

NOT upon the Fault Rental Estates at this time. See 8/31/05 memo in "Fault Rental Estates" ownership package.

3. Delivery System Diagram.

Indicate all major components and distan

between components.

Indicate weir size/ditch size/ pipe i.d..as applicable.

5EE

- OVERVIEW MAP
- P/D MAP
- Attachment A, Figure 2
- Attachment B

Scale 1"=_____

- ☒

Copy of USGS Quadrangle attached showing location(s) of diversion and place(s) of use (required).

- 

Aerial photo attached (required for irrigation of 10+ acres). - SEE p/u Aerial MAP

- ☒

Photo of diversion and system attached.

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

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

D. FLOW MEASUREMENTS

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calibration Date
Weir	Cipolletti				2 ft.	

Measurements 0.5 ft. head = 2.37 cfs this exam; 0.52 ft. head = 2.51 (not 2.52) cfs 1997 exam 65-13075A

E. NARRATIVE/REMARKS/COMMENTS

This exam was conducted per Oliver-Dobson approval without owner or owner representative being present. I have worked on water rights and water distribution in the Porter Creek water district since 1988, including a short stint as acting watermaster when a watermaster resigned upon first date of water delivery in the early 1990s. I am therefore very familiar with the district and with this diversion system and place of use being considered for licensing.

More information about this diversion system is found in this field report Attachment A, an extract from my paper in the "Resources Administration Division 1991 Technical Conference." The attachment includes an overview system diagram and brief system description. The long diversion ditch to the distribution box (aka "diversion box") located above the P/U was in place and being used during this exam. The long diversion ditch was replaced by a pipeline as noted in the 1997 exam of another right diverted from the same system (Dan Tomich report for 65-13075A). The pipeline was installed during 1996 and 1997. This gravity flow system, properly controlled and measured at the P/D (same weir remains in use today), delivers water via the pipeline to a distribution box. Water from that box is piped to the field mainline. That mainline is also used by water pumped from the Payette River for most of the same acres under 65-12842 plus additional land in the same general area. Laterals from the field mainline serve wheel and hand lines.

The system diverted 2.37 during the 1993 exam. Visual observation confirmed that higher flows had passed over the weir in previous times (but never measured by IDWR during those occurrences). The 1997 exam documented a system capacity of 2.52 cfs based on 0.52 ft. of head measured over the weir. That exam also documented a design capacity of 2.60 cfs based on NRCS specifications (see Attachment B for 65-12842 exam). Note that 0.52 ft. of head translates to 2.51 cfs, not 2.52 cfs. That minor error is not critical. I recommend a system capacity of 2.60 cfs - which requires between 0.53 and 0.54 ft. of head over the weir, a slight increase from the 1997 maximum measurement made and not much more than the 1993 exam measurement. As already noted, watermarks on the weir and staff gauge suggested at least that additional amount of water had flowed over the weir sometime in the past. It is a reasonable conclusion to assume a system capacity of 2.60 cfs based on all this information.

Even without recognizing a slight increase in system capacity, the diversion can provide adequate rate and full volume to all acres served by this system. See exam Attachment D for a summary of different assumptions regarding system capacity and overlapping P/D rights (all those rights serve separate acres).

The P/U under 65-12842 is also discussed in the ownership change recently filed and forwarded with this exam report. The irrigated land has been subdivided into Faull Ranch Estates and related parcels adjoining the subdivision. The subdivision homeowners formed an association to manage water, roads etc. All the water rights/permits for the subdivision development and associated area are being bundled under association ownership. However, a PPOU is not being requested by the association at this time (maybe later - a few years from now?). This ownership change, also reflected in this exam report using the new permit holder per assignment now forwarded to SO, is greatly preferred over traditional individual homeowner splits of many rights from various sources serving the development (imagine multiple splits of many records, including multiple records in Porter Creek and Payette River water districts!). I have consulted with the current and proposed owners on this matter since 1996.

The P/U for 65-12842 is also partly covered under Payette River rights 65-2858A, 65-9417A and 65-10963.

Note that watermaster control over Porter Creek water in the P/U for senior 65-3104B & C and junior 65-12842 has included watermaster locks on field valves to prevent senior water from being used on junior land and vice versa. This was done in response to complaints from the late 1980s and early 1990s. Senior Porter Creek water was limited to land above (east) the bluff, while junior creek water was restricted to land below (west) of the bluff. The bluff is plotted on the overview map and noted in Attachment A, Figure 2. Licensing conditions for this management tool are not needed.

See the printout of the draft license proof report included with this exam report for some licensing suggestions.

Have conditions of permit approval been met? ☒ Yes ☐ No

F. FLOW CALCULATIONS

Measured Method:

allow 0.84 cfs from 2.60 cfs system capacity

☒ Additional Computation Sheets Attached - *SEE Attachment D*

G. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation: 42 acres, 3.5 afa/acre, assume current standard season 3/15-10/31 = 231 days

$$VI.R. = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 147$$

$$VD.R. = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation Season}) \times 1.9835 = 384.9$$

$$V = \text{Smaller of VI.R. and VD.R.} = 147$$

2. Volume Calculations for Other Uses: N/A

H. RECOMMENDATIONS

1. Recommended Amount

BENEFICIAL USE	PERIOD OF USE		RATE OF DIVERSION ANNUAL	
	From	To	Q(cfs)	V(afa)
Irrigation	3/15	10/31	0.84	147.0
TOTALS			0.84	147.0

2. Recommended Amendments

- ☐ Change P.D. as reflected above
☐ Change P.U. as reflected above

- ☐ Add P.D. as reflected above
☐ Add P.U. as reflected above

- ☒ None
☐ Other

I. AUTHENTICATION

Field Examiner's Name Steve Lester
Reviewer

Steve Lester

Date 8/30/2005
Date

IDAHO DEPARTMENT OF WATER RESOURCES

Water Right Report 65-12842

WATER RIGHT NUMBER: 65-12842

DRAFT

Owner Type

Current Owner

Name and Address

STEPHEN F DOBSON
PO BOX 366
HORSESHOE BEND, ID 83629
(208)793-2694

Current Owner

TOM OLIVER
PO BOX 366
HORSESHOE BEND, ID 83629

Priority Date: 05/16/1988

Basis: License

Status: Active Draft DRAFT

Source

PORTER CREEK

Tributary

PAYETTE RIVER

Beneficial Use

IRRIGATION

From To

03/15 to 10/31

Diversion Rate

0.840 CFS

Annual Volume

147.00 AF

Total Diversion:

0.840 CFS

147.00 AF

Location of Point(s) of Diversion

PORTER CREEK

NW1/4SE1/4

Sec. 12, Twp 07N, Rge 02E, B.M.

BOISE County

Place of Use

IRRIGATION

Twp Rge Sec	NE				NW				SW				SE				Totals
07N 02E 2	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	17.2
07N 02E 11			7.8				17.0										24.8
							L 1										

Total Acres: 42

Conditions of Approval:

1. 004 The issuance of this right does not grant any right-of-way or easement across the land of another.

2. THE PERMIT HOLDER SHALL SUBMIT TO THE DEPT. EVIDENCE OR PLANS & SPECIFICATIONS OF PROPOSED CHANGES TO THE DIVERTING WORKS, CONVEYANCE SYSTEM & CULVERT CROSSING TO SHOW THAT THE SYSTEM IS CAPABLE OF CONVEYING THE ADDITIONAL WATER AUTHORIZED BY THIS PERMIT. UNTIL THE DEPT. HAS EITHER APPROVED THE EVIDENCE SUBMITTED OR THE DEPT. HAS INSPECTED & APPROVED THE WORK ACCOMPLISHED UNDER THE PRE-APPROVED CONSTRUCTION PLANS, DIVERSION OF WATER UNDER THIS PERMIT IS NOT AUTHORIZED.

OK

DELETE

Update per assignment received
5/20 8/24/05

Recommended Capacity = 2.60 cfs

Assume 5th Season =

IDAHO DEPARTMENT OF WATER RESOURCES

Water Right Report 65-12842

3. 01G Prior to the diversion of water under this right a flow measurement port or other device as specified by the Department shall be installed to provide for the installation of measuring equipment and the determination of the rate of diversion by the Department.

4. 005 Use of water under this right is subject to control by the watermaster of State Water District No. 65B & DISTRICT.

Remarks:Comments:Dates and Other Information:

Licensed Date:

Decreed Date:

Water Supply Bank Enrollment Accepted:

Water Supply Bank Enrollment Removed:

Enlargement Use Priority Date:

Enlargement Statute Priority Date:

State or Federal:

Owner Name Connector:

Water District Number: 65B

Generic Max Rate Per Acre: 0.02

Generic Max Volume Per Acre: 3.5

~~Decree Defendant:~~

Decree Plaintiff:

Civil Case Number:

Judicial District:

Swan Falls Trust or Nontrust:

Swan Falls Dismissed:

DLE Act Number:

Carey Act Number:

Mitigation Plan: False

Combined Use Limits:Water Supply Bank:

change to rth. watermaster
condition e controllate div. work i
measuring device

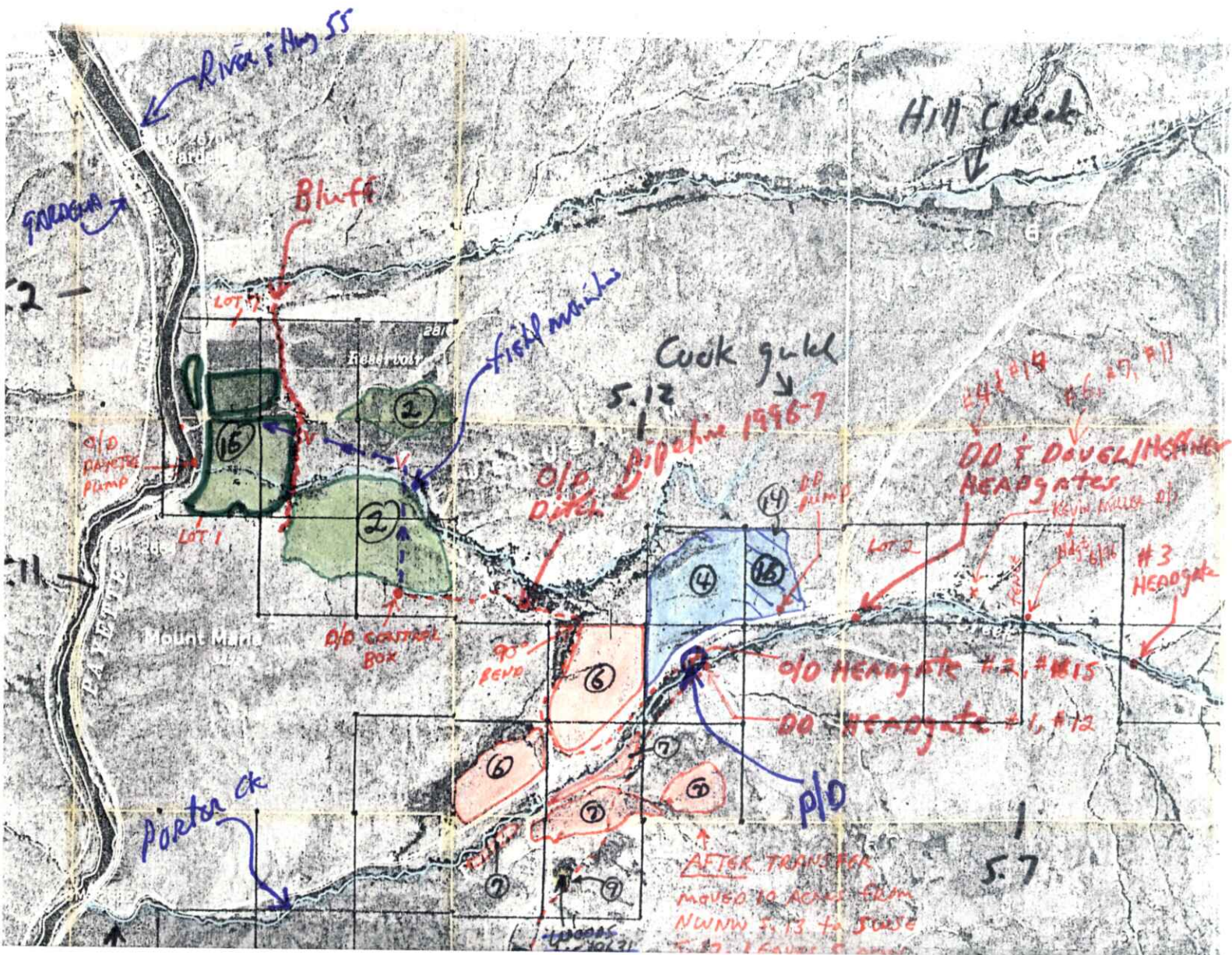
incomplete →

Add

5 Right nos. 65-31048, 65-31049 and 65-13075A also
diverted through same P/O.



O/O system e 1993 exam



O/O ditch creek to Plu - replaced with pipeline e 1996-1997.

➔ #16 = GS-12842, plu below (west) bluff.

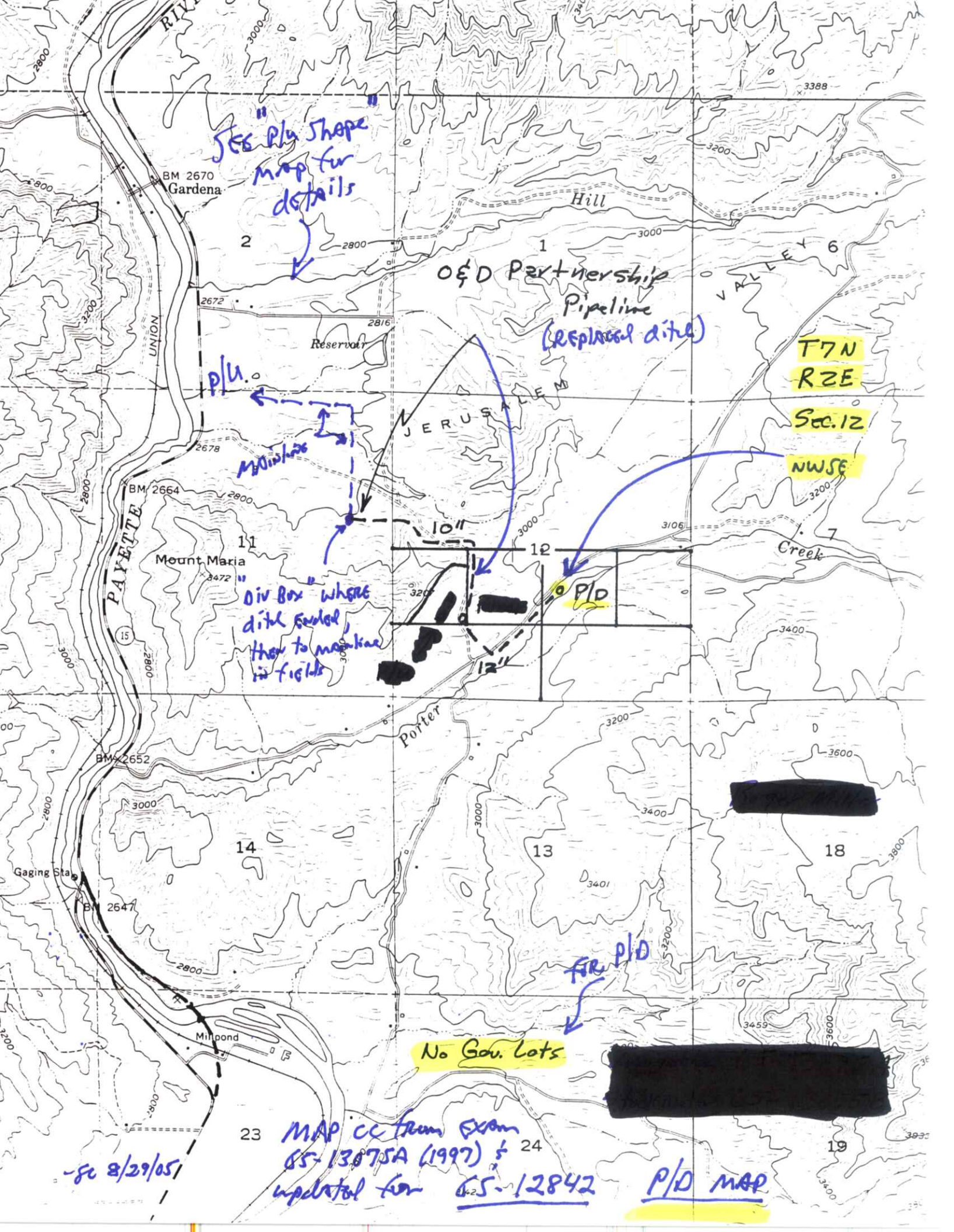
#2 = GS-3104 (different acres), plu above (east) bluff.
↳ B+C

Acres outlined from permit map

(cc from base map prepared for watermaster into 1980's)

OVERVIEW MAP

↑
N
↓



See "P/L shape" map for details

O&D Partnership Pipeline (replaced ditch)

T7N
R2E

Sec. 12

NWSE

P/L

mainline

"Div Box" where ditch crossed, then to main line in fields

P/D

No Gov. Lots

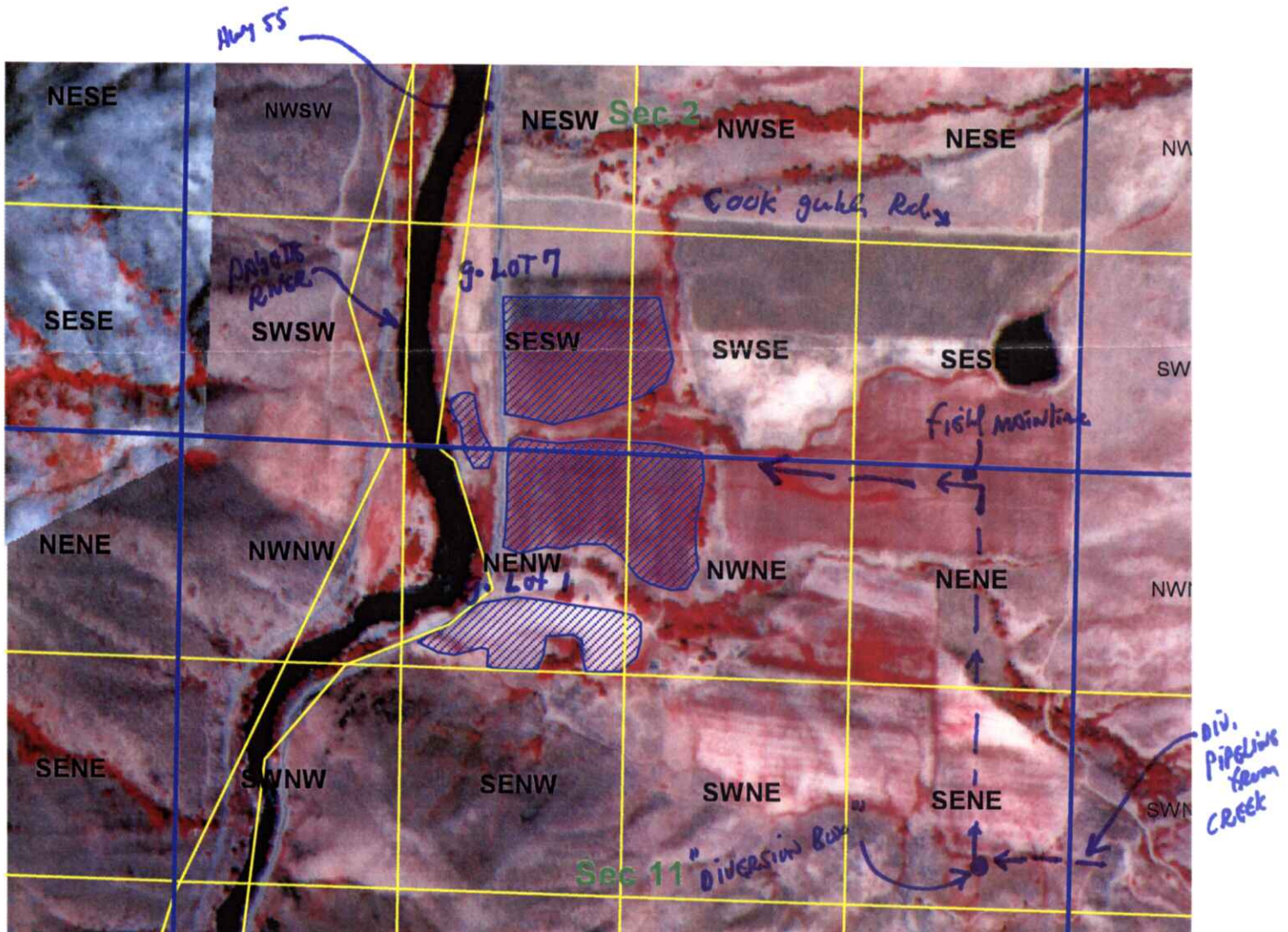
P/D MAP

8/29/05

MAP CC from Exam
65-13875A (1997) &
updated for 65-12842

Revised 2/8/05
JL IOWR

65-12842



<u>Proposed ACRES</u>	Section 2	SESW	14
	"	SWSE	3.2
	Section 11	NWNE	7.8
		NENW	17
		TOTAL =	42

APPROVED BY:

Steve Bohannon
Forest Officer

NAME

2/16/05

DATE



Section lines



1/4 1/4 lines



65-12842 Proposed Place of Use Shape
to Issue License

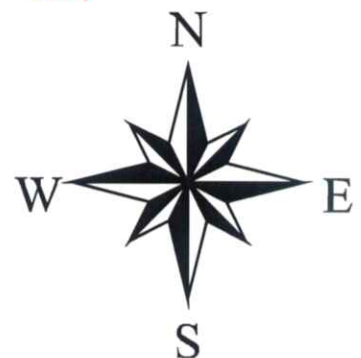




PHOTO ONE-

P/O headgate just below rock checkdam on Porter Creek.



PHOTO TWO-

2' Cip. Weir not far from headgate in photo 1.

* photo 2 taken c/1990 for 1991 Tech. Conf., see Attachment A

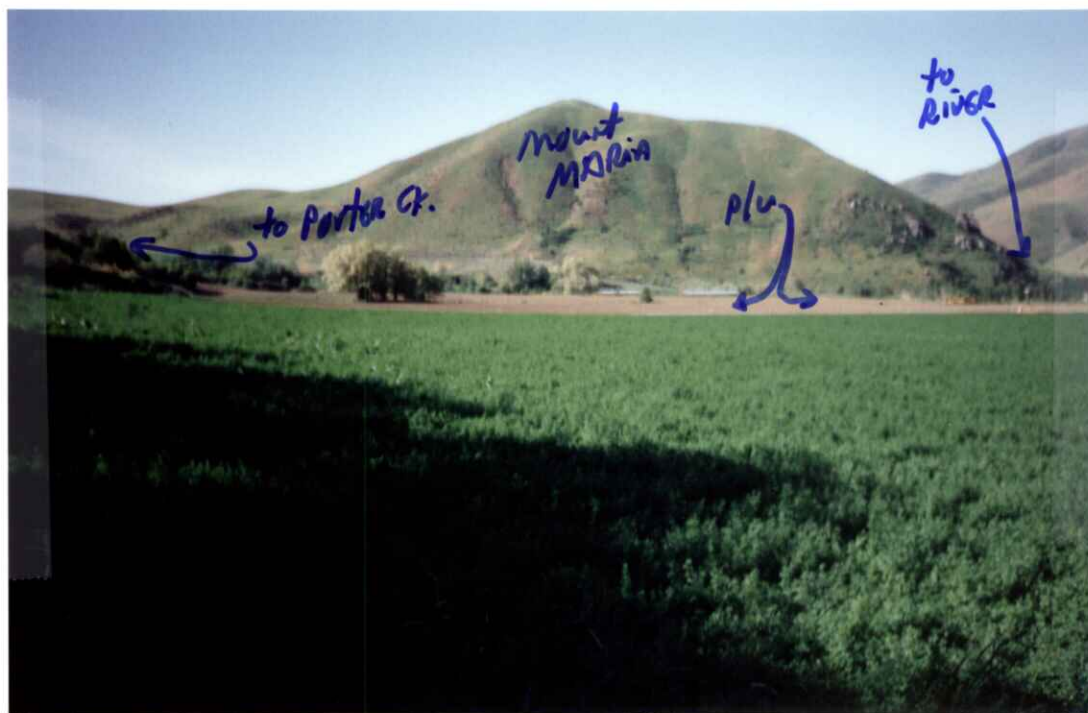


PHOTO THREE- View South from Cook Gulch Rd. to plu (plowed field).
Irrigation in foreground is from other rights, other sources.



PHOTO FOUR- View NE at plu (plowed) in foreground.
Photo taken near SW end of plu.

State of Idaho
Department of Water Resources

Resources Administration Division 1991 Technical Conference



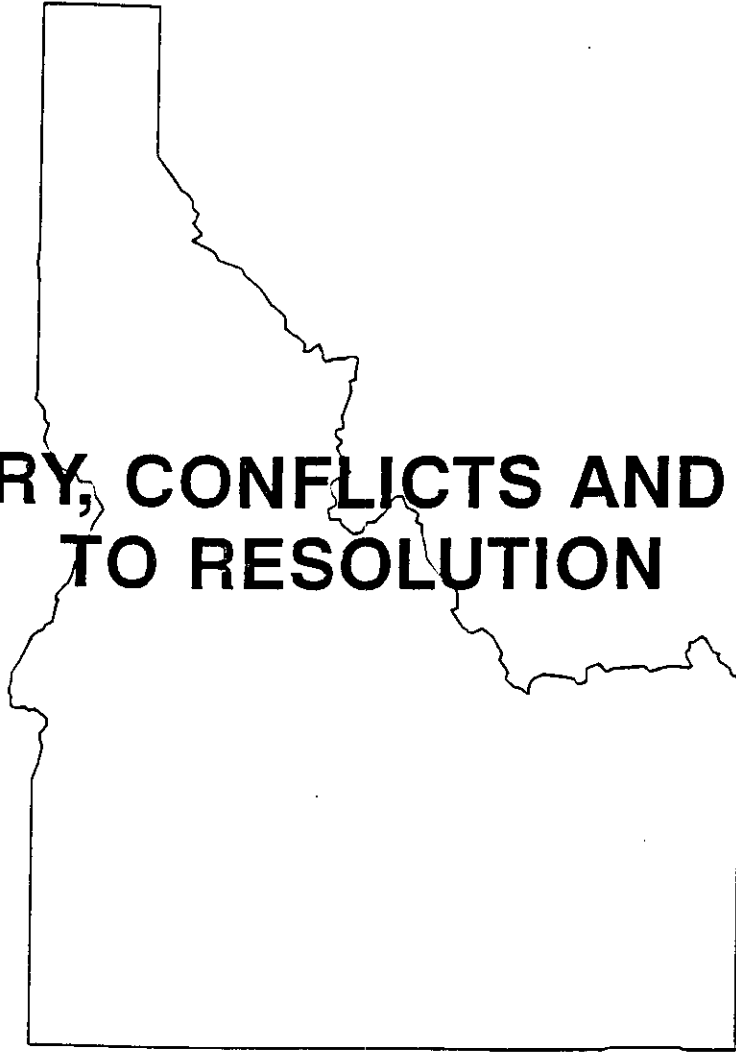
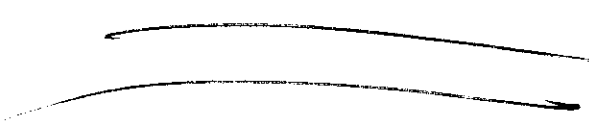
- Alternative diagram
- system description
summary

Proceedings

OLIVER/DUBSON
Weir for Porter cr.
Diversion

EX-65-12842 ATTACHMENT A

PORTER CREEK WATER DISTRICT



HISTORY, CONFLICTS AND ROAD TO RESOLUTION

STEVE LESTER

Idaho Dept. of Water Resources

the large field bordering the river east of Horseshoe Bend. The Oliver & Dobson ditch (#2 ditch) runs westward to land in the northwest part of the district and on both sides of Cook Gulch (local name only). This ditch crosses Dovel's land in the SW 1/4 Sec. 12.

Oliver/Dobson

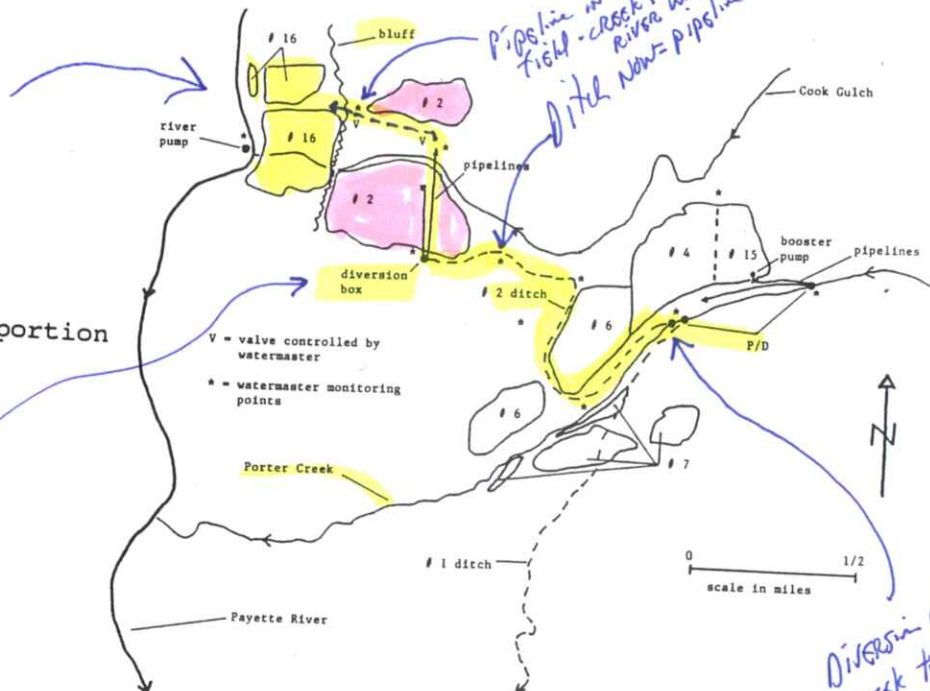
#2 SR. 65-3104

#16 JR 65-12842

Now = Pipeline

Fig. 2, north portion of district.

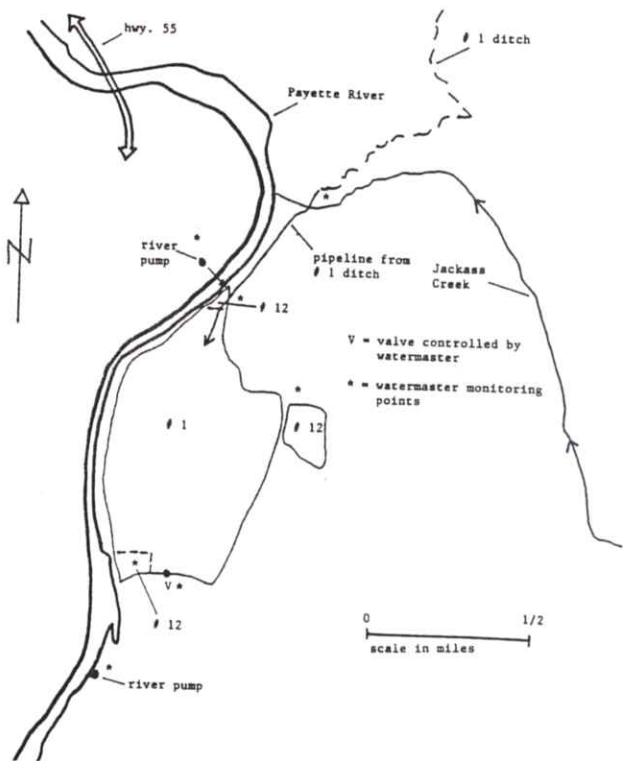
diversion box aka distribution or control box



diversion ditch at creek to weir, then to pipeline, to Ph

closer view current div. works ... see "O & D Partnership Pipeline" also in 65-13075A 1997 exam

Fig. 3, south portion of district.



updates 8/29/05 -82

Double Diamond

A checkdam, headgate, and earth ditch approximately one and one-half to two miles long deliver water to the most southern field in the district. A 3' Cipoletti weir and staff gauge allow water measurements. The ditch delivers water to a pipeline that crosses Jackass Creek and continues to the north end of the field where the line joins a mainline fed by one of two Payette River pumps. The mainline runs north and south through the center of the field, and a control valve on the pipe is located at the south end of the Porter Creek place of use. Water is applied via sprinklers on wheel lines. Water from the Payette River can be mixed and applied to the acres. Creek rights for the field include "active" right no. 1 for 193 acres and "inactive" right no. 12 for 22 acres.

Additional Double Diamond rights include "active" right no. 4 for 45 acres and "inactive" right no. 15 for 19 adjacent acres with a common point of diversion at the most eastern and upstream site in the district. A checkdam, diversion box, headgate, and buried pipeline deliver water to a small holding pond where a booster pump is utilized. Water is measured with an installed flowmeter that registers in miner's inches. Sprinkler irrigation via handlines occurs on nos. 4 and 15 fields north of Porter Creek.

Oliver-Dobson

"Active" right no. 2 and "inactive" right no. 16 employ a common diversion system consisting of a checkdam, headgate, earth ditch, and 2' Cipolletti weir. The ditch is about one to one and one-half miles long. It crosses the county (Porter Creek road) road via a culvert between the creek and no. 6 land. The ditch crosses the Cook Gulch road with another culvert between the nos. 2 and 6 fields. Part of the ditch crosses Dovel's property in field no. 6. The ditch ends in a diversion box with two pipelines, one buried line and one surface line, leading to wheel and hand lines. Water can also exit the west side of the diversion box through a small ditch to a gully and then to a lower ditch paralleling the south end of the Oliver-Dobson land. This ditch empties into another diversion box that has two or more pipelines running to sprinkler lines or to an unnamed drainage tributary to the Payette River.

Most of the Oliver-Dobson land can be irrigated with Payette River water. Co-mingled water mixes through a mainline running east from the river. Control valves on the mainline and a key lateral can be used to prevent mixing of river and creek water. The no. 2 right can irrigate 90 acres, and no. 16 relates to 42 acres.

Dovel

"Active" rights nos. 6 and 7 for 99 acres and courtesy use of .04 cfs (no. 11, domestic use) are diverted through a common diversion shared with Double Diamond rights 4 and 15. The Dovel diversion system consists of a headgate and buried pipeline (different headgate and pipe from same diversion box as Double Diamond) that follows an old ditch

* "inactive" = use until watermaster has to curtail junior right

Steve

O & D Partnership Pipeline

Designed and Constructed by (USDA)
Natural Resources Conservation Service,
Emmett office:

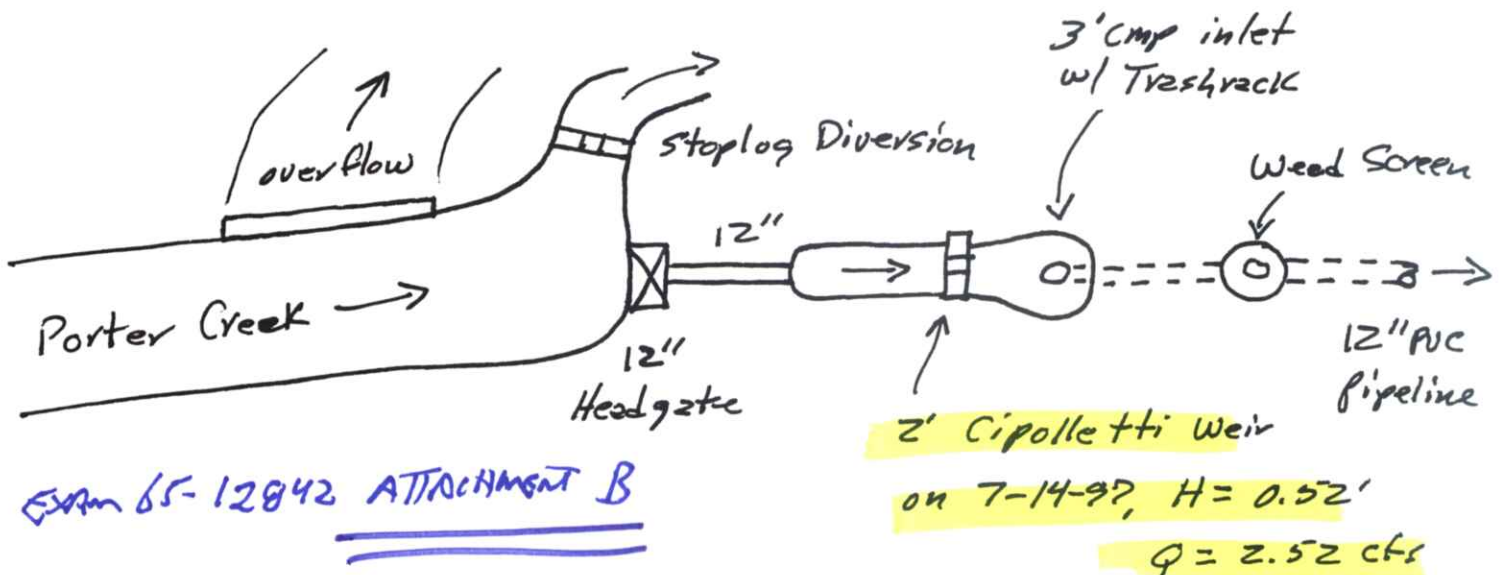
Design Flow: $Q = 128 \text{ M.I.} = 2.60 \text{ cfs}$

Pipe installed:	2650'	12"	80 psi' PVC
	4223'	10"	80 psi' PVC
Total	6873'		

Water Rights Served:

Roger Miller	, 65-13075A, P, 6/23/89, 0.12 cfs
Steve Dobson / Tom Oliver	, 65-12842, P, 5/16/88, 0.84 cfs
S. Dobson / T. Oliver / A. Wolfgram	, 65-03104, D, 1/1/1883, 1.60 cfs
Now	Total 2.56 cfs

Diversion on Porter Creek:



Installed : 2650' 12" 80 psi PVC
 4223' 10" 80 psi PVC

 6873'

NOTES:

1. Construction shall be in accordance with construction specifications ID-430-DD and 587-D.
2. It is the landowner's or operators responsibility to locate and protect all public utilities (above ground and overhead) prior to construction.
3. It is the landowner's responsibility to obtain all necessary easements and/or permits prior to construction.
4. Design Q = 128 M.I. = 2.6 cfs.
5. All pipeline extending under roadways shall be 125 psi. min.

LIST OF MATERIALS

STATION	ITEM	QUANTITY
0+00	CMP Inlet Structure (See pg. 2)	1
0+00 - 1+00	12"-dia. PIP, PVC, 80 psi	100 ft.
1+00	Turbulent Ftn. Structure (See pg. 2)	1
1+00 - 30+80	12"-dia. PIP, PVC, 80 psi.	2,980 ft.
30+80	12" - 10" PVC Reducer	1
30+80 - 51+50	10"-dia. PIP, PVC, 80 psi.	2,070 ft.
51+50 - 61+50	10"-dia. PIP, PVC, 100 psi.	1,000 ft.
0+00, 1+00	Concrete Base for Structures	1 cu. yd. ea.
Bends, Tees, Reducers	Concrete Thrustblocks	0.1 cu. yds. ea.
18+00, 29+00, 40+00, 51+60, 61+50	2" Waterman CRP-8 Air Vacuum Relief Valves or Equivalent	5
61+50	4" Waterman AA-96 Pressure Relief Valves or Equivalent (Set to crack @ 50 psi.)	2
61+50	10"-In-Line Valve	1
JOB	Misc. Fittings	----

Idaho
BDC 8/4/94
Pipeline

O&D Partnership

1

Narrative:

Project consists of replacement of 6,150 ft. of earth ditch with a pipeline. The pipeline will tie into an existing sprinkler system. At the point of connection, there is approx. 70' of head available that is currently supplied by an existing "gravity" mainline that serves part of the sprinkler system.

Given: $Q = 150 \text{ M.I.} = 3 \text{ cfs}$ 1st Try

Find: Size the pipeline to achieve a minimum of 70' of head at the point of connection that is currently available.

Idaho
BDC 8/4/94
Pipeline

O&D Partnership

2

HPAICV
"PIPHYD"
Program

* * PIPE * *
HYDRAULICS

HAZEN-WILLIAMS

L = 6,150.0
FRIC = 150.000
PIPE ID = 11.760
AREA = 0.754
CFS = 3.0
V = 4.0
H, F = 0.00372
H, L = 22.90
K, E = 0.5
K, V = 1.0
K, 2 = 8.0
K, 3 = 0.0
K, 4 = 0.0
ΣK = 9.5
VEL HEAD = 0.25
H, MINOR = 2.33
H, TOT = 25.24
H, E = 0.37

NEW ID = 9.800

L = 6,150.0
FRIC = 150.000
PIPE ID = 9.800
AREA = 0.524
CFS = 3.0
V = 5.7
H, F = 0.00905
H, L = 55.66
K, E = 0.5
K, V = 1.0
K, 2 = 8.0
K, 3 = 0.0
K, 4 = 0.0
ΣK = 9.5
VEL HEAD = 0.51
H, MINOR = 4.84
H, TOT = 60.50
H, E = 0.76

80 psi

← velocity too high

USE 12"

Assumed
for total of
misc. fittings →

← Assumed

Survey

Static head available $\approx 178^2 - 59^2 = \underline{118.8 \text{ ft}}$

12" - Head avail = $118.8 - 25.2 = 93.6 \text{ ft. (40.5 psi)}$

Idaho
BDC 8/23/94
Pipeline

O&D Partnership

5

Perphone
call w/
Randy
Phelan

Operator Steve Debson wanted to know if the max. flow was reduced to 128 M.I., could 10" PVC work for the entire project? There's a strong possibility that using 12" PVC would be too costly to make the project fly.

$$Q = 128 \text{ M.I.} = 2.6 \text{ cfs}$$

Design flow

* * PIPE * *
HYDRAULICS

HAZEN-WILLIAMS

L = 6,150.0
FRIC = 150.000
PIPE ID = 9.800
AREA = 0.524
CFS = 2.6
V = 5.0
H, F = 0.00694
H, L = 42.70
K, E = 0.5
K, V = 1.0
K, 2 = 8.0
K, 3 = 0.0
K, 4 = 0.0
ΣK = 9.5
VEL HEAD = 0.38
H, MINOR = 3.63
H, TOT = 46.34
H, E = 0.57

NEW ID=11.760

L = 6,150.0
FRIC = 150.000
PIPE ID = 11.760
AREA = 0.754
CFS = 2.6
V = 3.4
H, F = 0.00286
H, L = 17.57
K, E = 0.5
K, V = 1.0
K, 2 = 8.0
K, 3 = 0.0
K, 4 = 0.0
ΣK = 9.5
VEL HEAD = 0.18
H, MINOR = 1.75
H, TOT = 19.32
H, E = 0.28

Static
Head = 118.8'

10" ⇒ Head available = 118.8 - 46.3 = 72.5' (31.4 psi) ^{too low}

Try 1/2 - 12" ⇒ H_{TOT} = (0.00286)(3,075) = 8.8'
1/2 - 10" ⇒ H_{TOT} = (0.00694)(3,075) = 21.3'
Misc. = 2.5'
32.6'

Head available = 118.8' - 32.6' = 86.2' (37.3 psi) ^{O.K.}

Cost 10" = \$2.10/ft + \$1.75/ft (install) = \$3.68/ft

Cost = (3,075)(3.68) = \$11,300

12" → Cost = (3,075)(4.75) = \$14,606

\$25,906

TOTAL COST = \$30,586 / saved = \$3,237

rs.

Table 4. Flow over Cipolletti weirs in cubic feet per second.*

Crest length (L)	Flow in cubic feet per second	Head in ft. "H"	Head in inches, approx.	For each additional foot of crest in excess of 4 ft. (approx.)					
				1.0 foot	1.5 feet	2.0 feet	3.0 feet	4.0 feet	
4	3.74	0.10	1-3/16	0.107	0.160	0.214	0.321	0.429	0.108
3	3.79	0.11	1-5/16	0.123	0.185	0.246	0.370	0.494	0.124
3	3.84	0.12	1-7/16	0.140	0.210	0.280	0.421	0.562	0.141
2	3.88	0.13	1-9/16	0.158	0.237	0.316	0.474	0.632	0.159
2	3.94	0.14	1-11/16	0.177	0.264	0.352	0.528	0.706	0.177
2	3.98	0.15	1-13/16	0.195	0.293	0.390	0.586	0.782	0.196
2	4.03	0.16	1-15/16	0.216	0.322	0.430	0.644	0.860	0.216
2	4.08	0.17	2-1/16	0.237	0.353	0.470	0.705	0.941	0.236
3	4.14	0.18	2-3/16	0.258	0.384	0.512	0.768	1.024	0.257
3	4.19	0.19	2-1/4	0.280	0.417	0.555	0.832	1.110	0.278
3	4.24	0.20	2-3/8	0.302	0.450	0.599	0.898	1.20	0.302
3	4.29	0.21	2-1/2	0.324	0.484	0.644	0.966	1.29	0.324
3	4.34	0.22	2-5/8	0.349	0.519	0.691	1.04	1.38	0.35
5	4.40	0.23	2-3/4	0.374	0.555	0.739	1.11	1.47	0.37
5	4.46	0.24	2-7/8	0.397	0.591	0.786	1.18	1.57	0.39
5	4.51	0.25	3	0.423	0.628	0.836	1.25	1.67	0.42
7	4.57	0.26	3-1/8	0.449	0.667	0.886	1.33	1.77	0.44
7	4.62	0.27	3-1/4	0.475	0.705	0.937	1.40	1.87	0.47
8	4.67	0.28	3-3/8	0.502	0.745	0.990	1.48	1.97	0.49
0	4.73	0.29	3-1/2	0.529	0.785	1.04	1.56	2.08	0.52
1	4.78	0.30	3-5/8	0.557	0.827	1.10	1.64	2.19	0.55
2	4.82	0.31	3-3/4	0.586	0.869	1.15	1.73	2.30	0.57
2	4.88	0.32	3-13/16	0.615	0.911	1.21	1.81	2.41	0.60
4	4.94	0.33	3-15/16	0.644	0.954	1.27	1.89	2.52	0.62
5	4.99	0.34	4-1/16	0.675	1.00	1.32	1.98	2.64	0.66
7	5.05	0.35	4-3/16	0.705	1.04	1.38	2.07	2.75	0.69
8	5.10	0.36	4-5/16	0.735	1.09	1.44	2.16	2.87	0.71
0	5.16	0.37	4-7/16	0.767	1.13	1.50	2.25	2.99	0.74
2	5.22	0.38	4-9/16	0.799	1.18	1.57	2.34	3.11	0.78
4	5.28	0.39	4-11/16	0.832	1.23	1.63	2.43	3.24	0.81
6	5.33	0.40	4-13/16	0.866	1.28	1.69	2.53	3.36	0.84
8	5.39	0.41	4-15/16	0.899	1.32	1.76	2.62	3.49	0.87
9	5.44	0.42	5-1/16	0.932	1.37	1.82	2.72	3.61	0.89
2	5.50	0.43	5-3/16	0.967	1.42	1.89	2.81	3.74	0.93
4	5.55	0.44	5-1/4	1.00	1.47	1.95	2.91	3.87	0.97
6	5.62	0.45	5-3/8	1.04	1.53	2.02	3.01	4.01	1.00
8	5.67	0.46	5-1/2	1.07	1.58	2.09	3.11	4.14	1.02
1	5.73	0.47	5-5/8	1.11	1.63	2.16	3.21	4.28	1.06
4	5.79	0.48	5-3/4	1.15	1.68	2.23	3.32	4.41	1.10
5	5.84	0.49	5-7/8	1.18	1.74	2.30	3.42	4.55	1.13
8	5.91	0.50	6	1.22	1.79	2.37	3.53	4.69	1.16
		0.51	6-1/8	1.26	1.85	2.44	3.64	4.83	1.20
		0.52	6-1/4	1.30	1.90	2.51	3.74	4.97	1.24
		0.53	6-3/8	1.34	1.96	2.59	3.85	5.12	1.26
		0.54	6-1/2	1.38	2.02	2.66	3.96	5.26	1.30
		0.55	6-5/8	1.42	2.07	2.74	4.07	5.41	1.33
		0.56	6-3/4	1.46	2.13	2.81	4.18	5.56	1.38
		0.57	6-13/16	1.50	2.19	2.89	4.30	5.71	1.41
		0.58	6-15/16	1.54	2.25	2.97	4.41	5.86	1.44
		0.59	7-1/16	1.58	2.31	3.05	4.53	6.01	1.49

HEAD →
1997 Exam
65-13

*Computed from Cone's formula: $Q = 3.247 LH^{1.48} \frac{0.566L^{1.8}}{1.2L^{1.8}} H^{1.8} + 0.609 H^{2.5}$

WI WATER MEASUREMENT
Bulletin #552
Feb. 1976

Q = 2.51 cfs 1997

Exam 65-12842 Attachment C

RATE AND VOLUME FOR COMMON DIVERSION SYSTEM

WR	ACRES	CFS	AFA (DIV VOL)
65-3104B	86	1.53	301
65-3104C	04	0.07	014
65-12842	42	0.84	147
65-13075A	06	0.12	021
TOTAL	138	2.56	483

Assume current standard season of 231 days for irrigation season to license 65-12842.

Assume system capacity of 2.60 cfs per exam 65-12842.

Then system volume analysis is:

- $V_r = 138 \text{ acres} \times 3.5 \text{ afa/acre} = 483 \text{ af}$
- $V_d = 2.56 \times 231 \times 1.9835 = 1173 \text{ afa.}$

System can provide full rate and volume required for all acres. Same is true if assume slightly shorter season of 4/1-11/1 or 215 days.

System can provide full volume even if rate-limited to 2.52 cfs per capacity in 1997 exam for 65-13075A.

If licensing 65-12842 recognizes system capacity less than 2.56 cfs, then add rate limitation condition to 65-12842.

Exam 65-12842

ATTACHMENT D