

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 65-22888

Exam Date: 2/28/2018

1. Current Owner:
TIMBERLINE DEVELOPMENT LLC PO BOX 145 DONNELLY ID 83615 (208) 315-0991
2. Accompanied by: Larry Mangum, Manager
Phone No: (208) 315-0991
Address: PO BOX 145 DONNELLY ID 83615
Relationship to Permit Holder: Manager for Timberline Development, LLC

3. **SOURCE:**
GROUND WATER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 65-8053, 65-23370, 65-23371, 65-23372, and 65-23373 (all irrigation overlap).
2. Other water rights with the same point-of-diversion: None

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

GROUND WATER NW¼NE¼ Sec. 17, Twp 16N, Rge 03E, B.M. VALLEY County

GROUND WATER SE¼NE¼ Sec. 17, Twp 16N, Rge 03E, B.M. VALLEY County

Method of Determination: GPS points during field exam and aerial imagery.

2.

PLACE OF USE: FIRE PROTECTION

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
16N	03E	17	X	X	X	X													

PLACE OF 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	
16N	03E	17	X	X		X													

PLACE OF USE: IRRIGATION

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
16N	03E	17	7.9	6.8		9.3													24.0

Total Acres: 24

Method of Determination: GPS points during field exam and aerial imagery.

3. Delivery System Diagram Attached (required). Indicate all major components and distances between components.
X Indicate weir size/pipe as applicable.

- X Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.

- X Aerial Photo Attached (required for irrigation of 10+ acres).

- X Photo of Diversion and System Attached

4.

Well Tag No.	Motor Make	Hp	Model No. or Serial No.	Pump Make	Hp
D0038349	Robbco		6LHE-4	Robbco	15
	Robbco		6LHE (3 stage)	Robbco	100
D0046655			CH63-460-122504; 04007034	Karlington Electric	175

*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
Ultra Mag	Electromagnetic Flow Meter	McCrometer		UM20050136	6"	Pre-Calibrated
Ultra Mag	Electromagnetic Flow Meter	McCrometer		UM20060399	8"	Pre-Calibrated

2. Measurements: The subdivision uses a totalizer to quantify use for each beneficial use.

E. FLOW CALCULATIONS X Additional Computation Sheets Attached

Measured Method: Flow calculations were estimated below.

DOMESTIC – Administrator's Memorandum # 22 and associated graph titled 'Maximum Instantaneous Water Requirements for Domestic Use'. 119 single family homes plus 96 town homes totals 215 homes, which falls between 0.50 and 0.75 cfs (see attached graph/calculations). The provided 15 Hp pump curve has a limit of 150 gpm or 0.33, which correlates to the estimated max diversion from the three year high of 0.34 cfs. Therefore, the recommended rate for domestic is **0.33 cfs**.

IRRIGATION – Mr. Mangum provided daily diversion records for three years. The highest instantaneous was calculated by dividing the time the pump ran by the time series' total volume. The highest instantaneous occurred on July 2, 2015; pump ran for 21.4 hours delivering 319,600 gallons of irrigation. This converts to a rough instantaneous rate of 0.55 cfs. The provided 100 Hp pump curve has a limit of 1,000 gpm or 2.23 cfs. The number of acres irrigated is 24 acres. The department standard of 0.02 cfs/acre totals 0.48 cfs. Therefore, the recommended rate for irrigation is **0.48 cfs**.

FIRE PROTECTION – Theoretical calculations were done according pump information given during the field exam. See the attached calculations that generate an average rate of 3.38 cfs, which justify the permitted **3.34 cfs**.

F. VOLUME CALCULATIONS1. Volume Calculations for **Irrigation**:

$$V_{IR} = [\text{Number of acres irrigated}] \times (\text{H.G.R.}) = 24 \text{ acres} \times 3.0 \text{ AF/acre} = 72.0$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.48 \text{ cfs} \times 200 \text{ days} \times 1.9835 = 190 \text{ AF}$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = 72.0 \text{ AF}$$

2. Volume Calculations for **Domestic**:

$$V_{IR} = \text{Maximum annual volume from 2015 to 2017 is } 69.1 \text{ AF (same system and use as development period)}$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.33 \text{ cfs} \times 365 \text{ days} \times 1.9835 = 239 \text{ AF}$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = 69.1 \text{ AF}$$

3. Volume Calculations for **Fire Protection**:

No necessary per IDAPA 37.03.02.0.35.01.jiv.

G. NARRATIVE/REMARKS/COMMENTS**BACKGROUND:**

The purpose of this right is to develop commercial, domestic, fire protection, and irrigation use for phase 2 and 3 of The Meadows at West Mountain subdivision. Commercial use was undeveloped during the field exam. Fire hydrants have been placed around the commercial area, but no structures have been built. As such, the commercial component will not be recommended for licensing. Irrigation and domestic uses are limited to 24 acres and 215 homes respectively.

System Description:

Wells within two well houses supply water to the subdivision. Well #1 located in the SENE has two pumps in the well; a 15 hp and 100 hp pump. The domestic use is typically delivered via the 15 hp while irrigation is supplied by the 100 hp pump. There are 14 fire hydrants throughout the subdivision. Hypochlorite and phosphate are added to the domestic water as recommended by DEQ to meet water quality standards. Well #2 is used for fire protection, but can be used to supply domestic and irrigation water as necessary.

Overlap:

POU analysis did not include WR Nos. 65-23784 and 65-23785 since they were split from 65-23371 and 65-23373. It is understood that a transfer is pending to move these rights to a different POU location associated with 65-23784 and 65-23785. Water was conveyed without the land. The existing water rights relative to the same subdivision do not have combine use limits, but are part of the same acreage recommended for 65-22888. 65-23370, 65-23372, and 65-22888 overlap 7 acres, therefore, will include a combine use limit recommendation for 98 acres and 294 acre-feet ($81 + 24 - 7$). 65-23371, 65-23373, and 65-22888 overlap 8 acres, therefore, will include a combine use limit recommendation for 31 acres and 93 acre-feet ($15 + 24 - 8$). 65-8053 and 65-22888 overlap 8 acres, therefore, will include a combine use limit recommendation for 32 acres and 96 acre-feet ($16 + 24 - 8$).

Conditions:

Conditions 26A, 046, 004, and 106 were removed and not forwarded to licensing. Condition 121 was updated to 103 and forwarded to licensing. Condition WB5 with the updated number of homes was forwarded to licensing. Condition WB7 was removed as the right is not supplemental. Condition X60 was added to the language "Place of use is also known as..." and forwarded to licensing. Conditions 071, 077, and 01M were forwarded to licensing. X35 was used three times to define combine use limits associated to the overlapping WRs.

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>
DOMESTIC	01/01 to 12/31	0.33 CFS	69.1 AF
FIRE PROTECTION	01/01 to 12/31	3.34 CFS	
IRRIGATION	04/15 to 10/31	0.48 CFS	72.0 AF
	<u>Totals:</u>	4.15 CFS	141 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 ☒ None

I. AUTHENTICATION

Field Examiner's Name  Date 12/31/2018

Reviewer  Date 2/15/19

State of Idaho
Department of Water Resources

Point of Diversion and Fire Protection Place of Use

Water Permit No. 65-22888



Legend

- Point of Diversion
- ▭ Fire Protection
- 🔥 Fire Hydrant

0 0.05 0.1 0.2 Miles



State of Idaho
Department of Water Resources

Point of Diversion and Domestic Place of Use

Water Permit No. 65-22888



0 0.05 0.1 0.2 Miles

Legend

- Point of Diversion
- Domestic



State of Idaho
Department of Water Resources

Point of Diversion and Irrigation Place of Use

Water Permit No. 65-22888



0 0.05 0.1 0.2 Miles

Legend

- Point of Diversion
- Irrigation



Information Requested

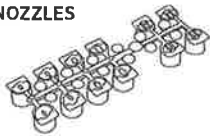
From

Timberline Development LLC / Meadows Water LLC

- 1: Pump location's (see attached map): Well house #1, Well house #2
- 2: Make, Model, Serial #, and HP of each pump:
 - a: Well house #1 has two pumps: #1 Robco Pump / 6LHE-4 (5 1/4" motor) / Serial # (unknown) / 15HP
(Main Pump House) #2 Robco Pump / 6LHE (3 stage) / Serial # (unknown) / 100 HP
 - b: Well house #2 has one pump: Karlington Electric / CH63-460-122504 / 04007034 / 175 HP (Fire Flow Pump)
- 3: System Map (see attached map): Water system main lines, Firesystem, Irrigation system (typical layout map)
- 4: Irrigation Schedule:
 - a: How many set's: 680
 - b: How many per set: 5 / 3400 sprinklers
 - c: Type of Sprinkler: Hunter PGP (Red nozzle's), Rain Bird 3500 series (45psi-2-4 nozzles)
Rain Bird pop up's (15 van nozzle's)
 - d: Flow Rating for Sprinklers: Hunter PGP running a full circle pattern 3.82 gpm
Hunter PGP running a 90 circle pattern 1.00 gpm
Rain Bird 3500 series running a full circle pattern 4.13 gpm
15 Van Series running a full circle 3.70 gpm
15 Van Series running a 90 circle .92 gpm
 - e: How often you irrigate per day and week: 6 day's a week from late May to October 1st
(19 weeks / 114 days)
 - f: How long each set runs per day / week: each set run's 4-8 minutes per day
- 5: How Many Homes are hooked up to the system: 119 Single family homes, 96 Town homes
- 6: Water measurement or flow: Average daily flow w/o sprinklers 230,000 gal. per day for 7 months
Average daily flow with sprinklers 2,400,000 gal. per day for 5 months
Average flow per year 13,610,000 gallons

PGP® ULTRA/I-20 PERFORMANCE CHARTS

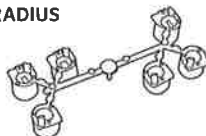
BLUE/GREY NOZZLES P/N 782900



Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■ ▲	
1.5 Blue	25	29	1.2	0.27	0.32
	35	31	1.4	0.28	0.32
	45	31	1.5	0.30	0.35
	55	32	1.8	0.34	0.39
2.0 Blue	25	33	1.4	0.25	0.29
	35	33	1.7	0.30	0.35
	45	34	2.0	0.33	0.38
	55	34	2.1	0.35	0.40
2.5 Blue	25	33	1.7	0.30	0.35
	35	35	2.1	0.33	0.38
	45	35	2.5	0.39	0.45
	55	35	2.6	0.41	0.47
3.0 Blue	25	35	2.9	0.46	0.53
	35	35	3.2	0.45	0.50
	45	36	3.0	0.40	0.46
	55	39	3.4	0.43	0.50
4.0 Blue	25	37	3.0	0.42	0.49
	35	39	3.5	0.44	0.51
	45	40	4.0	0.48	0.56
	55	41	4.5	0.52	0.60
5.0 Blue	25	37	3.7	0.47	0.54
	35	37	4.0	0.52	0.60
	45	39	4.5	0.57	0.66
	55	42	5.0	0.55	0.63
6.0 Blue	25	42	5.7	0.62	0.72
	35	42	6.2	0.68	0.78
	45	43	6.0	0.62	0.72
	55	44	6.7	0.67	0.77
8.0 Blue	25	44	7.3	0.73	0.84
	35	44	7.0	0.80	0.93
	45	44	8.0	0.80	0.92
	55	46	9.0	0.82	0.95
10 Blue	25	46	9.8	0.89	1.03
	35	46	9.8	0.89	1.03
	45	46	9.8	0.89	1.03
	55	46	9.8	0.89	1.03

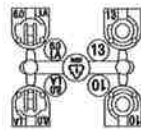
Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■ ▲	
2.0 LA Gray	30	25	1.6	0.49	0.57
	40	27	1.9	0.50	0.58
	50	28	2.1	0.52	0.60
	60	30	2.3	0.49	0.57
2.5 LA Gray	30	27	2.1	0.55	0.64
	40	30	2.5	0.53	0.62
	50	33	2.8	0.49	0.57
	60	35	3.0	0.47	0.54
3.5 LA Gray	30	29	2.8	0.64	0.74
	40	32	3.1	0.58	0.67
	50	35	3.5	0.55	0.64
	60	37	3.8	0.53	0.62
4.5 LA Gray	30	29	3.4	0.78	0.90
	40	32	3.9	0.73	0.85
	50	35	4.4	0.69	0.80
	60	37	4.7	0.66	0.76

BLACK SHORT RADIUS NOZZLES P/N 466100



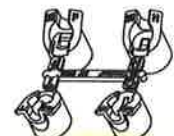
Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■ ▲	
.50 SR Black	30	17	0.36	0.24	0.28
	40	17	0.43	0.29	0.33
	50	18	0.50	0.30	0.34
	60	19	0.57	0.30	0.35
1.0 SR Black	30	17	0.78	0.52	0.60
	40	17	0.90	0.60	0.69
	50	18	1.00	0.59	0.69
	60	19	1.10	0.59	0.68
2.0 SR Black	30	17	1.40	0.93	1.08
	40	17	1.70	1.13	1.31
	50	18	2.00	1.19	1.37
	60	19	2.20	1.17	1.35
.75 SR Black	30	23	0.58	0.21	0.24
	40	24	0.68	0.23	0.26
	50	25	0.75	0.23	0.27
	60	26	0.83	0.24	0.27
1.5 SR Black	30	23	1.10	0.40	0.46
	40	24	1.30	0.43	0.50
	50	25	1.50	0.46	0.53
	60	26	1.60	0.46	0.53
3.0 SR Black	30	23	2.50	0.91	1.05
	40	24	2.70	0.90	1.04
	50	25	3.00	0.92	1.07
	60	26	3.10	0.88	1.02

GREEN HIGH FLOW NOZZLES P/N 44800



Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■ ▲	
10 Dk. Green	40	42	8.4	0.92	1.06
	50	43	9.5	0.99	1.14
	60	45	10.5	1.00	1.15
	70	47	11.4	0.99	1.15
13 Dk. Green	40	43	10.9	1.13	1.31
	50	44	12.3	1.22	1.41
	60	45	13.6	1.29	1.49
	70	47	14.8	1.29	1.49
6.0 LA Dk. Green	30	31	4.2	0.84	0.97
	40	35	5.0	0.79	0.91
	50	37	5.8	0.82	0.94
	60	39	6.3	0.80	0.92
8.0 LA Dk. Green	40	37	6.7	0.94	1.09
	50	39	7.7	0.97	1.13
	60	41	8.5	0.97	1.12
	70	41	9.2	1.05	1.22

MPR MATCHED PRECIPITATION RATE NOZZLES



Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■ ▲	
90° Red	25	23	0.74	0.54	0.62
	35	24	0.88	0.59	0.68
	45	25	1.00	0.62	0.71
	55	25	1.11	0.68	0.79
120° Red	25	23	1.00	0.55	0.63
	35	24	1.21	0.61	0.70
	45	25	1.38	0.64	0.74
	55	25	1.53	0.71	0.82
180° Red	25	23	1.44	0.52	0.61
	35	24	1.73	0.58	0.67
	45	25	1.98	0.61	0.70
	55	25	2.21	0.68	0.79
360° Red	25	23	2.41	0.74	0.86
	35	24	2.78	0.51	0.58
	45	25	3.34	0.56	0.64
	55	25	3.82	0.59	0.68
360° Red	25	23	4.25	0.65	0.76
	35	24	4.63	0.71	0.82
	45	25	4.63	0.71	0.82
	55	25	4.63	0.71	0.82

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■ ▲	
90° Lt. Green	25	29	1.03	0.47	0.54
	35	30	1.23	0.53	0.61
	45	30	1.40	0.60	0.69
	55	30	1.56	0.67	0.77
120° Lt. Green	25	29	1.69	0.72	0.83
	35	30	1.85	0.59	0.69
	45	30	2.06	0.66	0.76
	55	30	2.24	0.72	0.83
180° Lt. Green	25	29	2.15	0.49	0.57
	35	30	2.59	0.55	0.64
	45	30	2.96	0.63	0.73
	55	30	3.30	0.71	0.82
360° Lt. Green	25	29	3.60	0.77	0.89
	35	30	4.24	0.49	0.56
	45	30	5.08	0.54	0.63
	55	30	5.78	0.62	0.71
360° Lt. Green	25	30	6.39	0.66	0.79
	35	30	6.92	0.74	0.85
	45	30	6.92	0.74	0.85
	55	30	6.92	0.74	0.85

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■ ▲	
90° Beige	25	32	1.40	0.53	0.61
	35	34	1.67	0.56	0.64
	45	35	1.92	0.60	0.70
	55	35	2.13	0.67	0.77
120° Beige	25	32	2.31	0.73	0.84
	35	34	2.77	0.50	0.58
	45	35	3.25	0.54	0.62
	55	35	3.74	0.58	0.67
180° Beige	25	32	4.23	0.65	0.75
	35	34	4.99	0.70	0.81
	45	35	5.75	0.75	0.86
	55	35	6.51	0.80	0.91
360° Beige	25	32	7.27	0.85	0.96
	35	34	8.03	0.90	1.01
	45	35	8.79	0.95	1.06
	55	35	9.55	1.00	1.11
360° Beige	25	32	10.31	1.05	1.16
	35	34	11.07	1.10	1.21
	45	35	11.83	1.15	1.26
	55	35	12.59	1.20	1.31

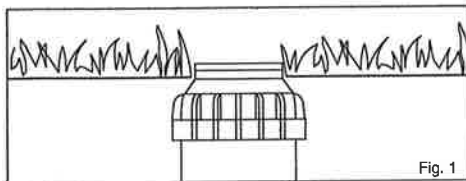


Fig. 1

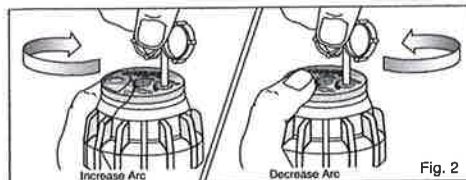


Fig. 2

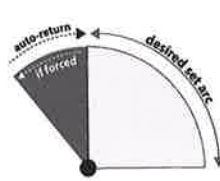


Fig. 3

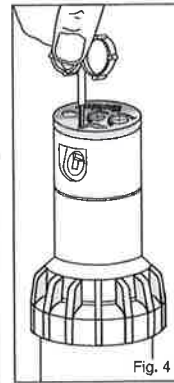


Fig. 4

Nozzle Performance

Pressure psi	Nozzle	Radius ft.	Flow GPM	Square Precip. in/hr	Triangular Precip. in/hr
25	0.75	15	0.54	0.46	0.53
	1.0	20	0.77	0.37	0.43
	1.5	23	1.06	0.39	0.45
	2	27	1.40	0.37	0.43
	3	29	2.17	0.50	0.57
35	0.75	17	0.67	0.59	0.69
	1.0	21	0.92	0.45	0.52
	1.5	23	1.28	0.47	0.54
	2	27	1.69	0.45	0.52
	3	31	2.60	0.52	0.60
45	0.75	17	0.77	0.51	0.59
	1.0	21	1.06	0.46	0.53
	1.5	24	1.48	0.49	0.57
	2	27	1.93	0.51	0.59
	3	31	3.00	0.60	0.69
55	0.75	18	0.85	0.51	0.59
	1.0	23	1.18	0.47	0.54
	1.5	24	1.65	0.55	0.64
	2	28	2.15	0.53	0.61
	3	32	3.25	0.61	0.71
	4	35	4.60	0.72	0.83

Precipitation rates calculated at 50% diameter "head to head" spacing, half circle operation.
 Tasa de precipitación en base a un diámetro de alcance de 50%, en cobertura de semicírculo.

Nozzle Performance

Pressure bars	Nozzle	Radius m	Flow m ³ /hr	Flow l/s	Square Precip. mm/hr	Triangular Precip. mm/hr
1.7	0.75	4.6	0.12	0.03	12	14
	1.0	6.1	0.17	0.05	9	11
	1.5	7.0	0.24	0.07	10	11
	2	8.2	0.32	0.09	9	11
	3	8.8	0.49	0.14	13	15
2.0	0.75	4.8	0.13	0.04	12	13
	1.0	6.2	0.19	0.05	10	11
	1.5	7.0	0.26	0.07	11	12
	2	8.2	0.34	0.09	10	12
	3	9.1	0.53	0.15	13	15
2.5	0.75	5.2	0.16	0.04	12	13
	1.0	6.4	0.21	0.06	10	12
	1.5	7.0	0.30	0.08	12	14
	2	8.2	0.39	0.11	12	13
	3	9.4	0.60	0.17	13	16
3.0	0.75	5.2	0.17	0.05	13	15
	1.0	6.4	0.24	0.07	12	13
	1.5	7.3	0.33	0.09	12	14
	2	8.2	0.43	0.12	13	15
	3	9.4	0.67	0.19	15	17
3.5	0.75	5.4	0.19	0.05	13	15
	1.0	6.6	0.26	0.07	12	14
	1.5	7.3	0.36	0.10	13	15
	2	8.4	0.47	0.13	13	15
	3	9.6	0.71	0.20	15	18
3.8	0.75	5.5	0.19	0.05	13	15
	1.0	6.7	0.27	0.07	12	14
	1.5	7.3	0.37	0.10	14	16
	2	8.5	0.49	0.14	13	15
	3	9.8	0.74	0.21	16	18
	4	10.7	1.04	0.29	18	21



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 970 West Sierra Madre Avenue
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 (800) RAINBIRD (U.S. and Canada)

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 6891 E. Southpoint Rd., Bldg. #1
 Tucson, AZ 85705
 Phone: (602) 741-6100
 Fax: (602) 741-5522
Specification Hotline
 800-458-3005 (U.S. and Canada)

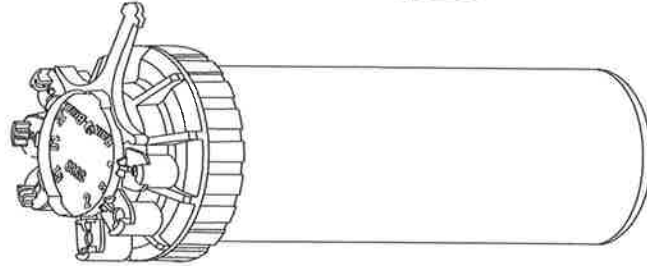
Rain Bird International, Inc.
 145 North Central Avenue
 Glendora, CA 91741
 Phone: (626) 963-9311
 Fax: (626) 963-4287
www.rainbird.com

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PN171850



3500 Series Rotor Installation Instructions



Nozzle identification
 Tapon de identificación de la boquilla
 Radius adjustment slot
 Ranura de ajuste del radio

Pull-up slot
 Ranura de levante

Arc adjustment slot
 Ranura de ajuste del arco de cobertura

12 Series VAN					
15° Trajectory					
Nozzle	Pressure psi	Radius ft.	Flow gpm	■ Precip In/h	▲ Precip In/h
 360° Arc	15	9	1.56	1.86	2.14
	20	10	1.86	1.79	2.06
	25	11	2.12	1.68	1.95
	30	12	2.36	1.58	1.82
 270° Arc	15	9	1.17	1.86	2.14
	20	10	1.39	1.79	2.06
	25	11	1.59	1.68	1.94
	30	12	1.77	1.58	1.82
 180° Arc	15	9	0.78	1.86	2.14
	20	10	0.93	1.79	2.06
	25	11	1.06	1.68	1.95
	30	12	1.18	1.58	1.82
 90° Arc	15	9	0.39	1.86	2.14
	20	10	0.46	1.79	2.06
	25	11	0.53	1.68	1.95
	30	12	0.59	1.58	1.82

12 Series VAN					METRIC	
15° Trajectory						
Nozzle	Pressure bar	Radius m	Flow m³/h	Flow l/m	 Precip mm/h	 Precip mm/h
 360° Arc	1.0	2.7	0.35	5.80	48	55
	1.5	3.2	0.44	7.37	43	50
	2.0	3.6	0.52	8.75	41	47
	2.1	3.7	0.54	9.02	40	46
 270° Arc	1.0	2.7	0.26	4.35	48	55
	1.5	3.2	0.33	5.53	43	50
	2.0	3.6	0.39	6.56	41	47
	2.1	3.7	0.41	6.76	40	46
 180° Arc	1.0	2.7	0.17	2.90	48	55
	1.5	3.2	0.22	3.69	43	50
	2.0	3.6	0.26	4.37	41	47
	2.1	3.7	0.27	4.51	40	46
 90° Arc	1.0	2.7	0.09	1.45	48	55
	1.5	3.2	0.11	1.84	43	50
	2.0	3.6	0.13	2.19	41	47
	2.1	3.7	0.14	2.25	40	46

Spray Nozzles

15 Series VAN					
23° Trajectory					
Nozzle	Pressure psi	Radius ft.	Flow gpm	■ Precip In/h	▲ Precip In/h
 360° Arc	15	11	2.60	2.07	2.39
	20	12	3.00	2.01	2.32
	25	14	3.30	1.62	1.87
	30	15	3.70	1.58	1.83
 270° Arc	15	11	1.95	2.07	2.39
	20	12	2.25	2.01	2.32
	25	14	2.48	1.62	1.87
	30	15	2.78	1.58	1.83
 180° Arc	15	11	1.30	2.07	2.39
	20	12	1.50	2.01	2.32
	25	14	1.65	1.62	1.87
	30	15	1.85	1.58	1.83
 90° Arc	15	11	0.65	2.07	2.39
	20	12	0.75	2.01	2.32
	25	14	0.82	1.62	1.87
	30	15	0.92	1.58	1.83

15 Series VAN					METRIC	
23° Trajectory						
Nozzle	Pressure bar	Radius m	Flow m³/h	Flow l/m	 Precip mm/h	 Precip mm/h
 360° Arc	1.0	3.4	0.60	9.8	52	60
	1.5	3.9	0.72	11.8	47	55
	2.0	4.5	0.84	13.7	41	48
	2.1	4.6	0.84	14.0	40	46
 270° Arc	1.0	3.4	0.45	7.4	52	60
	1.5	3.9	0.54	8.8	47	55
	2.0	4.5	0.63	10.3	41	48
	2.1	4.6	0.63	10.5	40	46
 180° Arc	1.0	3.4	0.30	4.9	52	60
	1.5	3.9	0.36	5.9	47	55
	2.0	4.5	0.42	6.9	41	48
	2.1	4.6	0.42	7.0	40	46
 90° Arc	1.0	3.4	0.15	2.5	52	60
	1.5	3.9	0.18	2.9	47	55
	2.0	4.5	0.21	3.4	41	48
	2.1	4.6	0.21	3.5	40	46

Note: Turning the radius reduction screw may be required to achieve catalog radius and flow when the arc is set at less than maximum arc

■ Square spacing based on 50% diameter of throw

▲ Triangular spacing based on 50% diameter of throw

Performance data taken in zero wind conditions

FUTURE
DEVELOPMENT

FUTURE DEVELOPMENT

WEST MOUNTAIN ESTATES

THE MEADOWS AT WEST MOUNTAIN
PHASES I - III
OVERALL WATER SYSTEM LAYOUT

TOTEMAN-ORTON ENGINEERING COMPANY
CONSULTING ENGINEERS, ARCHITECTS AND PLANNERS
1000 10TH AVENUE, SUITE 100
DENVER, COLORADO 80202
TEL: 333-1111
FAX: 333-1111



NO.	DATE	REVISION
1	10/1/98	ISSUED FOR PERMIT
2	10/1/98	REVISED TO ADD PHASE III
3	10/1/98	REVISED TO ADD PHASE III
4	10/1/98	REVISED TO ADD PHASE III
5	10/1/98	REVISED TO ADD PHASE III
6	10/1/98	REVISED TO ADD PHASE III
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93	10/1/98	REVISED TO ADD PHASE III
94	10/1/98	REVISED TO ADD PHASE III
95	10/1/98	REVISED TO ADD PHASE III
96	10/1/98	REVISED TO ADD PHASE III
97	10/1/98	REVISED TO ADD PHASE III
98	10/1/98	REVISED TO ADD PHASE III
99	10/1/98	REVISED TO ADD PHASE III
100	10/1/98	REVISED TO ADD PHASE III

FIGURE 3



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Yearly Maximum Diversions

Obtained from 2015, 2016, and 2017 totalizer records provided by Timberline Development

Year	Domestic (AF)	Domestic (cfs)	Irrigation (AF)	Irrigation (cfs)	Recommended Limits (AF)			
					Domestic (AF)	Domestic (cfs)**	Irrigation (AF)*	Irrigation (cfs)
2015	55.4	0.31	24.5	0.55				
2016	67.9	0.34	32.0	0.34				
2017	69.1	0.06	22.8	0.04	69.1	0.33	0.48	72.0

*Irrigation volume limit was established by 24 acres X 3.0 H.G.R.

**Domestic rate was established by 0.02 cfs/acre

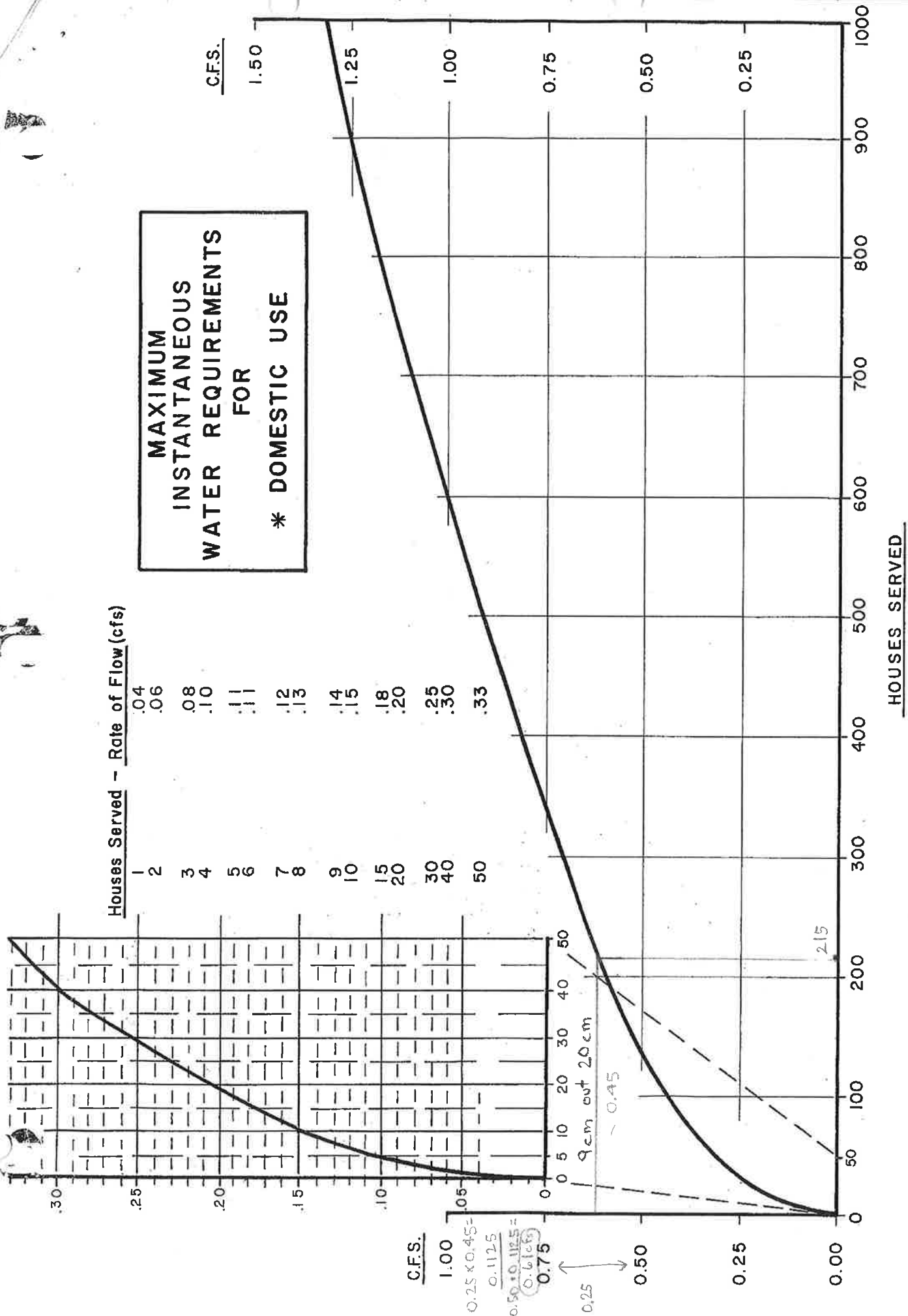


FIG. 1.

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

THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.: 65-22888
 Reviewer: Aaron Skinner
 Date of Review: 9/20/2018

Well Tag No. D0046655	Senerio 1	Senerio 2	Senerio 3
PUMP HORSEPOWER	175	175	175
BOOSTER HORSEPOWER	0	0	0
PUMPING LEVEL	215	215	215
DISCHARGE PRESSURE	40	45	50
RATE OF FLOW (cfs)	3.51	3.38	3.26
			AVE. 3.38

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

Examiners Notes:

Lift was taken from well log and the well inspection report by SPF on June 21, 2006. 175 Hp pump was identified during the field exam by Mr. Mangum. The system runs between 40 and 50 psi, which equates to an average flow of 3.38 cfs.

Overlap Analysis for Permit No. 65-22888 POU

16N03E17	Batch/Sequence	Draft	Owner	Source	Use	NENE	NWNE	SWNE	SENE	NENW	NWNW	SWNW	SENW	NESW	NWSW	SWSW	SESW	NENE	NWSE	SWSE	SESE	Totals/Acres
Water Right	65-10688	N	HARRIS, RONALD K.	GROUND WATER	DOMESTIC																	
Water Right	65-12044	N	GRAVES, RONALD K. SCHULZ, ROBERT W	GROUND WATER	DOMESTIC	X																
Water Right	65-12119	N	HARRIS, LESLIE W	GROUND WATER	DOMESTIC																	
Water Right	65-12010	N	HOENE, MAXINE; HOENE, THOMAS V	GROUND WATER	DOMESTIC																	
Water Right	65-17011	N	HOENE, MAXINE; HOENE, THOMAS V; MAXWELL, BARBARA E; MAXWELL, RONALD H	GROUND WATER	DOMESTIC																	
Water Right	65-17061	N	RUNGER, JESS; RUNGER, VIOLA	GROUND WATER	DOMESTIC																	
Water Right	65-17265	N	KUTZMAN, FREDA; KUTZMAN, MERLE	GROUND WATER	DOMESTIC																	
Water Right	65-17266	N	KUTZMAN, FREDA; KUTZMAN, MERLE	GROUND WATER	DOMESTIC																	
Water Right	65-17597	N	FRANCIS, KENNETH; FRANCIS, MARCIA	GROUND WATER	DOMESTIC																	
Water Right	65-17625	N	JENKINS, EDMUND; JENKINS, THEODA	GROUND WATER	DOMESTIC																	
Water Right	65-17712	N	EDDY, GLENDON F; EDDY, KATHY P	GROUND WATER	DOMESTIC																	
Water Right	65-17723	N	SWINDELL, PHYLLIS K; SWINDELL, REKA	GROUND WATER	DOMESTIC																	
Water Right	65-17733	N	SWINDELL, PHYLLIS K; SWINDELL, REKA	GROUND WATER	DOMESTIC																	
Water Right	65-17968	N	AGANNEW, JESS; AGANNEW, MARGARET A	GROUND WATER	DOMESTIC																	
Water Right	65-17981	N	HARRIS, JUANITA M; HARRIS, LESLIE W	GROUND WATER	DOMESTIC																	
Water Right	65-17999	N	FREEMAN, SHARREN; HILL, CONNIE; HILL, FRED; HILL, HAROLD; HILL, YVONNE; WINKELMAN, K	GROUND WATER	DOMESTIC																	
Water Right	65-19643	N	HODGE, ELEANOR S; HODGE, MATTHEW L	GROUND WATER	DOMESTIC	X																
Water Right	65-22623	N	ELD, LARRY A; TIMBERLINE DEVELOPMENT LLC	MUD CREEK	STOCKWATER																	
Water Right	65-22888	Y	BUCKSKIN PROPERTIES INC; TIMBERLINE DEVELOPMENT LLC	GROUND WATER	DOMESTIC	X	X	X	X													
Water Right	65-22888	Y	BUCKSKIN PROPERTIES INC; TIMBERLINE DEVELOPMENT LLC	GROUND WATER	FIRE PROTECTION	X	X	X	X													
Water Right	65-22888	Y	BUCKSKIN PROPERTIES INC; TIMBERLINE DEVELOPMENT LLC	GROUND WATER	IRRIGATION	7.9	6.8		9.3													24
Water Right	65-22889	N	NORTH LAKE RECREATIONAL SEWER & WATER DISTRICT; W & S INVESTMENTS INC	GROUND WATER	FIRE PROTECTION																	
Water Right	65-22889	N	NORTH LAKE RECREATIONAL SEWER & WATER DISTRICT; W & S INVESTMENTS INC	GROUND WATER	MUNICIPAL																	
Water Right	65-22971	N	CRANE SHORES LLC; NORTH LAKE RECREATIONAL SEWER & WATER DISTRICT; SPF WATER ENGI	GROUND WATER	MUNICIPAL																	
Water Right	65-23179	N	ELD, ARLENE B; ELD, LARRY A; KOB LLC; MOSER, MATTHEW M; TIMBERLINE DEVELOPMENT LLC	MUD CREEK	IRRIGATION	39	40	2														81
Water Right	65-23773	N	ELD, ARLENE B; ELD, LARRY A; KOB LLC; MOSER, MATTHEW M; TIMBERLINE DEVELOPMENT LLC	MUD CREEK	IRRIGATION	39	40	2														81
Water Right	65-23773	N	ELD, ARLENE B; ELD, LARRY A; KOB LLC; MOSER, MATTHEW M; TIMBERLINE DEVELOPMENT LLC	MUD CREEK	IRRIGATION	39	40	2														81
Water Right	65-23773	N	ELD, ARLENE B; ELD, LARRY A; KOB LLC; MOSER, MATTHEW M; TIMBERLINE DEVELOPMENT LLC	MUD CREEK	IRRIGATION	39	40	2														81
Water Right	65-23784	N	ELD, ARLENE B; ELD, LARRY A; KOB LLC; MOSER, MATTHEW M; TIMBERLINE DEVELOPMENT LLC	MUD CREEK	IRRIGATION	39	40	2														81
Water Right	65-23785	N	ELD, ARLENE B; ELD, LARRY A; KOB LLC; MOSER, MATTHEW M; TIMBERLINE DEVELOPMENT LLC	MUD CREEK	IRRIGATION	39	40	2														81
Water Right	65-2398X	N	PLATT, MARY F; PLATT, WENDELL G	MUD CREEK	IRRIGATION																	
Water Right	65-3183	N	PLATT, MARY F; PLATT, WENDELL G	GROUND WATER	DOMESTIC																	
Water Right	65-5455	N	SCHULTZ, GEORGE H	GROUND WATER	DOMESTIC																	
Water Right	65-5457	N	PLATT, MARY F; PLATT, WENDELL B	GROUND WATER	DOMESTIC																	
Water Right	65-7241	N	CAMERON, LUCILLE M; CAMERON, W E	GROUND WATER	DOMESTIC																	
Water Right	65-7731	N	BROTHERS, CLYDE H; COOPER FAMILY TRUST; COOPER, LILBURN L	GROUND WATER	DOMESTIC																	
Water Right	65-7831	N	HILLHOUSE SUBDIVISION WATER USERS ASSN INC	GROUND WATER	DOMESTIC																	
Water Right	65-8653	N	DOUGLAS, CATHERINE M; DOUGLAS, JAMES H; HILLHOUSE, GLENN H	GROUND WATER	DOMESTIC	16																16
Water Right	65-8518	N	DOUGLAS, CATHERINE M; DOUGLAS, JAMES H; HILLHOUSE, GLENN H	GROUND WATER	DOMESTIC																	
Water Right	65-8518	N	DOUGLAS, CATHERINE M; DOUGLAS, JAMES H; HILLHOUSE, GLENN H	GROUND WATER	DOMESTIC																	
Water Right	65-8588	N	ALLEN, BARBARA A; ALLEN, BERT L; ALLEN, LURELLA; ALLEN, WALLACE B	GROUND WATER	DOMESTIC																	
Water Right	65-9590	N	PAINE, ERNEST L; PAINE, HELENI	GROUND WATER	DOMESTIC																	

Overlap; Irrigation combine use limits recommended.

Overlap; different use and POD. No limits necessary.

No Overlap; 6 acres is included in a pending transfer of POU. WR was conveyed without the land.

No Overlap; specific to a different parcel number and/or houses off Cameron Dr.

No Overlap; WR was not claimed in the newest SBA. Should not be an active right.

Overlap Analysis for Permit No. 65-22888 POD

Process	Basin/Sequence	Draft	Owner	Source	Use	NENE	NWNE	SWNE	SENE	NENW	NWNW	SWNW	SENW	NESW	NWSW	SWSW	SESW	NESE	NWSE	SWSE	SSE	Total/Aces
Water Right	65-10408	N	HARRIS, DELLA J	GROUND WATER																		
Water Right	65-12044	N	GRAVES, RONALD S; SCHULTZ, ROBERT W	GROUND WATER																		
Water Right	65-12119	N	HARRIS, LESLIE W	GROUND WATER																		
Water Right	65-17010	N	HOENE, MAXINE; HOENE, THOMAS V	GROUND WATER																		
Water Right	65-17011	N	HOENE, MAXINE; HOENE, THOMAS V; MAXWELL, BARBARA E; MAXWELL, RONALD I	GROUND WATER																		
Water Right	65-17081	N	RUNGER, JESS; RUNGER, VIOLA	GROUND WATER																		
Water Right	65-17265	N	KUTZMAN, FRED; KUTZMAN, MERLE	GROUND WATER																		
Water Right	65-17266	N	KUTZMAN, FRED; KUTZMAN, MERLE	GROUND WATER																		
Water Right	65-17597	N	FRANCIS, KENNETH; FRANCIS, MARCIA	GROUND WATER																		
Water Right	65-17625	N	JENKINS, EDWIN; JENKINS, THEDA	GROUND WATER																		
Water Right	65-17712	N	EDDY, GLENDON F; EDDY, KATHY P	GROUND WATER																		
Water Right	65-17723	N	SWINDELL, PHYLLIS K; SWINDELL, REX A	GROUND WATER																		
Water Right	65-17968	N	AGANIEW, JESS; AGANIEW, MARGARET A	GROUND WATER																		
Water Right	65-17981	N	HARRIS, JUANITA M; HARRIS, LESLIE W	GROUND WATER																		
Water Right	65-17999	N	FREEMAN, SHARREN; HILL, CONNIE; HILL, FRED; HILL, HAROLD; HILL, YVONNE; WINI	GROUND WATER																		
Water Right	65-19643	N	HODGE, ELEANOR S; HODGE, MATTHEW L	GROUND WATER																		
Water Right	65-22888	Y	BUCKSKIN PROPERTIES INC; TIMBERLINE DEVELOPMENT LLC	GROUND WATER																		
Water Right	65-22889	N	NORTH LAKE RECREATIONAL SEWER & WATER DISTRICT; W & S INVESTMENTS INC	GROUND WATER																		
Water Right	65-22971	N	CRANE SHORES LLC; NORTH LAKE RECREATIONAL SEWER & WATER DISTRICT; SPF V	GROUND WATER																		
Water Right	65-5455	N	SCHULTZ, GEORGE H	GROUND WATER																		
Water Right	65-5457	N	PLATT, MARY F; PLATT, WENDELL B	GROUND WATER																		
Water Right	65-7441	N	CAMERON, LUCILLE M; CAMERON, W E	GROUND WATER																		
Water Right	65-7731	N	BROTHERS, CLYDE H; COOPER FAMILY TRUST; COOPER, LILBURN L	GROUND WATER																		
Water Right	65-7831	N	HILLHOUSE SUBDIVISION WATER USERS ASSN INC	GROUND WATER																		
Water Right	65-8518	N	DOUGLAS, CATHERINE M; DOUGLAS, JAMES H; HILLHOUSE, GLENN H	GROUND WATER																		
Water Right	65-9588	N	ALLEN, BARBARA A; ALLEN, BERT L; ALLEN, LUELLA; ALLEN, WALLACE B	GROUND WATER																		
Water Right	65-9590	N	PAINE, ERNEST L; PAINE, HELEN I	GROUND WATER																		

No Overlap; understood to be a different well location feeding houses on Cameron Dr.

IDAHO DEPARTMENT OF WATER RESOURCES WELL DRILLER'S REPORT

Office Use Only			
Well ID No.	825671		
Inspected by			
Twp	Rge	Sec	
1/4	1/4	1/4	
Lat	:	:	Long
:	:	:	:

1. WELL TAG NO. D 0038349
 DRILLING PERMIT NO. 885798-825671
 Water Right or Injection Well No. _____

2. OWNER:
 Name BUCKSKIN PROPERTIES INC.
 Address P.O. Box 145
 City DONNELLY State ID Zip 83615

3. LOCATION OF WELL by legal description:

You must provide address or Lot, Blk, Sub. or Directions to well.

Twp. 16 North ☒ or South ☐
 Rge. 3 East ☒ or West ☐
 Sec. 17 1/4 SE 1/4 NE 1/4
 Gov't Lot _____
 Lat: _____ Long: _____
 Address of Well Site CAMERON LANE

City DONNELLY
 Lt. 16 Blk. 1 Sub. Name West Mtn. Est.

4. USE:

☒ Domestic ☐ Municipal ☐ Monitor ☒ Irrigation
☐ Thermal ☐ Injection ☒ Other FIRE PROTECTION

5. TYPE OF WORK check all that apply (Replacement etc.)

☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD:

☐ Air Rotary ☐ Cable ☐ Mud Rotary ☒ Other REVERSE

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
<u>5/8 BENTONITE</u>	<u>0</u>	<u>440</u>	<u>55,000</u>	<u>DRY POUR</u>

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
<u>16"</u>	<u>+2</u>	<u>358</u>	<u>.375</u>	<u>STEEL</u>	☒	☐	☒	☐
<u>10"</u>	<u>358</u>	<u>476</u>	<u>.365</u>	<u>STEEL</u>	☒	☐	☒	☐
<u>10"</u>	<u>506</u>	<u>520</u>	<u>.365</u>	<u>STEEL</u>	☒	☐	☒	☐

Length of Headpipe _____ Length of Tailpipe _____

Packer ☐ Y ☒ N Type _____

9. PERFORATIONS/SCREENS PACKER TYPE

Perforation Method _____

Screen Type & Method of Installation JOHNSON WIREWRAP

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
<u>476</u>	<u>506</u>	<u>.030</u>		<u>10"</u>	<u>S.S.</u>	☒	☐
<u>520</u>	<u>550</u>	<u>.030</u>		<u>10"</u>	<u>S.S.</u>	☒	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method
<u>SS 16-9 SAND</u>	<u>440</u>	<u>535</u>	<u>21,000</u>	<u>DRY POUR</u>

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

12 ft. below ground Artesian pressure _____ lb.
 Depth flow encountered _____ ft. Describe access port or control devices:
1 1/2" ACCESS PORT

12. WELL TESTS:

☒ Pump	☐ Bailor	☐ Air	☐ Flowing Artesian
Yield gal/min.	Drawdown	Pumping Level	Time
<u>2300 gpm</u>	<u>120'</u>	<u>132'</u>	<u>2 hrs</u>

Water Temp. _____ Bottom hole temp. _____

Water Quality test or comments: _____

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water	Y	N
<u>25"</u>	<u>0</u>	<u>2</u>	<u>TOP SOIL</u>			
	<u>2</u>	<u>10</u>	<u>HARD CLAY</u>			
	<u>10</u>	<u>33</u>	<u>WHITE CLAY</u>			
	<u>33</u>	<u>61</u>	<u>BLUE CLAY</u>			
	<u>61</u>	<u>80</u>	<u>COARSE SAND, PEA GRAVEL</u>			
	<u>80</u>	<u>86</u>	<u>BLUE CLAY</u>			
	<u>86</u>	<u>162</u>	<u>FINE - COARSE SAND, PEA GRAVEL</u>			
	<u>162</u>	<u>168</u>	<u>BLUE CLAY</u>			
	<u>168</u>	<u>175</u>	<u>FINE - COARSE SAND, SM GRAVEL</u>			
	<u>175</u>	<u>187</u>	<u>BLUE CLAY</u>			
	<u>187</u>	<u>205</u>	<u>FINE-MED. SAND</u>			
	<u>205</u>	<u>228</u>	<u>BLUE CLAY, COARSE SAND MIX</u>			
	<u>228</u>	<u>268</u>	<u>FINE - COARSE SAND</u>			
	<u>268</u>	<u>274</u>	<u>BLUE CLAY</u>			
	<u>274</u>	<u>276</u>	<u>FINE-MED SAND</u>			
	<u>276</u>	<u>288</u>	<u>BLUE CLAY</u>			
	<u>288</u>	<u>325</u>	<u>FINE-MED SAND</u>			
	<u>325</u>	<u>332</u>	<u>BLUE CLAY</u>			
	<u>332</u>	<u>367</u>	<u>FINE-MED SAND</u>			
	<u>367</u>	<u>371</u>	<u>BLUE CLAY</u>			
	<u>371</u>	<u>386</u>	<u>FINE-MED SAND</u>			
	<u>386</u>	<u>388</u>	<u>BLUE CLAY</u>			
	<u>388</u>	<u>411</u>	<u>FINE - COARSE SAND, PEA GRAVEL</u>			
	<u>411</u>	<u>423</u>	<u>BLUE CLAY</u>			
	<u>423</u>	<u>508</u>	<u>FINE-MED SAND, SM GRAVEL</u>			
	<u>508</u>	<u>521</u>	<u>BRN CLAY</u>			
	<u>521</u>	<u>528</u>	<u>COARSE SAND, PEA GRAVEL</u>			
	<u>528</u>	<u>535</u>	<u>BLUE CLAY</u>			

RECEIVED

JAN 10 2005

WATER RESOURCES
WESTERN REGION

Completed Depth 550' (Measurable)

Date: Started 11-21-04 Completed 12-21-04

14. DRILLER'S CERTIFICATION

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

Company Name RIVERSIDE INC Firm No. 333

Principal Driller _____ Date _____
 and
 Driller or Operator II _____ Date 1-05-05

Operator _____ Date _____
 Principal Driller and Rig Operator Required.
 Operator I must have signature of Driller/Operator II.

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

8-0075

PAGE #2

Office Use Only			
Well ID No. <u>410384</u>			
Inspected by _____			
Twp _____	Rge _____	Sec _____	
1/4 _____		1/4 _____ 1/4 _____	
Lat: _____	: _____	Long: _____	: _____

1. WELL TAG NO. D 0046655
 DRILLING PERMIT NO. 894690-840075
 Water Right or Injection Well No. 65-22888

2. OWNER:

Name BUCKSKIN PROPERTIES/TIMBERLINE DEVELOPMENT
 Address P.O. BOX 145
 City DONNELLY State ID Zip 83615

3. LOCATION OF WELL by legal description: (NORTH WELL)

You must provide address or Lot, Blk, Sub. or Directions to well.

Twp. 16 North ☒ or South ☐
 Rge. 3 East ☒ or West ☐
 Sec. 17 1/4 NW 1/4 NE 1/4
 Gov't Lot _____ County VALLEY

Lat: _____ Long: _____
 Address of Well Site ROSEBERRY ROAD 3/8 MI WEST OF
NORWOOD ROAD City DONNELLY
 (Give at least name of road + Distance to Road or Landmark)

Lt. _____ Blk. _____ Sub. Name The Meadows at
West Mountain

4. USE:

☐ Domestic ☐ Municipal ☐ Monitor ☒ Irrigation
☐ Thermal ☐ Injection ☒ Other FIRE PROTECTION, COMMERCIAL
MULTI-FAMILY DOMESTIC

5. TYPE OF WORK check all that apply (Replacement etc.)

☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD:

☐ Air Rotary ☐ Cable ☐ Mud Rotary ☒ Other REVERSE

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
<u>BENTONITE</u>	<u>0</u>	<u>375</u>	<u>32,500</u>	<u>DRY POUR</u>

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

8. CASING/LINER: REDUCER 16X10@ 350'

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
<u>16"</u>	<u>+3</u>	<u>350</u>	<u>.375</u>	<u>STEEL</u>	☒	☐	☒	☐
<u>10"</u>	<u>350</u>	<u>400</u>	<u>.365</u>	<u>STEEL</u>	☒	☐	☒	☐
<u>10</u>	<u>410</u>	<u>416</u>	<u>.365</u>	<u>STEEL</u>	☒	☐	☒	☐

Length of Headpipe _____ Length of Tailpipe 5'

Packer ☐ Y ☐ N Type _____

9. PERFORATIONS/SCREENS PACKER TYPE

Perforation Method _____

Screen Type & Method of Installation JOHNSON WIRE WRAP

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
<u>400</u>	<u>410</u>	<u>.030</u>		<u>10"</u>	<u>S.S.</u>	☒	☐
<u>416</u>	<u>426</u>	<u>.030</u>		<u>10"</u>	<u>S.S.</u>	☒	☐
<u>433</u>	<u>443</u>	<u>.030</u>		<u>10"</u>	<u>S.S.</u>	☐	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method
<u>#6-9 SAND</u>	<u>375</u>	<u>546</u>	<u>21,000</u>	<u>DRY POUR</u>

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

7 ft. below ground Artesian pressure _____ lb.

Depth flow encountered _____ ft. Describe access port or control devices: _____

1 1/2" PIPE ON SIDE

12. WELL TESTS:

☒ Pump	☐ Bailor	☐ Air	☐ Flowing Artesian
Yield gal./min.	Drawdown	Pumping Level	Time
<u>1500 gpm</u>	<u>56'</u>	<u>63'</u>	<u>8 hr</u>

Water Temp. _____ Bottom hole temp. _____

Water Quality test or comments: _____

Depth first Water Encounter _____

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
<u>24"</u>	<u>0</u>	<u>2</u>	<u>TOP SOIL</u>		
	<u>2</u>	<u>38</u>	<u>FINE-COARSE SAND, PEA GRAVEL</u>		
	<u>38</u>	<u>42</u>	<u>GRAY STICKY CLAY</u>		
	<u>42</u>	<u>86</u>	<u>FINE-COARSE SAND w/SM CLAY LAYERS</u>		
	<u>86</u>	<u>94</u>	<u>GRAY CLAY</u>		
	<u>94</u>	<u>102</u>	<u>FINE-COARSE SAND, PEA GRAVEL</u>		
	<u>102</u>	<u>122</u>	<u>CLAY</u>		
	<u>122</u>	<u>214</u>	<u>FINE-COARSE SAND</u>		
	<u>214</u>	<u>218</u>	<u>GRAY CLAY</u>		
	<u>218</u>	<u>223</u>	<u>FINE-COARSE SAND</u>		
	<u>223</u>	<u>246</u>	<u>GRAY CLAY</u>		
	<u>246</u>	<u>382</u>	<u>FINE-COARSE SAND w/SM CLAY LAYERS</u>		
	<u>382</u>	<u>465</u>	<u>FINE SAND, CLAY MIX</u>		
	<u>405</u>	<u>450</u>	<u>FINE-COARSE SAND w/SOME CLAY MIX</u>		
	<u>450</u>	<u>462</u>	<u>GRAY CLAY</u>		
	<u>462</u>	<u>518</u>	<u>FINE SAND w/SM CLAY LAYERS</u>		
	<u>518</u>	<u>530</u>	<u>GRAY CLAY</u>		
	<u>530</u>	<u>535</u>	<u>FINE SAND</u>		
	<u>535</u>	<u>546</u>	<u>COARSE SAND, SM. GRAVEL</u>		
	<u>546</u>	<u>560</u>	<u>CLAY</u>		

RECEIVED

JUL 17 2006

WATER RESOURCES
WESTERN REGION

Completed Depth 546' (Measurable)

Date: Started 6-2-06 Completed 7-10-06

14. DRILLER'S CERTIFICATION

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

Company Name RIVERSIDE INC Firm No. 333

Principal Driller [Signature] Date 7-14-06

and Driller or Operator II [Signature] Date 7-14-06

Operator I [Signature] Date 7-14-06

Principal Driller and Rig Operator Required.
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

PUMP

Robbco Pumps

City: United Pipe - Boise

Darrel Grandstaff

Date: 04/05/05

Riverside Inc - Mc Call



Pump:

Size: 6LHE (4 stages)
 Type: SUBMERSIBLE
 Synch speed: 3600 rpm
 Curve no.:
 Specific Speeds:
 Dimensions:
 Vertical Turbine:

Speed: 3470 rpm
 Dia: 4.5 in
 Impeller:
 Ns: 1701
 Nss: —
 Suction: 4 in
 Discharge: 4 in
 Bowl size: 5.93 in
 Max lateral: 0.25 in
 Thrust K factor: 3.5 lb/ft

Search Criteria:

Flow: 150 US gpm

Head: 287 ft

Fluid:

Water
 SG: 1
 Viscosity: 1.105 cP
 NPSHa: — ft

Temperature: 60 °F
 Vapor pressure: 0.2563 psi a
 Atm pressure: 14.7 psi a

Motor:

Standard: NEMA
 Enclosure: SUB

Size: 20 hp
 Speed: 3600
 Frame: "6"

Sizing criteria: Max Power on Design Curve

Pump Limits:

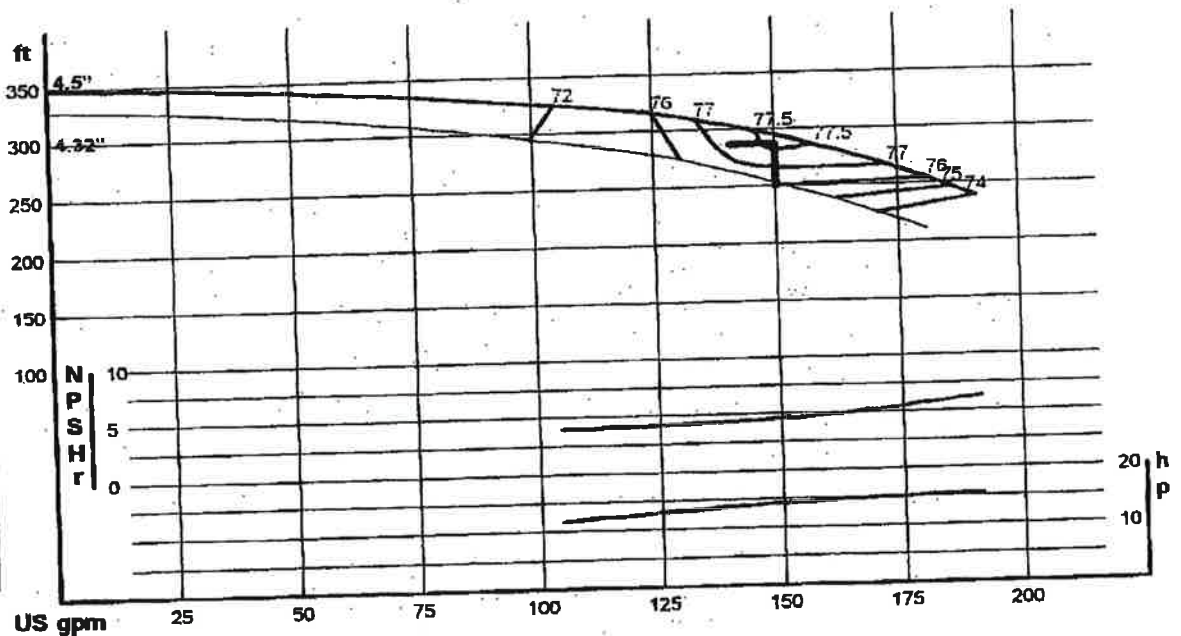
Temperature: 120 °F
 Pressure: 460 psi g
 Sphere size: 0.22 in

Power: — hp
 Eye area: — in²

--- Data Point ---
 Flow: 150 US gpm
 Head: 294 ft
 Eff: 77.5%
 Power: 14.3 hp
 NPSHr: 4.59 ft

--- Design Curve ---
 Shutoff Head: 348 ft
 Shutoff dP: 150 psi
 Min Flow: — US gpm
 BEP: 77.6% eff
 @ 153 US gpm
 NOL Pwr: 15.5 hp
 @ 191 US gpm

--- Max Curve ---
 Max Pwr: 15.5 hp
 @ 191 US gpm



Performance Evaluation:

Flow	Speed	Head	Pump	Power	NPSHr
US gpm	rpm	ft	%eff	hp	ft
180	3470	256	76.1	15.3	5.82
150	3470	294	77.5	14.3	4.59
120	3470	318	75.1	12.8	4.15
90	3470	328	69.1	11	3.99
60	3470	—	—	—	—

Selected from catalog: Robbco Submersible.60 Vers: 1

ROBBCO PUMP SELECTOR 2004a

RPP 05 00 10:46

PUMP DATA SHEET Robbco Pumps

Company:

Name:

Date: 10/11/05



Pump:

Size: 9CLE (3 stages)

Type: SUBMERSIBLE

Synch speed: 3600 rpm

Curve no.:

Specific Speeds:

Dimensions:

Vertical Turbine:

Speed: 3450 rpm

Dia: 6.4375 in

Impeller:

Ns: 2290

Nss: —

Suction: 6 in

Discharge: — in

Bowl size: 9.75 in

Max lateral: 0.88 in

Thrust K factor: 4.9 lb/ft

Search Criteria:

Flow: 1000 US gpm

Head: 296 ft

Fluid:

Water

SG: 1

Viscosity: 1.105 cP

NPSHa: — ft

Temperature: 60 °F

Vapor pressure: 0.2563 psi a

Atm pressure: 14.7 psi a

Motor:

Standard: NEMA

Enclosure: SUB

Size: 100 hp

Speed: 3600

Frame: 8 inch

Sizing criteria: Max Power on Design Curve

Pump Limits:

Temperature: 120 °F

Pressure: 400 psi g

Sphere size: 0.56 in

Power: — hp

Eye area: — in²

Data Point

Flow: 1000 US gpm

Head: 296 ft

Eff: 81%

Power: 91.9 hp

NPSHr: 21 ft

Design Curve

Shutoff Head: 547 ft

Shutoff dP: 237 psi

Min Flow: — US gpm

BEP: 84.6% eff

@ 771 US gpm

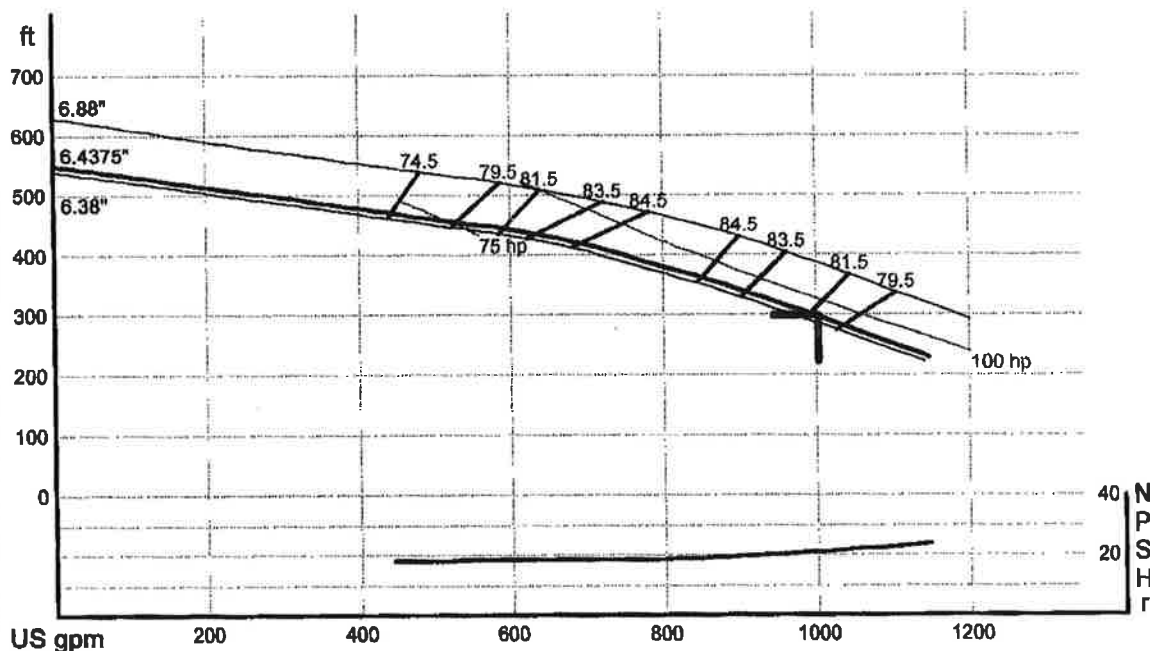
NOL Pwr: 91.9 hp

@ 1034 US gpm

Max Curve

Max Pwr: 110 hp

@ 1041 US gpm



Available Discharge 5, 6, 8"

Performance Evaluation

Flow	Speed	Head	Pump	Power	NPSHr
US gpm	rpm	ft	%eff	hp	ft
1200	3450	—	—	—	—
1000	3450	296	81	91.9	21
800	3450	378	84.6	90	18.8
600	3450	440	82	81.1	18.4
400	3450	476	71.9	67.3	18.1



Well House #1 has two pumps; 15 hp Robco 6LHE-4 and 100 hp Robco 6LHE (3 stage) pump.

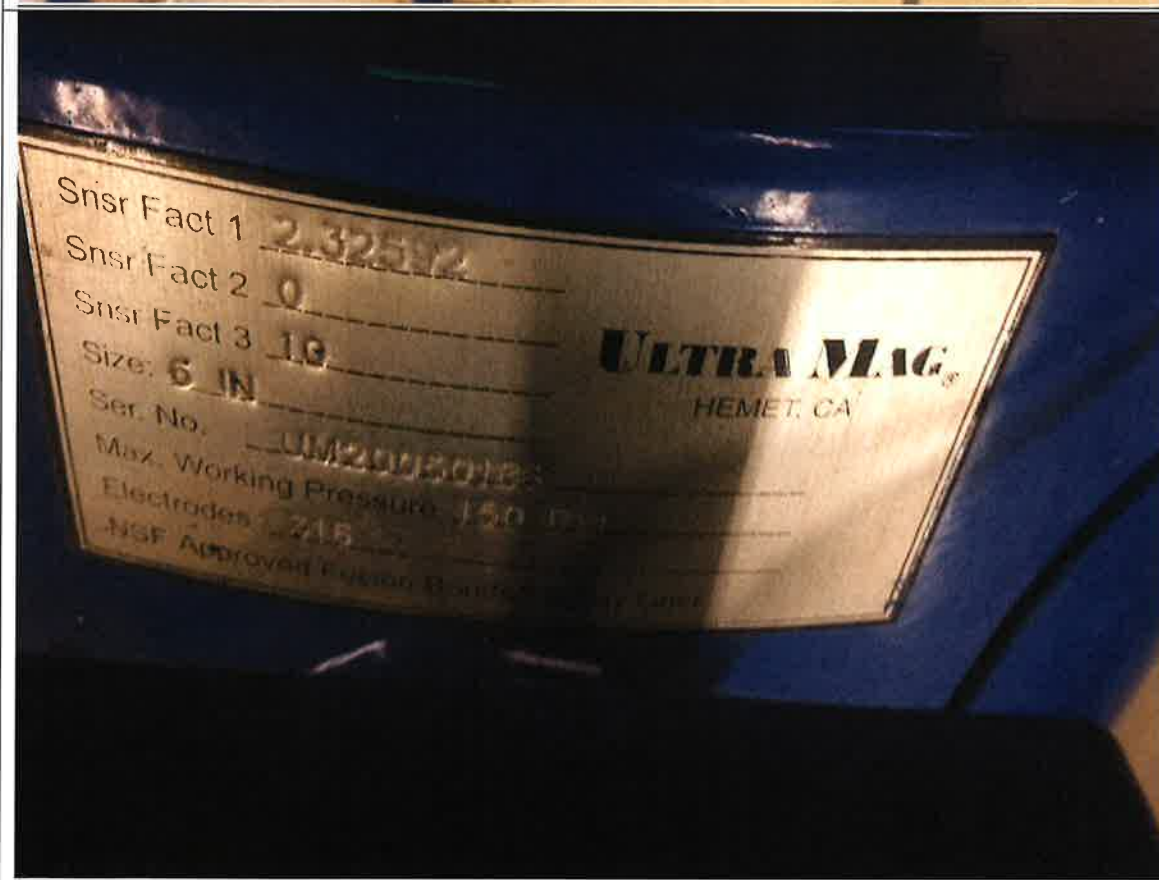
Well Tag No. D0038349.



Delivery system in well house #1.



Flow meter connected to both pumps. A totalizer is used to track usage.



Ultra Mag flow meter.



Pressure tanks used to alleviate spikes in the domestic system.



Automation system used to adjust flow, water quality chemicals, and visualize pump use.



Well House #2
located at the
corner of W
Roseberry Road
and Schultz Lane.



One pump is
located in this
well; a Karlington
Electric 175 hp
motor used for fire
protection.



Ultra Mag flow meter connected to this well.



Image of the system standing at the door. Arrow represents flow direction.



Townhomes located in the NWNE of Section 17. Domestic use is for internal use only as the irrigation component water the common areas and landscape.



1 of 14 fire hydrants located in the Fire Protection POU. This one is located on the corner of Charters Circle and Charters Drive.



2 of 14 fire hydrants located in the Fire Protection POU. This one borders the undeveloped commercial use on the west side of Timberline Road.



Single family homes along Timberline Drive.



State of Idaho

DEPARTMENT OF WATER RESOURCES

Western Region • 2735 Airport Way • Boise, Idaho 83705-5082

Phone: (208) 334-2190 • Fax: (208) 334-2348 • Website: www.idwr.idaho.gov

C.L. "BUTCH" OTTER
Governor

GARY SPACKMAN
Director

December 28, 2017

COPY

TIMBERLINE DEVELOPMENT LLC
PO BOX 145
DONNELLY, ID 83615

RE: Scheduling Field Exam for Water Right Permit No. 65-22888

Dear Permit Holder:

We are planning to conduct water right examinations in the vicinity of the above-referenced permit **this season**. An examination is needed to verify the water use in order to issue a water right license.

The above-referenced permit authorizes **5.00 cfs** of **GROUND WATER** for **COMMERCIAL, DOMESTIC, FIRE PROTECTION, and IRRIGATION** use. **If you have developed a beneficial use and still own the place of use property, please contact me at your earliest convenience to schedule an examination.**

If you did not develop a beneficial use of water under the permit during the beneficial use period, a license cannot be issued and the permit should be relinquished. If that use was developed, but have ceased using the water and you currently carry no interest in it, please relinquish the permit by submitting the enclosed Relinquishment of Permit form (no fee required).

Please contact me within the next thirty (30) days at (208) 334-2190 to either schedule an examination or submit a relinquishment form. If the Department does not received a response by January 29, 2018, your permit will become void. Thank you for your attention to this matter.

Sincerely,

Aaron Skinner
Water Resource Agent
Idaho Department of Water Resources
Phone: (208) 334-2190
Email: aaron.skinner@idwr.idaho.gov

Enclosures: Relinquishment of Permit form
Water Permit Report and Map