of 1.0 acre on lot # 8 from a spring source), and 47-12912 (domestic decree on lot # 9 from a separate cold water well)
2. Other water rights with the same point of diversion: 47-11797 (same well as 47-7313 per SRBA claim information)

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

GROUND WATER

L4 SE1/4NW1/4

Sec. 4, Twp 09S, Rge 14E, B.M.

TWIN FALLS County

Method of Determination: IDWR spatial data point

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> |        |
| 09S | 14E | 4   |           |           |           |           |           |           |           | 5.4       |           |           | 3.6       |           |           |           |           |           | 9.0    |
|     |     |     |           |           |           |           |           |           |           | L 4       |           |           | L 7       |           |           |           |           |           |        |

Total Acres: 9

**PLACE OF USE:** HEATING

| 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> |        |
| 09S | 14E | 4   |           |           |           |           |           |           |           | X         |           |           | X         |           |           |           |           |           |        |
|     |     |     |           |           |           |           |           |           |           | L 4       |           |           | L 7       |           |           |           |           |           |        |

**PLACE OF USE:** DOMESTIC

| 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> |        |
| 09S | 14E | 4   |           |           |           |           |           |           |           | X         |           |           | X         |           |           |           |           |           |        |
|     |     |     |           |           |           |           |           |           |           | L 4       |           |           | L 7       |           |           |           |           |           |        |

Method of Determination: Arcmap, aerial photography, and field notes

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><br><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><br><u>Size</u> |
|--------------------------------------------|-------------------|-----------|-------------------------|------------------|----------------------------------------------------|
|--------------------------------------------|-------------------|-----------|-------------------------|------------------|----------------------------------------------------|

Well is an artesian well

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

**D. FLOW MEASUREMENTS**

See Terry Blau's 10/27/1987 attached field notes where total system capacity was measured at 0.24 cfs.

**E. FLOW CALCULATIONS**

See attached flow calculations for heating use showing that at least 0.24 cfs could be justified for heating use allowing for 0.24 cfs (system capacity) for heating use. Use 0.14 cfs for domestic use for nine homes per attached "maximum instantaneous water requirements for domestic use" IDWR guideline sheet. Use 0.18 cfs (0.02 cfs per acre for 9.0 acres) for irrigation use.

**F. VOLUME CALCULATIONS**

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 9 \text{ acres} \times 4 \text{ afa per acre} = 36 \text{ AFA}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.18 \text{ cfs} \times 246 \text{ days} \times 1.9835 = 87.8 \text{ AFA}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 36.0 \text{ AFA}$$

2. Volume Calculations for Other Uses: Domestic volume = # of homes x IDWR in house domestic standard of 0.6 afa  
 = 9 homes x 0.6 afa = 5.4 AFA

See attached volume calculations for heating use based on 1987 field exam information. Estimated 1987 volume total for heating use is 138.61 AFA, but this estimate was based on seven developed lots. Proof of Beneficial Use was filed for "heating of nine houses" and apparently nine lots were "stubbed in" during the 1987 exam. Therefore, total reasonable heating use is based on estimated 1987 volume total for heating use of 138.61 AFA x (9 lots/ 7 lots) = 178.2 AFA. However, total system capacity at 0.24 cfs (total flow rate measured from well) will produce only 173.8 AFA. Therefore it is recommended that 173.8 AFA be licensed for heating use, with the total combined diversion volume for all uses being 173.8 AFA (individual volumes for heating, domestic, and irrigation uses are not additive, but limited by the overall system capacity).

**G. NARRATIVE/REMARKS/COMMENTS**

Application for Permit 47-7313 was approved November 25, 1975 for a total of 0.72 cfs of groundwater for domestic, irrigation, and domestic uses associated with 12 families. The application was filed, and approved, in the name of Richard Kaster. On October 29, 1996, Mr. Kaster filed Proof of Beneficial Use for permit 47-7313 for domestic use for 9 households, heating of 9 houses, and irrigation of 10 acres. In August of 1987, Richard Kaster assigned permit 47-7313 to "Oregon Trail Subdivision Property Owners". Note that "Oregon Trail Subdivision Property Owners" is not a registered entity with the Idaho Secretary of State. On October 27, 1987, Terry Blau (a now retired IDWR employee) conducted the licensing exam for 47-7313. Judging from Terry's field photos and field notes, it appears that he was accompanied by several people who were probably lot owners within the Oregon Trail Subdivision. Over the last 10 to 15 years, various lot owners within the subdivision have inquired about the status of permit 47-7313. The most recent lot owner contact has been made by Gayle Anderson who is the owner of Lots # 1 and # 2 within the subdivision.

The enclosed licensing recommendations were based on information obtained from Terry Blau's 1987 field exam notes, IDWR GIS data, information obtained from Gayle Anderson, and information obtained during a brief "drive by" examination of the subdivision and visit to Lot # 8 conducted on March 27, 2012. Terry measured the overall system capacity at 0.24 cfs and individual rate and volume amounts for the individual uses were based on the calculations and logic outlined in this report and attached documents.

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

**H. RECOMMENDATIONS****1. Recommended Amounts**

| <u>BENEFICIAL USE</u> | <u>PERIOD OF USE</u> | <u>DIVERSION RATE</u> | <u>ANNUAL VOLUME</u> |
|-----------------------|----------------------|-----------------------|----------------------|
| IRRIGATION            | 03/15 to 11/15       | 0.180 CFS             | 36.00 AF             |
| HEATING               | 01/01 to 12/31       | 0.240 CFS             | 173.80 AF            |
| DOMESTIC              | 01/01 to 12/31       | 0.140 CFS             | 5.40 AF              |
| <u>Totals:</u>        |                      | 0.240 CFS             | 173.80 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

Date

3/29/2012

Reviewer

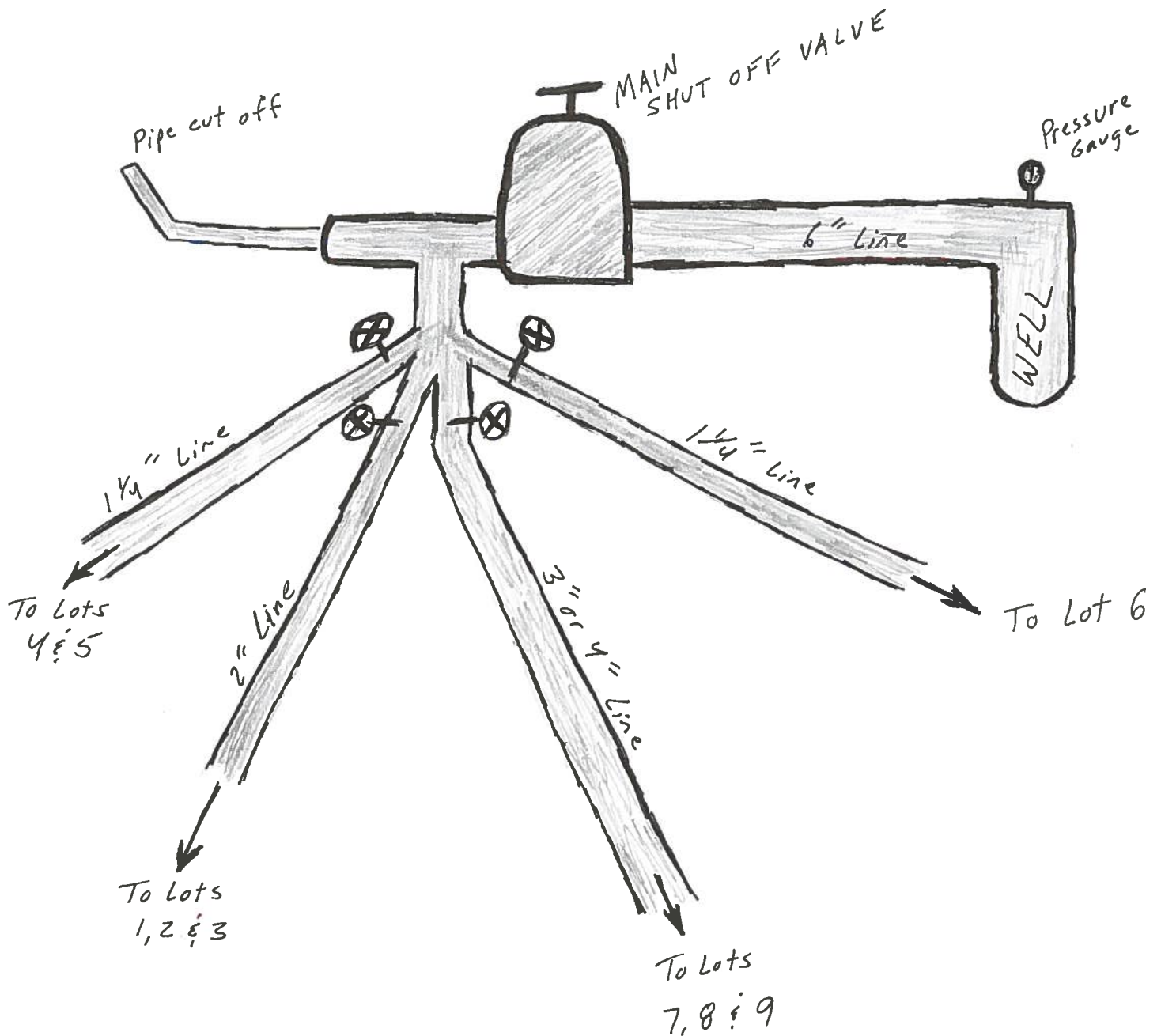
Date

4/6/2012

# 47-7313 System Diagram

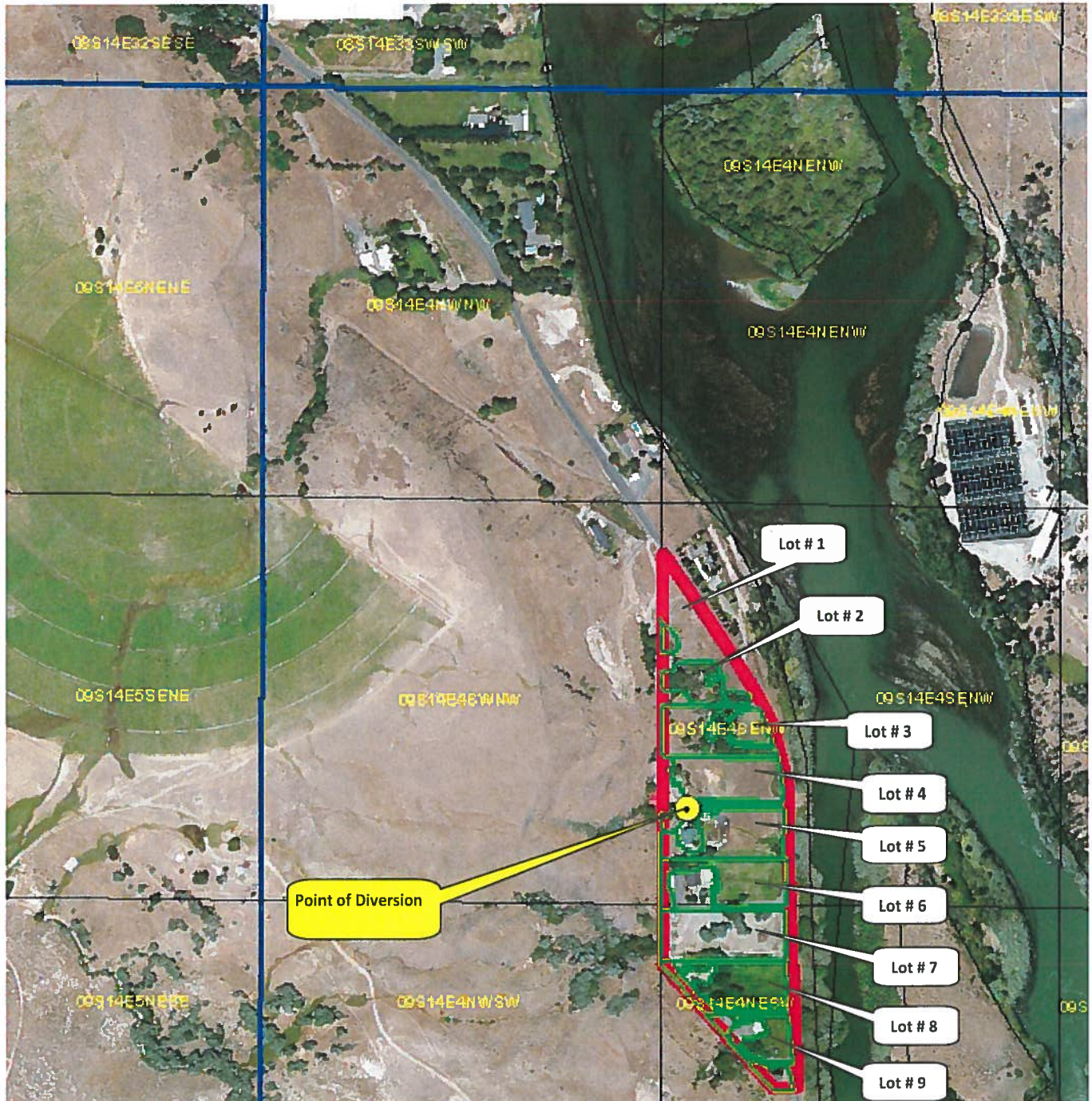
(Based on Terry Blau's 1987 Field Notes)

Drawing not to scale



## 47-7313 Point of Diversion and Place of Use Map

Bing Maps Aerial Photography



Green Outlined Areas = Irrigation  
Place of Use (9.0 total acres)



Red Outlined Area = Domestic  
and Heating Place of Use

## Skinner, Corey

---

**From:** GAYLE ANDERSON [gayleanderson@ciragent.com]  
**Sent:** Friday, February 10, 2012 1:49 PM  
**To:** Skinner, Corey  
**Subject:** Fwd:  
**Attachments:** doc02300720120209151210.pdf

Corey,

Attached are the appx. sq. ft. of each of the homes in the Oregon Trail Homeowner's Assoc. as well as the presence of pools, etc.

Let me know if you need anything further.

Gayle Anderson

----- Forwarded message -----

**From:** <[info@ciragent.com](mailto:info@ciragent.com)>  
**Date:** Thu, Feb 9, 2012 at 3:12 PM  
**Subject:**  
**To:** [gayle@ciragent.com](mailto:gayle@ciragent.com)

-----  
TASKalfa 4500i  
[00:c0:ee:86:7c:5b]  
-----

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## Oregon Trail Subdivision Block 3 Owners

### Shared Wells (8 Shares)

**Gayle Anderson**  
4743 River Rd.  
Buhl, ID 83316  
(H) 734-8224 (C) 308-8224

Lot 1 & 2

1800 SQ FT  
+ HOT TUB

**Russell & Patricia Billings**  
4731 River Rd.  
Buhl, ID 83316  
(H) 543-4225  
[russ2000@dishmail.net](mailto:russ2000@dishmail.net)

Lot 3

\* 3136 SQ FT  
+ POOL

**Wanda Foster** DAVID  
4725 River Rd. CROASDAILE  
Buhl, ID 83316  
(H) 543-8715 (C) 731-4352  
[wanda@canyonside Realty.com](mailto:wanda@canyonside Realty.com)

Lot 4

3138 SQ FT  
\*

**David L. Croasdaile**  
4721 River Rd.  
Buhl, ID 83316  
(H) 733-3236

Lot 5

\* 2120 SQ FT  
+ HOT TUB

**Daryl & Phyllis Eriksen** B  
4717 River Rd.  
Buhl, ID 83316  
(H) 543-5078

Lot 6 & 7

\* 2880 SQ FT  
+ POOL

**Virgil & Amy Jo Berney**  
4711 River Rd.  
Buhl, ID 83316  
(H) 543-4129

Lot 8

\* 2688 SQ FT  
+ POOL

7 **R. Jack Skinner**  
4707 River Rd.  
Buhl, ID 83316  
(H) 543-5501

Lot 9

\* 3902 SQ FT  
+ POOL




**Gayle Anderson** REALTOR®

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 gayle@ciragent.com  
 www.canyonsideirwinrealty.com  
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129 North Alder  
 Jerome, Idaho 83338



**Gale D. Mohlenbrink**

POST OFFICE BOX 212  
 BUHL, IDAHO 83316  
 PHONE (208) 543-4596

*Before 11:00 AM*

47-7313 RATE OF FLOW FOR  
HEATING USE ANALYSIS BY P. SKINNER 3/23/2012  
(BASED ON APPLICATION PROCESSING MEMO #23 (AMENDED))

\* Use home size provided by Gayle Anderson (owner of Lot #1; #2)  
per 2/10/2012 e-mail from Gayle Anderson

Find BTU's  
for house

$$E = [e \cdot \Delta T] \times A \text{ where}$$

A = area,  $70^\circ$  = inside temperature  
 $4^\circ$  = outside temperature (Boise)

$e = 0.67$  (average residence efficiency)

Home on Lot #2  $E = [.67(70^\circ - 4^\circ)] \times 1800 \text{ ft}^2 = 79,596 \text{ BTU/hour}$

Home on Lot #3  $E = [.67(70^\circ - 4^\circ)] \times 3136 \text{ ft}^2 = 138,674 \text{ BTU/hour}$

Home on Lot #4  $E = [.67(70^\circ - 4^\circ)] \times 3138 \text{ ft}^2 = 138,762 \text{ BTU/hour}$

Home on Lot #5  $E = [.67(70^\circ - 4^\circ)] \times 2120 \text{ ft}^2 = 93,746 \text{ BTU/hour}$

Home on Lot #6  $E = [.67(70^\circ - 4^\circ)] \times 2880 \text{ ft}^2 = 127,354 \text{ BTU/hour}$

Home on Lot #8  $E = [.67(70^\circ - 4^\circ)] \times 2688 \text{ ft}^2 = 118,863 \text{ BTU/hour}$

Home on Lot #9  $E = [.67(70^\circ - 4^\circ)] \times 3902 \text{ ft}^2 = 172,546 \text{ BTU/hour}$

47-7313

## FIND TEMPERATURE DROP ACROSS SYSTEM

$$\Delta T_s = 0.3(s - t)$$

$s = \text{geothermal source temp} = 104^\circ$  (from well log & check with Ken Noddy)  
 $t = \text{inside temp (use } 70^\circ)$

$$\Delta T_s = 0.3(104 - 70) = 10.2^\circ \text{F}$$

FIND FLOW RATE =  $\frac{E}{500(\Delta T_s)}$  <sup>from previous page</sup> in gallons per minute

Home on Lots 1 & 2  $\frac{79,596}{500(10.2)} = 15.61 \text{ gpm} \Rightarrow 0.03 \text{ cfs}$

Home on Lot #3  $\frac{138,674}{500(10.2)} = 27.19 \text{ gpm} \Rightarrow 0.06 \text{ cfs}$

Home on Lot #4  $\frac{138,762}{500(10.2)} = 27.21 \text{ gpm} \Rightarrow 0.06 \text{ cfs}$

Home on Lot #5  $\frac{93,746}{500(10.2)} = 18.38 \text{ gpm} \Rightarrow 0.04 \text{ cfs}$

Home on Lot #6  $\frac{127,354}{500(10.2)} = 24.97 \text{ gpm} \Rightarrow 0.06 \text{ cfs}$

Home on Lot #8  $\frac{118,863}{500(10.2)} = 23.31 \text{ gpm} \Rightarrow 0.05 \text{ cfs}$

Home on Lot #9  $\frac{172,546}{500(10.2)} = 33.17 \text{ gpm} \Rightarrow 0.07 \text{ cfs}$

Total Allowable Flow  
 Rate for heating  
 7 homes = 0.37 cfs \*

\* Note that only a total of 0.24 cfs was measured during 10/22/1987 Field Exam.

Therefore, allow 0.24 cfs for heating

# 47-7313 HEATING VOLUME FOR HOMES

## ANALYSIS BY C. SKINNER 3/23/2012

per 3/25/1988  
RICK STERLING MEMO

$$\text{Volume} = \frac{HL * DD * 24 * C_D}{\Delta t_i * K * C_{\Delta t_2}}$$

$$\Delta t_i = \text{inside minus outside temp} = 70^\circ - (-3^\circ) = 73^\circ \text{F}$$

$$HL = \text{Peak heat required} = 37 \frac{\text{BTU}}{\text{hour}} \text{ per square foot}$$

$$DD = \text{Annual heating degree days} = 6146 \text{ (TWIN FALLS)}$$

$$C_D = 0.6$$

$$K = 0.90$$

$$C = 2.72 \times 10^6$$

$$\Delta t_2 = 10.2^\circ \text{ (from } \Delta T_s \text{ for rate calculations)}$$

$$\text{Home on Lots 1 \& 2} \quad \text{Volume} = \frac{37(1800)(6146)(24)(.6)}{73(.90)(2.72 \times 10^6)(10.2)} = 3.23 \text{ acre-ft}$$

$$\text{Home on Lot \#3} \quad \text{Volume} = \frac{37(3136)(6146)(24)(.6)}{73(.90)(2.72 \times 10^6)(10.2)} = 5.63 \text{ acre-ft}$$

$$\text{Home on Lot \#4} \quad \text{Volume} = \frac{37(3138)(6146)(24)(.6)}{73(.90)(2.72 \times 10^6)(10.2)} = 5.64 \text{ acre-ft}$$

$$\text{Home on Lot \#5} \quad \text{Volume} = \frac{37(2120)(6146)(24)(.6)}{73(.90)(2.72 \times 10^6)(10.2)} = 3.81 \text{ acre-ft}$$

$$\text{Home on Lot \#6} \quad \text{Volume} = \frac{37(2880)(6146)(24)(.6)}{73(.90)(2.72 \times 10^6)(10.2)} = 5.17 \text{ acre-ft}$$

$$\text{Home on Lot \#8} \quad \text{Volume} = \frac{37(2688)(6146)(24)(.6)}{73(.90)(2.72 \times 10^6)(10.2)} = 4.83 \text{ acre-ft}$$

$$\text{Home on Lot \#9} \quad \text{Volume} = \frac{37(3912)(6146)(24)(.6)}{73(.90)(2.72 \times 10^6)(10.2)} = 7.01 \text{ acre-ft}$$

$$\text{Total for 1987 homes} = 35.32 \text{ ac-ft}$$

## 47-7313 HEATING VOLUME CALCULATIONS

SHOPS &amp;/OR GARAGES (PER 1987 FIELD EXAM)

$$\text{LOT 1/2 } 26' \times 34' \text{ GARAGE} = 884 \text{ ft}^2$$

$$\text{LOT 4/5} \quad 600 \text{ ft}^2$$

$$\text{LOT #6 } 24' \times 32' \text{ GARAGE} = 768 \text{ ft}^2$$

$$\text{LOT #8 } 24' \times 30' \text{ GARAGE} = 720 \text{ ft}^2$$

$$2972 \text{ ft}^2 = \text{Total garage/shop ft}^2 \text{ in 1987}$$

$$\text{USE } \frac{HL * DD * 24 * C_D}{At_i * K * C_A * t_2} = \text{Volume only use } H_L = 46 \text{ (older homes no wall insulation standard frame construction)}$$

$$\text{Volume} = \frac{46(2972)(6146)(24)(.6)}{73(.90)(2.72 \times 10^6)(10.2)} = 8.19 \text{ ac-ft for 1987 garages/shops}$$

1987 pools/jacuzzi/etc (per T. Blav's 1987 Field Exam)

$$\text{Lot #1/2 } .008 \text{ cfs} = .008 \text{ cfs}$$

$$\text{Lot #6 } .024 \text{ cfs} + .032 = .056 \text{ cfs}$$

$$\text{Lot #8 } .061 \text{ cfs} = .061 \text{ cfs}$$

$$\text{Total} = 0.125 \text{ cfs}$$

max  
assume flow through 24 hours per day, 365 days per year

$$0.125 \text{ cfs} (1.9835) (365) = 90.5 \text{ acre-ft}$$

1987 heated sidewalk (per T. Blav's 1987 Field Exam)

assume .01 cfs for winter months or  $\approx$  150 days

$$.01 \text{ cfs} (1.9835) (150 \text{ days}) = 2.98 \text{ ac-ft}$$

## 47-7313 Heating Volume Calculations

Greenhouse (Lot # 8 per T. Blau's 1987 Field Exam)

$$\text{Volume} = \frac{H_c * DD * 24 * C_D}{\Delta t_1 * K * C_A * t_2}$$

$$\Delta t_1 = \text{inside min vs outside temp} = \overset{\text{greenhouse}}{60} - \overset{\text{Twin Falls}}{(-3)} = 63^\circ \text{ F}$$

$$H_c = \text{Peak heat required} = 137 \frac{\text{BTU}}{\text{Hour}} \text{ per square foot}$$

$$DD = \text{Annual heating degree days} = 6146 \text{ (Twin Falls)}$$

$$C_D = 0.85 \text{ (for greenhouse)}$$

$$K = 0.90$$

$$C_A = 2.72 \times 10^6$$

$$\Delta t_2 = 0.3 (104^\circ - 60^\circ) = 13.2$$

Per 3/27/2012 site visit greenhouse is 12' x 16'

$$\text{Volume} = \frac{137(12 \times 16)(6146)(24)(.85)}{63 * 0.90(2.72 \times 10^6)(13.2)} = 1.62 \text{ ac-ft}$$

$$\begin{aligned} \text{Total heating volume} &= \text{homes} + \text{shops} + \text{garages} + \text{pools} + \text{sidewalk} + \text{greenhouse} \\ &= 35.32 + 8.19 + 90.5 + 2.98 + 1.62 \\ &= 138.61 \text{ ac-ft} \end{aligned}$$

However, this 138.61 ac-ft value reflects 1987 development of 7 developed lots, but 9 lots are actually stubbed in and proof was filed for "9 houses". To account for 9 lots...

$$(138.61) \left( \frac{9}{7} \right) = 178.21 \text{ ac-ft.}$$

However, max flow of 0.24 cfs will only produce ...

$$0.24 \text{ cfs} (1.9835)(365) = 173.75 \text{ ac-ft.}$$

Recommend 173.8 ac-ft for heating use

OTS B3 PO

OTS PO B3

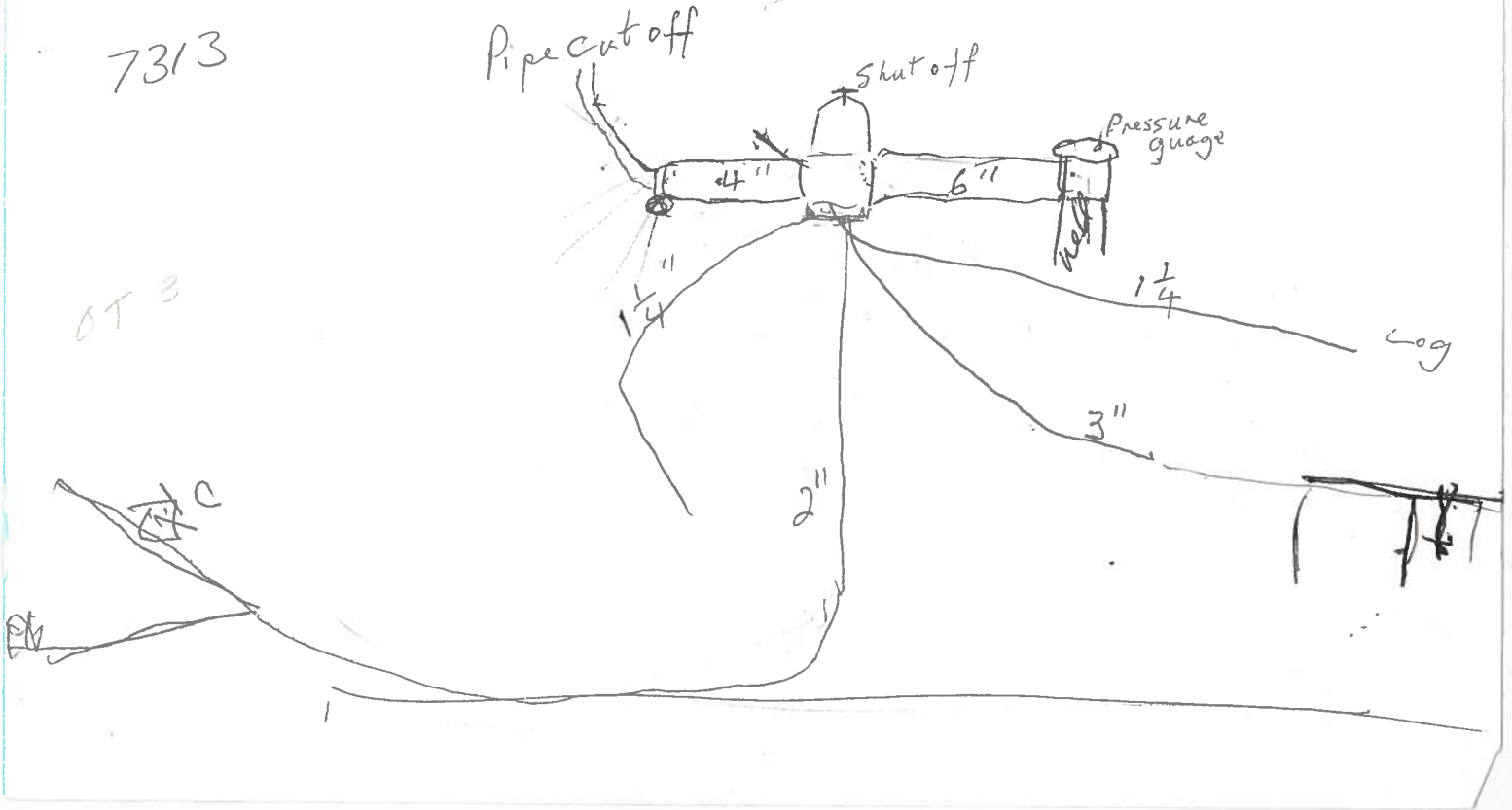
7313

Pipe cutoff

Shut off

Pressure guage

OT 3



# Oregon Trail Subdivision BLK 3 Property Owners Attachment To Field Exam

47-7313

10-2287

Heating  
METHOD

From North to South

Flow  
meas.\*

meas.

Area

Pool

Area Irrigated

Lot #

Property owner

cfs

Comments

Location

Heated

Size

22 trees-drip

1+2

Mohlenbrink

.008

Trees ON Lot #1

N. of Driveway

Fin Co. 1 Bld.

6' dia

25' x 10' vinyl pool

Ent. to Cunningham

1860 ft<sup>2</sup>

6' dia

1800 ft<sup>2</sup>

\*

3

Cunningham

.016

4 Fire Protected Boxes 3/4" hose

OUTlet near SE. Cor. of lot

Slab + Fin coil for

3024 ft<sup>2</sup>

Approx 1.2 A

4+5

Wood Fin - Foster

.016

Not measured NOT Home lip hill from well

House 2000 ft<sup>2</sup> radiant coil 1400 ft<sup>2</sup> slab

Shop \*\* 600 ft<sup>2</sup>

Pipes under walks

Approx has 2.5 Acres beam irrig

\*

6

Durrant

.024 + .0274 + .032 = .083

Total 3600 ft<sup>2</sup>

38.5' x 19'

2.5 Acres beam irrig

Jar. 8' oct 4'

Total = 1.4 A

7

Howard

UN developed

.015 heat #

.019 Heat #2

H 2688 ft<sup>2</sup>

30' x 15'

1.4 A

\*

8

Kambrick

.01 hose

.06 Pool

G 24 x 30

5.5' x 11'

1.1 A

\*\*

9

SKinner

.008

# 31 x 56 x 2 = 3500 ft<sup>2</sup>

.75 A

total .22

.03 cfs

(.576 ft<sup>3</sup>/18 sec)

Total = 0.24 cfs

9

Kaster well

47-7313

Bar 28x54x2

4 Fire Protec.  
Boxes 3/4" ins.

Plastic  
Cunningham pipe in floor 2' interval Bas

1 Finned Cool Blower

Skinner 31x56x2

Kambrick - 6066 Jet or Blackhead 2' spm - 12" - Bal 3'  
Aluminum Finned Blower

2688 5/8" 1/2" PVC  
+ 24x30 gal 2' interval  
+ General

2-5

Durrant 32x50x2 T-Gar 24x32 + Fan + Finned Pipe

Copper pipe in slab

1/10/5/88

Woodfin 66'x45' 100' - Approx 1600 sq ft

3000 sq ft already heated

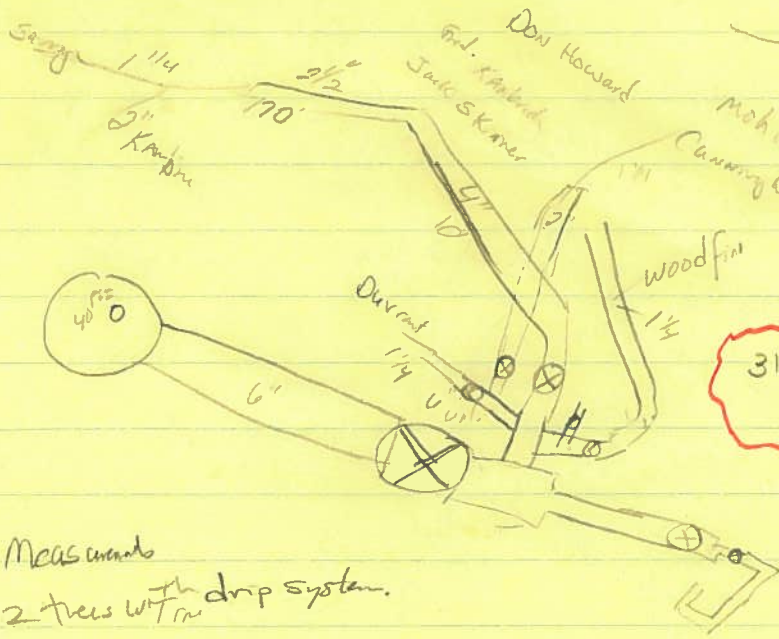
approx 2000 sq ft radiant coil  
1400 both floors + radiant

Proposed pipe

Shop 26'x23'

Still under construction

Pipes under wall p2



Measurements

at # has approx 22 trees with drip system.

Nathan Brink

.576 cf 1 min 13 sec 1860.89 ft heated Fincoil baseboard - hot tub 6' dia 5' deep  
Pool 12x24x4' with full width steps 12'

Cunningham

.1352 cf 8.5 sec

Skinner

.576 cf 18 sec

Kambrick

heat #1 .1352 9 sec

heat #2 .1352 cf 7 sec

Pool 30'x15' (5 1/2' -

hose .1352 13.5 sec

Pool .576 cf 9.5 sec

Durrant

.576 cf 24 sec

.576 cf 21 sec

.576 cf 18 sec

Pool 38.5'x19'

4.5' d - 7.5 d

8' Octagon Jacuzzi 2-4' deep

Lawn approx.  
1200 + trees  
+ 1600 + trees  
1,800 + shrubs

Sept 25 1980

Houses Served - Rate of Flow (cfs)

|    |     |
|----|-----|
| 1  | .04 |
| 2  | .06 |
| 3  | .08 |
| 4  | .10 |
| 5  | .11 |
| 6  | .11 |
| 7  | .12 |
| 8  | .13 |
| 9  | .14 |
| 10 | .15 |
| 15 | .18 |
| 20 | .20 |
| 30 | .25 |
| 40 | .30 |
| 50 | .33 |

MAXIMUM  
INSTANTANEOUS  
WATER REQUIREMENTS  
FOR  
\* DOMESTIC USE

C.F.S.

1.50

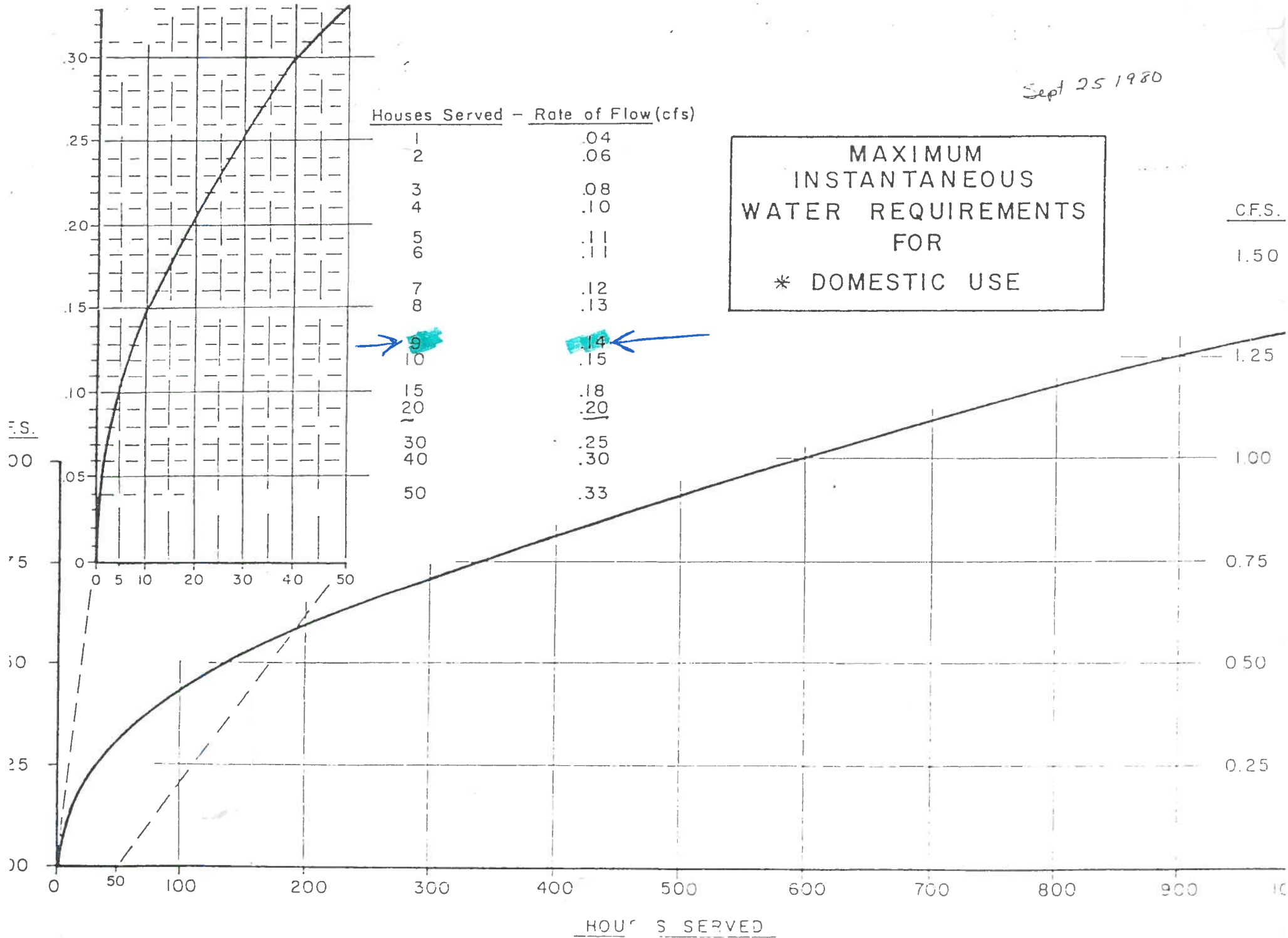
1.25

1.00

0.75

0.50

0.25





Diversion Works

47-7313 FIELD EXAM PHOTOS



PLACE OF  
USE



PLACE  
OF  
USE



PLACE OF  
USE

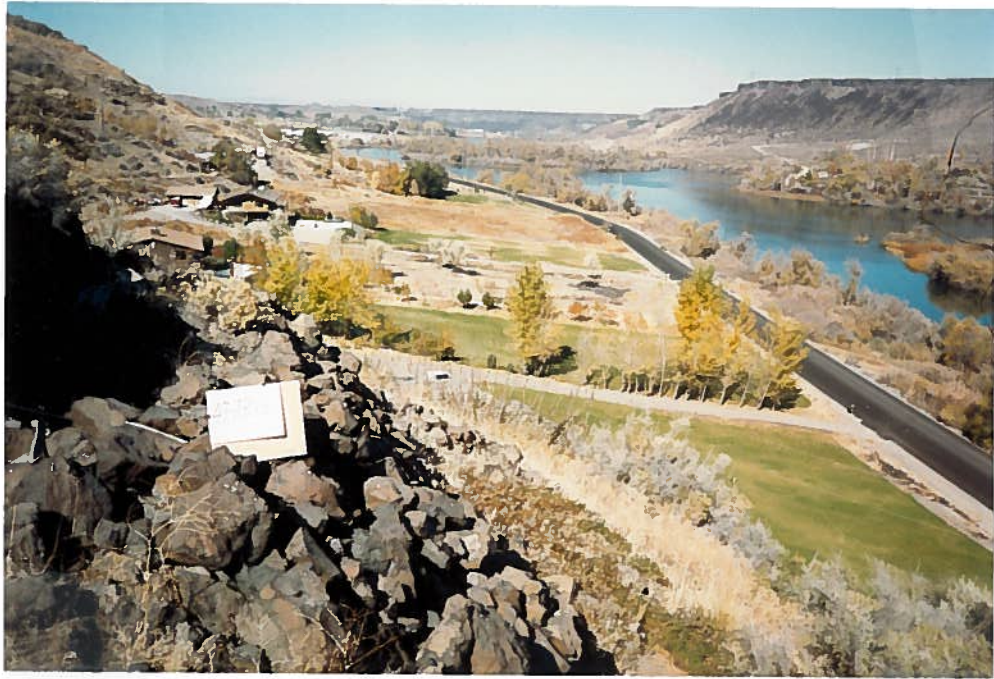


PLACE OF USE



PLACE OF USE

47-7313 FIELD EXAM PHOTOS



PLACE OF USE



PLACE OF USE

47-7313 FIELD EXAM PHOTOS



PLACE OF USE



PLACE OF USE

47-7313 FIELD EXAM PHOTOS