

RECEIVED

FEB 18 2014

WATER RESOURCES
WESTERN REGION

AMENDED
STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
APPLICATION FOR PERMIT
To appropriate the public waters of the State of Idaho

Ident. No. 03-33843

1. Name of applicant(s) Michael and/or Joan A. Boren Phone 208 866-8555
Name connector (check one): ☐ and ☐ or ☒ and/or

Mailing address: 1050 N. Briar Lane City Boise

State ID Zip 83712 Email: mike@clearwateranalytics.com

2. Source of water supply North Alkali Drain which is a tributary of South Boise Drain

3. Location of point(s) of diversion:

Twp	Rge	Sec	Govt Lot	1/4	1/4	1/4	County	Source	Local name or tag #
5N	6W	11	4	SE	SW		Canyon	Irrigation Drain	North Alkali

4. Water will be used for the following purposes:

Amount 1 cfs for Water Quality Improvement purposes from 1/1 to 12/31 (both dates inclusive)
(cfs or acre-feet per year)

Amount .05 cfs for Irrigation purposes from 3/1 to 11/15 (both dates inclusive)
(cfs or acre-feet per year)

Amount 17.12 af for WQ Improvement Storage purposes from 1/1 to 12/31 (both dates inclusive)
(cfs or acre-feet per year)

Amount 1 cfs for Diversion to Storage purposes from 1/1 to 12/31 (both dates inclusive)
(cfs or acre-feet per year)

5. Total quantity to be appropriated is (a) 1 cubic feet per second (cfs) and/or (b) 17.12 acre-feet per year (af).

6. Proposed diverting works:

a. Describe type and size of devices used to divert water from the source. Electric pump placed in drain near where North Alkali crosses Brumback Lane

b. Height of storage dam 6 feet; active reservoir capacity 3.22 acre-feet; total reservoir capacity 3.22 acre-feet. If the reservoir will be filled more than once each year, describe the refill plan in item 11.

For dams 10 feet or more in height OR reservoirs with a total storage capacity of 50 acre-feet or more, submit a separate Application for Construction or Enlargement of a New or Existing Dam. Application required? ☐ Yes ☒ No

c. Proposed well diameter is _____ inches; proposed depth of well is _____ feet.

d. Is ground water with a temperature of greater than 85°F being sought? ☐ Yes ☒ No

e. If well is already drilled, when? _____; drilling firm _____;
Well was drilled for (well owner) _____; Drilling Permit No. _____.

7. Description of proposed uses (if irrigation only, go to item 8):

a. Hydropower; show total feet of head and proposed capacity in kW. _____

b. Stockwatering; list number and kind of livestock. _____

c. Municipal; show name of municipality or the applicant's qualifications as a municipal provider. _____

d. Domestic; show number of households _____

e. Other; describe fully. This is a pilot project to demonstrate the effectiveness of sediment ponds and constructed wetlands to remove phosphorus from irrigation drainage water

8. Description of place of use:

- If water is for irrigation, indicate acreage in each subdivision in the tabulation below.
- If water is used for other purposes, place a symbol of the use (example: D for Domestic) in the corresponding place of use below. See instructions for standard symbols.

TWP	RGE	SEC	NE				NW				SW				SE				TOTALS
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
5W	6W	11												X					

Total number of acres to be irrigated: 1.75

9. Describe any other water rights used for the same purposes as described above. Include water delivered by a municipality, canal company, or irrigation district. If this application is for domestic purposes, do you intend to use this water, water from another source, or both, to irrigate your lawn, garden, and/or landscaping? none

10. a. Who owns the property at the point of diversion? Joan A. Boren Trust
b. Who owns the land to be irrigated or place of use? same
c. If the property is owned by a person other than the applicant, describe the arrangement enabling the applicant to make this filing: Joan Boren is Trustee and gave her husband Michael permission to file application

11. Describe your proposal in narrative form, and provide additional explanation for any of the items above. Attach additional pages if necessary. This project funded by Lower Boise Watershed Council with 319 grant funds. Project is designed and will be constructed to measure and demonstrate the effectiveness of sediment basins and constructed wetlands to reduce sediment and phosphorus and improve water quality of irrigation drainage water. The only known diversion downstream is on the South Boise Drain near the confluence with North Akali. This diversion is a pump that is owned and operated by Mr. Boren. This project will be a flow through system. See attached narrative describing the project design and operation

12. Time required for completion of works and application of water to proposed beneficial use is 1 years (minimum 1 year).

13. **MAP OF PROPOSED PROJECT REQUIRED** - Attach an 8½" x 11" map clearly identifying the proposed point of diversion, place of use, section #, township & range. A photocopy of a USGS 7.5 minute topographic quadrangle map is preferred.

The information contained in this application is true to the best of my knowledge. I understand that any willful misrepresentations made in this application may result in rejection of the application or cancellation of an approval.

Signature of Applicant

Michael Boren

Print Name (and title, if applicable)

Signature of Applicant

Print Name (and title, if applicable)

For Department Use:

Received by AG Date 2/18/2014 Time 9:35AM Preliminary check by AR

* Fee \$ 250.00 Received by JA Receipt No. W041468 Date 2/26/13

* RECEIVED WITH ORIGINAL APPLICATION.

North Alkali Drain, Water Quality Improvement Demonstration Project: Application for Permit

11. Narrative describing Project Design and Operation

This water quality improvement project is funded by federal 319 grant funds awarded by the Lower Boise Watershed Council. The project will be constructed on currently non-irrigated lands located in the South-East corner of property owned by Mr. Michael Boren, South-West of Parma (Figures 1 and 2).

The project includes a 1 cfs pump placed in the North Alkali Drain approximated one quarter mile above the confluence on the North Alkali and South Boise Drains. The pump will lift the drainage water out into two .34 acre foot sediment basins which will provide approximately 4 hour retention time in order to settle out sediment. The design is a flow through system that will return the cleaned up water back to the North Alkali drain. The sediment ponds will discharge into a constructed wetland of approximately 2 acres. Water depth in the wetland will vary from three feet to six inches, but not all the wetland will be submerged as the design includes machine access for maintenance and plant harvest. It is planned to operate the pump as long as there is flow in the drain and temperatures allow. Most years we estimate 10 months of operation but in mild years we might be able to operate all winter.

The only consumptive use will be from pond seepage and evaporation. Attached is the IDWR "Draft Pond Loss Calculation Spreadsheet." This project will include the harvest and removal of vegetation for use as animal feed or composting.

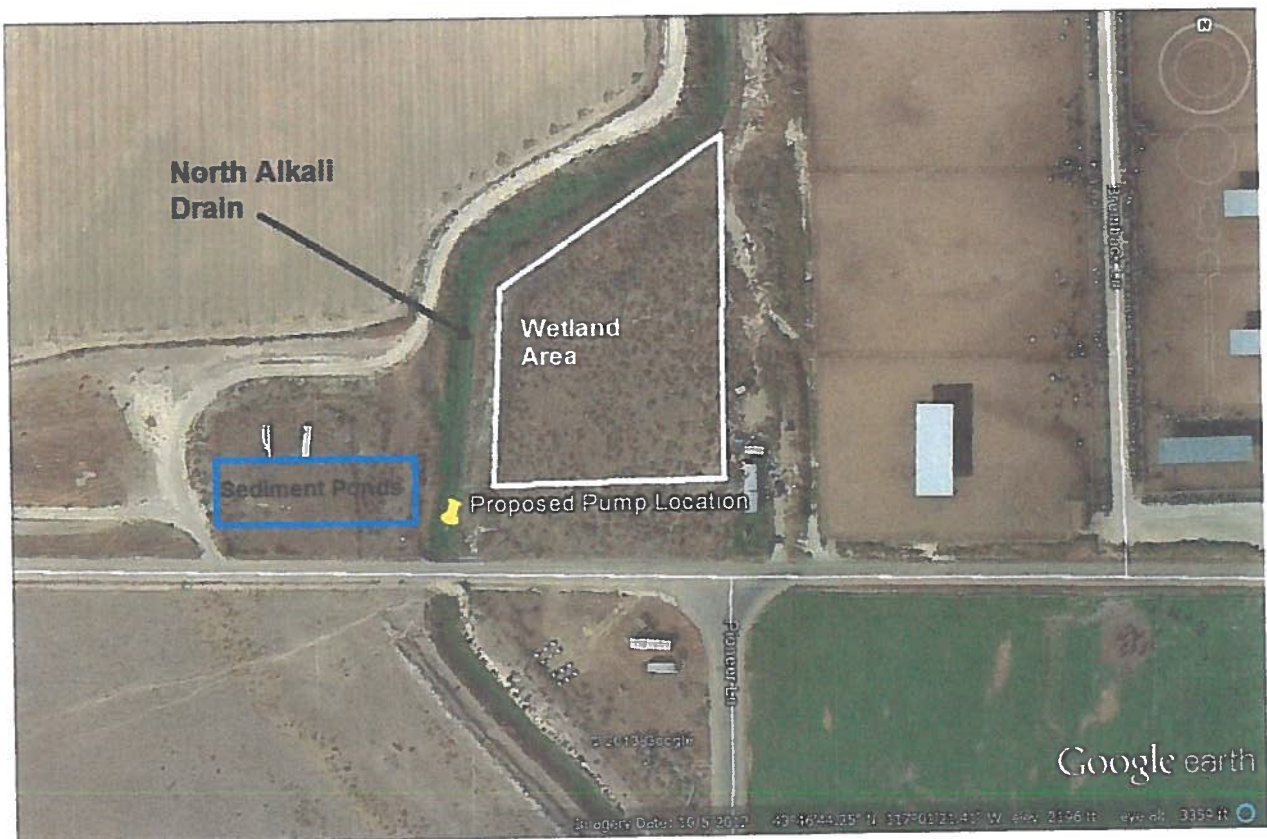


Figure 1. North Alkali Drain Water Quality Improvement Demonstration Project

NOTES

1. This preliminary design is based on the following variables:
 - Only one Sedimentation Basin will be in operation at a one time to allow for drying and removal of sediment from the other.
 - Flow Rate (Q) ≤ 1.0 cubic feet per second (CFS) delivered to a SINGLE Sedimentation Basin.
 - Dimensions of each Sedimentation Basin = 180 feet long x 30 feet wide x 5 feet deep.
 - Side slopes of each Sedimentation Basin to be final graded to no greater than a 2:1 slope per specification by Quadrant Engineering, Inc.
2. Calculations based on these dimensions (see results of numeric model and graphical display):
 - Detention Time (DTHours) = 4.00 hours.
 - Velocity (V) = 0.0167 feet / second.
3. Collection and Distribution Manifold (serving also as a water quality sampling location) specifications are as follows:
 - PVC open half pipe diameter (minimum) = 18 inches.
 - Crushed rock will be placed in the placed pipe from its invert to top edge and will have a diameter = 6± inches.
 - Gated perforations of a dimension and a distance apart to be determined by the Engineer.
4. Rock Apron (allowing for low maintenance sheet flow between processes) specifications are as follows:
 - Crushed rock will be placed to a minimum depth of 2 feet and will have a diameter = 6± inches.
 - The bottom and sides of the rock apron will be wrapped in geotextile fabric as specified by the Engineer.
5. No-Till Harvest Plots dimensioned as follows:
 - Arbitrarily set to a depth = 1 foot to contain water.
 - Otherwise, dimensioned to accommodate the footprint of the project area and desired Detention Time.
 - May be increased, but not decreased in size.
6. Willow cuttings will be gathered, treated, and installed through placed landscape fabric in accord with the directions of the Ecologist.
7. Machine Access will be maintained as a running surface for equipment and a physical barrier preventing stream capture of the North Alkali Drain.
8. Flow of process water purposely designed as follows:
 - To run in a linear direction so removal processes (i.e. sedimentation and biological uptake) are least likely to be influenced by one another, which could confound sampling and results of analyses of total and dissolved phosphorous.

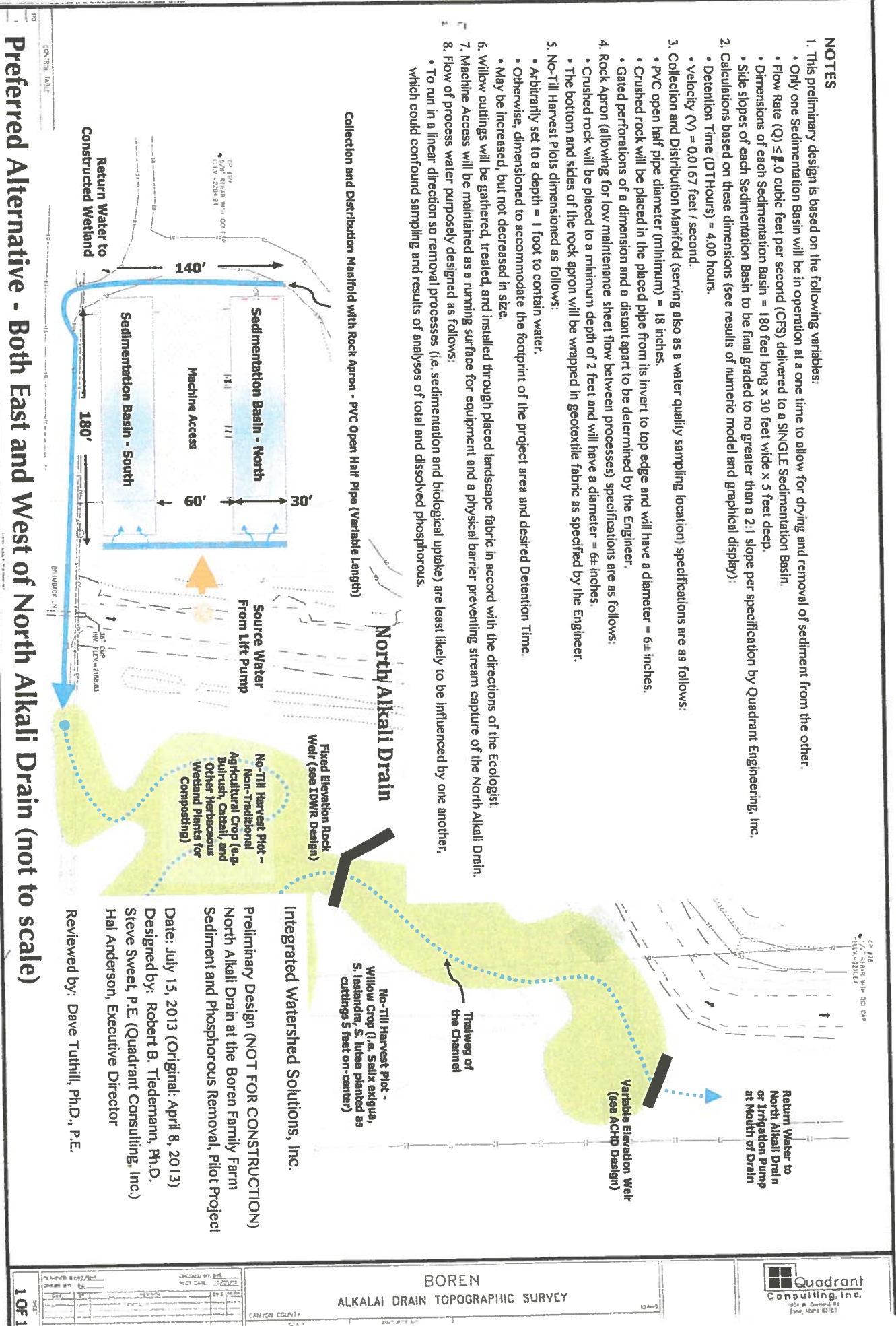


Figure 3. Preferred Design Alternative for North Alkali Drain Water Quality Improvement Project

AERIAL MAP



STIM

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	SURVEY
3	CIVIL PLAN
4	DRAINAGE PLAN
5	DETAILS

1. HORIZONTAL - MODES(CORS 80) DAYO STATE PLANE, WEST ZONE.

2. VERTICAL - NORTH AMERICAN VERTICAL DATUM 1980 (NAVD 1980), COMPUTED USNO OCEOD 12.

APPROXIMATE GPS SITE COORDINATES

LATITUDE: 43°46'43.80" N LONGITUDE: 117°01'28.25" W

LATITUDE: 45°46'43.85" N

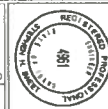
LONGITUDE: 117°01'28.25" W



Symbol	Description
①	CONTROL POINT
②	WATER SURFACE ELEVATION
→	FLOW ARROW
—	FLOW LINE
—	TOP BANK OF RIVER
—	TOE OF RIVER
—	TOP BANK OF DITCH
—	TOE OF DITCH
—	GRADE BREAK
—	CONTROL LINE
—	WOODEN FENCE
—	BARBED WIRE FENCE
—	CHAIN LINK FENCE
—	OVERHUNG POWER
—	EDGE OF GRAVEL
—	EDGE OF ASPHALT

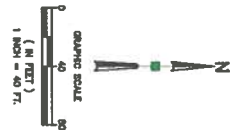
CANYON COUNTY	SCAL
	NTS

PROJECT NO.
607-01



Quadrant Consulting, Inc.
1904 W. Overland Rd.
Olathe, Kansas 65150
342-0091 PHONE (202) 342-0082
CIVIL ENGINEERING-SURVEYING

C-1

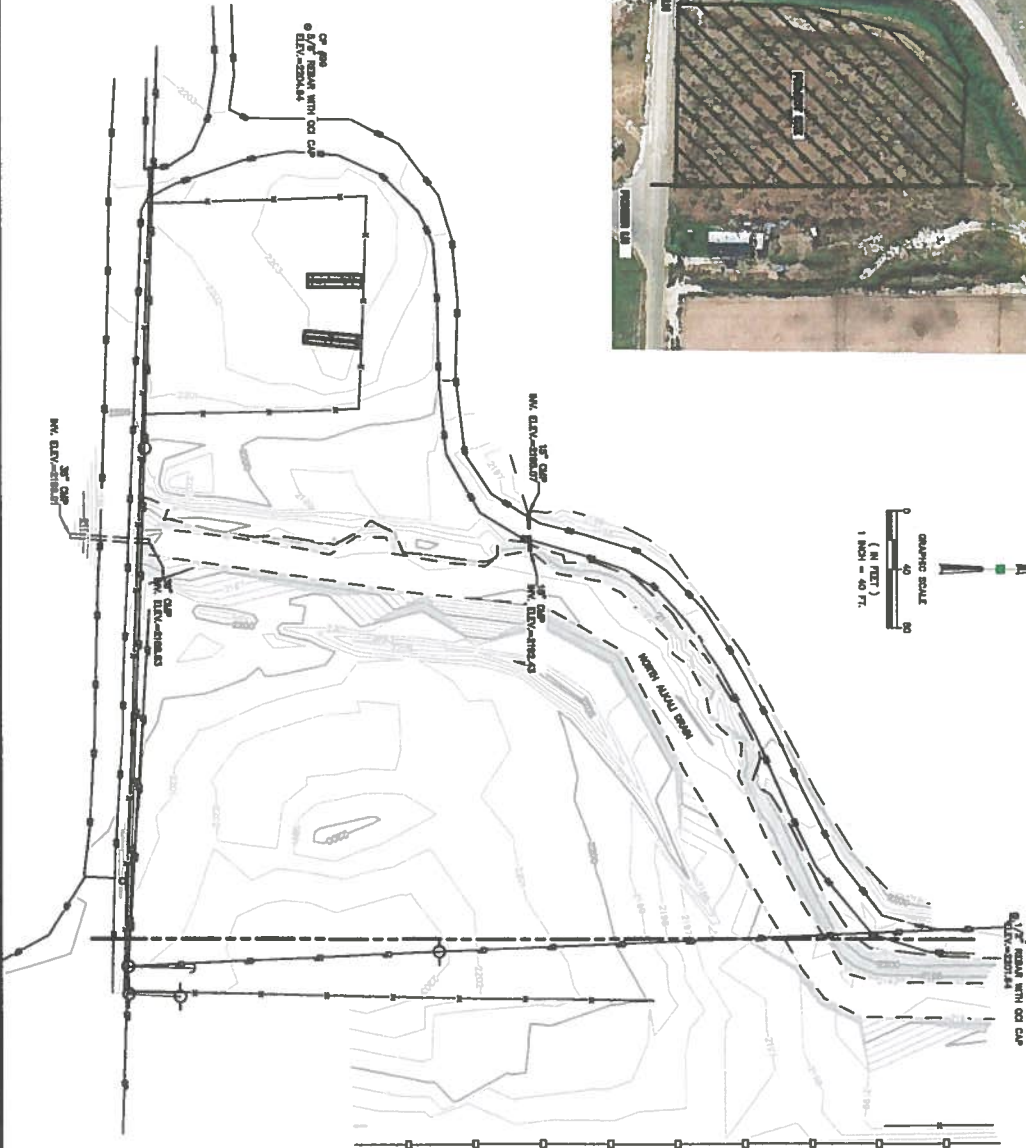


- LEGEND**
- CONTROL POINT
 - FLOW ARROW
 - FLOW LINE
 - TOP BANK OF DRAIN
 - TIE OF DRAIN
 - GRADE BREAK
 - CONTROL LINE
 - BARBED WIRE FENCE
 - OVERHEAD POWER
 - EDGE OF GRAVEL
 - EDGE OF PAVEMENT

DRAIN

1. HORIZONTAL - MONITORING BY SAND STATE PLANE, WEST 200E.
2. VERTICAL - NORTH ALKALI VERTICAL, DATUM 1988 (DAVD 1988), COMPLETED USING GRID 12.

CONTROL TABLE		
POINT #	COORDINATES	ELEV.
400	N 772833.37	3201.54
401	E 228000.65	
402	N 772833.35	3204.54
403	E 227790.15	



C-2

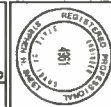
REVISIONS		DATE	BY	CHK

PROJECT NO. 007-01

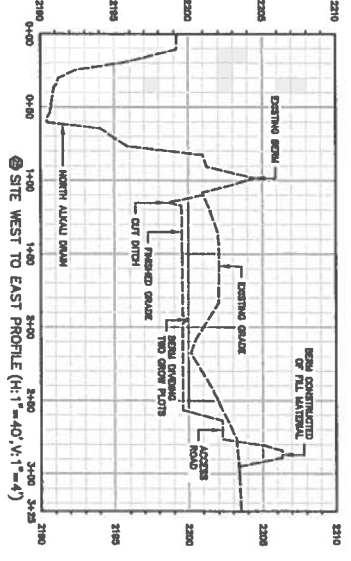
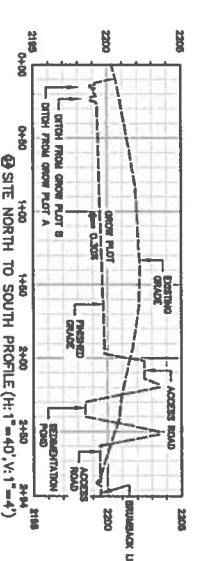
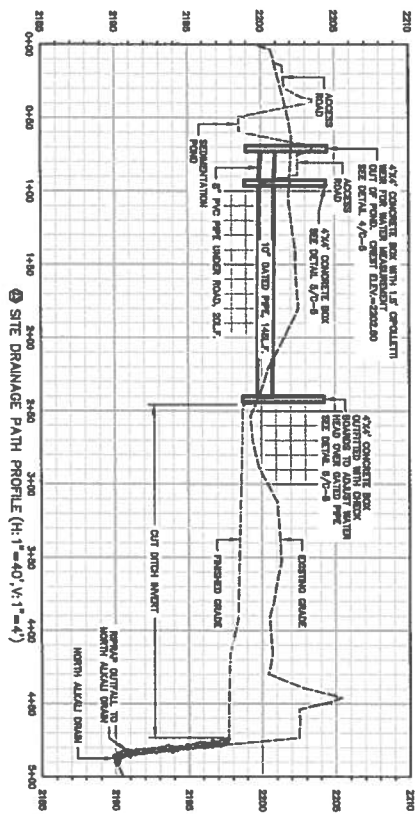
NORTH ALKALI DRAIN SURVEY

CANYON COUNTY
SCALE: 1"=40'

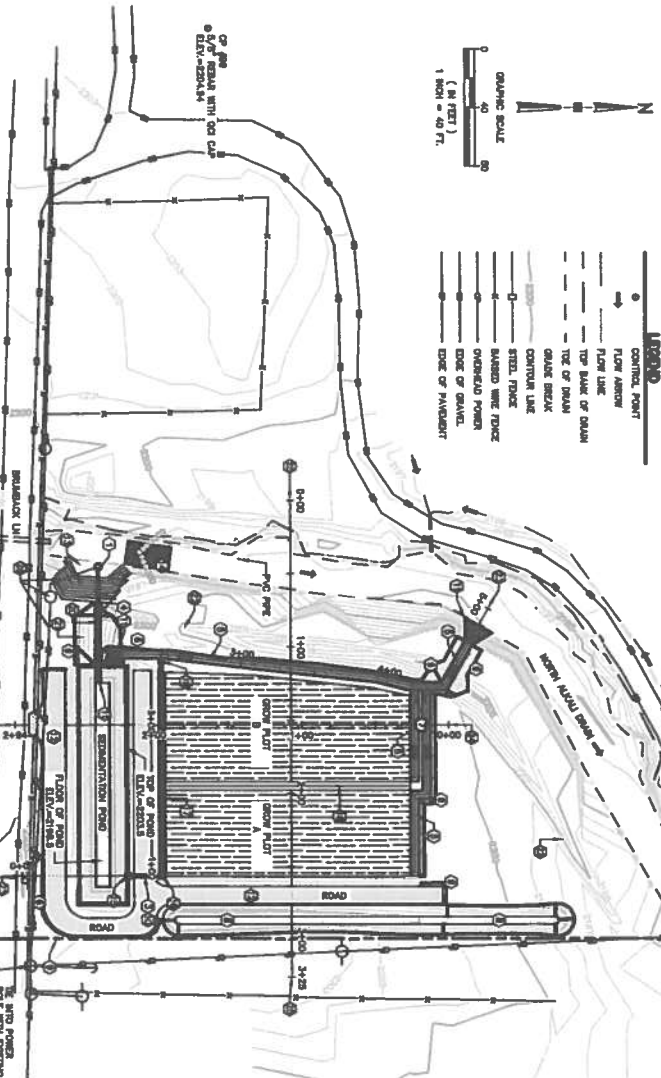
PROJECT NO. 007-01



Quadrant Consulting, Inc.
1904 N. Garland Rd.
Belen, NM 87003
CNG 243-6000 FAX CNG 243-6002 FAX
CIVIL ENGINEERING - SURVEYING



POINT #	COORDINATES	ELEV.
1	N 773533.15	2204.56
2	N 773533.15	2204.56
3	N 773533.15	2204.56
4	N 773533.15	2204.56
5	N 773533.15	2204.56
6	N 773533.15	2204.56
7	N 773533.15	2204.56
8	N 773533.15	2204.56
9	N 773533.15	2204.56
10	N 773533.15	2204.56
11	N 773533.15	2204.56
12	N 773533.15	2204.56
13	N 773533.15	2204.56
14	N 773533.15	2204.56
15	N 773533.15	2204.56
16	N 773533.15	2204.56
17	N 773533.15	2204.56
18	N 773533.15	2204.56
19	N 773533.15	2204.56
20	N 773533.15	2204.56
21	N 773533.15	2204.56
22	N 773533.15	2204.56
23	N 773533.15	2204.56
24	N 773533.15	2204.56
25	N 773533.15	2204.56
26	N 773533.15	2204.56
27	N 773533.15	2204.56
28	N 773533.15	2204.56
29	N 773533.15	2204.56
30	N 773533.15	2204.56
31	N 773533.15	2204.56
32	N 773533.15	2204.56
33	N 773533.15	2204.56
34	N 773533.15	2204.56
35	N 773533.15	2204.56
36	N 773533.15	2204.56
37	N 773533.15	2204.56
38	N 773533.15	2204.56
39	N 773533.15	2204.56
40	N 773533.15	2204.56
41	N 773533.15	2204.56
42	N 773533.15	2204.56
43	N 773533.15	2204.56
44	N 773533.15	2204.56
45	N 773533.15	2204.56
46	N 773533.15	2204.56
47	N 773533.15	2204.56
48	N 773533.15	2204.56
49	N 773533.15	2204.56
50	N 773533.15	2204.56
51	N 773533.15	2204.56
52	N 773533.15	2204.56
53	N 773533.15	2204.56
54	N 773533.15	2204.56
55	N 773533.15	2204.56
56	N 773533.15	2204.56
57	N 773533.15	2204.56
58	N 773533.15	2204.56
59	N 773533.15	2204.56
60	N 773533.15	2204.56
61	N 773533.15	2204.56
62	N 773533.15	2204.56
63	N 773533.15	2204.56
64	N 773533.15	2204.56
65	N 773533.15	2204.56
66	N 773533.15	2204.56
67	N 773533.15	2204.56
68	N 773533.15	2204.56
69	N 773533.15	2204.56
70	N 773533.15	2204.56
71	N 773533.15	2204.56
72	N 773533.15	2204.56
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74	N 773533.15	2204.56
75	N 773533.15	2204.56
76	N 773533.15	2204.56
77	N 773533.15	2204.56
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80	N 773533.15	2204.56
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82	N 773533.15	2204.56
83	N 773533.15	2204.56
84	N 773533.15	2204.56
85	N 773533.15	2204.56
86	N 773533.15	2204.56
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90	N 773533.15	2204.56
91	N 773533.15	2204.56
92	N 773533.15	2204.56
93	N 773533.15	2204.56
94	N 773533.15	2204.56
95	N 773533.15	2204.56
96	N 773533.15	2204.56
97	N 773533.15	2204.56
98	N 773533.15	2204.56
99	N 773533.15	2204.56
100	N 773533.15	2204.56



1. FLOW LINE
2. TOP OF DRAIN
3. TOP OF ROAD
4. GRADE BREAK
5. CONTROL LINE
6. STEEL FENCE
7. BARBED WIRE FENCE
8. OVERHEAD POWER
9. EDGE OF GRAVEL
10. EDGE OF PAVED

REVISIONS

NO.	DATE	DESCRIPTION
1	10/1/01	ISSUED FOR PERMIT

NORTH ALKALI DRAIN

CIVIL PLAN

Quadrant Consulting Inc.

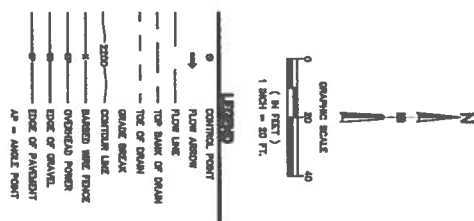
1000 N. Central Ave.
Suite 1000
Cedar Rapids, IA 52401
563-399-0000 FAX 563-399-0001
WWW.QUADRANTCONSULTING.COM

CANYON COUNTY

SCALE: 1"=40'

PROJECT NO. 007-01

DAWD



CONTROL VALUE		
POINT #	COORDINATES	ELEV.
#00	N 772832.57 E 2208000.60	2201.84
#00	N 772333.23 E 2207080.05	2204.04

C4

INVOICE TO: <u>ABC/DEF</u>	
ORDER NO: <u>123</u>	
DATE: <u>01/01/01</u>	BY: <u>ABC</u>

[illegible]

NORTH ALKALI DRAIN SITE DIMENSION PLAN

CANYON COUNTY

SCALE:
1"=20'

PROJECT NO.
897-01





SEEPAGE CALCULATIONS

This spreadsheet has been designed by Idaho Department of Water Resources to estimate the total annual seepage losses from a pond.

FILE NUMBER	XX-XXXXX
REVIEWER	Joe Agent
DATE	1/1/2013

User Input
Calculated value
Formula Explanations

INPUTS

SQ. FT. Calculator Pond Surface area in acres
1.75

POND SURFACE AREA (SQ. FT.)	76230
-----------------------------	-------

SUGGESTED SEEPAGE RATE (FT/DAY)	0.0160
---------------------------------	--------

Use the table below to find the "SUGGESTED SEEPAGE RATES".

FORMULA: (Surface Area X Seepage Rate) / 7.48 = Gallons Per Day loss

CONVERT TO GPD	9123	GPD
----------------	------	-----

TOTAL SEEPAGE LOSS (AFA)	10.2	AFA
--------------------------	------	-----

SUGGESTED SEEPAGE RATES FOR DIFFERENT SOIL TYPES:
GW, GP, GM, GC, SW, SP and SM (silty sand, sand silt mixtures and gravel mixtures) = 0.20 ft per day
OL and ML (inorganic silts - very fine sands, silty, or clayey fine sands) = 0.016 ft per day
SC (clayey sands, sand clay mixtures) = 0.007 ft per day
CL (Low to medium plasticity clays) = 0.003 ft per day
MH, OH, PT and CH (high plasticity clays) = 0.0003 ft per day
LINED PONDS (liners can be chemical, fabric, or bentonite) = 0 ft per day
Ponds Intercepting Groundwater (excavated ponds filled with shallow Ground Water) = 0 ft per day

PLEASE NOTE: The initial basis for the Suggested Seepage Rates in the table above is found on Page 16 of Seepage from Fish Ponds, Bulletin 599, August 1989 Alabama Agricultural experiment Station, Auburn University, Auburn University Alabama. If you don't know the soil type, please refer to the map provided at <X:\Spatial\Soils\USCS\PondSoils.lyr>. Use "0" if the ponds intersect the water table.

Evaporation Loss Calculation

FILE NUMBER	XX-XXXXX
REVIEWER	Joe Agent
DATE	1/1/2013

This spreadsheet has been designed by Idaho Department of Water Resources to estimate the annual evaporation losses from a pond.

The acronyms used on the Kimberly Research Center website are defined below:

P = Precipitation

ET= Evapotranspiration

P_d = Precipitation deficit

P_d =ET-P

User Input

Calculated value

Formula Explanations

USING THIS SPREADSHEET

To ascertain the evaporation from a pond, you will need to go to the Kimberly Research Center website. The link is found below. This web site provides the Precipitation Deficit for the area where the pond is located. The Precipitation Deficit is the total amount of free pan evaporation minus the precipitation for a given area, which gives the total amount of evaporative losses incurred by the pond. There are several weather sites that are used, and the entire state is pretty much covered. IDWR staff can find the nearest site using Arc Map. The shape file containing the sites can be found at X:/Spatial/Climate/ETIdahostations.shp.

Found at: <http://www.kimberly.uidaho.edu/ETIdaho/online.php>

Precipitation Deficit

Station: Twin Falls 2 NNE (NWS - 109294)

Month	mm/day ¹	Days per month	mm/Month
Jan	0.00	31	0.00
Feb	0.00	28	0.00
March	1.00	31	31.00
April	2.04	30	61.20
May	2.91	31	90.21
June	3.44	30	103.20
July	4.18	31	129.58
August	3.58	31	110.98
September	2.35	30	70.50
October	1.29	31	39.99
November	0.00	30	0.00
December	0.00	31	0.00

PLEASE NOTE: We cannot use the season average, because there are several areas in Northern Idaho with a negative Precipitation Deficit. Therefore, we must enter each monthly deficit, and enter in a zero (0) for each negative month. The reason for this is that precipitation can only offset evaporation to the extent of the evaporation.

Please enter the daily average Precipitation Deficit as shown in the example below.

Although it has sometimes been useful to consider wintertime evaporation to be zero, Allen and Robison (2007, p. 169) noted, "Evaporation during nongrowing (wintertime) periods varies widely . . ."

¹Negative monthly mean values should be entered in the above table as "0".

Total mm/year = 636.66

[(mm/yr) ÷ (convert to feet)] X (Surface area of pond, in acres) = Evaporation Loss in Acre Feet

(636.66 ÷ 304.8) X 1.75 = 3.7 AFA

Surface Area of Pond is automatically Carried over from the Seepage Loss Sheet.

TOTAL STORAGE

FILE NUMBER	JOC-100001
REVIEWER	Joe Agent
DATE	1/1/2013

This spreadsheet has been designed by Idaho Department of Water Resources to estimate the total seepage, evaporation and fill capacity required for a pond

Surface Area (in Acres)	1.75	"Surface Area" is automatically carried over from the "Seepage Loss Sheet"
Average Pond Depth (in feet)	1.84	"Average Pond Depth" depicts the actual depth of the pond either measured or estimated. Note: If you know the maximum depth and not the average depth, the field examiner's handbook suggest multiplying the maximum depth by 0.4 to get the average depth, or you can use any method that
Pond Capacity (in acre feet)	3.22	Pond Capacity is calculated by multiplying the Pond Surface Area by the Average Pond Depth. If you know the capacity, divide the capacity by surface area and enter the average pond depth in the

Volume Needed Above Initial Fill to Fulfill From Storage Needs- "Multiple Fills" (in acre feet)	0	The "Volume Needed Above Initial Fill" is the acre-feet of water required to meet a <i>from storage</i> component if the <i>from storage</i> component exceeds a one time fill. This section should not include the amount of water needed to fill the pond initially or the amount of water needed to maintain the pond level due to evaporation or seepage. For example: if a pond has a capacity of 5 acre feet and 2.5 acre feet of seepage and evaporation, but the pond is used for irrigation that requires 10 acre feet of from storage for the irrigation use, then you would insert 5 acre feet into this location (10 acre feet needed - 5 acre feet from the initial fill = 5 acre feet of additional storage needed). PLEASE NOTE: You must have a <u>"From Storage"</u> component exceeding the initial fill on the permit to include a volume in this space.
Estimated Seepage Loss (in acre feet)	102.2	The "Estimated Seepage Loss" is automatically carried over from the Seepage Loss Sheet
Estimated Evaporation Loss (in acre feet)	3.7	The "Estimated Evaporation Loss" is automatically carried over from the Evaporation Loss Sheet
Total Volume Required (in acre feet)	109.1	"The Total Volume Required" is calculated by adding the Pond Capacity, Multiple Fills, Seepage Loss, and Evaporation Loss amounts to determine the total amount of storage required.

Flow Rate Into Pond (in cfs)	1.00	The "Flow Rate" Into the Pond depicts the actual flow either measured or estimated into the pond.
Highest Daily Evaporation Rate From Evaporation Tab. (in mm/day)	4.18	This number is automatically selected by picking the highest recorded number in the "Precipitation Deficit Table".
Maximum Required Daily Maintenance Volume (in acre feet per day)	0.30	"Maximum Required Daily Maintenance Volume" is the maximum volume of water needed on any given day during the year, and is calculated by adding the highest daily evaporation loss to the average daily seepage loss in acre feet. The average daily seepage loss is calculated by dividing the "Estimated Seepage Loss" by 365 days. This is acceptable, since the seepage rate shouldn't vary throughout the season unless the pond completely freezes over during the winter months. The highest daily evaporation loss is calculated by dividing the Highest Daily Evaporation Rate by the 304.8 conversion factor and multiplying this number by the pond surface area to attain a combined daily acre feet requirement.
Minimum Maintenance Flow (in cfs)	0.15	The "Minimum Maintenance Flow" is the minimum amount of flow required to maintain the level of the pond. This number is determine by dividing the "Maximum Required Daily Maintenance Volume" by 1.9835. This flow can be used to determine if the flow rate into the pond is adequate to maintain the pond level.
Days Required to Fill the Pond	2	The "Days Required to Fill the Pond" is calculated by dividing the "Pond Capacity" by the "Flow Rate" minus "Minimum Maintenance Flow" multiplied by 1.9835. This section will assist you in determining if the flow rate being diverted to the pond is adequate to fill the pond while maintaining the pond level. The length of time to fill the pond will help determine if the flow rate is adequate for the size of pond being proposed. This number should be between 1 and 365 days for a project to be successful.
Days Required to Fill the Pond at 13,000 gallons per day	-12	The "Days Required to Fill the Pond at 13,000 gallons per day" is calculated converting the "Pond Capacity" and the "Maximum Daily Maintenance Volume" to gallons. The "Pond Capacity" is then divided by 13,000 gallons minus the "Maximum Daily Maintenance Volume" in gallons to determine the number of days to fill pond. This number should be between 1 and 365 if this pond is to described as a domestic use.

User Input
Calculated value
Formula Explanations

RECEIVED

AUG 26 2013

WATER RESOURCES
WESTERN REGION

ORIGINAL

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
APPLICATION FOR PERMIT
To appropriate the public waters of the State of Idaho

Ident. No. 63-33843

1. Name of applicant(s) Michael and Joan A. Boren Phone 208 866-8555
Name connector (check one): ☐ and ☐ or ☐ and/or

Mailing address: 1050 N. Briar Lane City Boise

State ID _____ Zip 83712 Email: mike@clearwateranalytics.com

2. Source of water supply North Alkali Drain which is a tributary of South Boise Drain

3. Location of point(s) of diversion:

Twp	Rge	Sec	Govt Lot	1/4	1/4	1/4	County	Source	Local name or tag #
5N	6W	11		SE	SE		Payette	Irrigation Drain	North Alkali

4. Water will be used for the following purposes:

Amount 1 cfs for Water Quality Improvement purposes from 1/1 to 12/31 (both dates inclusive)
(cfs or acre-feet per year)

Amount .075 cfs for Irrigation purposes from 3/1 to 11/15 (both dates inclusive)
(cfs or acre-feet per year)

Amount 17.12 af for WQ Improvement Storage purposes from 1/1 to 12/31 (both dates inclusive)
(cfs or acre-feet per year)

Amount 1 cfs for Diversion to Storage purposes from 1/1 to 12/31 (both dates inclusive)
(cfs or acre-feet per year)

5. Total quantity to be appropriated is (a) 1 cubic feet per second (cfs) and/or (b) 17.12 acre-feet per year (af).

6. Proposed diverting works:

a. Describe type and size of devices used to divert water from the source. Electric pump placed in drain near where North Alkali crosses Brumback Lane

b. Height of storage dam 6 feet; active reservoir capacity 3.22 acre-feet; total reservoir capacity 3.22 acre-feet. If the reservoir will be filled more than once each year, describe the refill plan in item 11.
For dams 10 feet or more in height OR reservoirs with a total storage capacity of 50 acre-feet or more, submit a separate Application for Construction or Enlargement of a New or Existing Dam. Application required? ☐ Yes ☒ No

c. Proposed well diameter is _____ inches; proposed depth of well is _____ feet.

d. Is ground water with a temperature of greater than 85°F being sought? ☐ Yes ☒ No

e. If well is already drilled, when? _____; drilling firm _____;
Well was drilled for (well owner) _____; Drilling Permit No. _____.

7. Description of proposed uses (if irrigation only, go to item 8):

a. Hydropower; show total feet of head and proposed capacity in kW. _____

b. Stockwatering; list number and kind of livestock. _____

c. Municipal; show name of municipality or the applicant's qualifications as a municipal provider. _____

d. Domestic; show number of households _____

e. Other; describe fully. This is a pilot project to demonstrate the effectiveness of sediment ponds and constructed wetlands to remove phosphorus from irrigation drainage water

8. Description of place of use:

- a. If water is for irrigation, indicate acreage in each subdivision in the tabulation below.
- b. If water is used for other purposes, place a symbol of the use (example: D for Domestic) in the corresponding place of use below. See instructions for standard symbols.

TWP	RGE	SEC	NE				NW				SW				SE				TOTALS
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
5W	6W	11																X	

Total number of acres to be irrigated: 1.75

9. Describe any other water rights used for the same purposes as described above. Include water delivered by a municipality, canal company, or irrigation district. If this application is for domestic purposes, do you intend to use this water, water from another source, or both, to irrigate your lawn, garden, and/or landscaping? none

10. a. Who owns the property at the point of diversion? Michael and Joan Boren
- b. Who owns the land to be irrigated or place of use? same
- c. If the property is owned by a person other than the applicant, describe the arrangement enabling the applicant to make this filing: _____

11. Describe your proposal in narrative form, and provide additional explanation for any of the items above. Attach additional pages if necessary. This project funded by Lower Boise Watershed Council with 319 grant funds. Project is designed and will be constructed to measure and demonstrate the effectiveness of sediment basins and constructed wetlands to reduce sediment and phosphorus and improve water quality of irrigation drainage water. The only known diversion downstream is on the South Boise Drain near the confluence with North Akali. This diversion is a pump that is owned and operated by Mr. Boren. This project will be a flow through system. See attached narrative describing the project design and operation

12. Time required for completion of works and application of water to proposed beneficial use is 1 years (minimum 1 year).
13. **MAP OF PROPOSED PROJECT REQUIRED** - Attach an 8½" x 11" map clearly identifying the proposed point of diversion, place of use, section #, township & range. A photocopy of a USGS 7.5 minute topographic quadrangle map is preferred.

The information contained in this application is true to the best of my knowledge. I understand that any willful misrepresentations made in this application may result in rejection of the application or cancellation of an approval.

Signature of Applicant

Print Name (and title, if applicable)

Signature of Applicant

Print Name (and title, if applicable)

For Department Use:

Received by JA Date 8/26/13 Time 2:00 Preliminary check by AN

Fee \$ 250.00 Received by JA Receipt No. W041468 Date 8/26/13

Sommer, Rachel

From: Sommer, Rachel
Sent: Wednesday, February 26, 2014 4:07 PM
To: 'waterdistrict63@qwestoffice.net'
Subject: (2) Applications for Permit
Attachments: Application 63-33841.pdf; Application 63-33843.pdf

February 26, 2014

REX BARRIE
WATER DISTRICT #63
PO BOX 767
10769 W STATE ST
STAR ID 83669-0767

RE: Application for Permit No's: 63-33841 & 63-33843

Dear Watermaster:

The Idaho Department of Water Resources (IDWR) is seeking written comment and/or recommendations from you regarding the above referenced water right applications. Copies of the applications are enclosed with this email for your reference. Please review the applications, complete a recommendation form, and submit your reply, if any, to this office by March 24, 2014.

IDWR will assume you do not object to this application if a timely response is not received. Please contact me if you have any questions in this matter. Thank you for your help.

Sincerely,

Rachel Sommer

Administrative Assistant
Dept. of Water Resources
Western Regional Office
2735 Airport Way, Boise ID 83705
Phone 208-334-2190 | Fax 208-334-2348
Email: rachel.sommer@idwr.idaho.gov

Sommer, Rachel

From: Sommer, Rachel
Sent: Wednesday, February 26, 2014 1:51 PM
To: 'LEGALS@IDAHOPRESS.COM'
Subject: Canyon Legal Ad
Attachments: Canyon Cover Letter.docx; Canyon Legal Ad.docx

Good Afternoon,

Please see the attached ad for publication on 3/6/2014 & 3/13/2014.

Please confirm these are okay to publish as shown.

Thank you,

Rachel Sommer

Administrative Assistant
Dept. of Water Resources
Western Regional Office
2735 Airport Way, Boise ID 83705
Phone 208-334-2190 | Fax 208-334-2348
Email: rachel.sommer@idwr.idaho.gov

February 26, 2014

LEGAL NOTICE DEPARTMENT
PRESS TRIBUNE
PO BOX 9399
NAMPA, ID 83652

RE: Application for Permit No's: 63-33810, 63-33839, 63-33840, 63-33841, 63-33843, 63-33893
Application for Transfer No's: 78512, 78514, 78515

Dear Legal Notice Department:

Please publish the enclosed legal notice on the dates indicated (once a week for two consecutive weekly issues). If you cannot publish the notice on the proposed dates, please contact us immediately.

An affidavit of publication must be submitted to the Department along with the publication bill. Please send the affidavit and bill to this office before 3/24/2014. Your cooperation is appreciated.

Sincerely,

Rachel Sommer
Administrative Assistant

Enclosures

The following applications have been filed to appropriate the public waters of the State of Idaho:

63-33810

BOWMONT FARMS LLC
4890 DRY LAKE RD
NAMPA, ID 83686

Point of Diversion SWNE SWSE SESE NESW SESW S4 T01N R02W CANYON County Source GROUND WATER

Use: IRRIGATION 03/01 to 11/15 5.04 CFS

Total Diversion: 5.04 CFS

Date Filed: 7/11/2013

Place of Use: IRRIGATION

T01N R02W S4 SWNW SENW NESW NWSW SESW

T01N R02W S5 L1(NENE) L2(NWNE) SWNE SENE

T01N R02W S9 NWNE

Total Acres: 252

Water bearing zone to be appropriated is from 200 to 850 feet.

63-33839

MELVIN GOODSON
WANDA GOODSON
26701 FOUNTAIN RD
PARMA, ID 83660

Point of Diversion NENENE S19 T05N R04W CANYON County Source GROUND WATER

Use: IRRIGATION 03/01 to 11/15 0.74 CFS

Total Diversion: 0.74 CFS

Date Filed: 8/13/2013

Place of Use: IRRIGATION

T05N R04W S19 NWNE

Total Acres: 37

Water bearing zone to be appropriated is unknown. Well drilled in 1977 to a total depth of 440 feet.

63-33840

MICHAEL GOODSON
MELANIE GOODSON
26701 FOUNTAIN RD
PARMA, ID 83660

Point of Diversion NENENE S19 T05N R04W CANYON County Source GROUND WATER

Use: IRRIGATION 03/01 to 11/15 0.8 CFS

Total Diversion: 0.8 CFS

Date Filed: 8/13/2013

Place of Use: IRRIGATION

T05N R04W S19 SWNE

Total Acres: 40

Water bearing zone to be appropriated is unknown. Well drilled in 1977 to a total depth of 440 feet.

63-33841

JORDAN JOHNSON
7264 N RIVER RD
IDAHO FALLS, ID 83402

Point of Diversion NWNE S16 T04N R03W CANYON County Source GROUND WATER Tributary BOISE RIVER

Use: IRRIGATION FROM STORAGE 03/01 to 11/15 20 AF

Use: IRRIGATION STORAGE 01/01 to 12/31 20 AF

Total Diversion: 20 AF

Date Filed: 8/16/2013

Place of Use: IRRIGATION FROM STORAGE, IRRIGATION STORAGE

T04N R03W S16 NWNE

Total Acres: 4.4

Water bearing zone to be appropriated is from 0 to 8 feet.

63-33843

MICHAEL BOREN
JOAN A BOREN
1050 N BRIAR LN
BOISE, ID 83712

Point of Diversion L4(SESW) S11 T05N R06W CANYON County Source NORTH ALKALI DRAIN Tributary SOUTH BOISE DRAIN

Use: DIVERSION TO STORAGE 01/01 to 12/31 1 CFS

Use: IRRIGATION 03/01 to 11/15 0.05 CFS

Use: WATER QUALITY IMPROVEMENT 01/01 to 12/31 1 CFS

Use: WATER QUALITY IMPROVEMENT STORAGE 01/01 to 12/31 17.1 AF

Total Diversion: 1 CFS

Date Filed: 8/26/2013

Place of Use: IRRIGATION, WATER QUALITY IMPROVEMENT, WATER QUALITY IMPROVEMENT STORAGE

T05N R06W S11 L4(SESW)

Total Acres: 1.8

63-33893

JOHN BRANDT
DON BRANDT
203 11TH AVE S
NAMPA, ID 83651
KELLY KRAMER
VICKY KRAMER
1288C SOUTHSIDE BLVD
MELBA, ID 83641

Point of Diversion SESE S13 T01S R02W CANYON County Source GROUND WATER

Use: IRRIGATION 03/01 to 11/15 1.8 CFS

Total Diversion: 1.8 CFS

Date Filed: 1/7/2014

Place of Use: IRRIGATION

T01S R02W S13 SWSE SESE

T01S R02W S24 NENE

Total Acres: 90

Water bearing zone to be appropriated is from 125 to 350 feet.

PROPOSED CHANGE OF WATER RIGHTS

Sunridge Dairy LLC of 4890 Dry Lake Rd., Nampa, ID 83686 filed Application Nos. **78512**, **78514** and **78515** to transfer all or portions of 22 water rights with 1950 to 1981 priority dates from ground water and the Snake River totaling 32.23 cfs. The transfers propose in part, to add a new well, describe places of use reflecting integrated irrigation systems and consolidate primary surface water. Water will be used on lands located between Sky Ranch Road and Lynwood Road, bordered on the south by Big Foot Road approximately 1.5 miles south of Missouri Ave.

Permits will be subject to all prior water rights. For additional information concerning the property location, contact Western Region office at (208) 334-2190; or for a full description of the rights &/or proposed transfer, please see www.idwr.idaho.gov/apps/ExtSearch/WRFiling.asp. Protests may be submitted based on the criteria of Sec 42-222 and 42-203A, Idaho Code. Any protest against the approval of this application(s) must be filed with the Director, Dept. of Water Resources, Western Region, 2735 Airport Way, Boise, ID 83705 together with a protest fee of \$25.00 for each application on or before 3/24/2014. The protestant must also send a copy of the protest to the applicant.

GARY SPACKMAN, Director

Published on 3/6/2014 and 3/13/2014



State of Idaho

DEPARTMENT OF WATER RESOURCES

Western Region, 2735 Airport Way • Boise, Idaho 83705-5082

Phone: (208) 334-2190 • Fax: (208) 334-2348 • Web Site: www.idwr.idaho.gov

February 5, 2014

C. L. "BUTCH" OTTER
Governor

GARY SPACKMAN
Director

MICHAEL AND JOAN A BOREN
C/O HAL ANDERSON
IDAHO WATER ENGINEERING
2918 N EL RANCHO PLACE
BOISE ID 83704

Re: Application for Permit No. 63-33843 Amended Application Request

Dear Hal:

Your client's application for permit regarding water quality improvement and irrigation use is being processed. To assist the Idaho Department of Water Resources (IDWR) in completing the initial processing steps, please submit an amended application and/or additional information to address the following:

- **Item no. 1 name of applicant, item no. 10 property ownership, and item no. 12 signature.** The application is in the name of Michael and Joan A. Boren. Canyon County taxlot data (1/24/13) along with ownership records of other water rights on the same property indicate property ownership is in the name of Joan A. Boren Trust. If this is correct, please consider amending the application to place this diversion into the name of the property owner, i.e. Joan A. Boren Trust. Please amend item no. 1 and no. 10 as appropriate. Also, please have a person authorized to sign on behalf of the property owner sign the application and include any applicable title. If the application is to remain in the name of Michael and Joan A. Boren, both Michael **and** Joan must sign the application if the name connector "and" is used.
- **Item no. 3 location of point of diversion (PD), item no. 8 place of use (PU), and item no. 13 map.** The application form indicates the PD and PU are to be located in the SE SE of Section 11 T5N R6W (PU states "5W"). However, when the aerial photo/map submitted with the application is compared with public land survey (PLS) map(s), it appears the proposed PD and PU are to be located in Gov't Lot 4 (SE SW) Section 11 T5N R6W. Please amend the application form and/or map to confirm the correct PLS location for the PD and PU. Also, please correct the county listed in item no. 3 from Payette to Canyon county. For item no. 8, please place an "X" in the correct box for the water quality related uses and the number of acres to be irrigated (rounded to the nearest tenth) in the correct box for the irrigation use. Item no. 13 requires a map with the PLS (section #, township & range) be submitted illustrating the PD and PU. I've enclosed a map you may wish to consider using as a basis for the amended application map.
- **Item 4 water use(s)/quantity.** The application proposes 0.075 cfs of irrigation use. IDWR standards allow for a rate of up to 0.03 cfs/ac for irrigation projects 5 acres or less in size. For irrigation of up to 1.8 acres (1.75 ac rounded to the nearest tenth per IDWR standards), a rate up to 0.05 cfs would be allowable. Please provide additional information justifying a rate greater than

Boren
February 5, 2014
Page 2 of 2

0.05 cfs, or please amend the application to a rate that is approvable.

Aside from errors found in execution of the spreadsheets/worksheets submitted with the application, it appears the quantities proposed for the water quality improvement aspect of this application are reasonable based on the proposed project parameters given. However, you may wish to consider rounding the proposed storage quantity up to the nearest whole number considering the spreadsheets/worksheets used to estimate the quantities are in draft stage. Rounding up to the nearest whole number allows for reasonable flexibility in development of the project. If you decide to amend the application in this manner, please note this or other reasoning for such an amendment.

Please submit an amended application to allow for continued application processing. You may seek additional time to provide the information by making a written request to interrupt processing for up to six months. **Your written response is needed within the next thirty (30) days. The application will be voided without a timely written reply. Refunds are not issued for voided applications.**

Please contact me at (208) 334-2190 if you need more information. Thank you for your attention to these matters. I look forward to your response.

Sincerely,

A handwritten signature in black ink, appearing to read 'Angela M. Grimm', with a stylized flourish at the end.

Angela M. Grimm, P.G.
Water Resource Agent, Sr.

Enclosure(s): Map



Lester, Steve

From: Lester, Steve
Sent: Monday, February 03, 2014 9:18 AM
To: 'Dave Tuthill'
Subject: RE: Request to Expedite Processing of Application for Permit No. 63-33843

Hello Dave:

The application was recently assigned to staff for processing, and I've asked the reviewer to expedite it as requested. The earliest possible advertising would be the 3rd and 4th weeks of this month. However, advertising most likely will be in the first two weeks of next month. Please let me know if you have additional questions or concerns in this matter.

Best regards,

Steve

From: Dave Tuthill [<mailto:dave@idahowaterengineering.com>]
Sent: Monday, January 27, 2014 1:27 PM
To: Westra, John; Lester, Steve
Cc: Hal Anderson
Subject: Request to Expedite Processing of Application for Permit No. 63-33843

Good afternoon, John and Steve.

I am attaching a request to expedite processing of application for permit no. 63-33843. Please add this request to the file for this application.

Thanks!

Dave

David R. Tuthill, Jr., Ph.D., P.E.
Idaho Water Engineering, LLC
Boise: 2918 N. El Rancho Pl., 83704
Ketchum: 321 S. Leadville, Suite A, 83340
Office: (208) 378-1513
Cell: (208) 870-0345
Fax: (888) 538-7703
email: dave@idahowaterengineering.com
website: www.idahowaterengineering.com

✓expediting application



INTEGRATED WATERSHED SOLUTIONS, INC.

2918 North El Rancho Place • Boise, Idaho 83704
208.378.1513 • info@integratedwatersheds.org
www.integratedwatersheds.org

"Improving Water Quality Using Watershed Solutions"

Executive Director
Hal N. Anderson

January 27, 2014

President
David R. Tuthill, Jr., Ph.D., P.E.

Mr. John Westra
Manager, Western Regional Office
Idaho Department of Water Resources

Vice-President
Douglas R. Jones

Sent via email

Secretary
Joseph P. Langfield, Esq.

Request for Processing of Application for Permit No. 63-33843

Treasurer
Robert B. Tiedemann, Ph.D.

Dear John,

Advisory Committee
Mark D. Ankeny, Ph.D.
Ernest M. Carlsen
Robert G. Haynes, P.E.
William F. Larsen
Mark T. Masarik
Steven H. Pollack
Phillip J. Rassier, Esq.
W. Jeffery Reeder

I am writing to request expedited processing of Application for Permit No. 63-33843 in the name of Michael and Joan A. Boren.

Integrated Watershed Solutions, Inc. is constructing a pilot project on the Boren property to demonstrate water quality improvements that can be accomplished by diverting water from a waste drain into a sediment pond and wetland area. The pilot project is located on land owned by Michael and Joan A. Boren so the Borens are the applicants for this water right.

The application was filed on August 26, 2013, and for reasons we do not understand it appears the application has not yet been advertised. We intend to initiate construction soon and the water right is becoming a rate-limiting step. The contact person for this water right application is Mr. Hal Anderson and he is not aware of anything IDWR is waiting for on this application.

The Borens are the last property owners along the North Alkali Drain and the South Boise Drain into which it is tributary, prior to the confluence of the South Boise Drain with the Snake River. Thus we do not see this application as being controversial and the likelihood of protests is low.

Would you please advise me of the anticipated timeline for advertising and processing this application?

Thank you.

Sincerely,

David R. Tuthill, Jr., Ph.D., P.E.
President, Idaho Watershed Solutions, Inc.

CONVERSATION MEMO

63-33843

FROM: Steve Lester 
DATE: 8/26/2013
RE: Application for Permit – Michael & Joan Boren

Consultant revisited office to file this application after revising it based on prior discussions. Beneficial use terminology is explained below.

A small off-stream settling pond system will be used to clean up and return water to the ditch. Before treated water is returned, it will be run thru a constructed “semi-wetland” area consisting of shallow standing water (“pond wetland”) and irrigated vegetation (“non-pond wetland”) to be used for animal feed &/or composting. The harvestable vegetation can grow in both the “pond and non-pond wetland areas.”

The consultant said he used soil test pits with piezometers to confirm shallow ground water will not be intercepted in this development.

Settling and wetland ponds will cover about 1.75 acres at variable depths¹ – about ¾ acre settling and about 1 acre wetland pond(s). Consultant used “draft pond seepage/evaporation” spreadsheet he obtained from SO for calculations. Multiple refills are factored into the situation.

Flow thru use is included to keep the water quality system fully functional.

Irrigation is considered natural flow since storage is limited to the water quality aspect of the project. Think of it as some water being stored for non-irrigation use while an increment of natural flow for irrigation passes thru the ponds.

This interpretation avoids irrigation storage/irrigation from storage terms that do not fit too well here. For example, irrigation of harvestable plants includes the pond wetland area where irrigation storage might make sense (put water in the pond wetland) but irrigation from storage (take water out of the pond wetland but use it to irrigate in the pond wetland!) makes no sense.

In this way, water quality improvement is covered by diversion to storage, water quality storage and water quality terms. Irrigation is natural flow operating within that framework.

¹ Assume 2 settling ponds and 1 wetland pond, although wetland area might be a few tiny ponds linked together. If application can be approved, conditions of approval probably should not specify maximum surface area or maximum number of ponds. Mitigation is not a factor, and it is sufficient to just specify maximum storage capacity plus refill volume.

MEMORANDUM

☒ Office Visit ☐ Telephone ☐ Meeting ☐ Other

TO File
FROM HL
DATE 8/26/13
RE Consultant

Per 2 office visits before filed Appl-

Consultant = HAL ANDERSON
e ID Water Engr.

Idaho Water Engineering
Water Solutions

Hal N. Anderson
Managing Partner

2918 N. El Rancho Place
Boise, ID. 83704
Fax: 888.538.7703
Office: 208.378.1513
Mobil: 208.830.5525
hal@idahowaterengineering.com
www.idahowaterengineering.com

