

**CLAIM OF
BENEFICIAL USE
for Surface Water Permits
claiming more than 0.1 cfs**



Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, Oregon 97301-1266
(503) 986-0900
www.oregon.gov/OWRD

**A fee of \$200 must accompany this form for permits
with priority dates of July 9, 1987, or later.**

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A separate form shall be completed for each permit.

In cases where a permit has been amended through the permit amendment process, a separate claim for the permit amendment is not required. Incorporate the permit amendment into the claim for the permit.

This form is subject to revision. **Begin each new claim** by checking for a new version of this form at:
<https://www.oregon.gov/OWRD/Forms/Pages/default.aspx>

Go to "Resources for Water Right Examiners (CWRE)" Page
<https://www.oregon.gov/OWRD/programs/WaterRights/COBU/Pages/default.aspx>
The completion of this form is required by OAR 690-014-0100(1) and 690-014-0110(4).

Please type or print in dark ink. If this form is found to contain errors or omissions, it may be returned to you. **Every item must have a response.** If any requested information does not apply to the claim, insert "NA." **Do not delete or alter any section of this form unless directed by the form.** The Department may require the submittal of additional information from any water user or authorized agent.

"Section 8" of this form is intended to aid in the completion of this form and should not be submitted.

If you have questions regarding the completion of this form, please call 503-986-0900 and ask for the Certificate Section.

The Department has a program that allows it to enter into a voluntary agreement with an applicant for expedited services. Under such an agreement, the applicant pays the cost to hire additional staff that would not otherwise be available. This program means a certificate may be issued in about a month. For more information on this program see
<https://www.oregon.gov/OWRD/programs/WaterRights/RA/Pages/default.aspx>

**SECTION 1
GENERAL INFORMATION**

1. File Information:

APPLICATION # S-88023	PERMIT # S-54991	PERMIT AMENDMENT # NA
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2. Property Owner (current owner information):

APPLICANT/BUSINESS NAME Roy Vardanega		PHONE No. 541-421-3036	ADDITIONAL CONTACT No. NA
ADDRESS 29496 Hwy 395			
CITY Fox	STATE OR	ZIP 97856	E-MAIL NA

If the current property owner is not the permit holder of record, it is recommended that an assignment be filed with the Department. ***Each permit holder of record must sign this form.***

3. Permit or holder of record (this may, or may not, be the current property owner):

PERMIT HOLDER OF RECORD Roy Vardanega			
ADDRESS 29496 Hwy 395			
CITY Fox	STATE OR	ZIP 97856	

ADDITIONAL PERMIT HOLDER OF RECORD NA			
ADDRESS NA			
CITY NA	STATE NA	ZIP NA	

4. Date of Site Inspection:

5. Person(s) interviewed and description of their association with the project:

NAME	DATE	ASSOCIATION WITH THE PROJECT
Roy Vardanega	January 22, 2021	Owner/operator
	& 5/22/2021	

6. County:

7. If any property described in the place of use of the permit final order is excluded from this report, identify the owner of record for that property (ORS 537.230(5)):

OWNER OF RECORD NA			
ADDRESS NA			
CITY NA	STATE NA	ZIP NA	

Add additional tables for owners of record as needed

SECTION 2 SIGNATURES

CWRE Statement, Seal and Signature

The facts contained in this Claim of Beneficial Use are true and correct to the best of my knowledge.



CWRE NAME Robert D. Baggett	PHONE NO. 541-620-0717	ADDITIONAL CONTACT NO. 541-575-1251
ADDRESS P. O. Box 476		
CITY John Day	STATE OR	ZIP 97845
E-MAIL bob@johndaysurveyors.com		

Permit Holder of Record Signature or Acknowledgement

Each permit holder of record must sign this form in the space provided below.

The facts contained in this Claim of Beneficial Use are true and correct to the best of my knowledge. I request that the Department issue a water right certificate.

SIGNATURE	PRINT OR TYPE NAME	TITLE	DATE
	Roy Vardanega	Owner	9-14-21

SECTION 3
CLAIM DESCRIPTION

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1. Point of diversion name or number:

POINT OF DIVERSION (POD) NAME OR NUMBER (CORRESPOND TO MAP)
Pond 1
Pond 2

2. Point of diversion source and tributary:

POD NAME OR NUMBER	SOURCE	TRIBUTARY
Pond 1	Runoff	NA
Pond 2	Runoff & a Spring	NA

3. Developed use(s), period of use, and rate for each use:

POD NAME OR NUMBER	USES	IF IRRIGATION, LIST CROP TYPE	SEASON OR MONTHS WHEN WATER WAS USED	ACTUAL RATE OR VOLUME USED (CFS, GPM, OR AF)
Pond 1	Irrigation	Trical	April 1 thru Sept. 30	3.98 Ac. Ft.
Pond 2	Irrigation	Trical	April 1 thru Sept. 30	9.19 Ac. Ft.
Total Quantity of Water Used				13.17 Ac. Ft.

4. Provide a general narrative description of the distribution works. This description must trace the water system from each point of diversion to the place of use:

From Pond 1, water is pumped via hand lines, northeasterly, easterly and southeasterly to irrigate upper field. From Pond 2, water is delivered via a buried gravity flow pipeline northwesterly 5,767 ft. to south edge of lower field, then distributed via above ground gravity flow mainlines serving the wheel lines to sprinkle irrigate the lower field.

Reminder: The map associated with this claim must identify the location of the point(s) of diversion, Donation Land Claims (DLC), Government Lots (GLot), and Quarter-Quarters (QQ).

5. Variations:

Was the use developed differently from what was authorized by the permit, or permit amendment final order? If yes, describe below.

YES

(e.g. "The permit allowed three points of diversion. The water user only developed one of the points." or "The permit allowed 40.0 acres of irrigation. The water user only developed 10.0 acres.")

The permit allowed three ponds. The water user only developed two ponds.

6. Claim Summary:

POD NAME OR #	MAXIMUM RATE AUTHORIZED	CALCULATED THEORETICAL RATE BASED ON SYSTEM	AMOUNT OF WATER MEASURED	USE	# OF ACRES ALLOWED	# OF ACRES DEVELOPED
Pond 1 & Pond 2	17.2 Ac. Ft.	13.17 Ac. Ft.	NA	Irrigation	60.0	60.0

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SECTION 4 SYSTEM DESCRIPTION

Are there multiple PODs?

YES

If "YES" you will need to copy and complete a separate Section 4 for each POD.

POD Name or Number this section describes (only needed if there is more than one):

Pond 1

A. Place of Use

1. Is the right for municipal use?

NO

If "YES" the table below may be deleted.

TWP	RNG	MER	SEC	QQ	GLOT	DLC	USE	IF IRRIGATION, # PRIMARY ACRES	IF IRRIGATION, # SUPPLEMENTAL ACRES
11S	29E	WM	13	NENE			Irrigation	21.0	NA
11S	29E	WM	13	NWNE			Irrigation	8.0	NA
11S	30E	WM	18	NWNW	1		Irrigation	15.0	NA
11S	30E	WM	18	SESE			Irrigation	6.7	NA
11S	30E	WM	18	NENE			Irrigation	9.3	NA
Total Acres Irrigated								60.0	

Reminder: The map associated with this claim must identify Donation Land Claims (DLC), Government Lots (GLOT), Quarter Quarters (QQ), and if for irrigation, the number of acres irrigated within each projected DLC, GLOT, and QQ.

B. Diversion and Delivery System Information

Provide the following information concerning the diversion and delivery system. Information provided must describe the equipment used to transport and apply the water from the point of diversion to the place of use.

1. Is a pump used?

YES

If "NO" items 2 through item 6 may be deleted.

2. Pump Information:

MANUFACTURER	MODEL	SERIAL NUMBER	TYPE (CENTRIFUGAL, TURBINE OR SUBMERSIBLE)	INTAKE SIZE	DISCHARGE SIZE
POND 1-John Deer	145	3001	Centrifugal	4"	3"

3. Motor Information:

MANUFACTURER	HORSEPOWER
John Deer	30

4. Theoretical Pump Capacity:

HORSEPOWER	OPERATING PSI	LIFT FROM SOURCE TO PUMP	LIFT FROM PUMP TO PLACE OF USE	TOTAL PUMP OUTPUT (IN CFS)
30	45	7 ft.	16 ft.	1.44 cfs

5. Provide pump calculations:

SEE ATTACHED EXHIBIT A.

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6. Measured Pump Capacity (using meter if meter was present and system was operating):

INITIAL METER READING	ENDING METER READING	DURATION OF TIME OBSERVED	TOTAL PUMP OUTPUT (IN CFS)
NA			

Reminder: For pump calculations use the reference information at the end of this document.

7. Is the distribution system piped?

YES

If "NO" items 8 through item 13 may be deleted.

8. Mainline Information:

MAINLINE SIZE	LENGTH	TYPE OF PIPE	BURIED OR ABOVE GROUND
NA			

9. Lateral or Handline Information:

LATERAL OR HANDLINE SIZE	LENGTH	TYPE OF PIPE	BURIED OR ABOVE GROUND
3"	1500 ft.	Aluminum	Above

10. Sprinkler Information:

SIZE	OPERATING PSI	SPRINKLER OUTPUT (GPM)	TOTAL NUMBER OF SPRINKLERS	MAXIMUM NUMBER USED	TOTAL SPRINKLER OUTPUT (CFS)
9/64	45	3.7	50	50	0.41 cfs

Reminder: For sprinkler output determination use the reference information at the end of this document.

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11. Drip Emitter Information:

SIZE	OPERATING PSI	EMITTER OUTPUT (GPM)	TOTAL NUMBER OF EMITTERS	MAXIMUM NUMBER USED	TOTAL EMITTER OUTPUT (CFS)
NA					

12. Drip Tape Information:

DRIPPER SPACING IN INCHES	GPM PER 100 FEET	TOTAL LENGTH OF TAPE	MAXIMUM LENGTH OF TAPE USED	TOTAL TAPE OUTPUT (CFS)	ADDITIONAL INFORMATION
NA					

13. Pivot Information:

MANUFACTURER	MAXIMUM WETTED RADIUS	OPERATING PSI	TOTAL PIVOT OUTPUT (GPM)	TOTAL PIVOT OUTPUT (CFS)
NA				

C. Storage

1. Does the distribution system include in-system storage (e.g. storage tank, bulge in system / reservoir)?

YES

If "NO", item 2 and 3 relating to this section may be deleted.

If "YES" is it a: Storage Tank
 Bulge in System / Reservoir

NO

YES

Complete appropriate table(s), unused table may be deleted.

2. Storage Tank:

MATERIAL (CONCRETE, FIBERGLASS, METAL, ETC.)	CAPACITY (IN GALLONS)	ABOVE GROUND OR BURIED
NA		

3. Bulge in System / Reservoir:

RESERVOIR NAME OR NUMBER (CORRESPOND TO MAP)	APPROXIMATE DAM HEIGHT	APPROXIMATE CAPACITY (IN ACRE FEET)
POND 1	10 Ft.	3.98 Ac. Ft.

D. Gravity Flow Pipe

(THE DEPARTMENT TYPICALLY USES THE HAZEN-WILLIAM'S FORMULA FOR A GRAVITY FLOW PIPE SYSTEM)

1. Does the system involve a gravity flow pipe?

YES

If "NO", items 2 through 4 relating to this section may be deleted.

2. Complete the table:

PIPE SIZE	PIPE TYPE	"C" FACTOR	AMOUNT OF FALL	LENGTH OF PIPE	SLOPE	COMPUTED RATE OF WATER FLOW (IN CFS)
3"Pond 1 to Pond 2	PVC	150	25 ft.	555 ft.	0.5%	0.317 cfs

3. Provide calculations:

From Pond 1 to Pond 2: SEE ATTACHED EXHIBIT C.

4. If an actual measurement was taken, provide the following:

DATE OF MEASUREMENT	WHO MADE THE MEASUREMENT	MEASUREMENT METHOD	MEASURED QUANTITY OF WATER (IN CFS)
NA			

Attach measurement notes.

E. Gravity Flow Canal or Ditch

(THE DEPARTMENT TYPICALLY USES MANNING'S FORMULA FOR CANALS AND DITCHES)

1. Is a gravity flow canal or ditch used to convey the water as part of the distribution system?

NO

If "NO", items 2 through 4 relating to this section may be deleted.

F. Additional notes or comments related to the system:

This system is in place and works very well.

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SECTION 5 CONDITIONS

All conditions contained in the permit, permit amendment, or any extension final order shall be addressed. Reports that do not address all performance related conditions will be returned.

1. Time Limits:

Permits and any extension final orders contain any or all of the following dates: the date when the actual construction work was to begin, the date when the construction was to be completed, and the date when the complete application of water to the proposed use was to be completed. These dates may be referred to as ABC dates. Describe how the water user has complied with each of the development timelines established in the permit or permit extension of time:

	DATE FROM PERMIT	DATE ACCOMPLISHED*	DESCRIPTION OF ACTIONS TAKEN BY WATER USER TO COMPLY WITH THE TIME LIMITS
ISSUANCE DATE	3/30/2016		
BEGIN CONSTRUCTION (A)	NA	5/20/2016	Begin Construction.
COMPLETE CONSTRUCTION (B)	NA	5/6/2020	Complete Construction.
COMPLETE APPLICATION OF WATER (C)	3/30/2021	6/6/2020	Complete application of water.

* MUST BE WITHIN PERIOD BETWEEN PERMIT OR ANY EXTENSION FINAL ORDER ISSUANCE AND THE DATE TO COMPLETELY APPLY WATER

2. Is there an extension final order(s)?

NO

If "NO", items a and b relating to this section may be deleted.

3. Measurement Conditions:

a. Does the permit, permit amendment, or any extension final order require the installation of a meter or approved measuring device? YES

If "NO", items b through f relating to this section may be deleted.

Reminder: If a meter or approved measuring device was required, the COBU map must indicate the location of the device in relation to the point of diversion.

b. Has a meter been installed? YES

c. Meter Information

POD NAME OR #	MANUFACTURER	SERIAL #	CONDITION (WORKING OR NOT)	CURRENT METER READING	DATE INSTALLED
POND 1	McCrometer	846520	Working	418.3	5/1/2018

If a meter has been installed, items d through f relating to this section may be deleted.

d. If a meter has not been installed, has a suitable measuring device been installed and approved by the Department? YES

e. If "YES", provide a copy of the letter approving the device, if available. If the letter is not available provide the name and title of the Water Resources Department employee approving the measuring device, and the approximate date of the approval:

NAME	TITLE	APPROXIMATE DATE
Eric Julsrud – Pond 2 bubbler approval	Watermaster	June 2019

f. Measurement Device Description

DEVICE DESCRIPTION	CONDITION (WORKING OR NOT)	DATE INSTALLED
POND 2 – Custom made bubbler	Working	5/30/2019

4. Recording and reporting conditions:

a. Is the water user required to report the water use to the Department?

If "NO", item b relating to this section may be deleted.

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NO

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5. Fish Screening:

a. Are any points of diversion required to be screened to prevent fish from entering the point of diversion?

NO

If "NO", items b through e relating to this section may be deleted.

If not, contact and work with ODFW to ensure compliance. To demonstrate compliance, provide signed documentation from ODFW. A form is available at:

<https://www.oregon.gov/OWRD/Forms/Pages/default.aspx>

Reminder: Failure to submit evidence of a timely installed fish screen may result in an unfavorable determination. In order to receive a favorable approval, the ODFW/WRD "Fish Screen Inspection" form needs to have been previously submitted or be attached to this form.

6. By-pass Devices:

a. Are any points of diversion required to have a by-pass device to prevent fish from entering the point of diversion?

NO

If "NO", items b and c relating to this section may be deleted.

Reminder: If by-pass devices were required, the COBU map must indicate their location in relation to the point of diversion.

b. Have by-pass devices been installed?

NO

c. Describe the diversion works as related to whether a by-pass device is installed or unnecessary:

(Provide a letter from ODFW indicating the device is approved or is unnecessary. If there is no letter from ODFW, explain whether or not a by-pass device is necessary.)

ODFW determined that fish screens are not necessary as stated in Permit R-15149.

DESCRIPTION (E.G. "ODFW HAS APPROVED THE BY-PASS DEVICE" OR "NO BY-PASS DEVICE IS NECESSARY BECAUSE THERE IS A DIRECT DIVERSION FROM THE STREAM VIA A PUMP ON RIVER LEFT STREAM BANK WITH FOOT VALVE DESCENDING DIRECTLY INTO NATURAL POOL.") IN ADDITION, YOU MAY ATTACH PHOTOS TO THIS CLAIM.	IF INSTALLED (DATE)	IF INSTALLED, BY WHOM
NA		

7. Other conditions required by permit, permit amendment final order, or extension final order:

- a. Was the water user required to restore the riparian area if it was disturbed? **YES**
- b. Was a fishway required? **NO**
- c. Was submittal of a water management and conservation plan required? **NO**
- d. Other conditions? **NO**
- e. If "YES" to any of the above, identify the condition and describe the water user's actions to comply with the condition(s):

a. The riparian area is restored to its' natural state.

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**SECTION 6
ATTACHMENTS**

Provide a list of any additional documents you are attaching to this report:

ATTACHMENT NAME	DESCRIPTION
Exhibit A	Pump Capacity Calculations
Exhibit B	Sprinkler Capacity Calculations
Exhibit C	Pipe Capacity Calculations
Exhibit D	Pipe Capacity Calculations
Exhibit E	Sprinkler Capacity Calculations – Pond 2

SECTION 7

CLAIM OF BENEFICIAL USE MAP

The Claim of Beneficial Use Map must be submitted with this claim. Claims submitted without the Claim of Beneficial Use map will be returned. The map shall be submitted on poly film at a scale of 1" = 1320 feet, 1" = 400 feet, or the original full-size scale of the county assessor map for the location.

Provide a general description of the survey method used to prepare the map. Examples of possible methods include, but are not limited to, a traverse survey, GPS, or the use of aerial photos. If the basis of the survey is an aerial photo, provide the source, date, series and the aerial photo identification number.

Used GPS in RTK mode to locate Ponds 1 and 2, the pump at Pond 2, staff gages, measuring devices, pipelines, irrigated fields and the S1/4 Corner, Section 18, T.11S., R.30 E., W.M.

Map Checklist

Please be sure that the map you submit includes ALL the items listed below.

(Reminder: Incomplete maps and/or claims may be returned.)

- X Map on polyester film
- X Appropriate scale (1" = 400 feet, 1" = 1320 feet, or the original full-size scale of the county assessor map)
- X Township, Range, Section, Donation Land Claims, and Government Lots
- X If irrigation, number of acres irrigated within each projected Donation Land Claims, Government Lots, Quarter-Quarters
- ☐ NA Locations of fish screens and/or fish by-pass devices in relationship to point of diversion
- X Locations of meters and/or measuring devices in relationship to point of diversion or appropriation
- X Conveyance structures illustrated (pumps, reservoirs, pipelines, ditches, etc.)
- X Point(s) of diversion or appropriation (illustrated and coordinates)
- X Tax lot boundaries and numbers
- X Source illustrated if surface water
- X Disclaimer ("This map is not intended to provide legal dimensions or locations of property ownership lines")
- X Application and permit number or transfer number
- X North arrow
- X Legend
- X CWRE stamp and signature

SECTION 4 SYSTEM DESCRIPTION

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Are there multiple PODs?

If "YES" you will need to copy and complete a separate Section 4 for each POD.

POD Name or Number this section describes (only needed if there is more than one):

Pond 2

A. Place of Use

1. Is the right for municipal use?

NO

If "YES" the table below may be deleted.

TWP	RNG	MER	SEC	QQ	GLOT	DLC	USE	IF IRRIGATION, # PRIMARY ACRES	IF IRRIGATION, # SUPPLEMENTAL ACRES
11S	29E	WM	13	NENE			Irrigation	21.0	NA
11S	29E	WM	13	NWNE			Irrigation	8.0	NA
11S	30E	WM	18	NWNW	1		Irrigation	15.0	NA
Total Acres Irrigated								44.0	

Reminder: The map associated with this claim must identify Donation Land Claims (DLC), Government Lots (GLOT), Quarter Quarters (QQ), and if for irrigation, the number of acres irrigated within each projected DLC, GLOT, and QQ.

B. Diversion and Delivery System Information

Provide the following information concerning the diversion and delivery system. Information provided must describe the equipment used to transport and apply the water from the point of diversion to the place of use.

1. Is a pump used?

NO

If "NO" items 2 through item 6 may be deleted.

7. Is the distribution system piped?

YES

If "NO" items 8 through item 13 may be deleted.

8. Mainline Information:

MAINLINE SIZE	LENGTH	TYPE OF PIPE	BURIED OR ABOVE GROUND
8"	5767 ft..	PVC	Buried
6"	1600 ft.	Aluminum	Above

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9. Lateral or Handline Information:

LATERAL OR HANDLINE SIZE	LENGTH	TYPE OF PIPE	BURIED OR ABOVE GROUND
5" Wheel lines	1600 ft.	Aluminum	Above.

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10. Sprinkler Information:

SIZE	OPERATING PSI	SPRINKLER OUTPUT (GPM)	TOTAL NUMBER OF SPRINKLERS	MAXIMUM NUMBER USED	TOTAL SPRINKLER OUTPUT (CFS)
9/64	50	3.7	50	50	0.45 cfs

Reminder: For sprinkler output determination use the reference information at the end of this document.

11. Drip Emitter Information:

SIZE	OPERATING PSI	EMITTER OUTPUT (GPM)	TOTAL NUMBER OF EMITTERS	MAXIMUM NUMBER USED	TOTAL EMITTER OUTPUT (CFS)
NA					

12. Drip Tape Information:

DRIPPER SPACING IN INCHES	GPM PER 100 FEET	TOTAL LENGTH OF TAPE	MAXIMUM LENGTH OF TAPE USED	TOTAL TAPE OUTPUT (CFS)	ADDITIONAL INFORMATION
NA					

13. Pivot Information:

MANUFACTURER	MAXIMUM WETTED RADIUS	OPERATING PSI	TOTAL PIVOT OUTPUT (GPM)	TOTAL PIVOT OUTPUT (CFS)
NA				

C. Storage

1. Does the distribution system include in-system storage (e.g. storage tank, bulge in system / reservoir)?

YES

If "NO", item 2 and 3 relating to this section may be deleted.

If "YES" is it a: Storage Tank
 Bulge in System / Reservoir

NO

YES

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Complete appropriate table(s), unused table may be deleted.

2. Storage Tank:

QWRD

MATERIAL (CONCRETE, FIBERGLASS, METAL, ETC.)	CAPACITY (IN GALLONS)	ABOVE GROUND OR BURIED
NA	NA	NA

3. Bulge in System / Reservoir:

RESERVOIR NAME OR NUMBER (CORRESPOND TO MAP)	APPROXIMATE DAM HEIGHT	APPROXIMATE CAPACITY (IN ACRE FEET)
Pond 2	10 ft.	3.98 ac. ft.

D. Gravity Flow Pipe

(THE DEPARTMENT TYPICALLY USES THE HAZEN-WILLIAM'S FORMULA FOR A GRAVITY FLOW PIPE SYSTEM)

1. Does the system involve a gravity flow pipe?

YES

If "NO", items 2 through 4 relating to this section may be deleted.

2. Complete the table:

PIPE SIZE	PIPE TYPE	"C" FACTOR	AMOUNT OF FALL	LENGTH OF PIPE	SLOPE	COMPUTED RATE OF WATER FLOW (IN CFS)
8" Pond 2 to NW field	PVC	150	170 ft.	5767 ft.	2.9%	3.328 cfs

3. Provide calculations:

Pond 2 to NW field- SEE ATTACHED EXHIBIT D.

4. If an actual measurement was taken, provide the following:

DATE OF MEASUREMENT	WHO MADE THE MEASUREMENT	MEASUREMENT METHOD	MEASURED QUANTITY OF WATER (IN CFS)
NA	NA	NA	NA

Attach measurement notes.

E. Gravity Flow Canal or Ditch

(THE DEPARTMENT TYPICALLY USES MANNING'S FORMULA FOR CANALS AND DITCHES)

1. Is a gravity flow canal or ditch used to convey the water as part of the distribution system?

NO

If "NO", items 2 through 4 relating to this section may be deleted.

F. Additional notes or comments related to the system:

The system is in place and works very well.

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Pump Capacity Calculation Sheet

using Department designed formula:

$(hp)(\text{efficiency}) / (\text{lift} + \text{psi head}) = \text{capacity in cfs}$

Efficiency: 6.61

Centrifugal = 6.61

Turbine = 7.04

Data Entry (fill in underlined blanks)

HP = 30
Efficiency = 6.61
Lift = 23
PSI = 45

Results Calculated

$(hp)(\text{efficiency}) = 198.3$
Head based on psi = 114.3
Total dynamic head = 137.3
(head + lift)

Pump Capacity = 1.44 feet per second

ROY VARDANEGA

PERMIT S-54991

FROM POND 1 - SE FIELD

EXHIBIT A

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Sprinkler Capacity Calculator

Data Entry (fill in underlined blanks)

Sprinkler group 1 Nozzle size = 9/64 inch (type an apostrophe before the size)
 Pressure = 45 PSI
 Number of heads = 50

Sprinkler group 2 Nozzle size = 0 inch (type an apostrophe before the size)
 (if applicable) Pressure = 0 PSI
 Number of heads = 0

Sprinkler group 3 Nozzle size = 0 inch (type an apostrophe before the size)
 (if applicable) Pressure = 0 PSI
 Number of heads = 0

Sprinkler group 1 capacity = 185 gpm, or 0.41 cfs
 Sprinkler group 2 capacity = 0 gpm, or 0 cfs
 Sprinkler group 3 capacity = 0 gpm, or 0 cfs

Total sprinkler capacity = 185 gpm, or 0.41 cfs

Note: If entered values return a result of "#N/A" gpm, then the sprinkler capacity chart does not contain a rate for that nozzle size and PSI.

ROY VARDANEGA

PERMIT S-54991

FROM POND 1- SE FIELD

EXHIBIT B

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Pipe Capacity Calculator

for pipes flowing full, using the Hazen-Williams Formula

Data Entry (fill in underlined blanks)

Interior Diameter = 3 inches, or 0.25 feet
Roughness Coefficient (C) = 150
Fall = 25 feet per 555 feet of distance
Grade = 0.04504505, or 4.5%

Results calculated

Area of cross-section = 0.04909 square feet
Wetted Perimeter = 0.7854 feet
Hydraulic Radius = 0.0625
Velocity = 6.4622 feet per second

Pipe Capacity = 0.317 cubic feet per second

ROY VARDANEGA

PERMIT S-54991

FROM POND 1 TO POND 2

EXHIBIT C

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Pipe Capacity Calculator

for pipes flowing full, using the Hazen-Williams Formula

Data Entry (fill in underlined blanks)

Interior Diameter = 8 inches, or 0.666667 feet
Roughness Coefficient (C) = 150
Fall = 170 feet per 5767 feet of distance
Grade = 0.02947806, or 2.9%

Results calculated

Area of cross-section = 0.34907 square feet
Wetted Perimeter = 2.0944 feet
Hydraulic Radius = 0.16667
Velocity = 9.53456 feet per second

Pipe Capacity = 3.328 cubic feet per second

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PERMIT S-54991

FROM POND 2 TO NW FIELD

EXHIBIT D

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Sprinkler Capacity Calculator

Data Entry (fill in underlined blanks)

Sprinkler group 1 Nozzle size = 9/64 inch (type an apostrophe before the size)
 Pressure = 50 PSI
 Number of heads = 50

Sprinkler group 2 Nozzle size = 0 inch (type an apostrophe before the size)
 (if applicable) Pressure = 0 PSI
 Number of heads = 0

Sprinkler group 3 Nozzle size = 0 inch (type an apostrophe before the size)
 (if applicable) Pressure = 0 PSI
 Number of heads = 0

Results calculated

Sprinkler group 1 capacity = 200 gpm, or 0.45 cfs
 Sprinkler group 2 capacity = 0 gpm, or 0 cfs
 Sprinkler group 3 capacity = 0 gpm, or 0 cfs

Total sprinkler capacity = 200 gpm, or 0.45 cfs

Note: If entered values return a result of "#N/A" gpm, then the sprinkler capacity chart does not contain a rate for that nozzle size and PSI.

ROY VARDANEGA

PERMIT S-54991

FROM POND 1- NW FIELD

EXHIBIT E