

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
IN-OFFICE REVIEW/BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATIONPermit No: 91-7752

Exam Date: 9/10/2014

1. Does this qualify for an in-office field exam (IDAPA 035.02.r)? X Y ___ N
- Irrigation of 5 acres or less
 - Storage of up to 14.6 AF for stockwater purposes only
 - Any use other than irrigation or storage, if the combined diversion rate is 0.24 cfs or less
 - Other: Domestic

2. Current Owner: Name: Carl Thompson
 Owner of Record Correct? X Y ___ N
 Address of Record Correct? ___ Y X N

If No: Address corrected to 704 N. First Street

3. Beneficial Use Fees have been paid: X Y ___ N Receipt No: C099305

4. SOURCE TRIBUTARY
 ST. JOE RIVER COEUR D ALENE LAKE
 Method of Determination: ArcGIS
 Change in Source: ___ Y X N

B. OVERLAP REVIEW

1. Other water rights with the same place of use: X NO Overlap

Water Right No.	Source	Purpose of Use	Basis
NA			
NA			

Comments: None

2. Other water rights with the same point of diversion: X NO Overlap

Water Right No.	Source	Purpose of Use	Basis
NA			
NA			

Comments: None**C. DIVERSION AND DELIVERY SYSTEM**1. LOCATION OF POINT(S) OF DIVERSION:

Source	Govt. Lot	¼	¼	¼	Sec.	Twp.	Rge.		County
ST JOE RIVER		SE	SE		14	46N	01W	B.M.	BENEWAH
								B.M.	
								B.M.	

Method of Determination: ArcGISChange in POD? ___ Y X N Amendment Required? ___ Y X N

2. **PLACE OF USE:** Use: Domestic

TWP	RGE	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
46N	01W	14																X	
		SESE 8																	
Total Acres =																			

(ST JOE RIVERSIDE TRACTS LOT 24)

Method of Determination: ArcGISChange in POU? Y X N Amendment Required? Y X NX Delivery System Diagram Attached (required). Indicate all major components and distances between components.

Indicate weir size/pipe as applicable.

X 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
Pump at River	Unknown	1 1/2	Unknown	Unknown	Unknown

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

D. FLOW MEASUREMENTS

1. Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calibration Date
Theoretical	X	X	X	X	X	X

2. Measurements: Theoretical Calculation; Pump Curve**E. FLOW CALCULATIONS** x Additional Computation Sheets Attached

Measured Methods:

Theoretical Calculation:

- 1 1/2 Hp pump.
- Per IDWR standard: Assume pump efficiency = 0.7 (70%).
- Per IDWR standard: Assume PSI = 50 psi for domestic use.
- Lift estimated from contour levations (USGS map, 40 ft. min. unit) between pump and field = 20 ft. (Property located in river floodplain, with the POD).

$$Q = (8.8 \times \text{Hp} \times \text{X Eff.}) + [\text{Lift} + (\text{PSI} \times 2.31)] = (8.8 \times 1.5 \times 0.7) + (20 + (50 \times 2.31)) = 9.24 + 135.5 = 0.07 \text{ CFS}$$

Pump Curve:

- Given by Applicant: 1 1/2 Hp
- Assumption: Centrifugal pump
- Examiner selected a frequently used manufacturer (Franklin Electric)
- Examiner compared estimated head and volume performance with Theoretical Calculations

$$Q = 30 \text{ GPM, or } 0.07 \text{ CFS; TDH} = 142 \text{ FT; } 20 \text{ FT Lift. (See Attached.)}$$

Administrative Memorandum No. 22:

The Memo includes an attachment entitled "Maximum Instantaneous Water Requirements for Domestic Use." This graphic attachment recommends 0.11 cfs for 6 homes served.

Theoretical Calculation = 0.07 cfs
Pump Curve = 0.07 cfs

Administrative Memo No. 22 = 0.11 cfs
Permit allowed = 0.06 cfs

License recommended for 0.06 cfs, because this is the maximum flow rate allowed by the permit.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = \underline{N/A \text{ (Domestic)}}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = \underline{N/A \text{ (Domestic)}}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = \underline{N/A \text{ (Domestic)}}$$

2. Volume Calculations for Other Uses: DOMESTIC

Field Examiner's Handbook > Peer Reviewed > Reference Library > Elements of Water Rights > Water Use > Beneficial Uses > Domestic > Misc Non-Irrigation Water Requirements

- Luxury Camper = 100-150 gallons/day
- Maximum Campers = 6 RV Sites for Seasonal Use
- Seasonal Use is estimated at = May – October (185 Days)
- Yearly Use (GAL) = (150 GAL/DAY) x (6 RV's) x (185 DAYS) = 166,500 GAL
- Yearly Use (AF) = (166,500 GAL) ÷ (325,850 GAL/AF) = 0.5 AF
- Additionally, ½ acre of irrigation could be included.

Recommend 1.2 AF per year, per Administrative Memo No. 22.

G. PURPOSE OF USE

Irrigation Y X N # Stock Domestic # of Homes 6 RV Sites

Change in Purpose of Use? Y X N

Method of Determination: Applicant explained use in his "Statement of Completion for Submitting Proof of Beneficial Use" document. I verified this with aerial photography (ArcGIS and Google Maps).

If Yes: From Use To Use Amount CFS AFA

H. NARRATIVE/REMARKS/COMMENTS**Background**

On September 10, 2014, I began to examine WR Permit 91-7752 and the documentation associated with Carl Thompson's "Statement of Completion for Submitting Proof of Beneficial Use." The applicant requested 1 year to develop a water supply system for his land located on the St. Joe River, which is a newly developed site for six RV camp spots.

System Overview

Aerial photography shows that prior to this year, the site was vacant of any form of development. 2014 aerial photographs display that the permit holder has created an RV campground with six sites. A review of the documentation associated with WR Permit 91-7752 reveals that the permittee installed a 1 ½ horsepower pump at the St. Joe River, in order to supply water to an onsite distribution system, which serves each of the 6 RV spots. A fish screen of ¼ inch mesh has been installed at the system inlet.

Measurements and Methodology

Physical measurements of the system were not taken for this in-house field examination. I used USGS maps to examine the change in elevation near the permittee's site. I used theoretical calculations to estimate 1 ½ Hp pump flow rate. To verify these values, I selected a centrifugal pump produced by a popular pump manufacturer. When examining the pump curve, I found that the flow values were similar to the values attained in the theoretical calculations.

Overlapping Water Rights

I did not find any overlapping water rights at the WR Permit 91-7752 place of use or point of diversion.

Conditions

No conditions were changed.

Have conditions of permit approval been met? Yes X No

The permittee is irrigating more than ½ acre on a domestic use permit. He must submit an application for permit for irrigation of the additional irrigated land; a total of approximately 1.2 acres are currently being irrigated. Proof of Beneficial use could be submitted concurrently.

I. RECOMMENDATIONS**1. Recommended Amounts**

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
Domestic	01/01 to 12/31	0.06 CFS	1.2 AF
<u>Totals:</u>		0.06 CFS	1.2 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

J. AUTHENTICATION

Ashley Newbry, Engineer Associate

Field Examiner's Name

Ashley Newbry

Date

9/11/2014

Reviewer

Date

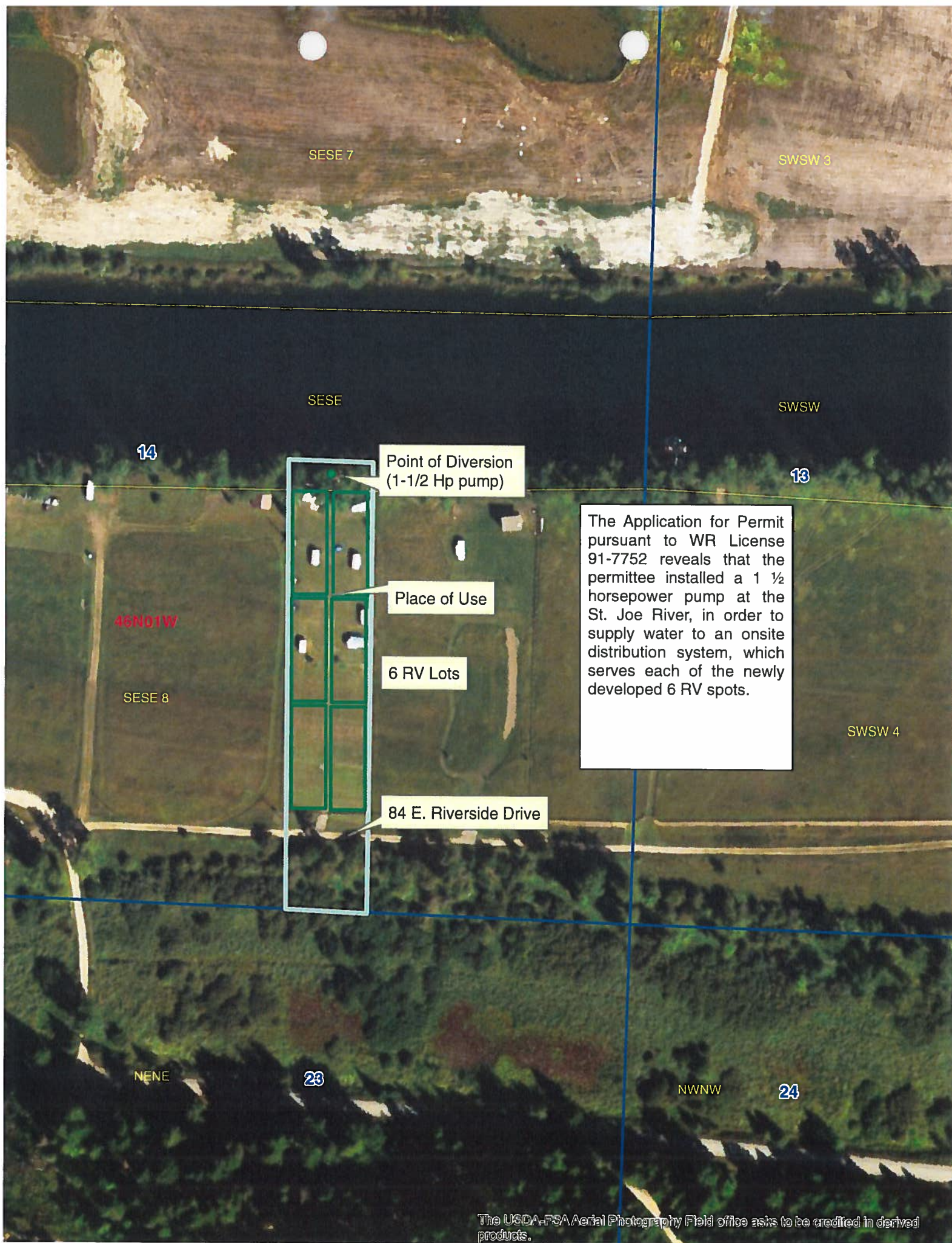
State of Idaho
Department of Water Resources
Field Examination Map for Domestic Use
91-7752



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

0 0.05 0.1 0.2 Miles





SESE 7

SWSW 3

SESE

SWSW

14

13

Point of Diversion
(1-1/2 Hp pump)

Place of Use

6 RV Lots

46N01W

SESE 8

SWSW 4

84 E. Riverside Drive

The Application for Permit pursuant to WR License 91-7752 reveals that the permittee installed a 1 ½ horsepower pump at the St. Joe River, in order to supply water to an onsite distribution system, which serves each of the newly developed 6 RV spots.

NENE

23

NWNW

24

THEORETICAL HORSEPOWER EQUATION WORKSHEET

Water Right No.: 91-7752
 Reviewer: Ashley Newbry
 Date of Review: 9/10/2014

P/D No.: Scenario 1 Scenario 2 Scenario 3

PUMP HORSEPOWER (HP)	1.5	1.5	1.5
BOOSTER HORSEPOWER (HP)	0	0	0

PUMPING LEVEL (FT)	20	20	20
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DISCHARGE PRESSURE (PSI)	40	50	60
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RATE OF FLOW (CFS)	0.082	0.068	0.058
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RATE OF FLOW (GPM)	36.9	30.6	26.1
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TOTAL DYNAMIC HEAD (FT)	112.4	135.5	158.6
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AVG
 0.07
 31.22

The above calculates the formula =

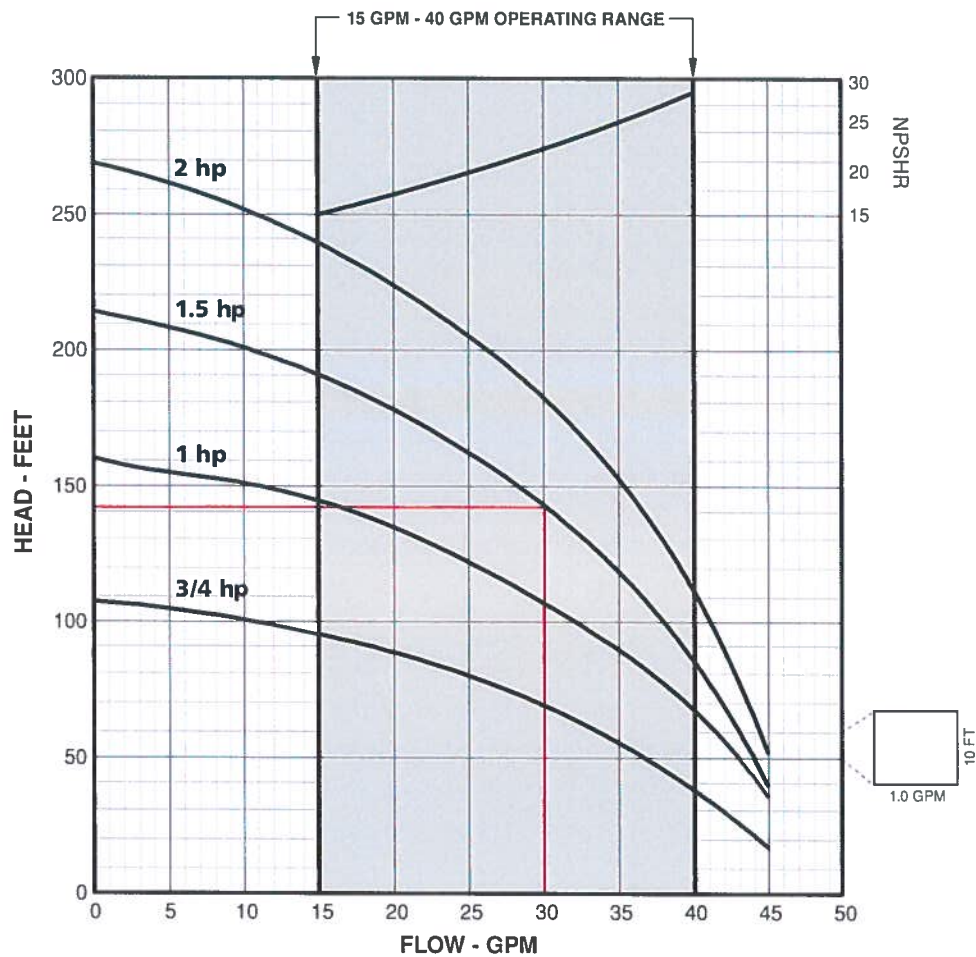
$$Q = \frac{8.8 * (\text{Efficiency}) * \text{hp}}{\text{depth to water} + 2.31 * (\text{psi}) + \text{friction}}$$

Assumptions: %70 efficiency.
 No Friction

Non-Submersible Pumps

Horizontal Multi-Stage Centrifugal Pumps

MH Series 30 GPM Performance



HP	Capacities - GPM																				Shut Off Head (PSI)
	Total Head - Feet																				
	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	
3/4	37	33	30	25	19	10															47
1	43	41	40	37	35	32	29	26	22	17	11										69
1.5	44	43	42	41	39	38	36	35	33	31	28	26	23	19	15	10	3				93
2		44	44	43	42	41	40	39	38	37	35	34	32	30	28	26	24	21	18	15	116

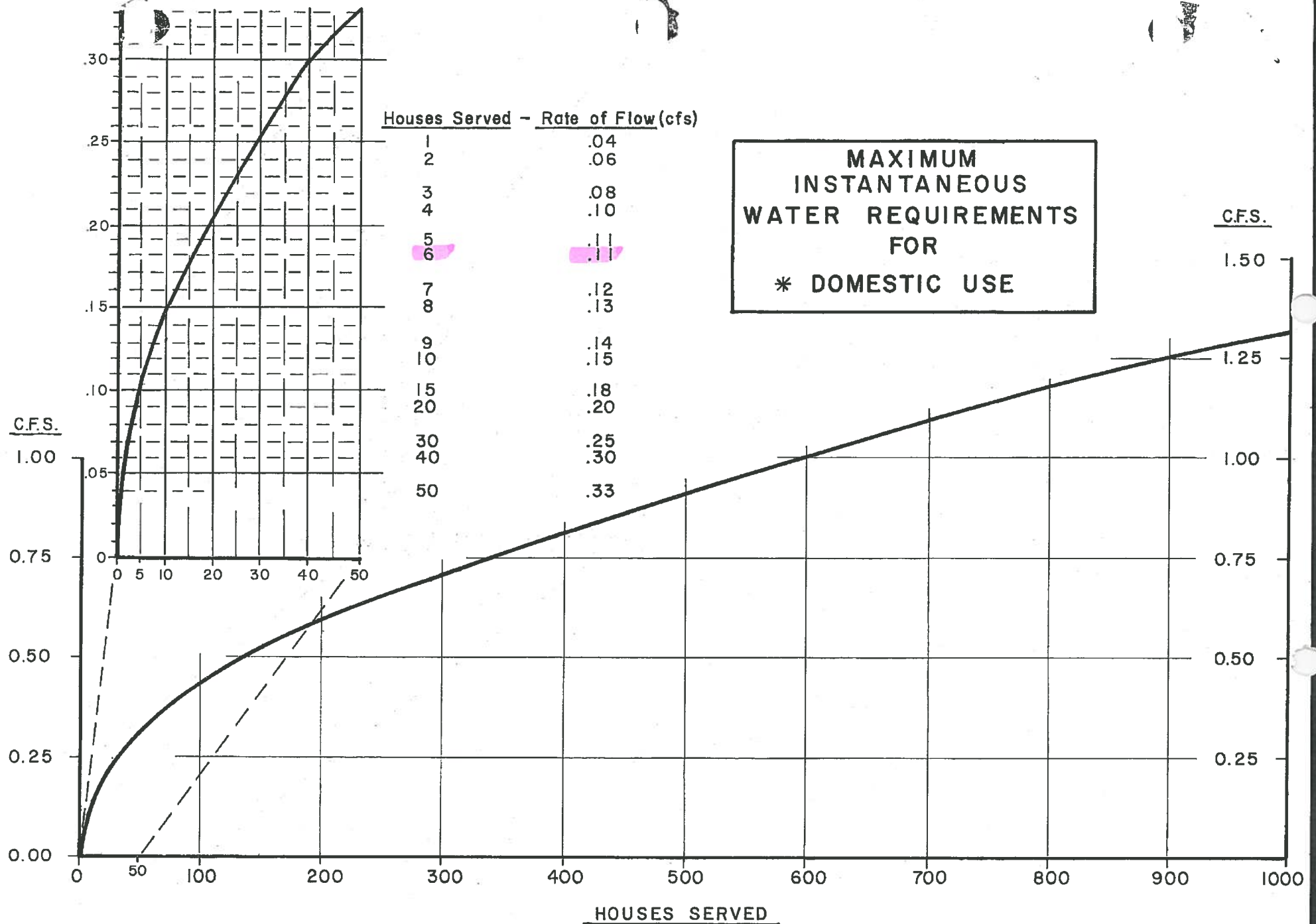


FIG. 1.

* From Community Water Systems Source Book, J. Ameen, 1977, Technical Proceedings, North Carolina.)