STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 63-34584
Exam Date: 08/19/2024

1. Current Owner:
   LINFIELD ESTATES HOA PO BOX 795 MIDDLETON ID 83644-0795

2. Accompanied by: GORDON BROWN
   Phone No: (208)573-8507
   Address: 22765 RILEY CT, MIDDLETON, ID
   Relationship to permit Holder: Former Director of HOA (2023) Representative on the Statement of Completion.

3. **SOURCE:**
GROUND WATER
Method of Determination: GARMIN GPS, GIS, and Canyon County GIS Imagery

B. OVERLAP REVIEW

1. Other water rights with the same place of use: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
63-21741	GROUNDWATER	DOMESTIC	LICENSE (DECREED)
63-124N, 126E, 161X, 168D, et al.	BOISE RIVER	IRRIGATION	LICENSE (DECREED)

Comments: The permit place of use (POU) is overlapped by the service area for several irrigation rights diverting from the Boise River held by the Middleton Irrigation Association/Middleton Ditch Co. The irrigation entity protested this application for permit to ensure that any rights were conditioned such that surface water is the primary source. Stipulations were agreed to, and the protest was withdrawn. The only other overlapping right is a domestic right identifying the entire NENE as the POU. The domestic right lists Larry and Vicki Kuenzli as the current owners. Canyon County tax parcel data does not identify a parcel within the NENE owned by the right holder.

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

Water Right No.	Source	Purpose of Use	Basis
NONE	NA	NA	NA

Comments: Although all parcels within the Linfield Estates HOA share the same primary surface water diversion each parcel has its own shallow 18ft well point of diversion (POD) and irrigation system.

C. DIVERSION AND DELIVERY SYSTEM

1. **LOCATION OF POINT(S) OF DIVERSION: GPS COORDS: N43°42.224, W116°33.394**
GROUND WATER NE¼ NE¼, Sec. 10, Twp 04N, Rge 02W, B.M. CANYON County
Method of Determination: Garmin GPS Map 76, GIS, and Canyon County GIS imagery.

PLACE OF USE: IRRIGATION

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
04N	02W	10	0.8																0.8

Total Acres: 0.8
Method of Determination: GIS, Canyon County GIS Imagery, Tax Parcel Information.

3.

X Delivery System Diagram Attached (required). Indicate all major components and distances between components. 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 or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
Shallow Well	Unknown	5	Unknown	Unknown	Unknown

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
NONE	NA	NA	NA	NA	NA	NA

2. Measurements: At the time of the field examination the system was installed and operational, but it was not possible to take a field measurement at the well head or manifold for the system. Beneficial Use Rule 035.01.r.iii. states that a direct measurement is not necessary for uses other than irrigation or storage if the total combined diversion rate for all the uses does not exceed 0.24cfs. The HOA representative provided system details including the sprinkler system details and pump horsepower.

E. FLOW CALCULATIONS

_____ Additional Computation Sheets Attached

Measured Method: Theoretical calculations based on system details provided by Water Czar and field observations/GIS Measurements
Q = (5 Hp)(8.8)(.80 eff)/(20 lift in ft) + (2.31)*(60 pressure psi)= 0.22cfs

Rate per head 3GPM x 8 to 9 heads maximum= 24 GPM to 27 GPM = 0.05cfs to 0.06cfs
Theoretical Calculation= 0.22cfs
Max Sprinkler Output Calculation= 0.06cfs
Permit allowed = 0.03cfs
BU limited Rate = 0.02cfs
Recommendation= 0.02cfs

Comments: Two parcels had pressure gauges on the 1 ¼" line from the well heads. The gauges were observed at 50 & 60psi the day of the examination. The Water Czar for Linfield Estates sent an email detailing the system descriptions for the 13 parcels. The description states that 3 of the parcel owners have installed different pumps currently, but all had 5 Hp pumps at some point during the development period. The largest zone reported for the systems is approximately 9 heads at 3 GPM each. The observed irrigation and theoretical calculations based on the system information indicate the system can deliver the full permitted rate, but the irrigated area is only 0.8-acre, and the stipulations of the protest withdraw limits the rate to 0.02cfs per acre. I recommend the license is issued with a rate of 0.02cfs.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$V_{I.R.}$ = (Acres Irrigated) x (Irrigation Requirement) = 0.8 acres x 4.5 AF = 3.6 AF

$V_{D.R.}$ = [Diversion Rate (cfs)] x (Days in Irrigation season) x 1.9835 = 0.02cfs x 260 Days x 1.9835 = 10.3 AF

V = Smaller of $V_{I.R}$ and $V_{D.R.}$ = 3.6 AF

2. Volume Calculations for Other Uses: NA

Comments: Based on current guidance the annual volume for the supplemental use should be conditioned in WB7 of the license. The field observed and GIS measurement for the irrigated area is 0.8-acre. I recommend the license is issued with a maximum annual volume of 3.6 AF reported in condition WB7.

G. NARRATIVE/REMARKS/COMMENTS

On August 19, 2024, a field examination was conducted with Gordon Smith (representative for Linfield Estates HOA) as escort. GPS coordinates were recorded for each shallow well POD for irrigation within the HOA (13 in total). Each shallow well is 18ft deep. Within each parcel each home has a corresponding well for domestic use (Photo 2). The static water level identified on the domestic well logs ranges from a depth of +1ft to 6ft below ground level. The shallow well system is for supplemental use when water levels within the ditch on the north boundary of the Lindfield Estates HOA are inadequate for diversion. The system diagram (Figure 1) and documentation submitted with the applications for permit (Figures 2-4) details the 8" PVC lines delivering water to T couplers at each parcel along either side of Riley Ct. From the 8"T coupling surface water can be controlled by a butterfly valve between the main line and shallow wellhead (Photo 1). This system allows surface water to be used when available and allows for administration of the surface water for each water user.

The original irrigation system installed at each parcel utilized a 5 Hp pump set at the bottom of each 18' well during the development period (Photo 1, Figures 2 & 4). The irrigation systems throughout the HOA, like the irrigation observed in this parcel (Photos 1-7), were described in an email from Tim Ahrens the current HOA Water Czar. The details received were used for theoretical calculations in section E of this report. The theoretical calculations indicate that the systems original 5 Hp pump and largest irrigation zone can deliver the full permitted rate. However, the GIS measured irrigated area is approximately 0.8-acre (Figure 6) and the agreed stipulations in the protest resolution allow a maximum rate of 0.02cfs per acre.

I recommend that the license be issued with a rate of 0.02cfs and an annual volume of 3.6 AF, stated in condition WB7. The license should be issued with conditions R61, WB7, 943, X59, and 103. Condition 046 should be removed at licensing as the development is complete. Condition 121 should be replaced with condition 103 as per current guidance.

Have conditions of permit approval been met? X Yes ____ No

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use	Rate of Diversion	
IRRIGATION	03/01 to 11/15	0.02 CFS	

Totals: 0.02 CFS

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

I. AUTHENTICATION

Bob Howe - Water Resource Agent

Field Examiner's Name Bob Howe Date 10/24/2024

Reviewer Cody Date 10/28/2024

Figure 1- **System diagram for surface water delivery.**

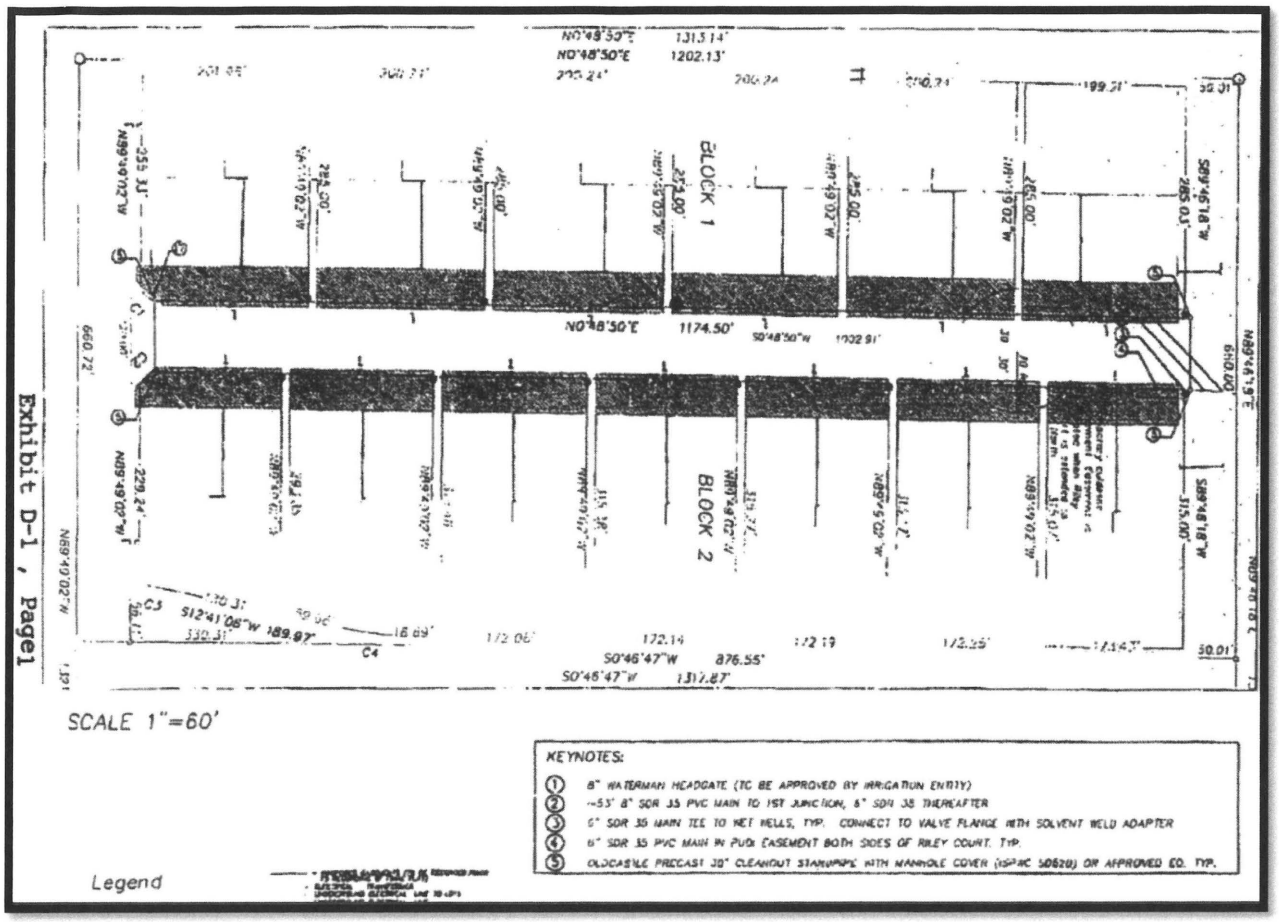

Figure 2 – **Irrigation Mainline layout print submitted with the applications for permit.**

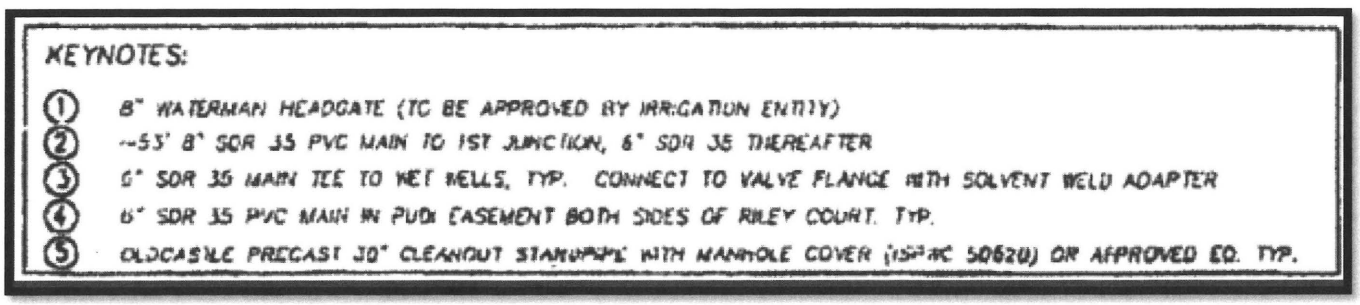

Figure 3- **Surface water delivery system details submitted with applications for permit. Headgate to mainline specifications.**

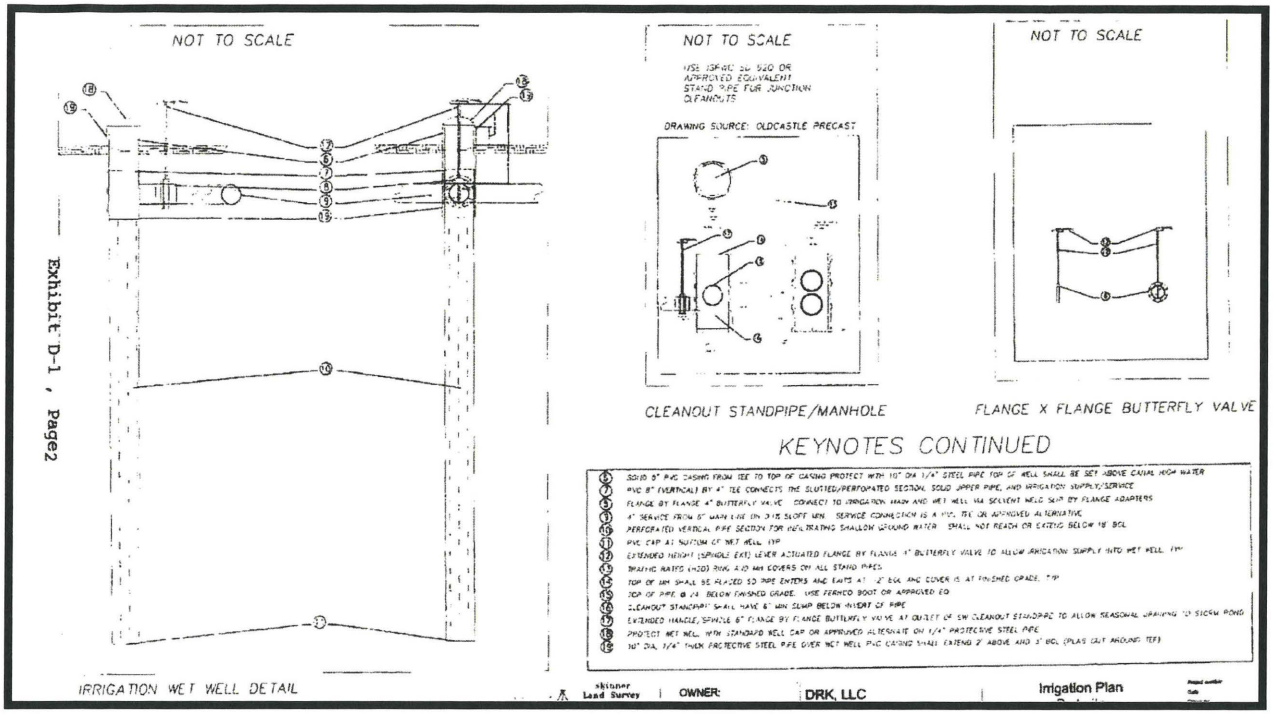

Figure 4- Shallow well cross section diagram. Submitted with the applications for permit.

Figure 5- Canyon County 2022 GIS imagery of the parcel. The livestock enclosure and compost areas can be seen at the east end of the parcel.

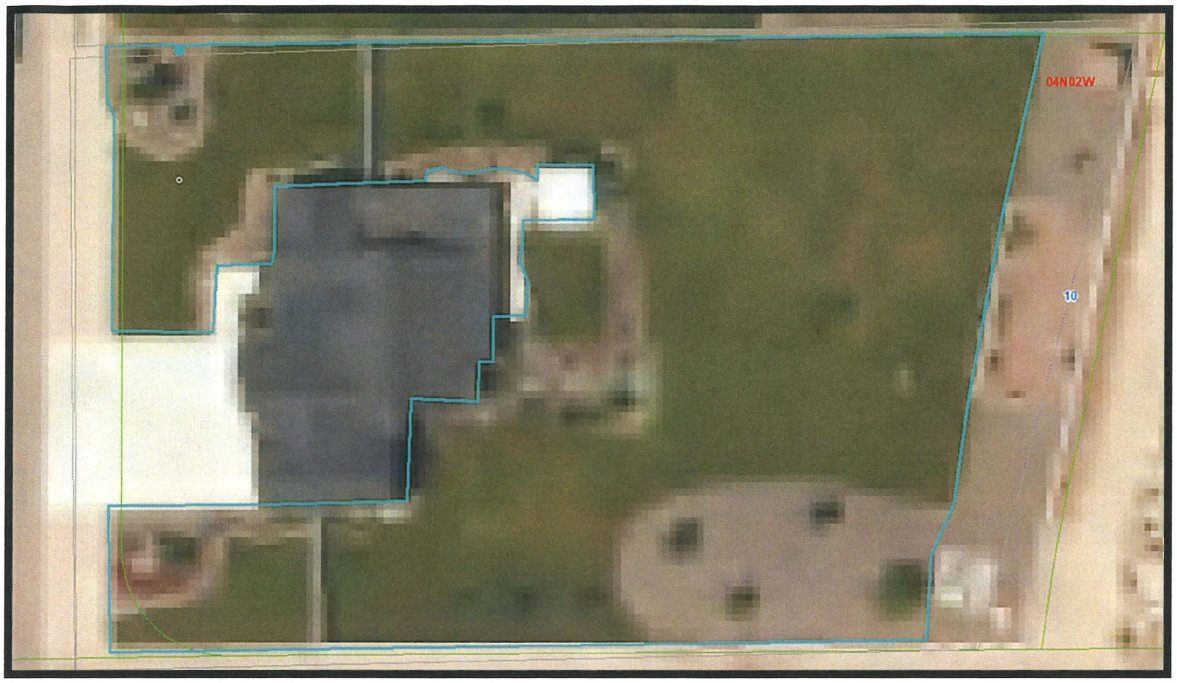

Figure 6 -GIS NAIP 2023 Imagery. POU is outlined in blue, and the POD is the blue point at the northwest corner of the parcel.

<u>Photo 1</u> -Shallow well head with butterfly shutoff valve on the right in image. Taken standing at the northwest corner of the parcel facing south.

Photo 2 – Standing north of the parcel facing southeast. Irrigated areas and patio are visible in the back yard.

Photo 3- Taken west of the northwest corner of the parcel facing east. Shallow well in the left of the image and the domestic use well is near center of the image.

Photo 4- Taken at the southwest corner of the parcel facing northeast.

Photo 5 -Taken at the southeast corner of the parcel facing northwest. The livestock enclosure and compost areas are visible at the east extent of the parcel.

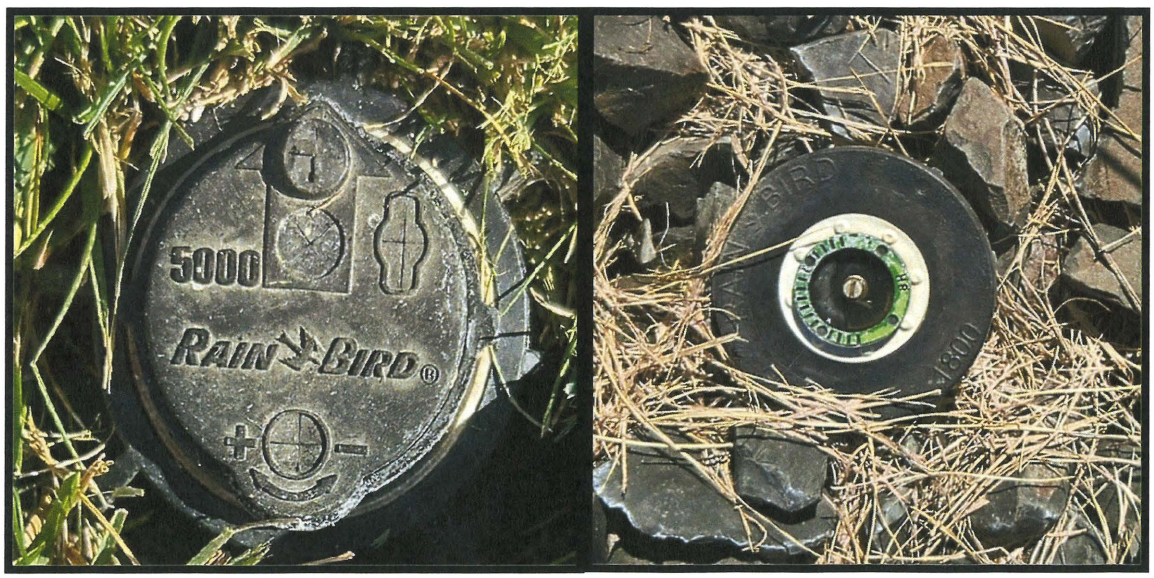

Photo 6 (Left)- Rain Bird 5000 series rotary sprinkler heads like those found in the larger zones in the POU. Photo 7 (Right)- Smaller Rainbird 1800 umbrella sprinkler head like those found in the landscaped beds of the POU.

Howe, Bob

From: Tim Ahrens <docahrens@gmail.com>
Sent: Monday, October 14, 2024 3:30 PM
To: Howe, Bob; linfieldhoa@googlegroups.com
Subject: Re: Clarification Regarding Primary Use of Surface Water and Irrigation System information

CAUTION: This email originated outside the State of Idaho network. Verify links and attachments BEFORE you click or open, even if you recognize and/or trust the sender. Contact your agency service desk with any concerns.

Bob,
I apologize for the delay. I sent this out Oct 2, but not being that familiar yet with the workings of Google Groups, I sent it to the wrong email address. So, I am resending this information now.

My property would be a representative example of a typical property here in Linfield Estates.
My next door neighbor and I have 1 hp pumps and 1 neighbor at the other end has a 3hp pump. The remaining 10 homes still have 5 hp pumps.
I use ditch water for watering the following zones:
- 9 lawn/grass zones, 8 of which have an average of 8.6 heads with an average flow of 3gal/min. The 9th zone uses 14 smaller heads due to shorter distances between shrub beds and berms, but it is similar in area and water use to my other 8 zones. In spring and fall, I water every other day for 25 minutes, and above 90 degrees I switch to 25 minutes/zone daily (one zone on the north side of the house stays at every other day)
- 22ft x 45ft garden with 6 heads at 3 gal/min every other day for 12 minutes spring and fall, and go to 12 minutes daily above 90 degrees and switch back to every other day in the fall.
- 6 razed beds with trickle irrigation that are watered every other day for 30 minutes in spring and fall and daily for 35 minutes above 90 degrees.
- 3 zones in the back of pasture/wildflower and trees with 8 heads ea @ 3 gal/min that I only water once a week for 15 minutes
- 3 zones of Berms and Beds for flowers, shrubs, fruit trees and ornamental trees all using trickle irrigation that water for 25 minutes every 3 days in spring and fall and every other day above 90 degrees for 25 minutes every other day

Let me know if you need anything else.
Tim Ahrens
Water Czar
Linfield Estates
(408) 823-7574

On Tuesday, September 24, 2024 at 8:42:38 AM UTC-6 Howe, Bob wrote:

Hi Tim,

I just wanted to make sure you received the preceding email. We spoke on the 17th and discussed the needed information. I remember you were leaving on a trip when we spoke and just wanted to provide you with a reminder. Feel free to reach out with any questions or concerns. Thank you and have a great day.

From: Howe, Bob
Sent: Friday, September 13, 2024 3:26 PM
To: Doc Ahrens <doca...@gmail.com>
Cc: Linfi...@googlegroups.com; Parker, Cody <Cody....@idwr.idaho.gov>
Subject: Clarification Regarding Primary Use of Surface Water and Irrigation System information

Tim,

The permitted use is for the shallow wells connected with the surface water, so that the surface water can be used as a primary source for irrigation, with the shallow wells being supplemental. In the as-built prints submitted with the applications and the field exam we were able to identify most of the components for that system. We only need the minimal information including the pump horsepower (pump curve if available), number of irrigation zones (note if multiple zones can be/are run at the same time), the maximum number of sprinkler heads found in a zone within the system, and sprinkler head make/models.

If the system utilizing the surface water is not being used by some homes that would be contrary to the agreement the HOA has with the Irrigation entity, and contrary to the intentions of the application submitted by the HOA. It is possible that parcels not using the surface water as a primary source may not be able to be licensed under the current permits, and if they were able to be licensed might then result in future scrutiny of the entire HOA from the irrigation entity.

Please provide any of the requested information for any of the parcels you can. At minimum the pump information, number of zones total and if more than 1 zone is ran at any given time, and the maximum number of sprinklers found in a single zone for each parcel/system.

Thank you for your time and assistance in this matter. Please feel free to reach out with any further questions or concerns.

From: Doc Ahrens <doca...@gmail.com>
Sent: Thursday, September 12, 2024 10:33 AM
To: Howe, Bob <Bob....@idwr.idaho.gov>
Cc: Linfi...@googlegroups.com; Parker, Cody <Cody....@idwr.idaho.gov>
Subject: Re: Water System Requirements

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Bob,

Do you only need the diagrams/zone count/nozzle type and count info on the homes actually using the irrigation canal water, or for all the homes? Some of the homes could be using only deep well water for irrigation.

Tim

On Mon, Sep 9, 2024 at 8:39 AM Howe, Bob <Bob....@idwr.idaho.gov> wrote:

> Good Morning Mr. Ahrens,
>
> When conducting a field examination, the agent takes a measurement of the rate of flow with the irrigation system running. However, when this is not possible such as the case with the systems at Linfield Estates HOA, then a theoretical calculation may be used to calculate an acceptable rate of diversion (Beneficial Use Examination Rules 040.02-04.). System information is important to ensure that the calculated rate is accurate. This information is included in the field examination report, which is saved to the water right file.

Information such as the pump horsepower/make/model and set depth, number of irrigation zones, number/make/model of sprinkler heads, and how many zones are ran at any given time is typical information requested. We can then look up the technical specifications on the pump, output rate of sprinkler heads, and use any of the provided information to theoretically support the systems capacity.

As Linfield HOA has multiple irrigation systems under several permits for groundwater diversion, and the irrigated areas for each use seem to vary it would be more accurate to have minimal system descriptions for each. These descriptions should include the pump horse power and set depth (pump curve if available), number of irrigation zones (note if multiple zones can be/are ran at the same time), the maximum number of sprinkler heads found in a zone within the system, and sprinkler head make/models. Typically a sprinkler system diagram contains all the needed information.

I hope this is helpful. Feel free to reach out with any questions or concerns.

From: Doc Ahrens <doca...@gmail.com>
Sent: Sunday, September 8, 2024 8:03 PM
To: Howe, Bob <Bob....@idwr.idaho.gov>; Linfi...@googlegroups.com
Subject: Water System Requirements

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Bob,

Gordon forwarded me the following request for watering system diagrams for each lot in Linfield Estates. Can you please tell us the purpose of these reports, and what will the Water Resources Board be doing with them once they are supplied? I know I don't have this kind of information on hand for my system, so I will need to gather the information manually. So, I want to know exactly what is needed

and what it will be used for, before I go to the trouble of gathering the data requested. In addition, I am sure at least some of our members will be asking me similar questions, so I don't want to be uninformed.

Thanks,

Tim Ahrens

408-823-7574

Linfield Water Czar

On Tuesday, September 3, 2024, 10:39 AM, Howe, Bob Howe <Bob....@idwr.idaho.gov> wrote:

> Hi Gordon,
>
> Thank you for providing information regarding the 13 permits being processed for licensing for the Linfield Estates HOA.
>
> As I mentioned in our call, we need to request the landscaping design / system diagrams containing the sprinkler system layouts and specifications for all 13 lots.
>
> Please provide the diagrams for any Lots that are available, and if they are not available, please provide the number of irrigation zones with the maximum and minimum number of sprinklers per zone, for each Lot (home). Please pass this email along to each homeowner and feel free to reach out to me with any questions or concerns.
>
> Thank you again for assisting in this matter.

Howe, Bob

From: Howe, Bob
Sent: Tuesday, October 1, 2024 9:38 AM
To: Doc Ahrens
Cc: First NameGordon Brown
Subject: System Information Necessary to Calculate a Reasonable System Output. RE: Water Estimate

Hi Tim,
In previous emails I requested that you, "Please provide the diagrams for any Lots that are available, and if they are not available, please provide the number of irrigation zones with the maximum and minimum number of sprinklers per zone, for each Lot (home)." Irrigation rates are based on the system output. The field examiner also measures the areas irrigated using aerial imagery and photos to calculate a reasonable annual volume.

As explained in previous emails, to process a license for an irrigation water right, when it is not possible to measure the rate of flow in the system at the time of field examination, we need to have enough system information to make a theoretical calculation to support a reasonable rate for licensing. The conduits at the properties are too small in diameter to use a closed conduit flowmeter to measure output, and there are no flowmeters or totalizers installed for a calculation, so the best option is to find a reasonable rate based on the system components.

During the field examination I took pictures of sprinkler heads and noted irrigation components visible at the surface. During the field examination, Gordon Brown (point of contact listed on the Statements of Completion), was able to confirm that during the development period 5 Hp pumps were installed and used at each location, although some were later replaced with smaller pumps. The rate licensed for irrigation is based on the system output which requires the additional information requested, or a field measurement. The easiest solution is to be provided the system information including the number of zones, number of sprinkler heads in the largest zone, and the pump details for each property.

Commonly, this is sought from individual permit holders, but in this case all 13 permits are all held by the HOA, so we have to request the information from an authorized person with the HOA for all information.

It is becoming increasingly urgent that we get the minimal information necessary to process the licenses without further delay. Feel free to reach out with any further questions or concerns.

Regards,

Bob Howe

IDAHO DEPARTMENT OF
WATER RESOURCES

Bob Howe | Water Resource Agent
2735 W Airport Way, Boise, ID 83705-5082
(208) 334-2190 | www.idwr.idaho.gov

From: Doc Ahrens <docahrens@gmail.com>
Sent: Monday, September 30, 2024 11:11 PM
To: Howe, Bob <Bob.Howe@idwr.idaho.gov>
Subject: Water Estimate

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Bob,
Sorry, since getting back in town I have been very busy catching up.
I was thinking, a friend of mine is in paving and he uses google earth to estimate square footage for bids all the time, and says it is very accurate. So, he walked me through it, and I should be able to measure the square footage of each property's lawn and landscaped areas, and based on the water usage for those types of plant growth (I was able to find water usage info online for southern Idaho) I should be able to give an accurate estimate of water usage for our neighborhood. Would that work for you?
Tim

Howe, Bob

From: First NameGordon Brown <gordonk.brown@yahoo.com>
Sent: Tuesday, September 3, 2024 10:42 AM
To: Howe, Bob
Subject: Re: Linfield Estates-irrigation diagram-system information requests

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Thanks Bob.

I will get this to the HOA and see what we can get back.

Gordon Brown

Sent from Yahoo Mail for iPhone

On Tuesday, September 3, 2024, 10:39 AM, Howe, Bob <Bob.Howe@idwr.idaho.gov> wrote:

Hi Gordon,

Thank you for providing information regarding the 13 permits being processed for licensing for the Linfield Estates HOA.

As I mentioned in our call, we need to request the landscaping design / system diagrams containing the sprinkler system layouts and specifications for all 13 lots.

Please provide the diagrams for any Lots that are available, and if they are not available, please provide the number of irrigation zones with the maximum and minimum number of sprinklers per zone, for each Lot (home). Please pass this email along to each homeowner and feel free to reach out to me with any questions or concerns.

Thank you again for assisting in this matter.

Regards,

Bob Howe

IDAHO DEPARTMENT OF
WATER RESOURCES

Bob Howe | Water Resource Agent
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