

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 11-7093

Exam Date: 1/21/2014

1. Current Owner: JOSEPH M CRANE
ZZ
- Or
- TIMOTHY W CRANE
STAR RT 2
MONTPELIER ID 83254
- Or
- LAURENCE M CRANE
ZZ
- Or
- MELVIN R CRANE
STAR RT 2
MONTPELIER ID 83254

2. Accompanied by: Melvin R Crane

3. SOURCE TRIBUTARY
THREEMILE CREEK SINKS

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 11-4051(statutory claim)
2. Other water rights with the same point of diversion:

C. DIVERSION AND DELIVERY SYSTEM

1. LOCATION OF POINT(S) OF DIVERSION:

THREEMILE CREEK	SE1/4SE1/4	Sec. 21, Twp 11S, Rge 44E, B.M.
BEAR LAKE County		
THREEMILE CREEK	NW1/4NE1/4	Sec. 28, Twp 11S, Rge 44E, B.M.
BEAR LAKE County		

Method of Determination: Map and onsite field inspection

2.

PLACE OF USE: STOCKWATER

Twp Rge Sec	NE				NW				SW				SE				Totals
11S 44E 28	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
		X	X														

PLACE OF USE: IRRIGATION

Twp Rge Sec	NE				NW				SW				SE				Totals
11S 44E 28	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
		33.0	30.0		38.0			38.0									139.0

Total Acres: 139

Method of Determination: Map and onsite field inspection

3. ☐ Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.
- ☐ Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.
- ☐ Aerial Photo Attached (required for irrigation of 10+ acres).
- ☐ Photo of Diversion and System Attached

4.

D. FLOW MEASUREMENTS

Not possible during 1988 field exam

E. FLOW CALCULATIONS☐ Additional Computation Sheets Attached

Measured Method:

Hazen-Williams equation for closed pipe flow. There are two different diversion points and distribution lines at different elevations. Calculation was done for each diversion system:

Point of diversion #1 rate of diversion= 2.22 cfs

Point of diversion #2 rate of diversion = 2.38 cfs.

Diversion rate limited by permit:

Irrigation = 2.8 cfs

Stockwater = 0.04 cfs

Total rate = 2.80 cfs.

F. VOLUME CALCULATIONS**1. Volume Calculations for Irrigation:**

$$V_{I.R.} = 139.0 \text{ acres} \times 3.5 \text{ acre-feet} = 486.5 \text{ acre-feet}$$

$$V_{D.R.} = 2.8 \text{ cfs} \times 200 \text{ days} \times 1.9835 = 1110.8 \text{ acre-feet}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 486.5 \text{ acre feet}$$

2. Volume Calculations for Other Uses:

550 sheep @ 2.0 gallons per day for 365 days = 1.2 acre-feet

70 cattle @ 12.0 gallons per day for 365 days = 0.9 acre-feet

Total volume for stockwater = 2.1 acre-feet

G. NARRATIVE/REMARKS/COMMENTS

On July 6th, 1988 a partial field examination was completed for permit 11-7093. The field examiner was able to locate two points of diversion and found 139.0 acres of irrigation occurring under the permit. According to the field examiner, the irrigation delivery system consisted of two points of diversion diverting water through two six inch pipe to two quarter mile hand lines and an eighth mile center pivot.

At the time of the exam, water flow in Three Mile Creek was very low and the water right holder could not run their irrigation system at capacity. The field examiner did not conduct a flow measurement at that time.

With the given information from the partial field exam and using Google Earth aerial photography, a rate of diversion was calculated using the Hazen-Williams equation for closed pipe flow.

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>
STOCKWATER	01/01 to 12/31	0.040 CFS	2.1 AF
IRRIGATION	04/15 to 10/31	2.800 CFS	486.5 AF
<u>Totals:</u>		2.800 CFS	488.6 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 ☐ Other

I. AUTHENTICATION

Field Examiner's Name Blake Sordani Date 7/2/2015

Reviewer _____ Date _____

Hazen-Williams Equation for Closed Pipe Flow

Assumptions: Head Loss due to bends, couplings, & valves is negligible

$$Q_{cfs} = 1.318 C_h (\pi D^2/4) \times (D/4)^{0.63} \times (H/L)^{0.54}$$

Q = Discharge (cfs)

D = Pipe Diameter (ft) = 0.5 ft

L = Pipe Length (ft) = 3235 ft

H = Elevation Drop (ft) = 171.0 ft

C_h = Values for Types of Pipe = 140

150 -Plastic (PVC)

140 -Very Smooth

130 -Cast Iron

120 -Wood, Concrete

110 -Riveted Steel

100 -Old Cast Iron

80 -Badly Corroded Cast Iron

$$Q_{cfs} = 1.318 \left(\frac{140}{C_h} \right) \left[\pi \left(\frac{0.5}{D} \right)^2 / 4 \right] \times \left(\frac{0.5}{D} \right)^{0.63} \times \left(\frac{171.0}{H} / \frac{3235}{L} \right)^{0.54}$$

$$Q_{cfs} = \underline{2.22} \text{ cfs}$$

POD#1

Permit # 11-7093

Hazen-Williams Equation for Closed Pipe Flow

Assumptions: Head Loss due to bends, couplings, & valves is negligible

$$Q_{cfs} = 1.318 C_h (\pi D^2/4) \times (D/4)^{0.63} \times (H/L)^{0.54}$$

Q = Discharge (cfs)

D = Pipe Diameter (ft) = 0.5 ft

L = Pipe Length (ft) = 3161 ft

H = Elevation Drop (ft) = 132.0 ft

C_h = Values for Types of Pipe = 150

150 -Plastic (PVC)

140 -Very Smooth

130 -Cast Iron

120 -Wood, Concrete

110 -Riveted Steel

100 -Old Cast Iron

80 -Badly Corroded Cast Iron

$$Q_{cfs} = 1.318 \left(\frac{150}{C_h} \right) \left[\pi \left(\frac{0.5}{D} \right)^2 / 4 \right] \times \left(\frac{0.5}{D} \right)^{0.63} \times \left(\frac{132}{H} / \frac{3161}{L} \right)^{0.54}$$

$$Q_{cfs} = \underline{2.38} \text{ cfs}$$

POD#2

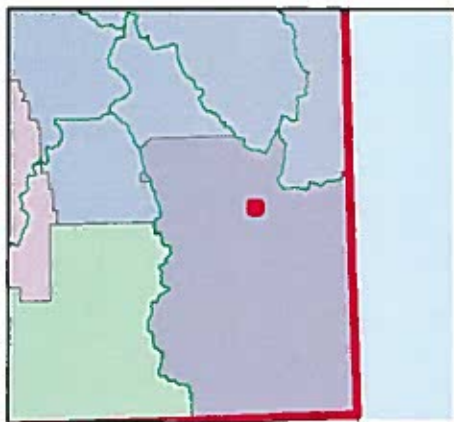
Permit # 11-7093



Idaho Department of Water Resources

Water Right
11-7093
(STOCKWATER)

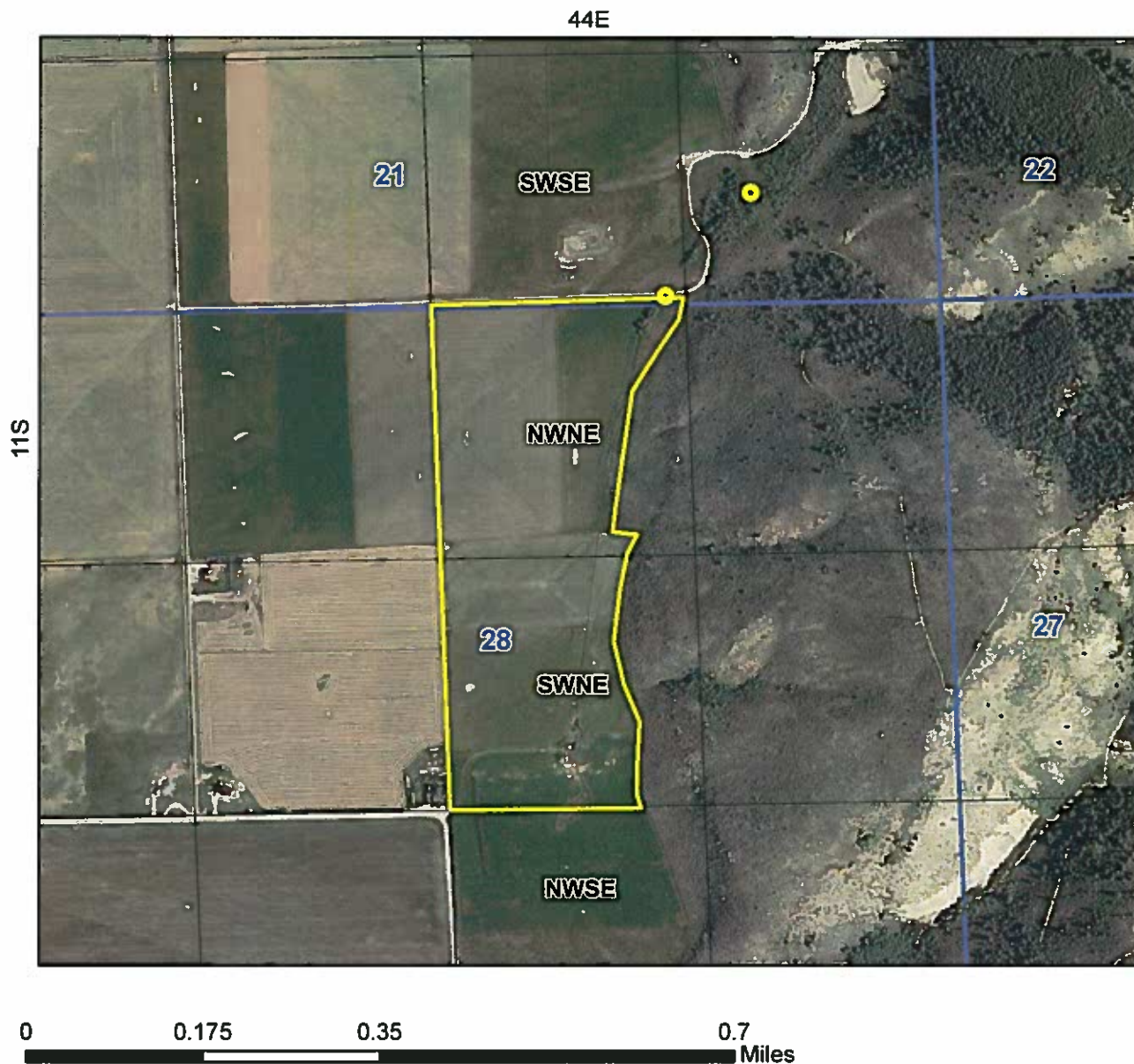
-  Point of Diversion
-  Place of Use
-  State Outline
-  Townships
-  PLS Sections
-  Quarter Quarters



Bear Lake County
IDWR Basin 11

Prepared by Jordan, Blake

2009 Aerial Photography

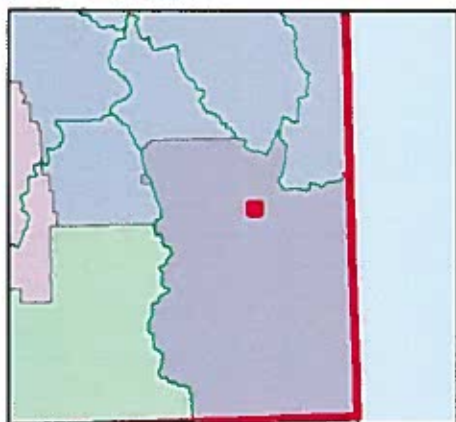




Idaho Department of Water Resources

Water Right
11-7093
(IRRIGATION)

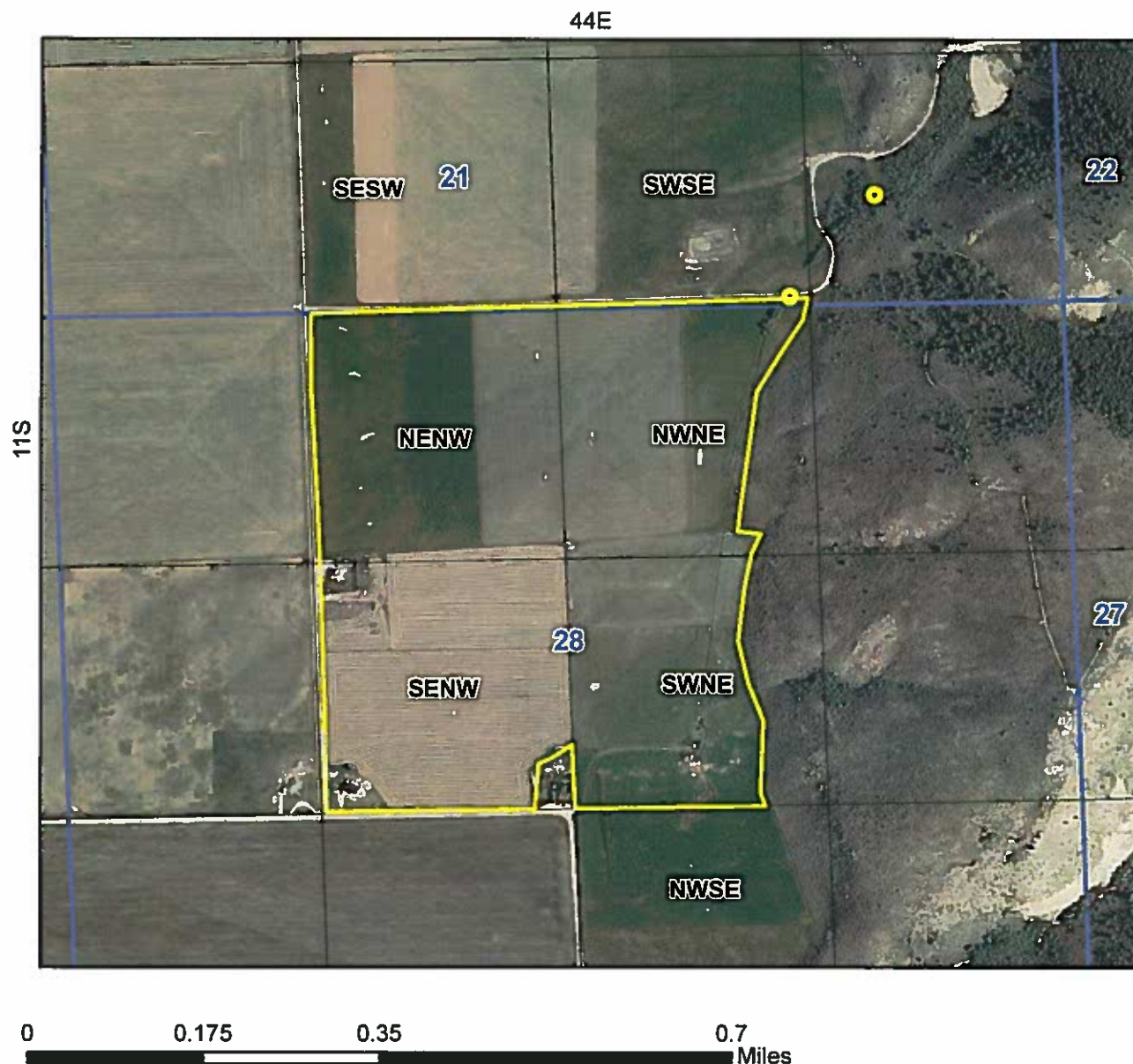
-  Point of Diversion
-  Place of Use
-  State Outline
-  Townships
-  PLS Sections
-  Quarter Quarters



Bear Lake County
IDWR Basin 11

Prepared by Jordan, Blake

2009 Aerial Photography



STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No. 11-7093

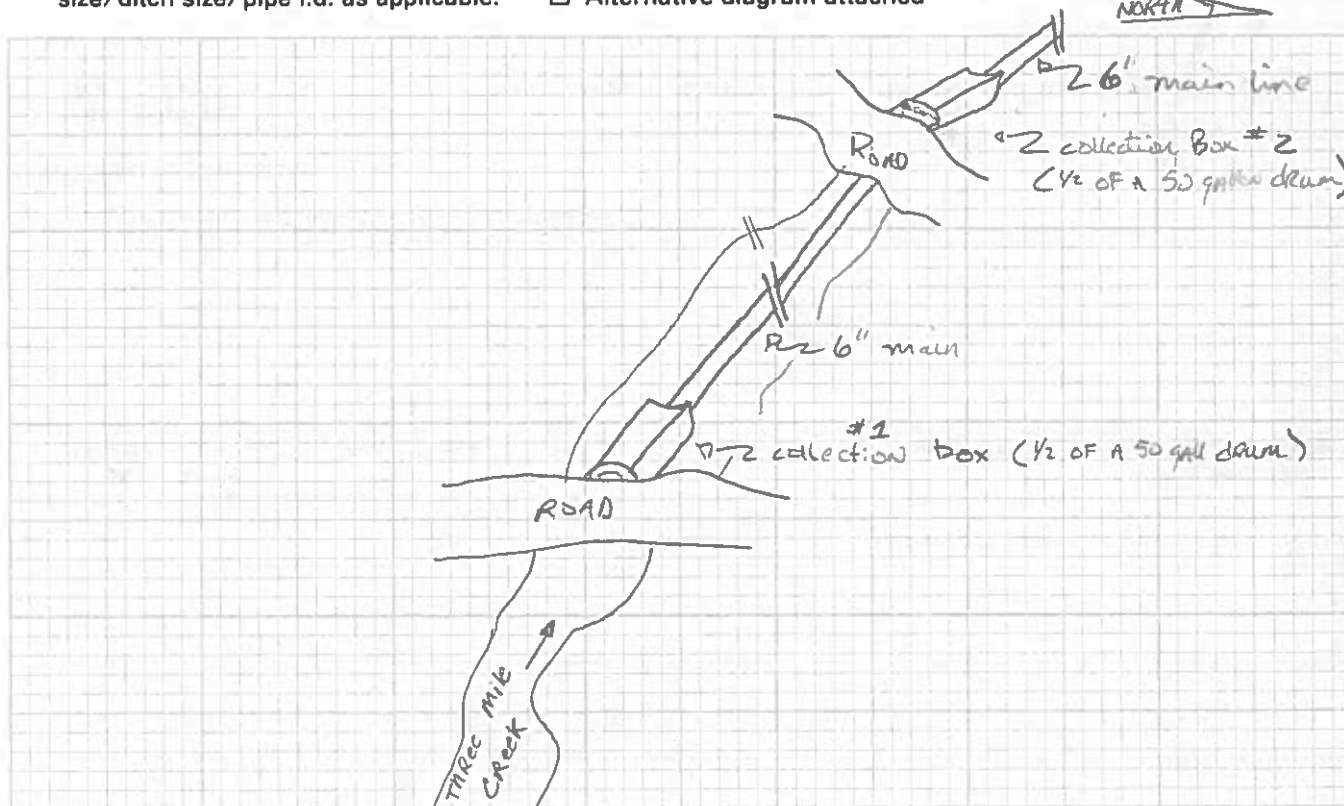
1. Owner: Melvin R or Timothy W. or Joseph M. & Laurene Crane Phone No. 847-2956
Current Address: Star Route 2 Box 2270 Montpelier, Idaho 83254
2. Accompanied by: Melvin R. PARTIAL: 7-6-88
Address: _____ EXAM. DATE: _____
Phone No. _____
Relationship to Permit Holder: _____
3. Source: Three mile creek tributary to SINKS.

B. OVERLAP REVIEW

- OVERLEAF REVIEW**
1. Other water rights with same place of use: _____
_____ ☒ Copies Attached
2. Other water rights with same point of diversion: _____
_____ ☐ Copies Attached ☐ Copies of Field Exam's Attached

C. SYSTEM DESCRIPTION

1. **Diversion System Diagram:** Indicate all major components and distances between components. Indicate weir size/ditch size/pipe i.d. as applicable. ☐ Alternative diagram attached *attached*



Scale: ~~1~~ = _____

2. ☒ Copy of U.S.G.S. Quadrangle Attached Showing location(s) of point(s) of diversion and place(s) of use (required). ☒ Aerial Photo Attached (required for irrigation of 10 acres or more).
☒ Photo of Diversion and System Attached (required for all but single household domestic groundwater, and stockwater).

System Description (continued)

3. Narrative: Description (As operating at time of measurement. Indicate pressure, number of sprinklers, etc.)

Three mile creek to collection box #1 to 1/4 mile hand line with 3/16" nozzles which irrigates upper portion of land and then when it overflows it flows through stream channel to collection box #2 which also has a spring source flowing into it, the water is then taken out at Box #2 by 6" main to a 1/4 mile hand line with 3/16" nozzles and a 1/8 mile center pivot.

☒ See Remarks on page 4 for continuation

4.

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
	N/A	-	-	-	-

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

5. Point(s) of Diversion:

Ident. No.	Gov't. Lot	1/4	1/4	1/4	Sec.	Twp.	Rge.	County	Method of Determination/Remarks
#1		SW	SE	SE	21	11S	44E	BEAR LAKE	map & onsite inspection
#2		NE	NW	SE	28	11S	44E	BEAR LAKE	map & onsite inspection

6. Place(s) of Use:

Indicate Method of Determination

Twp.	Rge.	Sec.	NE 1/4				NW 1/4				SW 1/4				SE 1/4				Totals
			NE 1/4	NW 1/4	SW 1/4	SE 1/4	NE 1/4	NW 1/4	SW 1/4	SE 1/4	NE 1/4	NW 1/4	SW 1/4	SE 1/4	NE 1/4	NW 1/4	SW 1/4	SE 1/4	
11S	44E	28		38	30		38			38									139
																			139

Do not use this space

Do not use this space

D. FLOW MEASUREMENTS

☐ Additional Data Sheets Attached

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
Pitot gauge						

2. Measurements:

CHECKED FLOWS 8-10-93. SPOKE WITH MELVIN GEAR. HE INDICATED FLOWS NOT CLOSE TO NORMAL YET, CALL EARLY MAY 1994 IN HOPES OF HIGH WATER.

E. FLOW CALCULATIONS

☐ Additional Computation Sheets Attached

1. Measured Method:

2. Alternate Method for Checking Purposes:

F. PUMP EFFICIENCY DATA (Optional)

Discharge Pressure: _____ psi x 2.31 = _____ ft (1); Dynamic pumping level: _____ ft (2)

Total Head: (1) + (2) = _____ (3) ; Flow rate: _____ cfs (4)

Water HP: (3) x (4) ÷ 8.8 = _____ (5)

Meter Input KW: 3.6 x _____ KH x _____ CTR or _____ MULT x _____ PTR x _____ N/ _____ T = _____ (6)

Meter Input HP: (6) x 1.34 = _____ (7)

Panel Input KW: _____ Ave PF x _____ Ave Volts x _____ Ave Amps x .001732 = _____ (6)

Panel Input HP: (6) x 1.34 = _____ (7) Efficiency: (5)/(7) x 100 = _____ %

G. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) =$ _____

$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation Season}) \times 1.9835 =$ _____

$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} =$ _____

2. Volume Calculations for Other Uses:

H. REMARKS AND OVERLAP REVIEW ANALYSIS

Note: Three mile creek was flowing very low and they could not run system at capacity. They were taking turns; #1 collection box was releasing high portion of land at time of system, then they turn off that 1/4 mile head line to high land and run creek water through stream channel to collection box #2 which irrigates lower land. On lower land they can only use 1/4-mile head line this year.

1. I did observe ~ 20-30 sheep in a small small area from P.D. #2 on North side of road.

I. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use		Rate of Diversion Q (cfs)	Annual Volume V (afa)
	From	To		
Irrigation	4/15	10/31		
Totals:				

2. Recommended Amendments

☐ Change P.D. as reflected above

☒ Add P.D. as reflected above

☐ None

☐ Change P.U. as reflected above

☐ Add P.U. as reflected above

☐ Other

J. AUTHENTICATION

Field Examiner's Name _____

Signature _____

Certification Date _____

Field Report Preparation Date _____

PARTIAL

RICHARD LENON

(Richard Lenon)

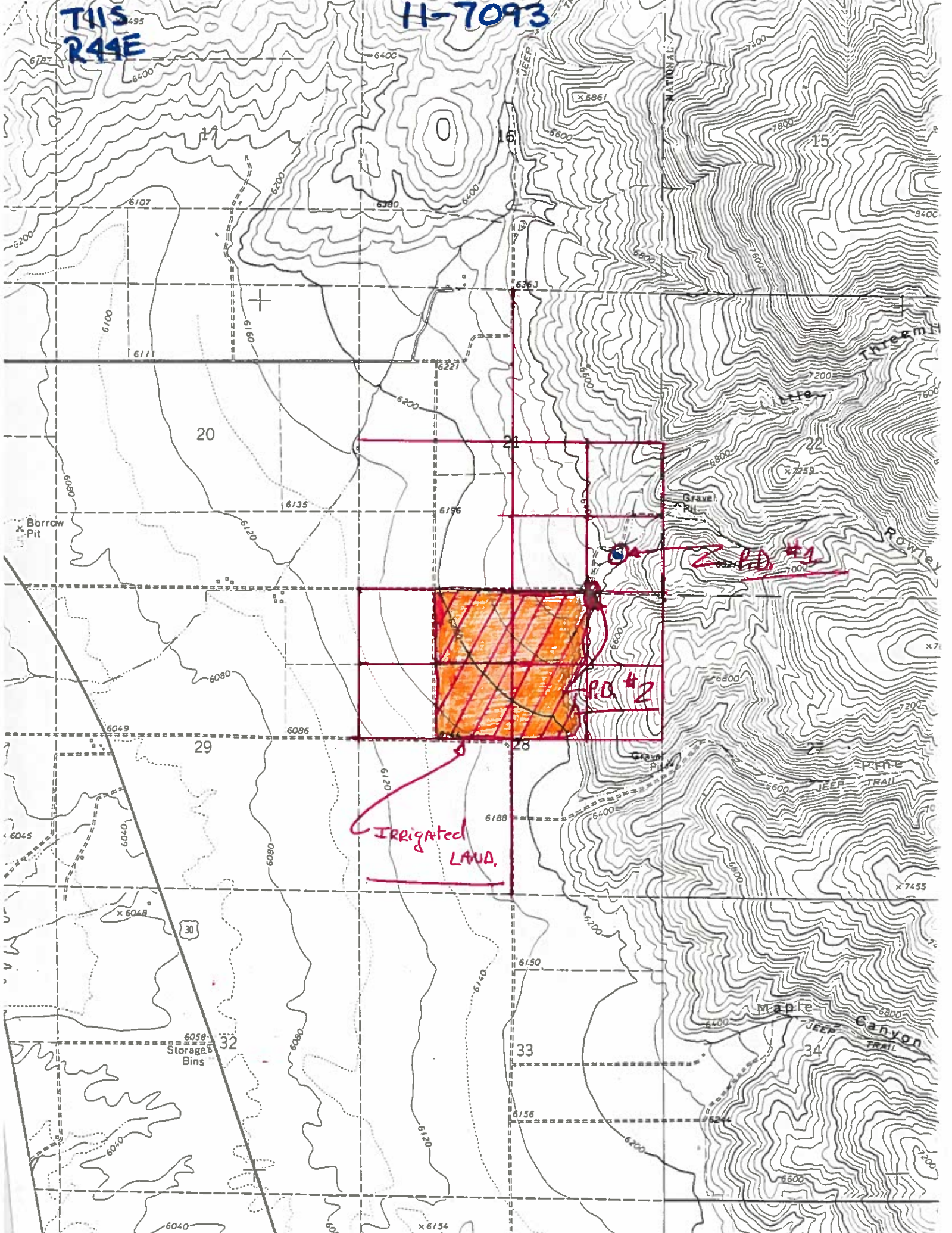
8-2-88

CONSULTANT SEAL

K. Licensing recommendation shall be prepared by an Idaho Department of Water Resources employee on a computer printout attached hereto.

THIS
R44E

11-7093



11-7093



← P.O. #1



← P.O. #2

