

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
IN-OFFICE REVIEW/BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATIONPermit No: 95-14337

Exam Date: 1/20/2016

1. Does this qualify for an in-office field exam (IDAPA 035.02.r)? X Y N
- Irrigation of 5 acres or less
 - Storage of up to 14.6 AF for stockwater purposes only
 - Any use other than irrigation or storage, if the combined diversion rate is 0.24 cfs or less
 - Other < >

2. Current Owner: Name: USDI Bureau of Land Management
Owner of Record Correct? X Y N
Address of Record Correct? Y N
If No: Address

Tax lot data shows the BLM as the owners of the property. The property is also known as Mica Bay Boater's Park.

3. Beneficial Use Fees have been paid: X Y N Receipt No: C0

4. SOURCE**TRIBUTARY**

St Joe River

Coeur D Alene Lake

Method of Determination: GIS and Taxlot Data

Change in Source:

 Y X N**B. OVERLAP REVIEW**

1. Other water rights with the same place of use: NO Overlap

Water Right No.	Source	Purpose of Use	Basis
95-10528	Ground Water	Domestic	Recommendation

Comments: Recommendation 95-10528 comes from the same well and is for domestic use for the park. The domestic use claims up to ½ acre of yard irrigation, which may be significant. There are no other water rights in the 40 acre tract.

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

Water Right No.	Source	Purpose of Use	Basis
95-10528	Ground Water	Domestic	Recommendation

Comments: Recommendation 95-10528 comes from the same well and is for domestic use for the park. The domestic use claims up to ½ acre of yard irrigation, which may be significant. There are no other water rights in the 40 acre tract.

C. DIVERSION AND DELIVERY SYSTEM**1. LOCATION OF POINT(S) OF DIVERSION:**

Source	Govt. Lot	¼	¼	¼	Sec.	Twp.	Rge.		County
Well			SW	NE	16	49N	4W	B.M.	Kootenai
								B.M.	
								B.M.	

Method of Determination: The point of diversion on the map was similar to the point recommended in the CSRBA, so I used the point recommended in the CSRBA, so they would be consistent. There hasn't been any definite determination of the point of diversion.

Change in POD? X N Amendment Required? X N

2. PLACE OF USE: 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	
49N	4W	16			2.3														2.3
		Lot #																	
Total Acres =																			2.3

Method of Determination: GIS and Tax Lot Data The total acres found irrigated for this park was 2.3 acres. There was some debate on whether or not to limit this permit to 1.8 acres allowing 0.5 acres to be covered by the domestic component recommended for 95-10528, but we determined it would be best to allow the full amount of irrigation under this right and use condition 928 to address any overlapping water uses described in 95-10528. . .

Change in POU? X N Amendment Required? X N

 Delivery System Diagram Attached (required). Indicate all major components and distances between components.

Indicate weir size/pipe as applicable.

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

 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
River Pump	Unknown	.			

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

D. FLOW MEASUREMENTS

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

2. Measurements: No measurement is required for an in-house exam, but a theoretical calculation was used to determine if the diversion rate is reasonable.

E. FLOW CALCULATIONS X Additional Computation Sheets Attached

Measured Method:

A theoretical analysis shows that a diversion rate of 0.07 cfs is possible with a 2 Hp pump. The owner supplied the horse power of the pump in an email dated 5/17/2016. The driller's report shows that test pump was done on this well that is much less than the well pump capacity, but it appears they pump to a 750 gallon storage tank and then they run the water to the park from the storage tank. The test pump shows the well diverted 10 gpm for 2 hrs, which pumped the well completely dry. They may have a bigger pump in the well, but the well is not very productive.

Driller's Report = 10 gpm for 2 hrs = 10 gpm / 448.8 = 0.02 cfs

Theoretical Calculation = 0.07 cfs

Permit allowed = 0.05 cfs

I am recommending a diversion rate of 0.05 cfs, since it appears as though this pump can deliver the 0.05 cfs applied for in the permit.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = \underline{2.3 \text{ acres}} \times \underline{3.0 \text{ af/ac}} = \underline{6.9 \text{ af}}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = \underline{0.05 \times 246 \times 1.9835} = \underline{24.4 \text{ af}}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = \underline{6.9 \text{ af}}$$

2. Volume Calculations for Other Uses:

The permit application and the documents submitted with the proof of beneficial use show a storage tank on the system. An email from the permit holder on May 17, 2016 states the storage tank is 750 gallons. I did an analysis on the theoretical analysis spreadsheet to determine if they could fill and empty this tank within a 24 hour period. According to my analysis, to properly irrigate this property, they would need to pretty much use all of the water produced by this well to do any reasonable irrigation of this park. During July and August, they probably cannot keep the grass green with the amount of water the well produces. Therefore, there should be no need for a storage right for this facility.

G. PURPOSE OF USEIrrigation X Y N # Stock Domestic # of Homes 1

Other: < >

Change in Purpose of Use? Y X NMethod of Determination: Taxlot data and conversations with owner.If Yes: From Use To Use Amount CFS AFA **H. NARRATIVE/REMARKS/COMMENTS**

This permit is qualifies for an in-house exam. The water for this permit is pumped from a well in the SWNE of Section 16 and delivered to several spigots in the Mica Bay Boater Park. From the photos submitted by the permit holder, the area is irrigated using a hose and common lawn sprinkler. There doesn't appear to be a sprinkler system for the park. This well also supplies the water for the domestic/potable water supplied to the park.

As discussed above, the storage tank is small enough that a storage volume would not be needed for this permit. Due to the poor production capabilities of the well, the storage tank is probably filled and empty up to 10 times a day during the hottest part of the summer just to maintain the grassy area of the park.

I changed the season of use to the standard season of use of 3/15 to 11/15 Licensing Administrative Memorandum #9 that says we should use the standard season of use for licensing a permit unless "it can be shown to the satisfaction of the director that a different season is necessary." The application and permit showed a shorter season of use, but there is nothing in the file that shows why the shorter season was necessary. Therefore, I corrected the season of use to the standard.

Overlapping water rights: As discussed above, recommendation 95-10528 comes from the same well and is for domestic use for the park. The domestic use claims up to ½ acre of yard irrigation. The permit was filed for 2.5 acres and only 2.3 acres were found to be irrigated. I sent a map to permit holder, and they confirmed that maximum total irrigated was 2.5 acres. After discussing this with management, it was decided to describe the full 2.3 acres of irrigation in this water right, and include condition 928 which states that a portion of this irrigated use may be covered under 95-10528. 95-10528 has not yet been decreed, so we cannot issue this license with combined limitation describing the claim in the CSRBA.

Using the proof report, conditions 1(004), 2 (26A), and 4 (046) will be removed at licensing. Condition 3 (R66) will be carried forward to licensing. Condition 928 will need to be added as discussed in the overlap analysis including recommendation 95-10528.

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

I. RECOMMENDATIONS

1. Recommended Amounts

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
Irrigation	03/15 to 11/15	0.05 CFS	6.9 AF
<u>Totals:</u>		0.05 CFS	6.9 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 ☐ None

Other: < >

J. AUTHENTICATION – DANIEL A. NELSON – STAFF HYDROLOGIST

Field Examiner's Name Daniel A. Nelson Date 5-18-16

Reviewer _____ Date _____

THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.: 95-13790
 Reviewer: Dan Nelson
 Date of Review: 3/17/2016

P/D No.:

	Scenario 1	Scenario 2	
PUMP HORSEPOWER	2	2	
BOOSTER HORSEPOWER	0	0	
PUMPING LEVEL	130	130	
DISCHARGE PRESSURE	25	30	
RATE OF FLOW (cfs)	0.07	0.06	
	29	28	

Average
 0.06
 28.60

The above calculates the formula = $Q = \frac{8.8 * (\text{Efficiency}) * \text{hp}}{\text{depth to water} + 2.31 * (\text{psi}) + \text{friction}}$

Assumptions: 70 efficiency.
 No Friction

Examiners Notes:

The permit holder informed me that the well was a 2 Hp pump. The well log shows a static water level of 10 feet and a total depth of 230 feet. The well driller's report also states that the well is pumped dry in 2 hours at a rate of 10 gpm. Therefore, to calculate the flow, I used the mid range of the water level in the well of 130 feet, since 1/2 the time it will have a lower lift and 1/2 the time it will have a higher lift. The pressure was estimated at 25 to 30 psi. The pump diverts water to a pressure tank approximately 207 feet uphill from the well. That distance would have an elevation shift of approximately 40 feet to get the water to the storage tank where it would open discharge. To lift the water uphill would require a minimum of 17 ps (40ft / 2.31 = 17 psi) and in order for the well to discharge water would add another 10 psi, so I estimated the pressure against the well to be approximately 25 to 30 psi.

	Cubic feet of water in well	Total Gallons Stored in well (water in well prior to pumping)	Rate Water Evacuated from well in gpm	Total Gallons Evacuated in 120 minute test	Difference in storage to amount evacuated in gallons	Well production rate in gpm during test
Water Storage in well =	76.76	574.13	10.00	1200.00	625.87	5.22

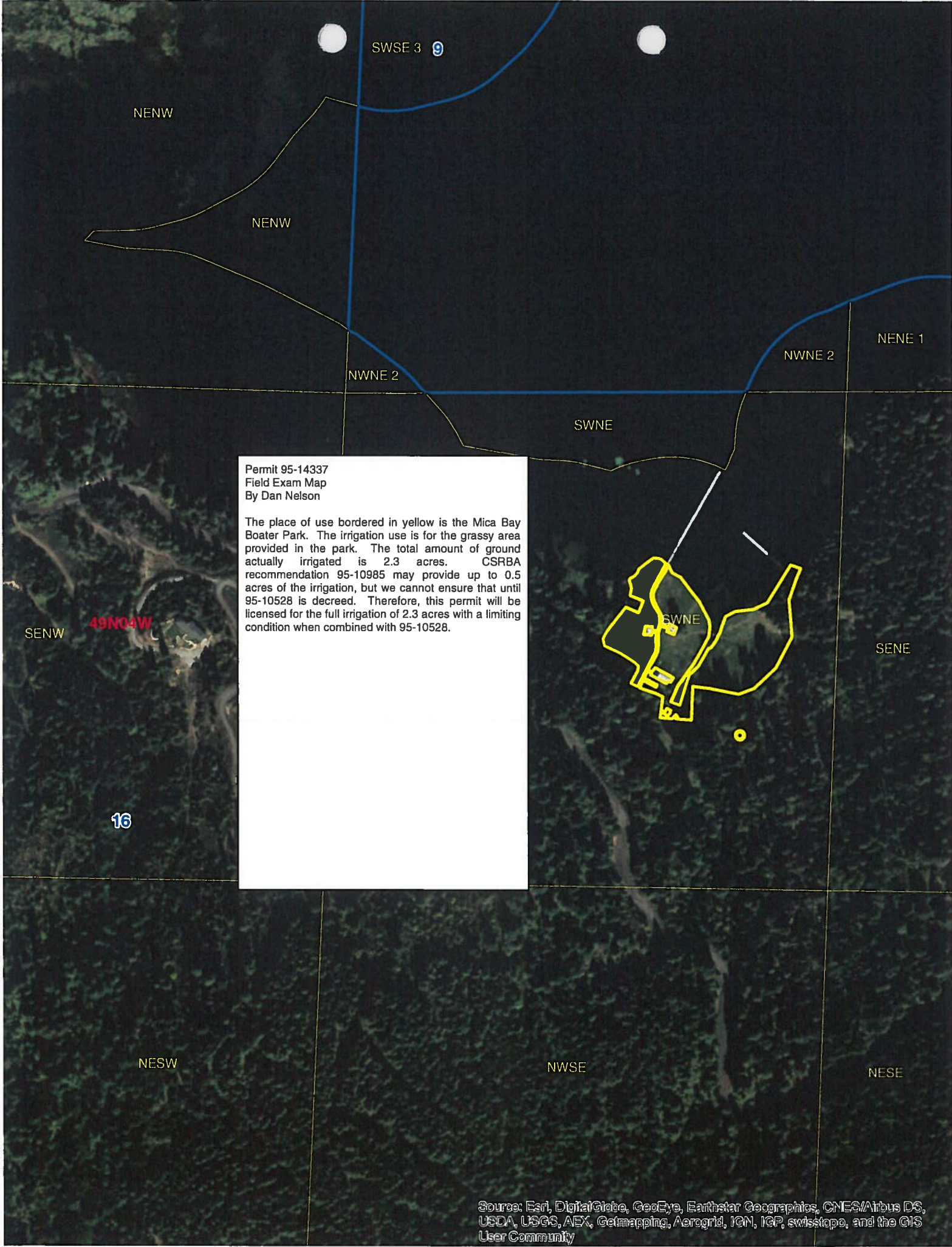
Total production of well in 24 hour period based on test = 7,510 gallons (not including storage in well)

$$\left(\frac{5.45}{304.8} \right) \times 2.30 = 0.0411253 \text{ AFA}$$

Gallons per day needed in July to meet Precipitation Deficit = 13,401

Based on the above assumptions, this well can produce approximately 7,500 gallons within a 24 hour period, and it would take approximately 13,400 gallons per day to successfully irrigate 2.3 acres in July using the Coeur d'Alene 1 E Precipitation Deficit average daily precipitation deficit rates for the month of July. These calculations show that there probably isn't enough water available in this well to successfully irrigate the 2.3 acres during the hottest part of the summer, but it could at least keep the somewhat alive during this time.

The permit holder also stated that the storage tank was 750 gallons. The well could fill the tank before totally evacuating the well, so I am assuming the tank is filled several times during the day when the park is being irrigated. The well could fill the storage tank approximately 10 times each day, so storage really isn't needed for this permit.



SWSE 3 9

NENW

NENW

NWNE 2

SWNE

NWNE 2

NENE 1

SENE

49N04W

16

Permit 95-14337
Field Exam Map
By Dan Nelson

The place of use bordered in yellow is the Mica Bay Boater Park. The irrigation use is for the grassy area provided in the park. The total amount of ground actually irrigated is 2.3 acres. CSRBA recommendation 95-10985 may provide up to 0.5 acres of the irrigation, but we cannot ensure that until 95-10528 is decreed. Therefore, this permit will be licensed for the full irrigation of 2.3 acres with a limiting condition when combined with 95-10528.



SENE

NESW

NWSE

NESE

Nelson, Dan

From: Weston, Cynthia [cweston@blm.gov]
Sent: Tuesday, May 17, 2016 12:31 PM
To: Nelson, Dan
Subject: Re: Permit 95-14337

Ooops, forgot to respond to that. It looks fine as far as I can tell. We are likely going to be putting in some additional parking so it is likely that in the future there will be less irrigated anyway.

Thanks!

On Tue, May 17, 2016 at 11:12 AM, Nelson, Dan <Dan.Nelson@idwr.idaho.gov> wrote:

Thank You for the information Cynthia,

Did you get a chance to look at the map I provided to ensure that I found all of the acres being irrigated from this system? I included a copy with this email.

Thank you

Dan Nelson

From: Weston, Cynthia [mailto:cweston@blm.gov]
Sent: Tuesday, May 17, 2016 11:58 AM
To: Nelson, Dan
Subject: Re: Permit 95-14337

The storage tank is 750 gallons and the pump has a 2 hp motor.

Let me know if there is any other information you need!

On Mon, May 16, 2016 at 3:18 PM, Nelson, Dan <Dan.Nelson@idwr.idaho.gov> wrote:

Dear Ms. Weston,

I have been asked to review water right permit 95-14337 for licensing. Permit 95-14337 falls into a category that allows us to perform what is called an in-house or desktop review. During my initial review of the permit, I noticed a couple issues that need clarification before a license can be issued. I will need the following to complete the licensing exam:

- 1.) The diagrams submitted with the application for permit and the proof of beneficial use statement describes a storage tank. Unfortunately, the diagrams don't provide the capacity of the storage tank. How big is the storage tank in gallons?
- 2.) The well log states that well is only capable of 10 gpm over a 2 hour period. The application states that the well pump is a 10 gpm pump (0.02 cfs). The permit requests 0.05 cfs and adjudication claim 95-10528 asks for an additional 0.02cfs. The water rights allowed up to 0.07 cfs or 31 gpm. Please provide the Hp of the pump used to pump water from the well to ensure.
- 3.) I attached a map with this email for your review. I found a total of 2.3 acres irrigated. Please review the map, and let me know if it is accurate. Please let me know if I missed any areas that are actually irrigated and not included within the yellow lines shown on the map.

Once I receive the above information, I can move forward with licensing this permit.

Respectfully,

Daniel Nelson

Staff Hydrologist

Idaho Department of Water Resources

Telephone (208) 287-4856

Fax (208) 287-6700 (attn: Dan Nelson)

Cindy Weston

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