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SEP 14 2005

Permit No: 67-7376

Page 1 DEPARTMENT OF WATER RESOURCES

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 67-7376

Exam Date: 5/24/2005

1. Current Owner: CAMBRIDGE DITCH CO
C/O JERRY JAEGER SEC
2953 SALUBRIA RD
CAMBRIDGE ID 83610
(208)257-3713

2. Accompanied by: JERRY JAEGER

Phone No: SAME AS ABOVE

Address: SAME AS ABOVE

Relationship to Permit Holder: COMPANY SECRETARY

3. SOURCE

WEISER RIVER

TRIBUTARY

SNAKE RIVER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: SEE ATTACHED LIST

2. Other water rights with the same point of diversion: SEE ATTACHED LIST

C. DIVERSION AND DELIVERY SYSTEM

1. LOCATION OF POINT(S) OF DIVERSION:

WEISER RIVER

SE1/4SE1/4SW1/4

Sec. 16, Twp 15N, Rge 02W, B.M.

ADAMS County

Method of Determination: AERIAL PHOTO AND VISUAL INSPECTION

2.

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	
14N 02W 4					.7 L 3	30.0 L 4											30.7
14N 02W 5	25.0 L 1	36.0 L 2		40.0	39.0 L 3	37.0 L 4	39.0	39.0	40.0	40.0							335.0
14N 02W 6	39.0 L 1	37.0 L 2	38.0	32.0	38.0 L 3		14.0 L 5	30.0					37.0	37.0	27.0	30.0	359.0
14N 02W 7	32.0																32.0
14N 02W 8					33.0	32.0	29.0	32.0									126.0
14N 03W 13					30.0			30.0	36.0	36.0							132.0
15N 02W 19														3.1	.7		3.8
15N 02W 29									2.9								2.9
15N 02W 30	5.3	5.1	3.0	7.5									12.0	12.0	12.0	15.0	71.9
15N 02W 31	25.0	14.0	21.0	29.0	1.9		14.0	34.0			40.0		38.0	39.0	37.0	40.0	332.9
15N 02W 32			5.6		2.4	37.0	40.0	38.0	39.0	40.0	34.0	40.0	.6	7.1	34.0	39.0	356.7
15N 02W 33									6.0	35.0	4.0						45.0

Total Acres: 1827.9

Method of Determination: AERIAL PHOTO AND VISUAL INSPECTION

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

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

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

YES Photo of Diversion and System Attached

4.

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
POINT OF DIVERSION	N/A	N/A	N/A	N/A	4 FT HEADGATE TO OPEN DITCH

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

2. Measurements: Used ditch company's 4 ft Parshall flume. The flume was 4 ft wide and 2 ft deep.

E. FLOW CALCULATIONS**YES** Additional Computation Sheets Attached

Measured Method:

MAXIMUM ALLOWABLE RATE OF DIVERSION → 22.85 CFS

Please see attached measurement calculation sheet.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 1827.9 \times 4.0 = 7311.6 \text{ afa}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 22.85 \times 231 \times 1.9835 = 10469.6 \text{ afa}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 7311.6 \text{ afa}$$

2. Volume Calculations for Other Uses:

N/A

G. NARRATIVE/REMARKS/COMMENTS

The water for this permit is diverted from the Weiser River in the SESESW S16 T15N R2W. The water is then run through a large ditch that travels approximately 2.2 miles in a southwesterly direction to the first diversion. This diversion is discussed in the field report for 67-2219. The water then travels another $\frac{3}{4}$ of a mile to the next diversion point. This diversion point is also discussed in water right 67-2219. Water from right 67-2219 and a portion of the ditch company water are diverted out of these first two points of diversion.

Immediately after this second diversion, the water runs over the ditch company's flume. After the flume the water is run through approximately 6 miles of ditch through various farms. The individual water users then take their proportionate share of the water through their headgates along the ditch.

Several issues have arisen with this permit that need to be addressed. The first issue is that the point of diversion was moved from the NWNW S21 T15N R2W to the SESESW S16 T15N without amending the permit. However, a licensing amendment can be used to correct the legal description of the point of diversion. I have informed the ditch company representatives of this issue.

There is an issue with this permit concerning the company's measurement devices. The point of diversion for this permit is approximately 3 miles from the measurement point on the ditch. The reasoning behind this is that the ditch travels through a fairly narrow canyon and access to the point of diversion is very limited. In order to get to the point of diversion the ditch rider must take a road around the other side of the hill. The entire trip takes at least 20 to 30 minutes.

In order to remedy the long drive time, the ditch company built a discharge point approximately ½ mile up from the flume. This discharge point is used to control the water going over the flume. Any excess water is then diverted back into the river. This works well for the ditch company, because the only point of diversion between their point of diversion and this discharge point is a backup diversion for water diverted through their ditch, so it wouldn't be used unless the ditch was inoperable. This discharge point is also used to discharge any runoff water that enters the ditch from the hillside. The runoff water comes directly from the hillside, since the ditch doesn't intercept any streams or creeks. This runoff water has washed the ditch out in past years, and this discharge point gives the water a way out before it can wash out the ditch.

My main concern with the location of the measurement device is that there is actually more water being diverted from the river than is actually being sent through the ditch. Some of this water is lost to ditch loss and the rest is sent through the discharge point. The actual amount of water being diverted from the headgate is greater than the amount of water running over the flume. This permit doesn't ask for ditch loss, but there is definitely some ditch loss accrued through a ditch of this length. This practice could be an acceptable solution to the ditch loss scenario.

I am also concerned about the two points of diversion from the ditch above the canal company's flume. The watermaster has approved the practice of shutting off these diversions and measuring them over the flume, but this isn't a very accurate way of measurement. The flume should be located above the first diversion or each of these diversions should have a measurement device installed on them.

OVERLAPPING WATER RIGHTS:

The Cambridge Ditch was originally developed by group of farmers to more efficiently deliver their personal water rights, and this permit was filed to cover those lands not already covered by an existing right. Therefore, there are approximately 29 water rights that use the same point of diversion as is listed in this report. These existing rights currently allow approximately 27.42 cfs to irrigate 959.7 acres of the 1827.9 acres recommended in this report. The Snake River Basin Adjudication (SRBA) is currently reviewing these rights, but it appears as though some of these rights could be altered or reduced. Please refer to the Flow calculation sheet, which discusses the diversion rates in depth.

Whereas the ditch company delivers all these rights, they have requested that all these rights be changed into their name through the adjudication process. Dave Tuthill decided that to try and do this type of conversion would delay the adjudication process, so it would be better to do this conversion after the adjudication process is complete with a transfer. The transfer process would be able to take all of these rights and condition each right in a way that would prevent any problematic overlaps.

RECOMMENDATIONS

This permit limits the rate of diversion to 5/8-inch per acre or 0.0125 cfs. I am recommending that all of the 1827.9 acres be licensed at the 5/8 inch per acre, with a condition limiting the use of this right with all other rights to the diversion of 5/8 of an inch at the field headgate of each water user. This would allow a total rate of diversion of 22.85 cfs. This will ensure that the all of the acres within the borders of the ditch company will receive at least 5/8 of an inch of water. The ditch company will have the responsibility of establishing a record keeping procedure to ensure that lands irrigated by this permit do not exceed the 5/8-inch limitation.

With the overlapping water rights and the lack of measurement devices on the system, it will be difficult to monitor and keep reasonable records of this system. The ditch company should be able to provide adequate records on request of the department and/or the watermaster.

Therefore, I recommend that this permit be licensed with conditions similar to the following:

- 1.) Diversion through the Cambridge Ditch is limited to 47.8 cfs unless they can show that a measurement device has been installed to properly measure the excess water flow. To increase the current capacity of the ditch the Cambridge Ditch Company will need provide an accounting of the water rights diverted through the ditch requiring the increase in ditch capacity.
- 2.) This right is limited to a maximum rate per acre of 5/8 of an inch or 0.0125 cfs at the field headgate of each property owner using the Cambridge Ditch Company's delivery system.
- 3.) The Cambridge Ditch Company shall provide upon request records showing the rate and volume of water delivered to each water user on any given irrigation season.
- 4.) This right may not be diverted to lands where existing water rights already provide a rate per acre at the field headgate in excess of 5/8 of an inch or 0.125 cfs.
- 5.) All water diverted under this right must flow through a measuring device approved by the department and the watermaster prior to being diverted for irrigation.
- 6.) A measurement device approved by the department and the watermaster must be installed within 50 ft of the ditch headgate.

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

H. RECOMMENDATIONS

1. Recommended Amounts

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
IRRIGATION	04/01 to 10/31	22.850 CFS	7,311.60 AF
	<u>Totals:</u>	22.850 CFS	7,311.60 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

DANIEL A. NELSON – SENIOR AGENT

Field Examiner's Name Daniel A. Nelson Date 7-21-05

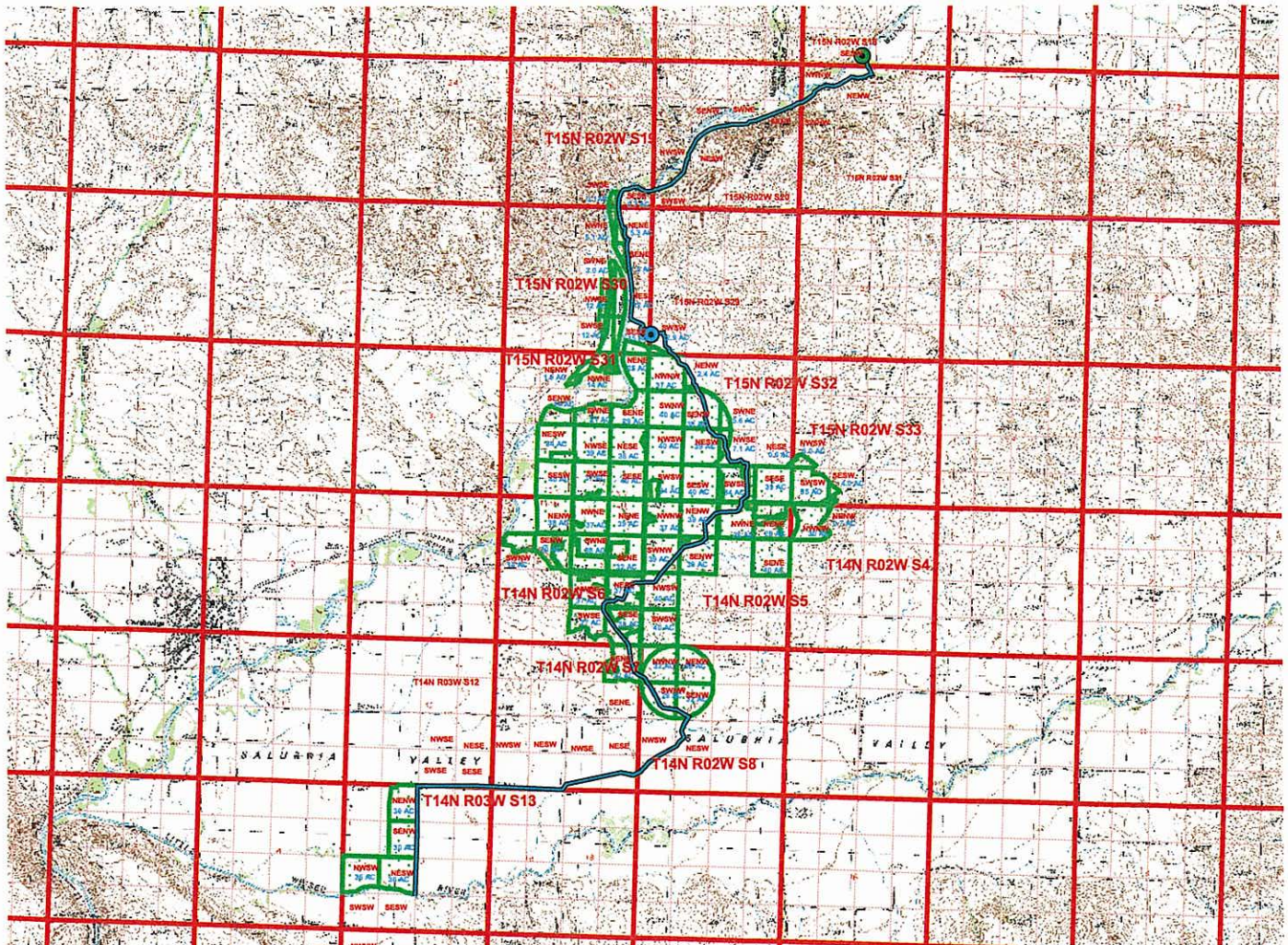
Reviewer _____ Date _____

SEAL

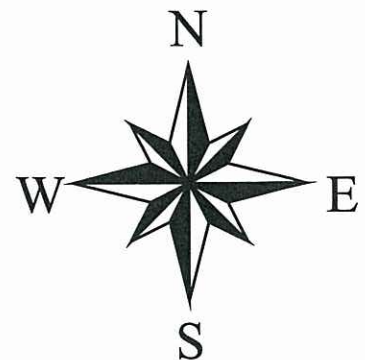
FIELD EXAM 67-7376

QUADRANGLE MAP

BY DAN NELSON



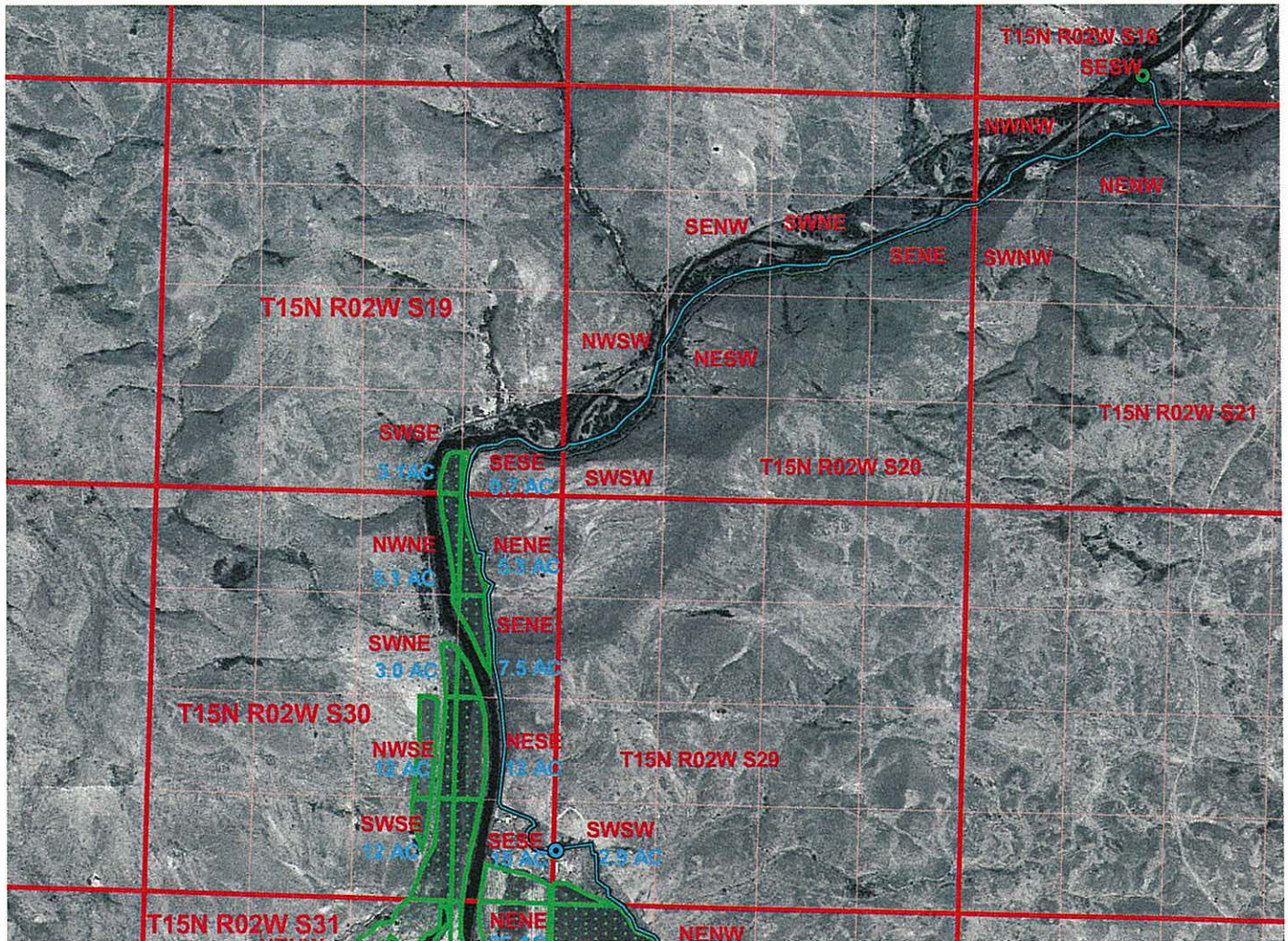
-  POINT OF DIVERSION
-  FLUME LOCATION
-  CAMBRIDGE DITCH
-  ACRES IRRIGATED
-  SECTION LINES
-  1/4 1/4 LINES



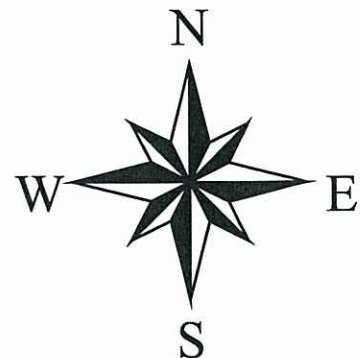
FIELD EXAM 67-7376

PLACE OF USE MAP 1 OF 3

BY DAN NELSON



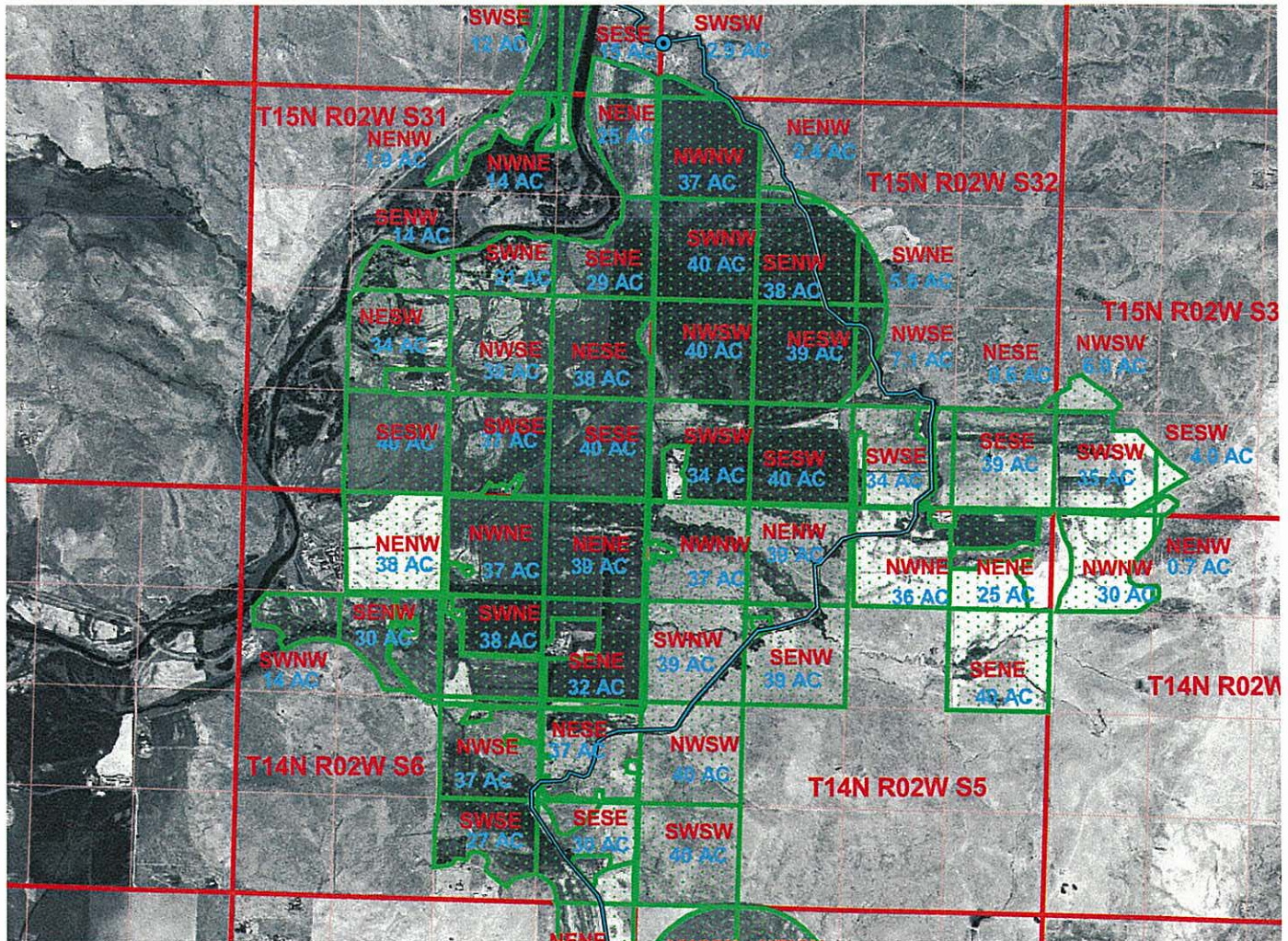
- POINT OF DIVERSION
- FLUME LOCATION
- CAMBRIDGE DITCH
- ACRES IRRIGATED
- SECTION LINES
- 1/4 1/4 LINES



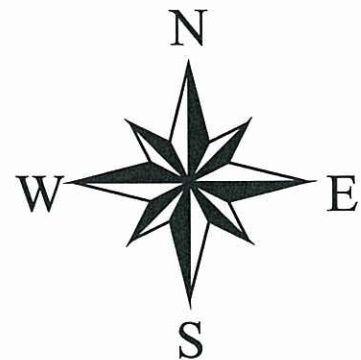
FIELD EXAM 67-7376

PLACE OF USE MAP 2 OF 3

BY DAN NELSON



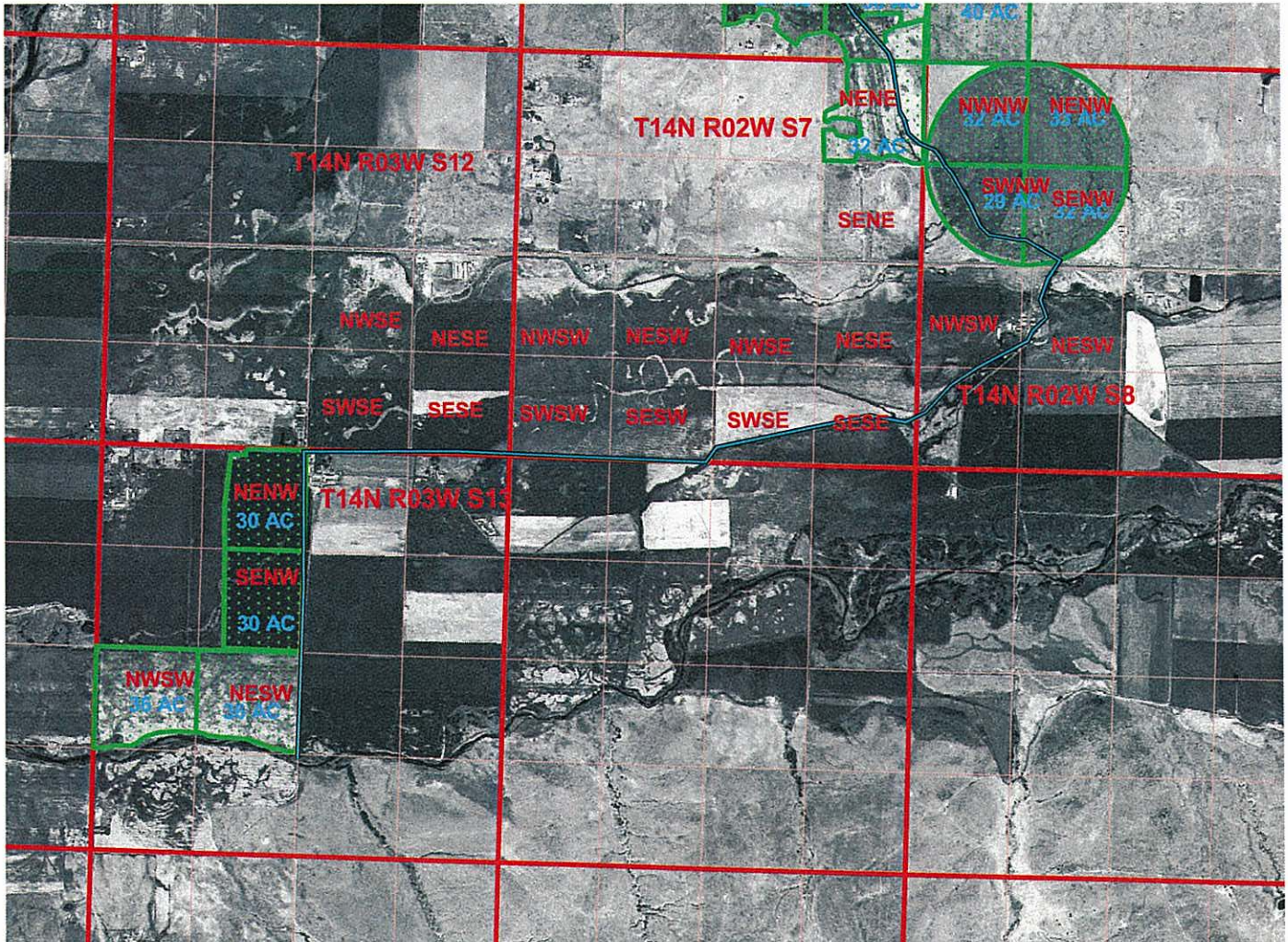
- POINT OF DIVERSION
- FLUME LOCATION
- CAMBRIDGE DITCH
- ACRES IRRIGATED
- SECTION LINES
- 1/4 1/4 LINES



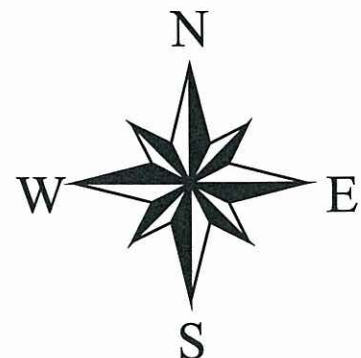
FIELD EXAM 67-7376

PLACE OF USE MAP 3 OF 3

BY DAN NELSON



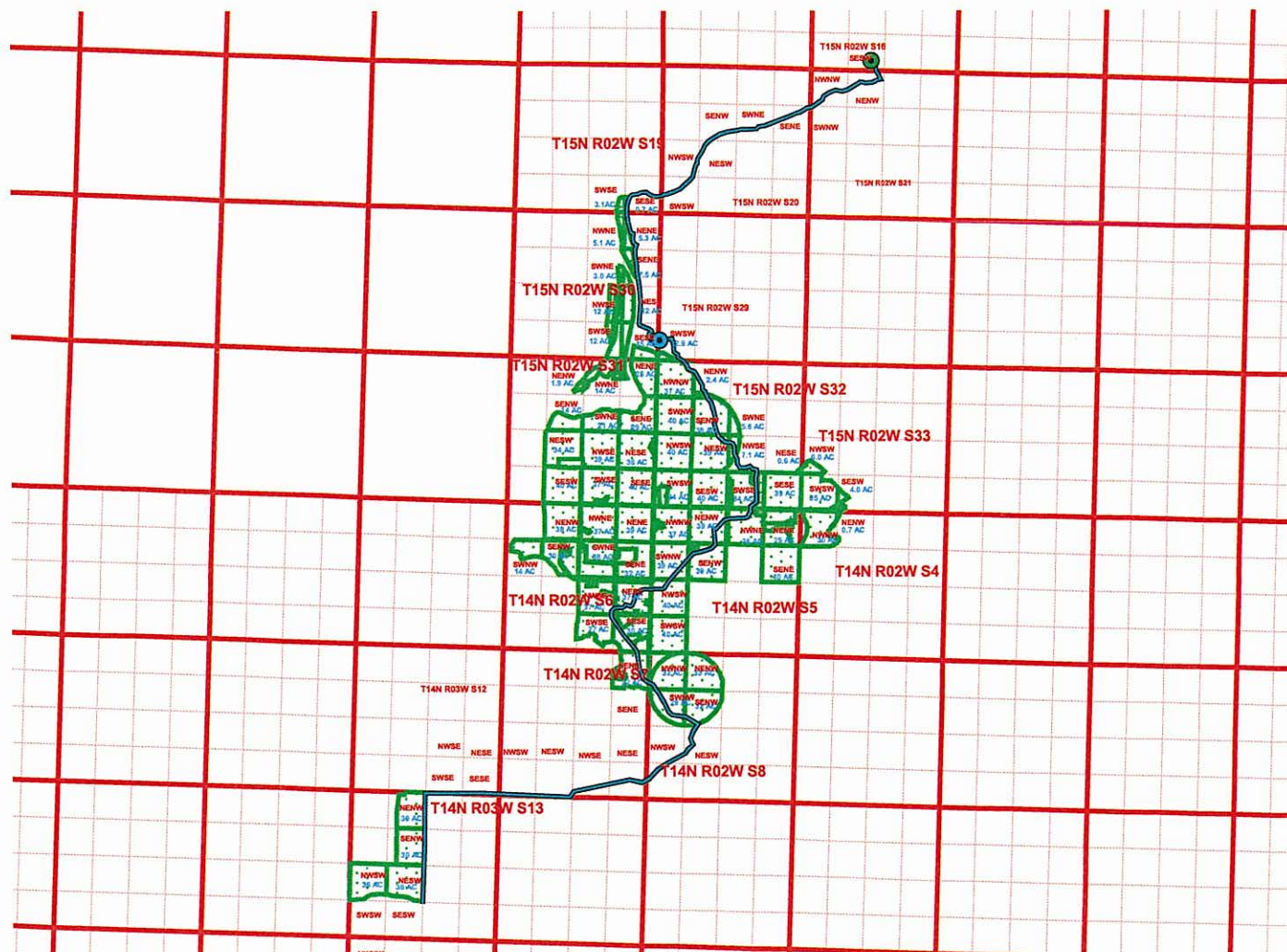
- POINT OF DIVERSION
- FLUME LOCATION
-  CAMBRIDGE DITCH
-  ACRES IRRIGATED
-  SECTION LINES
-  1/4 1/4 LINES



FIELD EXAM 67-7376

SYSTEM DIAGRAM

BY DAN NELSON



● POINT OF DIVERSION

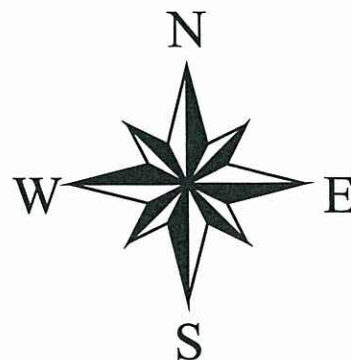
● FLUME LOCATION

— CAMBRIDGE DITCH

■ ACRES IRRIGATED

□ SECTION LINES

□ 1/4 1/4 LINES





UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

116° 37' 30"
44° 37' 30"

4941000m

531000m



15N02W19

15N02W30

15N02W29

15N02W31

15N02W32

15N02W33

14N02W6

14N02W5

14N02W4

14N02W7

14N02W8

14N03W14

14N03W12

14N02W18

14N02W17

14N03W13

14N03W23

14N03W24

Check

320