

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 37-21400

Exam Date: May 9th, 2012

1. Current Owner: PICABO LIVESTOCK COMPANY - PICABO WATER SYSTEM
PO BOX 688
PICABO ID 83348

2. Accompanied by: Nick Purdy
Phone No: (208)720-5150
Relationship to Permit Holder: Manager/Owner

3. SOURCE
GROUND WATER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 37-7455 (municipal)
2. Other water rights with the same point of diversion: 37-7455 and 37-11628 (stockwater)

C. DIVERSION AND DELIVERY SYSTEM1. LOCATION OF POINT(S) OF DIVERSION:

GROUND WATER SW1/4SE1/4 Sec. 27, Twp 01S, Rge 20E, B.M. BLAINE County

GROUND WATER SW1/4SW1/4 Sec. 27, Twp 01S, Rge 20E, B.M. BLAINE County

Method of Determination: Field visit

2.

<u>PLACE OF USE:</u>			MUNICIPAL																<u>Totals</u>
<u>Twp</u>	<u>Rge</u>	<u>Sec</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>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	
01S	20E	26											X	X			X	X	
01S	20E	27									X	X	X	X	X	X	X	X	

Method of Determination: Shared POU with existing municipal rights

3. ☒ Delivery System Diagram. 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 (required for irrigation of 10+ acres).
- ☒ Photo of Diversion and System

4.

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

No tag—Well #1 or Back-up well: The pump and motor for this well is unknown, Currently this well is not operable and is strictly back-up.

D0016337-Well #2 or Primary well: 20 hp

Berkeley 7T-450

D. FLOW MEASUREMENTS

1.

<u>Measurement Equipment</u>	<u>Type</u>	<u>Make</u>	<u>Model No.</u>	<u>Serial No.</u>	<u>Size</u>	<u>Calib. Date</u>
Ultrasonic	GE	Panametrics	878 meter and 2Mhz transducers			4/2012

2. Measurements: Two measurements over two different days. One measurement was obtained with a full tank and another measurement while the tank was drawn down.

E. FLOW CALCULATIONS

Measured Method:

1). Please see Corbin Knowles' attached narrative for physical measurement. **(0.76 cfs measured)**

2). Horsepower equation as follows:

hp = 20

depth to water = per the well driller's report the expected water bearing zone is from 119' to 143'

psi = open discharge into storage tank, the bottom of the tank is at 41' or ~18 psi when the tank is empty

efficiency = standard of 70%

$8.8 \times 20 \text{ hp} \times 0.7 / 119 + (2.31 \times 18) = 123.2 / 160 = \mathbf{0.77 \text{ cfs}}$

3). Pump curve (attached) = 400 gpm or **0.89 cfs**

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation: NA
2. Volume Calculations for Other Uses: NA

G. NARRATIVE/REMARKS/COMMENTS

During the field exam there was not an exposed length of pipe that I conduct a measurement using my equipment (see photos). Mr. Purdy told me that later in the year he would be digging up the pipe so he could install a measuring device. Corbin Knowles was present when the pipe was excavated to assist Rob Struthers (BWGMD) to confirm that the measuring device is correctly installed. Corbin conducted a measurement at that time and acquired a measurement of 0.76 cfs at the most. The measurement and my theoretical measurement provide sufficient evidence to license this right for 0.76 cfs. No volume is necessary since the use is municipal.

The back-up well is connected to the city's mainline and can feed the storage tank; however, it hasn't been used since the new well was constructed in 2001. At the time of the field exam the back-up well was not operable. The back-up well has not provided additional rate to the system and will remain on this license to serve as back-up in the event the primary well goes out.

The primary well is called on when the storage tank is drawn down to 13 ft and will fill up to 23 ft max according to Mr. Purdy. I have attached a schematic of the storage tank. Note that the plans of the storage tank were preliminary but were updated after it was constructed to reflect as-built dimensions.

Rights 37-7455 and 37-11628 are also diverted from both PDs of this right. This right will have a condition limiting all three rights to 0.76 cfs when used together.

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>
MUNICIPAL	01/01 to 12/31	0.760 CFS	NA
<u>Totals:</u>		0.760 CFS	NA

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

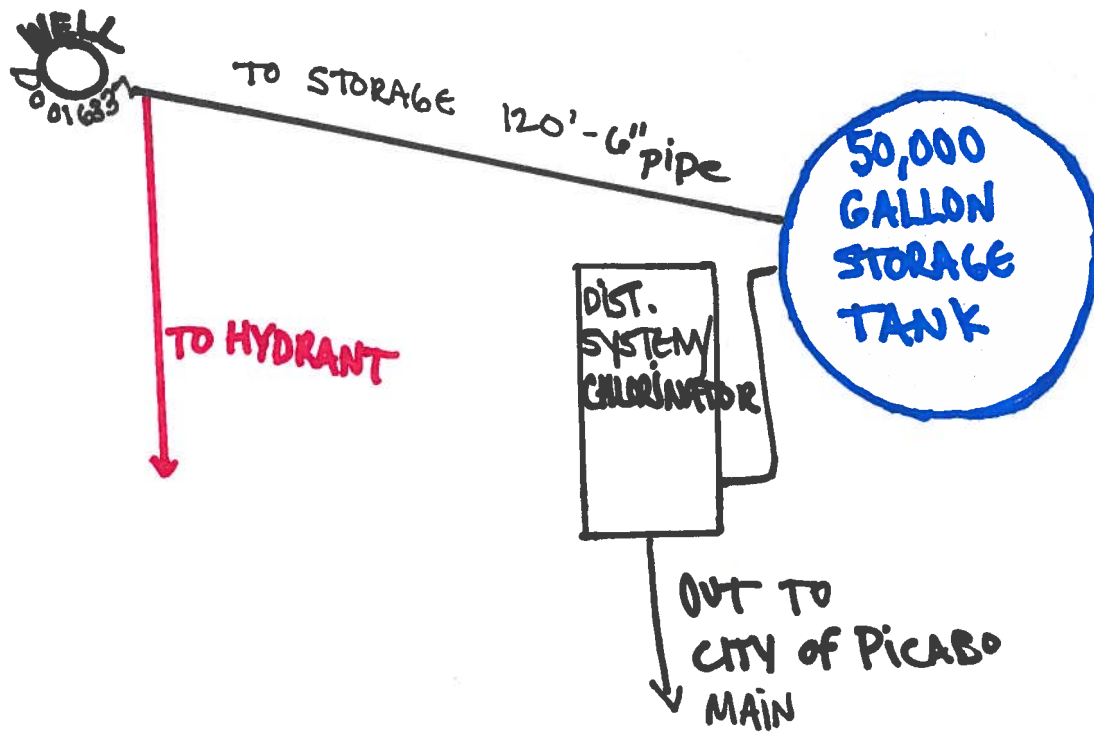
I. AUTHENTICATION

Field Examiner's Name Cherie Palmer Date 7/25/2012

Reviewer _____ Date _____

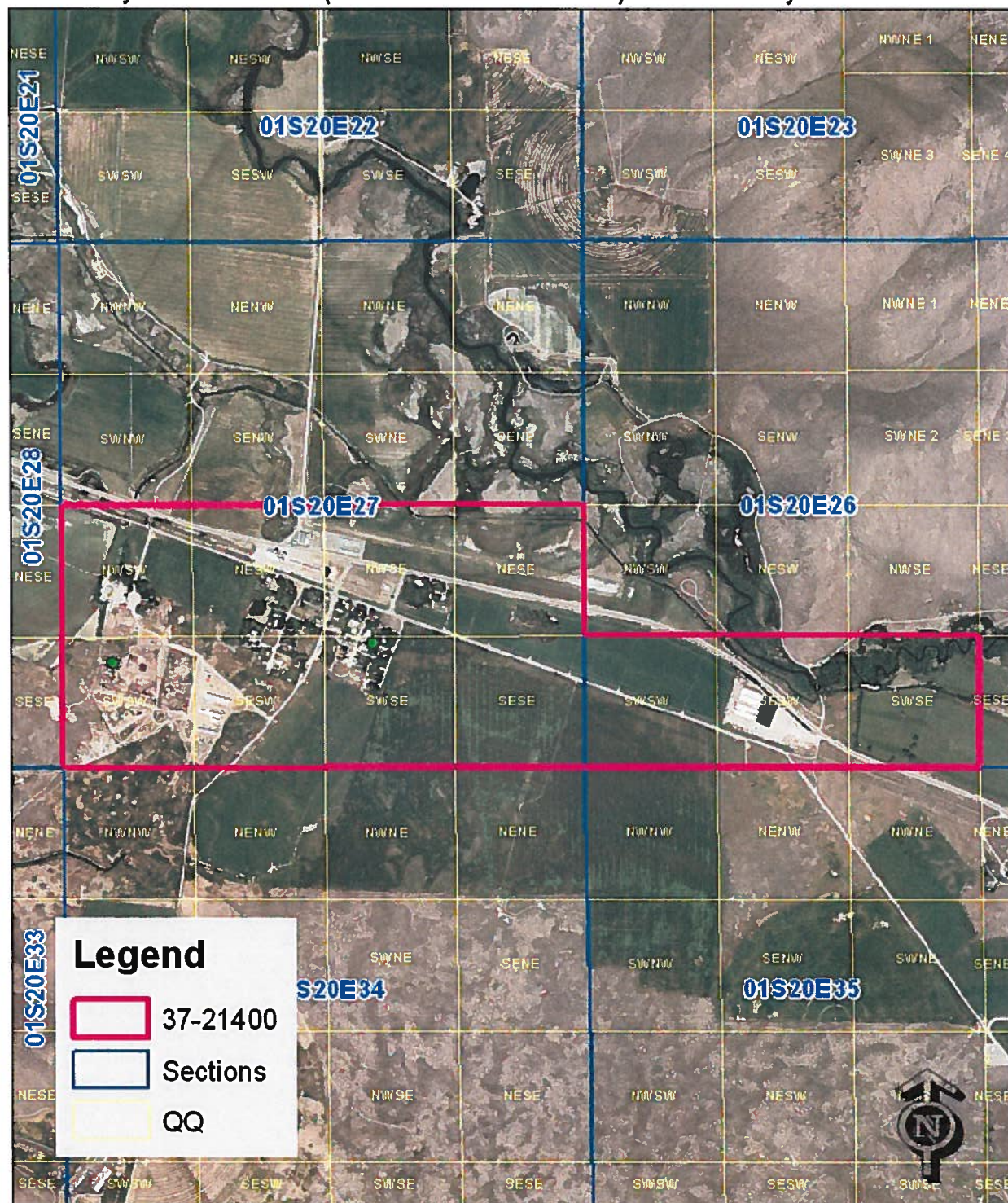
- Attachment #1 - Corbin Knowles Narrative of measurement
 Attachment #2 - Nick Rudy email re: pump & pump curve
 Attachment #3 - Storage tank sketch
 Attachment #4 - Well Driller's Report

Delivery System



Maps/Aerial Imagery

City of Picabo (Picabo Livestock) Boundary and PDs

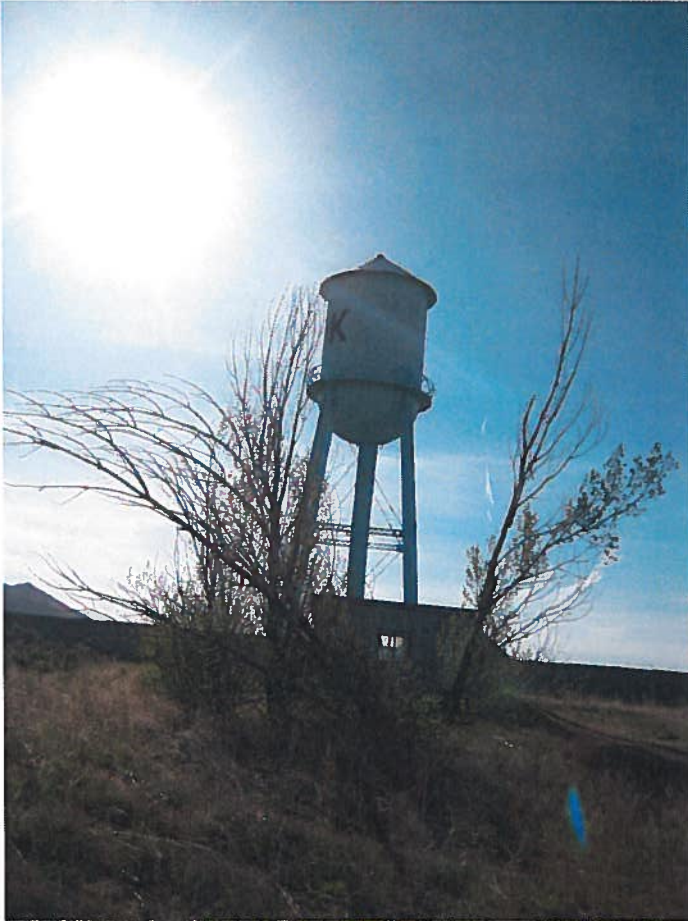


Photos



Back-up
Well





Storage tank
50,000 gallons



Primary well
D00 16337





Primary well
facing west
storage tank
to my back



38 PSI

TO CITY'S
Main

10 HP Pump





Palmer, Cherie

From: Knowles, Corbin
Sent: Monday, July 23, 2012 5:18 PM
To: Palmer, Cherie
Subject: City of Picabo measurement

Cherie

I left the field form for the well measurement on the city's well with Rob S. but here is the same information for your write up

Ultrasonic measurement done 7/20/12 at 10:30 AM using GE Panametrics 878 meter and 2 MHz transducers. Pipe is PVC and measured 6.65 inches in outer diameter with a .275 inch wall (160 PSI IPS pipe). Water temperature was 44 degrees Fahrenheit with a theoretical sound velocity of 4704 fps. Spacing for transducers was 5.59 inches and measured sound speed by the meter was 4782 fps or approximately 101.65% TO CHECK value that you are familiar with. Location of the ultrasonic meter was greater than 10 diameters of straight run ahead (84 inches or 13 diameters below the installed mag meter) and greater than 5 diameters below (100 feet plus to the holding tank) which is required by this type of measurement. I would qualify this measurement as Excellent or well within the $\pm 2\%$ stated accuracy by the manufacture of the ultrasonic meter.

The electromagnetic flow meter recently installed by COP is a 6 inch Seametrics AG 2000 with a volume reading of 25.16 AF pumped at the time of the measurement. Based on two different days being onsite and observing rate on this meter I recorded a minimum flow rate of 277 gpm and a maximum rate of 340 gpm. The measured value of 320 gpm is likely optimum operation based on tank height and head associated with this system. The minimum rate was based on the tank being completely full and the max associated with tank being completely empty.

Let me know if you need anything else.

Corbin

Attachment #1
37-21400

Palmer, Cherie

From: Nick Purdy [nick@purdyent.com]
Sent: Sunday, May 13, 2012 8:54 AM
To: Palmer, Cherie
Subject: FW: Picabo Water Submersible
Attachments: 7T-450.pdf

Cherie,

It was a pleasure meeting you. I hope this gives you the info you need. Let me know. Nick Purdy

From: Terrie Dickson
Sent: Friday, May 11, 2012 11:19 AM
To: Nick Purdy
Subject: Picabo Water Submersible

Nick,

The submersible pump for the Picabo Water System is a 20hp, 460v. The pump is a Berkeley 7T-450. I have attached the pump curve we have in our records.

Thank you.

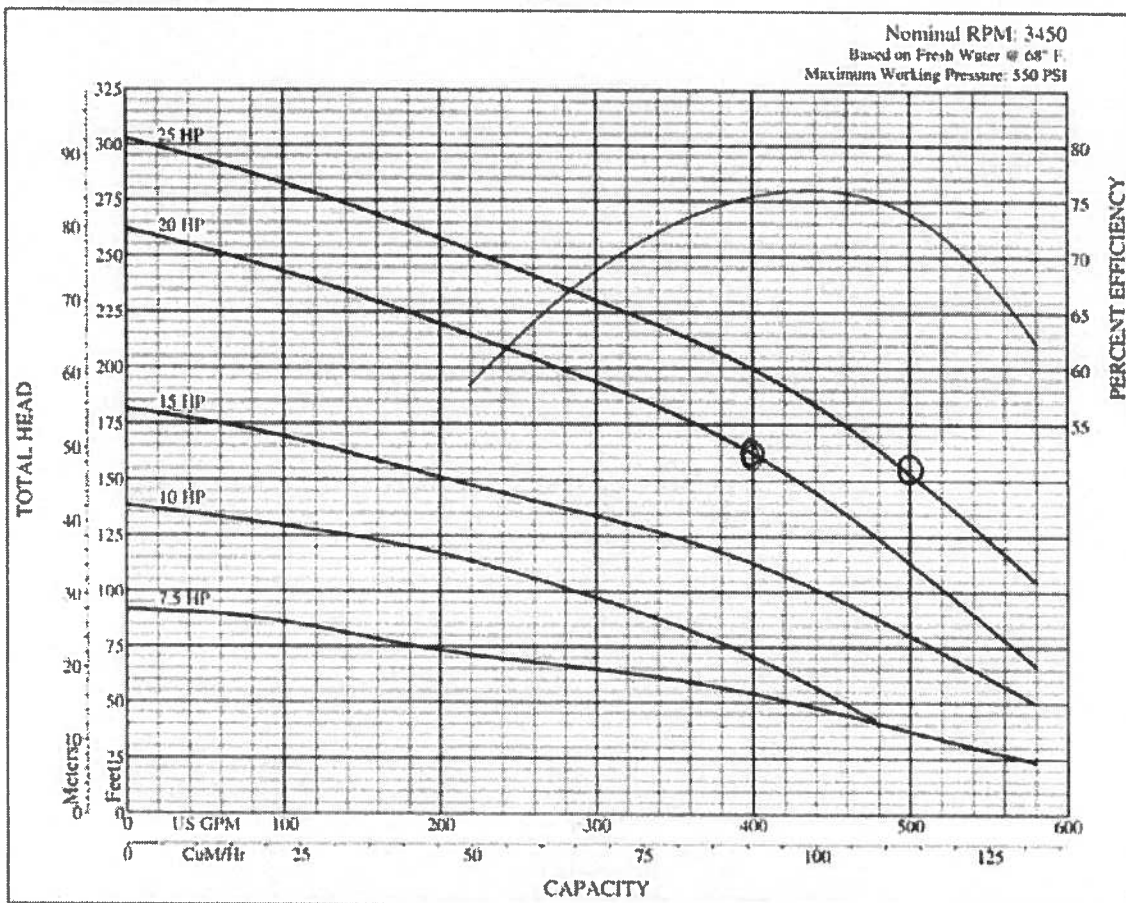
Terrie Dickson
Precision Pumping Systems
Ph: (208) 323-5300
Fax: (208) 323-5311
terrie@precision-pumping.com

Attachment #2 (2)
37-21400



SUBMERSIBLE TURBINE

7T-450



OUTLINE DIMENSIONS / WEIGHTS

HP	stages	Motor size	P length	M* length	MD* dia.	Mtr. wt.	Pump wt.
7.5	1	6"	19.94	28.00	5.38	120	59
10	2	6"	26.44	30.56	5.38	135	85
15	2	6"	26.44	33.13	5.38	146	85
20	3	6"	32.94	30.56	5.38	135	110
25	3	6"	32.94	33.13	5.38	148	110

Note: dimensions in inches; weight in U.S. lbs.

M* Maximum length (Franklin Electric Motor)

MD* Motor diameter (Franklin Electric Motor)

SPECIFICATIONS

Minimum Well I.D.	8.0 inches
Minimum Submergence @ BEP (above inlet)	10.0 Feet
Capacity Range	100 - 580 GPM
Discharge	5" F x 6" M NPT
See manufacturer's data for motor cooling requirements	

SUPERSEDES

All Previous

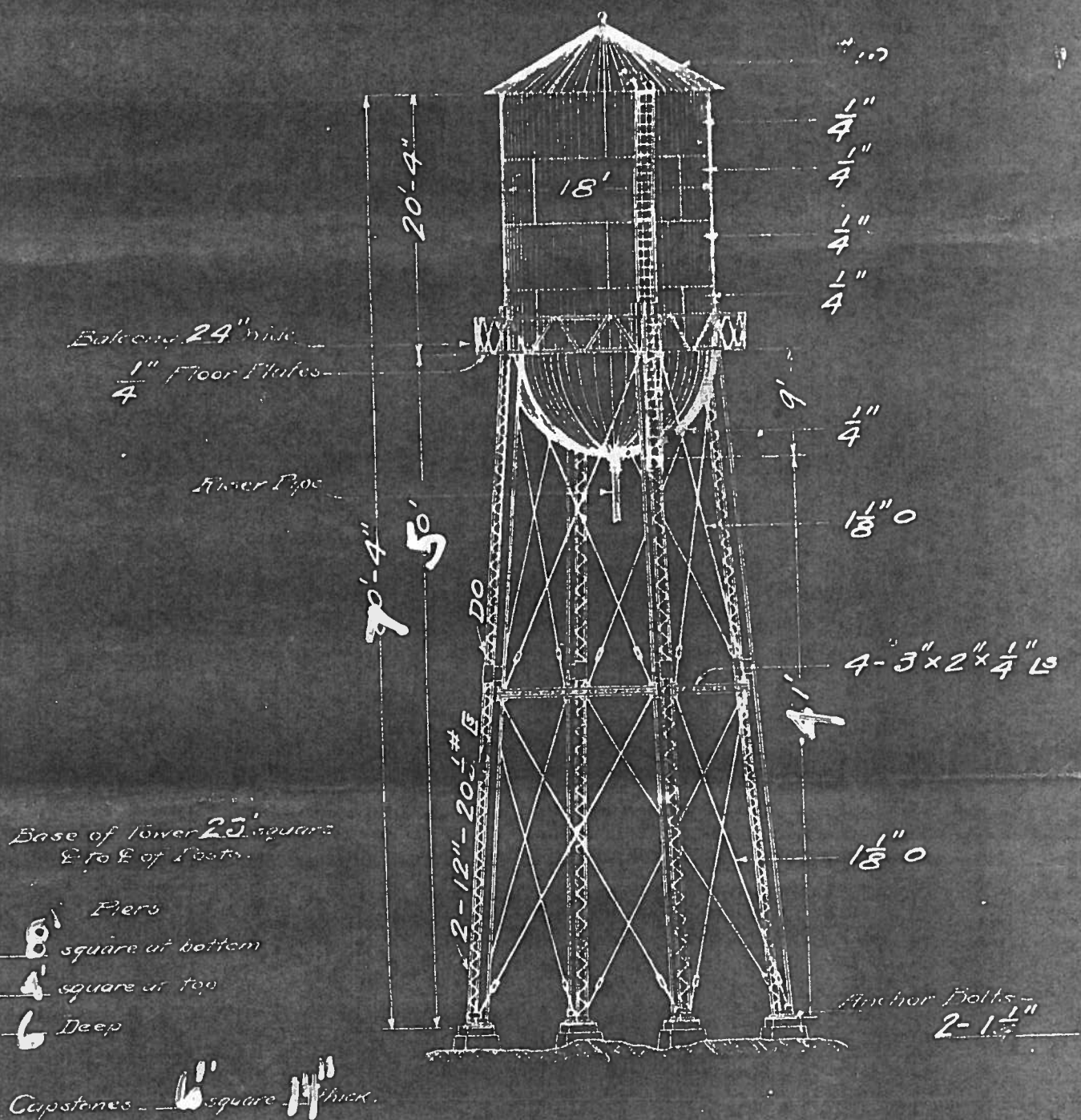
Date 04/15/96

Section **ST**

Page 20.01

Capacity 50000 GAL.

Elevation 41'



Attachment #3.
37-21400

PROPOSAL SKETCH
WATER TOWER
KENNICOTT

Basin 37
App 864000
per 768748

ID 340741

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only			
Inspected by			
Twp	Rge	Sec	
1/4	1/4	1/4	
Lat	:	Long	:

1. WELL TAG NO. D0016337

DRILLING PERMIT NO. _____

Other IDWR No. _____

2. OWNER:

Name Nick Purdy Picabo Livestock

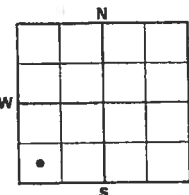
Address P.O. Box 748

City Picabo

State ID Zip 83348

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.



Twp. 1

North ☐ or South ☒

Rge. 20

East ☒ or West ☐

Sec. 27

1/4 SW 1/4 SW 1/4

Gov't Lot _____

County Blaine

Lat _____

Long _____

Address of Well Site Purdy ranch next to

City Picabo

town on south side

(Give at least name of road + Distance to Road or Landmark)

Lt. _____

Blk. _____

Sub. Name _____

4. USE:

- ☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☒ Other City

5. TYPE OF WORK: check all that apply

(Replacement etc.)

- ☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD:

- ☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES:

Seal/Filter Pack		AMOUNT		METHOD
Material	From	To	Sacks or Pounds	
bentonite	0	4	150 lbs.	dry pour
bentonite	4	83	2100 lbs	grout pump

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) _____

Was drive shoe seal tested? ☐ Y ☒ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
12"	+2	83	.375	steel	☒	☐	☒	☐

Length of Headpipe 2'

Length of Tailpipe _____

9. PERFORATIONS/SCREENS:

- ☐ Perforations Method _____
☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

106 ft. below ground

Artesian pressure _____ lb.

Depth flow encountered _____ ft. Describe access port or control

devices: welded steel pipe

11. WELL TESTS:

- ☐ Pump ☐ Baller ☒ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
20+			

Water Temp. <85

Bottom hole temp. <85

Water Quality test or comments: _____

Depth first Water Encounter _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water	
				Y	N
171/2	0	11/2	top soil		
171/2	11/2	56	hard gray basalt		
171/2	56	58	medium hard basalt		
171/2	58	62	cinders		
171/2	62	66	black basalt		
171/2	66		mixed brown clay, ash &		
		80	cinders		
171/2	80	82	black lava		
171/2	82	83	soft lava		
171/2	83	85	hard black lava		
12	85	92	hard black lava		
12	92	93	broken black lava		
12	93	112	hard black lava		
12	112	114	broken lava		
12	114	119	hard black lava		
12	119	121	cinders		X
12	121	143	cinders & brown silt		X
12	143	152	gravel		
12	152	155	hard lava		
			after developing-gravel		
			fills back in to 144'		
			water clean. No sand when		
			blowing from 120 to 140		
			some sand when blowing		
			below 143'		

RECEIVED

OCT 19 2001

Department of Water Resources
Southern Region

Completed Depth 144'

(Measurable)

Date: Started 8/7/2001

Completed 9/13/2001

13. DRILLER'S CERTIFICATION:

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Eaton Drilling & pump Service, Inc.

Firm No. 26

Firm Official

Date 9/28/2001

and

Driller or Operator

Date 9/28/2001

(Sign once if Firm Official & Operator)

Attachment # 4
37-21400

FORWARD WHITE COPY TO WATER RESOURCES