Appendices

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Appendix A: Water System Facilities Records

- Well Logs
- Well 6 Pump Station Evaluation
- System Inventory
- Hydrant Survey

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REPORT OF WELL DRILLER
State of Idaho

State law requires that this report shall be filed with the State Reclamation Engineer within 30 days after completion or abandonment of the well.

WELL OWNER:
Name Fred Kvarfordt - Wayne Peterson
Address 1970 North Yellowstone Avenue
Idaho Falls, Idaho 83401
Owner's Permit No. [illegible]

NATURE OF WORK (check): Replacement well [ ] New well [x] Deepened [ ] Abandoned [ ]

Water is to be used for: Municipal

METHOD OF CONSTRUCTION: Rotary [ ] Cable [X] Dug [ ] Other ______ (explain)

CASING SCHEDULE: Threaded ___ Welded X
16 "Diam. from +1 ft. to 18'10" ft.
12 "Diam. from 0 ft. to 91 ft.
___ "Diam. from ___ ft. to ___ ft.
___ "Diam. from ___ ft. to ___ ft.
Thickness of casing: .312 Material: Steel [x] concrete [ ] wood [ ] other [ ]
(explain)

PERFORATED? Yes [ ] No [X] Type of perforator used: ______
Size of perforations: ___ " by ___ "
___ perforations from ___ ft. to ___ ft.
___ perforations from ___ ft. to ___ ft.
___ perforations from ___ ft. to ___ ft.
___ perforations from ___ ft. to ___ ft.

WAS SCREEN INSTALLED? Yes [ ] No [X]
Manufacturer's name ______
Type ______ Model No. ______
Diam. ___ Slot size ___ Set from ___ ft. to ___ ft.
Diam. ___ Slot size ___ Set from ___ ft. to ___ ft.

CONSTRUCTION: Well gravel packed? Yes [ ] No. [X] size of gravel ______ Gravel placed from ___ ft. to ___ ft. Surface seal provided? Yes [X] No [ ] To what depth? 63 ft. Material used in seal: cement

Did any strata contain unusable water? Yes [ ] No. [X] Type of water: ______ Depth of strata ___ ft. Method of sealing strata off: ______

Surface casing used? Yes [X] No. [ ]
Cemented in place? Yes [X] No [ ]

Locate well in section

Sec.

LOCATION OF WELL: County Bonneville
NE ¼ NW ¼ Sec. 26 T. 2 N/S R. 38 E/W B. M.

Size of drilled hole: 16" Total depth of well: 220' Standing water level below ground: 32' Temp. Fahr. 49 ° Test delivery: 1926 gpm or ___ cfs Pump? [X] Bail [ ]
Size of pump and motor used to make test: 12" Turbine
Length of time of test: 24 Hrs. ___ Min.
Drawdown: 33 ft. Artesian pressure: ___ ft. above land surface ___ Give flow ___ cfs or ___ gpm. Shutoff pressure: ______
Controlled by: Valve [ ] Cap [ ] Plug [ ]
No control [ ] Does well leak around casing? Yes [ ] No [X]

DEPTH FROM FEET	TO FEET	MATERIAL	WATER YES OR NO
0	6	topsoil	
6	10	gravel 20" Dia. to	
10	16	" 16'8"	
16	20	basalt	
20	30	"	
30	34	"	yes
34	37	" broken	
37	50	" fractured	
50	60	" "	
60	63	" broken	
63	75	gravel	
75	78	clay	
78	94	basalt broken	
94	120	basalt firm	
120	125	" hard	
125	127	" " fractured brn sand	
127	135	basalt fractured brn sand	
135	143	" broken caving	
143	152	basalt firm	
152	158	cinders caving	
158	160	" broken lava	
160	162	lava broken	
162	167	cinders caving	
167	171	basalt	
171	174	cinders black dirty	
174	180	basalt firm	
180	188	" " hard	
188	192	cinders black some clay dirty	
192	194	basalt	
194	198	cinders black dirty	
198	203	basalt	
203	209	cinders black caving	
209	215	sand silt brown	
215	220	" " "	

003367

Work started: October 2, 1968
Work finished: October 25, 1968

Well Driller's Statement: This well was drilled under my supervision and this report is true to the best of my knowledge.
Name: Andrew Well Drilling Contractors
Address: 1268 N. 17th St., Idaho Falls, Idaho
Signed by: [signature]
License No. 5 Date: June 24, 1968

Use other side for additional remarks

USE TYPEWRITER
BALL POINT PEN

State of Idaho
Department of Water Administration

WELL DRILLER'S REPORT

State law requires that this report be filed with the State Reclamation Engineer within 30 days after completion or abandonment of the well.

RECEIVED
SEP 27 1974
Department of Water Resources
Eastern District Office

1. WELL OWNER

Name: City of Ammon

Address: Ammon, Idaho

Owner's Permit No. 25-7123

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

☐ Domestic ☐ Irrigation ☐ Test

☒ Municipal ☐ Industrial ☐ Stock

4. METHOD DRILLED

☒ Cable ☒ Rotary ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 24 inches Total depth 365 feet

Casing schedule: ☒ Steel ☐ Concrete

Thickness	Diameter	From	To
.250 inches	24 inches	+2 feet	54 feet
.250 inches	20 inches	0 feet	143 feet
.250 inches	16 inches	+ 2 feet	263 feet
inches	inches	feet	feet
inches	inches	feet	feet

Was a packer or seal used? ☐ Yes ☒ No

Perforated? ☐ Yes ☒ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation ______ inches by ______ inches

Number	From	To
perforations	feet	feet
perforations	feet	feet
perforations	feet	feet

Well screen installed? ☐ Yes ☒ No

Manufacturer's name ______

Type ______ Model No. ______

Diameter ___ Slot size ___ Set from ______ feet to ______ feet

Diameter ___ Slot size ___ Set from ______ feet to ______ feet

Gravel packed? ☐ Yes ☒ No Size of gravel ______

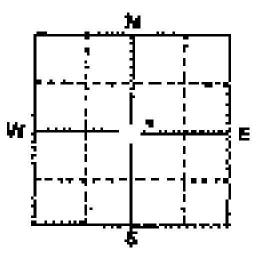
Placed from ______ feet to ______ feet

Surface seal? ☒ Yes ☐ No To what depth 263 feet

Material used in seal ☒ Cement grout ☐ Puddling clay

6. LOCATION OF WELL

Sketch map location must agree with written location.



35/36

dk

County Bonneville

SW ¼ NE ¼ Sec. 27 T. 2 N/S R. 38 E/W

7. WATER LEVEL

Static water level 59 feet below land surface

Flowing? ☐ Yes ☒ No G.P.M. flow ______

Temperature ______ °F. Quality Good

Artesian closed-in pressure ______ p.s.i.

Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Draw Down	Hours Pumped

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
30	0	2	Soil Clay		
	2	15	Gravel Sand		
	15	51	Silt Gravel		
24	51	54	Clay Broken Basalt		
	54	62	Firm Gray "		
	62	80	Clay Gravel		
	80	82	Sand	X	
	82	90	Silt Gravel		
	90	95	Sand Gravel	X	
	95	105	Clean Gravel	X	
	105	120	Sand Gravel	X	
	120	135	Loose Lava	X	
	135	137	Clay Gravel		
20	137	140	Sandstone Loose Lava		
	140	165	Firm Lava		
	165	173	Firm Brown & Gray Basalt		
	173	181	Hard Basalt (Caving)	X	
	181	187	Loose Basalt Clay		
	187	215	Firm Brown Basalt		
	215	217	Broken Basalt Clay		
	217	235	Firm Brown Basalt		
16	240	262	Hard Basalt		
	262	280	Hard Basalt Gray		
	280	290	Firm Basalt Gray		
	290	305	Hard Basalt Green		
	305	327	Firm Hard		
	327	335	Loose Lava Red Clay	X	
	335	360	Sandstone	X	
16	360	365	Gravel Red Clay	X	

G01551

10.

Work started Oct. 73 finished Mar. 74

11. DRILLER'S CERTIFICATION

This well was drilled under my supervision and this report is true to the best of my knowledge.

Andrew Well Drilling Contractors #5
Driller's or Firm's Name Number

1268 E 17th St. Idaho Falls, Idaho
Address

Signed By ______ Date ______

USE ADDITIONAL SHEETS IF NECESSARY

FORWARD THE WHITE, BLUE, AND PINK COPIES TO THE DEPARTMENT

REPORT OF WELL DRILLER
State of Idaho

State law requires that this report shall be filed with the State Reclamation

Form 238-7
3/95

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT
Use Typewriter or Ballpoint Pen

94348

Location Corrected by IDWR To:
T02N R38E Sec. 22 SENW
By: manders 2013-09-09

1. DRILLING PERMIT NO. 25-96-E-0030-000
Other IDWR No. 25-07634

2. OWNER:
Name City of Ammon
Address 3270 Molen St.
City Ammon State ID Zip 83406

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

Twp. 02 North ☒ or South ☐
Rge. 38 East ☒ or West ☐
Sec. 22 SE 1/4 SE 1/4 ____ 1/4
Gov't Lot ____ County Bonneville
Lat: : : Long: : :
Address of Well Site ____________ City ____________
Lt. ____ Blk. ____ Sub. Name ____________

4. USE:
☐ Domestic ☒ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ____________

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other ____________

6. DRILL METHOD
☒ Air Rotary ☒ Cable ☐ Mud Rotary ☐ Other ____________

7. SEALING PROCEDURES

Hole	Material	From	To	Amount (Sacks or Pounds)	Method
30"	Bentonite	0	40	36 sks	Tremmi
24"	Cement	0	70	4 Yards	Tremmi
20"/16"	Cement	0	145	20 yds	Tremmi

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 98', 108', 320', 371'
Was drive shoe seal tested? ☐ Y ☐ N How? ____________

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
24"	+1	98'	375	Steel	☒	☐	☒	☐
20"	+1½	107'	375	Steel	☒	☐	☒	☐
16"	62'	321'	375	Steel	☒	☒	☒	☐
	321'	371'	350	Steel				

Length of Headpipe ____ Length of Tailpipe ____

9. PERFORATIONS/SCREENS
☒ Perforations Method Torch
☐ Screens Screen Type ____________

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
328	370	1/4 x 4	1,100	17"	Steel	☐	☒
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
84 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices. ____________

11. WELL TESTS:
Lat: : : Long: : :
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
2400	76'	160'	6 Hrs

Water Temp. ________ Bottom hole temp ________
Water Quality test or comments: Good
Depth first Water Encountered ________

12. LITHOLOGIC LOG: (Describe repairs or abandonment) Water

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
24"	0'	41'	Clay		✓
24"	41'	48'	Gravel & Sand, Clay Mix		✓
24"	48'	72'	Gray LAVA		✓
24"	72'	79'	Clay		✓
24"	79'	104'	Gravel & Sand	✓	
20"	104'	128'	Lava	✓	
20"	128'	131'	Cinders, Boulders, Mud, Dirt		✓
20"	131'	171'	Clean Redish Solid Rock	✓	
20"	171'	185'	Soft Cinders	✓	
20"	185'	195'	Greenish Sand & Rock		✓
20"	195'	200'	Black Lava & Sand		✓
20"	200'	230'	Black Rhiolite - Fresh water	✓	
16"	230'	242'	Broken Fractured Black Lava	✓	
16"	242'	258'	Redish Broken Lava	✓	
16"	258'	260'	Broken Red Lava	✓	
16"	260'	266'	Dark Red Lava / Broken Lava		✓
16"	266'	304'	Black Rhiolite w/ Crevises	✓	
16"	304'	338'	Gray Lava	✓	
16"	338'	339'	Firm Black Lava	✓	
16"	339'	371'	Soft Gray Sandstone & Gravel	✓	

RECEIVED
JUL 1 1 1996
Department of Water Resources
Eastern Region

SEP 1 1 1996

Completed Depth 371' (Measurable)
Date: Started May 13, 1996 Completed June 10, 1996

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Vollmer Well Drilling Firm No. 383

Firm Official [signature] Date July 05/96
and
Supervisor or Operator [signature] Date July 05/96
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Gordon
Andrew

OMD

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT
Use Typewriter or Ballpoint pen

Pag 1032

Office Use Only
Inspected by ____
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat ____ Long ____

1. DRILLING PERMIT NO. ____
Other IDWR No. Tag 2 DA541025

2. OWNER:
Name: City of Ammon
Address: 2135 S Ammon Rd
City: Ammon State: Idaho Zip: 83406

3. LOCATION OF WELL by legal description:

N / S

TWP. 2 North ■ Or South ☐
Rge. 39 East ■ Or West ☐
Sec. 30 ____ 1/4, SW 1/4, NE 1/4
10 acres 40 acres 160 Acres
Gov't Lot ____ County: Bonneville
Lat: : : Long: : :

Address of Well Site: 3211 & Sandhill
City: Ammon
(Give at least name of Road + Distance to Road or Landmark)
Lot No. ____ Block No. ____ Subd. Name ____

4. USE:
☐ Domestic ■ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ____

5. TYPE OF WORK check all that apply (Replacement, etc.)
■ New Well ☐ Modify ☐ Abandonment ☐ Other ____

6. DRILL METHOD:
■ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other ____

7. SEALING PROCEDURES:

SEAL/FILTER PACK			AMOUNT	
Material	From	To	Sacks/Pounds	Method
Cement	0	130	245 Sacks	Tremie/Overbore

Was drive shoe used? ■ Y ☐ N Shoe Depth(s) 302
Was drive shoe seal tested? ☐ Y ■ N How? ____

8. CASING/LINER:

Dia.	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
20	+2	302	.375	Steel	■	☐	■	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____

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9. PERFORATIONS/SCREENS:
☐ Perforations Method ____
☐ Screens Screen Type ____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
124 ft below ground Artesian Pressure: ____ lb
Depth flow encountered ____ ft Describe access port or control devices: Welded 1/2" with access pipe

11. WELL TESTS:
☐ Pump ☐ Bailer ■ Air ☐ Flowing Artesian

Yield gal/min.	Drawdown	Pumping Level	Time
1435 gpm	148	272	24 hrs

Water Temp ____ Bottom hole temp ____
Water Quality test or comments: Clear and sand free
____ Depth first Water Encountered ____ ft

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
36"	0	74	Very fine sand, silty, yellow & brown		X
24"	74	85	Silt, sand, gravel, & black gravel		X
	85	88	Broken basalt (vesicular)		X
	88	96	Basalt black & fractured		X
	96	106	Silt orange-brown		X
	106	112	Rhyolite orange-brown	X	
	112	119	Silt orange-brown		X
	119	123	Silt, very sticky various colors, orange brown, gray		X
	123	151	Silt orange-brown		X
	151	172	Silt orange-brown with basalt clasts		X
	172	190	Silt orange-brown with pumice clasts		X
	190	198	Pumice sand, silty	X	
20"	198	212	Rhyolite tan	X	
	212	218	Silt brown with rhyolite clasts	X	
	218	275	Rhyolite gray, pink, black	X	
	275	284	Decomposed rhyolite	X	
	284	297	Rhyolite soft	X	
	297	338	Rhyolite hard & fractured	X	
	338	347	Rhyolite broken	X	
			CONTINUED		

Completed Depth 575 ft (Measurable)
Date Started 5/24/01 Completed 8/31/01

13. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Firm Name ANDREW WELL DRILLING SERVICES, INC. Firm No. 95

Firm Official ____ Date 9/12/01
and
Supervisor or Operator ____ Date 9/12/01
(Signature of Firm Official & Operator)

5. DRILLING PERMIT NO. ....

Other IDWR No. Tag #. D0023129

2. OWNER:

Name: City of Ammon........

Address: 2135 S. Ammon Rd..........

City: Ammon. .... State: Idaho Zip: 83406

page 2 of 2

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia	From	To	Remarks, Lithology, Water Quality & Temperature	Y	N
	347	376	Rhyolite fractured	X	
	376	387	Rhyolite fractured	X	
	387	392	Rhyolite fractured	X	
	392	411	Rhyolite fractured	X	
	411	420	Rhyolite fractured	X	
	420	435	Pumice fractured	X	
	435	445	Pumice broken	X	
	445	455	Pumice broken	X	
	455	470	Pumice broken	X	
	470	495	Pumice broken	X	
	495	500	Pumice broken	X	

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Department of Water Resources
Eastern Region

Form 238-7
6/02

25

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Well ID No. ______
Inspected by ______
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 49781
DRILLING PERMIT NO. ______
Water Right or Injection Well No. 25-4294

2. OWNER:
Name City of Ammon
Address 2135 S Ammon Rd
City Idaho Falls State Id. Zip 83406

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 2 North ☒ or South ☐
Rge. 38 East ☒ or West ☐
Sec. 34 ___ 1/4 NW 1/4 SW 1/4
Gov't Lot ______ County Bonneville
Lat: : : Long: : :
Address of Well Site 3765 Hitt Rd. City Ammon
Lt. ______ Blk ______ Sub. Name ______

4. USE:
☐ Domestic ☒ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ______

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other ______

6. DRILL METHOD:
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other ______

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
bentonite	0	80	8080	poured chips

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) ______
Was drive shoe seal tested? ☐ Y ☒ N How? ______

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
24	-5	34	375	steel	☒	☐	☒	☐
20	-5	168	375	steel	☒	☐	☒	☐
16	+2	260	375	steel	☒	☐	☒	☐

Length of Headpipe ______ Length of Tailpipe ______
Packer ☐ Y ☐ N Type ______

9. PERFORATIONS/SCREENS PACKER TYPE
Perforation Method ______
Screen Type & Method of Installation 304 SST weld

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
260	300	80		14	SST	☐	☐
						☐	☐
						☐	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
63 ft. below ground Artesian pressure ______ lb.
Depth flow encountered ______ ft. Describe access port or control devices: ______

12. WELL TESTS:
☒ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min.	Drawdown	Pumping Level	Time
3500	100	160	24 hrs

Water Temp. 51° Bottom hole temp. ______
Water Quality test or comments: fresh
Depth first Water Encounter 80

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
24	0	11	cobble stones		X
24	11	18	river rock + clay		X
24	18	48	[illegible] 3" + sand		X
24	48	55	gravel + sand		X
24	55	65	solid grey lava		X
20	65	70	grey lava		X
20	70	75	loose broken caving		X
20	75	83	loose lava with		X
20	83	120	real loose lava	X	
20	120	165	caving broken lava	X	
20	165	168	solid black basalt		X
20	170	205	hard grey basalt		X
20	205	240	real hard basalt + caves	X	
20	240	255	hard basalt + caves	X	
20	255	265	cinders	X	
16	265	280	fractured loose lava	X	
16	280	284	cinders	X	
16	284	294	real hard basalt		X
16	294	300	cinders (4000 gpm)	X	
16	300	302	sand + red clay		X

RECEIVED
NOV 2 1 2008
Department of Water Resources
Eastern Region

Completed Depth 300 (Measurable)
Date: Started May 23, 08 Completed 9-24-08

14. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Company Name High Plains Drilling Firm No. 299
Principal Driller Marcus Frandsen Date 11-20-08
and
Driller or Operator II Mike Frandsen Date 11-20-08
Operator I Jake [illegible] Date 11-20-08
Principal Driller and Rig Operator Required.
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
11/97
10/01
Independent

25

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT
Use Typewriter or Ballpoint pen

Office Use Only
Inspected by: ______
Twp. ____ Rge. ____ Sec. ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO.
DRILLING PERMIT NO 25-12964
Other IDWR NO. D0054820

2. OWNER:
Name: City of Ammon
Address: 2135 S. Ammon Road
City: Ammon State: ID Zip 83406

3. LOCATION OF WELL by legal description.

Twp 2 [x] North [ ] South
Rge 38 [x] East [ ] West
Sec 25 ____ 1/4 NE 1/4 SW 1/4
10 Acres 40 Acres 160 Acres
Gov't Lot County Bonneville
Lat: : : Long:

Address of Well Site. 2070 Castelli Drive
City: Ammon
(Give at least name of Road + Distance to Road or Landmark)
Lot No. 1 Blk. No. 1 Subd. Name Vitas 4th

4. USE:
[ ] Domestic [x] Municipal [ ] Monitor [ ] Irrigation
[ ] Thermal [ ] Injection [ ] Other

5. TYPE OF WORK:
[x] New Well [ ] Modify [ ] Abandonment [ ] Other

6. DRILL METHOD:
[x] Air Rotary [ ] Cable [ ] Mud Rotary [ ] Other

7. SEALING PROCEDURES:

SEAL/FILTER PACK	From	To	AMOUNT	Method
Bentonite	-8	-50	106 bags / 5300 lbs	Annular
Cement	-50	-153	9 yds	Tremie

Was drive shoe used? [ ] Yes [x] No Shoe Depth(s)
Was drive shoe seal tested? [ ] Yes [ ] No How?

8. CASING/LINER:

Dia.	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
20"	+2	-153	Sch 40	Steel	[x]	[ ]	[x]	[ ]
16"	-140	-280	Sch 40	Steel	[ ]	[x]	[x]	[ ]
					[ ]	[ ]	[ ]	[ ]

Length of Headpipe: Length of Tailpipe:

9. PERFORATIONS/SCREENS:

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
-160	-280	louvered pipe		16"	Steel	[ ]	[x]
-140	-160	Blank		16"	Steel	[ ]	[x]
						[ ]	[ ]

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
92 ft below ground Artesian Pressure: ____ lb

Describe access port or control devices: Well Cap

11. WELL TESTS:
[ ] Pump [ ] Bailer [x] Air [ ] Flowing Artesian
Flowing Artesian

Yield	Drawdown	Pumping Level	Time
4,000			

Water Temp Cold Bottom hole temp
Water Quality test or comments:

12. LITHOLOGIC LOG:

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
30'	0	10	Silts		X
26	10	20	Fractured Basalts		X
26	20	60	Hard & Solid Basalt		X
26	60	70	Black Basalt		X
26	70	90	Fractured & Tan Clay Seams		X
26	60	154	Solid Basalt		X
20	154	215	Pumice or Ash, Grey	X	
20	215	230	Aryalite, Purple	X	
20	230	280	Aryalite but more grey	X	

RECEIVED
OCT 10 2008
Department of Water Resources
Eastern Region

Completed Depth: 2880 ft
Date Started: 11/10/08
Date Completed: 12/08/08

13. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Firm: Independent Drilling CO Firm No. 343

Firm Official: [signature] Date: 12/22/2008
and
Supervisor/Operator: [signature] Date: 12/22/2008

KELLER associates

DATE: March 20, 2014

TO: Lance Bates, City Engineer
City of Ammon
2135 S. Ammon Rd.
Ammon, ID 83406

FROM: Marvin W. Fielding, P.E.
Colter L. Hollingshead, E.I.

RE: Well 6 Pump Station Evaluation
City of Ammon – Well #6 Design & Remodel #213072-000

As requested, Keller Associates has performed a supply and storage analysis of Ammon's existing potable water system. The analysis was performed to assist the City in determining when additional wells and storage tanks may be needed to meet projected water system demands. We found in this analysis that additional storage will be needed by the year 2019 and additional supply by the year 2022. This report summarizes the results of the analysis and provides estimates of probable cost for well, tank and pump station improvements.

<u>**Supply and Storage Analysis**</u>
Information that was used in this analysis included; population projections from the City of Ammon Comprehensive Plan, existing well capacities from peak day logs and operator interviews, system demands during peak periods, and fire flow requirements provided by the Idaho Surveying and Rating Bureau.

The City's firm pumping capacity (largest well offline in accordance with IDAPA 58.01.08.501.18) is approximately 11,470 gpm based on well log reports and recorded values during peak demand periods as shown in Table 1.1 of the attached documentation. The City will need additional sources when the maximum day demand (MDD) reaches the existing firm capacity. An additional source will be needed by the year 2022 when Ammon's projected population reaches 16,780 with a corresponding MDD of 11,420 gpm. Projected system demands are shown in Table 1.3.

The City of Ammon has 3.5 million gallons (MG) of total storage volume in two concrete storage tanks; 2.0 MG in the Ammon Hill Tank and 1.5 MG in the Well #8 Tank. Peak hour demand (PHD) is delivered using a combination of well supply and storage volume. It was assumed that the amount of supply was equal to the system's firm well capacity of 11,470 gpm and that per capita consumption for a peak day remained near 980 gallons per person. Additional equalization storage will be needed when the City's population reaches approximately 15,900 in the year 2019. Storage volumes are comprised of fire suppression, equalization for peak hour, dead storage, and operational storage and are summarized in Table 1.2 of the attached documentation.

Tank and Pump Station Improvements

An evaluation of the 500,000 gallon storage tank on October 11, 2013 found the tank to be structurally sound. A report dated November 2013 by Keller Associates recommended improvements that can be categorized as necessary and optional. Necessary improvements total approximately $106,500. These include removing the silt in the tank, replacing the existing built-up roof, vent, access hatch lock, and internal pipe supports; repairing the wall to roof joint and lowering the outlet pipe. Optional interior and exterior tank coatings would cost an additional $84,300. A copy of the tank evaluation report is attached.

Alternative 1 – Repair Existing Well and Construct New Building: Repairing the well necessitates removing the existing building to access the well. In this alternative, the well would be cleaned out and a screen and filter pack installed. Twelve inch casing would be extended from the top of the screen to the surface. The cost to rehabilitate the existing well is estimated to be $106,000. Target production for the well is approximately 2,000 gpm. A new building would be constructed to house the well, booster pumps and generator. The building could also accommodate an office. Estimated costs for the new building and site improvements are $623,000. The existing piping would remain intact and be incorporated in the new building. A breakdown of costs for Alternative 1 is attached.

Alternative 2 – Drill New Well and Upgrade Building: Drill a new well on the same lot and connect to the existing piping. Target production of the new is approximately 2,000 gpm. This alternative does not require demolition of the existing building, but requires the full cost of developing a new well. The estimated cost of the new well, pump and piping is $304,000. Building improvements with this alternative total approximately $544,000. A breakdown of costs for Alternative 2 is attached.

Summary

Repair of the existing well with the associated tank and pump station improvements described above is the lowest cost alternative to bring the Well 6 pump station back into service. The total cost of this alternative is approximately $835,500. This is approximately 40 percent of the cost to construct a new facility with similar capacity.

KELLER ASSOCIATES, INC.

Attachments

Summary of Supply and Storage
Tank Evaluation Report
Well Evaluation Reports
Cost Analysis

Consultant’s opinions of probable cost represent Consultant’s judgment as an experienced and qualified design professional. Since Consultant has no control over the cost of labor, materials, equipment, or services furnished by others, or over the Owner’s and other contractor’s methods of determining prices, or over competitive bidding or market conditions, the Consultant cannot and does not guarantee that proposals, bids, or actual construction cost will not vary from opinions of probable cost prepared by the Consultant.

Summary of Supply and Storage

Table 1.1 – Ammon Well Supply and Firm Capacity

Ammon Wells	Flows (gpm)
Well 2	300*
Well 3	508
Well 5	1,100*
Well 7	1,985
*Well 8	3,380
*Well 9	1,950*
*Well 10	2,490
*Well 11	3,136
Total	**14,849**
Firm Capacity	**11,469**

* Values are based off of pump curves and not observed in the field

Table 1.2 – Storage Analysis[1]

	2012	2015	2019	2025	2035
Population	14,234	14,884	15,922	17,703	21,580
Storage Component					
Fire Suppression[2]	630,000	630,000	630,000	630,000	630,000
Equalization[3]	1,538,497	1,887,099	2,464,639	3,162,379	3,854,947
Standby[4]	0	0	0	0	0
Subtotal	2,168,497	2,517,099	3,094,639	3,792,379	4,484,947
Dead @ 5%[5]	108,425	125,855	154,732	189,619	224,247
Operational @ 10%[6]	216,850	251,710	309,464	379,238	448,495
Total Required	2,493,771	2,894,663	3,558,835	4,361,236	5,157,690
Available[7]	3,500,000	3,500,000	3,500,000	3,500,000	3,500,000
Additional Needed	**0**	**0**	**58,835**	**861,236**	**1,657,690**

[1] Assumes firm capacity grows to stay equal with or exceed MDD

[2] Fire flow at town square 3,500 gpm for 3 hours; can be offset if source > MDD

[3] Storage to compensate for difference between PHD and firm pump capacity

[4] Storage for 8 hours of operation at ADD; Offset by pumping capacity under standby power

[5] Based on 6" silt stop in bottom of tank and 6" freeboard below tank overflow

[6] Difference in tank level between pump on and pump off

[7] Hill Tank + Well #8 Tank

Table 1.3 – Projected Future System Demands

Estimated Year	Total Population	Average Day Demand (gpm*)	Maximum Day Demand (gpm)	Peak Hour Demand (gpm)	Average Summer Day Demand (gpm)	Average Winter Day Demand (gpm)
2012	14,234	3,649	9,688	14,532	8,321	1,166
2013	14,447	3,704	9,833	14,750	8,446	1,183
2014	14,664	3,759	9,981	14,971	8,573	1,201
2015	14,884	3,816	10,130	15,196	8,702	1,219
2019	15,922	4,082	10,836	16,255	9,308	1,304
2020	16,192	4,151	11,021	16,531	9,466	1,326
2022	16,780	4,302	11,421	17,131	9,810	1,374
2025	17,703	4,538	12,049	18,074	10,350	1,450
2030	19,545	5,011	13,303	19,954	11,427	1,601
2035	21,580	5,532	14,688	22,032	12,616	1,768

CITY OF Ammon

CITY OF AMMON, IDAHO

Well #6 Tank

STRUCTURAL REVIEW

November 2013

PROFESSIONAL ENGINEER
LICENSED
12447
STATE OF IDAHO
BRANDON S. KELLER

5/20/14

KELLER
associates

213072/3/13-394

WELL #6 TANK STRUCTURAL REVIEW

City of Ammon, Idaho

Scope of Work

The City of Ammon has a potable water storage reservoir adjacent to Well #6. The reservoir is an above grade prestressed concrete tank with precast concrete tee beams for the roof structure. The tank has been in service since the early 1970s. On October 11, 2013, Keller Associates performed an on-site structural inspection of the Ammon Well #6 reservoir structure. The information in this report is the result of the onsite inspection and evaluations made by Keller Associates.

Ammon Well #6 Tank

Reservoir Inspection Process

The on-site structural inspection was done on the morning of October 11, 2013. The City provided the equipment for the inspection work, including lights, fall protection equipment and an oxygen monitor. City personnel were on site during the inspection to help with equipment and provide safety backup. Keller Associates planned on providing a dry interior inspection (a dry inspection is done with the water drained from the tank, but not necessarily completely dry). The City of Ammon had previously drained the tank to approximately two feet above tank finish floor level, matching the top of inlet pipe elevation. The water tank cannot be completely drained unless the drain line is pumped out.

An oxygen monitor was used inside the reservoir during the inspection. During the interior inspection, two city personnel on the roof assisted with equipment and safety as needed.

The only access to the interior is a rectangular hatch on the south side of the roof. City personnel had fall protection equipment at the hatch during the inspection, and lowered Keller personnel into the tank.

Portable battery-powered, handheld lights were used inside the reservoir to make the interior inspection. Handheld digital cameras were used during the inspection to visually record findings. Due to generally poor lighting inside a large closed tank, most of the documentation was by visual observations and notes.

Keller personnel entered the reservoir to do interior observation and inspection. The first part of the work included the interior walls and floor. The walls, and wall connections at the roof, were easily visible. The floor was covered with one to four inches of sand, beneath two feet of water that still remained. The roof was observed from the floor and along the perimeter next to the hatch opening. Close observation and soundness checking of the roof slab was done from the ladder or from the exterior. Exterior inspections of the exposed roof and the exposed wall were also performed.

Existing Reservoir Condition

From the visual on-site inspection, plus design experience and research, the tank was determined to be prestressed concrete reinforced primarily with post-tensioning tendons. High-strength steel tendons apply compression to the wall to counteract the applied forces and provide residual compression. This method actively reinforces the structure and significantly enhances its water-tightness and long-term durability.

The design and construction of this tank appears to resemble an AWWA D115 type tank. Post-tensioning is a proven technology with decades of successful applications on thousands of structures worldwide including bridges, high-rise buildings, foundation systems, parking structures, silos for granular material storage and liquid storage tanks

Research indicates the tank was constructed in the early 1970s, with an inside diameter of approximately 60 feet and 25 feet to top of wall. The overflow is approximately 6 inches below the top of wall/underside of double tee beam. The double tee beams are approximately 2 feet deep, giving the tank an overall height of 27 feet. The tank roof elevation is approximately 24 feet above grade, thus the tank floor elevation is approximately three feet below grade. The total water storage capacity for this reservoir is approximately 520,000 gallons, and usable storage is approximately 485,000 gallons.

Foundation & Floor Slab

As no record drawings on the footings and slab were available, professional assumptions were made and are noted here. The floor and wall joint were not visible at time of inspection due to sand coverage and water depth; however, it appears the wall footing is integral with the concrete floor slab. No joints were visible and/or noted.

The floor slab slopes gradually from the outer wall to the drain line. The floor is a concrete slab on grade and functions as a membrane slab, transferring the loads from the water directly to the soil below. There were no noticeable sand disturbances to indicate water loss through the floor slab, but visibility was limited.

Interior Piping

The interior piping consists of a ductile iron overflow pipe attached to the wall on the south side, a ductile iron inlet pipe projecting through the floor on the east side, and a ductile iron outlet and drain pipe located just northeast of center. The inlet and outlet pipes appear to project anywhere from 18 inches to 24 inches. The projection of the inlet and outlet pipes above the floor serves as a silt stop to reduce the flow of accumulated sediment in the tank into the outlet pipe. However, it does limit usable storage capacity to the elevation of the outlet pipe. The City may want to consider lowering the outlet pipe to gain additional storage. The outlet pipe is an 18-inch pipe feeding the boosters; the inlet pipe comes directly from Well #6. There is a gate valve (located outside the reservoir in a valve pit) to regulate flow into the tank.

Tank outlet and drain, sand build-up at floor

Tank inlet, up to four inches of sand at floor around inlet

Overflow pipe and supports

An overflow pipe located on the south side of the tank penetrates through the floor slab and extends up to the top, approximately 6 inches below the underside of the roof beams. The pipe is laterally supported by steel brackets that are attached to the interior side of the wall.

A drain pipe is located just north of the center of the tank, and terminates flush with the recessed floor. The drain pipe has a gate valve outside the reservoir to control draining. However, the exterior drain outlet is above tank finish floor and does not allow the tank to drain fully. Given the amount of sediment in bottom of the tank, it is likely that the drain line has a substantial amount of sand within the pipe.

The drain pipe, inlet pipe, and outlet pipe have minimal corrosion typical of ductile iron piping inside reservoirs. The degree of corrosion is not detrimental to the pipe and can be easily remedied during cleaning. The overflow pipe and its supports have varying degrees of corrosion. There is a significant amount of pack rust occurring at the pipe flanges and bolts. There is also a significant amount of rust buildup at all overflow pipe supports. This can be attributed to the carbon steel supports and bolts with limited or no coating. All bolts and overflow piping supports should be removed and replaced with stainless steel hardware. Rusting on the ductile iron flanges and piping should be remedied during cleaning.

Close-up of rusting pipe supports

Concrete Walls

The reservoir consists of four cast-in-place, full height wall segments (approximately 8 inches thick) that are vertically and horizontally prestressed. The walls are post-tensioned horizontally at four wall pilasters that are visible on the exterior, placing the tank in constant compression. Concrete is a material with high compressive strength but relatively low tensile strength. Through the principles of structural design, the level of post-tensioning applied to a structural component can reduce or eliminate the tensile stresses in the concrete. Post-tensioning allows for large concrete placements without construction, expansion, or control joints. Vertical joints extending the full height of the wall occur at approximately every 47 feet. It is assumed a waterstop was placed at each of these vertical wall joint locations.

South wall segment, with coating at base

Throughout the interior of the tank, there are multiple locations where coating has been applied. At each of the vertical wall joints, an approximate 24-inch wide coating strip extends the full height. The bottom 10 feet of both the south and west wall segments are also coated. There are multiple other locations where coating has been randomly applied. In looking at the coating, it appears it may have been a grout epoxy mix to infill voids and provide added water tightness. In many locations, the outer layer of the coating has boiled. Portions of the coating were removed, revealing water between the coating and concrete wall at these boiling locations. However, no cracking or spalling of the coating was noted and in all locations the wall appears to be sound and in good condition.

Boiling of coating removed; concrete appears to be in sound condition underneath

There are some areas on the interior wall where small rust spots are visible. These spots are likely caused by old wall ties left in place during the original construction. The rusting ties are of little concern, since the rusting process on the end of ties cast in the wall is a very slow process and could take many more years for the rust to penetrate a few inches into the wall. The rusting tie metal expands as it rusts and can cause concrete pop-outs around the tie location; no pop-outs were visible in the walls. There are very few visible cracks throughout, and the wall appears to be sound and in good condition.

Exterior pilaster and underside of roof overhang, minor scaling at roof

Most of the exterior wall is above grade, with the bottom three feet buried. The exterior of the wall has an aesthetic sack finish and coating applied. No signs of deterioration with the prestressing tendons were visible. The prestressing tendons are encapsulated in concrete and terminate at each pilaster. The pilasters and exterior wall exhibit minor cracking, mostly in the outer concrete sack finish that has since been coated. There are locations where the sack finish/coating is no longer bonded to the structural concrete and has spalled off and/or cracked. These cracks are superficial and do not extend into the core wall. A few locations exhibited minor leaching and or damp spots. No observable leaks were present. The concrete wall appears to be sound and in good condition; however, the aesthetic finish will continue to deteriorate over time and may need replaced at some future time as deemed necessary by the City.

Surface scaling and cracking occurring in sack finish and coating

The base-to-wall joint was not visible; however, discussions with the original design engineer indicate the walls rest on a neoprene pad placed on the footing with seismic base cables extending from the footing to exterior wall. (The main purpose of the cable is to restrain the walls from moving during a seismic event without putting additional stress into the wall.) This joint appears capable of withstanding at-rest backfill and hydrostatic loads. The cables and the neoprene bearing pad between the wall and the footing provide a flexible connection, allowing expansion / contraction movement between the wall and footing without inducing additional stresses in the wall or footing. It is assumed the base-to-wall joint also incorporates a waterstop.

Roof-to-wall joint

The roof-to-wall joint was inspected from both the inside and outside of the tank. This joint is considered to be a flexible joint. Around the perimeter of the tank, the roof double tee beams bear directly on a wide neoprene pad centered at the top of the wall panel. Between the double tees, the void is infilled with reinforced concrete to match the thickness and circumference of the wall below. It does appear that this joint allows lateral movement between the wall and roof joint, enabling the structure to expand and contract. However, it is unknown if any type of vertical dowel exists to restrain against excessive movement during dynamic loading in the event of an earthquake; hence some vulnerabilities may be present.

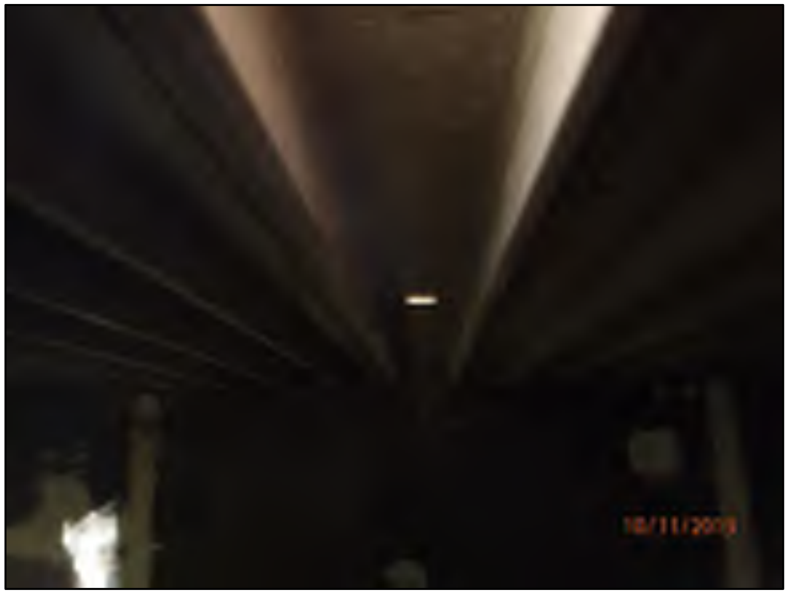
Concrete infill experiencing moderate deterioration

On the interior of the tank, there are a few locations where the concrete infill between the double tee beams is exhibiting some deterioration. The reinforcing is exposed due to the concrete cover previously spalling off. Although this exposed reinforcing at the infill does not pose a structural concern, it does create a maintenance issue and should be repaired.

At the exterior, the roof-to-wall joint appears to have been patched and sack finished. Cracking is occurring in the patchwork, and some minor spalling at the top of wall exists. Cracking will continue to be an ongoing problem at this location due to the flexible nature of the joint. Minor spalling may also occur at the top of wall/concrete infill. Ongoing maintenance may be required, but overall, the wall and roof joint appear to be in sound condition for static loading conditions.

Patching at roof-to-wall joint experiencing moderate deterioration

Interior Roof



Roof double tees

The roof slab is constructed of precast double tee panels spanning between the perimeter walls. These panels are welded together at various steel embed plates along the panel edges. The joint between the panels appears to have a mastic or poly-based sealant the full length of joint. The underside of the roof was inspected from the interior of the tank, and hammer sounding was performed near the hatch to determine concrete soundness and check for delaminations. Near the overflow pipe, some cracking was observed in the flange of the double tee; however, no delamination or excessive rust stains were observed to cause concern. Minor surface rusting stains were present throughout the underside of the roof, likely due to inadequate concrete cover. However, no surface delamination or spalling of the concrete (generally associated with severe reinforcement corrosion) was observed. Near the hatch opening some deterioration has occurred, exposing some of the aggregate. The underside of the roof slab is in fair to good condition, with some minimal corrosion occurring throughout. Regular inspection should be performed to evaluate whether ongoing deterioration is progressing and/or if maintenance is needed.

Cracking on underside of roof panel

Rusting of reinforcing on underside of roof slab, lack of concrete cover

Exterior of Roof of Tank

The concrete double tee roof appears to be covered with a tar and gravel roof. A tar and gravel roof consists of layers of asphalt and tar paper adhered with applications of molten asphalt. It appears that, for this application, a one-inch layer of sand was used between layers of asphalt tar paper. The laminated layers then received a top finish of gravel, some of which became embedded in the hot asphalt, and some of which lies loose on the surface of the roof. The purpose of the gravel is to shield the asphalt from the damaging effect of sun exposure. Over the years, many small trees have sprouted up in various locations, and seams of the tar paper have separated. From discussions with City staff little to no maintenance on the roof has been performed over the years, indicating this is likely the original roofing. The life expectancy of a tar and gravel roof is 20 years; this roof has far exceeded the normal life span. Keller Associates recommends the roofing system be replaced.

Tar and gravel roofing with tree growth

Peeling of roofing system

Roof Vent

The vent in the roof appears to be in adequate condition. The ventilator is not secure against vandalism, and could allow dust and other contaminates to get into the reservoir. Keller Associates recommends the vent be replaced with a security vent to prevent contamination of the reservoir.

Roof access hatch and vent

Access Hatch

There is one manway access hatch into the tank on the south side of the roof. The hatch appears to be in adequate condition, and provides a lip over the edge to prevent exterior water intrusion. No locking mechanism exists. Keller Associates recommends the hatch be modified to incorporate a lock to prevent against vandalism.

Overflow Outflow

The termination of the overflow was observed; the fine mesh screening was damaged and did not enclose the pipe. The fine mesh screen should be replaced to prevent intrusion into the tank.

Overflow outflow mesh is damaged

Conclusions

Under current conditions, the tank appears to be resisting the static loads, is in reasonably good shape for the age of structure, and has minimal deterioration on both the exterior and interior of the tank. The life expectancy of a prestressed concrete tank under static loads can be expected to be anywhere from 50-100 years, depending on location, construction methods, performance and maintenance. Overall, the tank is capable of performing in its current function for many more years under static loading conditions. As this tank appears to be in sound condition, it would be reasonable to assume this tank to have a life expectancy of another 20 years, and possibly even greater, with ongoing maintenance and regular inspections. This of course is based upon no significant seismic event occurring during that time period.

Under dynamic loading conditions, which would occur under a design level earthquake, the tank may have some vulnerabilities. A seismic evaluation or analysis was not part of this scope; however, based on the history of prestressed concrete tanks, these types of tanks have performed well in seismic events. Some vulnerabilities that may exist appear to be at the roof-to-wall connection and wall-to-footing connection, as both of these connections are unknown and could not be verified at the time of inspection.

Recommendations

Keller Associates recommends the following improvements and procedures if the City elects to keep the tank in service:

- Sand is an ongoing maintenance issue, and should be removed during inspections to observe the condition of the floor and the wall-to-base joint.
- Replace all overflow pipe supports and bolts associated with overflow piping with stainless steel hardware. Clean and remove rust buildup on overflow pipe, specifically at pipe flanges.
- Repair and patch reinforcing and concrete infill between double tee beams where reinforcing is exposed and rusting.
- Replace tar and gravel roof with new membrane roof.
- Replace roof vent with new security roof vent.
- Provide locking mechanism on access hatch.
- Provide new fine screen on overflow outflow.
- Consider lowering the top of outlet pipe to increase usable storage. Maintain penetration through floor with a minimum of 8" clear from top of slab.
- Consider providing proper drain outflow to allow complete drainage of tank without pumping.
- The exterior coating and sack finish is primarily an aesthetic feature; ongoing maintenance and/or replacement of finish to be completed as necessary by the City.
- Regular tank inspection should be conducted to observe conditions and evaluate maintenance needs. These can be conducted by divers every two years with tank full of water, and every five to ten years with tank drained. Particularly, inspections should note interior coating condition and rust staining on underside of roof slab/beams to determine ongoing deterioration or maintenance needs.

Clearwater Geosciences, LLP
Ground Water Development and Exploration

September 27, 2013

Keller Associates, Inc.
Mr. Marvin Fielding
356 W Sunnyside Rd, Suite B
Idaho Falls, ID 83402

RE: AMMON WELL #6 WELL ANALYSIS REPORT

Dear Mr. Fielding:

This letter transmits my analysis of Well 6. The well has a bridge at 321 ft that prevented video logging to the total depth of 365 ft. Sand content was within state standards at a flow rate of 600 gpm but at flow rates above this, the sand content was unacceptable. Because the well is in a building and a drilling rig cannot be placed over the well, there is not much that can be done to reduce the sand. There appears to be two options; use the well as is, but pump at a lower rate or drill a new well. Details and findings of this study are presented below.

Pumping Test

On September 16, 2013 a pumping test was conducted in Well 6 using the existing pump. We attempted to access the water level monitoring tube but an installed pressure transducer prevented access and it could not be removed from the water level access tube. No water levels were recorded during pumping. A Rossum Sand Tester was installed on the discharge line for the pump. Water from the well was pumped to the large water storage tank adjacent to the well house. The water flow rate was read in the sump located between the well house and the storage tank by City of Ammon Personnel. City employee's also made changes to the well flow rate using the installed VFD. Prior to this test the well had set idle for at least 3 years.

The basic procedure was to run the pump at the initial rate of 1400 gpm, make a sand measurement and then decrease the flow rate by about 200 gpm, perform another 10 minute sand test, decrease the flow rate by another 200 gpm, take a sand reading and so on. This was done until the sand rate was less than 5 ppm (the Idaho State Standard). Flow rates and sand content are presented in Table 1. Sand content started out extremely high and a full 10 minute test could not be run because it would have filled the test tube on the sand tester with sand. As the pumping rate was decreased, the sand content also decreased.

Plots of the data are presented in Figure 1. The upper plot shows all the data collected during testing and the lower plot shows the sand content at flow rates below 1000 gpm. Sand content generally follows an exponential curve as shown in the upper plot with an R squared value of 0.993, indicating a good match to the data. The increase in sand content with higher flow is caused by the increased velocity of the water entering the well having a greater capacity to transport sand. As can be seen the state level for sand content (5 ppm) was not reached until flow was decreased to 600 gpm.

Table 1 Sand content in parts per million by volume versus flow rate in gallons per minute.

ppm	gpm
623	1400
275	1350
158	1200
24	1000
5.8	800
1.05	600

Pump Removal

Pump Tech removed the existing pump and pump column for the well on September 19, 2013 using a high capacity overhead crane to lift the pump through the roof port. The pump was set at a depth of 170 ft. The static water level was measured from the top of the well casing at 162 ft. Pump Tech took the pump to their shop and the pump column was stored in the vacant lot northwest of the water tank. The 10 inch pump column is heavily rusted but no breaks or weak spots were identified during removal.

Video Logging

Cushman Well Drilling performed a downhole video logging of the well on September 24, 2013, using a color camera with side view capabilities. A recording was made and it is on file with Keller Associates in Idaho Falls. The objectives of the video survey were to evaluate the integrity of the steel well casing and to understand where sand was entering the well. A garden hose left running into the well for several days to flush the well and enhance visibility. Rust was severe on the well casing throughout most of the length of the well. It was extremely thick above and just below the water table. A number of large rust flakes, several inches across, were observed. It was difficult to tell the thickness of the rust but in some locations bubbles or nodules of rust may have extended to as much as 3/8ths of an inch above the surface of the casing. No breaches in the casing were observed and the casing welds appear to be solid and intact.

The camera was stopped at 321 ft by a bridge consisting of debris, sediment and rock. It appeared that that the bridge did not completely block the well. A dark shadow on one side (about 1/3 the circumference of the casing) indicates an opening for water to flow upward from below. An opening past the bridge must exist because the dense overlying basalt formation cannot the produce the 1400 gpm provided during the pumping test. The camera was retrieved from the well with no issues. On the recording several long, badly rusted intervals are examined, but these do not appear to penetrate the full thickness of the well casing.

Discussion

The existing well has a severe sand problem at flow rates above 1000 gpm. The sand pumped from the well most likely comes from the sandstone layer between 335 and 360 ft (see well log in Attachment 1). Access to the well is restricted by the existing building, which precludes putting a drilling rig over the well for a work over without tearing down part of the building. Because the outcome of a well work-over for eliminating sand pumping are difficult to predict in advance it is not recommended that the alternative of tearing down a part of the building be pursued. Thus, any work to be performed will have to be accomplished using a crane. This narrows the options to

1. Pumping Well 6 at 600 gpm
2. Drill a new well.

A Cost estimate for drilling a replacement well is provided in Table 2. The proposed well would be 390 feet deep and be completed with 60 ft of stainless steel wire wrapped screen and a sand pack. The targeted flow rate for the well is 1,000 gpm. The estimated cost is ~$160,000 not including a new pump and motor. An alternative is to drill a deep test hole to 600 feet to determine if more water can be found at depth in sand free, fractured basalt. It is not known if highly fractured basalt exists at depth at this location. If it does exist it might produce more that 1,000 gpm.

Clearwater Geosciences, LLP
Ground Water Development and Exploration

Sand Testing of Ammon Well #10

At the request of Rick Williams, a sand test was conducted in Ammon 10 on September 26, 2013. A Rossum Sand Tester was attached to the main discharge line of the pump in an existing ½ inch threaded port. Sand measuring started immediately upon the start up of the pump and ran for 10 minutes. The well was pumped at 1000 gpm, under 82 psi. The measured sand content was 2.64 ppm and the data sheet is presented in Figure 2. It was noted that sand deposition was high after start up and diminished with continued pumping.

Respectfully,

Thomas R. Wood, PhD, PG

9/26/2013

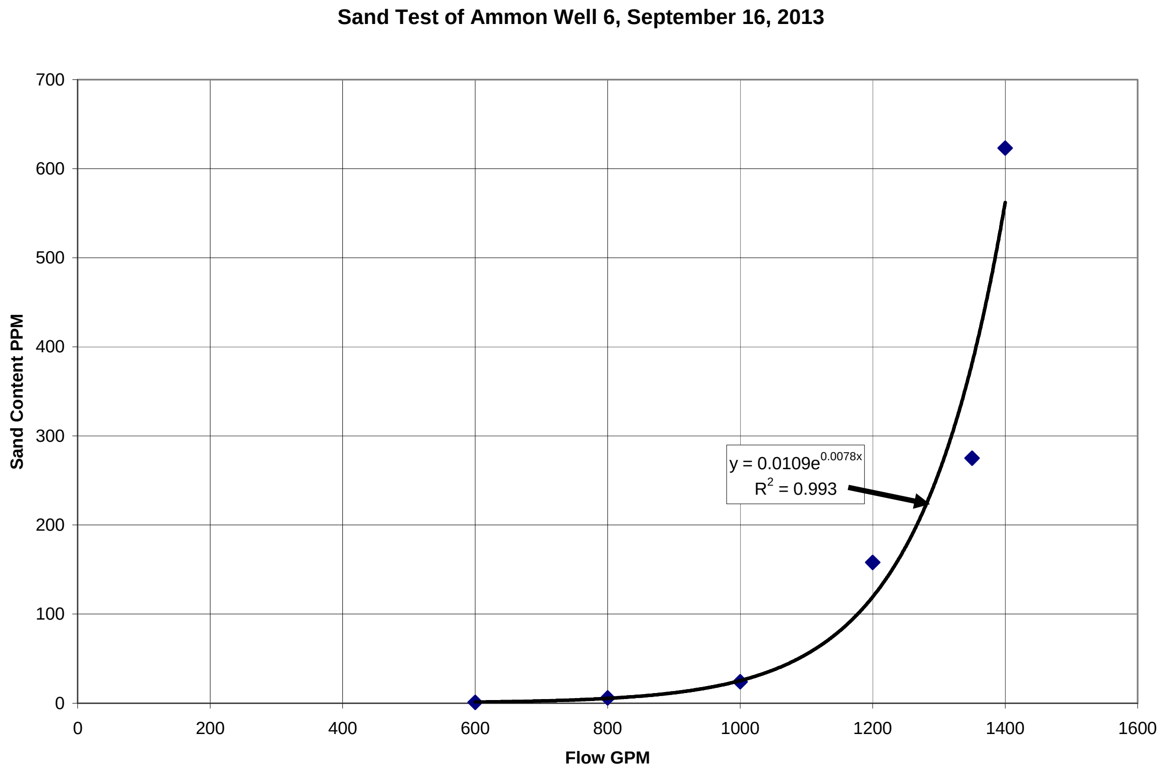
1818 East 49th South, Idaho Falls, ID 83404, Ph. 208-589-5555

Table 2 Cost estimate for drilling a replacement well.

Geologists Estimate Sheet

Project	Ammon 6 Replacement Well	Number	
Contractor	Unknown	Contract Amount	
Submitted	Tom Wood	September 27, 2013	

Item Number	Description	Estimated Quantity	Unit	Unit Price	Total Amount
1	Mob-Demob	1	LS	$7,500	$7,500
2	6-inch test hole	9	LF	$50	$0
3	Set Temporary Surface Casing 20-inch	140	LF	$260	$36,400
4	Drill Nominal 20-inch Open hole	250	LF	$200	$50,000
5	16-inch Steel Well Casing (0.375 - inch)	300	LF	$60	$18,000
6	16-inch well screen	60	LF	$250	$15,000
7	Filter Pack	2	CY	$800	$1,600
8	Bentonite	15	CF	$25	$375
9	Cement Sanitary Seal	10	CY	$500	$5,000
10	Well Development	24	HR	$350	$8,400
11	Mob/Demob test pump	1	LS	$7,500	$7,500
12	Pumping Test	30	HR	$175	$5,250
13	Sampling	1	LS	$2,800	$2,800
	Total				$ 159,625.00



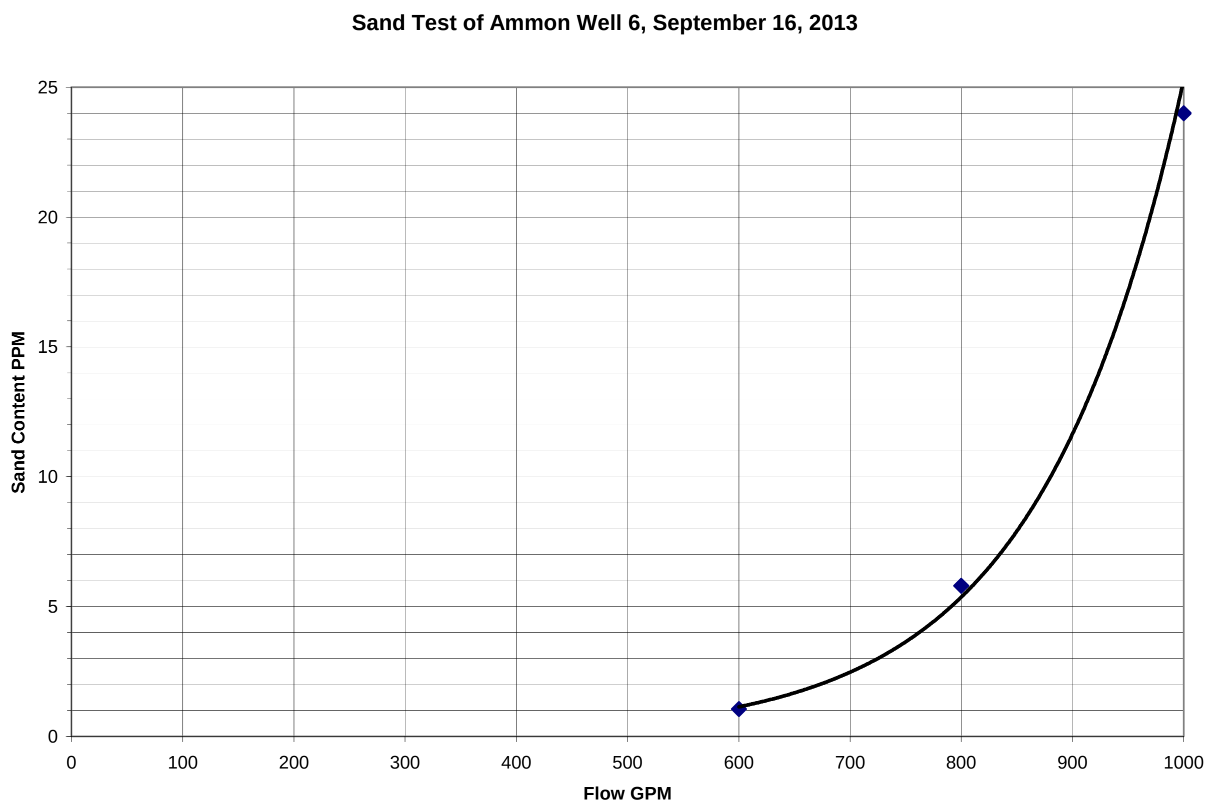


Figure 1 Sand content versus flow rate, upper is all data and lower is sand content a lower flow.

Clearwater Geosciences, LLP
Ground Water Development and Exploration

Sand Content Data Sheet
Rossum Sand Tester

Project: City of Ammon Well 10
Date: 9/26/13
Location: ½ inch port on Main Line

Test Number	**Date**	**Time**	**Flow Rate**	**Volume of Sand in Rossum Sand Tester**	**Parts per Million by volume**
1	9/26/13	9:25-9:35	1000 gpm	0.05 ml	2.64 ppm (start up sand test)

REGISTERED PROFESSIONAL GEOLOGIST
STATE OF IDAHO
9/26/13

Figure 2. Sand content data sheet for Ammon Well 10.

1818 East 49th South, Idaho Falls, ID 83404, Ph. 208-589-5555

Appendix 1
Well Log for Ammon #6

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Administration

WELL DRILLER'S REPORT

RECEIVED

State law requires that this report be filed with the State Reclamation Engineer within 30 days after completion or abandonment of the well.

Department of Water Resources

1. WELL OWNER

Name: City of Ammon
Address: Ammon, Idaho
Owner's Permit No. 25-7443

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

☐ Domestic ☐ Irrigation ☐ Test
☒ Municipal ☐ Industrial ☐ Stock

4. METHOD DRILLED

☒ Cable ☒ Rotary ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 24 inches Total depth 365 feet
Casing schedule: ☒ Steel ☐ Concrete

Thickness	Diameter	From	To
.250 inches	24 inches	+2 feet	54 feet
.250 inches	20 inches	0 feet	113 feet
.250 inches	16 inches	+2 feet	263 feet
inches	inches	feet	feet
inches	inches	feet	feet

Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch
Size of perforation ____ inches by ____ inches

Number	From	To
perforations	feet	feet
perforations	feet	feet
perforations	feet	feet

Well screen installed? ☐ Yes ☒ No
Manufacturer's name
Type Model No.
Diameter Slot size Set from feet to feet
Diameter Slot size Set from feet to feet

Gravel packed? ☐ Yes ☒ No Size of gravel
Placed from feet to feet

Surface seal? ☒ Yes ☐ No To what depth 263 feet
Material used in seal: ☒ Cement grout ☐ Puddling clay

6. LOCATION OF WELL

Sketch map location must agree with written location.

N
W E
S

County: Bonneville

SW ¼ NE ¼ Sec. 27 T. 2 N/S R. 38 E/W

7. WATER LEVEL

Static water level 57 feet below land surface
Flowing? ☐ Yes ☒ No G.P.M. flow
Temperature ____ °F. Quality Good
Artesian closed-in pressure ____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Draw Down	Hours Pumped

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
30	0	2	Soil Clay		
	2	15	Gravel Sand		
	15	32	Silt Gravel		
30	52	54	Clay Broken Basalt		
	54	62	Fine Gray		
	62	80	Clay Gravel		
	80	82	Sand	X	
	82	90	Silt Gravel		
	90	95	Sand Gravel	X	
	95	103	Clean Gravel	X	
	103	120	Sand Gravel	X	
	120	135	Loose Lava	X	
	135	137	Clay Gravel		
20	137	140	Sandstone Loose Lava		
	140	165	Fine Lava		
	165	173	Fine Brown & Gray Basalt		
	173	181	Hard Basalt (Caving)	X	
	182	187	Loose Basalt Clay		
	187	214	Fine Brown Basalt		
	214	217	Broken Basalt Clay		
	217	240	Fine Brown Basalt		
16	240	262	Hard Basalt		
	262	280	Hard Basalt Gray		
	280	290	Fine Basalt Gray		
	290	305	Hard Basalt Green		
	305	327	Fine Hard		
	327	335	Loose Lava Red Clay	X	
	335	360	Sandstone	X	
20	360	365	Gravel Red Clay	X	

G11-563

10. Work started Oct. 73 finished Mar. 74

11. DRILLERS CERTIFICATION

This well was drilled under my supervision and this report is true to the best of my knowledge.

Firm Name: Andersen Well Drilling Contractors Firm No. 65
Address: 1258 E 17th St. Idaho Falls, Idaho
Signed by: [signature] Date

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE, BLUE, AND PINK COPIES TO THE DEPARTMENT

Clearwater Geosciences, LLP
Ground Water Development and Exploration

November 19, 2013

Keller Associates, Inc.
Mr. Marvin Fielding
356 W Sunnyside Rd, Suite B
Idaho Falls, ID 83402

RE: AMMON WELL #6 WELL RETROFIT WITH PART OF THE BUILDING REMOVED

Dear Mr. Fielding:

You requested that I consider options for Ammon Well 6 if a portion of the well house was torn down. In that case I will assume that a drilling rig could be placed over the well and the well worked over.

The first step would be to remove the bridge at 321 ft and clean out slough material in the well to the original total depth of the well (365 ft). At this point we have two options; 1) remove the sand from the open interval (263 – 365 ft) using a well screen or drill deeper in the hopes of encountering a deeper water bearing zone. Unfortunately, the drilling regulations will not allow mixing of the water from this interval with water from a deeper interval, so drilling deeper means we will have to pick up all the water from a lower zone. There is no information nearby on the water bearing characteristics of the deeper formations, so, drilling deeper would be exploration. I estimate that drilling a test well an additional 135 ft to be about $20,000. Due to the level of uncertainty with this approach, this is the limit of my cost analysis, if the City is interested; I can do a more thorough break down.

The most straight forward approach is to install a Muni-Pak (Johnson Well Screen Trademark), which is basically two well screens with a sand pack in between. The screens and the sand pack are sized to eliminate the sand in a well. I was unable to recover sufficient sand in the pumping test but I estimate a 20 thousands slot screen would be sufficient to remove the sand. A complete sand analysis needs to be done prior to final design. The 12-inch casing would be run to land surface because of the degradation of the existing 16-inch casing.

A Cost estimate for retrofitting a Muni-Pak in Well 6 is provided in Table 1. I assumed 60 ft of Muni-Pak with 40 ft at the bottom and two 10 ft lengths between 265 and 325 ft. The targeted flow rate for the modified well is 2,000 gpm. This is just a guess since I could not get any drawdown data during pumping of Well 6.

Respectfully,

Thomas R. Wood, PhD, PG

11/19/2013

1818 East 49th South, Idaho Falls, ID 83404, Ph. 208-589-5555

Table 1 Cost estimate for retrofitting the well.

Ammon Well 6 Replacement					
Cost Estimate					
Project	Ammon 6 Well Retro Fit	***Number.....***	0		
Submitted	Clearwater Geosciences, LLP	***Date ....***	November 19, 2013		
Item Number	**Description**	**Estimated Quantity**	**Unit**	**Unit Price**	**Total Amount**
	Ammon Well 6 12-inch Channel Pack				
1	Mob-Demob	1	LS	$7,500	$7,500
2	16-inch Drilling and Hole Cleaning	12	HR	$350	$4,200
3	Well Development With Rig	12	HR	$350	$4,200
4	Video Well	1	LS	$750	$750
5	12-inch Tail and Head Pipes	305	LF	$60	$18,300
6	10x12-inch Muni-Pack Screen (20 thousandths slot)	60	LF	$383	$22,950
7	K-Packer 12 to 16-inch	1	EA	$2,137	$2,137
8	Mob/Demob test pump	1	LS	$7,500	$7,500
9	Pumping Test / Well Development	30	HR	$175	$5,250
10	Sampling	1	LS	$2,800	$2,800
11	Design, Permitting and Reporting	1	LS	$9,000	$9,000
12					
13					
14					
				TOTAL	$84,587

City of Ammon

Estimate of Probable Cost

Alternative 1 - Repair Existing Well and Construct New Building

Tank Improvements		
1	Replace Tank Roof, Vent and Access Hatch Lock	$46,100
2	Piping Improvements	$4,000
3	Repair/patch Interior Concrete at Wall/lid Joint	$12,000
4	Remove sand	$14,000
Subtotal - Tank Improvements		**$76,100**
Repair Existing Well		
1	Repair existing well (see breakdown)	$76,000
Subtotal - Repair Existing Well		**$76,000**
Building		
1	Demo Existing Building	$10,000
2	1600 SF Masonry Building	$100,000
3	New RMP transformer	$10,000
4	Pumps and Motors	$60,000
5	300 KVA Generator	$80,000
6	VFD's	$32,000
7	Electrical	$110,000
8	SCADA	$40,000
Subtotal - Building		**$442,000**
Emergency Water Fill Station		
1	10'X10' Fenced Area	$900
2	1" Tap	$1,000
3	Frost Free Yard Hydrant	$600
4	Gravel Pad	$300
Subtotal - Emergency Fill Station		**$2,800**

Sub-Total Repair Existing Well Alternative	$596,900
Engineering @ 15%	$89,535
Contingency @ 25%	$149,225
Total Repair Existing Well Alternative	**$835,660**

KELLER associates

City of Ammon

Estimate of Probable Cost

Alternative 2 - Construct New Well and Upgrade Building

Tank Improvements		
1	Replace Tank Roof, Vent and Access Hatch Lock	$46,100
2	Piping Improvements	$4,000
3	Repair/patch interior concrete at wall/lid joint	$12,000
4	Remove sand	$14,000
Subtotal - Tank Improvements		**$76,100**
New Well		
1	New well (see breakdown)	$160,000
2	Pump and motor	$12,000
3	VFD	$10,000
4	Drop pipe	$5,000
5	Pitless Adapter	$12,000
6	12" Pipe to existing	$10,000
7	Abandon Existing Well	$8,000
Subtotal - New Well		**$217,000**
Building Improvements		
1	Building Repairs	$24,000
2	15'X25' Generator Addition	$30,000
3	Pumps and Motors	$60,000
4	Generator	$80,000
5	VFD's	$32,000
6	Electrical	$110,000
7	New RMP Transformer	$10,000
8	SCADA	$40,000
Subtotal - Building		**$386,000**
Emergency Water Fill Station		
1	10'X10' Fenced Area	$900
2	1" Tap	$1,000
3	Frost Free Yard Hydrant	$600
4	Gravel Pad	$300
Subtotal - Emergency Fill Station		**$2,800**
Sub-Total New Well Alternative		$681,900
Engineering @ 15%		$102,285
Contingency @ 25%		$170,475
Total New Well Alternative		**$954,660**

KELLER associates

nbwarchitects p.a.

ARCHITECTURE / PLANNING / INTERIORS

May 29, 2013

Marvin Fielding
Keller Associates, Inc.
356 W. Sunnyside, Ste. B
Idaho Falls, Idaho 83404

Re: Well No. 6 Pump House, Ammon, ID

Dear Marvin,

We appreciate the opportunity to submit the following proposal for work on the referenced project. The proposal is for partial architectural services including construction documents, bidding/negotiation consultation and minimal construction administration services. We have assumed that the project bidding and construction administration will be handled by Keller.

Our scope of work for the project as we understand it is as follows.

> Provide selected architectural services including design, construction documents, shop drawing and submittal review, and documentation for the following project:
>
> > Upgrade of Well No. 6 Pump House including building fascia, soffit, masonry cleaning, window fill in, door refurbish and wood trim coving. Project cost estimated by NBW at $23,750.00.
>
> Civil engineering and mechanical engineering is excluded from our scope of services.

The proposed fee for these services is $2,950.00 not including reimbursable expenses

We appreciate the opportunity to present this proposal to you. If these figures are acceptable, we are able to begin work immediately upon your authorization. If you have any questions or comments, please contact us immediately.

Sincerely,

NBW Architects P.A.

Kevin R. Boddy

Kevin R. Boddy, AIA
Architect

KRB/tba

nbwarchitects p.a.

ARCHITECTURE / PLANNING / INTERIORS

Architectural Scope of Work & Estimate of Cost

Well No.6 Pump House

City of Ammon ID.

Well No. 6 is located in the Hillview Village subdivision located in the center of in the City of Ammon Idaho and was constructed in the mid 1950's. The pump house is comprised of a 1,000 SF post and beam building utilizing steel columns and wood Glu-Lam beams with masonry infill panels between the columns. The roof structure is constructed of T&G wood decking and a 10 year old single ply roof membrane installed over an existing built-up- roof system.

The structure appears to be structurally sound and generally in good shape. The exterior shows signs of water damage and some efflorescence on the masonry. The single ply roofing system appears to be water tight but there are several areas where water is being shed from the roof and causing problems.

The following is a detailed look at the existing conditions that we feel requires immediate attention:

1. The building fascia, soffit and exposed glu-lam beam system show mild water damage caused by water being shed from the roof . The wood trim associated with the steel columns that run vertically below each of the beams show signs of wreathing and separation from the adjacent masonry construction
    a. *Recommendation: Provide new gutter and down spout system to control the shedding of water from the existing roof. Provide new pre-finished metal fascia and soffit materials to cover damaged areas and wrap the existing exposed beams. Wrap existing wood trim at column location with pre-finished metal materials.*
    b. *Estimate of probable cost =$9,980.00*

2. The exterior masonry and portions of the interior show signs of efflorescence and some minor damage caused from the freeze thaw cycle created by the moisture from the roof as well as the lawn irrigation system.
    a. *Recommendation: Remove efflorescence from building with approved masonry cleaner Adjust existing lawn irrigation system so that it limits the amount of water sprayed on the masonry surfaces. Tuck point areas of damaged masonry construction*
    b. *Estimate of probable costs = $5,140.00*

Scott I. Nielson, AIA   Kevin R. Beddy, AIA   Jarrod H. Wyatt, AIA
Members of the American Institute of Architects

3. Several of the exterior windows are in need of repair or replacement.
    a. *Recommendation: Replace glazing and associated damaged frames. Where the north bay of windows has been covered, we recommend that all of the windows be removed and infilled with stud framing then covered with a pre-finished insulating panel.*
    b. *Estimate of probable costs = Window replacement $350.00, Panels $5,400.00*

4. All of the doors are in need of paint and repair. The locking systems on each door stick and are to some extend in need of replacement.
    a. *Recommendation: Remove the existing door locksets and deadbolts, sand the doors sufficiently to receive new enamel paint system and then reinstall the new locksets and deadbolts.*
    b. *Estimate of probable costs = $950.00*

5. Gaps between masonry & wood or masonry & steel are showing and are in need of repair.
    a. *Recommendation: Rake all joints between wood masonry and metal surfaces then apply elastomeric sealant and backer rod. Work to include but not limited to doors, Windows, louvers & grills and columns.*
    b. *Estimate of probable costs = $750.00*

Currently the structure is of limited use to the City of Ammon but critical if the need arises. We feel that with the total estimated costs of **<u>$23,570.00</u>** that the work indicated above would be one step towards extending the life of the structure and help maintain its usefulness to the City.

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City Pump Station Inventory 7-12-2012

Facility	Grounds	Building	Equipment	Comments
Pump Station 2	Landscaped & Maintained by Others	Fair Exterior, Interior Recent Remodeled	Submersible Pump, Aged, Peak Pumping	Needs Equipment Upgrades SCADA
Pump Station 3	Unmaintained, Not visible	Poor-Fair Exterior, Very Poor Interior	Deep Well Pump, Aged, Peak Pumping	Needs Equipment Upgrades SCADA
Pump Station 5	Landscaped, Some Maintenance, Not Visible	Partial Reconstruction Exterior and Interior	Deep Well Pump, Aged, Peak Pumping	Needs Equipment Upgrades SCADA
Pump Station 6	Landscaped, Not Maintained	Deteriorating, Needs remodeled, rebuilt	Inoperable needs rebuilt	
Pump Station 7	Landscaped, Recent Construction maintained by others	Good Exterior, Interior needs painted	Deep Well Pump, Aged, Peak Pumping	Needs Equipment Upgrades SCADA
Pump Station 8	Unlandscaped, pavement, gravel not visible	Concrete Block in good condition,	Deep Well Pump, Boosters, Generators	Pump Bldg needs paint inside, outside
Pump Station 9	No Landscaping, Unmaintained grounds, large lot	New Concrete Block, Excellent inside and out	Deep Well Pump, Boosters, Generator	Possible Community Garden or Tree Farm
Pump Station 10	Unfenced, No Landscape, unmaintained, 100'x 100'	New Concrete Block, Excellent inside and out	Deep Well Pump, Generator	Security Concerns, Possible Development Concerns
Pump Station 11	No Landscape inside or out minimum maintenance	New Concrete Block, Excellent inside and out	Deep Well Pump, Generator	
Pump Station 12	Landscape outside, gravel pavement inside, park maintenance	New Concrete Block, Excellent inside and out	Boosters, Generator	

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CITY OF Ammon

Communities Master Plan

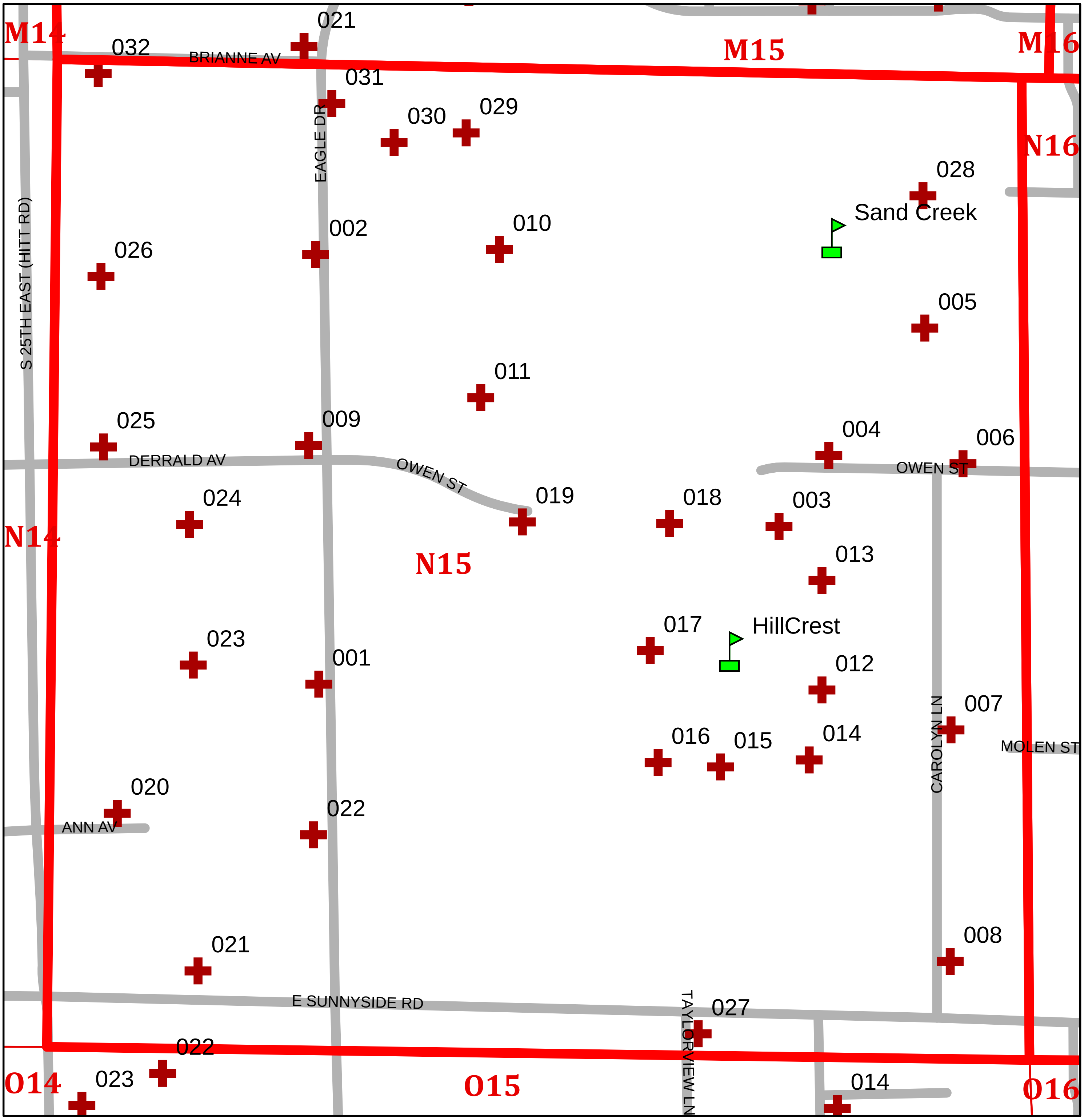
HYDRANT INVENTORY

July 2014

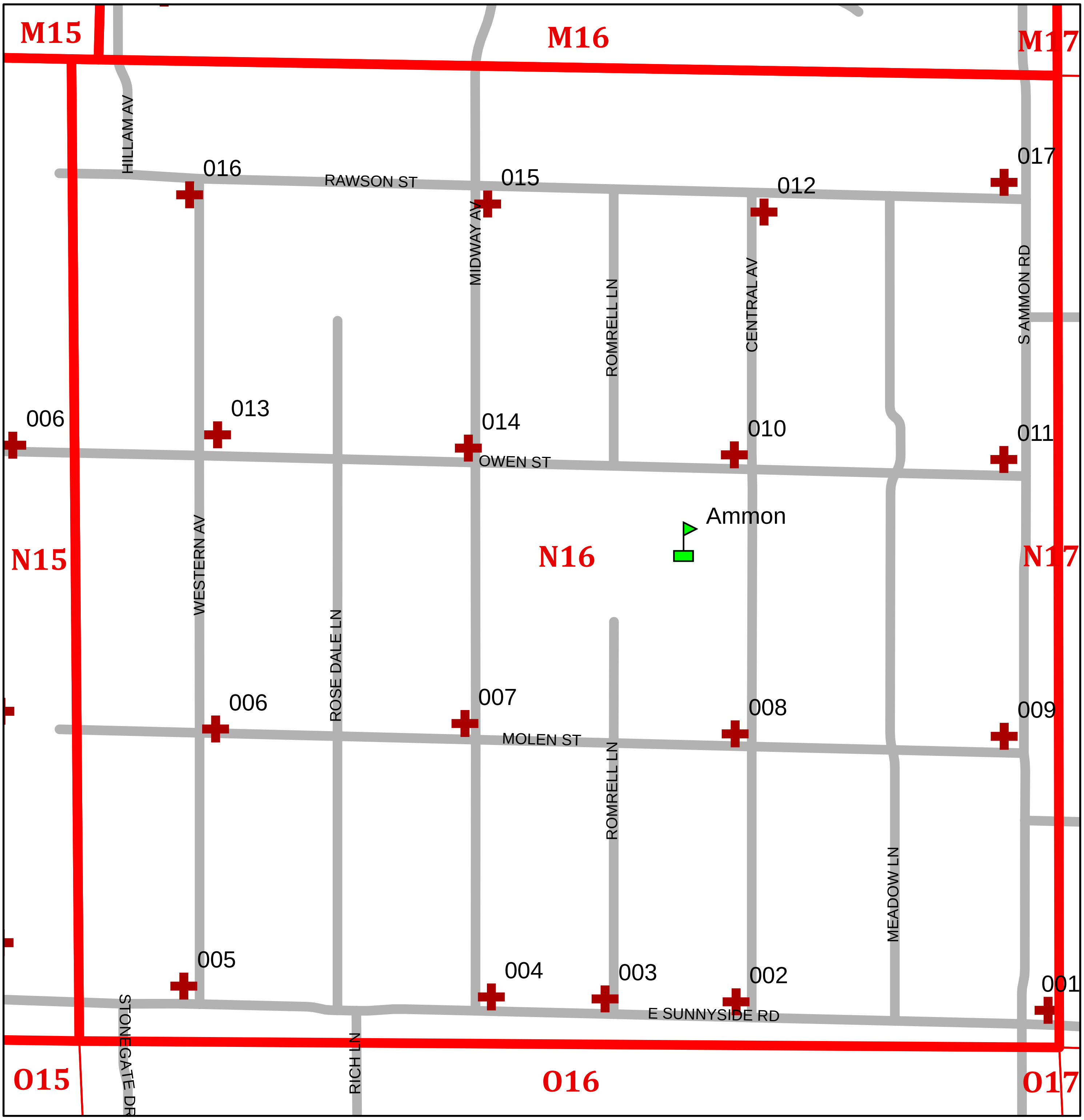
KELLER associates

Ammon Communities Master Plan
City Fire Grid

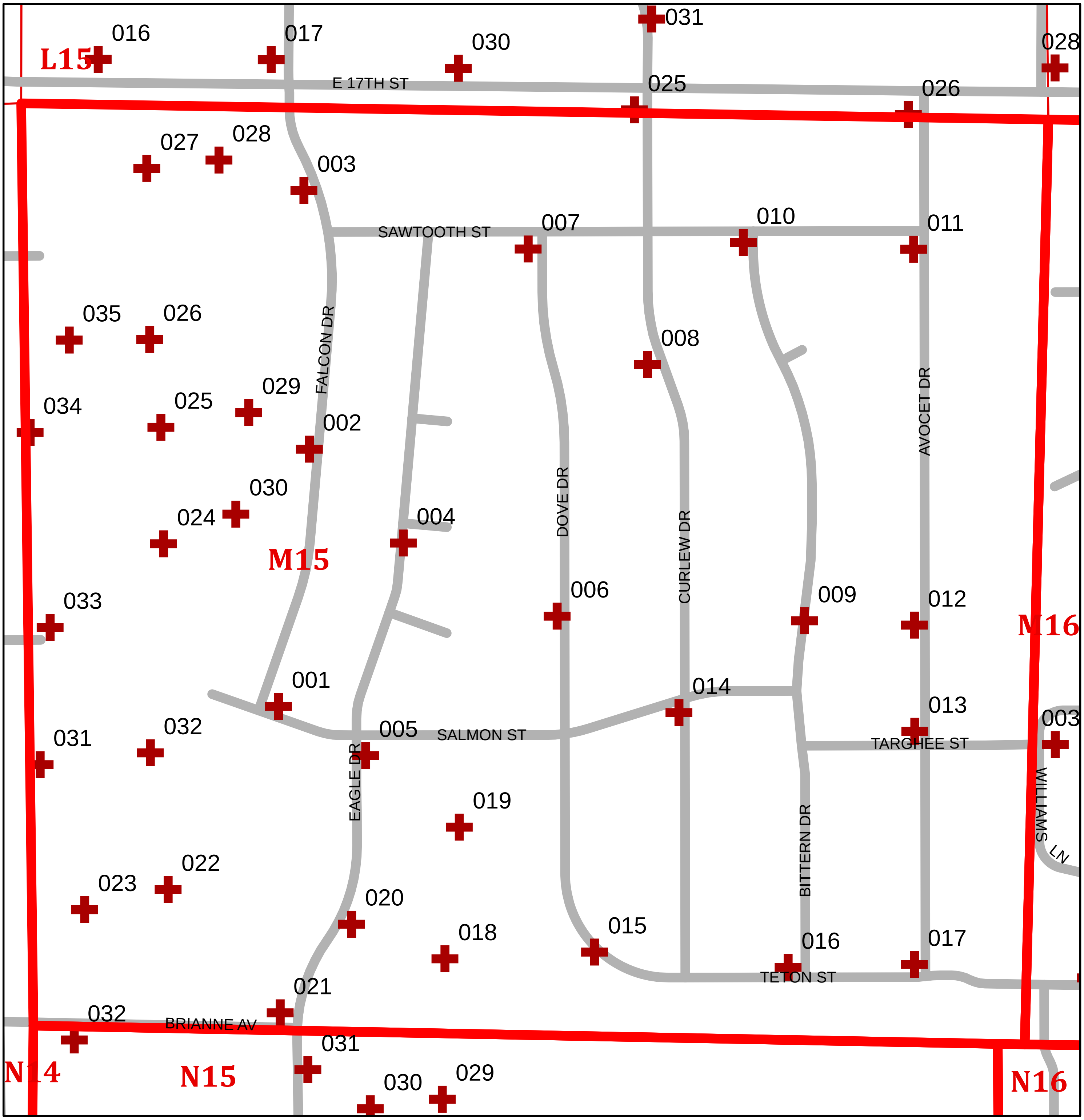
Ammon City Fire Grid
N15



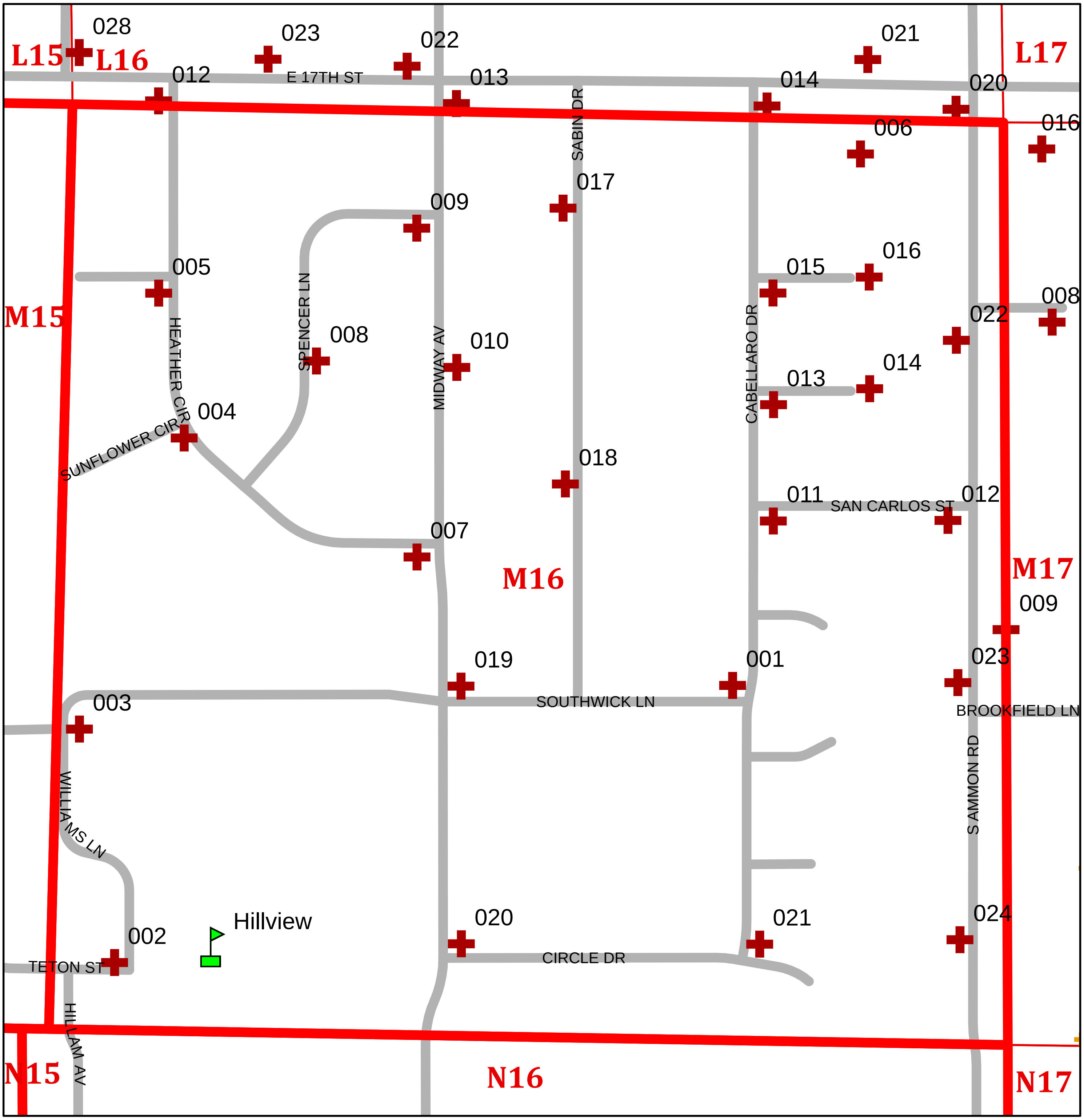
Ammon City Fire Grid
N16



Ammon City Fire Grid
M15



Ammon City Fire Grid
M16



Hydrant Inventory

Fire Grid	Hydrant Number	Hydrant ID	Pictures	Manufacturer	Year	Bury Depth (ft)
N15						
N15	001	N15-001	131-133	Clow	2003	6.5
N15	002	N15-002	110-112	Clow	1996	
N15	003	N15-003	10-12	Mueller	1990	
N15	004	N15-004	34-36	Waterous	1986	5.5
N15	005	N15-005	40-42	Kennedy	1985	
N15	006	N15-006	37-39	Waterous	1986	5.5
N15	007	N15-007	28-30	Waterous	1995	6.0
N15	008	N15-008	25-27	Waterous	1996	6.0
N15	009	N15-009	107-109	Clow	1996	
N15	010	N15-010	122-124	Clow	Buried	6.5
N15	011	N15-011	125-127	Clow	2002	6.5
N15	012	N15-012	16-18	Mueller	1990	
N15	013	N15-013	13-15	Mueller	1991	
N15	014	N15-014	19-21	Mueller	1990	
N15	015	N15-015	22-24	Mueller	1990	
N15	016	N15-016	1-3	Mueller	2006	
N15	017	N15-017	4-6	Mueller	Concrete	
N15	018	N15-018	7-9	Mueller	1991	
N15	019	N15-019	128-130	Waterous	2000	6.5
N15	020	N15-020	83-85	Clow	2001	6.0
N15	021	N15-021	137-139	Waterous	2006	6.5 24"ext
N15	022	N15-022	134-136	Clow	2001	6.0
N15	023	N15-023	103-106	Clow	2003	
N15	024	N15-024	99-102	Clow	2000	6.0
N15	025	N15-025	90-92	Waterous	1998	6.0
N15	026	N15-026	93-95	Waterous	1998	6.0
N15	027	N15-027	31-33	Waterous	1975	5.0
N15	028	N15-028	43-45	Kennedy	1985	
N15	029	N15-029	119-121	Clow	2002	6.5
N15	030	N15-030	116-118	Clow	2008	7.0
N15	031	N15-031	113-115	Clow	2008	
N15	032	N15-032	96-98	Waterous	1998	6.0
N16						
N16	001	N16-001	83-84	Pacific States	1974	
N16	002	N16-002	19-21	Clow	2005	
N16	003	N16-003	16-18	Clow	2005	
N16	004	N16-004	74-76	Clow	Buried	6.5
N16	005	N16-005	79-82	Clow	2005	
N16	006	N16-006	40-42	Pacific States	1965	
N16	007	N16-007	36-38	Pacific States	1965	
N16	008	N16-008	32-34	Pacific States	1965	
N16	009	N16-009	26-30	Pacific States	1962	
N16	010	N16-010	51-53	Pacific States	1968	
N16	011	N16-011	54-56	Pacific States	1966	
N16	012	N16-012	61-63	Pacific States	1954	
N16	013	N16-013	43-46	Mueller	2011	
N16	014	N16-014	48-50	Pacific States	1968	
N16	015	N16-015	64-66	Pacific States	1968	
N16	016	N16-016	68-70	Clow	2013	6.0
N16	017	N16-017	58-60	Pacific States	1962	
N16	Meadow & Sunnyside	Not In GIS	22-24	Clow	2005	6.5

Hydrant Inventory

M15						
M15	001	M15-001	48-50	Pacific States	1963	
M15	002	M15-002	36-38	Pacific States	1963	
M15	003	M15-003	22-24	Waterous	2009	5.5
M15	004	M15-004	74-76	Pacific States	1961	
M15	005	M15-005	55-57	Clow	2007	
M15	006	M15-006	116-118	Mueller	1976	
M15	007	M15-007	86-88	Pacific States	1966	
M15	008	M15-008	78-80	Clow	2007	
M15	009	M15-009	104-105	Waterous	2005	
M15	010	M15-010	101-103	Pacific States	1954	
M15	011	M15-011	97-99	Pacific States	1952	
M15	012	M15-012	106-108	Pacific States	1952	
M15	013	M15-013	109-111	Pacific States	1952	
M15	014	M15-014	113-115	Pacific States	1956	
M15	015	M15-015	120-122	Pacific States	1956	*Damaged
M15	016	M15-016	123-125	Pacific States	1954	
M15	017	M15-017	129-130	Pacific States	1951	
M15	018	M15-018	61-64	Waterous	2005	6.0 24"ext
M15	019	M15-019	58-60	Waterous	2005	6.0 12"ext
M15	020	M15-020	68-70	Waterous	2005	6.0
M15	021	M15-021	65-67	Clow	1996	
M15	022	M15-022	4-6	Waterous	1999	6.0 24"ext
M15	023	M15-023	1-3	Waterous	2007	6.5
M15	024	M15-024	140-142	Waterous	1994	5.5
M15	025	M15-025	137-139	Waterous	1995	5.5
M15	026	M15-026	134-136	Waterous	1994	6.0
M15	027	M15-027	131-133	Waterous	1995	6.0
M15	028	M15-028	149-151	Waterous	1994	6.0
M15	029	M15-029	146-148	Waterous	1994	5.5
M15	030	M15-030	143-145	Waterous	1994	5.5
M15	031	M15-031	10-12	Waterous	1994	
M15	032	M15-032	13-15	Waterous	1995	5.5
M15	033	M15-033	7-9	Waterous	1994	5.5
M15	034	M15-034	16-18	Waterous	1994	6.0
M15	035	M15-035	19-21	Waterous	1994	6.0

Hydrant Inventory

M16						
M16	001	M16-001	40-42	Waterous	1991	5.5
M16	002	M16-002	1-3	Pacific States	1966	
M16	003	M16-003	6-8	Pacific States	1962	
M16	004	M16-004	80-82	Pacific States	1973	
M16	005	M16-005	83-85	Waterous	1990	6.0
M16	006	M16-006	64-66	Clow	2001	
M16	007	M16-007	12-16	Pacific States	1973	
M16	008	M16-008	89-91	Waterous	1990	6.0
M16	009	M16-009	20-22	Clow	2011	5.0
M16	010	M16-010	17-19	Pacific States	1978	
M16	011	M16-011	46-48	Pacific States	1977	
M16	012	M16-012	43-45	Pacific States	1977	
M16	013	M16-013	52-54	Pacific States	1977	
M16	014	M16-014	49-51	Pacific States	1977	
M16	015	M16-015	55-57	Pacific States	1977	
M16	016	M16-016	58-60	Pacific States	1977	
M16	017	M16-017	26-29	Pacific States	1964	
M16	018	M16-018	30-32	Pacific States	1965	
M16	019	M16-019	9-11	Pacific States	1964	
M16	020	M16-020	33-35	Pacific States	1968	
M16	021	M16-021	36-38	Waterous	1993	6.0
M16	022	M16-022	70-72	Pacific States	1977	
M16	023	M16-023	73-75	Pacific States	1979	
M16	024	M16-024	76-78	Pacific States	1979	
M16	S. of Hillview Elem	Not In GIS	132-133	Mueller	2008	
M16	2 @ Wellhouse W. of Hillview Elem	Not In GIS	4-5	Waterous		

L15						
L15	025	L15-025	90-92	Pacific States	1974	
L15	026	L15-026	94-95	Waterous	1975	5.0

L16						
L16	012	L16-012	86-88	Waterous	1990	6.0
L16	013	L16-013	23-25	Pacific States	1978	
L16	014	L16-014	61-63	Pacific States	1977	
L16	020	L16-020	67-69	Pacific States	1977	

Hydrant ID: N15-001
Manufacturer: Clow
Year: 2003
Bury Depth (ft): 6.5

Hydrant ID: N15-002
Manufacturer: Clow
Year: 1996
Bury Depth (ft):

Hydrant ID: N15-003
Manufacturer: Mueller
Year: 1990
Bury Depth (ft):

Hydrant ID: N15-004
Manufacturer: Waterous
Year: 1986
Bury Depth (ft): 5.5

Hydrant ID: N15-005
Manufacturer: Kennedy
Year: 1985
Bury Depth (ft):

Hydrant ID: N15-006
Manufacturer: Waterous
Year: 1986
Bury Depth (ft): 5.5

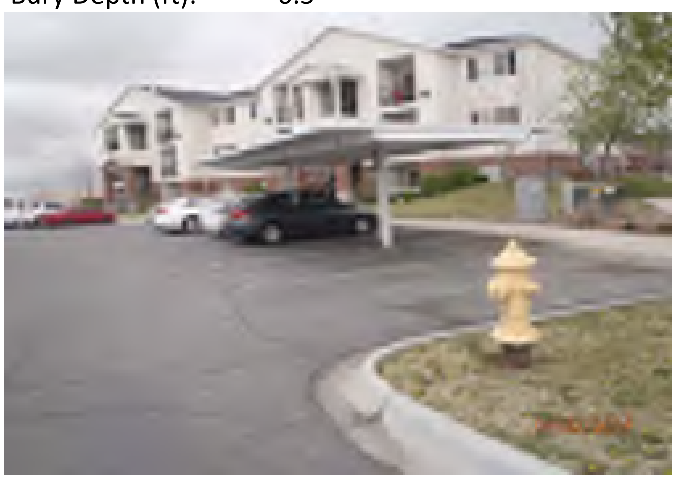
Hydrant ID: N15-007
Manufacturer: Waterous
Year: 1995
Bury Depth (ft): 6.0

Hydrant ID: N15-008
Manufacturer: Waterous
Year: 1996
Bury Depth (ft): 6.0

Hydrant ID: N15-009
Manufacturer: Clow
Year: 1996
Bury Depth (ft):

Hydrant ID: N15-010
Manufacturer: Clow
Year: Buried
Bury Depth (ft): 6.5

Hydrant ID: N15-011
Manufacturer: Clow
Year: 2002
Bury Depth (ft): 6.5



Hydrant ID: N15-012
Manufacturer: Mueller
Year: 1990
Bury Depth (ft):

Hydrant ID: N15-013
Manufacturer: Mueller
Year: 1991
Bury Depth (ft):

Hydrant ID: N15-014
Manufacturer: Mueller
Year: 1990
Bury Depth (ft):

Hydrant ID: N15-015
Manufacturer: Mueller
Year: 1990
Bury Depth (ft):

Hydrant ID: N15-016
Manufacturer: Mueller
Year: 2006
Bury Depth (ft):

Hydrant ID: N15-017
Manufacturer: Mueller
Year: Concrete
Bury Depth (ft):

Hydrant ID: N15-018
Manufacturer: Mueller
Year: 1991
Bury Depth (ft):

Hydrant ID: N15-019
Manufacturer: Waterous
Year: 2000
Bury Depth (ft): 6.5

Hydrant ID: N15-020
Manufacturer: Clow
Year: 2001
Bury Depth (ft): 6.0

Hydrant ID: N15-021
Manufacturer: Waterous
Year: 2006
Bury Depth (ft): 6.5 24" extension

Hydrant ID: N15-022
Manufacturer: Clow
Year: 2001
Bury Depth (ft): 6.0

Hydrant ID: N15-023
Manufacturer: Clow
Year: 2003
Bury Depth (ft):

Hydrant ID: N15-024
Manufacturer: Clow
Year: 2000
Bury Depth (ft): 6.0

Hydrant ID: N15-025
Manufacturer: Waterous
Year: 1998
Bury Depth (ft): 6.0

Hydrant ID: N15-026
Manufacturer: Waterous
Year: 1998
Bury Depth (ft): 6.0

Hydrant ID: N15-027
Manufacturer: Waterous
Year: 1975
Bury Depth (ft): 5.0

Hydrant ID: N15-028
Manufacturer: Kennedy
Year: 1985
Bury Depth (ft):

Hydrant ID: N15-029
Manufacturer: Clow
Year: 2002
Bury Depth (ft): 6.5

Hydrant ID: N15-030
Manufacturer: Clow
Year: 2008
Bury Depth (ft): 7.0

Hydrant ID: N15-031
Manufacturer: Clow
Year: 2008
Bury Depth (ft):

Hydrant ID: N15-032
Manufacturer: Waterous
Year: 1998
Bury Depth (ft): 6.0

Hydrant ID: N16-001
Manufacturer: Pacific States
Year: 1974
Bury Depth (ft):

Hydrant ID: N16-002
Manufacturer: Clow
Year: 2005
Bury Depth (ft):

Hydrant ID: N16-003
Manufacturer: Clow
Year: 2005
Bury Depth (ft):

Hydrant ID: N16-004
Manufacturer: Clow
Year: buried
Bury Depth (ft): 6.5

Hydrant ID: N16-005
Manufacturer: Clow
Year: 2005
Bury Depth (ft):

Hydrant ID: N16-006
Manufacturer: Pacific States
Year: 1965
Bury Depth (ft):

Hydrant ID: N16-007
Manufacturer: Pacific States
Year: 1965
Bury Depth (ft):

Hydrant ID: N16-008
Manufacturer: Pacific States
Year: 1965
Bury Depth (ft):

Hydrant ID: N16-009
Manufacturer: Pacific States
Year: 1962
Bury Depth (ft):

Hydrant ID: N16-010
Manufacturer: Pacific States
Year: 1968
Bury Depth (ft):

Hydrant ID: N16-011
Manufacturer: Pacific States
Year: 1966
Bury Depth (ft):

Hydrant ID: N16-012
Manufacturer: Pacific States
Year: 1954
Bury Depth (ft):

Hydrant ID: N16-013
Manufacturer: Mueller
Year: 2011
Bury Depth (ft):

Hydrant ID: N16-014
Manufacturer: Pacific States
Year: 1968
Bury Depth (ft):

Hydrant ID: N16-015
Manufacturer: Pacific States
Year: 1968
Bury Depth (ft):

Hydrant ID: N16-016
Manufacturer: Clow
Year: 2013
Bury Depth (ft): 6.0

Hydrant ID: N16-017
Manufacturer: Pacific States
Year: 1962
Bury Depth (ft):

Hydrant ID: N16-Not In GIS
Manufacturer: Clow
Year: 2005
Bury Depth (ft): 6.5

Hydrant ID:	M15-001
Manufacturer:	Pacific States
Year:	1963
Bury Depth (ft):	

Hydrant ID:	M15-002
Manufacturer:	Pacific States
Year:	1963
Bury Depth (ft):	

Hydrant ID:	M15-003
Manufacturer:	Waterous
Year:	2009
Bury Depth (ft):	5.5

Hydrant ID:	M15-004
Manufacturer:	Pacific States
Year:	1961
Bury Depth (ft):	

Hydrant ID: M15-005
Manufacturer: Clow
Year: 2007
Bury Depth (ft):

Hydrant ID: M15-006
Manufacturer: Mueller
Year: 1976
Bury Depth (ft):

Hydrant ID: M15-007
Manufacturer: Pacific States
Year: 1966
Bury Depth (ft):

Hydrant ID: M15-008
Manufacturer: Clow
Year: 2007
Bury Depth (ft):

Hydrant ID:	M15-009
Manufacturer:	Waterous
Year:	2005
Bury Depth (ft):	

Hydrant ID:	M15-010
Manufacturer:	Pacific States
Year:	1954
Bury Depth (ft):	

Hydrant ID:	M15-011
Manufacturer:	Pacific States
Year:	1952
Bury Depth (ft):	

Hydrant ID:	M15-012
Manufacturer:	Pacific States
Year:	1952
Bury Depth (ft):	

Hydrant ID: M15-013
Manufacturer: Pacific States
Year: 1952
Bury Depth (ft):

Hydrant ID: M15-014
Manufacturer: Pacific States
Year: 1956
Bury Depth (ft):

Hydrant ID: M15-015 *DAMAGED
Manufacturer: Pacific States
Year: 1956
Bury Depth (ft):

Hydrant ID: M15-016
Manufacturer: Pacific States
Year: 1954
Bury Depth (ft):

Hydrant ID: M15-017
Manufacturer: Pacific States
Year: 1951
Bury Depth (ft):

Hydrant ID: M15-018
Manufacturer: Waterous
Year: 2005
Bury Depth (ft): 6.0, 24" extension

Hydrant ID: M15-019
Manufacturer: Waterous
Year: 2005
Bury Depth (ft): 6.0, 12" extension

Hydrant ID: M15-020
Manufacturer: Waterous
Year: 2005
Bury Depth (ft): 6.0

Hydrant ID: M15-021
Manufacturer: Clow
Year: 1996
Bury Depth (ft):

Hydrant ID: M15-022
Manufacturer: Waterous
Year: 1999
Bury Depth (ft): 6.0, 24" extension

Hydrant ID: M15-023
Manufacturer: Waterous
Year: 2007
Bury Depth (ft): 6.5

Hydrant ID: M15-024
Manufacturer: Waterous
Year: 1994
Bury Depth (ft): 5.5

Hydrant ID: M15-025
Manufacturer: Waterous
Year: 1995
Bury Depth (ft): 5.5

Hydrant ID: M15-026
Manufacturer: Waterous
Year: 1994
Bury Depth (ft): 6.0

Hydrant ID: M15-027
Manufacturer: Waterous
Year: 1995
Bury Depth (ft): 6.0

Hydrant ID: M15-028
Manufacturer: Waterous
Year: 1994
Bury Depth (ft): 6.0

Hydrant ID: M15-029
Manufacturer: Waterous
Year: 1994
Bury Depth (ft): 5.5

Hydrant ID: M15-030
Manufacturer: Waterous
Year: 1994
Bury Depth (ft): 5.5

Hydrant ID: M15-031
Manufacturer: Waterous
Year: 1994
Bury Depth (ft):

Hydrant ID: M15-032
Manufacturer: Waterous
Year: 1995
Bury Depth (ft): 5.5

Hydrant ID: M15-033
Manufacturer: Waterous
Year: 1994
Bury Depth (ft): 5.5

Hydrant ID: M15-034
Manufacturer: Waterous
Year: 1994
Bury Depth (ft): 6.0

Hydrant ID: M15-035
Manufacturer: Waterous
Year: 1994
Bury Depth (ft): 6.0

Hydrant ID: M16-001
Manufacturer: Waterous
Year: 1991
Bury Depth (ft): 5.5

Hydrant ID: M16-002
Manufacturer: Pacific States
Year: 1966
Bury Depth (ft):

Hydrant ID: M16-003
Manufacturer: Pacific States
Year: 1962
Bury Depth (ft):

Hydrant ID: M16-004
Manufacturer: Pacific States
Year: 1973
Bury Depth (ft):

Hydrant ID: M16-005
Manufacturer: Waterous
Year: 1990
Bury Depth (ft): 6.0

Hydrant ID: M16-006
Manufacturer: Clow
Year: 2001
Bury Depth (ft):

Hydrant ID: M16-007
Manufacturer: Pacific States
Year: 1973
Bury Depth (ft):

Hydrant ID: M16-008
Manufacturer: Waterous
Year: 1990
Bury Depth (ft): 6.0

Hydrant ID: M16-009
Manufacturer: Clow
Year: 2011
Bury Depth (ft): 5.0

Hydrant ID: M16-010
Manufacturer: Pacific States
Year: 1978
Bury Depth (ft):

Hydrant ID: M16-011
Manufacturer: Pacific States
Year: 1977
Bury Depth (ft):

Hydrant ID: M16-012
Manufacturer: Pacific States
Year: 1977
Bury Depth (ft):

Hydrant ID: M16-013
Manufacturer: Pacific States
Year: 1977
Bury Depth (ft):

Hydrant ID: M16-014
Manufacturer: Pacific States
Year: 1977
Bury Depth (ft):

Hydrant ID: M16-015
Manufacturer: Pacific States
Year: 1977
Bury Depth (ft):

Hydrant ID: M16-016
Manufacturer: Pacific States
Year: 1977
Bury Depth (ft):

Hydrant ID: M16-017
Manufacturer: Pacific States
Year: 1964
Bury Depth (ft):

Hydrant ID: M16-018
Manufacturer: Pacific States
Year: 1965
Bury Depth (ft):

Hydrant ID: M16-019
Manufacturer: Pacific States
Year: 1964
Bury Depth (ft):

Hydrant ID: M16-020
Manufacturer: Pacific States
Year: 1968
Bury Depth (ft):

Hydrant ID: M16-021
Manufacturer: Waterous
Year: 1993
Bury Depth (ft): 6.0

Hydrant ID: M16-022
Manufacturer: 1977
Year: 1965
Bury Depth (ft):

Hydrant ID: M16-023
Manufacturer: Pacific States
Year: 1979
Bury Depth (ft):

Hydrant ID: M16-024
Manufacturer: Pacific States
Year: 1979
Bury Depth (ft):

Hydrant ID: Not In GIS - S of Hillview Elem
Manufacturer: Mueller
Year: 2008
Bury Depth (ft):

Hydrant ID: Not In GIS - 2 @ Wellhouse W of Hillview Elem.
Manufacturer: Waterous
Year:
Bury Depth (ft):

Hydrant ID:	L15-025
Manufacturer:	Pacific States
Year:	1974
Bury Depth (ft):	

Hydrant ID:	L15-026
Manufacturer:	Waterous
Year:	1975
Bury Depth (ft):	5.0

Hydrant ID: L16-012
Manufacturer: Waterous
Year: 1990
Bury Depth (ft): 6.0

Hydrant ID: L16-013
Manufacturer: Pacific States
Year: 1978
Bury Depth (ft):

Hydrant ID: L16-014
Manufacturer: Pacific States
Year: 1977
Bury Depth (ft):

Hydrant ID: L16-020
Manufacturer: Pacific States
Year: 1977
Bury Depth (ft):

Appendix B: System Reference Information

- National Primary and Secondary Drinking Water Regulations
- Consumer Confidence Reports
- 2001 Source Water Assessment
- Water Rights
- Operation and Maintenance Budget
- Cross Connection Control Ordinance
- 2014 Sanitary Survey

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National Primary Drinking Water Regulations

Contaminant		MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
OC	Acrylamide	TT[4]	Nervous system or blood problems; increased risk of cancer	Added to water during sewage/ wastewater treatment	zero
OC	Alachlor	0.002	Eye, liver, kidney or spleen problems; anemia; increased risk of cancer	Runoff from herbicide used on row crops	zero
R	Alpha/photon emitters	15 picocuries per Liter (pCi/L)	Increased risk of cancer	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation	zero
IOC	Antimony	0.006	Increase in blood cholesterol; decrease in blood sugar	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder	0.006
IOC	Arsenic	0.010	Skin damage or problems with circulatory systems, and may have increased risk of getting cancer	Erosion of natural deposits; runoff from orchards; runoff from glass & electronics production wastes	0
IOC	Asbestos (fibers >10 micrometers)	7 million fibers per Liter (MFL)	Increased risk of developing benign intestinal polyps	Decay of asbestos cement in water mains; erosion of natural deposits	7 MFL
OC	Atrazine	0.003	Cardiovascular system or reproductive problems	Runoff from herbicide used on row crops	0.003
IOC	Barium	2	Increase in blood pressure	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	2
OC	Benzene	0.005	Anemia; decrease in blood platelets; increased risk of cancer	Discharge from factories; leaching from gas storage tanks and landfills	zero
OC	Benzo(a)pyrene (PAHs)	0.0002	Reproductive difficulties; increased risk of cancer	Leaching from linings of water storage tanks and distribution lines	zero
IOC	Beryllium	0.004	Intestinal lesions	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries	0.004
R	Beta photon emitters	4 millirems per year	Increased risk of cancer	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation	zero
DBP	Bromate	0.010	Increased risk of cancer	Byproduct of drinking water disinfection	zero
IOC	Cadmium	0.005	Kidney damage	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints	0.005
OC	Carbofuran	0.04	Problems with blood, nervous system, or reproductive system	Leaching of soil fumigant used on rice and alfalfa	0.04
OC	Carbon tetrachloride	0.005	Liver problems; increased risk of cancer	Discharge from chemical plants and other industrial activities	zero
D	Chloramines (as Cl_2)	MRDL=4.0[1]	Eye/nose irritation; stomach discomfort; anemia	Water additive used to control microbes	MRDLG=4[1]
OC	Chlordane	0.002	Liver or nervous system problems; increased risk of cancer	Residue of banned termiticide	zero
D	Chlorine (as Cl_2)	MRDL=4.0[1]	Eye/nose irritation; stomach discomfort	Water additive used to control microbes	MRDLG=4[1]
D	Chlorine dioxide (as ClO_2)	MRDL=0.8[1]	Anemia; infants, young children, and fetuses of pregnant women: nervous system effects	Water additive used to control microbes	MRDLG=0.8[1]
DBP	Chlorite	1.0	Anemia; infants, young children, and fetuses of pregnant women: nervous system effects	Byproduct of drinking water disinfection	0.8
OC	Chlorobenzene	0.1	Liver or kidney problems	Discharge from chemical and agricultural chemical factories	0.1
IOC	Chromium (total)	0.1	Allergic dermatitis	Discharge from steel and pulp mills; erosion of natural deposits	0.1
IOC	Copper	TT[5]; Action Level = 1.3	Short-term exposure: Gastrointestinal distress. Long-term exposure: Liver or kidney damage. People with Wilson's Disease should consult their personal doctor if the amount of copper in their water exceeds the action level	Corrosion of household plumbing systems; erosion of natural deposits	1.3
M	*Cryptosporidium*	TT[7]	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero

LEGEND

- D Disinfectant
- DBP Disinfection Byproduct
- IOC Inorganic Chemical
- M Microorganism
- OC Organic Chemical
- R Radionuclides

Contaminant		MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
IOC	Cyanide (as free cyanide)	0.2	Nerve damage or thyroid problems	Discharge from steel/metal factories; discharge from plastic and fertilizer factories	0.2
OC	2,4-D	0.07	Kidney, liver, or adrenal gland problems	Runoff from herbicide used on row crops	0.07
OC	Dalapon	0.2	Minor kidney changes	Runoff from herbicide used on rights of way	0.2
OC	1,2-Dibromo-3-chloropropane (DBCP)	0.0002	Reproductive difficulties; increased risk of cancer	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards	zero
OC	o-Dichlorobenzene	0.6	Liver, kidney, or circulatory system problems	Discharge from industrial chemical factories	0.6
OC	p-Dichlorobenzene	0.075	Anemia; liver, kidney or spleen damage; changes in blood	Discharge from industrial chemical factories	0.075
OC	1,2-Dichloroethane	0.005	Increased risk of cancer	Discharge from industrial chemical factories	zero
OC	1,1-Dichloroethylene	0.007	Liver problems	Discharge from industrial chemical factories	0.007
OC	cis-1,2-Dichloroethylene	0.07	Liver problems	Discharge from industrial chemical factories	0.07
OC	trans-1,2-Dichloroethylene	0.1	Liver problems	Discharge from industrial chemical factories	0.1
OC	Dichloromethane	0.005	Liver problems; increased risk of cancer	Discharge from drug and chemical factories	zero
OC	1,2-Dichloropropane	0.005	Increased risk of cancer	Discharge from industrial chemical factories	zero
OC	Di(2-ethylhexyl) adipate	0.4	Weight loss, liver problems, or possible reproductive difficulties	Discharge from chemical factories	0.4
OC	Di(2-ethylhexyl) phthalate	0.006	Reproductive difficulties; liver problems; increased risk of cancer	Discharge from rubber and chemical factories	zero
OC	Dinoseb	0.007	Reproductive difficulties	Runoff from herbicide used on soybeans and vegetables	0.007
OC	Dioxin (2,3,7,8-TCDD)	0.00000003	Reproductive difficulties; increased risk of cancer	Emissions from waste incineration and other combustion; discharge from chemical factories	zero
OC	Diquat	0.02	Cataracts	Runoff from herbicide use	0.02
OC	Endothall	0.1	Stomach and intestinal problems	Runoff from herbicide use	0.1
OC	Endrin	0.002	Liver problems	Residue of banned insecticide	0.002
OC	Epichlorohydrin	TT[4]	Increased cancer risk; stomach problems	Discharge from industrial chemical factories; an impurity of some water treatment chemicals	zero
OC	Ethylbenzene	0.7	Liver or kidney problems	Discharge from petroleum refineries	0.7
OC	Ethylene dibromide	0.00005	Problems with liver, stomach, reproductive system, or kidneys; increased risk of cancer	Discharge from petroleum refineries	zero
M	Fecal coliform and *E. coli*	MCL[6]	Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes may cause short term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune systems.	Human and animal fecal waste	zero[6]
IOC	Fluoride	4.0	Bone disease (pain and tenderness of the bones); children may get mottled teeth	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories	4.0
M	*Giardia lamblia*	TT[7]	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
OC	Glyphosate	0.7	Kidney problems; reproductive difficulties	Runoff from herbicide use	0.7
DBP	Haloacetic acids (HAA5)	0.060	Increased risk of cancer	Byproduct of drinking water disinfection	n/a[9]
OC	Heptachlor	0.0004	Liver damage; increased risk of cancer	Residue of banned termiticide	zero
OC	Heptachlor epoxide	0.0002	Liver damage; increased risk of cancer	Breakdown of heptachlor	zero
M	Heterotrophic plate count (HPC)	TT[7]	HPC has no health effects; it is an analytic method used to measure the variety of bacteria that are common in water. The lower the concentration of bacteria in drinking water, the better maintained the water system is.	HPC measures a range of bacteria that are naturally present in the environment	n/a

LEGEND

D	Disinfectant	IOC	Inorganic Chemical	OC	Organic Chemical
DBP	Disinfection Byproduct	M	Microorganism	R	Radionuclides

Contaminant		MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
OC	Hexachlorobenzene	0.001	Liver or kidney problems; reproductive difficulties; increased risk of cancer	Discharge from metal refineries and agricultural chemical factories	zero
OC	Hexachlorocyclopentadiene	0.05	Kidney or stomach problems	Discharge from chemical factories	0.05
IOC	Lead	TT5; Action Level=0.015	Infants and children: Delays in physical or or mental development; children could show slight deficits in attention span and learning abilities; Adults: Kidney problems; high blood pressure	Corrosion of household plumbing systems; erosion of natural deposits	zero
M	*Legionella*	TT7	Legionnaire's Disease, a type of pneumonia	Found naturally in water; multiplies in heating systems	zero
OC	Lindane	0.0002	Liver or kidney problems	Runoff/leaching from insecticide used on cattle, lumber, gardens	0.0002
IOC	Mercury (inorganic)	0.002	Kidney damage	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and croplands	0.002
OC	Methoxychlor	0.04	Reproductive difficulties	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock	0.04
IOC	Nitrate (measured as Nitrogen)	10	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	10
IOC	Nitrite (measured as Nitrogen)	1	Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	1
OC	Oxamyl (Vydate)	0.2	Slight nervous system effects	Runoff/leaching from insecticide used on apples, potatoes, and tomatoes	0.2
OC	Pentachlorophenol	0.001	Liver or kidney problems; increased cancer risk	Discharge from wood-preserving factories	zero
OC	Picloram	0.5	Liver problems	Herbicide runoff	0.5
OC	Polychlorinated biphenyls (PCBs)	0.0005	Skin changes; thymus gland problems; immune deficiencies; reproductive or nervous system difficulties; increased risk of cancer	Runoff from landfills; discharge of waste chemicals	zero
R	Radium 226 and Radium 228 (combined)	5 pCi/L	Increased risk of cancer	Erosion of natural deposits	zero
IOC	Selenium	0.05	Hair or fingernail loss; numbness in fingers or toes; circulatory problems	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines	0.05
OC	Simazine	0.004	Problems with blood	Herbicide runoff	0.004
OC	Styrene	0.1	Liver, kidney, or circulatory system problems	Discharge from rubber and plastic factories; leaching from landfills	0.1
OC	Tetrachloroethylene	0.005	Liver problems; increased risk of cancer	Discharge from factories and dry cleaners	zero
IOC	Thallium	0.002	Hair loss; changes in blood; kidney, intestine, or liver problems	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories	0.0005
OC	Toluene	1	Nervous system, kidney, or liver problems	Discharge from petroleum factories	1
M	Total Coliforms	5.0 percent[8]	Coliforms are bacteria that indicate that other, potentially harmful bacteria may be present. See fecal coliforms and *E. coli*	Naturally present in the environment	zero
DBP	Total Trihalomethanes (TTHMs)	0.080	Liver, kidney or central nervous system problems; increased risk of cancer	Byproduct of drinking water disinfection	n/a[9]
OC	Toxaphene	0.003	Kidney, liver, or thyroid problems; increased risk of cancer	Runoff/leaching from insecticide used on cotton and cattle	zero
OC	2,4,5-TP (Silvex)	0.05	Liver problems	Residue of banned herbicide	0.05
OC	1,2,4-Trichlorobenzene	0.07	Changes in adrenal glands	Discharge from textile finishing factories	0.07
OC	1,1,1-Trichloroethane	0.2	Liver, nervous system, or circulatory problems	Discharge from metal degreasing sites and other factories	0.2
OC	1,1,2-Trichloroethane	0.005	Liver, kidney, or immune system problems	Discharge from industrial chemical factories	0.003
OC	Trichloroethylene	0.005	Liver problems; increased risk of cancer	Discharge from metal degreasing sites and other factories	zero

LEGEND

D Disinfectant	IOC Inorganic Chemical	OC Organic Chemical
DBP Disinfection Byproduct	M Microorganism	R Radionuclides

Contaminant		MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
M	Turbidity	TT[7]	Turbidity is a measure of the cloudiness of water. It is used to indicate water quality and filtration effectiveness (e.g., whether disease-causing organisms are present). Higher turbidity levels are often associated with higher levels of disease-causing microorganisms such as viruses, parasites and some bacteria. These organisms can cause short term symptoms such as nausea, cramps, diarrhea, and associated headaches.	Soil runoff	n/a
R	Uranium	30µg/L	Increased risk of cancer, kidney toxicity	Erosion of natural deposits	zero
OC	Vinyl chloride	0.002	Increased risk of cancer	Leaching from PVC pipes; discharge from plastic factories	zero
M	Viruses (enteric)	TT[7]	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
OC	Xylenes (total)	10	Nervous system damage	Discharge from petroleum factories; discharge from chemical factories	10

LEGEND

D Disinfectant	IOC Inorganic Chemical	OC Organic Chemical
DBP Disinfection Byproduct	M Microorganism	R Radionuclides

NOTES

1 Definitions

- Maximum Contaminant Level Goal (MCLG)—The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.
- Maximum Contaminant Level (MCL)—The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.
- Maximum Residual Disinfectant Level Goal (MRDLG)—The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- Maximum Residual Disinfectant Level (MRDL)—The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- Treatment Technique (TT)—A required process intended to reduce the level of a contaminant in drinking water.

2 Units are in milligrams per liter (mg/L) unless otherwise noted. Milligrams per liter are equivalent to parts per million (ppm).

3 Health effects are from long-term exposure unless specified as short-term exposure.

4 Each water system must certify annually, in writing, to the state (using third-party or manufacturers certification) that when it uses acrylamide and/or epichlorohydrin to treat water, the combination (or product) of dose and monomer level does not exceed the levels specified, as follows: Acrylamide = 0.05 percent dosed at 1 mg/L (or equivalent); Epichlorohydrin = 0.01 percent dosed at 20 mg/L (or equivalent).

5 Lead and copper are regulated by a Treatment Technique that requires systems to control the corrosiveness of their water. If more than 10 percent of tap water samples exceed the action level, water systems must take additional steps. For copper, the action level is 1.3 mg/L, and for lead is 0.015 mg/L.

6 A routine sample that is fecal coliform-positive or *E. coli*-positive triggers repeat samples--if any repeat sample is total coliform-positive, the system has an acute MCL violation. A routine sample that is total coliform-positive and fecal coliform-negative or *E. coli*-negative triggers repeat samples--if any repeat sample is fecal coliform-positive or *E. coli*-positive, the system has an acute MCL violation. See also Total Coliforms.

7 EPA's surface water treatment rules require systems using surface water or ground water under the direct influence of surface water to (1) disinfect their water, and (2) filter their water or meet criteria for avoiding filtration so that the following contaminants are controlled at the following levels:

- *Cryptosporidium*: 99 percent removal for systems that filter. Unfiltered systems are required to include Cryptosporidium in their existing watershed control provisions.
- Giardia lamblia: 99.9 percent removal/inactivation
- Viruses: 99.99 percent removal/inactivation
- *Legionella*: No limit, but EPA believes that if *Giardia* and viruses are removed/inactivated according to the treatment techniques in the surface water treatment rule, *Legionella* will also be controlled.
- Turbidity: For systems that use conventional or direct filtration, at no time can turbidity (cloudiness of water) go higher than 1 nephelolometric turbidity unit (NTU), and samples for turbidity must be less than or equal to 0.3 NTU in at least 95 percent of the samples in any month. Systems that use filtration other than conventional or direct filtration must follow state limits, which must include turbidity at no time exceeding 5 NTU.
- HPC: No more than 500 bacterial colonies per milliliter
- Long Term 1 Enhanced Surface Water Treatment; Surface water systems or ground water systems under the direct influence of surface water serving fewer than 10,000 people must comply with the applicable Long Term 1 Enhanced Surface Water Treatment Rule provisions (e.g. turbidity standards, individual filter monitoring, *Cryptosporidium* removal requirements, updated watershed control requirements for unfiltered systems).
- Long Term 2 Enhanced Surface Water Treatment; This rule applies to all surface water systems or ground water systems under the direct influence of surface water. The rule targets additional *Cryptosporidium* treatment requirements for higher risk systems and includes provisions to reduce risks from uncovered finished water storages facilities and to ensure that the systems maintain microbial protection as they take steps to reduce the formation of disinfection byproducts. (Monitoring start dates are staggered by system size. The largest systems (serving at least 100,000 people) will begin monitoring in October 2006 and the smallest systems (serving fewer than 10,000 people) will not begin monitoring until October 2008. After completing monitoring and determining their treatment bin, systems generally have three years to comply with any additional treatment requirements.)
- Filter Backwash Recycling: The Filter Backwash Recycling Rule requires systems that recycle to return specific recycle flows through all processes of the system's existing conventional or direct filtration system or at an alternate location approved by the state.

8 No more than 5.0 percent samples total coliform-positive in a month. (For water systems that collect fewer than 40 routine samples per month, no more than one sample can be total coliform-positive per month.) Every sample that has total coliform must be analyzed for either fecal coliforms or *E. coli*. If two consecutive TC-positive samples, and one is also positive for *E. coli* or fecal coliforms, system has an acute MCL violation.

9 Although there is no collective MCLG for this contaminant group, there are individual MCLGs for some of the individual contaminants:

- Haloacetic acids: dichloroacetic acid (zero); trichloroacetic acid (0.3 mg/L)
- Trihalomethanes: bromodichloromethane (zero); bromoform (zero); dibromochloromethane (0.06 mg/L)

National Secondary Drinking Water Regulation

National Secondary Drinking Water Regulations are non-enforceable guidelines regarding contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. EPA recommends secondary standards to water systems but does not require systems to comply. However, some states may choose to adopt them as enforceable standards.

Contaminant	Secondary Maximum Contaminant Level
Aluminum	0.05 to 0.2 mg/L
Chloride	250 mg/L
Color	15 (color units)
Copper	1.0 mg/L
Corrosivity	noncorrosive
Fluoride	2.0 mg/L
Foaming Agents	0.5 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L
Odor	3 threshold odor number
pH	6.5-8.5
Silver	0.10 mg/L
Sulfate	250 mg/L
Total Dissolved Solids	500 mg/L
Zinc	5 mg/L

For More Information

EPA's Safe Drinking Water Web site:
http://www.epa.gov/safewater/

EPA's Safe Drinking Water Hotline:
(800) 426-4791

To order additional posters or other ground water and drinking water publications, please contact the National Service Center for Environmental Publications at :
(800) 490-9198, or
email: nscep@bps-lmit.com.

EPA United States Environmental Protection Agency

EPA 816-F-09-004
May 2009

Is my water safe?

We are pleased to present this year's Annual Water Quality Report (Consumer Confidence Report) as required by the Safe Drinking Water Act (SDWA). This report is designed to provide details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. This report is a snapshot of last year's water quality. We are committed to providing you with information because informed customers are our best allies.

Where does my water come from?

The City of Ammon has eight deep water wells throughout the city. Four of these are back-up or emergency wells and are only used when needed.

Why are there contaminants in my drinking water?

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's (EPA) Safe Drinking Water Hotline (800-426-4791).

TERM	DEFINITION
ug/L	ug/L : Number of micrograms of substance in one liter of water
ppm	ppm: parts per million, or milligrams per liter (mg/L)
ppb	ppb: parts per billion, or micrograms per liter (µg/L)
pCi/L	pCi/L: picocuries per liter (a measure of radioactivity)
NA	NA: not applicable
ND	ND: Not detected
NR	NR: Monitoring not required, but recommended.
MCLG	MCLG: Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
MCL	MCL: Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
TT	TT: Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
AL	AL: Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
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MRDLG	MRDLG: Maximum residual disinfection level goal. The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
MRDL	MRDL: Maximum residual disinfectant level. The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
MNR	MNR: Monitored Not Regulated
MPL	MPL: State Assigned Maximum Permissible Level

ANNUAL WATER QUALITY REPORT

Water Testing Performed In 2015

For more information please contact:
Nathan Riblett
2135 S Ammon RD
Ammon, ID 83406
208-612-4031

CITY OF Ammon

Water Quality Data Table

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of contaminants in water provided by public water systems. The table below lists all of the drinking water contaminants that we detected during the calendar year of this report. Although many more contaminants were tested, only those substances listed below were found in your water. All sources of drinking water contain some naturally occurring contaminants. At low levels, these substances are generally not harmful in our drinking water. Removing all contaminants would be extremely expensive, and in most cases, would not provide increased protection of public health. A few naturally occurring minerals may actually improve the taste of drinking water and have nutritional value at low levels. Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report. The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. As such, some of our data, though representative, may be more than one year old. In this table you will find terms and abbreviations that might not be familiar to you. To help you better understand these terms, we have provided the definitions on the back of this sheet.

Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Your Water	Range		Sample Date	Violation	Typical Source
				Low	High			
Inorganic Contaminants								
Arsenic (ppb)	0	10	2	2	2	2013	No	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium (ppm)	2	2	.154	.112	.154	2013	No	Erosion of natural deposits
Chromium (ppb)	100	100	1	1	2	2013	No	Erosion of natural deposits
Fluoride (ppm)	4	4	.4	.3	.4	2013	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate [measured as Nitrogen] (ppm)	10	10	2.57	0	2.57	2015	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Radioactive Contaminants								
Alpha emitters (pCi/L)	0	15	5.5	.5	5.5	2013	No	Erosion of natural deposits
Radium (combined 226/228) (pCi/L)	0	5	4.9	.98	4.9	2012	No	Erosion of natural deposits
Uranium (ug/L)	0	30	3.1	2.8	3.1	2012	No	Erosion of natural deposits
Synthetic organic contaminants including pesticides and herbicides								
Di (2-ethylhexyl) phthalate (ppb)	0	6	.832	NA	.832	2013	No	Discharge from rubber and chemical factories

Idaho requires monitoring **ADDITIONAL CONTAMINANTS** not required by Federal regulations. Of those contaminants only the ones listed below were found in your water.

Contaminants	State MCL	Your Water	Violation	Explanation and Comment
Nickel	.1 mg/L	.002 mg/L	No	Nickel has the potential to cause the following health effects at long term exposure above the MCL: decreased body weight, heart and liver damage, and dermatitis.

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MNR	MNR: Monitored Not Regulated
MPL	MPL: State Assigned Maximum Permissible Level

CITY OF AMMON IDAHO

ANNUAL WATER QUALITY REPORT

Water Testing Performed In 2016

For more information please contact:
Nathan Riblett
2135 S Ammon RD
Ammon, ID 83406
208-612-4031

CITY OF Ammon

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				Low	High			
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Barium (ppm)	2	2	.154	.112	.154	2013	No	Erosion of natural deposits
Chromium (ppb)	100	100	2	NA	2	2016	No	Erosion of natural deposits
Fluoride (ppm)	4	4	.3	.2	.3	2016	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate [measured as Nitrogen] (ppm)	10	10	2.81	1.95	2.81	2016	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Radioactive Contaminants								
Alpha emitters (pCi/L)	0	15	3.8	1.2	3.8	2016	No	Erosion of natural deposits
Radium (combined 226/228) (pCi/L)	0	5	3.01	.51	3.01	2016	No	Erosion of natural deposits
Uranium (ug/L)	0	30	3.6	1.8	3.6	2016	No	Erosion of natural deposits
Synthetic organic contaminants including pesticides and herbicides								
Di (2-ethylhexyl) phthalate (ppb)	0	6	2.19	NA	2.19	2016	No	Discharge from rubber and chemical factories

Inorganic Contaminants were tested for in 2016

Contaminants	Action Level	Your Water	Exceeds AL	Typical Source
Copper (ppm)	1.3	.098	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	15	.001	No	Corrosion of household plumbing systems; Erosion of natural deposits

2001 Source Water Assessment

Reports can be found at the DEQ web site via the URL below:

http://www2.deq.idaho.gov/water/swaOnline/Search

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City of Ammon Water Rights (Municipal)

Priority Date	Water Right No.	Diversion Rate (CFS)	Diversion Rate (GPM)	Volume (AFA)	Number of Days	Points of Diversion	Irrigation?
1946	25-4297	0.78	350.11			See * below	No
1952	25-4295	0.67	300.74			(same)	No
1952	25-14384	0.21	94.26	60.4	0.00	(same)	Yes
1952	25-14386	0.25	112.22	67.2	0.00	(same)	Yes
1953	25-14405	0.21	94.26	41.6	0.00	(same)	Yes
1957	25-4294	1.5	673.29			(same)	No
1966	25-14331	0.81	363.58	142	0.00	(same)	Yes
1971	25-14396	0.28	125.68	109.6	0.00	(same)	Yes
1971	25-14397	0.03	13.47	11.6	0.00	(same)	Yes
1972	25-14333	0.57	255.85	142.8	0.00	(same)	Yes
1973	25-7023	2.79	1,252.32			(same)	No
1973	25-14380	0.23	103.24	60	0.00	(same)	Yes
1973	25-14381	0.19	85.28	51.2	0.00	(same)	Yes
1979	25-7168	6.13	2,751.51			(same)	No
1980	25-14406	0.14	62.84	27.2	0.00	(same)	Yes
1989	25-7498	2.32	1,041.36			(same)	No
1995	25-7634	6.69	3,002.87			(same)	No
2001	25-13964	6.7	3,007.36			(same)	No
	Totals:	30.36	13,627	713.6			

Water Rights 25-14405 and 25-14406 have a combined diversion rate of 0.21 cfs.
Water right 25-14406 was removed from the total to reflect this.

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CITY OF [illegible]

BALANCE SHEET

SEPTEMBER 30, 20[illegible]

WATER FUND

	ASSETS			
01-101000	CASH - COMBINED FUND		5,752,827.02	
01-115050	WATER RECEIVABLES		174,032.06	
01-160000	FIXED ASSETS - WATER		23,528,825.91	
01-170000	ACC DEPRECIATION - WATER		(5,876,310.51)	
	TOTAL ASSETS			23,579,091.02
	LIABILITIES AND EQUITY			
	LIABILITIES			
01-215250	ACCRUED INTEREST PAYABLE		775,785.09	
01-216050	ACCRUED PAYROLL		13,477.00	
01-220000	DEPOSITS PAYABLE		54,257.00	
01-225100	WATER NOTE PAYABLE DEQ		14,251,607.00	
	TOTAL LIABILITIES			15,094,177.59
	FUND EQUITY			
	UNAPPROPRIATED FUND BALANCE:			
01-325000	FUND BALANCE-BEGINNING OF YEAR	7,580,130.43		
01-325100	RESERVED FOR IMPROVEMENTS	4,487,343.50		
	REVENUE OVER EXPENDITURES - YTD	(647,400.00)		
	BALANCE - CURRENT DATE		11,420,523.33	
	TOTAL FUND EQUITY			11,420,523.33
	TOTAL LIABILITIES AND EQUITY			26,590,591.92

CITY OF AMMON
REVENUES WITH COMPARISON TO BUDGET
FOR THE 12 MONTHS ENDING SEPTEMBER 30, 20[illegible]

WATER FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEARNED	PCNT
	WATER REVENUE					
51-345-100	SERVICE FEES	.00	1,816,450.38	1,700,000.00	(116,450.38)	106.8
51-345-200	RECONNECT FEES	.00	30,504.03	20,000.00	(10,504.03)	152.5
51-345-300	FINES & INTEREST FEES	.00	25,376.80	18,000.00	(5,376.80)	139.6
51-345-770	LEASE REVENUE	.00	650.00	.00	(650.00)	.0
	TOTAL WATER REVENUE	.00	1,870,565.21	1,738,500.00	(132,981.21)	107.6
	MISCELLANEOUS REVENUE					
51-370-100	INTEREST EARNINGS	.00	64,509.15	71,625.00	6,617.15	90.8
51-370-450	WATER SUPPRESSION CONNECTION	.00	1,500.00	1,000.00	(500.00)	150.0
51-370-900	DEQ FUNDING	.00	.00	1,500,000.00	1,500,000.00	.0
51-370-900	MISCELLANEOUS REVENUE	5,852.00	7,284.48	.00	(7,284.48)	.0
	TOTAL MISCELLANEOUS REVENUE	5,852.00	80,200.00	1,570,000.00	1,485,598.37	5.0
	CONNECTION FEES/METER CHARGE					
51-380-100	CONNECTION FEES	.00	33,484.00	75,000.00	41,516.00	44.6
51-380-200	METER CHARGE	.00	12,049.57	18,752.00	6,702.43	64.3
	TOTAL CONNECTION FEES/METER CHARGE	.00	45,533.57	93,752.00	48,218.43	48.6
	TOTAL FUND REVENUE	5,852.00	2,006,785.20	3,410,042.00	1,403,450.04	58.8

EXPENDITURES

CITY OF MANOR
EXPENDITURES WITH COMPARISON TO BUDGET
FOR THE 12 MONTHS ENDING SEPTEMBER 30, 2011

WATER FUND

WATER DEPARTMENT

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
51-610-110	SALARIES	5,047.00	122,645.31	115,100.00	(7,545.31)	106.5
51-610-111	OVERTIME	.00	4,041.85	7,000.00	2,958.15	57.7
51-610-200	EMPLOYEE BENEFITS	.00	51,160.07	48,515.00	(2,555.07)	105.3
51-610-240	PERSONAL PROTECTIVE EQUIPMENT	.00	1,063.61	1,500.00	435.13	61.3
51-610-310	OFFICE SUPPLIES	.00	3,079.64	3,650.00	570.37	84.4
51-610-325	CELL PHONE	.00	1,050.16	1,700.00	675.84	63.6
51-610-330	HEAT	.00	5,431.09	8,000.00	5,568.45	47.2
51-610-340	ELECTRIC	.00	241,207.54	200,000.00	(41,207.54)	120.6
51-610-350	FUEL & OIL	.00	17,549.14	10,000.00	(7,549.14)	175.5
51-610-370	POSTAGE	.00	5,752.52	6,000.00	247.48	95.9
51-610-375	NOTICES & PUBLICATIONS	.00	34.42	3,500.00	3,465.58	1.0
51-610-400	INSURANCE	.00	1,024.00	.00	(1,024.00)	.0
51-610-410	MEETINGS & TRAVEL	.00	2,058.95	2,500.00	441.05	82.4
51-610-460	MEMBERSHIP DUES	.00	671.50	2,000.00	1,328.50	33.6
51-610-490	BOOKS & SUBSCRIPTIONS	.00	.00	650.00	650.00	.0
51-610-495	TRAINING & CERTIFICATION	.00	1,315.13	1,000.00	(315.13)	131.5
51-610-498	CUSTODIAL SUPPLIES	.00	77.02	.00	(77.02)	.0
51-610-500	DEPARTMENT SUPPLIES	.00	21,689.11	28,800.00	6,110.89	72.8
51-610-560	VEHICLE REPAIR & MAINTENANCE	.00	5,835.09	12,500.00	6,662.91	46.7
51-610-570	GROUNDS REPAIR & MAINTENANCE	.00	3,031.63	9,500.00	6,468.37	31.9
51-610-580	BUILDING REPAIR & MAINTENANCE	.00	15,493.60	32,000.00	17,426.14	47.7
51-610-590	EQUIPMENT REPAIR & MAINTENANCE	.00	162,550.65	128,000.00	(34,550.65)	127.0
51-610-600	CONTRACTS / CONSULTING	.00	358.11	6,000.00	5,641.89	6.0
51-610-604	CHEMICALS & TESTING	.00	4,775.00	5,300.00	525.00	90.1
51-610-605	WATER ASSESSMENT FEE	.00	40,654.00	35,000.00	(5,654.00)	116.2
51-610-610	PROFESSIONAL SERVICES	(415.00)	10,100.61	7,500.00	(2,600.61)	134.7
51-610-660	IT INTERCOMPANY REIMBURSEMENT	.00	50,014.12	50,014.00	(.12)	100.0
51-610-661	GENERAL INTERCOMPANY REIMBURSE	1,072.00	263,279.65	266,305.00	3,025.15	98.9
51-610-690	BAD DEBTS	.00	2,328.79	6,400.00	3,071.21	36.8
51-610-700	CAPITAL OUTLAY - NEW	(1,459,074.00)	125,384.57	2,121,500.00	1,996,115.43	5.9
51-610-701	DEPRECIATION - WATER	516,955.00	516,955.00	.00	(516,955.00)	.0
51-610-810	DEBT SERVICE - BOND PAYMENT	.00	.00	1,003,146.00	1,003,146.00	.0
51-610-815	INTEREST EXPENSE	.00	433,472.09	.00	(433,472.09)	.0
	TOTAL WATER DEPARTMENT	(920,666.00)	2,707,218.26	4,718,845.00	2,011,626.74	57.4
	TOTAL FUND EXPENDITURES	(920,666.00)	2,707,218.26	4,718,845.00	2,011,626.74	57.4
	NET REVENUE OVER EXPENDITURES	926,718.00	(591,430.50)	(1,201,724.00)	(610,293.50)	(50.2)

CITY OF [illegible]
BALANCE SHEET
SEPTEMBER 30, 20[illegible]

WATER FUND

	ASSETS			
61-[illegible]	CASH - COMBINED FUND		5,2[illegible]	
61-[illegible]	WATER RECEIVABLES		1[illegible]	
61-160000	FIXED ASSETS - WATER		2[illegible]	
61-165000	WATER RIGHT ASSET		7[illegible]	
61-175000	ACC DEPRECIATION - WATER		(5,4[illegible])	
	TOTAL ASSETS			2[illegible]
	LIABILITIES AND EQUITY			
	LIABILITIES			
61-[illegible]	ACCRUED PAYROLL		14,0[illegible]	
61-[illegible]	DEPOSITS PAYABLE		60,000.00	
61-[illegible]	WATER NOTE PAYABLE [illegible]		1[illegible]	
	TOTAL LIABILITIES			1[illegible]
	FUND EQUITY			
	UNAPPROPRIATED FUND BALANCE:			
61-[illegible]	FUND BALANCE-BEGINNING OF YEAR	[illegible]		
61-[illegible]	RESERVED FOR IMPROVEMENTS	[illegible]		
	REVENUE OVER EXPENDITURES - YTD	[illegible]		
	BALANCE - CURRENT DATE		1[illegible]	
	TOTAL FUND EQUITY			1[illegible]
	TOTAL LIABILITIES AND EQUITY			2[illegible]

CITY OF [illegible]

REVENUES WITH COMPARISON TO BUDGET

FOR THE 12 MONTHS ENDING SEPTEMBER 30, 2012

WATER FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET		UNEARNED	PCNT
	WATER REVENUE						
61-340-100	SERVICE FEES	.00	1,324,399.21	1,090,150.00	(	234,249.21)	121.5
61-340-101	BOND PAYMENT	.00	930,274.25	970,210.00		39,935.75	97.0
61-340-102	BOND RESERVE	.00	155,563.50	160,000.00		4,436.50	97.0
61-340-200	RECONNECT FEES	.00	28,504.56	20,000.00	(	8,504.56)	142.5
61-340-250	HYDRANT USE PERMIT	.00	250.00	.00	(	250.00)	.0
61-340-300	FINES & INTEREST FEES	.00	23,340.77	18,000.00	(	5,340.77)	129.7
61-340-750	LEASE REVENUE	.00	2,400.00	.00	(	2,400.00)	.0
	TOTAL WATER REVENUE	.00	2,410,[illegible]	2,194,500.00	(	216,[illegible])	109.9
	MISCELLANEOUS REVENUE						
61-370-100	INTEREST EARNINGS	.00	64,054.05	46,328.00	(	17,726.05)	138.3
61-370-456	WATER SUPPRESSION CONNECTION	.00	2,500.00	1,000.00	(	1,500.00)	250.0
61-370-500	OTO-FUNDING	.00	.00	150,000.00		150,000.00	.0
61-370-950	MISCELLANEOUS REVENUE	.00	4,725.42	.00	(	4,725.42)	.0
	TOTAL MISCELLANEOUS REVENUE	.00	71,279.47	197,328.00		126,048.53	36.1
	CONNECTION FEES/METER CHARGE						
61-380-100	CAPACITY REPLACEMENT FEE	.00	87,156.00	20,000.00	(	67,156.00)	435.8
61-380-200	METER CHARGE	.00	28,575.55	8,300.00	(	20,275.55)	344.3
	TOTAL CONNECTION FEES/METER CHARGE	.00	115,[illegible]	28,300.00	(	77,[illegible])	322.3
	TOTAL FUND REVENUE	.00	2,598,055.18	2,426,128.00	(	171,927.18)	107.1

EXPENDITURES

WATER FUND

WATER DEPARTMENT

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
51-610-110	SALARIES	(5,537.05)	372,032.04	376,913.00	4,881.96	97.2
51-610-120	OVERTIME	.00	6,194.03	8,000.00	1,805.97	77.4
51-610-130	EMPLOYEE BENEFITS	.00	71,916.02	100,337.00	28,420.98	71.7
51-610-240	PERSONAL PROTECTIVE EQUIPMENT	.00	2,761.22	1,500.00	(1,261.22)	184.1
51-610-310	OFFICE SUPPLIES	.00	1,736.62	2,000.00	263.38	86.8
51-610-320	HEAT	.00	788.08	5,500.00	4,711.92	14.3
51-610-330	ELECTRIC	.00	342,369.82	350,000.00	7,630.18	97.8
51-610-350	FUEL & OIL	.00	13,712.79	15,000.00	1,287.21	91.4
51-610-370	POSTAGE	.00	6,235.61	6,000.00	(235.61)	103.9
51-610-375	NOTICES & PUBLICATIONS	.00	.00	3,500.00	3,500.00	.0
51-610-470	MEETINGS & TRAVEL	.00	1,258.25	2,000.00	741.75	62.9
51-610-480	MEMBERSHIP DUES	.00	748.50	1,000.00	251.50	74.9
51-610-490	BOOKS & SUBSCRIPTIONS	.00	.00	650.00	650.00	.0
51-610-495	TRAINING & CERTIFICATION	.00	2,732.67	1,000.00	(1,732.67)	273.3
51-610-498	CUSTODIAL SUPPLIES	.00	208.57	600.00	391.43	34.8
51-610-500	DEPARTMENT SUPPLIES	.00	14,895.89	18,000.00	3,104.11	82.8
51-610-560	VEHICLE REPAIR & MAINTENANCE	.00	10,965.06	7,000.00	(3,965.06)	156.6
51-610-570	GROUNDS REPAIR & MAINTENANCE	.00	4,073.48	2,750.00	(1,323.48)	148.1
51-610-575	INFRASTRUCTURE REPAIR & MAINT	.00	134,619.37	130,000.00	(4,619.37)	103.5
51-610-580	BUILDING REPAIR & MAINTENANCE	(8,834.10)	11,240.05	35,000.00	23,759.95	32.1
51-610-590	EQUIPMENT REPAIR & MAINTENANCE	8,834.00	52,115.08	50,000.00	(2,115.08)	104.2
51-610-601	WATER RIGHTS	(70,532.00)	.24	.00	(.24)	.0
51-610-604	CHEMICALS & TESTING	.00	6,000.00	5,000.00	(1,000.00)	120.0
51-610-605	WATER ASSESSMENT FEE	.00	27,290.49	36,250.00	8,959.51	75.3
51-610-610	PROFESSIONAL SERVICES	.00	5,640.43	7,000.00	1,359.57	80.6
51-610-615	LEGAL COUNSEL	.00	13,643.66	.00	(13,643.66)	.0
51-610-680	IT INTERCOMPANY REIMBURSEMENT	.00	52,647.00	48,997.00	(3,650.00)	107.5
51-610-685	GENERAL INTERCOMPANY REIMBURSE	.00	160,174.14	182,851.00	22,676.86	87.6
51-610-690	BAD DEBTS	.00	8,850.74	4,000.00	(4,850.74)	221.3
51-610-700	CAPITAL OUTLAY - NEW	(142,853.00)	162,464.15	445,000.00	282,535.85	36.5
51-610-750	DEPRECIATION - WATER	533,740.50	533,740.50	.00	(533,740.50)	.0
51-610-810	DEBT SERVICE - BOND PAYMENT	.00	.00	1,003,145.00	1,003,145.00	.0
51-610-815	INTEREST EXPENSE	.00	412,818.72	.00	(412,818.72)	.0
51-610-900	MISCELLANEOUS EXPENSE	.00	240.00	.00	(240.00)	.0
	TOTAL WATER DEPARTMENT	314,713.05	2,251,057.20	2,687,330.00	436,272.80	84.2
	TOTAL FUND EXPENDITURES	314,713.05	2,251,057.20	2,687,330.00	436,272.80	84.2
	NET REVENUE OVER EXPENDITURES	(314,713.05)	548,997.08	(407,102.00)	(956,099.08)	134.9

CITY OF [illegible]

BALANCE SHEET

SEPTEMBER 30, 2019

WATER FUND

ASSETS

61-101000	CASH - COMBINED FUND	5,457,285.73	
61-115000	WATER RECEIVABLES	110,520.38	
61-160000	FIXED ASSETS - WATER	21,060,475.34	
61-165000	WATER PRINT ASSET	230,702.05	
61-170000	ACC DEPRECIATION - WATER	(3,140,125.60)	
	TOTAL ASSETS		25,788,702.95

LIABILITIES AND EQUITY

LIABILITIES

61-210000	ACCRUED PAYROLL		1[illegible],204.60	
61-220000	DEPOSITS PAYABLE		92,925.00	
61-220100	WATER NOTE PAYABLE [illegible]		13,378,[illegible].04	
	TOTAL LIABILITIES			13,469,675.04

FUND EQUITY

	UNAPPROPRIATED FUND BALANCE			
61-275000	FUND BALANCE-BEGINNING OF YEAR	7,2[illegible],617.43		
61-275100	RESERVED FOR IMPROVEMENTS	2,140,801.53		
61-275150	WATER CAPACITY REPLACEMENT RES	402,000.40		
61-275200	RESTRICTED BOND RESERVE	564,302.00		
61-275300	ASSIGNED BOND RESERVE	565,302.00		
	REVENUE OVER EXPENDITURES - YTD	452,005.30		
	BALANCE - CURRENT DATE		12,318,807.01	
	TOTAL FUND EQUITY			12,318,807.01
	TOTAL LIABILITIES AND EQUITY			25,788,702.95

CITY OF AMMON
REVENUES WITH COMPARISON TO BUDGET
FOR THE 12 MONTHS ENDING SEPTEMBER 30, 2013

WATER FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET		UNEARNED	PCNT
	WATER REVENUE						
05-340-100	SERVICE FEES	.00	1,360,153.77	1,300,425.00	(	59,728.77)	104.6
05-340-151	BOND PAYMENT	.00	855,302.00	859,310.00		4,008.00	99.5
05-340-152	BOND RESERVE	.00	.00	100,000.00		100,000.00	.0
05-340-200	RECONNECT FEES	.00	24,325.00	20,000.00	(	4,325.00)	121.6
05-340-300	HYDRANT USE PERMIT	.00	325.00	.00	(	325.00)	.0
05-340-900	FINES & INTEREST FEES	.00	22,105.14	18,000.00	(	4,105.14)	122.8
	TOTAL WATER REVENUE	.00	2,384,215.30	2,484,325.00		100,109.70	96.0
	MISCELLANEOUS REVENUE						
05-370-100	INTEREST EARNINGS	.00	46,670.85	60,112.00		13,437.15	77.6
05-370-450	WATER SUPPRESSION CONNECTION	.00	.00	5,000.00		5,000.00	.0
05-370-710	DONATED ASSETS	103,000.00	103,000.00	.00	(	103,000.00)	.0
05-370-900	MISCELLANEOUS REVENUE	.00	10,483.77	.00	(	10,483.77)	.0
	TOTAL MISCELLANEOUS REVENUE	103,000.00	160,053.92	61,112.00	(	98,941.92)	262.5
	CONNECTION FEES/METER CHARGE						
05-380-100	CAPACITY REPLACEMENT FEE	106,455.00	106,455.00	42,000.00	(	64,455.00)	253.5
05-380-200	METER CHARGE	.00	32,023.00	10,950.00	(	21,073.00)	292.5
	TOTAL CONNECTION FEES/METER CHARGE	106,455.00	138,478.00	52,950.00	(	85,528.00)	261.5
	TOTAL FUND REVENUE	209,455.00	2,682,753.04	2,598,387.00	(	103,465.04)	104.0

EXPENDITURES

CITY OF AMMON
EXPENDITURES WITH COMPARISON TO BUDGET
FOR THE 12 MONTHS ENDING SEPTEMBER 30, 2013

WATER FUND

WATER DEPARTMENT

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
51-610-110	SALARIES	(15,201.00)	171,448.78	177,449.00	5,960.22	96.6
51-610-115	OVERTIME	.00	6,169.70	16,580.00	10,410.34	37.2
51-610-220	EMPLOYEE BENEFITS	.00	93,137.61	102,719.00	9,581.39	90.7
51-610-230	SAFETY EQUIP/PERS PROTECT EQUIP	.00	1,666.65	2,000.00	333.35	83.3
51-610-310	OFFICE SUPPLIES	.00	1,244.48	2,700.00	1,455.52	46.1
51-610-330	HEAT	.00	2,553.43	5,000.00	2,446.56	51.1
51-610-340	ELECTRIC	.00	349,055.85	350,000.00	944.15	99.7
51-610-350	FUEL & OIL	.00	15,544.01	15,000.00	(544.01)	103.6
51-610-370	POSTAGE	.00	6,210.61	7,800.00	1,589.39	79.6
51-610-375	NOTICES & PUBLICATIONS	.00	156.52	3,500.00	3,339.50	4.5
51-610-470	MEETINGS & TRAVEL	.00	70.50	2,000.00	1,929.50	3.5
51-610-480	MEMBERSHIP DUES	.00	854.00	1,000.00	146.00	85.4
51-610-482	BOOKS & SUBSCRIPTIONS	.00	.00	450.00	450.00	.0
51-610-485	TRAINING & CERTIFICATION	.00	3,087.92	2,000.00	(1,087.92)	154.4
51-610-490	CUSTODIAL SUPPLIES	.00	90.53	900.00	809.47	10.1
51-610-500	DEPARTMENT SUPPLIES	.00	24,750.70	16,000.00	(8,750.70)	154.7
51-610-560	VEHICLE REPAIR & MAINTENANCE	.00	6,528.40	10,000.00	3,471.60	65.3
51-610-570	GROUND REPAIR & MAINTENANCE	.00	4,280.81	3,000.00	(1,280.81)	142.7
51-610-575	INFRASTRUCTURE REPAIR & MAINT	.00	116,369.73	125,000.00	8,630.27	93.1
51-610-580	BUILDING REPAIR & MAINTENANCE	.00	11,857.50	20,000.00	8,142.44	59.3
51-610-590	EQUIPMENT REPAIR & MAINTENANCE	.00	21,545.15	20,000.00	(1,545.15)	108.4
51-610-606	CONTRACTS / CONSULTING	.00	546.52	.00	(546.52)	.0
51-610-621	WATER RIGHTS	(135,600.00)	.00	.00	.00	.0
51-610-624	CHEMICALS & TESTING	.00	5,010.00	7,170.00	2,160.00	69.9
51-610-625	WATER ASSESSMENT FEE	.00	38,104.92	36,200.00	(1,904.92)	105.3
51-610-675	PROFESSIONAL SERVICES	.00	5,109.65	7,000.00	1,890.35	73.0
51-610-690	IT INTERCOMPANY REIMBURSEMENT	.00	125,081.00	125,081.00	.00	100.0
51-610-691	GENERAL INTERCOMPANY REIMBURSE	.00	210,291.93	218,577.00	8,285.07	96.2
51-610-692	BAD DEBTS	.00	10,052.15	4,000.00	(6,052.15)	251.3
51-610-790	CAPITAL OUTLAY - NEW	(121,563.00)	29,910.76	381,400.00	351,489.24	7.8
51-610-792	CAPITAL OUTLAY - LOOPING	.00	.00	178,000.00	178,000.00	.0
51-610-795	DEPRECIATION - WATER	545,007.00	545,007.00	.00	(545,007.00)	.0
51-610-810	DEBT SERVICE - BOND PAYMENT	.00	.00	542,589.00	542,589.00	.0
51-610-815	INTEREST EXPENSE	.00	382,744.26	416,741.00	33,996.74	91.8
51-610-820	BOND RESERVE	.00	.00	106,560.00	106,560.00	.0
51-610-890	MISCELLANEOUS EXPENSE	.00	70.50	.00	(70.50)	.0
	TOTAL WATER DEPARTMENT	273,638.00	2,160,645.74	2,856,687.00	696,040.26	75.6
	TOTAL FUND EXPENDITURES	273,638.00	2,160,645.74	2,856,687.00	696,040.26	75.6
	NET REVENUE OVER EXPENDITURES	(55,156.00)	492,095.50	(308,050.00)	(800,585.50)	160.3

CITY OF [illegible]
BALANCE SHEET
SEPTEMBER 30, 2014

WATER FUND

	ASSETS			
61-101000	CASH - COMBINED FUND		5,556,956.74	
61-115000	WATER RECEIVABLES		61,350.32	
61-160000	FIXED ASSETS - WATER		24,431,833.91	
61-165000	WATER RIGHT ASSETS		360,571.35	
61-170000	ACC DEPRECIATION - WATER		(4,009,100.04)	
	TOTAL ASSETS			25,556,135.74
	LIABILITIES AND EQUITY			
	LIABILITIES			
61-215000	ACCRUED INTEREST PAYABLE		32,291.05	
61-216000	ACCRUED PAYROLL		5,491.50	
61-220000	WATER DEPOSITS PAYABLE		77,560.50	
61-230000	WATER NOTE PAYABLE [illegible]		12,741,228.40	
	TOTAL LIABILITIES			12,856,576.42
	FUND EQUITY			
	UNAPPROPRIATED FUND BALANCE:			
61-275000	FUND BALANCE - BEGINNING OF YEAR	7,754,261.11		
61-275100	RESERVED FOR IMPROVEMENTS	2,143,601.50		
61-275150	WATER CAPACITY REPLACEMENT FEES	500,258.40		
61-275200	RESTRICTED BOND RESERVE	165,302.00		
61-275300	ASSIGNED BOND RESERVE	165,302.00		
	REVENUE OVER EXPENDITURES - YTD	366,812.33		
	BALANCE - CURRENT DATE		12,085,519.34	
	TOTAL FUND EQUITY			12,085,519.34
	TOTAL LIABILITIES AND EQUITY			25,556,135.74

CITY OF AMMON
REVENUES WITH COMPARISON TO BUDGET
FOR THE 12 MONTHS ENDING SEPTEMBER 30, 2014

WATER FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEARNED	PCNT
	WATER REVENUE					
61-340-400	SERVICE FEES	.00	1,284,063.91	1,292,087.00	8,023.09	99.4
61-340-451	BOND PAYMENT	.00	1,043,386.00	1,043,478.00	.00	100.0
61-340-300	RECONNECT FEES	.00	29,685.50	20,000.00	(9,685.50)	148.5
61-340-350	HYDRANT USE PERMIT	.00	500.00	.00	(500.00)	.0
61-340-400	FINES & INTEREST FEES	.00	25,591.59	14,000.00	(7,591.59)	142.7
	TOTAL WATER REVENUE	.00	2,383,276.00	2,379,115.00	(6,583.00)	100.3
	MISCELLANEOUS REVENUE					
61-370-100	INTEREST EARNINGS	.00	37,777.03	50,510.00	12,732.34	74.8
61-370-450	WATER SUPPRESSION CONNECTION	.00	500.00	1,000.00	500.00	50.0
61-370-710	DONATED ASSETS	99,300.00	99,300.00	.00	(99,300.00)	.0
61-370-500	MISCELLANEOUS REVENUE	.00	1,773.65	.00	(1,773.65)	.0
	TOTAL MISCELLANEOUS REVENUE	99,300.00	139,351.31	51,510.00	(87,741.31)	270.3
	CAPACITY REPLACEMENT/METER CHARGE					
61-380-150	CAPACITY REPLACEMENT FEE	.00	87,200.00	109,200.00	22,000.00	79.8
61-380-200	METER CHARGE	.00	20,251.56	28,470.00	8,218.44	71.1
	TOTAL CAPACITY REPLACEMENT/METER CHARGE	.00	107,451.56	137,670.00	30,218.44	78.1
	TOTAL FUND REVENUE	99,300.00	2,629,981.37	2,562,295.00	(67,086.37)	102.6

EXPENDITURES

WATER FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
	WATER DEPARTMENT					
51-610-110	SALARIES	14,561.00	210,506.06	195,800.00 (	14,706.06)	107.5
51-610-120	OVERTIME	.00	6,601.39	9,905.00	3,286.77	67.5
51-610-200	EMPLOYEE BENEFITS	.00	103,871.45	104,532.00	660.55	99.2
51-610-215	PERSONAL PROTECTIVE EQUIPMENT	.00	2,041.64	3,000.00	958.10	65.4
51-610-300	BANK FEES AND CHARGES	.00	15,508.94	10,413.00 (	95.94)	100.0
51-610-310	OFFICE SUPPLIES	.00	1,770.48	2,500.00	729.52	70.8
51-610-330	HEAT	.00	2,536.09	1,500.00 (	636.09)	133.6
51-610-340	ELECTRIC	.00	329,410.39	370,736.00	41,325.64	88.9
51-610-350	FUEL & OIL	.00	11,502.42	15,000.00	3,497.55	76.7
51-610-375	POSTAGE	.00	6,522.25	6,000.00 (	522.25)	108.7
51-610-376	NOTICES & PUBLICATIONS	.00	.00	1,000.00	1,000.00	.0
51-610-450	HEALTH & SAFETY	.00	145.00	.00 (	145.00)	.0
51-610-480	MEMBERSHIP DUES	.00	720.50	675.00	506.50	93.4
51-610-490	BOOKS & SUBSCRIPTIONS	.00	219.00	650.00	431.00	33.8
51-610-495	TRAINING & CERTIFICATION	.00	2,628.79	3,000.00	371.21	87.6
51-610-497	CUSTODIAL SUPPLIES	.00	373.01	500.00	126.99	74.6
51-610-500	DEPARTMENT SUPPLIES	.00	24,840.00	20,000.00 (	4,840.00)	124.2
51-610-520	VEHICLE REPAIR & MAINTENANCE	.00	3,951.36	8,000.00	4,048.64	49.4
51-610-570	GROUND REPAIR & MAINTENANCE	.00	18,025.00	15,000.00 (	3,025.00)	120.2
51-610-575	INFRASTRUCTURE REPAIR & MAINT	(70,000.00)	103,019.35	116,000.00	13,980.65	89.0
51-610-580	BUILDING REPAIR & MAINTENANCE	.00	3,542.66	15,000.00	11,457.34	23.6
51-610-590	EQUIPMENT REPAIR & MAINTENANCE	.00	19,547.00	12,500.00 (	7,047.00)	102.8
51-610-600	CONTRACTS & CONSULTING	(154,138.00) (	154,118.95)	.00	154,118.95	.0
51-610-605	WATER RIGHTS	.00	154,529.00	188,150.00	33,621.00	82.2
51-610-620	CHEMICALS & TESTING	.00	16,370.35	7,170.00 (	9,200.35)	228.3
51-610-625	WATER ASSESSMENT FEE	.00	38,076.39	50,100.00	11,523.61	63.2
51-610-630	PROFESSIONAL SERVICES	.00	61.00	2,000.00	1,939.00	3.1
51-610-650	INTERCOMPANY REIMBURSEMENT	.00	134,611.00	134,611.00	.00	100.0
51-610-651	GENERAL INTERCOMPANY REIMBURSE	.00	181,724.31	195,997.00	14,273.69	92.5
51-610-680	REFUNDS	.00	6,047.00	4,000.00 (	2,047.00)	151.2
51-610-685	EQUIPMENT RENT / LEASE	.00	.00	5,000.00	5,000.00	.0
51-610-700	CAPITAL OUTLAY - NEW	(388,144.00) (	.00)	381,470.00	381,470.00	.0
51-610-710	CAPITAL OUTLAY - ONGOING	.00	31,875.00	148,571.00	116,696.00	21.4
51-610-720	DEPRECIATION - WATER	554,078.00	554,078.00	.00 (	554,078.00)	.0
51-610-810	DEBT SERVICE - BOND PAYMENT	.00	.00	842,885.00	842,885.00	.0
51-610-815	INTEREST EXPENSE	23,247.00	428,887.36	400,463.00 (	28,424.36)	107.1
51-610-900	MISCELLANEOUS EXPENSE	.00	1,025.00	.00 (	1,025.00)	.0
	TOTAL WATER DEPARTMENT	93,373.00	2,203,568.74	3,071,214.00	867,645.26	71.7
	TOTAL FUND EXPENDITURES	93,373.00	2,203,568.74	3,071,214.00	867,645.26	71.7
	NET REVENUE OVER EXPENDITURES	607.00	383,612.36 (	508,119.00) (	874,731.36)	72.2

CITY OF [illegible]
BALANCE SHEET
SEPTEMBER 30, 2015

WATER FUND

	ASSETS			
51-101000	CASH - COMBINED FUND		5,383,156.39	
51-115500	WATER RECEIVABLES		72,019.45	
51-160000	FIXED ASSETS - WATER		24,588,404.91	
51-166050	WATER RIGHT ASSET		590,871.50	
51-170000	ACC DEPRECIATION - WATER		(4,085,075.81)	
51-175000	DEFERRED OUTFLOW FOR PERS		37,606.35	
	TOTAL ASSETS			25,350,056.75
	LIABILITIES AND EQUITY			
	LIABILITIES			
51-215000	ACCRUED INTEREST PAYABLE		25,285.05	
51-215500	ACCRUED PAYABLE		10,343.00	
51-217000	NET PENSION LIABILITY		47,897.00	
51-220000	WATER DEPOSITS PAYABLE		85,685.00	
51-224110	WATER NOTE PAYABLE DEQ		12,199,100.37	
51-240100	DEFERRED INFLOW FOR PERS		55,879.00	
	TOTAL LIABILITIES			12,420,854.74
	FUND EQUITY			
	UNAPPROPRIATED FUND BALANCE:			
51-270000	FUND BALANCE-BEGINNING OF YEAR	7,922,850.44		
51-275500	RESERVED FOR IMPROVEMENTS	2,143,401.50		
51-275450	WATER CAPACITY REPLACEMENT RES	538,456.40		
51-275200	RESTRICTED BOND RESERVE	955,102.00		
51-275300	ASSIGNED BOND RESERVE	955,102.00		
	REVENUE OVER EXPENDITURES - YTD	515,178.63		
	BALANCE - CURRENT DATE		12,929,177.97	
	TOTAL FUND EQUITY			12,929,177.97
	TOTAL LIABILITIES AND EQUITY			25,350,056.70

CITY OF [illegible]
REVENUES WITH COMPARISON TO BUDGET
FOR THE 10 MONTHS ENDING SEPTEMBER 30, 2015

WATER FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEARNED	PCNT
	WATER REVENUE					
01-345-150	SERVICE FEES	.00	1,[illegible]	4,257,[illegible]	([illegible])	103.4
01-345-101	BOND PAYMENT	.00	455,[illegible]	455,[illegible]	.00	100.0
01-345-200	RECONNECT FEES	.00	21,595.00	25,000.00	(3,[illegible])	114.5
01-345-260	HYDRANT USE PERMIT	.00	675.00	.00	(675.00)	.0
01-345-300	FINES & INTEREST FEES	.00	16,757.41	15,000.00	(1,757.41)	109.5
01-345-700	LEASE REVENUE	.00	[illegible]	.00	(1,764.16)	.0
	TOTAL WATER REVENUE	.00	2,460,946.58	3,285,[illegible]	(115,256.58)	105.5
	MISCELLANEOUS REVENUE					
01-370-100	INTEREST EARNINGS	.00	64,885.33	53,341.00	(11,544.33)	121.6
01-370-450	WATER SUSPENSION/CONNECTION	.00	1,500.00	1,000.00	(500.00)	150.0
01-370-600	MISCELLANEOUS REVENUE	.00	1,755.50	.00	(1,755.50)	.0
	TOTAL MISCELLANEOUS REVENUE	.00	68,140.33	54,341.00	(13,799.33)	125.4
	CAPACITY REPLACEMENT/METER CHARGE					
01-380-100	CAPACITY REPLACEMENT FEE	.00	64,344.32	1[illegible]	[illegible]	[illegible]
01-380-200	METER CHARGE	.00	33,130.83	28,470.00	(4,656.83)	116.4
	TOTAL CAPACITY REPLACMNT/METER CHARGE	.00	1[illegible]	137,570.00	[illegible]	[illegible]
	TOTAL FUND REVENUE	.00	2,[illegible]	2,4[illegible]	(1[illegible])	104.[illegible]

EXPENDITURES

WATER FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
	WATER DEPARTMENT					
51-610-110	SALARIES	2,847.00	304,813.08	333,539.00	28,726.32	91.2
51-610-111	OVERTIME	.00	9,744.71	5,327.00	(4,416.71)	182.9
51-610-200	EMPLOYEE BENEFITS	6,350.00	113,498.56	142,026.00	28,527.14	79.9
51-610-220	PERSONAL PROTECTIVE EQUIPMENT	.00	882.14	3,000.00	2,117.86	29.4
51-610-300	BANK FEES AND CHARGES	.00	14,552.60	18,345.00	3,792.40	79.3
51-610-310	OFFICE SUPPLIES	.00	1,826.40	3,000.00	1,173.60	60.9
51-610-330	HEAT	.00	3,076.56	7,500.00	423.44	94.4
51-610-340	ELECTRIC	.00	157,613.13	299,000.00	41,106.87	86.2
51-610-350	FUEL & OIL	.00	7,487.67	10,000.00	2,512.33	74.9
51-610-370	POSTAGE	.00	3,951.11	4,600.00	648.89	85.9
51-610-375	NOTICES & PUBLICATIONS	.00	476.40	1,100.00	624.00	43.3
51-610-450	HEALTH & SAFETY	.00	85.00	500.00	415.00	17.0
51-610-460	INSURANCE	.00	8,042.20	8,019.00	(23.20)	100.3
51-610-480	MEMBERSHIP DUES	.00	364.00	1,125.00	761.00	32.4
51-610-490	BOOKS & SUBSCRIPTIONS	.00	.50	250.00	250.00	.2
51-610-495	TRAINING & CERTIFICATION	.00	1,304.17	3,000.00	1,695.83	43.5
51-610-499	CUSTODIAL SUPPLIES	.00	105.95	500.00	394.05	21.2
51-610-500	DEPARTMENT SUPPLIES	.00	68,468.41	25,000.00	(43,468.41)	273.9
51-610-560	VEHICLE REPAIR & MAINTENANCE	.00	2,112.95	5,000.00	2,887.05	42.3
51-610-565	HEAVY VEHICLE REPAIR & MAINT	(5,260.00)	(5,261.25)	.00	5,261.25	.0
51-610-570	GROUNDS REPAIR & MAINTENANCE	.00	1,177.99	3,000.00	1,822.01	39.3
51-610-575	INFRASTRUCTURE REPAIR & MAINT	.00	140,075.56	112,000.00	(28,075.56)	125.1
51-610-580	BUILDING REPAIR & MAINTENANCE	.00	5,683.41	15,000.00	9,316.59	37.9
51-610-590	EQUIPMENT REPAIR & MAINTENANCE	.00	15,005.66	24,000.00	8,994.34	62.5
51-610-600	CONTRACTS / CONSULTING	.00	10,910.40	.00	(10,910.40)	.0
51-610-601	WATER RIGHTS	.00	464.00	.00	(464.00)	.0
51-610-604	CHEMICALS & TESTING	.00	4,556.03	17,125.00	12,575.97	70.6
51-610-605	WATER ASSESSMENT FEE	.00	28,971.64	26,700.00	(2,271.64)	108.5
51-610-610	PROFESSIONAL SERVICES	.00	100.00	2,000.00	1,900.00	5.0
51-610-630	LEGAL COUNSEL	.00	40.00	.00	(40.00)	.0
51-610-660	IT INTERCOMPANY REIMBURSEMENT	.00	61,507.00	61,507.00	.00	100.0
51-610-661	GENERAL INTERCOMPANY REIMBURSE	.00	157,545.00	164,591.00	7,047.00	95.7
51-610-680	BAD DEBTS	.00	5,093.46	7,425.00	2,331.54	68.6
51-610-685	EQUIPMENT RENT / LEASE	.00	.00	4,000.00	4,000.00	.0
51-610-730	CAPITAL OUTLAY - NEW	(157,405.00)	2,360.62	893,478.00	890,863.18	.3
51-610-735	CAPITAL OUTLAY - ONGOING	.00	8,050.00	732,549.00	724,499.00	1.1
51-610-790	DEPRECIATION - WATER	560,333.30	560,333.30	.00	(560,333.30)	.0
51-610-810	DEBT SERVICE - BOND PAYMENT	.00	.00	571,609.00	571,609.00	.0
51-610-820	INTEREST EXPENSE	4,270.00	381,024.36	383,903.00	2,879.01	99.3
	TOTAL WATER DEPARTMENT	407,472.00	2,246,385.09	3,307,303.00	1,060,918.91	67.9
	TOTAL FUND EXPENDITURES	407,472.00	2,246,385.09	3,307,303.00	1,060,918.91	67.9
	NET REVENUE OVER EXPENDITURES	(407,472.00)	944,771.03	(825,003.00)	(1,106,112.03)	42.2

CITY OF AMMON
BALANCE SHEET
SEPTEMBER 30, 2016

WATER FUND

	ASSETS			
61-101000	CASH - COMBINED FUND		5,492,793.88	
61-115000	WATER RECEIVABLES		54,122.88	
61-160000	FIXED ASSETS - WATER		25,345,100.91	
61-165000	WATER RIGHT ASSET		360,671.00	
61-170000	ACC DEPRECIATION - WATER		(5,636,259.61)	
61-175000	DEFERRED OUTFLOW FOR PERSI		71,207.00	
	TOTAL ASSETS			25,687,636.06
	LIABILITIES AND EQUITY			
	LIABILITIES			
61-215000	ACCRUED INTEREST PAYABLE		8,564.46	
61-216000	ACCRUED PAYROLL		9,900.00	
61-217000	NET PENSION LIABILITY		132,966.00	
61-220000	WATER DEPOSITS PAYABLE		85,400.00	
61-220100	WATER NOTE PAYABLE DEQ		11,577,710.80	
61-240000	DEFERRED INFLOW FOR PERSI		49,105.00	
	TOTAL LIABILITIES			11,863,646.26
	FUND EQUITY			
	UNAPPROPRIATED FUND BALANCE:			
61-275000	FUND BALANCE-BEGINNING OF YEAR	8,198,988.07		
61-275100	RESERVED FOR IMPROVEMENTS	2,143,801.50		
61-275150	WATER CAPACITY REPLACEMENT RES	672,752.40		
61-275200	RESTRICTED BOND RESERVE	955,302.00		
61-275300	ASSIGNED BOND RESERVE	955,302.00		
	REVENUE OVER EXPENDITURES - YTD	897,843.83		
	BALANCE - CURRENT DATE		13,823,989.80	
	TOTAL FUND EQUITY			13,823,989.80
	TOTAL LIABILITIES AND EQUITY			25,687,636.06

WATER FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEARNED	PCNT
	WATER REVENUE					
61-340-100	SERVICE FEES	.00	1,460,167.21	1,292,387.00	(167,780.21)	113.0
61-340-101	BOND PAYMENT	.00	955,302.00	955,302.00	.00	100.0
61-340-200	RECONNECT FEES	.00	21,327.39	20,000.00	(1,327.39)	106.6
61-340-280	HYDRANT USE PERMIT	.00	625.00	.00	(625.00)	.0
61-340-300	FINES & INTEREST FEES	.00	13,028.08	18,000.00	4,971.92	72.4
	TOTAL WATER REVENUE	.00	2,450,449.68	2,285,689.00	(164,760.68)	107.2
	MISCELLANEOUS REVENUE					
61-370-100	INTEREST EARNINGS	.00	106,740.64	59,173.00	(47,567.64)	180.4
61-370-450	WATER SUPPRESSION CONNECTION	.00	1,000.00	1,000.00	.00	100.0
61-370-710	DONATED ASSETS	297,894.00	297,894.00	.00	(297,894.00)	.0
61-370-900	MISCELLANEOUS REVENUE	.00	272.26	.00	(272.26)	.0
	TOTAL MISCELLANEOUS REVENUE	297,894.00	405,906.90	60,173.00	(345,733.90)	674.6
	CAPACITY REPLACMT/METER CHARGE					
61-380-100	CAPACITY REPLACEMENT FEE	.00	111,608.00	109,200.00	(2,408.00)	102.2
61-380-200	METER CHARGE	.00	35,850.26	28,470.00	(7,380.26)	125.9
	TOTAL CAPACITY REPLACMT/METER CHARGE	.00	147,458.26	137,670.00	(9,788.26)	107.1
	TOTAL FUND REVENUE	297,894.00	3,003,814.84	2,483,532.00	(520,282.84)	121.0

EXPENDITURES

CITY OF AMMON

EXPENDITURES WITH COMPARISON TO BUDGET

FOR THE 12 MONTHS ENDING SEPTEMBER 30, 2016

WATER FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
	WATER DEPARTMENT					
61-610-110	SALARIES	(420.00)	188,345.20	198,288.00	9,942.80	95.0
61-610-111	OVERTIME	.00	11,122.45	3,558.00	(7,564.45)	312.6
61-610-200	EMPLOYEE BENEFITS	6,339.00	85,296.24	103,195.00	17,898.76	82.7
61-610-280	PERSONAL PROTECTIVE EQUIPMENT	.00	1,153.13	2,000.00	846.87	57.7
61-610-300	BANK FEES AND CHARGES	.00	14,102.18	16,845.00	2,742.82	83.7
61-610-310	OFFICE SUPPLIES	.00	1,185.56	2,900.00	1,714.44	40.9
61-610-330	HEAT	.00	2,093.28	3,400.00	1,306.72	61.6
61-610-340	ELECTRIC	47,597.00	370,674.72	400,000.00	29,325.28	92.7
61-610-350	FUEL & OIL	.00	11,570.27	6,000.00	(5,570.27)	192.8
61-610-370	POSTAGE	.00	6,342.93	6,500.00	157.07	97.6
61-610-375	NOTICES & PUBLICATIONS	.00	294.53	2,600.00	2,305.47	11.3
61-610-450	HEALTH & SAFETY	.00	165.00	500.00	335.00	33.0
61-610-460	INSURANCE	.00	12,555.88	12,556.00	.12	100.0
61-610-480	MEMBERSHIP DUES	.00	849.00	1,125.00	276.00	75.5
61-610-490	BOOKS & SUBSCRIPTIONS	.00	.00	500.00	500.00	.0
61-610-495	TRAINING & CERTIFICATION	.00	1,862.62	2,500.00	637.38	74.5
61-610-499	CUSTODIAL SUPPLIES	.00	1,034.85	2,420.00	1,385.15	42.8
61-610-500	DEPARTMENT SUPPLIES	.00	19,890.09	30,000.00	10,109.91	66.3
61-610-560	VEHICLE REPAIR & MAINTENANCE	.00	2,692.37	6,000.00	3,307.63	44.9
61-610-565	HEAVY VEHICLE REPAIR & MAINT	.00	3,945.68	4,000.00	54.32	98.6
61-610-570	GROUND REPAIR & MAINTENANCE	.00	660.12	3,000.00	2,339.88	22.0
61-610-575	INFRASTRUCTURE REPAIR & MAINT	.00	127,123.09	150,000.00	22,876.91	84.8
61-610-580	BUILDING REPAIR & MAINTENANCE	.00	6,472.19	15,000.00	8,527.81	43.2
61-610-590	EQUIPMENT REPAIR & MAINTENANCE	.00	46,826.53	24,000.00	(22,826.53)	195.1
61-610-600	CONTRACTS / CONSULTING	.00	3,871.44	.00	(3,871.44)	.0
61-610-601	WATER RIGHTS	.00	4,517.80	.00	(4,517.80)	.0
61-610-604	CHEMICALS & TESTING	.00	5,970.00	9,150.00	3,180.00	65.3
61-610-605	WATER ASSESSMENT FEE	.00	8,465.47	36,700.00	28,234.53	23.1
61-610-610	PROFESSIONAL SERVICES	.00	600.00	2,000.00	1,400.00	30.0
61-610-630	LEGAL COUNCIL	.00	123.04	.00	(123.04)	.0
61-610-660	IT INTERCOMPANY REIMBURSEMENT	.00	87,883.00	87,883.00	.00	100.0
61-610-661	GENERAL INTERCOMPANY REIMBURSE	.00	130,592.19	136,603.00	6,010.81	95.6
61-610-690	BAD DEBTS	.00	3,648.77	7,400.00	3,751.23	49.3
61-610-695	EQUIPMENT RENT / LEASE	.00	11,201.17	16,000.00	4,798.83	70.0
61-610-700	CAPITAL OUTLAY - NEW	(487,988.00)	1,399.70	333,470.00	332,070.30	.4
61-610-710	CAPITAL OUTLAY - ONGOING	.00	1,125.00	513,373.00	512,248.00	.2
61-610-790	DEPRECIATION - WATER	578,120.00	578,120.00	.00	(578,120.00)	.0
61-610-810	DEBT SERVICE - BOND PAYMENT	.00	.00	571,609.00	571,609.00	.0
61-610-815	INTEREST EXPENSE	(71,872.00)	352,195.52	383,693.00	31,497.48	91.8
	TOTAL WATER DEPARTMENT	71,776.00	2,105,971.01	3,094,768.00	988,796.99	68.1
	TOTAL FUND EXPENDITURES	71,776.00	2,105,971.01	3,094,768.00	988,796.99	68.1
	NET REVENUE OVER EXPENDITURES	226,118.00	897,843.83	(611,236.00)	(1,509,079.83)	146.9

CITY OF [illegible]
BALANCE SHEET
[illegible]

WATER FUND

ASSETS

[illegible]	CASH - COMBINED FUND	[illegible]	
[illegible]	WATER RECEIVABLES	[illegible]	
[illegible]	FIXED ASSETS - WATER	[illegible]	
[illegible]	WATER RIGHT ASSET	[illegible]	
[illegible]	ACC DEPRECIATION - WATER	([illegible]	
[illegible]	DEFERRED OUTFLOW FOR PERSI	[illegible]	
	TOTAL ASSETS		[illegible]

LIABILITIES AND EQUITY

LIABILITIES

[illegible]	ACCRUED INTEREST PAYABLE	[illegible]	
[illegible]	ACCRUED PAYROLL	[illegible]	
[illegible]	NET PENSION LIABILITY	[illegible]	
[illegible]	WATER DEPOSITS PAYABLE	[illegible]	
[illegible]	WATER NOTE PAYABLE [illegible]	[illegible]	
[illegible]	DEFERRED INFLOW FOR PERSI	[illegible]	
	TOTAL LIABILITIES		[illegible]

FUND EQUITY

	UNAPPROPRIATED FUND BALANCE:			
[illegible]	FUND BALANCE - BEGINNING OF YEAR	[illegible]		
[illegible]	RESERVED FOR IMPROVEMENTS	[illegible]		
[illegible]	WATER CAPACITY REPLACEMENT RES	[illegible]		
[illegible]	RESTRICTED BOND RESERVE	[illegible]		
[illegible]	ASSIGNED BOND RESERVE	[illegible]		
	REVENUE OVER EXPENDITURES - YTD	[illegible]		
	BALANCE - CURRENT DATE		[illegible]	
	TOTAL FUND EQUITY			[illegible]
	TOTAL LIABILITIES AND EQUITY			[illegible]

CITY OF [illegible]
REVENUES WITH COMPARISON TO BUDGET
FOR THE 12 MONTHS ENDING SEPTEMBER 30, 2017

WATER FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET		UNEARNED	PCNT
	WATER REVENUE						
61-340-100	SERVICE FEES	4,997.98	1,497,711.23	1,340,000.00	(	157,711.23)	111.8
61-340-101	BOND PAYMENT	.00	865,302.00	865,302.00		.00	100.0
61-340-102	CAPITAL REPLACEMENT	.00	44,802.00	44,802.00		.00	100.0
61-340-200	RECONNECT FEES	.00	17,715.00	20,000.00		2,285.00	88.6
61-340-280	HYDRANT USE PERMIT	.00	800.00	.00	(	800.00)	.0
61-340-500	FINES & INTEREST FEES	.00	13,319.80	18,000.00		4,680.20	74.0
	TOTAL WATER REVENUE	4,997.98	2,439,709.83	2,276,104.00	(	157,098.83)	106.4
	MISCELLANEOUS REVENUE						
61-370-100	INTEREST EARNINGS	33,138.26	33,138.26	73,346.00		40,207.74	45.2
61-370-300	GRANT REVENUE	.00	.00	85,000.00		85,000.00	.0
61-370-400	WATER SUPPRESSION CONNECTION	.00	6,595.00	1,595.00	(	5,000.00)	500.0
61-370-500	DEQ FUNDING	.00	.00	1,500,000.00		1,500,000.00	.0
61-370-900	MISCELLANEOUS REVENUE	.00	21,245.00	.00	(	21,245.00)	.0
	TOTAL MISCELLANEOUS REVENUE	33,138.26	60,978.76	1,159,941.00		1,598,967.24	3.8
	CAPACITY REPLACM/METER CHARGE						
61-380-100	CAPACITY REPLACEMENT FEE	.00	118,088.00	109,200.00	(	8,888.00)	108.1
61-380-200	METER CHARGE	.00	47,211.82	28,470.00	(	18,741.82)	165.8
	TOTAL CAPACITY REPLACM/METER CHARGE	.00	165,299.82	137,670.00	(	27,629.82)	120.1
	TOTAL FUND REVENUE	38,136.24	2,755,718.01	3,625,309.00		869,481.40	76.0

EXPENDITURES

...ed costs
- all other costs are variable

CITY OF [illegible]
EXPENDITURES WITH COMPARISON TO BUDGET
FOR THE 12 MONTHS ENDING SEPTEMBER 30, 2017

WATER FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
	WATER DEPARTMENT					
61-610-110	SALARIES	.00	254,405.78	238,388.00	(16,018.78)	106.8
61-610-111	OVERTIME	.00	22,758.05	4,602.00	(18,156.05)	494.5
61-610-200	EMPLOYEE BENEFITS	.00	97,760.47	99,273.00	1,502.53	98.4
61-610-280	PERSONAL PROTECTIVE EQUIPMENT	.00	1,547.78	2,000.00	452.22	77.4
61-610-300	BANK FEES AND CHARGES	.00	13,735.59	16,845.00	3,119.41	81.5
61-610-310	OFFICE SUPPLIES	.00	1,379.35	2,900.00	1,520.65	47.6
61-610-330	HEAT	66.72	2,414.24	3,400.00	985.76	71.0
61-610-340	ELECTRIC	.00	303,110.84	400,000.00	96,889.16	75.8
61-610-350	FUEL & OIL	.00	13,188.77	14,000.00	811.23	94.2
61-610-370	POSTAGE	.00	8,882.47	8,500.00	(382.47)	103.8
61-610-375	NOTICES & PUBLICATIONS	.00	848.89	2,500.00	1,651.11	33.9
61-610-450	HEALTH & SAFETY	.00	165.00	500.00	335.00	33.0
61-610-460	INSURANCE	.00	12,440.88	12,441.00	.12	100.0
61-610-470	MEETINGS & TRAVEL	.00	408.53	.00	(408.53)	.0
61-610-480	MEMBERSHIP DUES	.00	1,040.00	1,125.00	85.00	92.4
61-610-490	BOOKS & SUBSCRIPTIONS	.00	.00	500.00	500.00	.0
61-610-495	TRAINING & CERTIFICATION	143.77	2,718.45	2,500.00	(218.45)	108.7
61-610-499	CUSTODIAL SUPPLIES	87.14	1,165.84	2,420.00	1,254.16	48.2
61-610-500	DEPARTMENT SUPPLIES	3,600.94	29,606.27	25,000.00	(4,606.27)	118.4
61-610-550	VEHICLE REPAIR & MAINTENANCE	454.02	4,435.77	4,000.00	(435.77)	110.8
61-610-555	HEAVY VEHICLE REPAIR & MAINT	388.34	6,875.39	4,500.00	(2,375.39)	154.4
61-610-570	GROUND REPAIR & MAINTENANCE	.00	208.17	3,500.00	3,291.83	6.0
61-610-575	INFRASTRUCTURE REPAIR & MAINT	.00	38,495.77	150,000.00	111,504.23	25.7
61-610-580	BUILDING REPAIR & MAINTENANCE	.00	2,525.78	15,000.00	12,474.22	16.8
61-610-590	EQUIPMENT REPAIR & MAINTENANCE	.00	58,744.85	24,500.00	(43,144.85)	276.1
61-610-650	CONTRACTS / CONSULTING	1,871.50	47,456.51	75,000.00	23,543.49	67.7
61-610-651	WATER RIGHTS	.00	2,306.30	.00	(2,306.30)	.0
61-610-654	CHEMICALS & TESTING	2,200.00	13,846.00	9,150.00	(4,696.00)	152.4
61-610-656	WATER ASSESSMENT FEE	.00	23,512.48	40,700.00	17,187.52	57.8
61-610-810	PROFESSIONAL SERVICES	.00	850.00	2,000.00	1,570.00	37.5
61-610-880	IT INTERCOMPANY REIMBURSEMENT	.00	92,178.00	89,678.00	(2,500.00)	102.8
61-610-881	GENERAL INTERCOMPANY REIMBURSE	36,143.66	142,751.72	163,348.00	20,596.28	87.4
61-610-890	BAD DEBTS	.00	4,161.08	3,500.00	(661.08)	118.9
61-610-895	EQUIPMENT RENT / LEASE	.00	11,270.85	17,800.00	6,383.58	63.7
61-610-700	CAPITAL OUTLAY - NEW	30,408.74	697,045.80	1,820,873.00	1,173,827.20	36.7
61-610-710	CAPITAL OUTLAY - ONGOING	.00	.00	422,406.00	422,406.00	.0
61-610-810	DEBT SERVICE - BOND PAYMENT	.00	.00	671,809.00	671,809.00	.0
61-610-815	INTEREST EXPENSE	(3,260.01)	330,761.53	380,653.00	49,891.47	87.0
61-610-900	MISCELLANEOUS EXPENSE	.00	507.57	.00	(507.57)	.0
	TOTAL WATER DEPARTMENT	71,143.23	2,177,205.70	4,602,683.00	2,425,477.30	47.3
	TOTAL FUND EXPENDITURES	71,143.23	2,177,205.70	4,602,683.00	2,425,477.30	47.3
	NET REVENUE OVER EXPENDITURES	(30,014.89)	676,618.84	(979,476.00)	(1,656,094.84)	69.1

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8-3-41:
UNLAWFUL CONTAMINATION OR CROSS-CONNECTIONS: Cross-connection control shall be provided in accordance with adopted codes and ordinances. No person shall install any water operated equipment or mechanism, or use any water-treating chemical or substance, if it is found that such equipment, mechanism, chemical, or substance may cause pollution or contamination of the domestic water supply. Such equipment or mechanism may be permitted only when equipped with an approved backflow prevention device or assembly. Prior to installation of such equipment a permit shall be applied for and approved by the City Engineer and inspected by the City Plumbing Inspector. Failure to install said backflow prevention device as required shall be a misdemeanor and shall be subject to the penalties established in the City Code.

8-3-42:
BACKFLOW PREVENTION DEVICES:

(A) Backflow prevention devices shall be installed by the property owner, tenant, occupant, lessee, or other user of City water where the nature and extent of the activities conducted or the materials used or stored on the premises would present a hazard to the public health or be deleterious to the quality of the City water supply should backflow occur. Even though cross-connections may not exist at the time, backflow prevention devices shall be installed under circumstances including, but not limited to the following:

1. Premises having an auxiliary water supply;

2. Premises having internal cross-connections that are not correctable, or having intricate plumbing intricate plumbing arrangements which make it impracticable ascertain whether or not cross-connections exist;

3. Premises where entry is restricted so that inspections for cross-connections cannot reasonably be made;

4. Premises having a history of cross-connections being established or re-established;

5. Premises on which any substance is handled under pressure so as to permit the entry of substance into the public water supply; and

6. Premises having pumps or devices which may affect the pressure within any line connected to the City water supply.

All backflow prevention devices shall be installed and maintained by the property owner at his expense, and shall be of a type commensurate with the degree of hazard which exists or which could exist as established by adopted codes. Direct connections between potable water piping and sewer connected wastes shall not exist under any condition with or without backflow protection. All backflow prevention devices and the installation thereof shall be approved by the City Water Superintendent or his duly authorized representative.

(B) The premise owner or responsible person shall have the backflow prevention assembly inspected and tested by a certified backflow assembly tester at the time of initial installation and annually thereafter, or more often if deemed necessary by the City. Access and clearance shall be provided for the required testing, maintenance and repair as set forth in adopted codes and the manufacturer’s installation instructions. Whenever a backflow prevention device is found to be defective or inoperative, it shall be repaired, or replaced at the owner's expense. The City Water Superintendent shall retain adequate records of all inspections, tests, or repairs made pursuant to this Chapter.

(C) In all cases where a backflow prevention device is required, the owner, tenant, occupant, or lessee of the property shall apply in writing to the City Building Department for a plumbing permit, specifying the type and location of such assembly or assemblies. It shall be unlawful to install, relocate, or remove a backflow prevention device or assembly without a permit. Failure to obtain the required permit to install said backflow prevention device as required shall be a misdemeanor and shall be subject to the penalties established in the City Code.

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

900 North Skyline Drive, Suite B • Idaho Falls, ID 83402 • (208) 528-2650

C. L. "Butch" Otter, Governor
Curt A. Fransen, Director

February 5, 2014

Rick Williams, Water Operator
City of Ammon
2135 S. Ammon Road
Ammon, ID. 83406

RE: Sanitary Survey Results for the City of Ammon PWS# 7100004

Dear Rick:

On Jan. 24, 2014, Nathan Riblett, Travis Munns, Brandon Russell and I conducted a sanitary survey of the Ammon public water system. I appreciate all their help, cooperation, and support in scheduling and performing this survey.

A sanitary survey is a security and safety measure that should be performed every 5 years for groundwater sources. The purpose of the survey was to identify any area where the system does not meet the requirements of the State of Idaho Drinking Water Rules and Regulations and identify potential source of contamination.

During this inspection there were **no** Significant Deficiencies observed that need to be addressed in the order to comply with the Idaho Drinking Water Rules and Regulations (IDAPA). A Sanitary Deficiency is defined in IDAPA 58.01.08.003.71. that states: As identified during a sanitary survey, any defect in a system's design, operation, maintenance, or administration, as well as any failure or malfunction of any system component that the Department determines to cause, of have the potential to cause, risk to health and safety, or that could affect he reliable delivery of safe drinking water.

Recommendations were also made as items to consider in order improving the overall operations of the water system. Recommendations are not deemed as an eminent health threat, but are helpful suggestions that should be consider enhancing the overall operations of the water system. Some recommendations maybe in violation of the current Rule or not, but do not present a potential health or safety concern.

Over, the Ammon public water system is in good order. DEQ appreciates your commitment to providing adequate and responsive service, as well as supplying safe and reliable supply of drinking water to your users. If you have any questions or need any further assistance, please feel free to call me at (208) 528-2650.

Sincerely

Rochelle Mason

Rochelle Mason
Drinking Water Analyst

Encl: (2)
TRIM: WQ DW Compliance Document/ 2014 Sanitary Survey/ PWS# 7100004
C: Ray Ellis, City of Ammon, rellis@cityofammon.us

State of Idaho Public Water System Enhanced Sanitary Survey

WATER SYSTEM INVENTORY INFORMATION

SURVEY DATE: 1/24/2014 (mm/dd/yyyy)

PWS #: ID7100034

Name of Public Water System: City of Ammon

# of Groundwater Sources: 8
# of Surface Water Sources: 0
# of Storage Facilities:
Total Storage (gal): 3.5 million

Date of Last Survey: 05/21/2008

Health District: ☑ N/A

DEQ Region: ☐ N/A
IFDEQ

County: Bonneville

Number of Service Connections: 4576

Residential Population: 14019

Status:
☑ Approved
☐ Disapproved

Water Purchased From: ☑ N/A
PWS #:
Name:

Water Sold To: ☑ N/A
PWS #:
Name:

Owner Type: City of Ammon

Legal Entity: City of Ammon

Water System Classification:
☑ Community Water System
☐ Nontransient Noncommunity
☐ Transient Noncommunity - NC

Combined Sources?
☐ Yes ☑ No
If yes, ☐ Well Field
☐ Manifold/Spring Box
Sources Combined:

System Classification:
Distribution: DWD2
Treatment: ☐ N/A

Seasonal Operation Dates: ☑ N/A
Date Open:
Date Closed:

Responsible Charge Operator (DO) ☐ No DO ☐ N/A - Identify Operator for GW-NC PWS

☑ Mr. ☐ Ms. Rick Williams

Properly Licensed? ☑ Yes ☐ No ☐ N/A-GW-NC

License Type: DWD2 ☐ N/A

License Number: 14584-GP

Mailing Address:
2135 S. Ammon Road

City, State, Zip Code:
Idaho Falls, ID 83404

Telephone
Day: 208-6360-1267
Night: 208-612-4000
Fax:

E-mail: rwilliams@cityofammon.us

Legal Owner's Name:

☐ Mr. ☐ Ms. City of Ammon

Mailing Address:
2135 S. Ammon Road

City, State, Zip Code:
Ammon, ID 83406

Telephone
Day: 208-612-4000
Night:
Fax:

E-mail:

Substitute Responsible Charge Operator (OP): ☐ No OP ☐ N/A for GW-NC PWS

☑ Mr. ☐ Ms. Nathan Riblett

Properly Licensed? ☑ Yes ☐ No ☐ N/A-GW-NC

License Type: DWD2 ☐ N/A

License Number: 18495

Mailing Address:
2135 S. Ammon Road

City, State, Zip Code:
Idaho Falls, ID 83404

Telephone
Day: 509-293-0755
Night: 509-293-0755
Fax:

E-mail: nriblett@cityofammon.us

Individuals present during inspection:

Name: Nathan Riblet	Title: operator
Name: Travis Munns	Title: operator
Name: Brandon Russell	Title: operator

Physical location of the PWS (Township, Range, Section):

Samples taken at the time of survey by inspector?
☐ Yes ☑ No

If yes, what:

Survey performed by:
Name: Rochelle Mason
Title: Drinking Water Analyst
Phone #: 208-528-2650

Agency:
☑ IDEQ
☐ Health Dept.
☐ Other:

yes	no	n/a	unk	n/e	General Information
☑	☐	☐	☐	☐	1. Have previously required Significant Deficiencies & Deficiencies been addressed?
☑	☐	☐	☐	☐	2. Have modifications been made to the PWS since the last ESS?
☑	☐	☐	☐	☐	3. If yes, are the modifications considered to be significant?
☑	☐	☐	☐	☐	4. If yes, were plans and specs submitted to and approved by DEQ?
☐	☑	☐	☐	☐	5. Are there any known issues or problems with equipment or operation of the PWS that could negatively effect the quality of the water produced? (if yes, comment)

Comments:
Note: well # 6 remainds off line (pump has been pulled and not replaced) produces sand; future of well has not yet been determined

Sanitary Survey Index

Modules used:	#
☑ General Information	1
☑ Groundwater Source	16
☑ Storage	4
☐ Hydropneumatic Tanks	
☑ Distribution	1
☑ Pumping	4
☑ Financial Capacity	1
☑ Managerial Capacity	1
☐ Treatment Application	
☑ Disinfection	1
☐ Notes	
☑ Photo Log	2
Total Modules	31

State of Idaho

Bureau Of Occupational Licenses

Public Record Information (Detail)

Designated Operator
in - charge

Public Record

Name:	RICK WILLIAMS
Profession:	DRINKING WATER & WASTEWATER PROFESSIONALS
Type:	DRINKING WATER DISTRIBUTION OPERATOR - CLASS II
Number:	DWD2 - 14584-GP
Address Of Record:	
City/State/Zip:	IDAHO FALLS ID 83406
Country:	USA
Business Phone:	(208) 529 - 4231
Original Date of Issue:	4/11/2006
Registered/Licensed By:	Grndfathr
Status:	Current
Discipline Status:	
Expiration Date:	5/6/2014

Disciplinary Action Documents

None

NOTE: This document is a copy of the electronic record of the person named above and constitutes a verification of that record. If official certification of this record is required, a written request must be submitted together with a $10.00 fee to the Bureau of Occupational Licenses, 700 West State Street, PO Box 83720, Boise, Idaho 83720-0063.

State of Idaho

Bureau Of Occupational Licenses

Public Record Information (Detail)

Operator Contact #1

Public Record

Name:	MR. NATHAN RISLETT
Profession:	DRINKING WATER & WASTEWATER PROFESSIONALS
Type:	DRINKING WATER DISTRIBUTION OPERATOR - CLASS II
Number:	DWD2 - 18495
Address Of Record:	
City/State/Zip:	IDAHO FALLS ID 83406
Country:	USA
Business Phone:	(509) 293 - 8755
Original Date of Issue:	2/17/2012
Registered/Licensed By:	Endorsement
Status:	Current
Discipline Status:	
Expiration Date:	4/10/2014

Disciplinary Action Documents

None

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Sanitary Survey CEUs for Drinking Water Operators

(Updated: 8/15/11)

Drinking Water Operators of Public Water Systems classified as Very Small Water Systems (VSWS) or Distribution 1 (DST1) are now eligible for Continuing Education Units (CEUs) for completion of limited "homework" activities, active participation in an enhanced sanitary survey and follow-up Corrective Action Planning associated with an enhanced sanitary survey. There is a maximum of 6 CEU hours (0.6 CEUs) that each eligible water system operators can earn. To receive CEUs, each eligible water system operator must complete all tasks to be eligible for the full 0.6 CEUs. In advance of the inspector/instructor arriving onsite, the inspector/instructor will e-mail a copy of the last cover letter and inspection report conducted at the facility to the current operator. The eligible CEU breakdown is as follows:

Nathan Riblett DWD2-18495 — Operator's Name

1/24/14 — Date of Inspection

Pre-Inspection Work

☑ Operator has reviewed the last inspection report and verified corrections to all previously identified significant deficiencies. **(0.1 CEUs)**

☑ Operator has printed out a "Monitoring Schedule" for the "Current Year" and "Current Year +2 years". **(0.025 CEUs)**

(This information can be found at http://www.deq.idaho.gov/water-quality/drinking-water/pws-switchboard.aspx)

☑ Operator has printed out a copy of "Important Dates". **(0.025 CEUs)**

(This information can be found at http://www.deq.idaho.gov/water-quality/drinking-water/pws-switchboard.aspx)

Discussion and Review of Records and Pre-inspection Form

☑ Operator conducted a pre-inspection using the "Sanitary Survey Form" and is ready with questions. **(0.15 CEUs)**

(This information can be found at http://www.deq.idaho.gov/water-quality/drinking-water/pws-switchboard.aspx)

This includes discussion and review of:

- water facilities inventory and records
- distribution system plans and maps
- routine operation and maintenance records
- monitoring history and future monitoring schedule
- source and finished water quality monitoring plan, history, and waiver status
- operator certification credentials
- additional components

Inspection

☑ Operator actively participated in the sanitary survey inspection. **(0.2 CEUs)**

Follow-up Activities

☑ Operator submitted a Corrective Action Plan within 30 days, addressing all significant deficiencies. This CAP will include a timeline for correction of all significant deficiencies. **(0.1 CEUs)**

Total = 0.6 CEUs

Once the instructor/inspector has received all of the necessary CEU information, this completed form will be delivered to the DEQ State Office. The State Office will deliver a "Certificate of Completion" to the Operator. If you have questions regarding your sanitary survey or CEUs, please contact your regulating agency.

Rochelle Mason — Inspector/Instructor Signature

1/27/14 — Date

State of Idaho

Bureau Of Occupational Licenses

Public Record Information (Detail)

Operator Contact #2

Public Record

Name:	MR. TRAVIS J MUNNS
Profession:	DRINKING WATER & WASTEWATER PROFESSIONALS
Type:	DRINKING WATER DISTRIBUTION OPERATOR - CLASS II
Number:	DW02 - 18502
Address Of Record:	
City/State/Zip:	IDAHO FALLS ID 83402
Country:	USA
Business Phone:	(208) 891 - 8205
Original Date of Issue:	7/16/2012
Registered/Licensed By:	Exam/Upgrd
Status:	Current
Discipline Status:	
Expiration Date:	5/6/2014

Disciplinary Action Documents

None

NOTE: This document is a copy of the electronic record of the person named above and constitutes a verification of that record. If official certification of this record is required, a written request must be submitted together with a $10.00 fee to the Bureau of Occupational Licenses, 700 West State Street, PO Box 83720, Boise, Idaho 83720-0063.

Sanitary Survey CEUs for Drinking Water Operators

(Updated: 8/15/11)

Drinking Water Operators of Public Water Systems classified as Very Small Water Systems (VSWS) or Distribution I (DST1) are now eligible for Continuing Education Units (CEUs) for completion of limited "homework" activities, active participation in an enhanced sanitary survey and follow-up Corrective Action Planning associated with an enhanced sanitary survey. There is a maximum of 6 CEU hours (0.6 CEUs) that each eligible water system operators can earn. To receive CEUs, each eligible water system operator must complete all tasks to be eligible for the full 0.6 CEUs. In advance of the inspector/instructor arriving onsite, the inspector/instructor will e-mail a copy of the last cover letter and inspection report conducted at the facility to the current operator. The eligible CEU breakdown is as follows:

Travis Munns
Operator's Name OWD2-18502

1/24/14
Date of Inspection

Pre-inspection Work

☑ Operator has reviewed the last inspection report and verified corrections to all previously identified significant deficiencies. **(0.1 CEUs)**

☐ Operator has printed out a "Monitoring Schedule" for the "Current Year" and "Current Year - 2 years". **(0.025 CEUs)**

(This information can be found at http://www.deq.idaho.gov/water-quality/drinking-water/pws-switchboard.aspx)

☐ Operator has printed out a copy of "Important Dates". **(0.025 CEUs)**

(This information can be found at http://www.deq.idaho.gov/water-quality/drinking-water/pws-switchboard.aspx)

Discussion and Review of Records and Pre-inspection Form

☑ Operator conducted a pre-inspection using the "Sanitary Survey Form" and is ready with questions. **(0.15 CEUs)**

(This information can be found at http://www.deq.idaho.gov/water-quality/drinking-water/pws-switchboard.aspx)

This includes discussion and review of:

- water facilities inventory and records
- distribution system plans and maps
- routine operation and maintenance records
- monitoring history and future monitoring schedule
- source and finished water quality monitoring plan, history, and waiver status
- operator certification credentials
- additional components

Inspection

☑ Operator actively participated in the sanitary survey inspection. **(0.2 CEUs)**

Follow-up Activities

☐ Operator submitted a Corrective Action Plan within 30 days, addressing all significant deficiencies. This CAP will include a timeline for correction of all significant deficiencies. **(0.1 CEUs)**

Total = 0.6 CEUs

Once the instructor/inspector has received all of the necessary CEU information, this completed form will be delivered to the DEQ State Office. The State Office will deliver a "Certificate of Completion" to the Operator. If you have questions regarding your sanitary survey or CEUs, please contact your regulating agency.

[signature]
Inspector/Instructor Signature

1/24/14
Date

State of Idaho

Bureau Of Occupational Licenses

Public Record Information (Detail)

Public Record

Name:	MR. BRANDON EUGENE RUSSELL
Profession:	DRINKING WATER & WASTEWATER PROFESSIONALS
Type:	DRINKING WATER DISTRIBUTION OPERATOR - CLASS ?
Number:	DWD1 - 18648
Address Of Record:	
City/State/Zip:	IDAHO FALLS ID 83401
Country:	USA
Business Phone:	
Original Date of Issue:	7/16/2012
Registered/Licensed By:	Exam
Status:	Current
Discipline Status:	
Expiration Date:	10/30/2014

Disciplinary Action Documents

None

NOTE: This document is a copy of the electronic record of the person named above and constitutes a verification of that record. If official certification of this record is required, a written request must be submitted together with a $10.00 fee to the Bureau of Occupational Licenses, 700 West State Street, PO Box 83720, Boise, Idaho 83720 0063.

Sanitary Survey CEUs for Drinking Water Operators

(Updated: 8/15/11)

Drinking Water Operators of Public Water Systems classified as Very Small Water Systems (VSWS) or Distribution 1 (DST1) are now eligible for Continuing Education Units (CEUs) for completion of limited "homework" activities, active participation in an enhanced sanitary survey and follow-up Corrective Action Planning associated with an enhanced sanitary survey. There is a maximum of 6 CEU hours (0.6 CEUs) that each eligible water system operators can earn. To receive CEUs, each eligible water system operator must complete all tasks to be eligible for the full 0.6 CEUs. In advance of the inspector/instructor arriving onsite, the inspector/instructor will e-mail a copy of the last cover letter and inspection report conducted at the facility to the current operator. The eligible CEU breakdown is as follows:

Brandon E. Russell DWD1-18648
Operator's Name

1/24/14
Date of Inspection

Pre-inspection Work

☑ Operator has reviewed the last inspection report and verified corrections to all previously identified significant deficiencies. **(0.1 CEUs)**

☑ Operator has printed out a "Monitoring Schedule" for the "Current Year" and "Current Year +2 years". **(0.025 CEUs)**
(This information can be found at http://www.deq.idaho.gov/water-quality/drinking-water/pws-switchboard.aspx)

☑ Operator has printed out a copy of "Important Dates". **(0.025 CEUs)**
(This information can be found at http://www.deq.idaho.gov/water-quality/drinking-water/pws-switchboard.aspx)

Discussion and Review of Records and Pre-inspection Form

☑ Operator conducted a pre-inspection using the "Sanitary Survey Form" and is ready with questions. **(0.15 CEUs)**
(This information can be found at http://www.deq.idaho.gov/water-quality/drinking-water/pws-switchboard.aspx)

This includes discussion and review of:

- water facilities inventory and records
- distribution system plans and maps
- routine operation and maintenance records
- monitoring history and future monitoring schedule
- source and finished water quality monitoring plan, history, and waiver status
- operator certification credentials
- additional components

Inspection

☑ Operator actively participated in the sanitary survey inspection. **(0.2 CEUs)**

Follow-up Activities

☑ Operator submitted a Corrective Action Plan within 30 days, addressing all significant deficiencies. This CAP will include a timeline for correction of all significant deficiencies. **(0.1 CEUs)**

Total = 0.6 CEUs

Once the instructor/inspector has received all of the necessary CEU information, this completed form will be delivered to the DEQ State Office. The State Office will deliver a "Certificate of Completion" to the Operator. If you have questions regarding your sanitary survey or CEUs, please contact your regulating agency.

[signature]
Inspector/Instructor Signature

1/27/14
Date

GROUNDWATER SOURCE - PG.1

A separate sources form must be filled out for each groundwater source in the PWS.

SURVEY DATE		PWS #
1/24/2014	(mm/dd/yyyy)	ID7100004

Tag #: [redacted]
E0007166

Common Name of Source: Well # 5

Source: [redacted]
☑ Well → ☐ Manifold
☐ Spring → ☐ Spring Box

Is this Source Treated? ☐ Yes ☑ No

Treatment Objective: ☑ N/A

Treatment Types: ☑ N/A
(Identify Treatment Train in Comments)

Physical Location: [redacted]
Northwest of Ross Avenue and Brookfield Lane - behind the homes
Twn: 02N Rge: 38E Sec. 22

Is there a well log for the groundwater source? ☐ Yes ☑ No ☐ N/A ☐ Unk

Pump Capacity (GPM)	Casing Size (in)	Date Drilled	Well Depth (Ft)	Casing Depth (Ft)	Grout Depth(Ft)	Static Water Depth (Ft)
☑ Unk	☑ Unk	est. 1966 ☐ Unk	est. 220 ☐ Unk	☑ Unk	☑ Unk	☑ Unk

Is the Casing Screened? ☐ Yes ☐ No ☑ Unk ☐ N/A

Screen Depth (Ft): ☐ N/A ☑ Unk
From:
To:

Is the Casing Perforated? ☐ Yes ☐ No ☑ Unk ☐ N/A

Perforation Depth (Ft): ☐ N/A ☑ Unk
From:
To:

Latitude (Decimal): 43.478242
Longitude (Decimal): -111.956986

All Sources

1. This source is:
   ☑ Active ☐ Proposed
   ☐ Inactive ☐ Emergency (<60 days per year)

yes	no	n/a	unk	note	
☑	☐	☐	☐	☐	2. Has there been a Source Water Assessment conducted for the source? Date: 2001
☑	☐	☐	☐	☐	3. Has a final GWUDI determination been done for this source? Date: 2002

☐ N/A 4-36 if source is a spring

WELL INFORMATION

yes	no	n/a	unk	note	
☑	☐		☐	☐	4. Is the well on a separate lot that is large enough to provide a minimum distance of 50 feet between the well and the nearest property line? (applicable if constructed after 11/1/77) ☐ Significant ☐ Deficiency
					Are the following minimum distances from the PWS well being met?
☑	☐		☐	☐	5. - Gravity sewer line......50 Ft.
☑	☐		☐	☐	6. - Pressure sewer line......100 Ft.
☑	☐		☐	☐	7. - Individual home septic tank......100 Ft.
☑	☐		☐	☐	8. - Individual home disposal field......100 Ft.
☑	☐		☐	☐	9. - Individual home seepage pit......100 Ft.
☑	☐		☐	☐	10. - Privies......100 Ft.
☑	☐		☐	☐	11. - Livestock......50 Ft.
☑	☐		☐	☐	12. - Canals, streams, ditches, lakes, ponds and tanks used to store nonpotable substances......50 Ft.
☐	☑		☐	☐	13. Are pesticides, herbicides, fertilizers, portable containers of petroleum products, or other toxic or hazardous materials stored on the well lot?
☐	☑		☐	☐	14. Are pesticides, herbicides, or fertilizers applied to the well lot?
☐	☑		☐	☐	15. Is the well in a pit? If yes, Date constructed:
☐	☐	☑	☐	☐	16. Was the well that is located in a pit installed after 11/5/64?
☐	☐	☑	☐	☐	17. If pit was installed prior to 11/5/64 – Has DEQ granted an exception and does the pit have water tight construction of pit walls and floor, a floor drain and an acceptable pit cover?
☑	☐	☐	☐	☐	18. Is the well protected from unauthorized entry? *(Recommended)*
☑	☐	☐	☐	☐	19. Does the casing extend a minimum of 18 inches above the final ground surface and/ or 12 inches above the pump house floor? ☐ Significant ☐ Deficiency
☐	☑	☐	☐	☑	20. Is the well vented with the open end of the vent screened and terminated downward at least 18 inches above the final ground surface?
☑	☐		☐	☐	21. Is the well provided with a sanitary cap that prevents surface water entry?
☑	☐		☐	☐	22. Is the well cased and sealed in such a manner that surface water cannot enter the well?

COMMENTS:
(Please indicate question number)

 # 20. Deficiency (Fig. 2)- the open end of the well vent is required to be screened, as required by IDAPA 58.01.08.511.05.

GROUNDWATER SOURCES - PG. 2

Common Name	SURVEY DATE		PWS #
Well # 5	1/24/2014	(mm/dd/yyyy)	ID7100004

WELL INFORMATION (cont.)

yes	no	n/a	unk	note	
☑	☐	☐	☐	☐	23. Is there a smooth nosed sample tap provided on the well discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
☑	☐	☐	☐	☐	24. Is an instantaneous and totalizing flow meter equipped with nonvolatile memory installed on the pump distribution line of the well and is it maintained and working properly? ____ gallons
		☐ Unnecessary			
☑	☐	☐	☐	☐	25. Is a pressure gauge provided at all installations and is it maintained and working properly? ____ psi.
☑	☐	☐	☐	☐	26. Can the well be pumped to waste at the design capacity of the well via an approved air gap at a location prior to the first service connection?

PUMP HOUSE *(Any structure containing important water system components)*

yes	no	n/a	unk	note	
☑	☐	☐	☐	☐	27. Is the source located in a pump house?
☑	☐	☐	☐	☑	28. Is the pump house kept clean and in good repair? *(Floor cracks?)*
☑	☐	☐	☐	☐	29. Is the pump house protected from unauthorized personnel?
☑	☐	☐	☐	☐	30. Does the pump house have adequate lighting throughout? *(Recommended)*
☑	☐	☐	☐	☐	31. Are all non-sample taps installed in the pump house equipped with an appropriate backflow prevention device?
☑	☐	☐	☐	☐	32. Is adequate ventilation provided in the pump house for dissipation of excess heat and moisture from the equipment?
☐ Significant		☐ Deficiency			
☑	☐	☐	☐	☐	33. Is adequate heating provided in the pump house to provided safe and efficient operation of equipment to prevent freezing?
☐ Significant		☐ Deficiency			
☐	☑	☐	☐	☑	34. Is the pump house protected from flooding, have adequate drainage, is the floor surface at least six (6) inches above the final ground surface, and is the ground surface graded so as to lead surface water away from the pump house?
☐	☐	☑	☐	☐	35. Is the sump for pump house floor drains closer than 30 feet from the well?
☐	☐	☑	☐	☐	36. Is the floor drain connected to sewer, storm drains, chlorination room drains, or any other source of contamination?

SPRING INFORMATION

yes	no	n/a	unk	note	
☐	☐	☑	☐	☐	37. Is the entire area within a one hundred (100) foot radius of the spring box fenced to prevent trespassing of livestock and void of buildings, dwellings and sources of contamination?
☐	☐	☑	☐	☐	38. Is surface water diverted from the 100 foot protection zone around the spring?
☐	☐	☑	☐	☐	39. Is the spring housed in a permanent structure and protected from contamination including the entry of surface water, animals and dust?
☐	☐	☑	☐	☐	40. Is there a smooth nosed sample tap provided on the spring discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
☐	☐	☑	☐	☐	41. Is a flow meter or other flow measuring device provided?

SPRING BOX INFORMATION *(Not all existing springs have a spring box)*

yes	no	n/a	unk	note	
☐	☐	☑	☐	☐	42. Is the spring box equipped with a screened overflow?
☐	☐	☑	☐	☐	43. Is the supply intake located above the floor of the collection chamber?
☐	☐	☑	☐	☐	44. Is the spring box protected from contamination including the entry of surface water, animals, and dust?
☐	☐	☑	☐	☐	45. Is the access port fitted with a solid water tight cover which overlaps a framed opening and extended down around the frame at least 2 inches?
☐	☐	☑	☐	☐	46. Is the access port a framed opening that is at least 4 inches high with a locking device?
☐	☐	☑	☐	☐	47. Is the access port elevated at least twenty four (24) inches above the top of the box or ground level, whichever is higher?

COMMENTS:
(Please indicate question number)

28. Note: house keeping could be improved upon

34. (Fig. 6) Recommendation: upon system improvements an appropriate floor drain and sump pump should be installed and the cutout in the concrete floor should be filled to eliminate further erosion under the sub flooring. Well sits on an elevated concrete pedestal that adequately protects well from flooding.

GROUNDWATER SOURCE - PG.1

A separate sources form must be filled out for each groundwater source in the PWS.

SURVEY DATE: 1/24/2014 *(mm/dd/yyyy)*

PWS #: ID7100004

Tag #: [redacted] E0007167

Common Name of Source: Well # 7

Source: [redacted]
- ☑ Well → ☐ Manifold
- ☐ Spring → ☐ Spring Box

Is this Source Treated? ☐ Yes ☑ No

Treatment Objective: ☑ N/A

Treatment Types: ☑ N/A
(Identify Treatment Train in Comments)

Physical Location: [redacted]
West Side of Midway Ave. (between Wally's Automotive and Ammon Office park building)

Is there a well log for the groundwater source? ☐ Yes ☑ No ☐ N/A ☐ Unk

Pump Capacity (GPM)	Casing Size (in)	Date Drilled	Well Depth (Ft)	Casing Depth (Ft)	Grout Depth (Ft)	Static Water Depth (Ft)
☑ Unk	☐ Unk	est. 1978 ☐ Unk	est. 275 ☐ Unk	☑ Unk	☑ Unk	☑ Unk

Is the Casing Screened? ☐ Yes ☐ No ☑ Unk ☐ N/A

Screen Depth (Ft): ☐ N/A ☑ Unk
From:
To:

Is the Casing Perforated? ☐ Yes ☐ No ☑ Unk ☐ N/A

Perforation Depth (Ft): ☐ N/A ☑ Unk
From:
To:

Latitude (Decimal): 43.482984

Longitude (Decimal): -111.970056

All Sources

1. This source is:
   - ☐ Active ☐ Proposed
   - ☐ Inactive ☑ Emergency (<60 days per year)

yes	no	n/a	unk	note	
☑	☐	☐	☐	☐	2. Has there been a Source Water Assessment conducted for the source? Date: 2001
☑	☐	☐	☐	☐	3. Has a final GWUDI determination been done for this source? Date: 2002

☐ N/A 4-36 if source is a spring

WELL INFORMATION

yes	no	n/a	unk	note	
☑	☐		☐	☐	4. Is the well on a separate lot that is large enough to provide a minimum distance of 50 feet between the well and the nearest property line? (applicable if constructed after 11/1/77) ☐ Significant ☐ Deficiency
					Are the following minimum distances from the PWS well being met?
☑	☐		☐	☐	5. - Gravity sewer line.....50 Ft.
☑	☐		☐	☐	6. - Pressure sewer line.....100 Ft.
☑	☐		☐	☐	7. - Individual home septic tank.....100 Ft.
☑	☐		☐	☐	8. - Individual home disposal field.....100 Ft.
☑	☐		☐	☐	9. - Individual home seepage pit.....100 Ft.
☑	☐		☐	☐	10. - Privies.....100 Ft.
☑	☐		☐	☐	11. - Livestock.....50 Ft.
☑	☐		☐	☐	12. - Canals, streams, ditches, lakes, ponds and tanks used to store nonpotable substances.....50 Ft.
☐	☑		☐	☐	13. Are pesticides, herbicides, fertilizers, portable containers of petroleum products, or other toxic or hazardous materials stored on the well lot?
☐	☑		☐	☐	14. Are pesticides, herbicides, or fertilizers applied to the well lot?
☐	☑		☐	☐	15. Is the well in a pit? If yes, Date constructed:
☐	☐	☑	☐	☐	16. Was the well that is located in a pit installed after 11/5/64?
☐	☐	☑	☐	☐	17. If pit was installed prior to 11/5/64 – Has DEQ granted an exception and does the pit have water tight construction of pit walls and floor, a floor drain and an acceptable pit cover?
☑	☐	☐	☐	☐	18. Is the well protected from unauthorized entry? *(Recommended)*
☑	☐	☐	☐	☐	19. Does the casing extend a minimum of 18 inches above the final ground surface and/ or 12 inches above the pump house floor? ☐ Significant ☐ Deficiency
☑	☐	☐	☐	☐	20. Is the well vented with the open end of the vent screened and terminated downward at least 18 inches above the final ground surface?
☑	☐		☐	☐	21. Is the well provided with a sanitary cap that prevents surface water entry?
☑	☐		☐	☐	22. Is the well cased and sealed in such a manner that surface water cannot enter the well?

COMMENTS:
(Please indicate question number)

Common Name	SURVEY DATE		PWS #
Well # 7	1/24/2014	(mm/dd/yyyy)	ID7100004

GROUNDWATER SOURCES - PG. 2

COMMENTS:
(Please indicate question number)

WELL INFORMATION (cont.)

yes	no	n/a	unk	rate	
☑	☐	☐	☐	☐	23. Is there a smooth nosed sample tap provided on the well discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
☑	☐	☐	☐	☐ ☐ Unnecessary	24. Is an instantaneous and totalizing flow meter equipped with nonvolatile memory installed on the pump distribution line of the well and is it maintained and working properly? ______ gallons
☑	☐	☐	☐	☐	25. Is a pressure gauge provided at all installations and is it maintained and working properly? ______ psi.
☑	☐	☐	☐	☐	26. Can the well be pumped to waste at the design capacity of the well via an approved air gap at a location prior to the first service connection?

PUMP HOUSE *(Any structure containing important water system components)*

yes	no	n/a	unk	rate	
☑	☐	☐	☐	☐	27. Is the source located in a pump house?
☑	☐	☐	☐	☐	28. Is the pump house kept clean and in good repair? *(Floor cracks?)*
☑	☐	☐	☐	☐	29. Is the pump house protected from unauthorized personnel?
☑	☐	☐	☐	☐	30. Does the pump house have adequate lighting throughout? *(Recommended)*
☑	☐	☐	☐	☐	31. Are all non-sample taps installed in the pump house equipped with an appropriate backflow prevention device?
☑	☐	☐	☐	☐ ☐ Significant ☐ Deficiency	32. Is adequate ventilation provided in the pump house for dissipation of excess heat and moisture from the equipment?
☑	☐	☐	☐	☐ ☐ Significant ☐ Deficiency	33. Is adequate heating provided in the pump house to provide safe and efficient operation of equipment to prevent freezing?
☑	☐	☐	☐	☐	34. Is the pump house protected from flooding, have adequate drainage, is the floor surface at least six (6) inches above the final ground surface, and is the ground surface graded so as to lead surface water away from the pump house?
☐	☐	☑	☐	☐	35. Is the sump for pump house floor drains closer than 30 feet from the well?
☐	☐	☑	☐	☐	36. Is the floor drain connected to sewer, storm drains, chlorination room drains, or any other source of contamination?

SPRING INFORMATION

yes	no	n/a	unk	rate	
☐	☐	☑	☐	☐	37. Is the entire area within a one hundred (100) foot radius of the spring box fenced to prevent trespassing of livestock and void of buildings, dwellings and sources of contamination?
☐	☐	☑	☐	☐	38. Is surface water diverted from the 100 foot protection zone around the spring?
☐	☐	☑	☐	☐	39. Is the spring housed in a permanent structure and protected from contamination including the entry of surface water, animals and dust?
☐	☐	☑	☐	☐	40. Is there a smooth nosed sample tap provided on the spring discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
☐	☐	☑	☐	☐	41. Is a flow meter or other flow measuring device provided?

SPRING BOX INFORMATION *(Not all existing springs have a spring box)*

yes	no	n/a	unk	rate	
☐	☐	☑	☐	☐	42. Is the spring box equipped with a screened overflow?
☐	☐	☑	☐	☐	43. Is the supply intake located above the floor of the collection chamber?
☐	☐	☑	☐	☐	44. Is the spring box protected from contamination including the entry of surface water, animals, and dust?
☐	☐	☑	☐	☐	45. Is the access port fitted with a solid water tight cover which overlaps a framed opening and extended down around the frame at least 2 inches?
☐	☐	☑	☐	☐	46. Is the access port a framed opening that is at least 4 inches high with a locking device?
☐	☐	☑	☐	☐	47. Is the access port elevated at least twenty-four (24) inches above the top of the box or ground level, whichever is higher?

GROUNDWATER SOURCE - PG.1

A separate sources form must be filled out for each groundwater source in the PWS.

SURVEY DATE	1/24/2014 (mm/dd/yyyy)
PWS #	ID7100004
Tag #:	E0008062
Common Name of Source:	Well # 8
Source:	☑ Well → ☐ Manifold; ☐ Spring → ☐ Spring Box
Is this Source Treated?	☐ Yes ☑ No
Treatment Objective:	☑ N/A
Treatment Types: (Identify Treatment Train in Comments)	☑ N/A
Physical Location:	Tiebreaker Ave Twn: 02N Rge: 38E Sec. 22 Back-up generator available
Is there a well log for the groundwater source?	☑ Yes ☐ No ☐ N/A ☐ Unk
Pump Capacity (GPM)	3500 ☐ Unk
Casing Size (in)	26 - 16 ☐ Unk
Date Drilled:	1956 ☐ Unk
Well Depth (Ft)	371 ☐ Unk
Casing Depth (Ft)	371 ☐ Unk
Grout Depth(Ft)	145 ☐ Unk
Static Water Depth (Ft)	84 ☐ Unk
Is the Casing Screened?	☐ Yes ☑ No ☐ Unk ☐ N/A
Screen Depth (Ft):	☑ N/A ☐ Unk From: To:
Is the Casing Perforated?	☑ Yes ☐ No ☐ Unk ☐ N/A
Perforation Depth (Ft):	☐ N/A ☐ Unk From: 328 To: 370
Latitude (Decimal):	43.484789
Longitude (Decimal):	-111.975886

All Sources

1. This source is:
   ☑ Active ☐ Proposed
   ☐ Inactive ☐ Emergency (<60 days per year)

yes	no	n/a	unk	note	
☑	☐	☐	☐	☐	2. Has there been a Source Water Assessment conducted for the source? Date: 2001
☑	☐	☐	☐	☐	3. Has a final GWUDI determination been done for this source? Date: 2002

☐ N/A 4-36 if source is a spring

WELL INFORMATION

yes	no	n/a	unk	note	
☑	☐		☐	☐	4. Is the well on a separate lot that is large enough to provide a minimum distance of 50 feet between the well and the nearest property line? (applicable if constructed after 11/1/77) — ☐ Significant ☐ Deficiency
					Are the following minimum distances from the PWS well being met?
☑	☐		☐	☐	5. - Gravity sewer line........50 Ft.
☑	☐		☐	☐	6. - Pressure sewer line........100 Ft.
☑	☐		☐	☐	7. - Individual home septic tank........100 Ft.
☑	☐		☐	☐	8. - Individual home disposal field........100 Ft.
☑	☐		☐	☐	9. - Individual home seepage pit........100 Ft.
☑	☐		☐	☐	10. - Privies........100 Ft.
☑	☐		☐	☐	11. - Livestock........100 Ft.
☑	☐		☐	☐	12. - Canals, streams, ditches, lakes, ponds and tanks used to store nonpotable substances........50 Ft.
☐	☑		☐	☐	13. Are pesticides, herbicides, fertilizers, portable containers of petroleum products, or other toxic or hazardous materials stored on the well lot?
☐	☑		☐	☐	14. Are pesticides, herbicides, or fertilizers applied to the well lot?
☐	☑		☐	☐	15. Is the well in a pit? If yes, Date constructed:
☐	☐	☑	☐	☐	16. Was the well that is located in a pit installed after 11/5/64?
☐	☐	☑	☐	☐	17. If pit was installed prior to 11/5/64 – Has DEQ granted an exception and does the pit have water tight construction of pit walls and floor, a floor drain and an acceptable pit cover?
☑	☐	☐	☐	☐	18. Is the well protected from unauthorized entry? *(Recommended)*
☑	☐	☐	☐	☐	19. Does the casing extend a minimum of 18 inches above the final ground surface and/ or 12 inches above the pump house floor? — ☐ Significant ☐ Deficiency
☑	☐	☐	☐	☐	20. Is the well vented with the open end of the vent screened and terminated downward at least 18 inches above the final ground surface?
☑	☐		☐	☐	21. Is the well provided with a sanitary cap that prevents surface water entry?
☑	☐		☐	☐	22. Is the well cased and sealed in such a manner that surface water cannot enter the well?

COMMENTS:
(Please indicate question number)

20. Deficiency (Fig. 23)- the open end of the well vent is required to be screened, as required by IDAPA 58.01.08.511.05.

Well #8

Form 238-7
3/95

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT
Use Typewriter or Ballpoint Pen

94348

Location Corrected by IDWR To:
T02N R38E Sec. 22 SENW
By: manders 2013-09-09
Lat: : : Long: : :

1. DRILLING PERMIT NO. 25-96-E-0030-000
Other IDWR No. 25-07634

2. OWNER:
Name City of Ammon
Address 3270 Molen St.
City Ammon State ID Zip 83406

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

Twp. 02 North ☒ or South ☐
Rge 38 East ☒ or West ☐
Sec. 22 SE 1/4 SE 1/4 1/4
Gov't Lot ____ County Bonneville
Lat: : : Long: : :
Address of Well Site ______ City ______
Lt. ____ Blk ____ Sub. Name ____

4. USE:
☐ Domestic ☒ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ____

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other ____

6. DRILL METHOD
☒ Air Rotary ☒ Cable ☐ Mud Rotary ☐ Other ____

7. SEALING PROCEDURES

Seal/Filter Pack Material	From	To	Amount Sacks or Pounds	Method
Bentonite	0	40'	36 sks	Tremmie
Cement	0	70'	40 sks	Tremmie
Cement	0	145'	20 yds	Tremmie

Was drive shoe used? ☒Y ☐N Shoe Depth(s) 49', 108', 328', 331'
Was drive shoe seal tested? ☐Y ☐N How? ____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
24"	+1	48'	.375	Steel	☒	☐	☒	☐
20"	+1½	107'	.375	Steel	☒	☐	☒	☐
16"	+3'	331'	.375	Steel	☒	☐	☒	☐

Length of Headpipe 371' 12" Steel Length of Tailpipe ____

9. PERFORATIONS/SCREENS
☒ Perforations Method Torch
☐ Screens Screen Type ____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
328	370	3/8x4	1,400	12"	Steel	☐	☒
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
84 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: ____

11. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
2400	76'	160'	6 Hrs

Water Temp ____ Bottom hole temp ____
Water Quality test or comments: Good
Depth first Water Encountered ____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
24"	0'	4'	Clay		✓
24"	4'	48'	Gravel & Sand, Clay Mix		✓
24"	48'	72'	Gray Lava		✓
24"	72'	79'	Clay		✓
24"	79'	108'	Gravel & Sand	✓	
20"	108'	128'	Lava	✓	
20"	128'	134'	Cinders, Boulders Mud Dirt		✓
20"	134'	171'	Clean Redish Solid Rock	✓	
20"	171'	185'	Soft Cinders	✓	
20"	185'	195'	Greenish Sand & Rock		✓
20"	195'	201'	Black Lava & Sand		✓
20"	201'	230'	Black Rhiolite Fresh water		✓
16"	230'	242'	Broken Fractured Black Lava		✓
16"	242'	258'	Redish Broken Lava	✓	
16"	258'	260'	Darker Red Lava	✓	
16"	260'	266'	Dark Red Lava / Broken Clay		✓
16"	266'	304'	Black Rhiolite w/ Crevices	✓	
16"	304'	318'	Gray Lava	✓	
16"	318'	330'	Firm Black Lava	✓	
16"	330'	371'	Soft Gray Sandstone/Gravel	✓	

RECEIVED
JUL 11 1996
Department of Water Resources
Eastern Region

RECEIVED
SEP 11 1996

Completed Depth 371' (Measurable)
Date: Started May 13, 1996 Completed June 10, 1996

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Vollmer Well Drilling Firm No. 383

Firm Official [signature] Date July 05/96
and
Supervisor or Operator [signature] Date July 05/96
(Signature of Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

GROUNDWATER SOURCES - PG. 2

Common Name: Well # 8 | SURVEY DATE: 1/24/2014 (mm/dd/yyyy) | PWS #: ID7100004

COMMENTS: (Please indicate question number)

yes	no	n/a	unk	note	WELL INFORMATION (cont.)
[x]	[ ]	[ ]	[ ]	[ ]	23. Is there a smooth nosed sample tap provided on the well discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
[x]	[ ]	[ ]	[ ]	[ ] [ ] Unnecessary	24. Is an instantaneous and totalizing flow meter equipped with nonvolatile memory installed on the pump distribution line of the well and is it maintained and working properly? [ ] gallons
[x]	[ ]	[ ]	[ ]	[ ]	25. Is a pressure gauge provided at all installations and is it maintained and working properly? [ ] psi
[x]	[ ]	[ ]	[ ]	[ ]	26. Can the well be pumped to waste at the design capacity of the well via an approved air gap at a location prior to the first service connection?

yes	no	n/a	unk	note	PUMP HOUSE (Any structure containing important water system components)
[x]	[ ]	[ ]	[ ]	[ ]	27. Is the source located in a pump house?
[x]	[ ]	[ ]	[ ]	[x]	28. Is the pump house kept clean and in good repair? (Floor cracks?)
[x]	[ ]	[ ]	[ ]	[ ]	29. Is the pump house protected from unauthorized personnel?
[x]	[ ]	[ ]	[ ]	[ ]	30. Does the pump house have adequate lighting throughout? (Recommended)
[x]	[ ]	[ ]	[ ]	[ ]	31. Are all non-sample taps installed in the pump house equipped with an appropriate backflow prevention device?
[x]	[ ]	[ ]	[ ]	[ ] [ ] Significant [ ] Deficiency	32. Is adequate ventilation provided in the pump house for dissipation of excess heat and moisture from the equipment?
[x]	[ ]	[ ]	[ ]	[ ] [ ] Significant [ ] Deficiency	33. Is adequate heating provided in the pump house to provided safe and efficient operation of equipment to prevent freezing?
[x]	[ ]	[ ]	[ ]	[ ]	34. Is the pump house protected from flooding, have adequate drainage, is the floor surface at least six (6) inches above the final ground surface, and is the ground surface graded so as to lead surface water away from the pump house?
[ ]	[x]	[ ]	[ ]	[ ]	35. Is the sump for pump house floor drains closer than 30 feet from the well?
[ ]	[x]	[ ]	[ ]	[ ]	36. Is the floor drain connected to sewer, storm drains, chlorination room drains, or any other source of contamination?

yes	no	n/a	unk	note	SPRING INFORMATION
[ ]	[ ]	[x]	[ ]	[ ]	37. Is the entire area within a one hundred (100) foot radius of the spring box fenced to prevent trespassing of livestock and void of buildings, dwellings and sources of contamination?
[ ]	[ ]	[x]	[ ]	[ ]	38. Is surface water diverted from the 100 foot protection zone around the spring?
[ ]	[ ]	[x]	[ ]	[ ]	39. Is the spring housed in a permanent structure and protected from contamination including the entry of surface water, animals and dust?
[ ]	[ ]	[x]	[ ]	[ ]	40. Is there a smooth nosed sample tap provided on the spring discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
[ ]	[ ]	[x]	[ ]	[ ]	41. Is a flow meter or other flow measuring device provided?

yes	no	n/a	unk	note	SPRING BOX INFORMATION (Not all existing springs have a spring box)
[ ]	[ ]	[x]	[ ]	[ ]	42. Is the spring box equipped with a screened overflow?
[ ]	[ ]	[x]	[ ]	[ ]	43. Is the supply intake located above the floor of the collection chamber?
[ ]	[ ]	[x]	[ ]	[ ]	44. Is the spring box protected from contamination including the entry of surface water, animals, and dust?
[ ]	[ ]	[x]	[ ]	[ ]	45. Is the access port fitted with a solid water tight cover which overlaps a framed opening and extended down around the frame at least 2 inches?
[ ]	[ ]	[x]	[ ]	[ ]	46. Is the access port a framed opening that is at least 4 inches high with a locking device?
[ ]	[ ]	[x]	[ ]	[ ]	47. Is the access port elevated at least twenty-four (24) inches above the top of the box or ground level, whichever is higher?

STORAGE

SURVEY DATE: 1/24/2014 (mm/dd/yyyy) PWS #: ID7100004

A separate storage form must be filled out for each storage unit in the PWS.

Storage Structure Name:

Storage Structure ID #:

Physical Location: located behind wellhouse # 8 and Booster Station

Date in service: [ ] Unk — 2011

Volume (gal): [ ] Unk — 1.5 Million

Storage Type: [x] Reservoir/Tank [ ] Standpipe

Construction: [ ] Elevated [x] Above Ground [ ] Partially Below Ground [ ] Below Ground

Type of material: [ ] Plastic [ ] Fiberglass [x] Concrete [ ] Wood [ ] Metal [ ] Naturally Contained

Total Days Supply (This structure): [ ] Unk

Date Last: **Inspected:** [ ] Unk **Cleaned:** [ ] Unk

How is the water level measured? [ ] Unk

yes	no	n/a	unk	note	ALL STORAGE STRUCTURES
[x]	[ ]	[ ]	[ ]	[x]	1. Is the storage structure safely accessible to the inspector?
[ ]	[x]	[ ]	[ ]	[ ]	2. Is the PWS storage tank located within 500 feet of any municipal or industrial wastewater treatment plant or any land which is spray irrigated with wastewater or used for sludge disposal?
[ ]	[x]	[ ]	[ ]	[ ]	3. Are any of the storage structure drains directly connected to a sewer or storm drain?
[x]	[ ]	[ ]	[ ]	[ ]	4. Is an overflow provided that discharges to daylight in a way that will preclude the possibility of backflow to the reservoir and, where practical, provided with an expanded metal screen installed within the pipe that will exclude rodents and deter vandalism?
[x]	[ ]	[ ]	[ ]	[ ]	5. Are overflows brought down to an elevation between 12 and 24 inches above the ground surface? *(2X the diameter of the discharge pipe above a basin rim)*
[x]	[ ]	[ ]	[ ]	[ ]	6. Do overflows discharge over a drainage inlet structure or splash plate?(storm or sanitary)
[x]	[ ]	[ ]	[ ]	[x]	7. Is the storage structure secure from unauthorized access?
[x]	[ ]	[ ]	[ ]	[ ]	8. Does the storage reservoir have a watertight roof or cover and is it sloped to facilitate drainage?
[x]	[ ]	[ ]	[ ]	[ ]	9. Is the storage water protected from contamination?
[x]	[ ]	[ ]	[ ]	[ ]	10. Is the storage structure structurally sound?
[ ]	[x]	[ ]	[ ]	[ ]	11. Could vegetation in the area potentially impact the storage structure?*(Recommended)*
[x]	[ ]	[ ]	[ ]	[ ]	12. Is the storage structure designed so that it can be isolated from the distribution system without necessitating loss of pressure in the distribution system?
[ ]	[x]	[ ]	[ ]	[ ]	13. Is leakage evident at time of inspection?
[ ]	[ ]	[x]	[ ]	[ ]	14. Is the storage structure interior coating or liner peeling or cracked?
[ ]	[ ]	[x]	[ ]	[ ]	15. Is the storage structure used to store finished water?
[x]	[ ]	[ ]	[ ]	[ ]	16. Are access manhole openings for the storage structure 4 inches or greater above the surface of the roof, with a cover 2 inches overlapping, water tight, hinged and locked?
[x]	[ ]	[ ]	[ ]	[ ]	17. Are all vents extended 12 inches above the roof and constructed to exclude potential sources of contamination? *(The overflow pipe shall not be considered a vent)*

yes	no	n/a	unk	note	ABOVE GROUND STORAGE
[x]	[ ]	[ ]	[ ]	[ ]	18. Do all vents open downward and are they fitted with a 4 mesh non corrodible screen?

yes	no	n/a	unk	note	GROUND LEVEL, PARTIALLY BURIED, or BELOW-GROUND STORAGE
[x]	[ ]	[ ]	[ ]	[ ]	19. Does the overflow for the storage structure have a vertical section of pipe at least 2 pipe diameters in length?
[x]	[ ]	[ ]	[ ]	[ ]	20. Is the overflow for the storage structure provided with either a 24 mesh non-corrodible screen installed within the pipe when practical, or an expanded metal screen installed within the pipe plus a weighted flapper or check?
[x]	[ ]	[ ]	[ ]	[ ]	21. Is the area surrounding the storage structure graded in a manner that will prevent surface water from standing within 50 feet of it?
[x]	[ ]	[ ]	[ ]	[ ]	22. Are all vents for the storage structure open downward with the opening at least 24 inches above the roof or the ground level and covered with 24 mesh non-corrodible screen to exclude potential contamination?

yes	no	n/a	unk	note	PARTIALLY BURIED OR BELOW-GROUND STORAGE
[ ]	[ ]	[x]	[ ]	[ ]	23. Are "ALL" manholes elevated 24 inches above the surface of the roof or the ground level, which ever is higher?
[ ]	[ ]	[x]	[ ]	[ ]	24. Is there a minimum distance of 50 feet between the storage structure and any non-potable main, standing water, or other possible source of contamination?

COMMENTS:
(Please indicate question number)

Note: this storage tank is only fed by Well # 8

 # 1. Deficiency - (Fig. 17) The storage structure was not safely accessible to inspector, as required by IDAPA 58. 01.08.501.14. because of lack of a ladder cage. Recommend referring to OSHA requirements also.

 # 7. Recommendation - although storage lid is locked and has an access alarm, well lot security could be improved upon by securing chain link fence so access can be avoided by someone crawling under fence. It is also Recommended installing barbed wire on top of the chain link fence the surrounds the whole well lot and post No Trespassing signs with City emergency # **(Fig. 18)**. Note: Source Water Grant is available for this type of security - contact Flint Hall in our office for more information

PUMPING - PG. 1

One form for all Pumps.

SURVEY DATE 1/24/2014 (mm/dd/yyyy) PWS # ID7100004

PUMPS, PUMPHOUSES, AND CONTROLS

Pump ID#	Physical Location:	Type of Pump:	Brand:	Model:	Horsepower:	Purpose:
	Well # 5	turbine			100	distribution
	Well # 7	turbine			200	distribution
	Well # 8	turbine			400	storage
	Booster Pump	turbine			125	distribution
	Booster Pump	turbine			125	distribution
	Booster Pump	turbine			125	distribution

yes	no	n/a	unk	note	**ALL PUMPS**
☑	☐	☐	☐	☐	1. Are all pumps capable of providing the maximum pumping demand of the system?
☐	☑	☐	☐	☐	2. Does the pump(s) cycle excessively? *(Recommended)*
☑	☐	☐	☐	☐	3. Are all pumps provided with readily available spare parts and tools?
☑	☐	☐	☐	☐	4. Is a water pressure relief valve installed where the pump is directly connected to the distribution system?
☑	☐	☐	☐	☐	5. Is a standard pressure gauge installed on the discharge line?

yes	no	n/a	unk	note	**WELL PUMPS**
☑	☐	☐	☐	☐	6. Is there an accessible check valve installed in the discharge line of each well between the pump and the shut-off valve?
☑	☐	☐	☐	☑	7. If the system has a <u>vertical turbine</u> motor driven pump(s), is an air release-vacuum relief valve located upstream from the check valve, with exhaust/relief piping terminating in a down-turned position at least 18 inches above the floor and covered with a 24 mesh corrosion resistant screen?
☑	☐	☐	☐	☐	8. If the pump(s) is "oil lubricated", is the oil NSF approved and suitable for human consumption?

yes	no	n/a	unk	note	**WATER PUMPS** *(not well pumps)*
☑	☐	☐	☐	☐	9. Is an accessible check valve on the discharge side between the pump and the shut-off valve?

yes	no	n/a	unk	note	**AUXILIARY POWER**
☑	☐		☐	☑	10. Is there auxiliary power on-site? ☐ Significant ☐ Deficiency
☑	☐	☐	☐	☑	11. Is auxiliary power tested? *(Recommended)*
☑	☐	☐	☐	☐	12. If a diesel or gasoline fueled engine is used on the well lot; is the fuel tank and connecting piping double walled?
☑	☐	☐	☐	☐	13. Is the fuel tank above ground?
☑	☐	☐	☐	☐	14. Is a certified operator present during the filling of the fuel tank?
					<u>**If the engine is in the well house**</u>
☑	☐	☐	☐	☐	15. Is the engine exhaust directly discharged outside the well house?
☑	☐	☐	☐	☐	16. Is a spill containment structure surrounding all fuel tanks adequate? *(Secondary containment - 110% fuel tank volume)*
					<u>**Community Systems Only**</u>
☐	☐	☑	☐	☐	17. *(Community Systems built after 4/15/07 only)* Is on-site power or standby storage provided so water can be treated and supplied to pressurize the entire distribution system during a power outage for a *minimum* of 8 hours?
☐	☐	☑	☐	☐	18. *(Community Systems built after 4/15/07 only)* If standby power is provided, is there a *minimum* of 8 hours of fuel stored and located on site?

(Please indicate the question number)

7. Deficiencies - the open end of the relief piping is required to be screened, as required by IDAPA 58.01.08.511.05.
Recommendation - may want to consider placing a screen around the base of the wells as a safety measure to avoid anyone placing their hand in or near the well column when it is running.

10. (Fig. 24) there is a 625 KVA auxiliary Diesel Generator with outside disel fuel tank associated w/well # 8 - booster station & 1.5 M storage tank; **(Fig. 47)** another diesel generator and outside fuel tank is assoicated w/well # 10

11. <u>Note:</u> all back-up generators are weekly tested automated SCADA

	SURVEY DATE		PWS #
PUMPING - PG. 2	1/24/2014	(mm/dd/yyyy)	ID7100004

BOOSTER PUMPS

yes	no	n/a	unk	note	Question
☐	☐	☐	☐	☐	19. Is an instantaneous and totalizing flow meter installed where the booster pump is directly connected to the distribution system? ☑ Unnecessary
☑	☐	☐	☐	☐	20. Are all in-line booster pumps supplied with an automatic cutoff that activates when intake pressure is less than or equal to 5 psi?
☑	☐	☐	☐	☐	21. Is the booster pump located on a suction line that is directly connected to any storage reservoir?
☑	☐	☐	☐	☐	22. If yes, are all booster pumps protected by an automatic cutoff to prevent pump damage and avoid excessive reservoir drawdown?

PUMP HOUSE *(Only pump houses that don't contain a Groundwater Source)*

yes	no	n/a	unk	note	Question
☑	☐	☐	☐	☐	23. Is the pump house kept clean and in good repair? *(Floor cracks?)*
☑	☐	☐	☐	☐	24. Is the pump house protected from unauthorized personnel?
☑	☐	☐	☐	☐	25. Does the pump house have adequate lighting throughout? *(Recommended)*
☑	☐	☐	☐	☐	26. Are all non-sample taps installed in the pump house equipped with an appropriate backflow prevention device?
☑	☐	☐	☐	☐	27. Is adequate ventilation provided in the pump house for dissipation of excess heat and moisture from the equipment? ☐ Significant ☐ Deficiency
☑	☐	☐	☐	☐	28. Is adequate heating provided in the pump house to provided safe and efficient operation of equipment *(prevent moisture buildup and/or freezing)*? ☐ Significant ☐ Deficiency
☑	☐	☐	☐	☐	29. Is the pump house protected from flooding, have adequate drainage, is the floor surface at least six (6) inches above the final ground surface, and is the ground surface graded so as to lead surface water away from the pump house?

yes	no	n/a	unk	note	Question
☐	☑	☐	☐	☐	30. Is the sump for pump house floor drains closer than 50 feet from the well?
☐	☑	☐	☐	☐	31. Is the floor drain connected to sewer, storm drains, chlorination room drains, or any other source of contamination?

COMMENTS:
(Please indicate the question number)

Recommendation - numbering each booster pump for maintenance reference and or repair

GROUNDWATER SOURCE - PG.1

A separate sources form must be filled out for each groundwater source in the PWS.

SURVEY DATE: 1/24/2014 (mm/dd/yyyy)

PWS #: ID7100004

Tag #: E0007189

Common Name of Source: Well # 3

Source: ☑ Well ⟶ ☐ Manifold ☐ Spring ⟶ ☐ Spring Box

Is this Source Treated? ☐ Yes ☑ No

Treatment Objective: ☑ N/A

Physical Location:
can be accessed through the back yard of 2765 Sawtooth St.

Treatment Types: ☑ N/A
(Identify Treatment Train in Comments)

Is there a well log for the groundwater source? ☐ Yes ☑ No ☐ N/A ☐ Unk

Pump Capacity (GPM)	Casing Size (in)	Date Drilled:	Well Depth (Ft)	Casing Depth (Ft)	Grout Depth (Ft)	Static Water Depth (Ft)
☑ Unk	☑ Unk	1987 ☐ Unk	210 ☐ Unk	☑ Unk	☑ Unk	☑ Unk

Is the Casing Screened? ☐ Yes ☐ No ☑ Unk ☐ N/A

Screen Depth (Ft): ☐ N/A ☑ Unk From: To:

Is the Casing Perforated? ☐ Yes ☐ No ☑ Unk ☐ N/A

Perforation Depth (Ft): ☐ N/A ☑ Unk From: To:

Latitude (Decimal): 43.481408

Longitude (Decimal): -111.9787

All Sources

1. This source is: ☐ Active ☐ Proposed ☐ Inactive ☑ Emergency (<60 days per year)

yes	no	n/a	unk	note	
☑	☐	☐	☐	☐	2. Has there been a Source Water Assessment conducted for the source? Date: 2001
☑	☐	☐	☐	☐	3. Has a final GWUDI determination been done for this source? Date: 2002

☐ N/A 4-36 if source is a spring

WELL INFORMATION

yes	no	n/a	unk	note	
☐	☑		☐	☑	4. Is the well on a separate lot that is large enough to provide a minimum distance of 50 feet between the well and the nearest property line? (applicable if constructed after 11/1/77) ☐ Significant ☐ Deficiency
					Are the following minimum distances from the PWS well being met?
☑	☐		☐	☐	5. - Gravity sewer line.....50 Ft.
☑	☐		☐	☐	6. - Pressure sewer line.....100 Ft.
☑	☐		☐	☐	7. - Individual home septic tank.....100 Ft.
☑	☐		☐	☐	8. - Individual home disposal field.....100 Ft.
☑	☐		☐	☐	9. - Individual home seepage pit.....100 Ft.
☑	☐		☐	☐	10. - Privies.....100 Ft.
☑	☐		☐	☐	11. - Livestock.....50 Ft.
☑	☐		☐	☐	12. - Canals, streams, ditches, lakes, ponds and tanks used to store nonpotable substances.....50 Ft.
☐	☑		☐	☐	13. Are pesticides, herbicides, fertilizers, portable containers of petroleum products, or other toxic or hazardous materials stored on the well lot?
☐	☑		☐	☐	14. Are pesticides, herbicides, or fertilizers applied to the well lot?
☐	☑		☐	☐	15. Is the well in a pit? If yes, Date constructed:
☐	☐	☑	☐	☐	16. Was the well that is located in a pit installed after 11/5/64?
☐	☐	☑	☐	☐	17. If pit was installed prior to 11/5/64 – Has DEQ granted an exception and does the pit have water tight construction of pit walls and floor, a floor drain and an acceptable pit cover?
☑	☐	☐	☐	☐	18. Is the well protected from unauthorized entry? (Recommended)
☑	☐	☐	☐	☐	19. Does the casing extend a minimum of 18 inches above the final ground surface and/ or 12 inches above the pump house floor? ☐ Significant ☐ Deficiency
☐	☐	☑	☐	☐	20. Is the well vented with the open end of the vent screened and terminated downward at least 18 inches above the final ground surface?
☑	☐		☐	☐	21. Is the well provided with a sanitary cap that prevents surface water entry?
☑	☐		☐	☐	22. Is the well cased and sealed in such a manner that surface water cannot enter the well?

COMMENTS:
(Please indicate question number)

4. Note: well house building is located between two houses (not considered a deficiency - no action required)

GROUNDWATER SOURCES - PG. 2	Common Name	SURVEY DATE		PWS #
	Well # 3	1/24/2014	(mm/dd/yyyy)	ID7100004

yes	no	n/a	unk	note	WELL INFORMATION (cont.)
☑	☐	☐	☐	☐	23. Is there a smooth nosed sample tap provided on the well discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
☑	☐	☐	☐	☐	24. Is an instantaneous and totalizing flow meter equipped with nonvolatile memory installed on the pump distribution line of the well and is it maintained and working properly? ☐ gallons (☐ Unnecessary)
☑	☐	☐	☐	☐	25. Is a pressure gauge provided at all installations and is it maintained and working properly? ☐ psi.
☑	☐	☐	☐	☐	26. Can the well be pumped to waste at the design capacity of the well via an approved air gap at a location prior to the first service connection?

yes	no	n/a	unk	note	PUMP HOUSE *(Any structure containing important water system components)*
☑	☐	☐	☐	☐	27. Is the source located in a pump house?
☑	☐	☐	☐	☑	28. Is the pump house kept clean and in good repair? *(Floor cracks?)*
☑	☐	☐	☐	☐	29. Is the pump house protected from unauthorized personnel?
☑	☐	☐	☐	☐	30. Does the pump house have adequate lighting throughout? *(Recommended)*
☐	☐	☑	☐	☐	31. Are all non-sample taps installed in the pump house equipped with an appropriate backflow prevention device?
☑	☐	☐	☐	☐	32. Is adequate ventilation provided in the pump house for dissipation of excess heat and moisture from the equipment? (☐ Significant ☐ Deficiency)
☑	☐	☐	☐	☐	33. Is adequate heating provided in the pump house to provided safe and efficient operation of equipment to prevent freezing? (☐ Significant ☐ Deficiency)
☐	☑	☐	☐	☑	34. Is the pump house protected from flooding, have adequate drainage, is the floor surface at least six (6) inches above the final ground surface, and is the ground surface graded so as to lead surface water away from the pump house?
☐	☐	☑	☐	☐	35. Is the sump for pump house floor drains closer than 30 feet from the well?
☐	☐	☑	☐	☐	36. Is the floor drain connected to sewer, storm drains, chlorination room drains, or any other source of contamination?

yes	no	n/a	unk	note	SPRING INFORMATION
☐	☐	☑	☐	☐	37. Is the entire area within a one hundred (100) foot radius of the spring box fenced to prevent trespassing of livestock and void of buildings, dwellings and sources of contamination?
☐	☐	☑	☐	☐	38. Is surface water diverted from the 100 foot protection zone around the spring?
☐	☐	☑	☐	☐	39. Is the spring housed in a permanent structure and protected from contamination including the entry of surface water, animals and dust?
☐	☐	☑	☐	☐	40. Is there a smooth nosed sample tap provided on the spring discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
☐	☐	☑	☐	☐	41. Is a flow meter or other flow measuring device provided?

yes	no	n/a	unk	note	SPRING BOX INFORMATION *(Not all existing springs have a spring box)*
☐	☐	☑	☐	☐	42. Is the spring box equipped with a screened overflow?
☐	☐	☑	☐	☐	43. Is the supply intake located above the floor of the collection chamber?
☐	☐	☑	☐	☐	44. Is the spring box protected from contamination including the entry of surface water, animals, and dust?
☐	☐	☑	☐	☐	45. Is the access port fitted with a solid water tight cover which overlaps a framed opening and extended down around the frame at least 2 inches?
☐	☐	☑	☐	☐	46. Is the access port a framed opening that is at least 4 inches high with a locking device?
☐	☐	☑	☐	☐	47. Is the access port elevated at least twenty-four (24) inches above the top of the box or ground level, whichever is higher?

COMMENTS:
(Please indicate question number)

28. Note - housekeeping could be improved

34. Note - well source sits on a concrete pedestal that isolates the source from the potential of flooding even though the floor of the well house is below ground level (not considered a deficiency - no action required)

GROUNDWATER SOURCE - PG.1

A separate sources form must be filled out for each groundwater source in the PWS.

SURVEY DATE: 1/24/2014 (mm/dd/yyyy)

PWS #: ID7100004

Tag #:
E0007169

Common Name of Source: Well # 2

Source: ☑ Well ⟶ ☐ Manifold; ☐ Spring ⟶ ☐ Spring Box

Is this Source Treated? ☐ Yes ☑ No

Treatment Objective: ☑ N/A

Treatment Types: ☑ N/A
(Identify Treatment Train in Comments)

Physical Location:
Targhee Street (between Bittern Dr and Avocet Dr)
Twn: 02N Rg. 38 E Sec. 22 SENW

Is there a well log for the groundwater source? ☐ Yes ☑ No ☐ N/A ☐ Unk

Pump Capacity (GPM)	Casing Size (In)	Date Drilled	Well Depth (Ft)	Casing Depth (Ft)	Grout Depth(Ft)	Static Water Depth (Ft)
☑ Unk	☑ Unk	☑ Unk	☑ Unk	☑ Unk	☑ Unk	☑ Unk

Is the Casing Screened? ☐ Yes ☐ No ☑ Unk ☐ N/A

Screen Depth (Ft): ☐ N/A ☑ Unk
From:
To:

Is the Casing Perforated? ☐ Yes ☐ No ☑ Unk ☐ N/A

Perforation Depth (Ft): ☐ N/A ☑ Unk
From:
To:

Latitude (Decimal): 43.477161
Longitude (Decimal): -111.975364

All Sources

1. This source is: ☐ Active ☐ Proposed ☐ Inactive ☑ Emergency (<60 days per year)

yes	no	n/a	unk	note	
☑	☐	☐	☐	☐	2. Has there been a Source Water Assessment conducted for the source? Date: 2001
☑	☐	☐	☐	☐	3. Has a final GWUDI determination been done for this source? Date: 2002

☐ N/A 4-38 if source is a spring

WELL INFORMATION

yes	no	n/a	unk	note	
☐	☑		☐	☑	4. Is the well on a separate lot that is large enough to provide a minimum distance of 50 feet between the well and the nearest property line? (applicable if constructed after 11/1/77) ☐ Significant ☐ Deficiency
					Are the following minimum distances from the PWS well being met?
☑	☐		☐	☐	5. - Gravity sewer line........50 Ft.
☑	☐		☐	☐	6. - Pressure sewer line........100 Ft.
☑	☐		☐	☐	7. - Individual home septic tank........100 Ft.
☑	☐		☐	☐	8. - Individual home disposal field........100 Ft.
☑	☐		☐	☐	9. - Individual home seepage pit........100 Ft.
☑	☐		☐	☐	10. - Privies........100 Ft.
☑	☐		☐	☐	11. - Livestock........50 Ft.
☑	☐		☐	☐	12. - Canals, streams, ditches, lakes, ponds and tanks used to store nonpotable substances........50 Ft.
☐	☑		☐	☐	13. Are pesticides, herbicides, fertilizers, portable containers of petroleum products, or other toxic or hazardous materials stored on the well lot?
☑	☐		☐	☑	14. Are pesticides, herbicides, or fertilizers applied to the well lot?
☐	☑		☐	☐	15. Is the well in a pit? If yes, Date constructed:
☐	☐	☑	☐	☐	16. Was the well that is located in a pit installed after 11/5/64?
☐	☐	☑	☐	☐	17. If pit was installed prior to 11/5/64 – Has DEQ granted an exception and does the pit have water tight construction of pit walls and floor, a floor drain and an acceptable pit cover?
☑	☐	☐	☐	☐	18. Is the well protected from unauthorized entry? *(Recommended)*
☐	☐	☑	☐	☐	19. Does the casing extend a minimum of 18 inches above the final ground surface and/ or 12 inches above the pump house floor? ☐ Significant ☐ Deficiency
☐	☑	☐	☐	☑	20. Is the well vented with the open end of the vent screened and terminated downward at least 18 inches above the final ground surface?
☐	☐		☑	☐	21. Is the well provided with a sanitary cap that prevents surface water entry?
☐	☐		☑	☐	22. Is the well cased and sealed in such a manner that surface water cannot enter the well?

COMMENTS:
(Please indicate question number)

4. well is located in a brick building adjacent to a church property - there is no designated well lot established (no action required)

14. Recommendation - fertilizers and other chemicals applied to the surround grass within 50 feet of the well source should be avoided#

20. Deficiency (Fig. 41)- the open end of the well vent is required to be screened, as required by IDAPA 58.01.08.511.05.

GROUNDWATER SOURCES - PG. 2

Common Name	SURVEY DATE	(mm/dd/yyyy)	PWS #
Well # 2	1/24/2014		ID7100004

WELL INFORMATION (cont.)

yes	no	n/a	unk	note	Question
[x]	[ ]	[ ]	[ ]	[x]	23. Is there a smooth nosed sample tap provided on the well discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
[x]	[ ]	[ ]	[ ]	[ ]	24. Is an instantaneous and totalizing flow meter equipped with nonvolatile memory installed on the pump distribution line of the well and is it maintained and working properly? [ ] gallons
					[ ] Unnecessary
[x]	[ ]	[ ]	[ ]	[ ]	25. Is a pressure gauge provided at all installations and is it maintained and working properly? [ ] psi
[x]	[ ]	[ ]	[ ]	[ ]	26. Can the well be pumped to waste at the design capacity of the well via an approved air gap at a location prior to the first service connection?

PUMP HOUSE *(Any structure containing important water system components)*

yes	no	n/a	unk	note	Question
[x]	[ ]	[ ]	[ ]	[ ]	27. Is the source located in a pump house?
[x]	[ ]	[ ]	[ ]	[ ]	28. Is the pump house kept clean and in good repair? *(Floor cracks?)*
[x]	[ ]	[ ]	[ ]	[x]	29. Is the pump house protected from unauthorized personnel?
[x]	[ ]	[ ]	[ ]	[ ]	30. Does the pump house have adequate lighting throughout? *(Recommended)*
[ ]	[ ]	[x]	[ ]	[ ]	31. Are all non-sample taps installed in the pump house equipped with an appropriate backflow prevention device?
[x]	[ ]	[ ]	[ ]	[ ]	32. Is adequate ventilation provided in the pump house for dissipation of excess heat and moisture from the equipment?
					[ ] Significant [ ] Deficiency
[x]	[ ]	[ ]	[ ]	[ ]	33. Is adequate heating provided in the pump house to provided safe and efficient operation of equipment to prevent freezing?
					[ ] Significant [ ] Deficiency
[x]	[ ]	[ ]	[ ]	[x]	34. Is the pump house protected from flooding, have adequate drainage, is the floor surface at least six (6) inches above the final ground surface, and is the ground surface graded so as to lead surface water away from the pump house?
[ ]	[ ]	[x]	[ ]	[ ]	35. Is the sump for pump house floor drains closer than 30 feet from the well?
[ ]	[ ]	[x]	[ ]	[ ]	36. Is the floor drain connected to sewer, storm drains, chlorination room drains, or any other source of contamination?

SPRING INFORMATION

yes	no	n/a	unk	note	Question
[ ]	[ ]	[x]	[ ]	[ ]	37. Is the entire area within a one hundred (100) foot radius of the spring box fenced to prevent trespassing of livestock and void of buildings, dwellings and sources of contamination?
[ ]	[ ]	[x]	[ ]	[ ]	38. Is surface water diverted from the 100 foot protection zone around the spring?
[ ]	[ ]	[x]	[ ]	[ ]	39. Is the spring housed in a permanent structure and protected from contamination including the entry of surface water, animals and dust?
[ ]	[ ]	[x]	[ ]	[ ]	40. Is there a smooth nosed sample tap provided on the spring discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
[ ]	[ ]	[x]	[ ]	[ ]	41. Is a flow meter or other flow measuring device provided?

SPRING BOX INFORMATION *(Not all existing springs have a spring box)*

yes	no	n/a	unk	note	Question
[ ]	[ ]	[x]	[ ]	[ ]	42. Is the spring box equipped with a screened overflow?
[ ]	[ ]	[x]	[ ]	[ ]	43. Is the supply intake located above the floor of the collection chamber?
[ ]	[ ]	[x]	[ ]	[ ]	44. Is the spring box protected from contamination including the entry of surface water, animals, and dust?
[ ]	[ ]	[x]	[ ]	[ ]	45. Is the access port fitted with a solid water tight cover which overlaps a framed opening and extended down around the frame at least 2 inches?
[ ]	[ ]	[x]	[ ]	[ ]	46. Is the access port a framed opening that is at least 4 inches high with a locking device?
[ ]	[ ]	[x]	[ ]	[ ]	47. Is the access port elevated at least twenty-four (24) inches above the top of the box or ground level, whichever is higher?

COMMENTS:
(Please indicate question number)

34. no floor drain provided, water must drain out the door, well head extends approximately 12-inches from the well house floor and is not considered a deficiency

Recommendation - upon system upgrades a floor drain should be installed to assure the source is protected from any flooding.

GROUNDWATER SOURCE - PG.1

A separate sources form must be filled out for each groundwater source in the PWS.

SURVEY DATE	1/24/2014 (mm/dd/yyyy)
PWS #	ID7100004
Tag #:	[redacted]
E0009469	
Common Name of Source:	Well # 10
Source:	[redacted]
	[x] Well → [ ] Manifold [ ] Spring → [ ] Spring Box
Is this Source Treated?	[ ] Yes [x] No
Treatment Objective:	[x] N/A
Treatment Types: (Identify Treatment Train in Comments)	[x] N/A
Physical Location:	[redacted]
	back-up generator available (fuel tank outside building)

Is there a well log for the groundwater source? [x] Yes [ ] No [ ] N/A [ ] Unk

Pump Capacity (GPM)	Casing Size (In)	Date Drilled:	Well Depth (Ft)	Casing Depth (Ft)	Grout Depth(Ft)	Static Water Depth (Ft)
[ ] Unk	24 [ ] Unk	2009 [ ] Unk	302 [ ] Unk	302 [ ] Unk	80 [ ] Unk	63 [ ] Unk

Is the Casing Screened? [x] Yes [ ] No [ ] Unk [ ] N/A

Screen Depth (Ft): [ ] N/A [ ] Unk — From: 260 To: 300

Is the Casing Perforated? [ ] Yes [x] No [ ] Unk [ ] N/A

Perforation Depth (Ft): [x] N/A [ ] Unk — From: To:

Latitude (Decimal): 43.45687

Longitude (Decimal): -111.98308

All Sources

1. This source is: [x] Active [ ] Proposed [ ] Inactive [ ] Emergency (<60 days per year)

yes	no	n/a	unk	note	Question
[x]	[ ]	[ ]	[ ]	[ ]	2. Has there been a Source Water Assessment conducted for the source? Date: 2006
[x]	[ ]	[ ]	[ ]	[ ]	3. Has a final GWUDI determination been done for this source? Date: 2013

[ ] N/A 4-36 if source is a spring

WELL INFORMATION

yes	no	n/a	unk	note	Question
[x]	[ ]		[ ]	[ ]	4. Is the well on a separate lot that is large enough to provide a minimum distance of 50 feet between the well and the nearest property line? (applicable if constructed after 11/1/77) [ ] Significant [ ] Deficiency
					Are the following minimum distances from the PWS well being met?
[x]	[ ]		[ ]	[ ]	5. - Gravity sewer line......50 Ft.
[x]	[ ]		[ ]	[ ]	6. - Pressure sewer line......100 Ft.
[x]	[ ]		[ ]	[ ]	7. - Individual home septic tank......100 Ft.
[x]	[ ]		[ ]	[ ]	8. - Individual home disposal field......100 Ft.
[x]	[ ]		[ ]	[ ]	9. - Individual home seepage pit......100 Ft.
[x]	[ ]		[ ]	[ ]	10. - Privies......100 Ft.
[x]	[ ]		[ ]	[ ]	11. - Livestock......50 Ft.
[x]	[ ]		[ ]	[ ]	12. - Canals, streams, ditches, lakes, ponds and tanks used to store nonpotable substances......50 Ft.
[ ]	[x]		[ ]	[ ]	13. Are pesticides, herbicides, fertilizers, portable containers of petroleum products, or other toxic or hazardous materials stored on the well lot?
[ ]	[x]		[ ]	[ ]	14. Are pesticides, herbicides, or fertilizers applied to the well lot?
[ ]	[x]	[ ]	[ ]	[ ]	15. Is the well in a pit? If yes, Date constructed:
[ ]	[ ]	[x]	[ ]	[ ]	16. Was the well that is located in a pit installed after 11/5/64?
[ ]	[ ]	[x]	[ ]	[ ]	17. If pit was installed prior to 11/5/64 – Has DEQ granted an exception and does the pit have water tight construction of pit walls and floor, a floor drain and an acceptable pit cover?
[x]	[ ]	[ ]	[ ]	[ ]	18. Is the well protected from unauthorized entry? *(Recommended)*
[x]	[ ]	[ ]	[ ]	[ ]	19. Does the casing extend a minimum of 18 inches above the final ground surface and/ or 12 inches above the pump house floor? [ ] Significant [ ] Deficiency
[x]	[ ]	[ ]	[ ]	[ ]	20. Is the well vented with the open end of the vent screened and terminated downward at least 18 inches above the final ground surface?
[x]	[ ]		[ ]	[ ]	21. Is the well provided with a sanitary cap that prevents surface water entry?
[x]	[ ]		[ ]	[ ]	22. Is the well cased and sealed in such a manner that surface water cannot enter the well?

COMMENTS:
(Please indicate question number)

20. Deficiency (**Fig. 45**)- the open end of the well vent is required to be screened, as required by IDAPA 58.01.08.511.05.

Well #10

25

Office Use Only
Well ID No.
Inspected by
Twp ___ Rge ___ Sec ___
___1/4 ___1/4 ___1/4
Lat: : : Long: : :

Form 238-7 6/02

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

1. WELL TAG NO. D 49781

DRILLING PERMIT NO.

Water Right or Injection Well No. 25-4294

2. OWNER:

Name City of Ammon

Address 2135 S. Ammon Rd

City Idaho Falls State Id Zip 83406

3. LOCATION OF WELL by legal description:

You must provide address or Lot, Blk, Sub. or Directions to well.

Twp 2 North ☒ or South

Rge. 38 East ☒ or West

Sec. 34 ___1/4 NW 1/4 SW 1/4

Gov't Lot ___ County Bonneville

Lat: : : Long: : :

Address of Well Site 3265 Hitt Rd City Ammon

Lt. ___ Blk. ___ Sub. Name ___

4. USE:

☐ Domestic ☒ Municipal ☐ Monitor ☐ Irrigation

☐ Thermal ☐ Injection ☐ Other ___

5. TYPE OF WORK check all that apply (Replacement etc.)

☒ New Well ☐ Modify ☐ Abandonment ☐ Other ___

6. DRILL METHOD:

☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other ___

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
bentonite	0	80	8030	poured dry

Was drive shoe used? ☒Y ☐N Shoe Depth(s) ___

Was drive shoe seal tested? ☐Y ☒N How? ___

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
24	-5	34	375	steel	☒	☐	☒	
20	-5	168	375	steel	☒		☒	
16	+2	260	375	steel	☒		☒	

Length of Headpipe ___ Length of Tailpipe ___

Packer ☐Y ☐N Type ___

9. PERFORATIONS/SCREENS PACKER TYPE

Perforation Method ___

Screen Type & Method of Installation 304 SST weld

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
260	300	80		14	SST		☐
							☐
							☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

63 ft. below ground Artesian pressure ___ lb.

Depth flow encountered ___ ft. Describe access port or control devices: ___

12. WELL TESTS:

☒ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min.	Drawdown	Pumping Level	Time
3500	100	160	24 hrs

Water Temp. 51° Bottom hole temp. ___

Water Quality test or comments: sheet

Depth first Water Encounter 80

13. LITHOLOGIC LOG: (Describe repairs or abandonment) Water

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
24	0	11	cobble stones		X
24	11	18	river rock & clay		X
24	18	48	river rock 3" & sand		X
24	48	55	gravel & sand		X
24	55	65	solid grey lava		X
20	65	70	grey lava		X
20	70	75	loose broken cavity		X
20	75	83	loose lava rock		X
20	83	120	real loose lava	X	
20	120	165	cavity broken lava	X	
20	165	168	solid black basalt		X
20	170	205	hard grey basalt		X
20	205	240	real hard basalt & crevices	X	
20	240	255	hard basalt & crevices	X	
20	265	265	cinders	X	
16	265	280	fractured loose lava	X	
16	280	284	cinders	X	
16	284	294	real hard basalt		X
16	294	300	cinders (4000 gpm)	X	
16	300	302	sand & red clay		X

RECEIVED

NOV 2 ' 2008

Department of Water Resources

Completed Depth 300 (Measurable)

Date: Started May 23, 08 Completed 9-24-08

14. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name High Plains Drilling Firm No. 299

Principal Driller Marcus Franke Date 11-20-08

and

Driller or Operator II Mike Franke Date 11-20-08

Operator I Jake Jose Date 11-20-08

Principal Driller and Rig Operator Required.

Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

GROUNDWATER SOURCES - PG. 2

Common Name: Well # 10

SURVEY DATE: 7/24/2014 (mm/dd/yyyy)

PWS #: ID7100004

WELL INFORMATION (cont.)

yes	no	n/a	unk	note	
☑	☐	☐	☐	☐	23. Is there a smooth nosed sample tap provided on the well discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
☑	☐	☐	☐	☐ ☐ Unnecessary	24. Is an instantaneous and totalizing flow meter equipped with nonvolatile memory installed on the pump distribution line of the well and is it maintained and working properly? ____ gallons
☑	☐	☐	☐	☐	25. Is a pressure gauge provided at all installations and is it maintained and working properly? ____ psi
☑	☐	☐	☐	☐	26. Can the well be pumped to waste at the design capacity of the well via an approved air gap at a location prior to the first service connection?

PUMP HOUSE *(Any structure containing important water system components)*

yes	no	n/a	unk	note	
☑	☐	☐	☐	☐	27. Is the source located in a pump house?
☑	☐	☐	☐	☑	28. Is the pump house kept clean and in good repair? *(Floor cracks?)*
☑	☐	☐	☐	☐	29. Is the pump house protected from unauthorized personnel?
☑	☐	☐	☐	☐	30. Does the pump house have adequate lighting throughout? *(Recommended)*
☑	☐	☐	☐	☐	31. Are all non-sample taps installed in the pump house equipped with an appropriate backflow prevention device?
☑	☐	☐	☐	☐ ☐ Significant ☐ Deficiency	32. Is adequate ventilation provided in the pump house for dissipation of excess heat and moisture from the equipment?
☑	☐	☐	☐	☐ ☐ Significant ☐ Deficiency	33. Is adequate heating provided in the pump house to provide safe and efficient operation of equipment to prevent freezing?
☑	☐	☐	☐	☐	34. Is the pump house protected from flooding, have adequate drainage, is the floor surface at least six (6) inches above the final ground surface, and is the ground surface graded so as to lead surface water away from the pump house?
☐	☑	☐	☐	☐	35. Is the sump for pump house floor drains closer than 30 feet from the well?
☐	☑	☐	☐	☐	36. Is the floor drain connected to sewer, storm drains, chlorination room drains, or any other source of contamination?

SPRING INFORMATION

yes	no	n/a	unk	note	
☐	☐	☑	☐	☐	37. Is the entire area within a one hundred (100) foot radius of the spring box fenced to prevent trespassing of livestock and void of buildings, dwellings and sources of contamination?
☐	☐	☑	☐	☐	38. Is surface water diverted from the 100 foot protection zone around the spring?
☐	☐	☑	☐	☐	39. Is the spring housed in a permanent structure and protected from contamination including the entry of surface water, animals and dust?
☐	☐	☑	☐	☐	40. Is there a smooth nosed sample tap provided on the spring discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
☐	☐	☑	☐	☐	41. Is a flow meter or other flow measuring device provided?

SPRING BOX INFORMATION *(Not all existing springs have a spring box)*

yes	no	n/a	unk	note	
☐	☐	☑	☐	☐	42. Is the spring box equipped with a screened overflow?
☐	☐	☑	☐	☐	43. Is the supply intake located above the floor of the collection chamber?
☐	☐	☑	☐	☐	44. Is the spring box protected from contamination including the entry of surface water, animals, and dust?
☐	☐	☑	☐	☐	45. Is the access port fitted with a solid water tight cover which overlaps a framed opening and extended down around the frame at least 2 inches?
☐	☐	☑	☐	☐	46. Is the access port a framed opening that is at least 4 inches high with a locking device?
☐	☐	☑	☐	☐	47. Is the access port elevated at least twenty-four (24) inches above the top of the box or ground level, whichever is higher?

COMMENTS:
(Please indicate question number)

STORAGE

A separate storage form must be filled out for each storage unit in the PWS

SURVEY DATE		PWS #
1/24/2014	(mm/dd/yyyy)	ID7100004

Storage Structure Name:	Storage Structure ID #:	COMMENTS: (Please indicate question number)
Physical Location: Booster Station associated with this storage tank	Date in service: [ ] Unk 2011	Note: this storage tank is fed by Well # 9 and 11
	Volume (gal): [ ] Unk 2 million	# 7. Recommendation - install barbed wire on top of the chain link fence and posting No Trespassing signs with City Emergency #.

Storage Type:
- [x] Reservoir/Tank
- [ ] Standpipe

Construction:
- [ ] Elevated
- [x] Above Ground
- [ ] Partially Below Ground
- [ ] Below Ground

Type of material:
- [ ] Plastic
- [ ] Fiberglass
- [x] Concrete
- [ ] Wood
- [ ] Metal
- [ ] Naturally Contained

Total Days Supply (This structure): [ ] Unk

Date Last: Inspected: [ ] Unk Cleaned: [ ] Unk

How is the water level measured? [ ] Unk

ALL STORAGE STRUCTURES

yes	no	n/a	unk	note	
[x]	[ ]	[ ]	[ ]	[ ]	1. Is the storage structure safely accessible to the inspector?
[ ]	[x]	[ ]	[ ]	[ ]	2. Is the PWS storage tank located within 500 feet of any municipal or industrial wastewater treatment plant or any land which is spray irrigated with wastewater or used for sludge disposal?
[ ]	[x]	[ ]	[ ]	[ ]	3. Are any of the storage structure drains directly connected to a sewer or storm drain?
[x]	[ ]	[ ]	[ ]	[ ]	4. Is an overflow provided that discharges to daylight in a way that will preclude the possibility of backflow to the reservoir and, where practical, provided with an expanded metal screen installed within the pipe that will exclude rodents and deter vandalism?
[x]	[ ]	[ ]	[ ]	[ ]	5. Are overflows brought down to an elevation between 12 and 24 inches above the ground surface? (2X the diameter of the discharge pipe above a drain rim)
[x]	[ ]	[ ]	[ ]	[ ]	6. Do overflows discharge over a drainage inlet structure or splash plate?(storm or sanitary)
[x]	[ ]	[ ]	[ ]	[x]	7. Is the storage structure secure from unauthorized access?
[x]	[ ]	[ ]	[ ]	[ ]	8. Does the storage reservoir have a watertight roof or cover and is it sloped to facilitate drainage?
[x]	[ ]	[ ]	[ ]	[ ]	9. Is the storage water protected from contamination?
[x]	[ ]	[ ]	[ ]	[ ]	10. Is the storage structure structurally sound?
[ ]	[x]	[ ]	[ ]	[ ]	11. Could vegetation in the area potentially impact the storage structure?(Recommendation)
[x]	[ ]	[ ]	[ ]	[ ]	12. Is the storage structure designed so that it can be isolated from the distribution system without necessitating loss of pressure in the distribution system?
[ ]	[x]	[ ]	[ ]	[ ]	13. Is leakage evident at time of inspection?
[ ]	[x]	[ ]	[ ]	[ ]	14. Is the storage structure interior coating or liner peeling or cracked?
[ ]	[ ]	[x]	[ ]	[ ]	15. Is the storage structure used to store finished water?
[x]	[ ]	[ ]	[ ]	[ ]	16. Are access manhole openings for the storage structure 4 inches or greater above the surface of the roof, with a cover 2 inches overlapping, water tight, hinged and locked?
[x]	[ ]	[ ]	[ ]	[ ]	17. Are all vents extended 12 inches above the roof and constructed to exclude potential sources of contamination? (The overflow pipe shall not be considered a vent)

ABOVE GROUND STORAGE

yes	no	n/a	unk	note	
[x]	[ ]	[ ]	[ ]	[ ]	18. Do all vents open downward and are they fitted with a 4 mesh non-corrodible screen?

GROUND-LEVEL, PARTIALLY BURIED, or BELOW-GROUND STORAGE

yes	no	n/a	unk	note	
[x]	[ ]	[ ]	[ ]	[ ]	19. Does the overflow for the storage structure have a vertical section of pipe at least 2 pipe diameters in length?
[x]	[ ]	[ ]	[ ]	[ ]	20. Is the overflow for the storage structure provided with either a 24 mesh non-corrodible screen installed within the pipe when practical, or an expanded metal screen installed within the pipe plus a weighted flapper or check?
[x]	[ ]	[ ]	[ ]	[ ]	21. Is the area surrounding the storage structure graded in a manner that will prevent surface water from standing within 50 feet of it?
[x]	[ ]	[ ]	[ ]	[ ]	22. Are all vents for the storage structure open downward with the opening at least 24 inches above the roof or the ground level and covered with 24 mesh non-corrodible screen to exclude potential contamination?

PARTIALLY BURIED OR BELOW-GROUND STORAGE

yes	no	n/a	unk	note	
[ ]	[ ]	[x]	[ ]	[ ]	23. Are "ALL" manholes elevated 24 inches above the surface of the roof or the ground level, which ever is higher?
[ ]	[ ]	[x]	[ ]	[ ]	24. Is there a minimum distance of 50 feet between the storage structure and any non potable main, standing water, or other possible source of contamination?

PUMPING - PG. 1

One form for all Pumps.

SURVEY DATE: 1/24/2014 (mm/dd/yyyy) PWS #: ID7100004

PUMPS, PUMPHOUSES, AND CONTROLS

Pump ID#	Physical Location:	Type of Pump:	Brand:	Model:	Horsepower:	Purpose:
P1-5	Hill Booster Station	horizontal/turbine				fire support
P2-5	Hill Booster Station	horizontal/turbine				fire support
P3-5	Hill Booster Station	horizontal/turbine				distribution
P3-6	Hill Booster Station	horizontal/turbine				distribution
P1-3	Hill Booster Station	horizontal/turbine				distribution
P2-3	Hill Booster Station	horizontal/turbine				distribution
P3-3	Hill Booster Station	horizontal/turbine				distribution
P1-4	Hill Booster Station	horizontal/turbine				distribution
P2-4	Hill Booster Station	horizontal/turbine				distribution
P3-4	Hill Booster Station	horizontal/turbine				distribution

yes	no	n/a	unk	note	
					ALL PUMPS
[x]	[ ]	[ ]	[ ]	[ ]	1. Are all pumps capable of providing the maximum pumping demand of the system?
[ ]	[x]	[ ]	[ ]	[ ]	2. Does the pump(s) cycle excessively? *(Recommended)*
[x]	[ ]	[ ]	[ ]	[ ]	3. Are all pumps provided with readily available spare parts and tools?
[x]	[ ]	[ ]	[ ]	[ ]	4. Is a water pressure relief valve installed where the pump is directly connected to the distribution system?
[x]	[ ]	[ ]	[ ]	[ ]	5. Is a standard pressure gauge installed on the discharge line?
					WELL PUMPS
[x]	[ ]	[ ]	[ ]	[ ]	6. Is there an accessible check valve installed in the discharge line of each well between the pump and the shut-off valve?
[x]	[ ]	[ ]	[ ]	[x]	7. If the system has a vertical turbine motor driven pump(s), is an air release-vacuum relief valve located upstream from the check valve, with exhaust/relief piping terminating in a down-turned position at least 18 inches above the floor and covered with a 24 mesh corrosion resistant screen?
[x]	[ ]	[ ]	[ ]	[ ]	8. If the pump(s) is "oil lubricated", is the oil NSF approved and suitable for human consumption?
					WATER PUMPS *(not well pumps)*
[x]	[ ]	[ ]	[ ]	[ ]	9. Is an accessible check valve on the discharge side between the pump and the shut-off valve?
					AUXILIARY POWER
[x]	[ ]		[ ]	[x]	10. Is there auxiliary power on-site? [ ] Significant [ ] Deficiency
[x]	[ ]	[ ]	[ ]	[x]	11. Is auxiliary power tested? *(Recommended)*
[x]	[ ]	[ ]	[ ]	[ ]	12. If a diesel or gasoline fueled engine is used on the well lot; is the fuel tank and connecting piping double walled?
[x]	[ ]	[ ]	[ ]	[ ]	13. Is the fuel tank above ground?
[x]	[ ]	[ ]	[ ]	[ ]	14. Is a certified operator present during the filling of the fuel tank?
					If the engine is in the well house
[x]	[ ]	[ ]	[ ]	[ ]	15. Is the engine exhaust directly discharged outside the well house?
[x]	[ ]	[ ]	[ ]	[ ]	16. Is a spill containment structure surrounding all fuel tanks adequate? *(Secondary containment - 110% fuel tank volume)*
					Community Systems Only
[ ]	[ ]	[x]	[ ]	[ ]	17. *(Community Systems built after 4/15/07 only)* Is on-site power or standby storage provided so water can be treated and supplied to pressurize the entire distribution system during a power outage for a minimum of 8 hours?
[ ]	[ ]	[x]	[ ]	[ ]	18. *(Community Systems built after 4/15/07 only)* If standby power is provided, is there a minimum of 8 hours of fuel stored and located on site?

COMMENTS:
(Please indicate the question numb

7. Deficiencies - the open end of the relief piping is required to be screened, as required by IDAPA 58.01.08.511.05.

10. (**Fig. 24**) there is a 625 KVA auxiliary Diesel Generator with outside disel fuel tank associated w/well # 8 - booster station & 1.5 M storage tank; (**Fig. 47**) another diesel generator and outside fuel tank is assoicated w/well # 10 and another associated with the Hil Booster station and 2 M storage tank (**Fig. 55**).

11. auto tested weekly

PUMPING - PG. 2

SURVEY DATE		PWS #
1/24/2014	(mm/dd/yyyy)	ID7100004

COMMENTS:
(Please indicate the question numb

BOOSTER PUMPS

yes	no	n/a	unk	n/e	
☐	☐	☐	☐	☐	19. Is an instantaneous and totalizing flow meter installed where the booster pump is directly connected to the distribution system? ☑ Unnecessary
☑	☐	☐	☐	☐	20. Are all in-line booster pumps supplied with an automatic cutoff that activates when intake pressure is less than or equal to 5 psi?
☑	☐	☐	☐	☐	21. Is the booster pump located on a suction line that is directly connected to any storage reservoir?
☑	☐	☐	☐	☐	22. If yes, are all booster pumps protected by an automatic cutoff to prevent pump damage and avoid excessive reservoir drawdown?

PUMP HOUSE *(Only pump houses that don't contain a Groundwater Source)*

yes	no	n/a	unk	n/e	
☑	☐	☐	☐	☐	23. Is the pump house kept clean and in good repair? *(Floor cracks?)*
☑	☐	☐	☐	☐	24. Is the pump house protected from unauthorized personnel?
☑	☐	☐	☐	☐	25. Does the pump house have adequate lighting throughout? *(Recommended)*
☑	☐	☐	☐	☐	26. Are all non-sample taps installed in the pump house equipped with an appropriate backflow prevention device?
☑	☐	☐	☐	☐	27. Is adequate ventilation provided in the pump house for dissipation of excess heat and moisture from the equipment? ☐ Significant ☐ Deficiency
☑	☐	☐	☐	☐	28. Is adequate heating provided in the pump house to provided safe and efficient operation of equipment *(prevent moisture buildup and/or freezing)*? ☐ Significant ☐ Deficiency
☑	☐	☐	☐	☐	29. Is the pump house protected from flooding, have adequate drainage, is the floor surface at least six (6) inches above the final ground surface, and is the ground surface graded so as to lead surface water away from the pump house?

yes	no	n/a	unk	n/e	
☐	☑	☐	☐	☐	30. Is the sump for pump house floor drains closer than 30 feet from the well?
☐	☑	☐	☐	☐	31. Is the floor drain connected to sewer, storm drains, chlorination room drains, or any other source of contamination?

PUMPING - PG. 1

One form for all Pumps.

SURVEY DATE: 1/24/2014 (mm/dd/yyyy)   PWS #: ID7100004

PUMPS, PUMPHOUSES, AND CONTROLS

Pump ID#	Physical Location:	Type of Pump:	Brand:	Model:	Horsepower	Purpose:
	Well # 5	turbine			100	distribution
	Well # 7	turbine			200	distribution
	Well # 8	turbine			400	storage
	Booster Pump	turbine			125	distribution
	Booster Pump	turbine			125	distribution
	Booster Pump	turbine			125	distribution
	Well # 3	turbine			60	distribution
	Well # 2	turbine			unk	distribution
	Well # 10	turbine			400	distribution

yes	no	n/a	unk	note	Question
					ALL PUMPS
☑	☐	☐	☐	☐	1. Are all pumps capable of providing the maximum pumping demand of the system?
☐	☑	☐	☐	☐	2. Does the pump(s) cycle excessively? *(Recommended)*
☑	☐	☐	☐	☐	3. Are all pumps provided with readily available spare parts and tools?
☑	☐	☐	☐	☐	4. Is a water pressure relief valve installed where the pump is directly connected to the distribution system?
☑	☐	☐	☐	☐	5. Is a standard pressure gauge installed on the discharge line?
					WELL PUMPS
☑	☐	☐	☐	☐	6. Is there an accessible check valve installed in the discharge line of each well between the pump and the shut-off valve?
☑	☐	☐	☐	☑	7. If the system has a vertical turbine motor driven pump(s), is an air release-vacuum relief valve located upstream from the check valve, with exhaust/relief piping terminating in a down-turned position at least 18 inches above the floor and covered with a 24 mesh corrosion resistant screen?
☑	☐	☐	☐	☐	8. If the pump(s) is "oil lubricated", is the oil NSF approved and suitable for human consumption?
					WATER PUMPS *(not well pumps)*
☑	☐	☐	☐	☐	9. Is an accessible check valve on the discharge side between the pump and the shut-off valve?
					AUXILIARY POWER
☑	☐		☐	☑	10. Is there auxiliary power on-site? (☐ Significant ☐ Deficiency)
☑	☐	☐	☐	☑	11. Is auxiliary power tested? *(Recommended)*
☑	☐	☐	☐	☐	12. If a diesel or gasoline fueled engine is used on the well lot, is the fuel tank and connecting piping double walled?
☑	☐	☐	☐	☐	13. Is the fuel tank above ground?
☑	☐	☐	☐	☐	14. Is a certified operator present during the filling of the fuel tank?
					If the engine is in the well house
☑	☐	☐	☐	☐	15. Is the engine exhaust directly discharged outside the well house?
☑	☐	☐	☐	☐	16. Is a spill containment structure surrounding all fuel tanks adequate? *(Secondary containment - 110% fuel tank volume)*
					Community Systems Only
☐	☐	☑	☐	☐	17. *(Community Systems built after 4/15/07 only)* Is on-site power or standby storage provided so water can be treated and supplied to pressurize the entire distribution system during a power outage for a minimum of 8 hours?
☐	☐	☑	☐	☐	18. *(Community Systems built after 4/15/07 only)* If standby power is provided, is there a minimum of 8 hours of fuel stored and located on site?

(Please indicate the question number)

7. Deficiencies - the open end of the relief piping is required to be screened, as required by IDAPA 58.01.08.511.05.
Recommendation - may want to consider placing a screen around the base of the wells as a safety measure to avoid anyone placing their hand in or near the well column when it is running.

10. (Fig. 24) there is a 625 KVA auxilliary Diesel Generator with outside disel fuel tank associated w/well # 8 - booster station & 1.5 M storage tank; **(Fig. 47)** another diesel generator and outside fuel tank is assoicated w/well # 10

11. Note: all back-up generators are weekly tested automated SCADA

PUMPING - PG. 2

SURVEY DATE: 1/24/2014 (mm/dd/yyyy) | PWS #: ID7100004

BOOSTER PUMPS

yes	no	n/a	unk	note	Question
☐	☐	☐	☐	☐	19. Is an instantaneous and totalizing flow meter installed where the booster pump is directly connected to the distribution system? ☑ Unnecessary
☑	☐	☐	☐	☐	20. Are all in-line booster pumps supplied with an automatic cutoff that activates when intake pressure is less than or equal to 5 psi?
☑	☐	☐	☐	☐	21. Is the booster pump located on a suction line that is directly connected to any storage reservoir?
☑	☐	☐	☐	☐	22. If yes, are all booster pumps protected by an automatic cutoff to prevent pump damage and avoid excessive reservoir drawdown?

PUMP HOUSE *(Only pump houses that don't contain a Groundwater Source)*

yes	no	n/a	unk	note	Question
☑	☐	☐	☐	☐	23. Is the pump house kept clean and in good repair? *(Floor cracks?)*
☑	☐	☐	☐	☐	24. Is the pump house protected from unauthorized personnel?
☑	☐	☐	☐	☐	25. Does the pump house have adequate lighting throughout? *(Recommended)*
☑	☐	☐	☐	☐	26. Are all non-sample taps installed in the pump house equipped with an appropriate backflow prevention device?
☑	☐	☐	☐	☐	27. Is adequate ventilation provided in the pump house for dissipation of excess heat and moisture from the equipment? ☐ Significant ☐ Deficiency
☑	☐	☐	☐	☐	28. Is adequate heating provided in the pump house to provided safe and efficient operation of equipment *(prevent moisture buildup and/or freezing)*? ☐ Significant ☐ Deficiency
☑	☐	☐	☐	☐	29. Is the pump house protected from flooding, have adequate drainage, is the floor surface at least six (6) inches above the final ground surface, and is the ground surface graded so as to lead surface water away from the pump house?

yes	no	n/a	unk	note	Question
☐	☑	☐	☐	☐	30. Is the sump for pump house floor drains closer than 30 feet from the well?
☐	☑	☐	☐	☐	31. Is the floor drain connected to sewer, storm drains, chlorination room drains, or any other source of contamination?

COMMENTS: (Please indicate the question number)

Recommendation - numbering each booster pump for maintenance reference and or repair

GROUNDWATER SOURCE - PG.1

A separate sources form must be filled out for each groundwater source in the PWS.

SURVEY DATE: 1/24/2014 *(mm/dd/yyyy)*

PWS #: ID7100004

Tag #: E0009301	Common Name of Source: Well # 9	Source: [x] Well → [ ] Manifold; [ ] Spring → [ ] Spring Box	Is this Source Treated? [ ] Yes [x] No
Physical Location: QUAIL RIDGE ESTATES			Treatment Objective: [x] N/A
			Treatment Types: [x] N/A *(Identify Treatment Train in Comments)*

Is there a well log for the groundwater source? [x] Yes [ ] No [ ] N/A [ ] Unk

Pump Capacity (GPM)	Casing Size (in)	Date Drilled:	Well Depth (Ft)	Casing Depth (Ft)	Grout Depth(Ft)	Static Water Depth (Ft)
1500 [ ] Unk	20 [ ] Unk	2001 [ ] Unk	500 [ ] Unk	108 [ ] Unk	130 [ ] Unk	124 [ ] Unk

Is the Casing Screened? [ ] Yes [ ] No [ ] Unk [ ] N/A	Screen Depth (Ft): [ ] N/A [ ] Unk From: To:	Is the Casing Perforated? [ ] Yes [ ] No [ ] Unk [ ] N/A	Perforation Depth (Ft): [ ] N/A [ ] Unk From: To:

Latitude (Decimal): 43.478631

Longitude (Decimal): -111.918117

All Sources

1. This source is: [x] Active [ ] Proposed [ ] Inactive [ ] Emergency (<60 days per year)

yes	no	n/a	unk	note	Question
[x]	[ ]	[ ]	[ ]	[ ]	2. Has there been a Source Water Assessment conducted for the source? Date: 2002
[x]	[ ]	[ ]	[ ]	[ ]	3. Has a final GWUDI determination been done for this source? Date: 2002

[ ] N/A 4-36 if source is a spring

WELL INFORMATION

yes	no	n/a	unk	note	Question
[x]	[ ]		[ ]	[ ]	4. Is the well on a separate lot that is large enough to provide a minimum distance of 50 feet between the well and the nearest property line? (applicable if constructed after 11/1/77) [ ] Significant [ ] Deficiency
					Are the following minimum distances from the PWS well being met?
[x]	[ ]		[ ]	[ ]	5. - Gravity sewer line..50 Ft.
[x]	[ ]		[ ]	[ ]	6. - Pressure sewer line..100 Ft.
[x]	[ ]		[ ]	[ ]	7. - Individual home septic tank..............................100 Ft.
[x]	[ ]		[ ]	[ ]	8. - Individual home disposal field...........................100 Ft.
[x]	[ ]		[ ]	[ ]	9. - Individual home seepage pit..............................100 Ft.
[x]	[ ]		[ ]	[ ]	10. - Privies..100 Ft.
[x]	[ ]		[ ]	[ ]	11. - Livestock..50 Ft.
[x]	[ ]		[ ]	[ ]	12. - Canals, streams, ditches, lakes, ponds and tanks used to store nonpotable substances........50 Ft.
[ ]	[x]		[ ]	[ ]	13. Are pesticides, herbicides, fertilizers, portable containers of petroleum products, or other toxic or hazardous materials stored on the well lot?
[ ]	[x]		[ ]	[ ]	14. Are pesticides, herbicides, or fertilizers applied to the well lot?
[ ]	[x]		[ ]	[ ]	15. Is the well in a pit? If yes, Date constructed:
[ ]	[ ]	[x]	[ ]	[ ]	16. Was the well that is located in a pit installed after 11/5/64?
[ ]	[ ]	[x]	[ ]	[ ]	17. If pit was installed prior to 11/5/64 – Has DEQ granted an exception and does the pit have water tight construction of pit walls and floor, a floor drain and an acceptable pit cover?
[x]	[ ]	[ ]	[ ]	[ ]	18. Is the well protected from unauthorized entry? *(Recommended)*
[x]	[ ]	[ ]	[ ]	[ ]	19. Does the casing extend a minimum of 18 inches above the final ground surface and/ or 12 inches above the pump house floor? [ ] Significant [ ] Deficiency
[x]	[ ]	[ ]	[ ]	[ ]	20. Is the well vented with the open end of the vent screened and terminated downward at least 18 inches above the final ground surface?
[x]	[ ]		[ ]	[ ]	21. Is the well provided with a sanitary cap that prevents surface water entry?
[x]	[ ]		[ ]	[ ]	22. Is the well cased and sealed in such a manner that surface water cannot enter the well?

COMMENTS:
(Please indicate question number)

20. Deficiency (Fig. 60)- the open end of the well vent is required to be screened, as required by IDAPA 58.01.08.511.05.

Well #9

Andrew

OMD

Page 1 of 2

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT
Use Typewriter or Ballpoint pen

Office Use Only
Inspected by:
Twp ___ Rge ___ Sec ___
___ 1/4 ___ 1/4 ___ 1/4
Lat: ___ Long: ___

1. DRILLING PERMIT NO. ___
Other IDWR No. ___

2. OWNER:
Name: City of Ammon
Address: 2135 S Ammon Rd.
City: Ammon State: Idaho Zip: 83406

3. LOCATION OF WELL by legal description:
Twp. 2 North ■ Or South ☐
Rge. 39 East ■ Or West ☐
Sec. 30, ___ 1/4, SW 1/4, NE 1/4
Gov't Lot ___ County: Bonneville
Lat: : : Long: : :
Address of Well Site: ___ City: Ammon
(Give at least name of Road + Distance to Road or Landmark)
Lot No. ___ Block No. ___ Subd. Name ___

4. USE:
☐ Domestic ■ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ___

5. TYPE OF WORK: check all that apply (Replacement, etc.)
■ New Well ☐ Modify ☐ Abandonment ☐ Other ___

6. DRILL METHOD:
■ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other ___

7. SEALING PROCEDURES

SEAL/FILTER PACK			AMOUNT	Method
Material	From	To	Sacks/Pounds	
Cement	0	110	243 Sacks	Tremmie/Overbore

Was drive shoe used? ■ Y ☐ N Shoe Depth(s) 302
Was drive shoe seal tested? ☐ Y ■ N How? ___

8. CASING/LINER:

Dia.	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
20	+2	302	.375	Steel	■	☐	■	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe: ___ Length of Tailpipe: ___

RECEIVED
OCT 1 2 ...

9. PERFORATIONS/SCREENS:
☐ Perforations Method ___
☐ Screens Screen Type ___

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
224 ft below ground Artesian Pressure: ___ lb
Depth flow encountered ___ ft Describe access port or control devices: Welded lid with access pipe

11. WELL TESTS:
☐ Pump ☐ Bailer ■ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Pumping Level	Time
1875 gpm	148'	272	29 hrs

Water Temp ___ Bottom hole temp ___
Water Quality test or comments: Clear and sand free
Depth first Water Encountered: ___ ft

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
36"	0	24	Very fine sand, silty, yellow & brown		X
24"	24	83	Silt, sand, gravel, & black gravel		X
	83	85	Broken basalt (regolith)		X
	85	90	Basalt black & fractured		X
	90	100	Silt orange-brown		X
	100	112	Rhyolite orange-brown	X	
	112	119	Silt orange-brown		X
	119	123	Silt, very sticky various colors, orange-brown, gray		X
	123	153	Silt orange brown		X
	153	172	Silt orange-brown with basalt clasts		X
	172	190	Silt orange-brown with ... clasts		X
	190	198	Pumice ash, silty	X	
20"	198	232	Rhyolite tan	X	
	232	268	Silt brown with rhyolite clasts	X	
	268	275	Rhyolite grey, pink, black	X	
	275	284	Decomposed rhyolite	X	
	284	297	Rhyolite soft	X	
	297	338	Rhyolite hard & fractured	X	
	338	342	Rhyolite broken	X	
			CONTINUED		

Completed Depth 500 Ft. (Measurable)
Date Started: 5/24/01 Completed: 8/1/01

13. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Firm: ANDREW WELL DRILLING SERVICES, INC. Firm #: 85

Firm Official ___ Date: 9/17/01
and
Supervisor/Operator: ___ Date: 9/17/01
Signature of Firm Official & Operator

page 2 of 2

1. DRILLING PERMIT NO. ....
Other IDWR No. ...Enf.#..D0021129........

2. OWNER:
Name: City of Ammon
Address: 2135 S Ammon Rd
City: Ammon State: Idaho Zip: 83406

11. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
	342	370	Rhyolite fractured	X	
	370	387	Rhyolite fractured	X	
	387	392	Rhyolite fractured	X	
	391	411	Rhyolite fractured	X	
	411	420	Rhyolite fractured	X	
	420	435	Pumice fractured	X	
	435	445	Pumice broken	X	
	445	455	Pumice broken	X	
	455	470	Pumice broken	X	
	470	495	Pumice broken	X	
	495	500	Pumice broken	X	

ECEIVED
OCT 12
Department Water Resources

RECEIVED
SEP 19 2001
Department of Water Resources
Eastern Region

GROUNDWATER SOURCES - PG. 2	Common Name	SURVEY DATE		PWS #
	Well # 9	1/24/2014	(mm/dd/yyyy)	ID7100004

WELL INFORMATION (cont.)

yes	no	n/a	unk	note	Question
☑	☐	☐	☐	☐	23. Is there a smooth nosed sample tap provided on the well discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
☑	☐	☐	☐	☐ ☐ Unnecessary	24. Is an instantaneous and totalizing flow meter equipped with nonvolatile memory installed on the pump distribution line of the well and is it maintained and working properly? [ ] gallons
☑	☐	☐	☐	☐	25. Is a pressure gauge provided at all installations and is it maintained and working properly? [ ] psi.
☑	☐	☐	☐	☐	26. Can the well be pumped to waste at the design capacity of the well via an approved air gap at a location prior to the first service connection?

PUMP HOUSE *(Any structure containing important water system equipment)*

yes	no	n/a	unk	note	Question
☑	☐	☐	☐	☐	27. Is the source located in a pump house?
☑	☐	☐	☐	☑	28. Is the pump house kept clean and in good repair? *(Floor cracks?)*
☑	☐	☐	☐	☐	29. Is the pump house protected from unauthorized personnel?
☑	☐	☐	☐	☐	30. Does the pump house have adequate lighting throughout? *(Recommended)*
☑	☐	☐	☐	☐	31. Are all non-sample taps installed in the pump house equipped with an appropriate backflow prevention device?
☑ ☐ Significant	☐	☐	☐ Deficiency	☐	32. Is adequate ventilation provided in the pump house for dissipation of excess heat and moisture from the equipment?
☑ ☐ Significant	☐	☐	☐ Deficiency	☐	33. Is adequate heating provided in the pump house to provide safe and efficient operation of equipment to prevent freezing?
☑	☐	☐	☐	☐	34. Is the pump house protected from flooding, have adequate drainage, is the floor surface at least six (6) inches above the final ground surface, and is the ground surface graded so as to lead surface water away from the pump house?
☐	☑	☐	☐	☐	35. Is the sump for pump house floor drains closer than 30 feet from the well?
☐	☑	☐	☐	☐	36. Is the floor drain connected to sewer, storm drains, chlorination room drains, or any other source of contamination?

SPRING INFORMATION

yes	no	n/a	unk	note	Question
☐	☐	☑	☐	☐	37. Is the entire area within a one hundred (100) foot radius of the spring box fenced to prevent trespassing of livestock and void of buildings, dwellings and sources of contamination?
☐	☐	☑	☐	☐	38. Is surface water diverted from the 100 foot protection zone around the spring?
☐	☐	☑	☐	☐	39. Is the spring housed in a permanent structure and protected from contamination including the entry of surface water, animals and dust?
☐	☐	☑	☐	☐	40. Is there a smooth nosed sample tap provided on the spring discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
☐	☐	☑	☐	☐	41. Is a flow meter or other flow measuring device provided?

SPRING BOX INFORMATION *(Not all existing springs have a spring box)*

yes	no	n/a	unk	note	Question
☐	☐	☑	☐	☐	42. Is the spring box equipped with a screened overflow?
☐	☐	☑	☐	☐	43. Is the supply intake located above the floor of the collection chamber?
☐	☐	☑	☐	☐	44. Is the spring box protected from contamination including the entry of surface water, animals, and dust?
☐	☐	☑	☐	☐	45. Is the access port fitted with a solid water tight cover which overlaps a framed opening and extended down around the frame at least 2 inches?
☐	☐	☑	☐	☐	46. Is the access port a framed opening that is at least 4 inches high with a locking device?
☐	☐	☑	☐	☐	47. Is the access port elevated at least twenty-four (24) inches above the top of the box or ground level, whichever is higher?

COMMENTS:
(Please indicate question number)

GROUNDWATER SOURCE - PG.1

A separate sources form must be filled out for each groundwater source in the PWS.

SURVEY DATE: 1/24/2014 (mm/dd/yyyy)

PWS #: ID7100004

Tag #: D0054820

Common Name of Source: Well # 11

Source: [x] Well → [ ] Manifold; [ ] Spring → [ ] Spring Box

Is this Source Treated? [ ] Yes [x] No

Treatment Objective: [x] N/A

Treatment Types: [x] N/A (Identify Treatment Train in Comments)

Physical Location: Twn: 2N Rge: 38E Sec. 25 Villa # 1 Subdivision

Is there a well log for the groundwater source? [x] Yes [ ] No [ ] N/A [ ] Unk

Pump Capacity (GPM)	Casing Size (in)	Date Drilled:	Well Depth (Ft)	Casing Depth (Ft)	Grout Depth (Ft)	Static Water Depth (Ft)
[ ] Unk	30 [ ] Unk	2006 [ ] Unk	280 [ ] Unk	280 [ ] Unk	153 [ ] Unk	52 [ ] Unk

Is the Casing Screened? [x] Yes [ ] No [ ] Unk [ ] N/A

Screen Depth (Ft): [ ] N/A [ ] Unk — From: 180 To: 180

Is the Casing Perforated? [ ] Yes [x] No [ ] Unk [ ] N/A

Perforation Depth (Ft): [x] N/A [ ] Unk — From: To:

Latitude (Decimal):

Longitude (Decimal):

COMMENTS: (Please indicate question number)

All Sources

1. This source is: [x] Active [ ] Proposed [ ] Inactive [ ] Emergency (<60 days per year)

yes	no	n/a	unk	note	Question
[ ]	[x]	[ ]	[ ]	[ ]	2. Has there been a Source Water Assessment conducted for the source? Date:
[x]	[ ]	[ ]	[ ]	[ ]	3. Has a final GWUDI determination been done for this source? Date: 2013

[ ] N/A 4-36 if source is a spring

WELL INFORMATION

yes	no	n/a	unk	note	Question
[x]	[ ]		[ ]	[ ]	4. Is the well on a separate lot that is large enough to provide a minimum distance of 50 feet between the well and the nearest property line? (applicable if constructed after 11/1/77) — [ ] Significant [ ] Deficiency
					Are the following minimum distances from the PWS well being met?
[x]	[ ]		[ ]	[ ]	5. - Gravity sewer line....50 Ft.
[x]	[ ]		[ ]	[ ]	6. - Pressure sewer line....100 Ft.
[x]	[ ]		[ ]	[ ]	7. - Individual home septic tank....100 Ft.
[x]	[ ]		[ ]	[ ]	8. - Individual home disposal field....100 Ft.
[x]	[ ]		[ ]	[ ]	9. - Individual home seepage pit....100 Ft.
[x]	[ ]		[ ]	[ ]	10. - Privies....100 Ft.
[x]	[ ]		[ ]	[ ]	11. - Livestock....50 Ft.
[x]	[ ]		[ ]	[ ]	12. - Canals, streams, ditches, lakes, ponds and tanks used to store nonpotable substances....50 Ft.
[ ]	[x]		[ ]	[ ]	13. Are pesticides, herbicides, fertilizers, portable containers of petroleum products, or other toxic or hazardous materials stored on the well lot?
[ ]	[x]		[ ]	[ ]	14. Are pesticides, herbicides, or fertilizers applied to the well lot?
[ ]	[x]		[ ]	[ ]	15. Is the well in a pit? If yes, Date constructed:
[ ]	[ ]	[x]	[ ]	[ ]	16. Was the well that is located in a pit installed after 11/5/04?
[ ]	[ ]	[x]	[ ]	[ ]	17. If pit was installed prior to 11/5/04 – Has DEQ granted an exception and does the pit have water tight construction of pit walls and floor, a floor drain and an acceptable pit cover?
[x]	[ ]	[ ]	[ ]	[ ]	18. Is the well protected from unauthorized entry? (Recommended)
[x]	[ ]	[ ]	[ ]	[ ]	19. Does the casing extend a minimum of 18 inches above the final ground surface and/ or 12 inches above the pump house floor? — [ ] Significant [ ] Deficiency
[x]	[ ]	[ ]	[ ]	[ ]	20. Is the well vented with the open end of the vent screened and terminated downward at least 18 inches above the final ground surface?
[x]	[ ]		[ ]	[ ]	21. Is the well provided with a sanitary cap that prevents surface water entry?
[x]	[ ]		[ ]	[ ]	22. Is the well cased and sealed in such a manner that surface water cannot enter the well?

Well # 11

Form 238-7
11/97
10/01
Independent

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT
Use Typewriter or Ballpoint pen

Office Use Only
Inspected by: ______
Twp ____ Rge ____ Sec ____
____1/4 ____1/4 ____1/4
Lat: : : Long: : :

1. WELL TAG NO.
DRILLING PERMIT NO. 25-13864
Other IDWR NO. D0054820

2. OWNER:
Name: City of Ammon
Address: 2135 S. Ammon Road
City: Ammon State: ID Zip 83406

3. LOCATION OF WELL by legal description.
Twp 2 [x] North [ ] South
Rge 38 [x] East [ ] West
Sec. 25 1/4 NE 1/4 NW 1/4
10 Acres 40 Acres 160 Acres
Gov't Lot County Bonneville
Lat: : : Long:
Address of Well Site: 2070 Castell Drive
City: Ammon
(Give at least name of Road + Distance to Road or Landmark)
Lot No. 1 Blk No. 1 Subd. Name Vista's #1

4. USE:
[ ] Domestic [x] Municipal [ ] Monitor [ ] Irrigation
[ ] Thermal [ ] Injection [ ] Other

5. TYPE OF WORK:
[x] New Well [ ] Modify [ ] Abandonment [ ] Other

6. DRILL METHOD:
[x] Air Rotary [ ] Cable [ ] Mud Rotary [ ] Other

7. SEALING PROCEDURES:

SEAL/FILTER PACK	From	To	AMOUNT	Method
Bentonite	-8	-50	100 bags / 5300 lbs	Annular
Cement	-50	-153	9 yds	Tremie

Was drive shoe used? [ ] Yes [x] No Shoe Depth(s)
Was drive shoe seal tested? [ ] Yes [ ] No How?

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
20"	+2	-153	Sch 40	Steel	[x]	[ ]	[x]	[ ]
16"	-140	-280	Sch 40	Steel	[ ]	[x]	[x]	[ ]

Length of Headpipe: Length of Tailpipe:

9. PERFORATIONS/SCREENS:

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
-160	-280	Bundled pipe		16"	Steel	[ ]	[x]
-140	-160	Blank		16"	Steel	[ ]	[x]
						[ ]	[ ]

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
52 ft below ground Artesian Pressure ______ lb
Describe access port or control devices: Well Cap

11. WELL TESTS:
[ ] Pump [ ] Bailer [x] Air [ ] Flowing Artesian
Flowing Artesian

Yield	Drawdown	Pumping Level	Time
4,000			

Water Temp Cold Bottom hole temp
Water Quality test or comments:

12. LITHOLOGIC LOG:

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
30"	0	10	Silts		X
28	10	20	Fractured Basalts		X
28	20	60	Hard & Solid Basalt		X
28	60	70	Black Basalt		X
28	70	80	Fractured & Tan Clay Seams		X
28	80	154	Solid Basalt		X
20	154	215	Pumice or Ash, Grey	X	
20	215	230	Aryalite, Purple	X	
20	230	280	Aryalite but more grey	X	

Completed Depth: 280 ft
Date Started: 11/10/08
Date Completed: 12/08/08

13. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Firm: Independent Drilling DO Firm No. 363
Firm Official: [signature] Date: 12/22/2008
and
Supervisor/Operator: [signature] Date: 12/22/2008

GROUNDWATER SOURCES - PG. 2

Common Name	SURVEY DATE (mm/dd/yyyy)	PWS #
Well # 11	1/24/2014	ID7100004

COMMENTS:
(Please indicate question number)

yes	no	n/a	unk	n/e	WELL INFORMATION (cont.)
☑	☐	☐	☐	☐	23. Is there a smooth nosed sample tap provided on the well discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
☑	☐	☐	☐	☐	24. Is an instantaneous and totalizing flow meter equipped with nonvolatile memory installed on the pump distribution line of the well and is it maintained and working properly? ☐ gallons (☐ Unnecessary)
☑	☐	☐	☐	☐	25. Is a pressure gauge provided at all installations and is it maintained and working properly? ☐ psi
☑	☐	☐	☐	☐	26. Can the well be pumped to waste at the design capacity of the well via an approved air gap at a location prior to the first service connection?

yes	no	n/a	unk	n/e	PUMP HOUSE (Any structure containing important water system components)
☑	☐	☐	☐	☐	27. Is the source located in a pump house?
☑	☐	☐	☐	☐	28. Is the pump house kept clean and in good repair? (Floor cracks?)
☑	☐	☐	☐	☐	29. Is the pump house protected from unauthorized personnel?
☑	☐	☐	☐	☐	30. Does the pump house have adequate lighting throughout? (Recommended)
☑	☐	☐	☐	☐	31. Are all non-sample taps installed in the pump house equipped with an appropriate backflow prevention device?
☑	☐	☐	☐	☐	32. Is adequate ventilation provided in the pump house for dissipation of excess heat and moisture from the equipment? (☐ Significant ☐ Deficiency)
☑	☐	☐	☐	☐	33. Is adequate heating provided in the pump house to provided safe and efficient operation of equipment to prevent freezing? (☐ Significant ☐ Deficiency)
☑	☐	☐	☐	☐	34. Is the pump house protected from flooding, have adequate drainage, is the floor surface at least six (6) inches above the final ground surface, and is the ground surface graded so as to lead surface water away from the pump house?
☐	☑	☐	☐	☐	35. Is the sump for pump house floor drains closer than 30 feet from the well?
☐	☑	☐	☐	☐	36. Is the floor drain connected to sewer, storm drains, chlorination room drains, or any other source of contamination?

yes	no	n/a	unk	n/e	SPRING INFORMATION
☐	☐	☑	☐	☐	37. Is the entire area within a one hundred (100) foot radius of the spring box fenced to prevent trespassing of livestock and void of buildings, dwellings and sources of contamination?
☐	☐	☑	☐	☐	38. Is surface water diverted from the 100 foot protection zone around the spring?
☐	☐	☑	☐	☐	39. Is the spring housed in a permanent structure and protected from contamination including the entry of surface water, animals and dust?
☐	☐	☑	☐	☐	40. Is there a smooth nosed sample tap provided on the spring discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
☐	☐	☑	☐	☐	41. Is a flow meter or other flow measuring device provided?

yes	no	n/a	unk	n/e	SPRING BOX INFORMATION (Not all existing springs have a spring box)
☐	☐	☑	☐	☐	42. Is the spring box equipped with a screened overflow?
☐	☐	☑	☐	☐	43. Is the supply intake located above the floor of the collection chamber?
☐	☐	☑	☐	☐	44. Is the spring box protected from contamination including the entry of surface water, animals, and dust?
☐	☐	☑	☐	☐	45. Is the access port fitted with a solid water tight cover which overlaps a framed opening and extended down around the frame at least 2 inches?
☐	☐	☑	☐	☐	46. Is the access port a framed opening that is at least 4 inches high with a locking device?
☐	☐	☑	☐	☐	47. Is the access port elevated at least twenty-four (24) inches above the top of the box or ground level, whichever is higher?

PUMPING - PG. 1

One form for all Pumps.

SURVEY DATE: 1/24/2014 (mm/dd/yyyy) PWS #: ID7100004

PUMPS, PUMPHOUSES, AND CONTROLS

Pump ID#	Physical Location:	Type of Pump:	Brand:	Model:	Horsepower:	Purpose:
	Well # 9	turbine			200	distribution/storage
	Booster Pump	horizontal/turbine				distribution
	Booster Pump	horizontal/turbine				distribution
	Booster Pump	horizontal/turbine				distribution
	Well # 11	turbine			400	distribution/storage

yes	no	n/a	unk	note	
					ALL PUMPS
[x]	[ ]	[ ]	[ ]	[ ]	1. Are all pumps capable of providing the maximum pumping demand of the system?
[ ]	[x]	[ ]	[ ]	[ ]	2. Does the pump(s) cycle excessively? *(Recommended)*
[x]	[ ]	[ ]	[ ]	[ ]	3. Are all pumps provided with readily available spare parts and tools?
[x]	[ ]	[ ]	[ ]	[ ]	4. Is a water pressure relief valve installed where the pump is directly connected to the distribution system?
[x]	[ ]	[ ]	[ ]	[ ]	5. Is a standard pressure gauge installed on the discharge line?
					WELL PUMPS
[x]	[ ]	[ ]	[ ]	[ ]	6. Is there an accessible check valve installed in the discharge line of each well between the pump and the shut-off valve?
[x]	[ ]	[ ]	[ ]	[x]	7. If the system has a vertical turbine motor driven pump(s), is an air release-vacuum relief valve located upstream from the check valve, with exhaust/relief piping terminating in a down-turned position at least 18 inches above the floor and covered with a 24 mesh corrosion resistant screen?
[x]	[ ]	[ ]	[ ]	[ ]	8. If the pump(s) is "oil lubricated", is the oil NSF approved and suitable for human consumption?
					WATER PUMPS *(not well pumps)*
[ ]	[ ]	[ ]	[ ]	[ ]	9. Is an accessible check valve on the discharge side between the pump and the shut-off valve?
					AUXILIARY POWER
[x]	[ ]		[ ]	[x]	10. Is there auxiliary power on-site? [ ] Significant [ ] Deficiency
[x]	[ ]	[ ]	[ ]	[ ]	11. Is auxiliary power tested? *(Recommended)*
[ ]	[ ]	[ ]	[ ]	[ ]	12. If a diesel or gasoline fueled engine is used on the well lot, is the fuel tank and connecting piping double walled?
[ ]	[ ]	[ ]	[ ]	[ ]	13. Is the fuel tank above ground?
[ ]	[ ]	[ ]	[ ]	[ ]	14. Is a certified operator present during the filling of the fuel tank?
					If the engine is in the well house
[ ]	[ ]	[ ]	[ ]	[ ]	15. Is the engine exhaust directly discharged outside the well house?
[ ]	[ ]	[ ]	[ ]	[ ]	16. Is a spill containment structure surrounding all fuel tanks adequate? *(Secondary containment - 110% fuel tank volume)*
					Community Systems Only
[ ]	[ ]	[ ]	[ ]	[ ]	17. *(Community Systems built after 4/15/07 only)* Is on-site power or standby storage provided so water can be treated and supplied to pressurize the entire distribution system during a power outage for a minimum of 8 hours?
[ ]	[ ]	[ ]	[ ]	[ ]	18. *(Community Systems built after 4/15/07 only)* If standby power is provided, is there a minimum of 8 hours of fuel stored and located on site?

(Please indicate the question number)

7. Deficiencies - the open end of the relief piping is required to be screened, as required by IDAPA 58.01.08.511.05. Recommendation - may want to consider placing a screen around the base of the wells as a safety measure to avoid anyone placing their hand in or near the well column when it is running.

10. (**Fig. 63**) there is a auxiliary Diesel Generator with outside disel fuel tank associated w/well # 9 (**Fig. 68**) another diesel generator and outside fuel tank is assoicated w/well # 10;

SURVEY DATE 1/24/2014 (mm/dd/yyyy) PWS # ID7100004

BOOSTER PUMPS

yes	no	n/a	unk	note	Question
☐	☐	☐	☐	☐	19. Is an instantaneous and totalizing flow meter installed where the booster pump is directly connected to the distribution system? ☐ Unnecessary
☑	☐	☐	☐	☐	20. Are all in-line booster pumps supplied with an automatic cutoff that activates when intake pressure is less than or equal to 5 psi?
☑	☐	☐	☐	☐	21. Is the booster pump located on a suction line that is directly connected to any storage reservoir?
☑	☐	☐	☐	☐	22. If yes, are all booster pumps protected by an automatic cutoff to prevent pump damage and avoid excessive reservoir drawdown?

PUMP HOUSE *(Only pump houses that don't contain a Groundwater Source)*

yes	no	n/a	unk	note	Question
☑	☐	☐	☐	☐	23. Is the pump house kept clean and in good repair? *(Floor cracks?)*
☑	☐	☐	☐	☐	24. Is the pump house protected from unauthorized personnel?
☑	☐	☐	☐	☐	25. Does the pump house have adequate lighting throughout? *(Recommended)*
☑	☐	☐	☐	☐	26. Are all non-sample taps installed in the pump house equipped with an appropriate backflow prevention device?
☑	☐	☐	☐	☐	27. Is adequate ventilation provided in the pump house for dissipation of excess heat and moisture from the equipment? ☐ Significant ☐ Deficiency
☑	☐	☐	☐	☐	28. Is adequate heating provided in the pump house to provided safe and efficient operation of equipment *(prevent moisture buildup and/or freezing)*? ☐ Significant ☐ Deficiency
☑	☐	☐	☐	☐	29. Is the pump house protected from flooding, have adequate drainage, is the floor surface at least six (6) inches above the final ground surface, and is the ground surface graded so as to lead surface water away from the pump house?
☐	☑	☐	☐	☐	30. Is the sump for pump house floor drains closer than 20 feet from the well?
☐	☑	☐	☐	☐	31. Is the floor drain connected to sewer, storm drains, chlorination room drains, or any other source of contamination?

COMMENTS:
(Please indicate the question number)

Recommendation - numbering each booster pump for maintenance reference and or repair

DISTRIBUTION

SURVEY DATE		PWS #
1/24/2014	(mm/dd/yyyy)	ID7100004

One form for all distribution systems in the PWS.

What are water lines made of:

Material(s): ☐ Unk

☐ Steel ☐ HDPE (black) ☑ Asbestos/Cement

☑ PVC ☑ Ductile Iron ☐ Copper

☐ Other:

Size(s): ☐ Unk

How many services are metered?
residential & all commercial metered
1140 out of 4576

Number of Fire Hydrants:
100 +

COMMENTS:
(Please indicate the question number)

*majority of asbestos/cement piping has been replaced
7. & 12. & 14. Note - city is in the process of developing a written "Routine Maintenance Plan" that will include addressing valve exercising and a distribution flushing program
17. Recommendation - Cross Connection Program should be reviewed and updated annually
18. Recommendation - backflow devices are required to be tested annually it would be valuable asset to the City to have one of the City's operators certified in Back-flow testing to assure they are tested in a timely matter as part of the City's overall routine maintence program

yes	no	n/a	unk	note	DISTRIBUTION
☑	☐	☐	☐	☐	1. Have there been any interruptions in service during the past year? (including pressure loss)
☐	☐	☑	☐	☐	2. If a loss of pressure occurred (>20 psi), did the PWS provide public notice and disinfect the system? *(Reminder)*
☑	☐	☐	☐	☐	3. Is the PWS able to maintain a minimum pressure of twenty (20) psi throughout the distribution system (including fire flow), or forty (40) psi for PWSs constructed after 7/1/1985 (excluding fire flow), during maximum hourly demand conditions?
☐	☑	☐	☐	☐	4. Was the pressure observed at a service connection?
					5. If yes: ____ psi. Location: ____ Time: ____ ☐ A.M. ☐ P.M.

yes	no	n/a	unk	note	
☑	☐	☐	☐	☐	6. Do all water mains that provide fire flow have a diameter of at least 6 inches?
☐	☑	☐	☐	☑	7. Are valves exercised regularly? *(Recommended)* If yes, how often?
☐	☐	☐	☑	☐	8. Is there a leak detection program? *(Recommended)*
☐	☐	☐	☑	☐	9. Is 15% or more of the water unaccounted for?
☐	☑	☐	☐	☐	10. Is a water conservation program in effect? *(Recommended)*
☑	☐	☐	☐	☐	11. Is an adequate map of the distribution system maintained? *(Recommended)*
☐	☑	☐	☐	☑	12. Does the system flush all main lines annually? *(Recommended)*
☑	☐	☐	☐	☐	13. Are all dead end water mains equipped with a means to flush?
☐	☑	☐	☐	☑	14. If yes, are the deadends flushed at least semiannually?
☐	☑	☐	☐	☐	15. Are there any distribution materials used that should not be in contact with the drinking water? *If yes, explain in comments section.*
☑	☐	☐	☐	☐	16. Is the system adequately protected from freezing?
☑	☐	☐	☐	☑	17. Is there a cross connection control program? *(Community PWSs Only)*
☐	☑	☐	☐	☑	18. Is the operator trained in cross connection control? *(Recommended)*
☐	☑	☐	☐	☐	19. Is the operator aware of any cross connections or were any cross connections observed during the course of the survey?
☐	☐	☑	☐	☐	20. If a separate non-potable irrigation system is provided for the consumer, are all mains, hydrants, and appurtenances easily identified as non-potable? (Purple Tape or other) *(Recommended)*

yes	no	n/a	unk	note	**Air/Vacuum Relief Valves** - *Placed at high points in water mains.*
☐	☐	☑	☐	☐	21. Are all automatic air relief valves equipped with a means of backflow protection?

FINANCIAL CAPACITY

SURVEY DATE		PWS #
1/24/2014	(mm/dd/yyyy)	ID7100004

FINANCIAL CAPACITY

yes	no	n/a	unk	note	Question
☑	☐	☐	☐	☐	1. Is the PWS current with the payment of drinking water fees?
☑	☐	☐	☐	☐	2. Does the PWS charge a drinking water fee to the user? If yes, what is the fee: $ \$43/month
☐	☑	☐	☐	☐	3. Is the PWS in the business of selling water?
					#3 Note: → If no, identify why in the comments section and mark "N/A" on questions 4 - 19.
☑	☐	☐	☐	☐	4. Does the PWS provide and use an annual budget? *(Recommended)*
☑	☐	☐	☐	☐	5. If applicable, is the PWS fund separate from the waste water/sewer utility fund? *(Recommended)*
☑	☐	☐	☐	☐	6. Do water system revenues exceed expenditures? *(Recommended)*
☑	☐	☐	☐	☐	7. Are controls established to prevent expenditures from exceeding revenues?
☐	☑	☐	☐	☐	8. Has an independent financial audit been completed? *(Recommended)*
☐	☐	☑	☐	☐	9. If yes, is a copy of the most recent balance sheet for the water system available? *(Recommended)*
☑	☐	☐	☐	☐	10. Does the water system include a cash budget within its annual budget for cash flow? *(Recommended)*
☑	☐	☐	☐	☐	11. Does the water system management review the user fee, user charge, or rate system at least annually? *(Recommended)*
					12. When was the last user fee, user charge, or rate system adjustment? ______ mm/dd/yyyy
☐	☐	☐	☑	☐	13. Does the water system management review financial reports at least monthly? *(Recommended)*
☑	☐	☐	☐	☐	14. Does the PWS provide and use a capital budget? *(Recommended)*
☑	☐	☐	☐	☐	15. Has this PWS produced and does it currently utilize a capital improvements plan? *(Recommended)*
					16. If yes, when was the capital improvements budget produced? ______ mm/dd/yyyy
☐	☐	☐	☑	☐	17. Has the capital improvement budget been updated in the last 18 months? *(Recommended)*
☑	☐	☐	☐	☐	18. Does the water system budget provide funding for depreciation of existing plant in service and/or for the funding of reserves for system replacement?
☑	☐	☐	☐	☐	19. Are there sufficient funds for training personnel?

COMMENTS:
(Please indicate the question number)

MANAGERIAL CAPACITY

SURVEY DATE: 01/24/2014 *(mm/dd/yyyy)*

PWS #: ID7100004

yes	no	n/a	unk	note	MANAGERIAL CAPACITY
☑	☐	☐	☐	☐	1. Is a properly licensed operator available at all times? (N/A for GW-NC PWS)
☐	☐	☐	☑	☐	2. Is there a Drinking Water Source Protection Plan developed for this system? Date:
☑	☐	☐	☐	☐	3. Does this PWS have a governing body or board of directors?

If no, please indicate:
- ☐ Sole Proprietorship
- ☐ Partnership
- ☐ Limited Liability Corp.
- ☑ Other: City Council

4. How often does the board meet? ☐ N/A

☐ weekly	☐ semi-annually	☐ never
☑ monthly	☐ annually	☐ unknown
☐ bimonthly	☐ as necessary	☐ other

yes	no	n/a	unk	note	Are the following records maintained onsite or located near by?
☑	☐	☐	☐	☐	5. - Bacteriological Analysis - **5 years retention.**
☑	☐	☐	☐	☐	6. - Chemical Analysis - **10 years retention.**
☑	☐	☐	☐	☐	7. - Records of actions taken to correct violations - **3 years retention.**
☑	☐	☐	☐	☐	8. - Copies of reports, summaries or communication related to sanitary surveys - **10 years retention.**
☑	☐	☐	☐	☐	9. - Reports concerning variances or exemptions - **5 years retention.**
☑	☐	☐	☐	☐	10. - Copies of public notices issued - **3 years retention.**
☐	☐	☑	☐	☐	11. - Daily free chlorine residuals *(required disinfection)* - **1 year retention.**
☑	☐	☐	☐	☐	12. Are routine maintenance schedules established? *(Recommended)*
☑	☐	☐	☐	☐	13. Is an operation and maintenance manual(s) provided for the PWS and does it include; daily operating instructions, operator safety procedures, location of valves and other key system features, parts list and parts order form, and information for contacting the water system operator?
☑	☐	☐	☐	☐	14. Is there a clear plan of organization and control among the people responsible for management and operations of the water system? *(Recommended)*

yes	no	n/a	unk	note	Are any samples of the following parameters past due?
☐	☑	☐	☐	☐	15. Coliform
☐	☑	☐	☐	☐	16. Nitrates
☐	☑	☐	☐	☐	17. Nitrites
☐	☑	☐	☐	☐	18. Lead and Copper
☐	☑	☐	☐	☐	19. IOCs
☐	☑	☐	☐	☐	20. VOCs
☐	☑	☐	☐	☐	21. SOCs
☐	☐	☑	☐	☐	22. Disinfection Byproducts
☐	☑	☐	☐	☐	23. Radionuclide
☐	☑	☐	☐	☐	24. Is a written total coliform rule (TCR) sample site plan available for review?
☐	☐	☑	☐	☐	25. Does the (TCR) sample site plan meet the minimum requirements?
☑	☐	☐	☐	☐	26. Does the system have a sufficient supply of approved sampling bottles properly stored? *(Recommended)*
☑	☐	☐	☐	☐	27. Does the PWS provide stairways, ladders and handrails where needed?
☑	☐	☐	☐	☐	28. Are treads of non-slip material provided where needed?
☐	☑	☐	☐	☐	29. Is a health concern produced from inadequately protected electrical wiring?
☑	☐	☐	☐	☐	30. Are all confined space entry requirements considered? *(Recommended)*
☐	☑	☐	☐	☐	31. Are there any unused subsurface water storage tanks that need to be abandoned?
☐	☑	☐	☐	☐	32. Are there any water supply wells that are no longer being used that need to be abandoned?

COMMENTS:
(Please indicate the question number)

DISINFECTION - *PG. 1* - Systems Using Only Groundwater

A separate form must be filled out for each disinfection unit in the PWS.

Survey Date	1/0/1900	PWS #
5/24/2014	(mm/dd/yyyy)	ID7100004

Treatment Facility Name: | Treatment Facility Location: (Location) | Date Online: [ ] Unk | Treated Water (GPD): [ ] Unk

Select all disinfection types used:

[ ] Gas cl2 [ ] UV Light [ ] Sodium Hypochlorite [ ] Calcium Hypochlorite [x] Miox [ ] Ozone [ ] Chlorine Dioxide [ ] Other

DISINFECTION

yes	no	n/a	unk	note	
[x]	[ ]	[ ]	[ ]	[ ]	1. Is disinfection used on a voluntary basis to prevent bacterial contamination of the distribution system?
[ ]	[ ]	[x]	[ ]	[ ]	2. Any interruptions in disinfection in the past year? If yes, comment
[ ]	[ ]	[x]	[ ]	[ ]	3. Have any changes been made to this treatment facility since the last ESS?
[ ]	[ ]	[x]	[ ]	[ ]	4. If yes, were plans and specs submitted to DEQ? Date approved:
[ ]	[ ]	[x]	[ ]	[ ]	5. Does the system have a means of measuring the residual disinfectant concentrations of free chlorine, combined chlorine (chloramines), and/or chlorine dioxide?
[ ]	[ ]	[x]	[ ]	[ ]	6. Is a smooth nosed sample tap provided before and after treatment?
[ ]	[ ]	[x]	[ ]	[ ]	7. Is a chlorine residual being recorded when all compliance total coliform samples are being taken?

VOLUNTARY DISINFECTION

yes	no	n/a	unk	note	
[ ]	[ ]	[x]	[ ]	[ ]	8. Is a measurable free chlorine residual maintained throughout the distribution system? *(Recommended)*
[ ]	[ ]	[x]	[ ]	[ ]	9. Is the free chlorine residual being measured daily? *(Recommended)*
[ ]	[ ]	[x]	[ ]	[ ]	10. Is an automatic proportioning chlorinator being used where the rate of flow is not reasonably constant?
[ ]	[ ]	[x]	[ ]	[ ]	11. Is the analysis for free chlorine residual being made at a frequency that is sufficient to detect variations in chlorine demand or changes in water flow?

REQUIRED DISINFECTION

yes	no	n/a	unk	note	
[ ]	[ ]	[x]	[ ]	[ ]	12. Is the free chlorine residual being measured daily at a location prior to the first service connection?
[ ]	[ ]	[x]	[ ]	[ ]	13. Is the daily free chlorine residual being recorded and kept on file for a minimum of 1 year?
[ ]	[ ]	[x]	[ ]	[ ]	14. Is a detectable chlorine residual maintained throughout the distribution system?
[ ]	[ ]	[x]	[ ]	[ ]	15. Is an automatic proportioning chlorinator being used where the rate of flow is not reasonably constant?
[ ]	[ ]	[x]	[ ]	[ ]	16. Where chlorination is required for protection of the supply, is there standby equipment of sufficient capacity available to replace the largest unit?
[ ]	[ ]	[ ]	[ ]	[ ]	17. If primary disinfection is accomplished using ozone or some other chemical that does not provide a residual disinfectant, is chlorine added to provide a residual disinfectant?

Comments:
(Please indicate the question number)

Note - (Fig. 31) MIOX systems are installed in a room off the Booster Stations associated with well # 8 and 1.5 million/gal storage tank and in a separte room off the booster station associcated w/ the 2 M storage tank (**neither have been put on line**)

State of Idaho
Department of Environmental Quality
Photo Log

Name of Facility: City of Ammon		Inspection Date: 1/24/2014 (mm/dd/yyyy)	PWS#: ID7100004
Camera Type: [redacted] ☑ Digital ☐ 35mm ☐ Other	Camera Brand: [redacted]	Camera Model: [redacted]	Camera ID#: [redacted]

Photo:	Date:	By: (initials)	Direction: (N,S,E,W, etc.)	File Name:	Description:
Fig. 1	1/10/2014	RM		Ammon	well house # 5
Fig. 2	1/10/2014	RM		Ammon	well # 5 discharge line
Fig. 3	1/10/2014	RM		Ammon	isolation valves - pump to waste and source isolation
Fig. 4	1/10/2014	RM		Ammon	sample tap
Fig. 5	1/10/2014	RM		Ammon	electrical panel of well # 5
Fig. 6	1/10/2014	RM		Ammon	discharge piping leading to distribution
Fig. 7	1/10/2014	RM		Ammon	well house # 7
Fig. 8	1/10/2014	RM		Ammon	well # 7
Fig. 9	1/10/2014	RM		Ammon	discharge line - smp tap, check valve pressure gauge
Fig. 10	1/10/2014	RM		Ammon	well # 7 flow meter
Fig. 11	1/10/2014	RM		Ammon	sample tap w/back flow device
Fig. 12	1/10/2014	RM		Ammon	clean floor drain of well house # 7
Fig. 13	1/10/2014	RM		Ammon	well # 7 check valve
Fig. 14	1/10/2014	RM		Ammon	abandon well
Fig. 15	1/10/2014	RM		Ammon	1.5 Million gal storage tank
Fig. 16	1/10/2014	RM		Ammon	tank over flow
Fig. 17	1/10/2014	RM		Ammon	access ladder (uncaged)
Fig. 18	1/10/2014	RM		Ammon	security fencing
Fig. 19	1/10/2014	RM		Ammon	well # 8
Fig. 20	1/10/2014	RM		Ammon	well # 8 discharge piping - check valve
Fig. 21	1/10/2014	RM		Ammon	flow meter, pressure reducer and pressure gauge of well # 8
Fig. 22	1/10/2014	RM		Ammon	flow drain - air gap from pressure release valve
Fig. 23	1/10/2014	RM		Ammon	back up generator
Fig. 24	1/10/2014	RM		Ammon	floor drain in Booster Pump station
Fig. 25	1/10/2014	RM		Ammon	overall view of booster station
Fig. 26	1/10/2014	RM		Ammon	smp tap
Fig. 27	1/10/2014	RM		Ammon	isolation valve pressure gauge and pressure controller from storage tank
Fig. 28	1/10/2014	RM		Ammon	pressure reducer
Fig. 29	1/10/2014	RM		Ammon	over view of electrical panels
Fig. 30	1/10/2014	RM		Ammon	Miox system
Fig. 31	1/10/2014	RM		Ammon	Miox system
Fig. 32	1/10/2014	RM		Ammon	back up generator in booster station building
Fig. 33	1/10/2014	RM		Ammon	well # 3
Fig. 34	1/10/2014	RM		Ammon	check valve, pressure switch pressure gauge of well # 3
Fig. 35	1/10/2014	RM		Ammon	well # 3 flow meter
Fig. 36	1/10/2014	RM		Ammon	sample tap
Fig. 37	1/10/2014	RM		Ammon	sample tap
Fig. 38	1/10/2014	RM		Ammon	well # 2
Fig. 39	1/10/2014	RM		Ammon	discharge piping of well # 2
Fig. 40	1/10/2014	RM		Ammon	well # 2 smp tap
Fig. 41	1/10/2014	RM		Ammon	unscreened air relief well # 2
Fig. 42	1/10/2014	RM		Ammon	well house # 10
Fig. 43	1/10/2014	RM		Ammon	well # 10
Fig. 44	1/10/2014	RM		Ammon	discharge piping # 10
Fig. 45	1/10/2014	RM		Ammon	#10 discharge line
Fig. 46	1/10/2014	RM		Ammon	# 10 flow meter
Fig. 47	1/10/2014	RM		Ammon	# 10 back-up generator
Fig. 48	1/10/2014	RM		Ammon	diesel fuel tank (# 10)

The photographers signature below signifies that the images identified on this photo log have not been tampered with and are representative of what was seen in the field.

Photographer(s) Signature(s): Date:

Page ______ Of ______

State of Idaho
Department of Environmental Quality
Photo Log

Name of Facility: City of Ammon	Inspection Date: 1/24/2014 (mm/dd/yyyy)	PWS#: ID7100004	
Camera Type: [redacted] ☑ Digital ☐ 35mm ☐ Other	Camera Brand: [redacted]	Camera Model: [redacted]	Camera ID#: [redacted]

Photo:	Date:	By: (initials)	Direction: (N,S,E,W, etc.)	File Name:	Description:
Fig. 49	1/10/2014	RM		Ammon	2/ million storage tank
Fig. 50	1/10/2014	RM		Ammon	booster station building
Fig. 51	1/10/2014	RM		Ammon	overview of booster station
Fig. 52	1/10/2014	RM		Ammon	sample tap
Fig. 53	1/10/2014	RM		Ammon	unscreened pressure release
Fig. 54	1/10/2014	RM		Ammon	stand-by Miox system
Fig. 55	1/10/2014	RM		Ammon	back-up generator
Fig. 56	1/10/2014	RM		Ammon	over all view of booster station and storage tank
Fig. 57	1/10/2014	RM		Ammon	well house # 9
Fig. 58	1/10/2014	RM		Ammon	well # 9
Fig. 59	1/10/2014	RM		Ammon	# 8 sample tap
Fig. 60	1/10/2014	RM		Ammon	Unscreened air release
Fig. 61	1/10/2014	RM		Ammon	overall view of booster station (# 8)
Fig. 62	1/10/2014	RM		Ammon	# 9 flow meter, pressure gauge, unscreened air relase
Fig. 63	1/10/2014	RM		Ammon	back up generator
Fig. 64	1/10/2014	RM		Ammon	well house # 11
Fig. 65	1/10/2014	RM		Ammon	well # 11
Fig. 66	1/10/2014	RM		Ammon	discharge ln of # 11
Fig. 67	1/10/2014	RM		Ammon	smp tap and pressure gauge of # 11
Fig. 68	1/10/2014	RM		Ammon	back up generator

The photographers signature below signifies that the images identified on this photo log have not been tampered with and are representative of what was seen in the field.

Photographer(s) Signature(s):

Date:

Fig. 1 – Well House # 5
(addition is for fiber optic equipment)

Fig. 2 – Well # 5 discharge line – pressure gauge, (unscreened) air release and check valve

Fig. 3 – flow meter, isolation valves and pump to waste line

Fig. 4 – source sample tap

Fig. 5 – well # 5, electrical panel and heater

Fig. 6 – area used for potential drainage because well house # 5 lacks a floor drain

Fig. 7 – well house # 7

Fig. 8 – well # 7

Fig. 9 – well # 7 sample tap, pressure gauge and pressure release

Fig. 10 – well # 7 flow meter

Fig. 11 – source sample tap equipped with a back flow device

Fig. 12 – well house # 7 clean floor drain

Fig. 13 – well # 7 check valve and overview of discharge line

Fig. 14 – abandon old well

Fig. 15 – 1.5 Million/gal storage tank associated with well # 8 and booster station

Fig. 16 – screened tank overflow

Fig. 17 – storage tank access ladder

Fig. 18 – well # 8 and Booster Station well lot

Fig. 19 – well # 8 and discharge piping

Fig. 20 – well # 8 check valve, pressure release and pressure

Fig. 21 – pressure reducer, double check valve, pressure relief, pressure gauge, source sample tap and flow meter on well # 8 discharge piping

Fig. 22 – well # 8 discharge line and well house view

Fig. 23 – well house # 8 floor drain

Fig. 24 – back-up generator

Fig. 25 – booster station floor drain

Fig. 26 – overall view of booster station

Fig. 27 – sample tap from 1.5 Million storage tank that is fed by well # 8

Fig. 28 – isolation valve, pressure gauge, pressure relief valve and pressure controller on discharge line from storage

Fig. 29 - pressure reducer

Fig. 30 – overall view of booster pumps and electrical panels

Fig. 31 – stand-by Miox treatment unit (not in use at time of survey)

Fig. 32 – Miox unit - pumps

Fig. 33 – stand-by generator in booster station building

Fig. 34 – well # 3

Fig. 35 – well # 3 check valve, pressure release and pressure reducer

Fig. 36 – flow meter

Fig. 37 – well # 3 sample tap

Fig. 38 - well # 2

Fig. 39 – discharge piping from well # 2

Fig. 40 – well # 2 sample tap

Fig. 41 – well # 2 unscreened air relief

Fig. 42 – well house # 10

Fig. 43 – well # 10

Fig. 44 – discharge piping of well # 10
(check valve and air release)

Fig. 45 - well # 10 discharge line

Fig. 46 – well # 10 flow meter and over view of discharge line

Fig. 47 – back-up generator

Fig. 48 – diesel fuel

Fig. 49 – 2 million/gal storage tank
(fed by well # 9 & 11)

Fig. 50 – booster station building

Fig. 51 – over view of booster station
located below storage tank

Fig. 52 – sample tap after storage tank

Fig. 53 – unscreened pressure release

Fig. 54 – stand-by Miox system (not on line)

Fig. 55 – back-up generator within the booster station

Fig. 56 – overall view of booster station and storage tank lot

Fig. 57 – well house # 9

Fig. 58 – well # 9

Fig. 59 – well # 9 sample tap

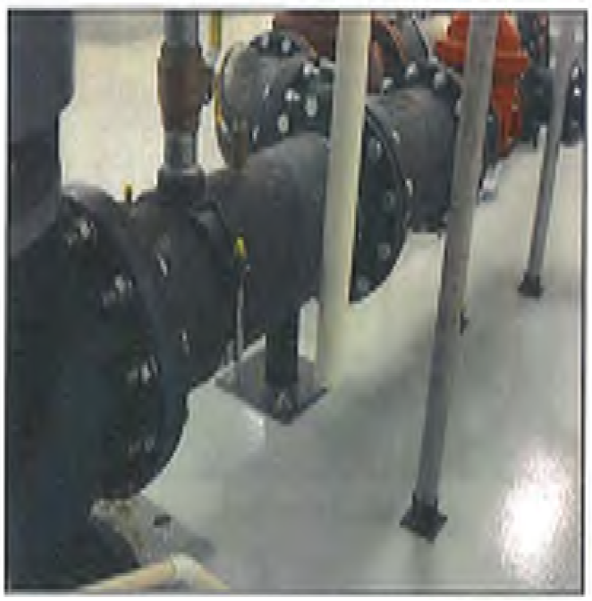

Fig. 60 – unscreened air release

Fig. 61 – overall view of booster station associated with well # 9

Fig. 62 – flow meter, pressure gauge, unscreened air release

Fig. 63 – back-up generator

Fig. 64 – well house # 11

Fig. 65 – well # 11

Fig. 66 – well # 11 discharge line (flow meter, check valve)

Fig. 67 – well # 11 sample tap and pressure gauge

Fig. 68 – back-up generator

USE TYPEWRITER OR BALL POINT PEN

Well #6

State of Idaho
Department of Water Administration

WELL DRILLER'S REPORT

State law requires that this report be filed with the State Reclamation Engineer within 30 days after completion or abandonment of the well.

RECEIVED
SEP 24 1974
Department of Water Resources
Eastern District Office

1. WELL OWNER

Name: City of Ammon

Address: Ammon, Idaho

Owner's Permit No. 25-7023

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

☐ Domestic ☐ Irrigation ☐ Test

☒ Municipal ☐ Industrial ☐ Stock

4. METHOD DRILLED

☒ Cable ☒ Rotary ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 24 inches Total depth 365 feet

Casing schedule: ☒ Steel ☐ Concrete

Thickness	Diameter	From	To
.250 inches	24 inches	+2 feet	54 feet
.250 inches	20 inches	0 feet	163 feet
.250 inches	16 inches	+2 feet	262 feet
inches	inches	feet	feet
inches	inches	feet	feet

Was a packer or seal used? ☐ Yes ☒ No

Perforated? ☐ Yes ☒ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation ______ inches by ______ inches

Number		From		To	
	perforations		feet		feet
	perforations		feet		feet
	perforations		feet		feet

Well screen installed? ☐ Yes ☒ No

Manufacturer's name ______

Type ______ Model No. ______

Diameter ___ Slot size ___ Set from ______ feet to ______ feet

Diameter ___ Slot size ___ Set from ______ feet to ______ feet

Gravel packed? ☐ Yes ☒ No Size of gravel ______

Placed from ______ feet to ______ feet

Surface seal? ☒ Yes ☐ No To what depth 263 feet

Material used in seal: ☒ Cement grout ☐ Puddling clay

6. LOCATION OF WELL

Sketch map location must agree with written location.

N / W / E / S

County Bonneville

SW ¼ NE ¼ Sec. 27, T. 2 N/S, R. 38 E/W

7. WATER LEVEL

Static water level 59 feet below land surface

Flowing? ☐ Yes ☒ No G.P.M. flow ______

Temperature ___ °F. Quality Good

Artesian closed-in pressure ______ p.s.i.

Controlled by: ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Draw Down	Hours Pumped

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
30	0	2	Soil Clay		
	2	15	Gravel Sand		
	15	51	Silt Gravel		
24	51	54	Clay Broken Basalt		
	54	62	Firm Gray "		
	62	80	Clay Gravel		
	80	82	Sand	X	
	82	90	Silt Gravel		
	90	95	Sand Gravel	X	
	95	105	Clean Gravel	X	
	105	120	Sand Gravel	X	
	120	135	Loose Lava	X	
	135	137	Clay Gravel		
20	137	140	Sandstone Loose Lava		
	140	165	Firm Lava		
	165	173	Firm Brown & Gray Basalt		
	173	181	Hard Basalt (Caving)	X	
	181	187	Loose Basalt Clay		
	187	215	Firm Brown Basalt		
	215	217	Broken Basalt Clay		
	217	235	Firm Brown Basalt		
16	240	262	Hard Basalt		
	262	280	Hard Basalt Gray		
	280	290	Firm Basalt Gray		
	290	305	Hard Basalt Green		
	305	327	Firm Hard		
	327	335	Loose Lava Red Clay	X	
	335	360	Sandstone	X	
16	360	365	Gravel And Clay	X	

005561

10.

Work started Oct. 73 finished Mar. 74

11. DRILLER'S CERTIFICATION

This well was drilled under my supervision and this report is true to the best of my knowledge.

Andrew Hall Drilling Contractors #1
Firm Name / Number

1260 E 27th St. Idaho Falls, Idaho
Address

Signed by: [signature] Date

USE ADDITIONAL SHEETS IF NECESSARY

FORWARD THE WHITE, BLUE, AND PINK COPIES TO THE DEPARTMENT

Appendix C: Environmental Reference Information

- NRCS Soils Report
- Socioeconomic and Population Information

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United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Bonneville County Area, Idaho

Ammon WFPS 2017

March 28, 2017

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

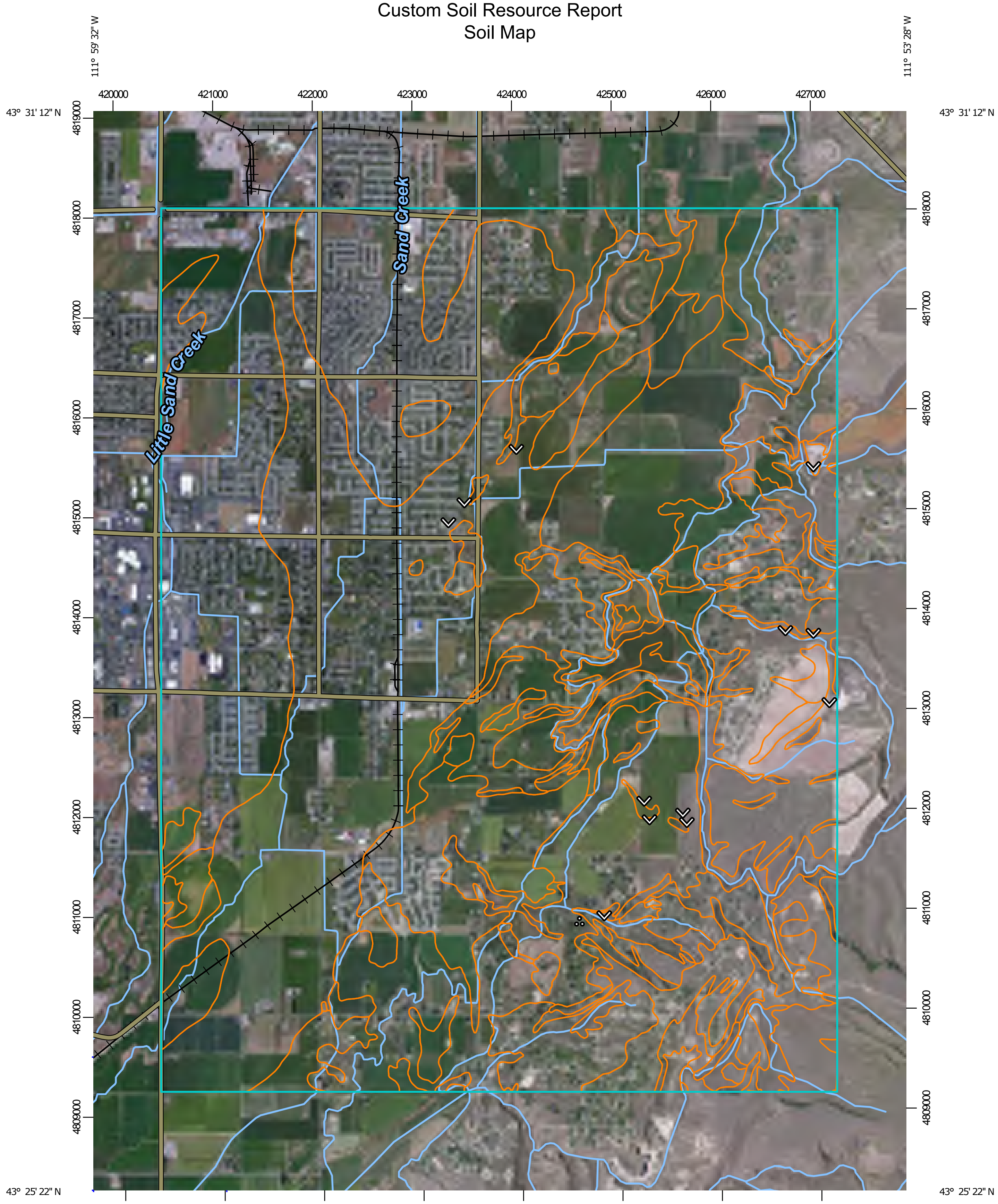
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map



Map Scale: 1:52,600 if printed on A portrait (8.5" x 11") sheet.

Meters: 0, 500, 1000, 2000, 3000

Feet: 0, 2500, 5000, 10000, 15000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bonneville County Area, Idaho
Survey Area Data: Version 12, Sep 9, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 20, 2011—Jul 21, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Bonneville County Area, Idaho (ID769)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
1	Ammon silt loam, 0 to 2 percent slopes	1,692.9	11.4%
2	Ammon silt loam, 2 to 4 percent slopes	156.6	1.1%
4	Araveton stony loam, 4 to 30 percent slopes, extremely stony	29.3	0.2%
6	Bannock loam	175.6	1.2%
7	Bock loam	194.3	1.3%
18	Malm fine sandy loam, 4 to 12 percent slopes	401.1	2.7%
21	Paesl silty clay loam	3,118.4	20.9%
27	Paul sandy loam	27.4	0.2%
28	Paul silty clay loam	3,604.7	24.2%
32	Pits	31.8	0.2%
33	Polatis-Rock outcrop complex, 2 to 25 percent slopes	156.6	1.1%
34	Potell silt loam, 0 to 4 percent slopes	658.0	4.4%
35	Potell silt loam, 4 to 12 percent slopes	2,910.9	19.5%
36	Potell silt loam, 12 to 20 percent slopes	503.6	3.4%
37	Potell silt loam, 20 to 30 percent slopes	34.9	0.2%
38	Potell silt loam, 30 to 60 percent slopes	11.0	0.1%
42	Ririe silt loam, 4 to 12 percent slopes	391.0	2.6%
43	Ririe silt loam, 12 to 20 percent slopes	233.2	1.6%
44	Ririe silt loam, 20 to 30 percent slopes	130.9	0.9%
49	Tetonia silt loam, 4 to 12 percent slopes	21.0	0.1%
50	Tetonia silt loam, 12 to 20 percent slopes	46.4	0.3%
51	Tetonia silt loam, 20 to 30 percent slopes	72.6	0.5%
52	Torriorthents-Rock outcrop complex, very steep	246.8	1.7%
53	Wolverine sand, 0 to 20 percent slopes	55.8	0.4%

Bonneville County Area, Idaho (ID769)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Totals for Area of Interest		**14,904.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Bonneville County Area, Idaho

1—Ammon silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2tkn
Elevation: 4,200 to 5,800 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 41 to 46 degrees F
Frost-free period: 94 to 126 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Ammon and similar soils: 80 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ammon

Setting

Landform: Fan remnants
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

A1 - 0 to 5 inches: silt loam
A2 - 5 to 15 inches: silt loam
C1 - 15 to 40 inches: silt loam
C2 - 40 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: B
Hydric soil rating: No

2—Ammon silt loam, 2 to 4 percent slopes

Map Unit Setting

National map unit symbol: 2tl0
Elevation: 4,200 to 5,800 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 41 to 46 degrees F
Frost-free period: 94 to 126 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Ammon and similar soils: 80 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ammon

Setting

Landform: Fan remnants
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

A1 - 0 to 5 inches: silt loam
A2 - 5 to 15 inches: silt loam
C1 - 15 to 40 inches: silt loam
C2 - 40 to 60 inches: silt loam

Properties and qualities

Slope: 2 to 4 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: B
Hydric soil rating: No

4—Araveton stony loam, 4 to 30 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2tlq
Elevation: 4,500 to 6,500 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 80 to 110 days
Farmland classification: Not prime farmland

Map Unit Composition

Araveton, extremely stony surface, and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Araveton, Extremely Stony Surface

Setting

Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess and/or mixed alluvium and/or mixed colluvium

Typical profile

A1 - 0 to 7 inches: stony loam
A2 - 7 to 12 inches: stony loam
Bw - 12 to 21 inches: stony loam
Bk - 21 to 27 inches: stony loam
Ck1 - 27 to 42 inches: stony loam
Ck2 - 42 to 60 inches: stony loam

Properties and qualities

Slope: 4 to 30 percent
Percent of area covered with surface fragments: 9.0 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 20 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: STONY LOAM 13-16 ARTRV/PSSPS (R013XY002ID)

Hydric soil rating: No

6—Bannock loam

Map Unit Setting

National map unit symbol: 2tm9
Elevation: 4,200 to 5,900 feet
Mean annual precipitation: 8 to 13 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 90 to 130 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Bannock and similar soils: 75 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bannock

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

A1 - 0 to 2 inches: loam
A2 - 2 to 7 inches: loam
Bw - 7 to 13 inches: silt loam
Bk1 - 13 to 23 inches: gravelly loam
2Bk2 - 23 to 60 inches: extremely gravelly coarse sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 25 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: B
Hydric soil rating: No

7—Bock loam

Map Unit Setting

National map unit symbol: 2tmb
Elevation: 3,800 to 6,600 feet
Mean annual precipitation: 8 to 13 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 70 to 126 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Bock and similar soils: 90 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bock

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

A1 - 0 to 4 inches: loam
A2 - 4 to 10 inches: fine sandy loam
Bw - 10 to 24 inches: fine sandy loam
Bk1 - 24 to 33 inches: fine sandy loam
Bk2 - 33 to 45 inches: fine sandy loam
2Bk3 - 45 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 25 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): 3c
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: B
Hydric soil rating: No

18—Malm fine sandy loam, 4 to 12 percent slopes

Map Unit Setting

National map unit symbol: 2tky
Elevation: 4,300 to 5,500 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 70 to 125 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Malm and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Malm

Setting

Landform: Volcanic cones
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits over bedrock derived from basalt

Typical profile

A - 0 to 7 inches: fine sandy loam
Bw - 7 to 18 inches: fine sandy loam
Bk1 - 18 to 24 inches: fine sandy loam
Bk2 - 24 to 28 inches: gravelly fine sandy loam
Bk3 - 28 to 38 inches: cobbly fine sand
R - 38 to 48 inches: bedrock

Properties and qualities

Slope: 4 to 12 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 30 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: B
Ecological site: LOAMY 8-12 - Provisional (R011BY001ID)

Hydric soil rating: No

21—Paesl silty clay loam

Map Unit Setting

National map unit symbol: 2tl2
Elevation: 4,000 to 4,800 feet
Mean annual precipitation: 8 to 13 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Paesl and similar soils: 90 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paesl

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

Ap1 - 0 to 5 inches: silty clay loam
Ap2 - 5 to 10 inches: silty clay loam
Bk1 - 10 to 17 inches: silty clay loam
Bk2 - 17 to 25 inches: silty clay loam
2Bk3 - 25 to 60 inches: very gravelly loamy coarse sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: B
Hydric soil rating: No

27—Paul sandy loam

Map Unit Setting

National map unit symbol: 2tl8
Elevation: 4,500 to 5,000 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 90 to 120 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Paul and similar soils: 90 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paul

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

Ap1 - 0 to 5 inches: sandy loam
Ap2 - 5 to 13 inches: sandy loam
Bk1 - 13 to 45 inches: silty clay loam
Bk2 - 45 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum in profile: 25 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 8.0
Available water storage in profile: High (about 10.9 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: B
Hydric soil rating: No

28—Paul silty clay loam

Map Unit Setting

National map unit symbol: 2tl9
Elevation: 4,500 to 5,000 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 90 to 120 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Paul and similar soils: 90 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paul

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

Ap1 - 0 to 5 inches: silty clay loam
Ap2 - 5 to 13 inches: silty clay loam
Bk1 - 13 to 45 inches: silty clay loam
Bk2 - 45 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum in profile: 25 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 8.0
Available water storage in profile: High (about 10.9 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: B
Hydric soil rating: No

32—Pits

Map Unit Composition

Pits, gravel: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pits, Gravel

Typical profile

C - 0 to 60 inches: gravel, cobbles

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: Unranked

33—Polatis-Rock outcrop complex, 2 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2tlh
Elevation: 4,600 to 6,000 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 95 to 120 days
Farmland classification: Not prime farmland

Map Unit Composition

Polatis and similar soils: 65 percent
Rock outcrop: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Polatis

Setting

Landform: Lava fields
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess over bedrock derived from basalt

Typical profile

A - 0 to 6 inches: silt loam
Bw - 6 to 9 inches: silt loam
Bk1 - 9 to 22 inches: silt loam
Bk2 - 22 to 31 inches: silt loam
R - 31 to 41 inches: bedrock

Properties and qualities

Slope: 2 to 25 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 30 percent
Salinity, maximum in profile: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 13.0
Available water storage in profile: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: C
Ecological site: LOAMY 8-12 - Provisional (R011BY001ID)
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

R - 0 to 60 inches: bedrock

Properties and qualities

Slope: 2 to 25 percent
Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: Unranked

34—Potell silt loam, 0 to 4 percent slopes

Map Unit Setting

National map unit symbol: 2tlj
Elevation: 4,500 to 6,500 feet
Mean annual precipitation: 8 to 13 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 80 to 100 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Potell and similar soils: 90 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Potell

Setting

Landform: Hillslopes

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess

Typical profile

Ap - 0 to 6 inches: silt loam
Bk1 - 6 to 10 inches: silt loam
Bk2 - 10 to 20 inches: silt loam
Bk3 - 20 to 43 inches: silt loam
Bk4 - 43 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 4 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 25 percent
Salinity, maximum in profile: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 13.0
Available water storage in profile: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: B
Ecological site: LOAMY 8-12 - Provisional (R011BY001ID)
Hydric soil rating: No

35—Potell silt loam, 4 to 12 percent slopes

Map Unit Setting

National map unit symbol: 2tlk
Elevation: 4,500 to 6,500 feet
Mean annual precipitation: 8 to 13 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 80 to 100 days
Farmland classification: Not prime farmland

Map Unit Composition

Potell and similar soils: 90 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Potell

Setting

Landform: Hillslopes
Down-slope shape: Linear

Across-slope shape: Linear
Parent material: Loess

Typical profile

Ap - 0 to 6 inches: silt loam
Bk1 - 6 to 10 inches: silt loam
Bk2 - 10 to 20 inches: silt loam
Bk3 - 20 to 43 inches: silt loam
Bk4 - 43 to 60 inches: silt loam

Properties and qualities

Slope: 4 to 12 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 25 percent
Salinity, maximum in profile: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 13.0
Available water storage in profile: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: B
Ecological site: LOAMY 8-12 - Provisional (R011BY001ID)
Hydric soil rating: No

36—Potell silt loam, 12 to 20 percent slopes

Map Unit Setting

National map unit symbol: 2tll
Elevation: 4,500 to 6,500 feet
Mean annual precipitation: 8 to 13 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 80 to 100 days
Farmland classification: Not prime farmland

Map Unit Composition

Potell and similar soils: 90 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Potell

Setting

Landform: Hillslopes
Down-slope shape: Linear
Across-slope shape: Linear

Parent material: Loess

Typical profile

Ap - 0 to 6 inches: silt loam
Bk1 - 6 to 10 inches: silt loam
Bk2 - 10 to 20 inches: silt loam
Bk3 - 20 to 43 inches: silt loam
Bk4 - 43 to 60 inches: silt loam

Properties and qualities

Slope: 12 to 20 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 25 percent
Salinity, maximum in profile: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 13.0
Available water storage in profile: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: B
Ecological site: LOAMY 8-12 - Provisional (R011BY001ID)
Hydric soil rating: No

37—Potell silt loam, 20 to 30 percent slopes

Map Unit Setting

National map unit symbol: 2tlm
Elevation: 4,500 to 6,500 feet
Mean annual precipitation: 8 to 13 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 80 to 100 days
Farmland classification: Not prime farmland

Map Unit Composition

Potell and similar soils: 90 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Potell

Setting

Landform: Hillslopes
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loess

Typical profile
Ap - 0 to 6 inches: silt loam
Bk1 - 6 to 10 inches: silt loam
Bk2 - 10 to 20 inches: silt loam
Bk3 - 20 to 43 inches: silt loam
Bk4 - 43 to 60 inches: silt loam

Properties and qualities
Slope: 20 to 30 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 25 percent
Salinity, maximum in profile: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 13.0
Available water storage in profile: High (about 12.0 inches)

Interpretive groups
Land capability classification (irrigated): 7e
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: B
Ecological site: LOAMY 8-12 - Provisional (R011BY001ID)
Hydric soil rating: No

38—Potell silt loam, 30 to 60 percent slopes

Map Unit Setting
National map unit symbol: 2tln
Elevation: 4,500 to 6,500 feet
Mean annual precipitation: 8 to 13 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 80 to 100 days
Farmland classification: Not prime farmland

Map Unit Composition
Potell and similar soils: 90 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Potell

Setting
Landform: Hillslopes
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess

Typical profile

Ap - 0 to 6 inches: silt loam
Bk1 - 6 to 10 inches: silt loam
Bk2 - 10 to 20 inches: silt loam
Bk3 - 20 to 43 inches: silt loam
Bk4 - 43 to 60 inches: silt loam

Properties and qualities

Slope: 30 to 60 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 25 percent
Salinity, maximum in profile: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 13.0
Available water storage in profile: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: LOAMY 8-12 - Provisional (R011BY001ID)
Hydric soil rating: No

42—Ririe silt loam, 4 to 12 percent slopes

Map Unit Setting

National map unit symbol: 2tlt
Elevation: 4,600 to 7,000 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 70 to 100 days
Farmland classification: Not prime farmland

Map Unit Composition

Ririe and similar soils: 70 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ririe

Setting

Landform: Hillslopes
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium and/or loess

Typical profile

A - 0 to 8 inches: silt loam
Bw - 8 to 15 inches: silt loam
Bk1 - 15 to 29 inches: silt loam
Bk2 - 29 to 42 inches: silt loam
Bk3 - 42 to 60 inches: silt loam

Properties and qualities

Slope: 4 to 12 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 15.0
Available water storage in profile: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: LOAMY 12-16 - Provisional (R013XY001ID)
Hydric soil rating: No

43—Ririe silt loam, 12 to 20 percent slopes

Map Unit Setting

National map unit symbol: 2tlv
Elevation: 4,600 to 7,000 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 70 to 100 days
Farmland classification: Not prime farmland

Map Unit Composition

Ririe and similar soils: 70 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ririe

Setting

Landform: Hillslopes
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium and/or loess

Typical profile

A - 0 to 8 inches: silt loam
Bw - 8 to 15 inches: silt loam
Bk1 - 15 to 29 inches: silt loam
Bk2 - 29 to 42 inches: silt loam
Bk3 - 42 to 60 inches: silt loam

Properties and qualities

Slope: 12 to 20 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 15.0
Available water storage in profile: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: LOAMY 12-16 - Provisional (R013XY001ID)
Hydric soil rating: No

44—Ririe silt loam, 20 to 30 percent slopes

Map Unit Setting

National map unit symbol: 2tlw
Elevation: 4,600 to 7,000 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 70 to 100 days
Farmland classification: Not prime farmland

Map Unit Composition

Ririe and similar soils: 70 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ririe

Setting

Landform: Hillslopes
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium and/or loess

Typical profile

A - 0 to 8 inches: silt loam
Bw - 8 to 15 inches: silt loam
Bk1 - 15 to 29 inches: silt loam
Bk2 - 29 to 42 inches: silt loam
Bk3 - 42 to 60 inches: silt loam

Properties and qualities

Slope: 20 to 30 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 15.0
Available water storage in profile: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): 7e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: LOAMY 12-16 - Provisional (R013XY001ID)
Hydric soil rating: No

49—Tetonia silt loam, 4 to 12 percent slopes

Map Unit Setting

National map unit symbol: 2tm1
Elevation: 5,500 to 7,000 feet
Mean annual precipitation: 13 to 18 inches
Mean annual air temperature: 37 to 41 degrees F
Frost-free period: 50 to 100 days
Farmland classification: Not prime farmland

Map Unit Composition

Tetonia and similar soils: 70 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tetonia

Setting

Landform: Mountain slopes
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess

Typical profile

Ap - 0 to 8 inches: silt loam
Bw1 - 8 to 15 inches: silt loam
Bw2 - 15 to 22 inches: silt loam
Bk1 - 22 to 36 inches: silt loam
Bk2 - 36 to 60 inches: silt loam

Properties and qualities

Slope: 4 to 12 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 30 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: High (about 11.1 inches)

Interpretive groups

Land capability classification (irrigated): 6c
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: B
Ecological site: LOAMY 12-16 - Provisional (R013XY001ID)
Hydric soil rating: No

50—Tetonia silt loam, 12 to 20 percent slopes

Map Unit Setting

National map unit symbol: 2tm3
Elevation: 5,500 to 7,000 feet
Mean annual precipitation: 13 to 18 inches
Mean annual air temperature: 37 to 41 degrees F
Frost-free period: 50 to 100 days
Farmland classification: Not prime farmland

Map Unit Composition

Tetonia and similar soils: 70 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tetonia

Setting

Landform: Mountain slopes
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess

Typical profile

Ap - 0 to 8 inches: silt loam
Bw1 - 8 to 15 inches: silt loam
Bw2 - 15 to 22 inches: silt loam
Bk1 - 22 to 36 inches: silt loam
Bk2 - 36 to 60 inches: silt loam

Properties and qualities

Slope: 12 to 20 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 30 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: High (about 11.1 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: B
Ecological site: LOAMY 12-16 - Provisional (R013XY001ID)
Hydric soil rating: No

51—Tetonia silt loam, 20 to 30 percent slopes

Map Unit Setting

National map unit symbol: 2tm4
Elevation: 5,500 to 7,000 feet
Mean annual precipitation: 13 to 18 inches
Mean annual air temperature: 37 to 41 degrees F
Frost-free period: 50 to 100 days
Farmland classification: Not prime farmland

Map Unit Composition

Tetonia and similar soils: 70 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tetonia

Setting

Landform: Mountain slopes
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loess

Typical profile

Ap - 0 to 8 inches: silt loam
Bw1 - 8 to 15 inches: silt loam
Bw2 - 15 to 22 inches: silt loam
Bk1 - 22 to 36 inches: silt loam
Bk2 - 36 to 60 inches: silt loam

Properties and qualities

Slope: 20 to 30 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 30 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: High (about 11.1 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: LOAMY 12-16 - Provisional (R013XY001ID)
Hydric soil rating: No

52—Torriorthents-Rock outcrop complex, very steep

Map Unit Setting

National map unit symbol: 2tm5
Elevation: 4,700 to 6,200 feet
Mean annual precipitation: 10 to 13 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 60 to 90 days
Farmland classification: Not prime farmland

Map Unit Composition

Torriorthents and similar soils: 60 percent
Rock outcrop: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Torriorthents

Setting

Landform: Canyons, mountain slopes
Down-slope shape: Convex
Across-slope shape: Convex

Parent material: Mixed colluvium over bedrock from igneous rock and/or sedimentary rock

Typical profile

A - 0 to 6 inches: very cobbly loam
C - 6 to 50 inches: stratified silt loam to extremely stony clay
R - 50 to 60 inches: bedrock

Properties and qualities

Slope: 35 to 65 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

R - 0 to 60 inches: bedrock

Properties and qualities

Slope: 35 to 65 percent
Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: Unranked

53—Wolverine sand, 0 to 20 percent slopes

Map Unit Setting

National map unit symbol: 2tm6
Elevation: 4,400 to 5,500 feet
Mean annual precipitation: 8 to 13 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 120 days
Farmland classification: Not prime farmland

Map Unit Composition

Wolverine and similar soils: 95 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wolverine

Setting

Landform: Terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits

Typical profile

A - 0 to 6 inches: sand
C - 6 to 60 inches: sand

Properties and qualities

Slope: 0 to 20 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very high (20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Available water storage in profile: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): 7s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: SAND 8-12 ARTRT-PUTR2/HECOC8 (R011BY016ID)
Hydric soil rating: No

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

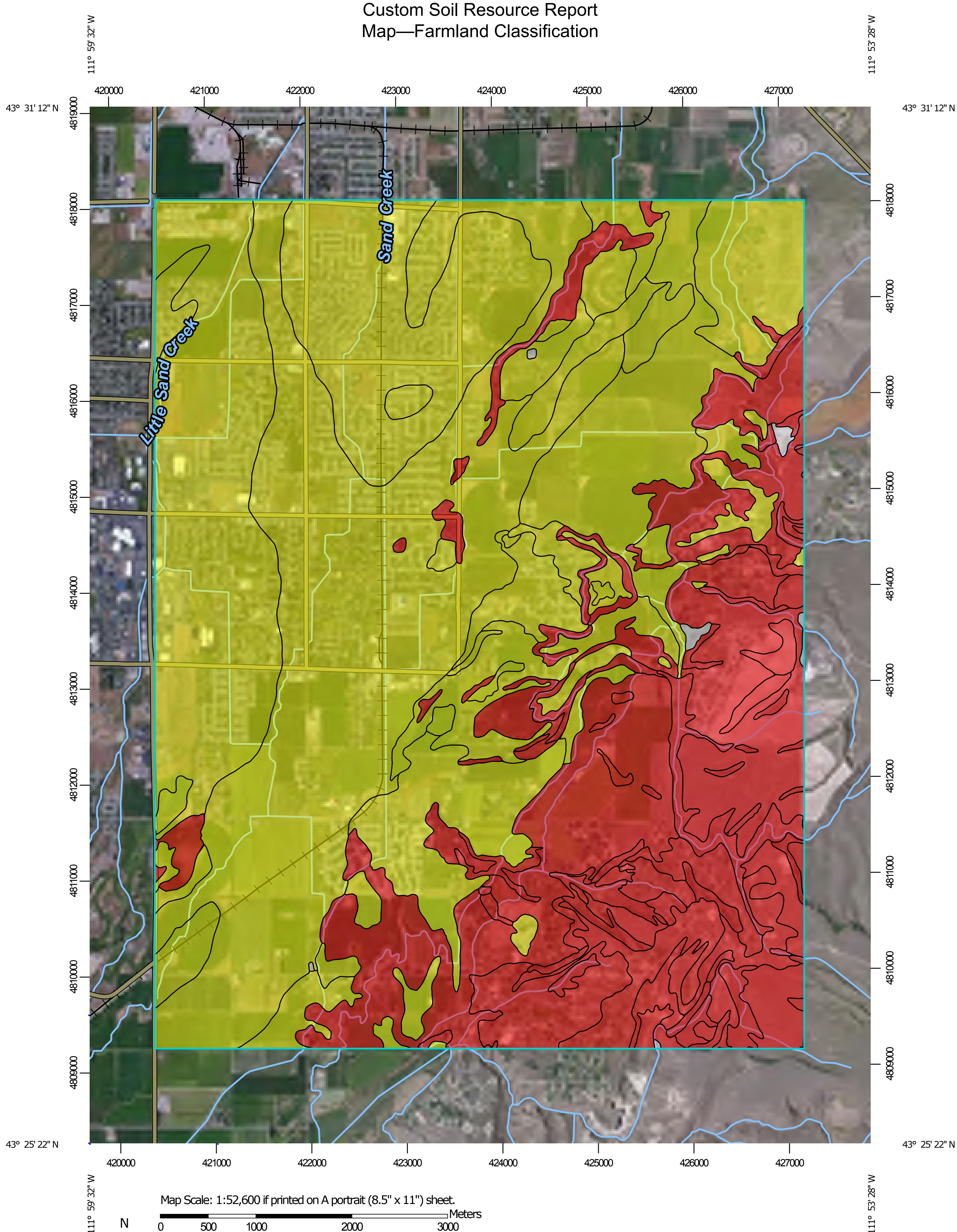
Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Farmland Classification

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Map—Farmland Classification



Map Scale: 1:52,600 if printed on A portrait (8.5" x 11") sheet.

Meters: 0 500 1000 2000 3000

Feet: 0 2500 5000 10000 15000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Soil Rating Lines

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Soil Rating Points

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Water Features

MAP INFORMATION

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bonneville County Area, Idaho
Survey Area Data: Version 12, Sep 9, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 20, 2011—Jul 21, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Farmland Classification

Farmland Classification— Summary by Map Unit — Bonneville County Area, Idaho (ID769)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
1	Ammon silt loam, 0 to 2 percent slopes	Prime farmland if irrigated	1,692.9	11.4%
2	Ammon silt loam, 2 to 4 percent slopes	Prime farmland if irrigated	156.6	1.1%
4	Araveton stony loam, 4 to 30 percent slopes, extremely stony	Not prime farmland	29.3	0.2%
6	Bannock loam	Prime farmland if irrigated	175.6	1.2%
7	Bock loam	Prime farmland if irrigated	194.3	1.3%
18	Malm fine sandy loam, 4 to 12 percent slopes	Prime farmland if irrigated	401.1	2.7%
21	Paesl silty clay loam	Prime farmland if irrigated	3,118.4	20.9%
27	Paul sandy loam	Prime farmland if irrigated	27.4	0.2%
28	Paul silty clay loam	Prime farmland if irrigated	3,604.7	24.2%
32	Pits		31.8	0.2%
33	Polatis-Rock outcrop complex, 2 to 25 percent slopes	Not prime farmland	156.6	1.1%
34	Potell silt loam, 0 to 4 percent slopes	Prime farmland if irrigated	658.0	4.4%
35	Potell silt loam, 4 to 12 percent slopes	Not prime farmland	2,910.9	19.5%
36	Potell silt loam, 12 to 20 percent slopes	Not prime farmland	503.6	3.4%
37	Potell silt loam, 20 to 30 percent slopes	Not prime farmland	34.9	0.2%
38	Potell silt loam, 30 to 60 percent slopes	Not prime farmland	11.0	0.1%
42	Ririe silt loam, 4 to 12 percent slopes	Not prime farmland	391.0	2.6%
43	Ririe silt loam, 12 to 20 percent slopes	Not prime farmland	233.2	1.6%
44	Ririe silt loam, 20 to 30 percent slopes	Not prime farmland	130.9	0.9%
49	Tetonia silt loam, 4 to 12 percent slopes	Not prime farmland	21.0	0.1%
50	Tetonia silt loam, 12 to 20 percent slopes	Not prime farmland	46.4	0.3%
51	Tetonia silt loam, 20 to 30 percent slopes	Not prime farmland	72.6	0.5%

Farmland Classification— Summary by Map Unit — Bonneville County Area, Idaho (ID769)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
52	Torriorthents-Rock outcrop complex, very steep	Not prime farmland	246.8	1.7%
53	Wolverine sand, 0 to 20 percent slopes	Not prime farmland	55.8	0.4%
Totals for Area of Interest			**14,904.6**	**100.0%**

Rating Options—Farmland Classification

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

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U.S. Census Bureau

AMERICAN FactFinder

QT-P11 | Households and Families: 2010

2010 Census Summary File 1

NOTE: For information on confidentiality protection, nonsampling error, and definitions, see http://www.census.gov/prod/cen2010/doc/sf1.pdf.

Geography: Ammon city, Idaho

Subject	Number	Percent
HOUSEHOLD TYPE		
Total households	4,476	100.0
Family households [1]	3,352	74.9
Male householder	2,613	58.4
Female householder	739	16.5
Nonfamily households [2]	1,124	25.1
Male householder	473	10.6
Living alone	371	8.3
Female householder	651	14.5
Living alone	584	13.0
HOUSEHOLD SIZE		
Total households	4,476	100.0
1-person household	955	21.3
2-person household	1,259	28.1
3-person household	685	15.3
4-person household	588	13.1
5-person household	471	10.5
6-person household	307	6.9
7-or-more-person household	211	4.7
Average household size	3.05	(X)
Average family size	3.61	(X)
FAMILY TYPE AND PRESENCE OF RELATED AND OWN CHILDREN		
Families [3]	3,352	100.0
With related children under 18 years	2,055	61.3
With own children under 18 years	1,948	58.1
Under 6 years only	420	12.5
Under 6 and 6 to 17 years	615	18.3
6 to 17 years only	913	27.2
Husband-wife families	2,749	100.0
With related children under 18 years	1,616	58.8
With own children under 18 years	1,555	56.6
Under 6 years only	339	12.3
Under 6 and 6 to 17 years	535	19.5
6 to 17 years only	681	24.8
Female householder, no husband present families	450	100.0
With related children under 18 years	335	74.4
With own children under 18 years	299	66.4

Subject	Number	Percent
Under 6 years only	58	12.9
Under 6 and 6 to 17 years	61	13.6
6 to 17 years only	180	40.0

X Not applicable.
[1] A household that has at least one member of the household related to the householder by birth, marriage, or adoption is a "Family household." Same-sex couple households are included in the family households category if there is at least one additional person related to the householder by birth or adoption. Same-sex couple households with no relatives of the householder present are tabulated in nonfamily households. Responses of "same-sex spouse" were edited during processing to "unmarried partner."
[2] "Nonfamily households" consist of people living alone and households which do not have any members related to the householder.
[3] "Families" consist of a householder and one or more other people related to the householder by birth, marriage, or adoption. They do not include same-sex married couples even if the marriage was performed in a state issuing marriage certificates for same-sex couples. Same-sex couples are included in the families category if there is at least one additional person related to the householder by birth or adoption. Responses of "same-sex spouse" were edited during processing to "unmarried partner." Same-sex couple households with no relatives of the householder present are tabulated in nonfamily households.
Source: U.S. Census Bureau, 2010 Census.

Summary File 1, Tables P17, P18, P28, P29, P37, P38, and P39.

Map View: 2010 Census Interactive Population Map **2010 Census Interactive Population Search - ID - Ammon city**

Population

Total Population	13,816

Housing Status
(in housing units unless noted)

Total	4,747
Occupied	4,476
Owner-occupied	3,205
Population in owner-occupied (number of individuals)	10,454
Renter-occupied	1,271
Population in renter-occupied (number of individuals)	3,217
Households with individuals under 18	2,078
Vacant	271
Vacant: for rent	87
Vacant: for sale	74

Population by Sex/Age

Male	6,750
Female	7,066
Under 18	5,019
18 & over	8,797
20 - 24	734
25 - 34	2,031
35 - 49	2,555
50 - 64	1,794
65 & over	1,360

Population by Ethnicity

Hispanic or Latino	884
Non Hispanic or Latino	12,932

Population by Race

White	13,002
African American	73
Asian	113
American Indian and Alaska Native	67

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Chapter 2 Summary

General Category	Description	Area (acres)	% of Total Area	Subtotal (acres)	Subtotal %
Residential	RE	58.75	1%	3604.01	76%
	RP	756.72	16%		
	RP-A	1074.40	23%		
	R-1	1151.05	24%		
	R-1A	284.03	6%		
	R-2	99.53	2%		
	R-2A	35.56	1%		
	R-3	8.98	0%		
	R-3A	86.53	2%		
	RMH	48.45	1%		
Industrial	IM-1	162.27	3%	162.27	3%
Park	PSC	288.31	6%	288.31	6%
Commercial	C-1	131.79	3%	697.61	15%
	CC-1	135.50	3%		
	GC-1	94.36	2%		
	HC-1	335.97	7%		

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Appendix D: Hydraulic Modeling

- ISRB Fire Flow Requirements
- Calibration: Hydrant Flow Test Results
- Calibration: Field vs Model Performance Comparison
- Results: Operational Changes at The Cottages and Quail Ridge
- Results: Supply From Top of Quail Ridge
- Results: Hydraulic Grade Contours at Woodland Hills and 1st Street
- Results: Optimal Location of Woodland Hills Tank and Booster Station
- Results: Well 11 Pumping Savings

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Needed Fire Flows for P Code 010 AMMON

Stories	N.F.F.	PPC & W	OWNER	Address	
1	3,500	04	PEARL HEALTH CLINIC	2705 E 17TH ST	AMMON
1	3,500	04	AMMON TOWN SQUARE	1779 1851 HITT RD	AMMON
2	3,500	04	KEVIN DONOHUE	1675 CURLEW DR	AMMON
There are(is) 3 in this group					
2	3,000	04	SCHOOL DISTRICT #93	2900 CENTRAL ST	AMMON
There are(is) 1 in this group					
1	2,500	04	SUNNYSIDE TESORO	2523 E SUNNYSIDE RD	AMMON
2	2,500	04	SKIDMORE MILLWORK, INC.	3920 E SUNNYSIDE	AMMON
1	2,500	04	AMMON POINT SHOPPING CENTER	3320 3350 E 17TH ST	AMMON
There are(is) 3 in this group					
2	2,000	04 P-1	TRUSSWORKS INC	1362 TERRILL DR	AMMON
2	2,000	04	WALKER PRODUCE	3965 E SUNNYSIDE RD	AMMON
2	2,000	04	SCOTT HINSHENBERGER BLDG.	3544 E 17TH ST	AMMON
2	2,000	04	UTILITY TRAILER SALES OF IDAHO	4306 ANDCO DR	IDAHO FALLS
1	2,000	04	DOUG AND BECKY TOLBERT	2901 E 14TH N	AMMON
There are(is) 5 in this group					
1	1,750	04	TGI FRIDAYS	2665 HITT	AMMON
There are(is) 1 in this group					
2	1,500	04	INTERMOUNTAIN ERECTORS	1552 N 25TH E	IDAHO FALLS
2	1,500	04	INTERMOUNTAIN ERECTORS	1546 N 25TH E	IDAHO FALLS
1	1,500	04	INTERMOUNTAIN ERECTORS	1542 N 25TH E	IDAHO FALLS
There are(is) 3 in this group					
1	1,250	04	KVO CABINETS	8968 E SUNNYSIDE RD	AMMON
2	1,250	04	INTERMOUNTAIN ERECTORS	1397 E 24TH	IDAHO FALLS
1	1,250	04	RICH HARDY-ID TRAFFIC SAFETY	3400 E SUNNYSIDE RD	AMMON
2	1,250	04	INTERMOUNTAIN ERECTORS	1478 N TRELLIS LN	IDAHO FALLS
There are(is) 4 in this group					
1	1,000	04	JOHN GONZALES	3160 DAL AVE	AMMON
There are(is) 1 in this group					
1	750	04	RICH HARDY-ID TRAFFIC SAFETY	3400 E SUNNYSIDE RD	AMMON
1	750	04	RICH HARDY-ID TRAFFIC SAFETY	3400 E SUNNYSIDE RD	AMMON
2	750	04	YANCY WHIPPLE	3968 E SUNNYSIDE RD	AMMON
There are(is) 3 in this group					
1	0	04 P-1	SANDCREEK PLAZA	939 S 25TH E	AMMON
1	0	04 P-1	SCHOOL DIST 93	3100 1ST ST	AMMON
2	0	04 P-1	THE CELLAR	3520 E 17TH ST	AMMON
1	0	04 P-1	AMMON INVESTMENTS LLC	2625 2647 S 25TH EAST AVE	AMMON
2	0	04 P-1	SPORTSMANS WAREHOUSE	2909 S 25TH EAST (HITT RD)	AMMON
1	0	04	RICH HARDY-ID TRAFFIC SAFETY	3400 E SUNNYSIDE RD	AMMON
1	0	04 P-1	OSCAR & MARYA STEIN TRUST	3015 3047 S 25TH ST E	AMMON
1	0	04 P-1	GOLDS GYM	2363 EAGLE DR	AMMON
2	0	04 P-1	BONNEVILLE SCHOOL DISTRICT #93	2800 OWEN ST	AMMON
1	0	04 P-1	GABLES OF AMMON	1405 S CURLEW DR	AMMON
2	0	04 P-1	SCHOOL DIST 93	2955 OWEN ST	AMMON
1	0	04 P-1	DICK SKIDMORE	3500 AMMON RD	AMMON
3	0	04 P-1	LIBERTY SQUARE ID, LLC	2475 S AMMON RD	AMMON
There are(is) 13 in this group					

Needed Fire Flows for P Code 010 AMMON

Stories	N.F.F.	PPC & W	OWNER	Address

Average Needed Fire Flow is 1,230

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	Hydrant Number	Location	Static Time	Static Pressure (psi)	Residual Time	Residual Pressure (psi)	Pressure Drop (psi)
1	**Hydrant A**	Founders Pointe Boulder Creek	10:32 AM	70	10:45 AM	50	20
	Flow Hydrant	Boulder Creek Hillsdale	10:32 AM	-------	10:45 AM	28	-------
	Hydrant B	Tower Castle Loop	10:32 AM	81	10:45 AM	57	24
2	**Hydrant A**	Sage Hen cir Sage Hen Dr	11:27 AM	90	11:33 AM	68	22
	Flow Hydrant	Bob White	11:27 AM	-------	11:33 AM	50	-------
	Hydrant B	Quail Ridge Bob White	11:27 AM	73	11:33 AM	52	21
3	**Hydrant A**	Stafford Dr	12:14 PM	79	12:21 PM	73	6
	Flow Hydrant	Stafford Dr Stafford Ct	12:14 PM	-------	12:21 PM	37	-------
	Hydrant B	Stafford Dr Bungalow	12:14 PM	72	12:21 PM	65	7
4	**Hydrant A**	17th Street Cabellaro	2:16 PM	82	2:23 PM	76	6
	Flow Hydrant	Cabellaro Senoma	2:16 PM	-------	2:23 PM	44	-------
	Hydrant B	Del Rio Cabellaro	2:16 PM	79	2:23 PM	70	9
5	**Hydrant A**	1st Street Red Fox Dr	2:52 PM	66	2:57 PM	48	18
	Flow Hydrant	1st Street	2:52 PM	-------	2:57 PM	36	-------
	Hydrant B	1st Street (Storage Units)	2:52 PM	72	2:57 PM	49	23
6	**Hydrant A**	Lakefield Cotton Tree	3:45 PM	85	3:51 PM	56	29
	Flow Hydrant	Lakefield Millcreek	3:45 PM	-------	3:51 PM	35	-------
	Hydrant B	Millcreek Autumnwood	3:45 PM	83	3:51 PM	61	22
7	**Hydrant A**	Newgate Eastwood	4:25 PM	77	4:32 PM	70	7
	Flow Hydrant	Newgate Journee Cir	4:25 PM	-------	4:32 PM	47	-------
	Hydrant B	Newgate Greenwald	4:25 PM	75	4:32 PM	69	6

Calibration of Guages for Hydrants A and B: A = 80 psi B = 77 psi

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Initial model run before calibration:

			Pressure Hyd. A		Pressure Hyd. B		Static Error (psi)		Residual Error (psi)	
			Static	Residual	Static	Residual	Hyd. A	Hyd. B	Hyd. A	Hyd. B
Test 1	Flow (gpm)	Field (psi)	70	50	81	57	-9	-5	10	14
	888	Model (psi)	61	60	76	71				
Test 2	Flow (gpm)	Field (psi)	90	68	73	52	-2	3	14	19
	1187	Model (psi)	88	82	76	71				
Test 3	Flow (gpm)	Field (psi)	79	73	72	65	-8	-5	-6	-3
	1021	Model (psi)	71	67	67	62				
Test 4	Flow (gpm)	Field (psi)	82	76	79	70	-5	-2	-4	-2
	1113	Model (psi)	77	72	77	68				
Test 5	Flow (gpm)	Field (psi)	66	48	72	49	5	-1	-5	-8
	1007	Model (psi)	71	43	71	41				
Test 6	Flow (gpm)	Field (psi)	85	56	83	61	-8	-3	1	0
	993	Model (psi)	77	57	80	61				
Test 7	Flow (gpm)	Field (psi)	77	70	75	69	-4	-3	-6	-4
	1151	Model (psi)	73	64	72	65				

Calibration of gauges for hydrants A and B: A = 80 psi when B = 77 psi (no adjustments have been made to field values shown here)

Performance after calibration:

			Pressure Hyd. A		Pressure Hyd. B		Static Error (psi)		Residual Error (psi)	
			Static	Residual	Static	Residual	Hyd. A	Hyd. B	Hyd. A	Hyd. B
Test 1	Flow (gpm)	Field (psi)	70	50	84	60	*0*	*-2*	*1*	*-2*
	888	Model (psi)	70	51	82	58				
Test 2	Flow (gpm)	Field (psi)	90	68	76	55	*-3*	*-3*	*1*	*0*
	1187	Model (psi)	87	69	73	55				
Test 3	Flow (gpm)	Field (psi)	79	73	75	68	*-3*	*-4*	*-4*	*-4*
	1021	Model (psi)	76	69	71	64				
Test 4	Flow (gpm)	Field (psi)	82	76	82	73	*-1*	*-1*	*0*	*-1*
	1113	Model (psi)	81	76	81	72				
Test 5	Flow (gpm)	Field (psi)	66	48	75	52	*8*	*0*	*1*	*-3*
	1007	Model (psi)	74	49	75	49				
Test 6	Flow (gpm)	Field (psi)	85	56	86	64	*-5*	*-4*	*1*	*-2*
	993	Model (psi)	80	57	82	62				
Test 7	Flow (gpm)	Field (psi)	77	70	78	72	*0*	*-2*	*0*	*-2*
	1151	Model (psi)	77	70	76	70				

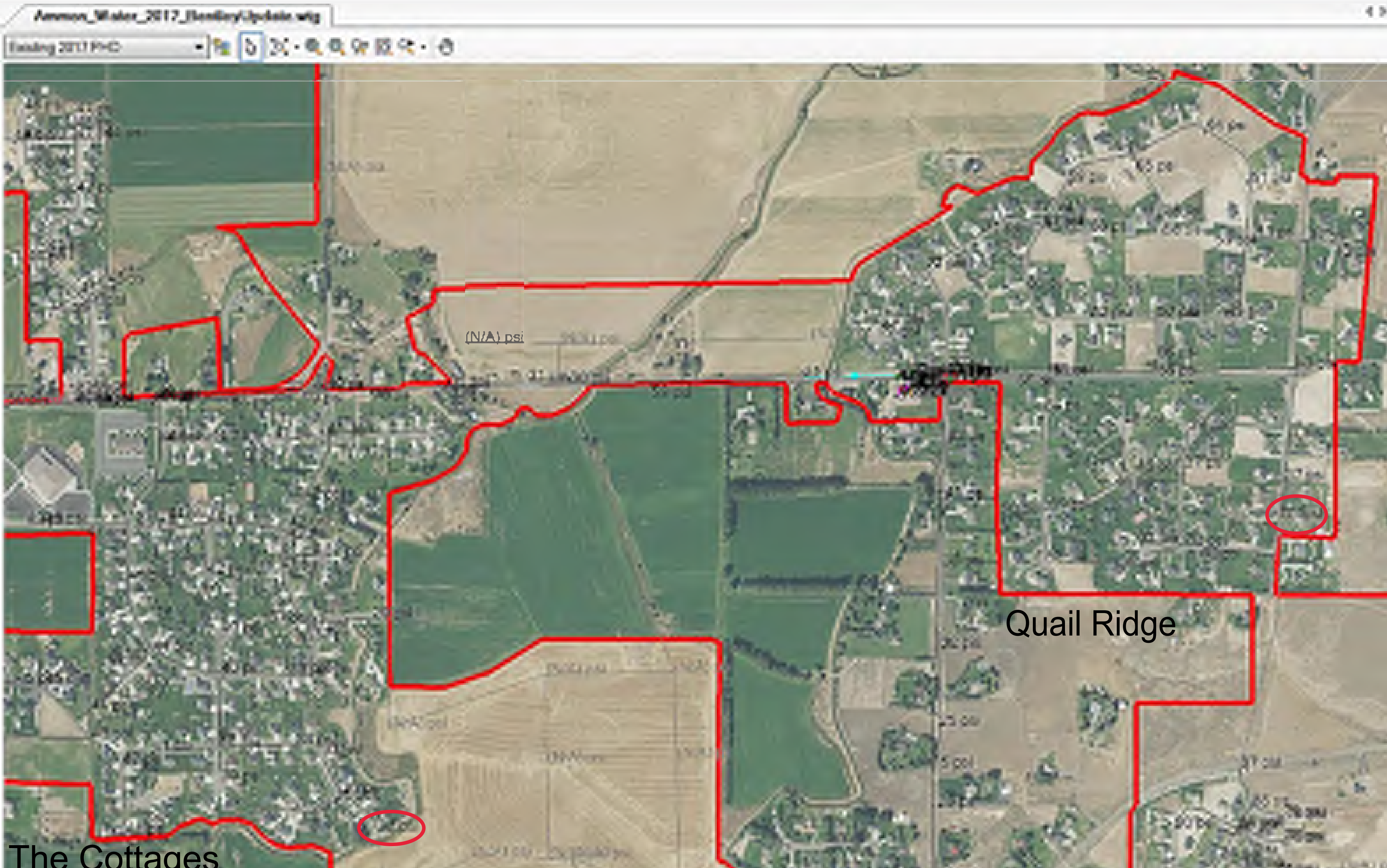
Calibration of Guages for Hydrants A and B: A = 80 psi B = 77 psi

**Adjusted All of Hydrant B Field Measurements Up 3 PSI on 9-13-2017
Test 5 static Hydrant A discrepancy is believed to be a measurement error

Operational Changes at The Cottages and Quail Ridge

Well 11 Bypass: Closed
21st Street Valve: Open
Well 9 Interconnet None

PHD Scenario # 1

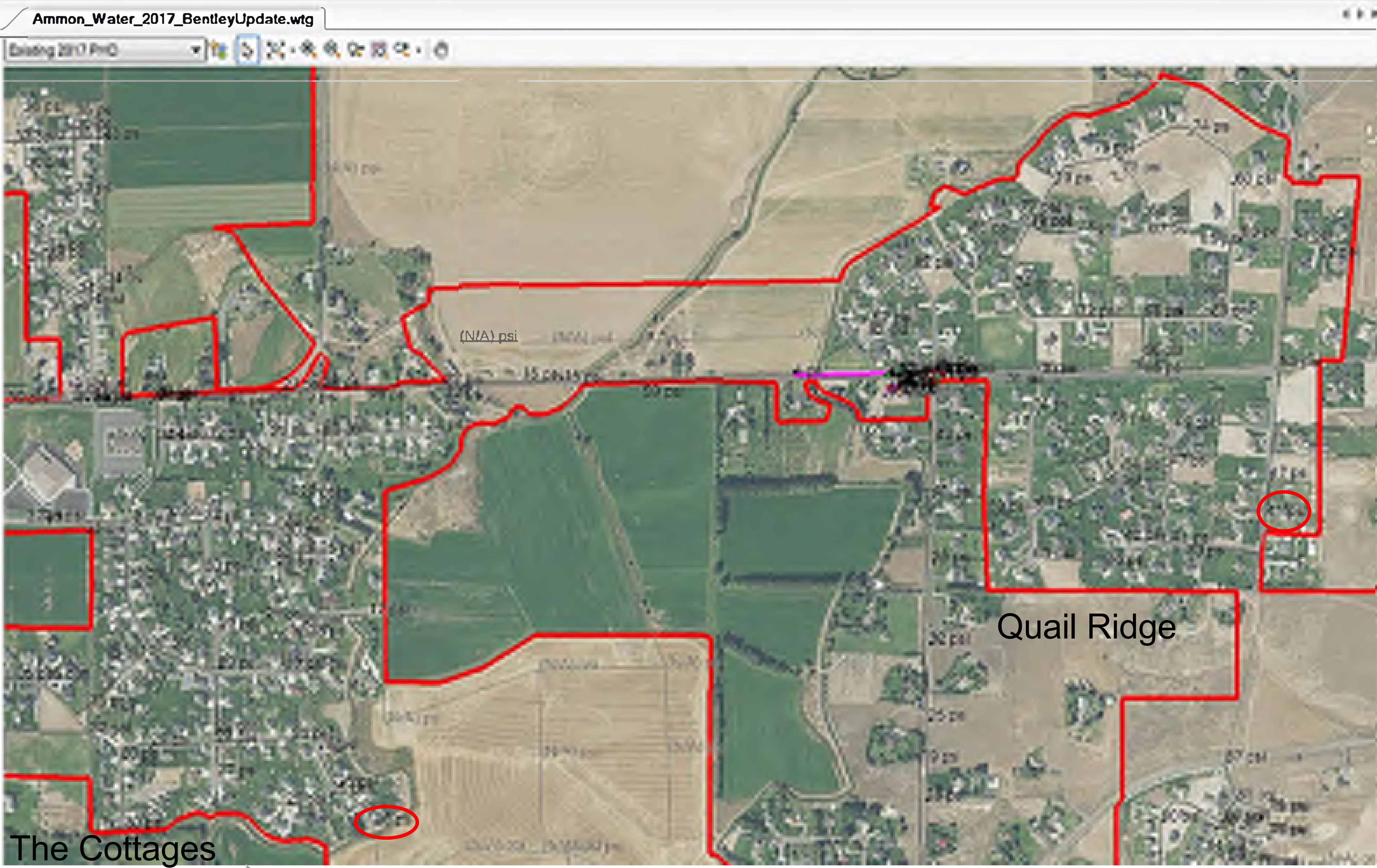


Ammon 2018 WFPS

Operational Changes at The Cottages and Quail Ridge

Well 11 Bypass: Closed
21st Street Valve: Closed
Well 9 Interconnect: None

PHD Scenario #2



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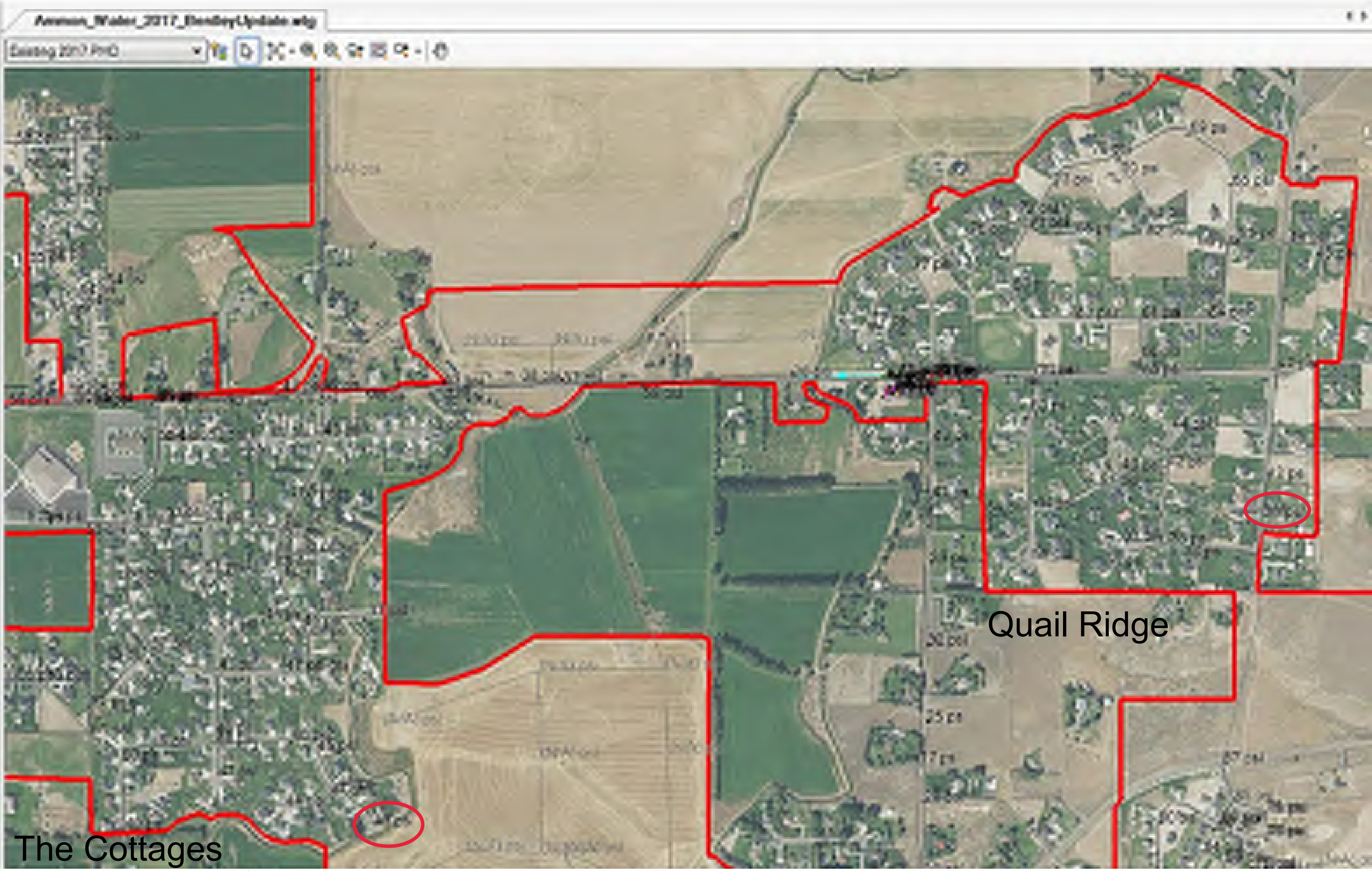
Ammon 2018 WFPS

Operational Changes at The Cottages and Quail Ridge

Well 11 Bypass: Active
21st Street: Open
Well 9 Interconnect: None

PHD Scenario # 3



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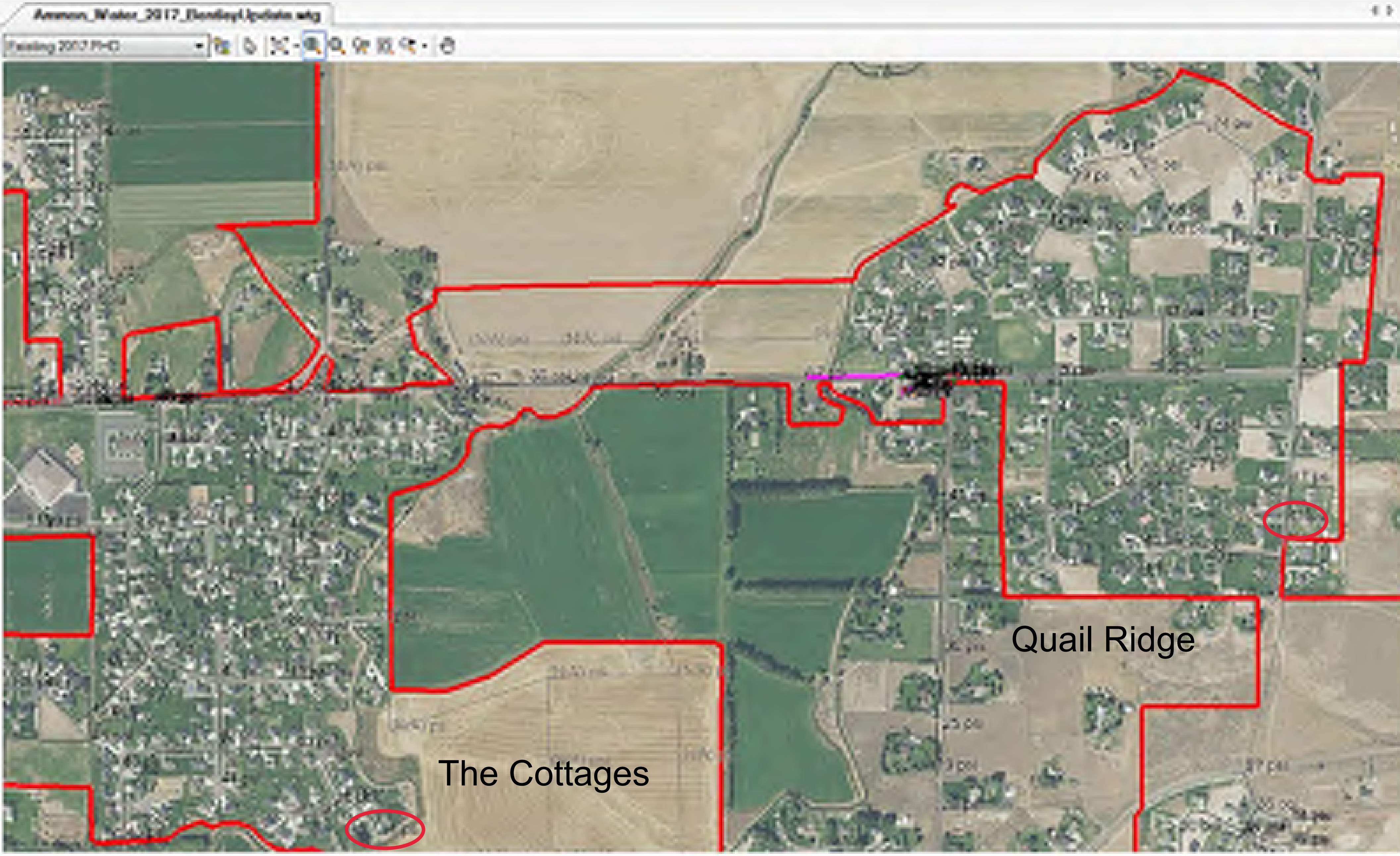
Ammon 2018 WFPS

Operational Changes at The Cottages and Quail Ridge

Well 11 Bypass: Active
21st Street: Closed Well 9
Interconnect: None

PHD Scenario # 4



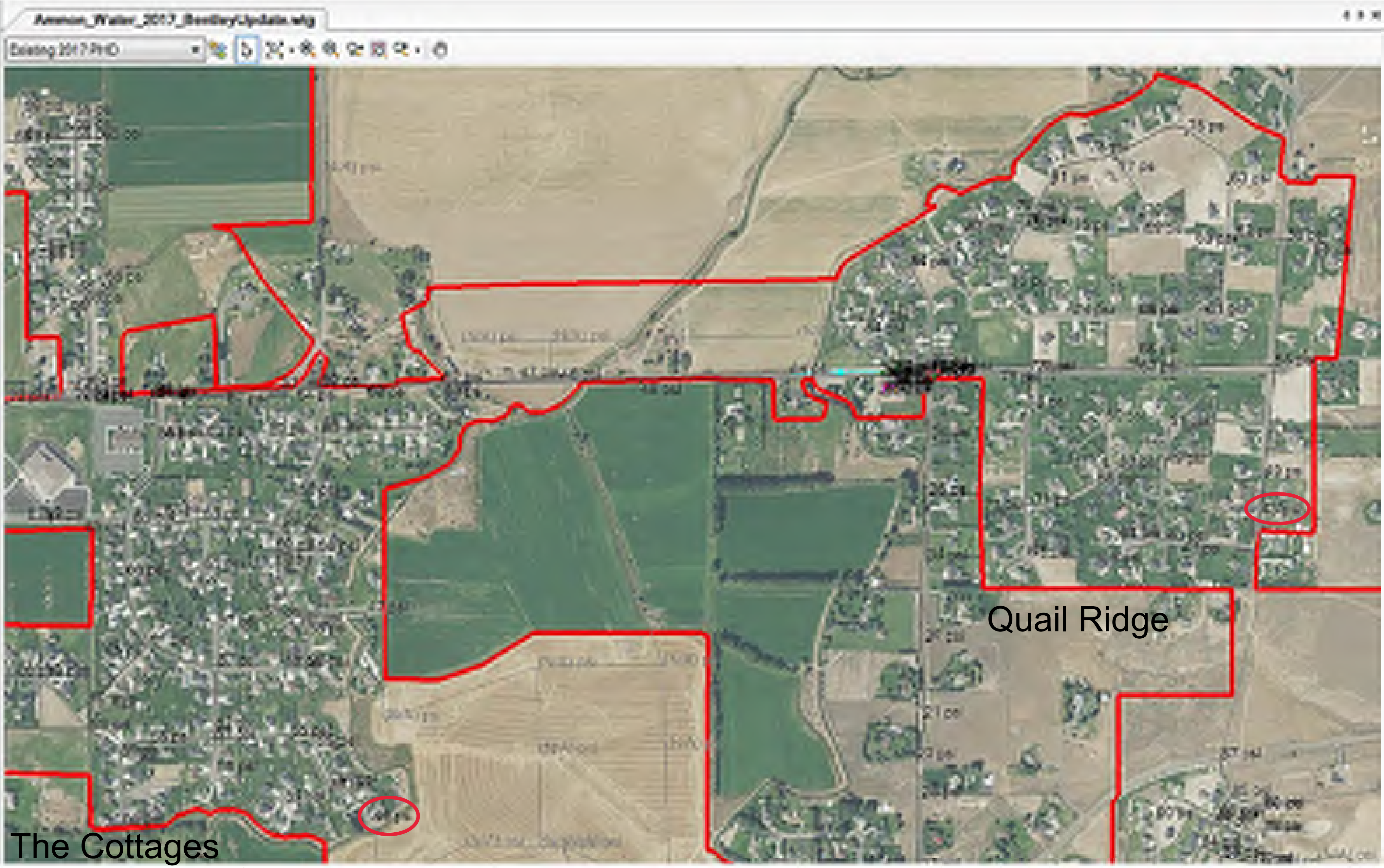
KELLER ASSOCIATES

Ammon 2018 WFPS

Operational Changes at The Cottages and Quail Ridge

Well 11 Bypass: Full Open
21st Street Valve: Open
Well 9 Interconnect: None

PHD Scenario # 5



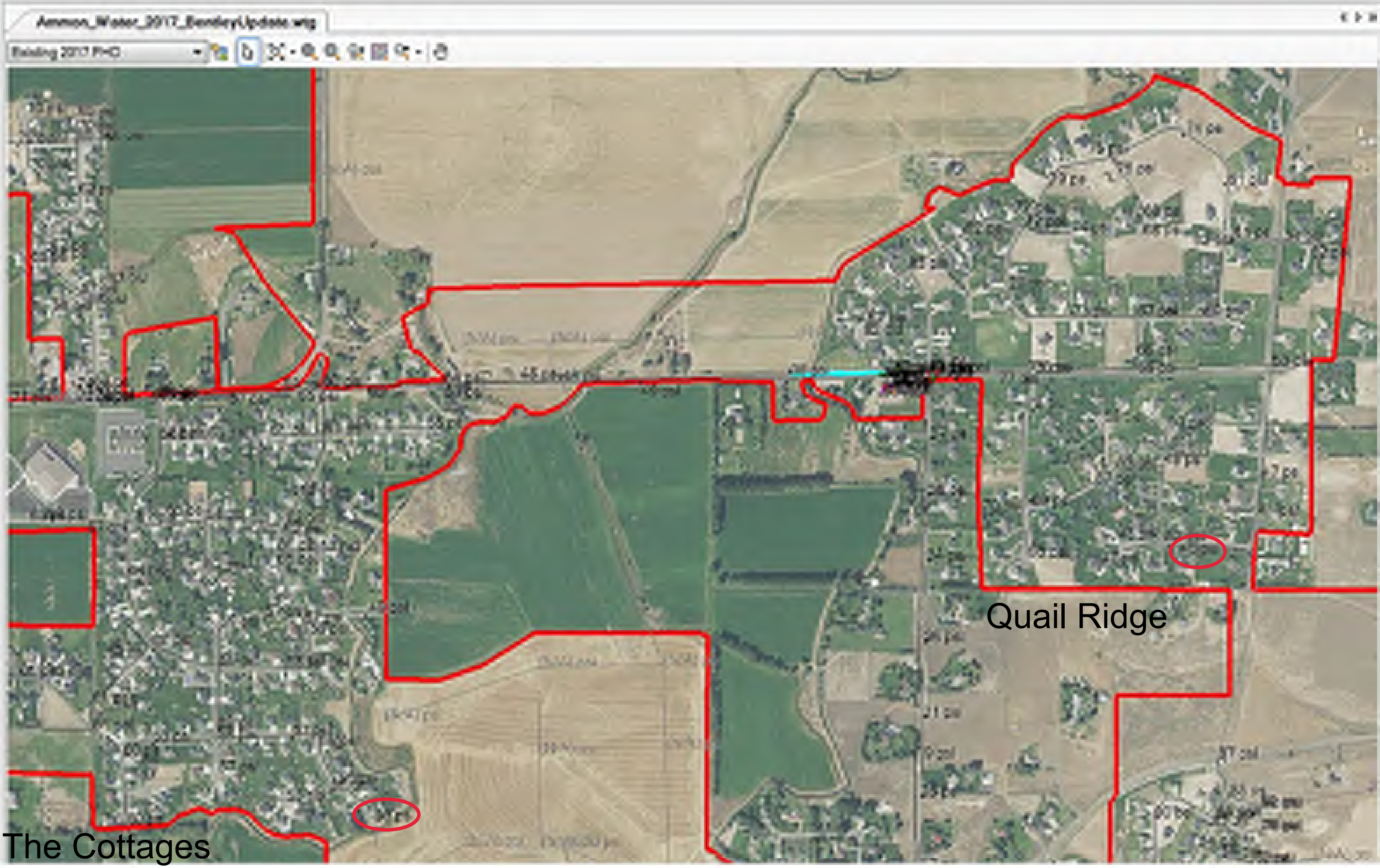
KELLER ASSOCIATES

Ammon 2018 WFPS

Operational Changes at The Cottages and Quail Ridge

Well 11 Bypass: Full Open
21st Street Valve: Closed
Well 9 Interconnect None

PHD Scenario # 6



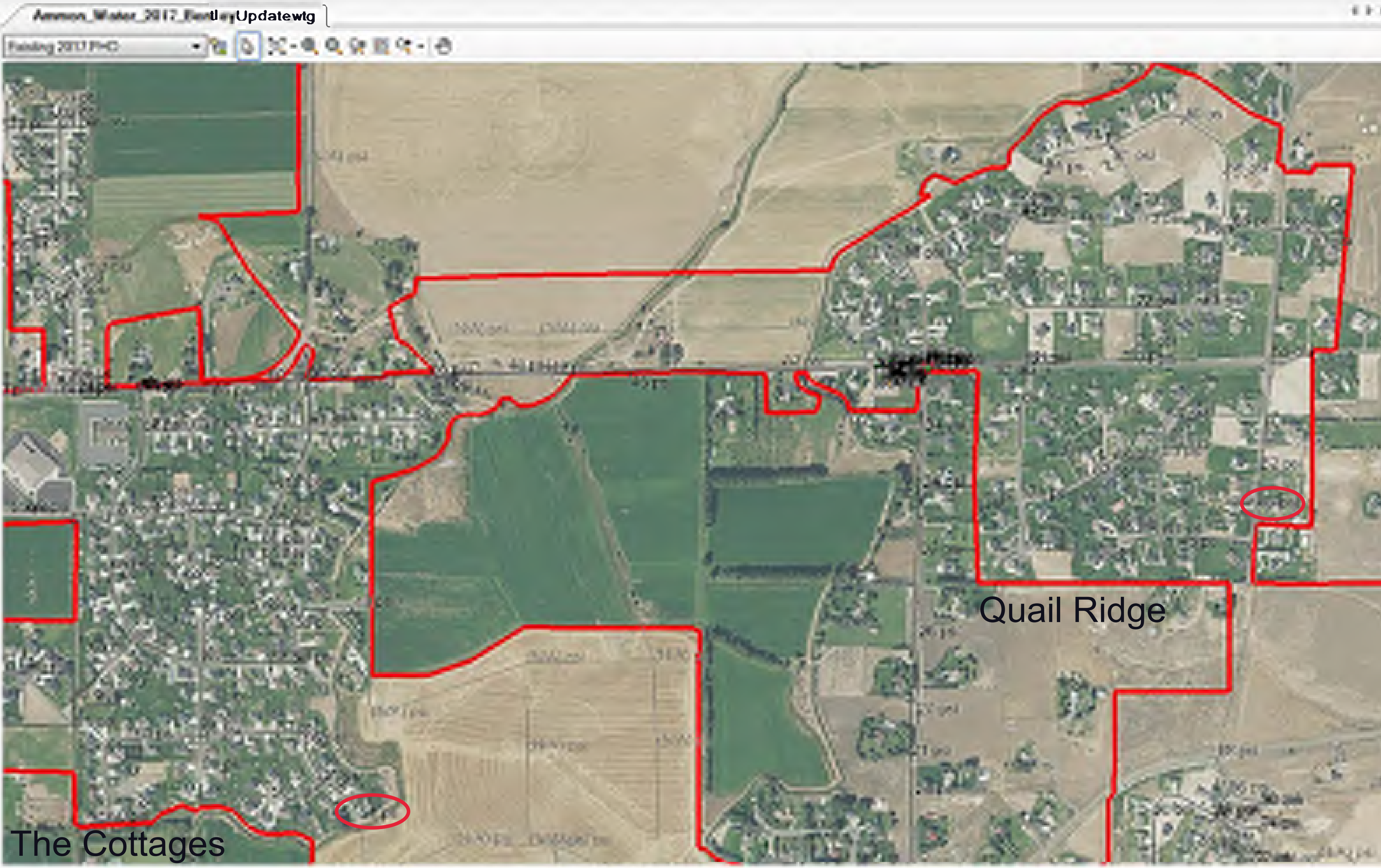
KELLER ASSOCIATES

Ammon 2018 WFPS

Operational Changes at The Cottages and Quail Ridge

Well 11 Bypass: Full Open
21st Street Valve: Open
Well 9 Interconnect: Present

PHD Scenario # 7



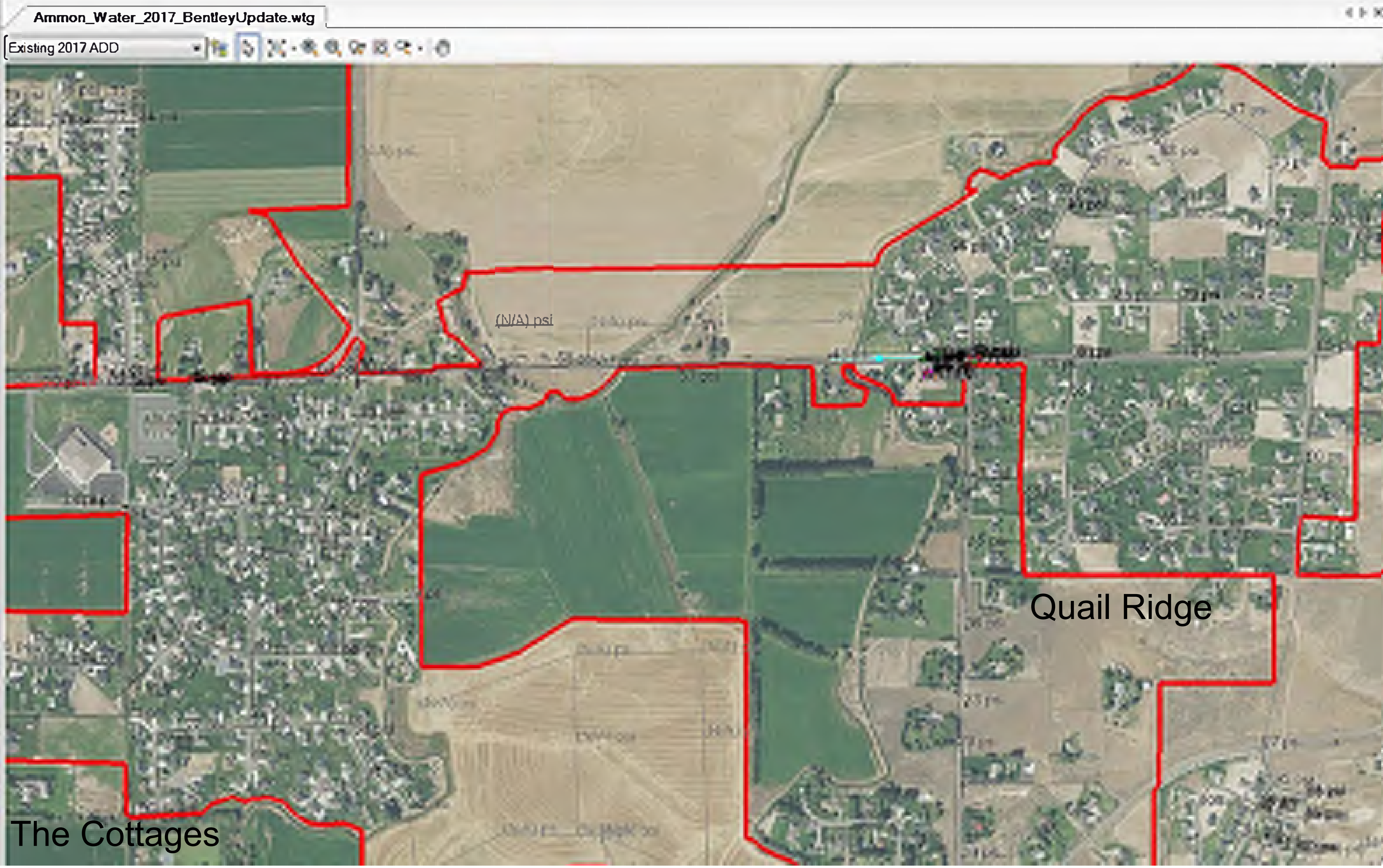
KELLER ASSOCIATES

Ammon 2018 WFPS

Operational Changes at The Cottages and Quail Ridge

Well 1 Bypass: Closed
21sr Street Valve: Open
Well 9 Interconnect: None

ADD Scenario

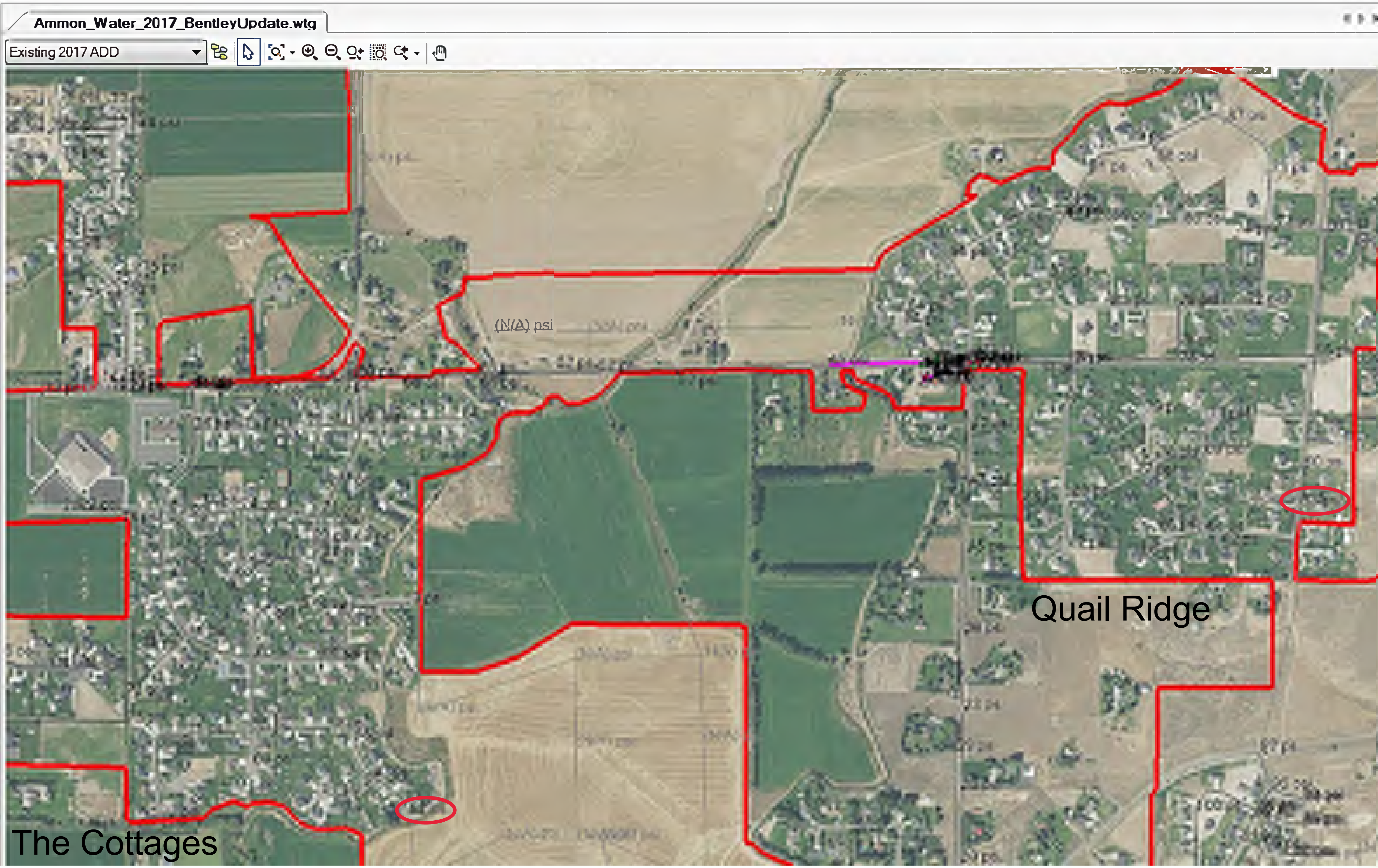


KELLER ASSOCIATES

Operational Changes at The Cottages and Quail Ridge

Well 11 Bypass: Active 21st Street Valve: Closed
Well 9 Interconnect: None

ADD Scenario

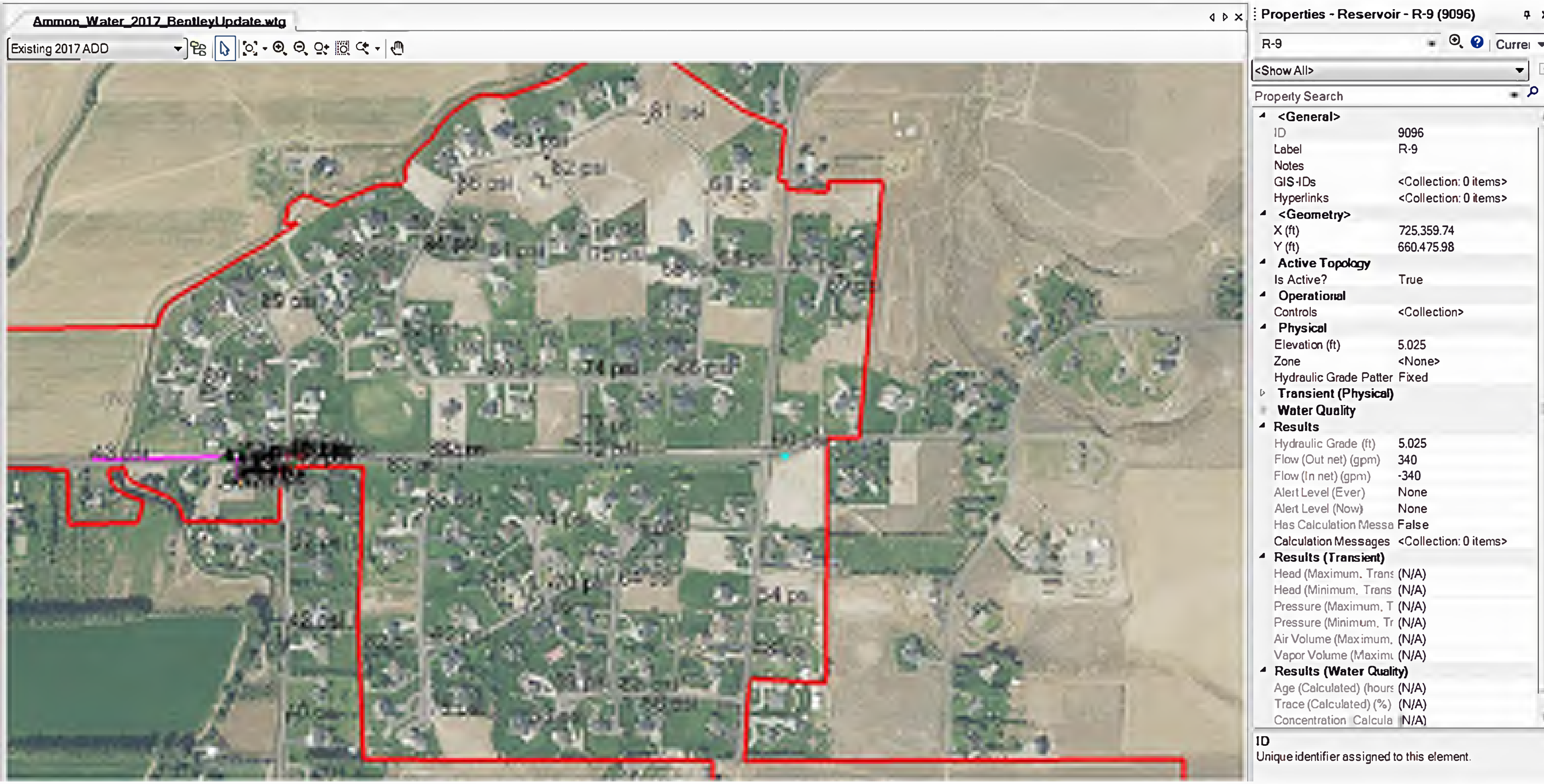


KELLER ASSOCIATES

Ammon 2018 WFPS

Supply from the Top of Quail Ridge - ADD

Well 11 Bypass: Active
21st Street Valve: Closed
Well 9 Interconnect: None

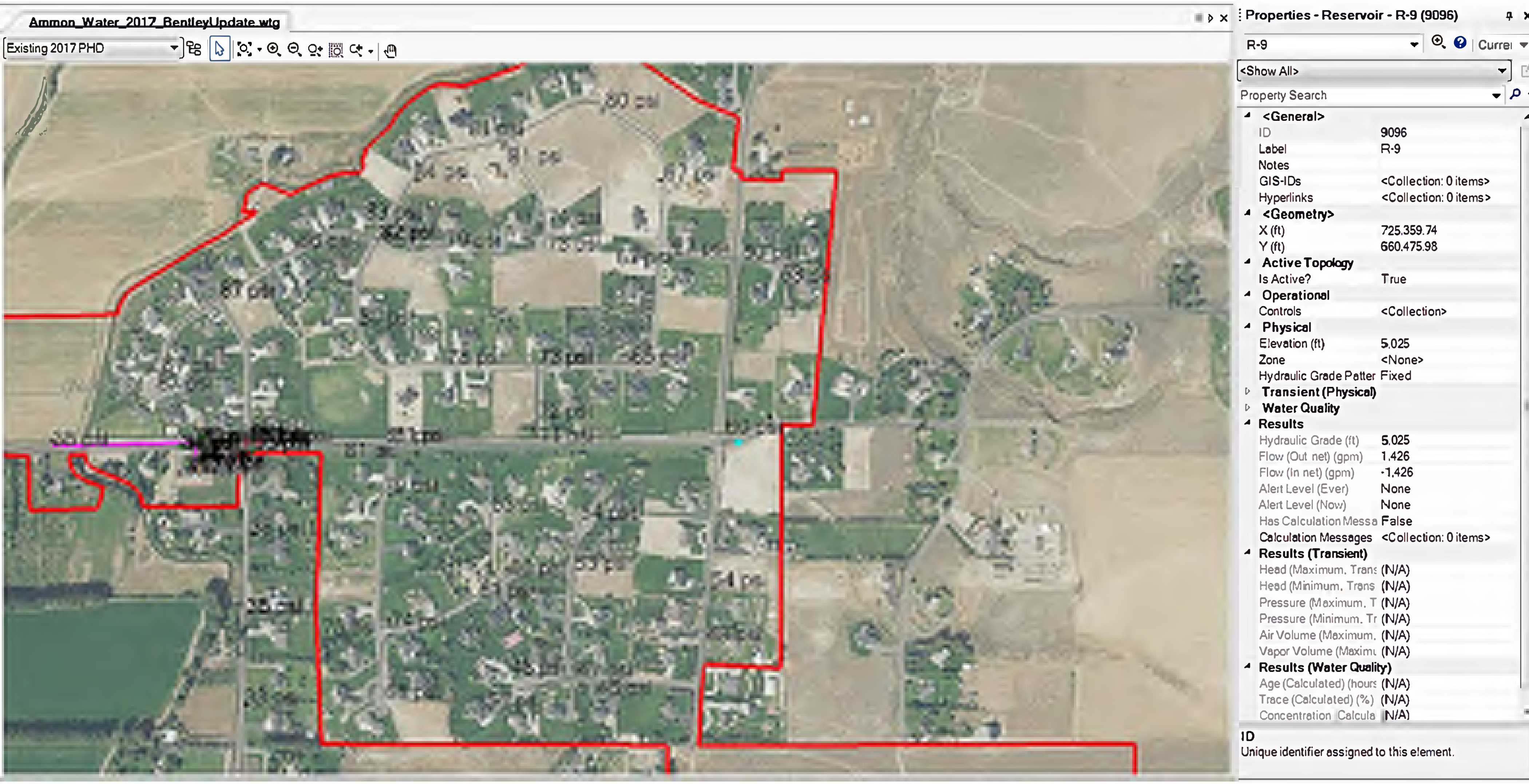


KELLER ASSOCIATES

Ammon 2018 WFPS

Supply from the Top of Quail Ridge - PHD

Well 11 Bypass: Active
21st Street Valve: Closed
Well 9 Interconnect: None



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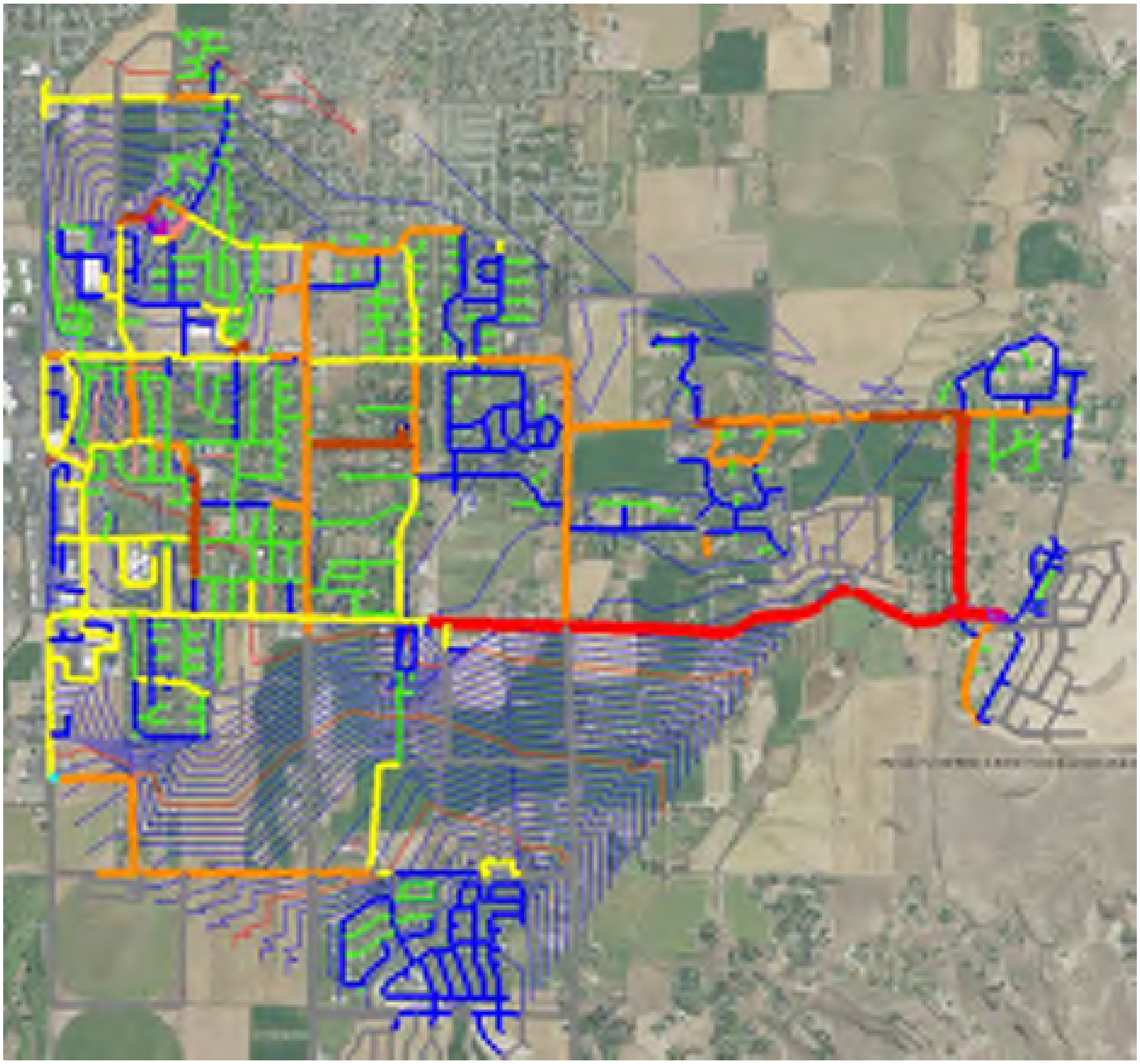
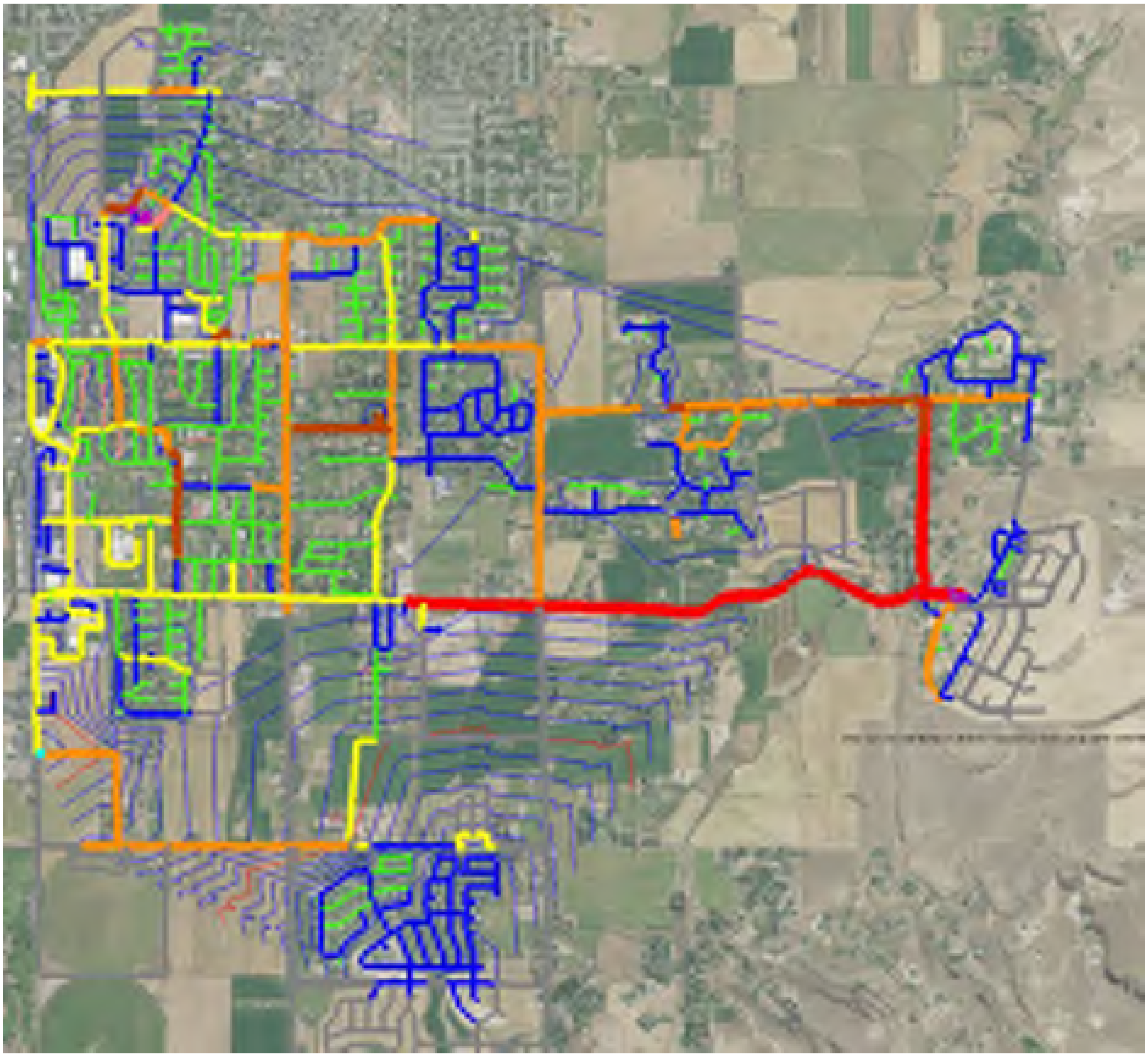
Ammon 2018 WFPS

Zone 1 MDD Hydraulic Contours: Well 10 Off



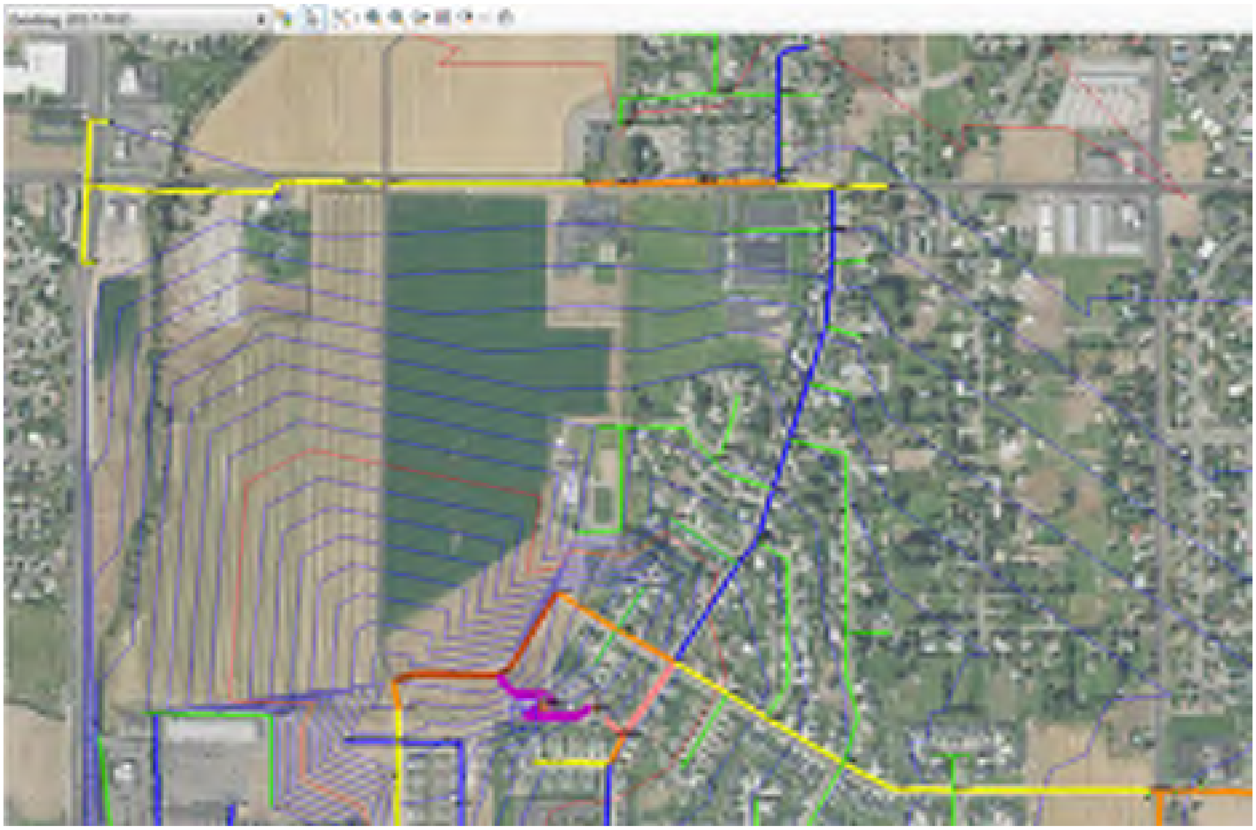
Contours map the hydraulic grade in Zone 1 when Well 10 is turned off (any pump offline requirement). Each blue contour crossed represents a pressure drop of 1 psi. Red contours represent 10 psi drop. The losses felt by the system in trying to feed Woodland Hills are evident.

Zone 1 MDD Hydraulic Contours: All Wells On



Contours map the hydraulic grade in Zone 1 with all wells on. Each blue contour crossed represents a pressure drop of 1 psi. Red contours represent 10 psi drop. Even with Well 10 operating, only one significant transmission line to Woodland Hills results in significant head losses.

1st Street Bottleneck During PHD



Hydraulic contours show the bottleneck resulting from having only a single 8-inch line feeding the demands at Fox Hollow and 1st Street. Blue contours represent a 1 psi drop, red contours represent a 10 psi drop.

Determination of Optimal Location For:

Woodland Hills Tank and Booster Station

Booster stations were modeled as reservoir at the locations and surface elevations shown.
Well 10 off for all scenarios.

		No Improvement				12" on Ammon Rd only			
Node	FF Demand	MDD	PHD	MDD+FF	FF Available	MDD	PHD	MDD+FF	FF Available
J-127 (hydrant at Millcreek and Lakefield)	1500	**46**	**1**	**38**	**201**	**59**	**26**	**37**	**809**
J-171 (hydrant on Hitt Rd north of Well 10)	1500	66	35	56	498	73	49	45	2,112
J-548 (hydrant at Summerwood and Taylorview)	1500	71	46	37	1,352	72	48	25	1,696
J-841 (Ross Avenue)	1500	66	40	46	564	71	50	25	1,333
J-1068 (Morning Mist and Frontier)	1500	69	49	58	1,607	69	48	58	1,596
J-1581 (5980 S Dry Ridge)	1500	**33**	**-12**	**25**	**180**	**47**	**13**	**25**	**623**
J-AmmonTownSquare	3500	68	46	46	1,788	69	46	38	2,213

		New Booster at Township & Sweetwater				New Booster 300' south of Tawzer Way			
	FF Demand	MDD	PHD	MDD+FF	FF Available	MDD	PHD	MDD+FF	FF Available
J-127 (hydrant at Millcreek and Lakefield)	1500	**65**	**58**	**37**	**1,564**	**58**	**54**	**30**	**3,000**
J-171 (hydrant on Hitt Rd north of Well 10)	1500	76	72	52	3,000	71	60	38	3,000
J-548 (hydrant at Summerwood and Taylorview)	1500	75	67	25	1,903	73	58	25	1,769
J-841 (Ross Avenue)	1500	74	71	25	1,515	70	60	25	1,378
J-1068 (Morning Mist and Frontier)	1500	71	63	53	2,467	70	57	56	1,936
J-1581 (5980 S Dry Ridge)	1500	**52**	**45**	**25**	**981**	**46**	**45**	**25**	**1,525**
J-AmmonTownSquare	3500	71	63	25	3,231	69	56	25	2,975
		Res Elev.: 4880				Res Elev.: 4850			

		New Booster at Township & Sweetwater				New Booster 300' south of Tawzer Way			
w/ looping lines around Section	FF Demand	MDD	PHD	MDD+FF	FF Available	MDD	PHD	MDD+FF	FF Available
J-127 (hydrant at Millcreek and Lakefield)	1500	**64**	**59**	**37**	**1,733**	**58**	**54**	**32**	**3,000**
J-171 (hydrant on Hitt Rd north of Well 10)	1500	75	70	50	3,000	70	60	38	3,000
J-548 (hydrant at Summerwood and Taylorview)	1500	74	66	25	1,884	72	58	25	1,766
J-841 (Ross Avenue)	1500	73	69	25	1,493	69	60	25	1,377
J-1068 (Morning Mist and Frontier)	1500	71	62	55	2,277	70	57	56	1,922
J-1581 (5980 S Dry Ridge)	1500	**51**	**45**	**25**	**1,010**	**46**	**45**	**25**	**1,526**
J-AmmonTownSquare	3500	70	62	25	3,194	69	56	25	2,973
		Res Elev.:	4874			Res Elev.:	4849		

KELLER associates

☐ Meridian Office (208) 288-1992
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☐ Pocatello Office (208) 238-2146
☐ Clarkston Office (509) 295-6085
☐ Salem Office (503) 364-2002
☐ Rock Springs Office (307) 382-7454

Project Name: Ammon Wells
Calculated By: M. Fitzgerald Date: 3/20/18
Project No: 216102 Sheet: 1 of 1

Ammon Well 11 pumping cost savings at 73 psi vs 91 psi

2016 production: 513,863,891 gallons
Assumed pumping rate: 3000 gpm
Reduced pressure: 18 psi
Assumed pump efficiency: 0.8

$\frac{513,863,891 \text{ gallons}}{3,000 \text{ gpm}} = 171,288 \text{ minutes} = 2,854 \text{ hrs}$

$\frac{(3000 \text{ gpm})(18 \text{ psi})(2.31 \text{ ft/psi})}{(3960)(0.8)} = 39.4 \text{ hp} = 29.39 \text{ kW}$

$(29.39 \text{ kW})(2,854 \text{ hrs}) = 83,902 \text{ kWhrs}$

Assume \$0.10/kwhr

$(83,902 \text{ kW hrs})(\$0.10/\text{kW hr}) = \underline{\underline{\$8,390/\text{yr savings}}}$

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Appendix E: Alternative Development/Capital Improvement Plan

- Capital Improvement Plan Detail Sheets
- Rate Impact Evaluation
- Water Rights Purchase Summary

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ID#	Item	Cost	Need Addressed
Contracted Improvements (Start in 2018)			
WH TANK AND BS	2.0 MG Tank and 3,000 GPM Booster Station	$ 3,849,000	Storage and Delivery
ZONE 2 Split	Split Zone 2 into upper and lower subzones	$ 632,000	Low Pressure, Fire Flow
QL RDG LOOP	8-inch loop from Foothill Rd to Sharptail Rd	$ 69,000	Low Pressure, Fire Flow
FALCON	Replace undersized and deteriorating water lines and service lines in the Hillview and Original Townsite neighborhoods. Improve fire flows.	$ 294,000	Undersized and Leaking Lines
EAGLE		$ 355,000	Undersized and Leaking Lines
DOVE		$ 388,000	Undersized and Leaking Lines
CURLEW		$ 496,000	Undersized and Leaking Lines
BITTERN		$ 381,000	Undersized and Leaking Lines
AVOCET		$ 443,000	Undersized and Leaking Lines
HILLAM		$ 83,000	Undersized and Leaking Lines
SAWTOOTH		$ 279,000	Undersized and Leaking Lines
TETON		$ 196,000	Undersized and Leaking Lines
SALMON		$ 247,000	Undersized and Leaking Lines
RAWSON		$ 369,000	Undersized and Leaking Lines
OWEN		$ 318,000	Undersized and Leaking Lines
MOLEN		$ 309,000	Undersized and Leaking Lines
WESTERN		$ 427,000	Undersized and Leaking Lines
ROSEDALE		$ 273,000	Undersized and Leaking Lines
ROMRELL		$ 367,000	Undersized and Leaking Lines
CENTRAL		$ 353,000	Undersized and Leaking Lines
MEADOW		$ 268,000	Undersized and Leaking Lines
TARGHEE		$ 105,000	Undersized and Leaking Lines
WELL 6	Well, Tank, and Booster Station Improvements	$ 1,015,000	Supply, Storage, and Delivery
W6 STORAGE	Additional 0.5 MG Storage at Well 6	$ 1,457,000	Storage
	Total Priority 1 Improvements	***$ 12,973,000***	

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ID#	Item	Cost	Need Addressed
Contracted Improvements (Start in 2018)			
WH TANK AND BS	2.0 MG Tank and 3,000 GPM Booster Station	$ 3,849,000	Storage and Delivery
ZONE 2 SPLIT	Split Zone 2 into lower and upper subzones	$ 632,000	Low Pressure, Fire Flow
QL RDG LOOP	8-inch loop from Foothill Rd to Sharptail Rd	$ 69,000	Low Pressure, Fire Flow
ORIGINAL TOWNSITE	Replace undersized and failing water lines	$ 5,951,000	Undersized and Leaking Lines
WELL 6*	Well, Tank, and Booster Station Improvements	$ 1,015,000	Supply, Storage, and Delivery
W6 STORAGE*	Additional 0.5 MG Storage at Well 6	$ 1,457,000	Storage
	Total Contracted Improvements	***$ 12,973,000***	

ID#	Item	Cost	Need Addressed
City Improvements (Start in 2018)			
ASPEN LN	Replace 2-inch line with new 8-inch line and hydrant	$ 63,000	Undersized Line
1st ST LOOP	12-inch loop from Curlew to 1st St.	$ 294,000	Looping and Fire Flow
LDY HK LOOP	8-inch loop to Crowley Rd	$ 80,000	Looping and Fire Flow
SOUTH LOOP	16-inch loop from Sunnyside to Township	$ 888,000	Looping to South Side
COTTAGES LOOP**	12-inch connection from Sunnyside to Tildy Ln	$ 183,000	Low Pressure, Fire Flow
	Total City Improvements	***$ 1,508,000***	

ID#	Item	Cost	Need Addressed
Developer Improvements (Start in 2018)			
WH WELL	16-inch dia. X 350-foot, 2,600 gpm Well	$ 257,000	Supply on south side
WH WELLHOUSE	15' X 30' Wellhouse w/generator	$ 777,000	Supply on south side
FOX HLW LOOP**	8-inch loop in Fox Hollow Subdivision	$ 149,000	Looping and Fire Flow
	Total Developer Improvements	***$ 1,183,000***	

Total All Improvements $ 15,664,000

*Improvements at Well 6 are not required to meet immediate deficiencies but should be pursued as system demands warrant.
**To be completed only if developer activities (Fox Hollow) or optimization efforts (The Cottages) do not address these distribution issues.

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Water Capital Improvements Project

Project Identifier: ASPEN LN

Objectives: Replace undersized 2-inch galvenized line with new 8-inch ductile iron line. Include hydrant at the east end for flushing.

Potential Issues:
-

Project Location:
Aspen Lane off of Ross Avenue

General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
8-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 60	500	$ 30,000
Existing Utility Protection	LF	$ 4	500	$ 2,000
Traffic Control - Without Flagging	LF	$ 4	500	$ 2,000
1/2 Lane Pavement Repair	LF	$ 20	50	$ 1,000
Gravel Repair	LF	$ 8	450	$ 3,600
Valley Gutter	SY	$ 110	3	$ 330
1" Service w/o Asphalt Patch	EA	$ 2,700	3	$ 8,100
Subtotal				***$ 47,030***
Mobilization - Percent of Item Cost Sum	%	6%		$ 2,822
Contingency - % of construction costs	%	10%		$ 4,703
Total Construction Costs				***$ 54,555***
Engineering and CMS - % of construction costs	%	15%		$ 8,183
Total Project Cost (rounded)	***$63,000***			

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Water Capital Improvements Project

Project Identifier: 1st ST LOOP

Objectives: Provide fire flow and loop

Potential Issues: Easement for waterline
-

Project Location:

1st Street to Curlew Dr.

General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
12-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 80	2470	$ 197,600
HWY Repair (Full Lane, Deep Base)	LF	$ 52	40	$ 2,080
8-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 60	335	$ 20,100
Subtotal				***$ 219,780***
Mobilization - Percent of Item Cost Sum	%	6%		$ 13,187
Contingency - % of construction costs	%	10%		$ 21,978
Total Construction Costs				***$ 254,945***
Engineering and CMS - % of construction costs	%	15%		$ 38,242
Total Project Cost (rounded)	***$294,000***			

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Water Capital Improvements Project

Project Identifier: LDY HK LOOP

Objectives: Looping, Fire Flows
-

Potential Issues:
-

Project Location:
Lady Hawk Lane to Crowley Road

General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
8-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 60	730	$ 43,800
Canal Crossing	LS	$ 15,000	1	$ 15,000
1/2 Lane Pavement Repair	LF	$ 20	40	$ 800
Subtotal				***$ 59,600***
Mobilization - Percent of Item Cost Sum	%	6%		$ 3,576
Contingency - % of construction costs	%	10%		$ 5,960
Total Construction Costs				***$ 69,136***
Engineering and CMS - % of construction costs	%	15%		$ 10,370
Total Project Cost (rounded)	***$80,000***			

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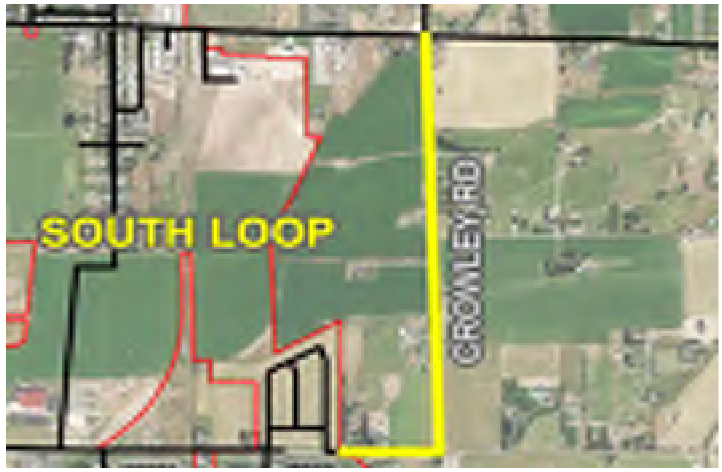
Water Capital Improvements Project

Project Identifier: SOUTH LOOP

Objectives: Provide fire flow and additional supply to south end of town by constructing a new transmission line between Sunnyside Rd. and Township Rd. This could occur on either Ammon Rd. (possibility to team with county on road repair costs) or on Crowley Rd. (reduces supply vulnerability by supply Woodland Hills from the other side). Our recommendation is for Crowley Rd. as it is the most advantageous from a circulation standpoint.

Potential Issues:
-

Project Location:
Sunnyside Rd to Township Rd



General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
16-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 95	6250	$ 593,750
1/2 Lane Pavement Repair	LF	$ 20	1000	$ 20,000
Miscellaneous Surface Repair	LF	$ 5	5250	$ 26,250
Traffic Control - Without Flagging	LF	$ 4	6250	$ 25,000
Subtotal				***$ 665,000***
Mobilization - Percent of Item Cost Sum	%	6%		$ 39,900
Contingency - % of construction costs	%	10%		$ 66,500
Total Construction Costs				***$ 771,400***
Engineering and CMS - % of construction costs	%	15%		$ 115,710
Total Project Cost (rounded)	***$888,000***			

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Water Capital Improvements Project

Project Identifier: SOUTH LOOP
ALTERNATE - AMMON RD

Objectives: Alternate version of the SOUTH LOOP Improvements on Crowley Rd. The City may have the opportunity to partner with the County on road repair if located on Ammon Rd.

Potential Issues:
-

Project Location:
Sunnyside Rd to Township Rd

General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
16-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 95	5150	$ 489,250
1/2 Lane Pavement Repair	LF	$ 20	1000	$ 20,000
Traffic Control - Without Flagging	LF	$ 4	5150	$ 20,600
Miscellaneous Surface Repair	LF	$ 5	4150	$ 20,750
Subtotal				***$ 550,600***
Mobilization - Percent of Item Cost Sum	%	6%		$ 33,036
Contingency - % of construction costs	%	10%		$ 55,060
Total Construction Costs				***$ 638,696***
Engineering and CMS - % of construction costs	%	15%		$ 95,804
Total Project Cost (rounded)	***$735,000***			

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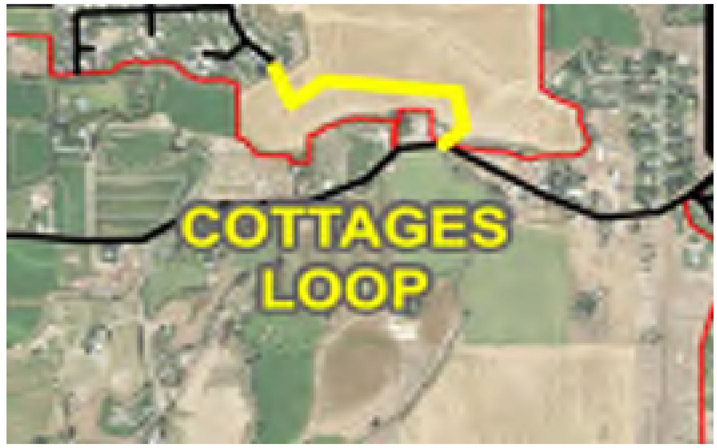
Water Capital Improvements Project

Project Identifier: Cottages Looping Line

Objectives: Provide additional flow into The Cottages by connecting them to the gravity line on Sunnyside Rd.

Potential Issues:
This improvement may not be necessary immediately if operational changes are made such that flow availability from the lines on 21st St is increased.

Project Location:
Sunnyside Road above Cottages



General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
12-inch Piping to Connect to Cottages	LF	$ 50	2200	$ 110,000
Canal Crossing	LS	$ 10,000	1	$ 10,000
1/2 Lane Pavement Repair	LF	$ 20	25	$ 500
Gravel Repair	LF	$ 8	75	$ 600
Traffic Control - Without Flagging	LS	$ 5,000	1	$ 5,000
Subtotal				***$ 126,100***
Mobilization - Percent of Item Cost Sum	%	6%		$ 7,566
Contingency - % of construction costs	%	20%		$ 25,220
Total Construction Costs				***$ 158,886***
Engineering and CMS - % of construction costs	%	15%		$ 23,833
Total Project Cost (rounded)	***$183,000***			

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Water Capital Improvements Project

Project Identifier: Woodland Hills Well

Objectives: Increase Zone 1 supply, storage, and delivery

Potential Issues: Land Aquisition

Project Location:
Hazelwood Way in Woodland Hills

General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
Mobilization	LS	$ 10,000	1	$ 10,000
8-inch Test/Pilot Hole	LF	$ 70	350	$ 24,500
Grout seal	CY	$ 500	13	$ 6,500
24-inch drill and case (Remove temp casing)	LF	$ 250	60	$ 15,000
24-inch drill	LF	$ 200	60	$ 12,000
20-inch casing	LF	$ 96	120	$ 11,520
20-inch drill and case	LF	$ 170	60	$ 10,200
20-inch drill	LF	$ 140	80	$ 11,200
16-inch casing	LF	$ 68	260	$ 17,680
16-inch drill	LF	$ 140	90	$ 12,600
14-inch SS Screen	LF	$ 160	90	$ 14,400
Well Development	HR	$ 300	8	$ 2,400
Pump Test Mob	LS	$ 10,000	1	$ 10,000
Pump Test (2,500 gpm)	HR	$ 300	24	$ 7,200
Discharge Piping	LF	$ 20	500	$ 10,000
Well Permit	LF	$ 200	1	$ 200
Water Quality Testing	LS	$ 3,000	1	$ 3,000
Subtotal				***$ 178,400***
Contingency - % of construction costs	%	20%		$ 35,680
Total Construction Costs				***$ 214,080***
Engineering and CMS - % of construction costs	%	20%		$ 42,816
Total Project Cost (rounded)	***$257,000***			

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Water Capital Improvements Project

Project Identifier: WH Wellhouse

Objectives: Increase Zone 1 supply at south end

Potential Issues: Land Aquisition

Project Location:

Hazelwood Way in Woodland Hills

General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
Mobilization	LS	$ 10,000	1	$ 10,000
Underground Piping/Connect to Existing	LS	$ 50,000	1	$ 50,000
Wellhouse Structure - CMU Construction	SF	$ 150	450	$ 67,500
Pump and Motor	LS	$ 60,000	1	$ 60,000
Wellhouse Mechanical	LS	$ 45,000	1	$ 45,000
Wellhouse Electrical	LS	$ 90,000	1	$ 90,000
Sitework/Landscaping	LS	$ 100,000	1	$ 100,000
Generator	LS	$ 80,000	1	$ 80,000
Generator Enclosure	LS	$ 50,000	1	$ 50,000
Fencing	LF	$ 25	400	$ 10,000
Subtotal				***$ 562,500***
Contingency - % of construction costs	%	20%		$ 112,500
Total Construction Costs				***$ 675,000***
Engineering and CMS - % of construction costs	%	15%		$ 101,250
Total Project Cost (rounded)	***$777,000***			

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Water Capital Improvements Project

Project Identifier: FOX HLW LOOP

Objectives: Provide fire flow and looping improvements to the area. Current development taking place to the west of proposed line may tie into Fox Hollow and eliminate the need for this improvement.

Potential Issues: Easement for waterline
-

Project Location:
1st Street to Cross Lane

General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
8-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 60	1600	$ 96,000
Canal Crossing	LS	$ 15,000	1	$ 15,000
Subtotal				***$ 111,000***
Mobilization - Percent of Item Cost Sum	%	6%		$ 6,660
Contingency - % of construction costs	%	10%		$ 11,100
Total Construction Costs				***$ 128,760***
Engineering and CMS - % of construction costs	%	15%		$ 19,314
Total Project Cost (rounded)	***$149,000***			

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Water Capital Improvements Project

Project Identifier: Woodland Hills Tank and Booster Station

Objectives: Increase Zone 1 storage, supply, and delivery. Provide a infrastructure redundancy for the south end of Ammon's water system.

Potential Issues: Land Aquisition

Project Location:

Hazelwood Way in Woodland Hills

General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
Land Acquisition	AC	$ 30,000	1.5	$ 45,000
Convert Wellhouse to Booster Station	LS	$ 405,000	1	$ 405,000
2.0 MG Water Storage Tank	LS	$ 1,800,000	1	$ 1,800,000
Sitework and Piping	LS	$ 265,000	1	$ 265,000
Generator and Enclosure Upsize	LS	$ 75,000	1	$ 75,000
Electrical Service	LS	$ 20,000	1	$ 20,000
SCADA System	LS	$ 20,000	1	$ 20,000
Fencing	LF	$ 25	1050	$ 26,250
Subtotal				***$ 2,656,250***
Mobilization - Percent of Item Cost Sum	%	6%		$ 159,375
Contingency - % of construction costs	%	20%		$ 531,250
Total Construction Costs				***$ 3,346,875***
Engineering and CMS - % of construction costs	%	15%		$ 502,031
Total Project Cost (rounded)	***$3,849,000***			

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Water Capital Improvements Project

Project Identifier: Well 6 Improvements

Objectives: Increase Zone 1 supply, storage, and delivery

Potential Issues:

Project Location:
Well 6

General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
Repair Existing Well (2,000 gpm target)	LS	$ 100,000	1	$ 100,000
Water Storage Tank Improvements	LS	$ 120,000	1	$ 120,000
Booster Station w/Generator	LS	$ 440,000	1	$ 440,000
Electrical Service	LS	$ 20,000	1	$ 20,000
SCADA System	LS	$ 20,000	1	$ 20,000
Subtotal				***$ 700,000***
Mobilization - Percent of Item Cost Sum	%	6%		$ 42,000
Contingency - % of construction costs	%	20%		$ 140,000
Total Construction Costs				***$ 882,000***
Engineering and CMS - % of construction costs	%	15%		$ 132,300
Total Project Cost (rounded)	***$1,015,000***			

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Water Capital Improvements Project

Project Identifier: Well 6 Additional Storage

Objectives: Increase Zone 1 supply storage

Potential Issues:

Project Location:
Well 6

General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
0.5 MG Water Storage Tank	LS	$ 865,000	1	$ 865,000
18-inch Piping	LF	$ 100	500	$ 50,000
Connect to Existing	LS	$ 30,000	1	$ 30,000
Tank Appurtenances	LS	$ 50,000	1	$ 50,000
Fencing	LF	$ 25	420	$ 10,500
Subtotal				***$ 1,005,500***
Mobilization - Percent of Item Cost Sum	%	6%		$ 60,330
Contingency - % of construction costs	%	20%		$ 201,100
Total Construction Costs				***$ 1,266,930***
Engineering and CMS - % of construction costs	%	15%		$ 190,040
Total Project Cost (rounded)	***$1,457,000***			

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Water Capital Improvements Project

Project Identifier: Zone 2 Split - Inline Pumps on 21st Street

Objectives: Create an Upper and Lower pressure zones within Zone 2 to provide better top and bottom pressures to residents. Use inline pumps (no building) at the zone boundary to boost pressures supplied by PS 9.

Potential Issues: Possibility of rock or other issues crossing gully between Zones 2 and 3. Five borderline homes on Bobwhite and Pinehen will have service brought through back yards to Foothill or 21st St to bring them onto upper zone. Looping line from Foothill Dr to Sharptail is a separate project.

Project Location:

Zone 2

General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
1,000 GPM Baker Monitor Booster Station (two 15 hp pumps)	LS	$ 200,000	1	$ 200,000
8-inch Piping to Connect to Zone 3	LF	$ 60	1384	$ 83,040
8-inch Piping within Zone 2	LF	$ 60	729	$ 43,740
PRV w/ Vault	LS	$ 10,000	4	$ 40,000
SCADA System	LS	$ 10,000	1	$ 10,000
1/2 Lane Pavement Repair	LF	$ 20	469	$ 9,380
Miscellaneous Surface Repair	LF	$ 5	1,644	$ 8,220
Disconnect Service w/ Asphalt Patch	EA	$ 1,000	5	$ 5,000
1" Service w/ Asphalt Patch	EA	$ 3,000	5	$ 15,000
Land Purchase	LS	$ 20,000	1	$ 20,000
Fencing	LF	$ 25	60	$ 1,500
Subtotal				***$ 435,880***
Mobilization - Percent of Item Cost Sum	%	6%		$ 26,153
Contingency - % of construction costs	%	20%		$ 87,176
Total Construction Costs				***$ 549,209***
Engineering and CMS - % of construction costs	%	15%		$ 82,381
Total Project Cost (rounded)	***$632,000***			

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Water Capital Improvements Project

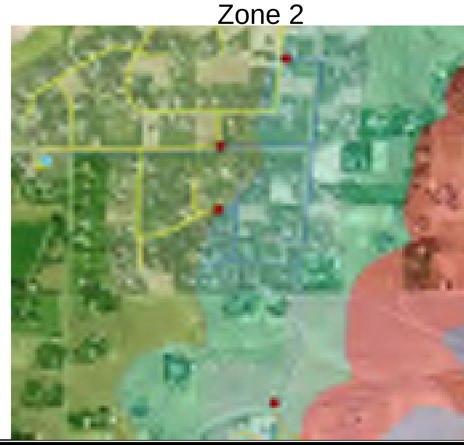
Project Identifier: Zone 2 Split - Pumps at Well 9

Objectives: Create an Upper and Lower pressure zones within Zone 2 to provide better top and bottom pressures to residents. This alternative was ruled out as the alternate version, which includes an inline pump on 21st St. proved to be more cost effective (see Zone 2 Split-Inline tab).

Potential Issues: Possibility of rock or other issues crossing gully between Zones 2 and 3. Five borderline homes on Bobwhite and Pinehen will have service brought through back yards to Foothill or 21st St to bring them onto upper zone. Looping line from Foothill Dr to

Project Location:

Zone 2



General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
Site Piping and Valves	LS	$ 50,000	1	$ 50,000
1,000 GPM Booster Station (two 26 hp pumps)	EA	$ 40,000	2	$ 80,000
8-inch Piping to Connect to Zone 3	LF	$ 60	1384	$ 83,040
8-inch Piping within Zone 2	LF	$ 60	2427	$ 145,620
PRV w/ Vault	LS	$ 10,000	4	$ 40,000
SCADA System	LS	$ 10,000	1	$ 10,000
1/2 Lane Pavement Repair	LF	$ 20	635	$ 12,700
Miscellaneous Surface Repair	LF	$ 5	3,176	$ 15,880
Disconnect Service w/ Asphalt Patch	EA	$ 1,000	5	$ 5,000
1" Service w/ Asphalt Patch	EA	$ 3,000	5	$ 15,000
Subtotal				***$ 457,240***
Mobilization - Percent of Item Cost Sum	%	6%		$ 27,434
Contingency - % of construction costs	%	20%		$ 91,448
Total Construction Costs				***$ 576,122***
Engineering and CMS - % of construction costs	%	15%		$ 86,418
Total Project Cost (rounded)	***$663,000***			

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Water Capital Improvements Project

Project Identifier: QL RDG LOOP

Objectives: Provide fire flow and loop

Potential Issues:
-

Project Location:
Foothill Rd to Sharptail Rd

General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
8-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 60	690	$ 41,400
1/2 Lane Pavement Repair	LF	$ 20	485	$ 9,700
Subtotal				***$ 51,100***
Mobilization - Percent of Item Cost Sum	%	6%		$ 3,066
Contingency - % of construction costs	%	10%		$ 5,110
Total Construction Costs				***$ 59,276***
Engineering and CMS - % of construction costs	%	15%		$ 8,891
Total Project Cost (rounded)	***$69,000***			

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Water Capital Improvements Project

Project Identifier: FALCON

Objectives: Upgrade deteriorating lines to
-Provide adequate supply to high density housing areas.
-Provide adequate Fire Flow

Potential Issues:
-

Project Location:
Falcon Dr. between Salmon St. and Sawtooth St.

General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
8-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 60	1332	$ 79,920
1" Service w/o Asphalt Patch	EA	$ 2,700	38	$ 102,600
Existing Utility Protection	LF	$ 4	1332	$ 5,328
Traffic Control - Without Flagging	LF	$ 4	1332	$ 5,328
1/2 Lane Pavement Repair	LF	$ 20	1332	$ 26,640
Subtotal				***$ 219,816***
Mobilization - Percent of Item Cost Sum	%	6%		$ 13,189
Contingency - % of construction costs	%	10%		$ 21,982
Total Construction Costs				***$ 254,987***
Engineering and CMS - % of construction costs	%	15%		$ 38,248
Total Project Cost (rounded)	***$294,000***			

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Water Capital Improvements Project

Project Identifier: EAGLE

Objectives: Upgrade deteriorating lines to
-Provide adequate supply to high density housing areas.
-Provide adequate Fire Flow

Potential Issues:

Project Location:

Eagle Dr. between Salmon St. and Sawtooth St.

General Line Items	Unit	Unit Price	Estimated Quantity	2014 Cost
8-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 60	1643	$ 98,580
1" Service w/o Asphalt Patch	EA	$ 2,700	45	$ 121,500
Existing Utility Protection	LF	$ 4	1643	$ 6,572
Traffic Control - Without Flagging	LF	$ 4	1643	$ 6,572
1/2 Lane Pavement Repair	LF	$ 20	1643	$ 32,860
Subtotal				***$ 266,084***
Mobilization - Percent of Item Cost Sum	%	6%		$ 15,965
Contingency - % of construction costs	%	10%		$ 26,608
Total Construction Costs				***$ 308,657***
Engineering and CMS - % of construction costs	%	15%		$ 46,299
Total Project Cost (rounded)	***$355,000***			

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Water Capital Improvements Project

Project Identifier: DOVE

Objectives: Upgrade deteriorating lines to
-Provide adequate supply to high density housing areas.
-Provide adequate Fire Flow

Potential Issues:
- Easements may be necessary for some of the pipeline work not in the public right of way.
- Coordination with local and state roadway authorities.
- Canal crossings?

Project Location:
Dove Dr. between Teton St. and Sawtooth St.

General Line Items	Unit	Unit Price	Estimated Quantity	2014 Cost
8-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 60	2260	$ 135,600
1" Service w/o Asphalt Patch	EA	$ 2,700	34	$ 91,800
Existing Utility Protection	LF	$ 4	2260	$ 9,040
Traffic Control - Without Flagging	LF	$ 4	2260	$ 9,040
1/2 Lane Pavement Repair	LF	$ 20	2260	$ 45,200
Subtotal				***$ 290,680***
Mobilization - Percent of Item Cost Sum	%	6%		$ 17,441
Contingency - % of construction costs	%	10%		$ 29,068
Total Construction Costs				***$ 337,189***
Engineering and CMS - % of construction costs	%	15%		$ 50,578
Total Project Cost (rounded)	***$388,000***			

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Water Capital Improvements Project

Project Identifier: CURLEW

Objectives: Upgrade deteriorating lines to
-Provide adequate supply to high density housing areas.
-Provide adequate Fire Flow

Potential Issues:

Project Location:

Curlew Dr. between Teton St. and 17th St.

General Line Items	Unit	Unit Price	Estimated Quantity	2014 Cost
8-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 60	785	$ 47,100
12-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 80	1723	$ 137,840
1" Service w/o Asphalt Patch	EA	$ 2,700	43	$ 116,100
Existing Utility Protection	LF	$ 4	2508	$ 10,032
Traffic Control - Without Flagging	LF	$ 4	2508	$ 10,032
1/2 Lane Pavement Repair	LF	$ 20	2508	$ 50,160
Subtotal				***$ 371,264***
Mobilization - Percent of Item Cost Sum	%	6%		$ 22,276
Contingency - % of construction costs	%	10%		$ 37,126
Total Construction Costs				***$ 430,666***
Engineering and CMS - % of construction costs	%	15%		$ 64,600
Total Project Cost (rounded)	***$496,000***			

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Water Capital Improvements Project

Project Identifier: BITTERN

Objectives: Upgrade deteriorating lines to
-Provide adequate supply to high density housing areas.
-Provide adequate Fire Flow

Potential Issues:
- Use existing casings under runway.

Project Location:

Bittern Dr. between Teton St. and Sawtooth St.

General Line Items	Unit	Unit Price	Estimated Quantity	2014 Cost
8-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 60	1943	$ 116,580
12-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 80	130	$ 10,400
1" Service w/o Asphalt Patch	EA	$ 2,700	37	$ 99,900
Existing Utility Protection	LF	$ 4	2073	$ 8,292
Traffic Control - Without Flagging	LF	$ 4	2073	$ 8,292
1/2 Lane Pavement Repair	LF	$ 20	2073	$ 41,460
Subtotal				***$ 284,924***
Mobilization - Percent of Item Cost Sum	%	6%		$ 17,095
Contingency - % of construction costs	%	10%		$ 28,492
Total Construction Costs				***$ 330,512***
Engineering and CMS - % of construction costs	%	15%		$ 49,577
Total Project Cost (rounded)	***$381,000***			

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Water Capital Improvements Project

Project Identifier: AVOCET

Objectives: Upgrade deteriorating lines to
-Provide adequate supply to high density housing areas.
-Provide adequate Fire Flow

Potential Issues:

Project Location:

Avocet Dr. between Teton St. and 17th St.

General Line Items	Unit	Unit Price	Estimated Quantity	2014 Cost
8-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 60	2482	$ 148,920
1" Service w/o Asphalt Patch	EA	$ 2,700	42	$ 113,400
Existing Utility Protection	LF	$ 4	2482	$ 9,928
Traffic Control - Without Flagging	LF	$ 4	2482	$ 9,928
1/2 Lane Pavement Repair	LF	$ 20	2482	$ 49,640
Subtotal				***$ 331,816***
Mobilization - Percent of Item Cost Sum	%	6%		$ 19,909
Contingency - % of construction costs	%	10%		$ 33,182
Total Construction Costs				***$ 384,907***
Engineering and CMS - % of construction costs	%	15%		$ 57,736
Total Project Cost (rounded)	***$443,000***			

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Water Capital Improvements Project

Project Identifier: HILLAM

Objectives: Upgrade deteriorating lines to
-Provide adequate supply to high density housing areas.
-Provide adequate Fire Flow

Potential Issues:

Project Location:

Hillam Dr. between Rawson St. and Teton St.

General Line Items	Unit	Unit Price	Estimated Quantity	2014 Cost
8-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 60	460	$ 27,600
1" Service w/o Asphalt Patch	EA	$ 2,700	8	$ 21,600
Existing Utility Protection	LF	$ 4	460	$ 1,840
Traffic Control - Without Flagging	LF	$ 4	460	$ 1,840
1/2 Lane Pavement Repair	LF	$ 20	460	$ 9,200
Subtotal				***$ 62,080***
Mobilization - Percent of Item Cost Sum	%	6%		$ 3,725
Contingency - % of construction costs	%	10%		$ 6,208
Total Construction Costs				***$ 72,013***
Engineering and CMS - % of construction costs	%	15%		$ 10,802
Total Project Cost (rounded)	***$83,000***			

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Water Capital Improvements Project

Project Identifier: SAWTOOTH

Objectives: Upgrade deteriorating lines to
-Provide adequate supply to high density housing areas.
-Provide adequate Fire Flow

Potential Issues:

Project Location:

Sawtooth St. between Falcon Dr. and Avocet Dr.

General Line Items	Unit	Unit Price	Estimated Quantity	2014 Cost
8-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 60	1634	$ 98,040
1" Service w/o Asphalt Patch	EA	$ 2,700	24	$ 64,800
Existing Utility Protection	LF	$ 4	1634	$ 6,536
Traffic Control - Without Flagging	LF	$ 4	1634	$ 6,536
1/2 Lane Pavement Repair	LF	$ 20	1634	$ 32,680
Subtotal				***$ 208,592***
Mobilization - Percent of Item Cost Sum	%	6%		$ 12,516
Contingency - % of construction costs	%	10%		$ 20,859
Total Construction Costs				***$ 241,967***
Engineering and CMS - % of construction costs	%	15%		$ 36,295
Total Project Cost (rounded)	***$279,000***			

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Water Capital Improvements Project

Project Identifier: TETON

Objectives: Upgrade deteriorating lines to
-Provide adequate supply to high density housing areas.
-Provide adequate Fire Flow

Potential Issues:

Project Location:

Teton St. between Dove Dr. and Western Ave.

General Line Items	Unit	Unit Price	Estimated Quantity	2014 Cost
8-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 60	1209	$ 72,540
1" Service w/o Asphalt Patch	EA	$ 2,700	15	$ 40,500
Existing Utility Protection	LF	$ 4	1209	$ 4,836
Traffic Control - Without Flagging	LF	$ 4	1209	$ 4,836
1/2 Lane Pavement Repair	LF	$ 20	1209	$ 24,180
Subtotal				***$ 146,892***
Mobilization - Percent of Item Cost Sum	%	6%		$ 8,814
Contingency - % of construction costs	%	10%		$ 14,689
Total Construction Costs				***$ 170,395***
Engineering and CMS - % of construction costs	%	15%		$ 25,559
Total Project Cost (rounded)	***$196,000***			

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Water Capital Improvements Project

Project Identifier: SALMON

Objectives: Upgrade deteriorating lines to
-Provide adequate supply to high density housing areas.
-Provide adequate Fire Flow
.

Potential Issues:

Project Location:

Salmon St. between Falcon Dr. and Bittern Dr.

General Line Items	Unit	Unit Price	Estimated Quantity	2014 Cost
8-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 60	279	$ 16,740
10-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 70	910	$ 63,700
12-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 80	331	$ 26,480
1" Service w/o Asphalt Patch	EA	$ 2,700	13	$ 35,100
Existing Utility Protection	LF	$ 4	1520	$ 6,080
Traffic Control - Without Flagging	LF	$ 4	1520	$ 6,080
1/2 Lane Pavement Repair	LF	$ 20	1520	$ 30,400
Subtotal				***$ 184,580***
Mobilization - Percent of Item Cost Sum	%	6%		$ 11,075
Contingency - % of construction costs	%	10%		$ 18,458
Total Construction Costs				***$ 214,113***
Engineering and CMS - % of construction costs	%	15%		$ 32,117
Total Project Cost (rounded)	***$247,000***			

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Water Capital Improvements Project

Project Identifier: RAWSON

Objectives: Upgrade deteriorating lines to
-Provide adequate supply to high density housing areas.
-Provide adequate Fire Flow
"

Potential Issues:

Project Location:

Rawson St. between Western ave. and Ammon Rd.

General Line Items	Unit	Unit Price	Estimated Quantity	2014 Cost
8-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 60	183	$ 10,980
12-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 80	2274	$ 181,920
1" Service w/o Asphalt Patch	EA	$ 2,700	29	$ 78,300
Existing Utility Protection	LF	$ 4	183	$ 732
Traffic Control - Without Flagging	LF	$ 4	183	$ 732
1/2 Lane Pavement Repair	LF	$ 20	183	$ 3,660
Subtotal				***$ 276,324***
Mobilization - Percent of Item Cost Sum	%	6%		$ 16,579
Contingency - % of construction costs	%	10%		$ 27,632
Total Construction Costs				***$ 320,536***
Engineering and CMS - % of construction costs	%	15%		$ 48,080
Total Project Cost (rounded)			***$369,000***	

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Water Capital Improvements Project

Project Identifier: OWEN

Objectives: Upgrade deteriorating lines to
-Provide adequate supply to high density housing areas.
-Provide adequate Fire Flow

w

Potential Issues:
-Is west 6" line behind the sidewalk?
-If sewer replaced, will road be redone (reduced asphalt patch cost)?

Project Location:

Owen St. between Western Ave. and Ammon Rd.

General Line Items	Unit	Unit Price	Estimated Quantity	2014 Cost
8-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 60	2276	$ 136,560
1" Service w/o Asphalt Patch	EA	$ 2,700	14	$ 37,800
Existing Utility Protection	LF	$ 4	2276	$ 9,104
Traffic Control - Without Flagging	LF	$ 4	2276	$ 9,104
1/2 Lane Pavement Repair	LF	$ 20	2276	$ 45,520
Subtotal				***$ 238,088***
Mobilization - Percent of Item Cost Sum	%	6%		$ 14,285
Contingency - % of construction costs	%	10%		$ 23,809
Total Construction Costs				***$ 276,182***
Engineering and CMS - % of construction costs	%	15%		$ 41,427
Total Project Cost (rounded)	***$318,000***			

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Water Capital Improvements Project

Project Identifier: MOLEN

Objectives: Upgrade deteriorating lines to
-Provide adequate supply to high density housing areas.
-Provide adequate Fire Flow

Potential Issues:
-May be able to share road repair costs with sewer

Project Location:

Molen St. between Western Ave. and Ammon Rd.

General Line Items	Unit	Unit Price	Estimated Quantity	2014 Cost
8-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 60	2262	$ 135,720
1" Service w/o Asphalt Patch	EA	$ 2,700	12	$ 32,400
Existing Utility Protection	LF	$ 4	2262	$ 9,048
Traffic Control - Without Flagging	LF	$ 4	2262	$ 9,048
1/2 Lane Pavement Repair	LF	$ 20	2262	$ 45,240
Subtotal				***$ 231,456***
Mobilization - Percent of Item Cost Sum	%	6%		$ 13,887
Contingency - % of construction costs	%	10%		$ 23,146
Total Construction Costs				***$ 268,489***
Engineering and CMS - % of construction costs	%	15%		$ 40,273
Total Project Cost (rounded)	***$309,000***			

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Water Capital Improvements Project

Project Identifier: WESTERN

Objectives: Upgrade deteriorating lines to
-Provide adequate supply to high density housing areas.
-Provide adequate Fire Flow

Potential Issues:

Project Location:
Western Ave. between Rawson St. and E Sunnyside Rd.

General Line Items	Unit	Unit Price	Estimated Quantity	2014 Cost
14-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 88	2270	$ 199,760
1" Service w/o Asphalt Patch	EA	$ 2,700	21	$ 56,700
Existing Utility Protection	LF	$ 4	2270	$ 9,080
Traffic Control - Without Flagging	LF	$ 4	2270	$ 9,080
1/2 Lane Pavement Repair	LF	$ 20	2270	$ 45,400
Subtotal				***$ 320,020***
Mobilization - Percent of Item Cost Sum	%	6%		$ 19,201
Contingency - % of construction costs	%	10%		$ 32,002
Total Construction Costs				***$ 371,223***
Engineering and CMS - % of construction costs	%	15%		$ 55,683
Total Project Cost (rounded)	***$427,000***			

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Water Capital Improvements Project

Project Identifier: ROSEDALE

Objectives: Upgrade deteriorating lines to
-Provide adequate supply to high density housing areas.
-Provide adequate Fire Flow

Potential Issues:

Project Location:

Rosedale Ln. from E Sunnyside Rd. north to culdesac

General Line Items	Unit	Unit Price	Estimated Quantity	2014 Cost
8-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 60	1862	$ 111,720
1" Service w/o Asphalt Patch	EA	$ 2,700	15	$ 40,500
Existing Utility Protection	LF	$ 4	1862	$ 7,448
Traffic Control - Without Flagging	LF	$ 4	1862	$ 7,448
1/2 Lane Pavement Repair	LF	$ 20	1862	$ 37,240
Subtotal				***$ 204,356***
Mobilization - Percent of Item Cost Sum	%	6%		$ 12,261
Contingency - % of construction costs	%	10%		$ 20,436
Total Construction Costs				***$ 237,053***
Engineering and CMS - % of construction costs	%	15%		$ 35,558
Total Project Cost (rounded)	***$273,000***			

The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the cost presented herein.

Water Capital Improvements Project

Project Identifier: ROMRELL

Objectives: Upgrade deteriorating lines to
-Provide adequate supply to high density housing areas.
-Provide adequate Fire Flow

Potential Issues:
-

Project Location:
Romrell Ln. between E Sunnyside Rd. and Rawson St.

General Line Items	Unit	Unit Price	Estimated Quantity	2014 Cost
8-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 60	2267	$ 136,020
1" Service w/o Asphalt Patch	EA	$ 2,700	28	$ 75,600
Existing Utility Protection	LF	$ 4	2267	$ 9,068
Traffic Control - Without Flagging	LF	$ 4	2267	$ 9,068
1/2 Lane Pavement Repair	LF	$ 20	2267	$ 45,340
Subtotal				***$ 275,096***
Mobilization - Percent of Item Cost Sum	%	6%		$ 16,506
Contingency - % of construction costs	%	10%		$ 27,510
Total Construction Costs				***$ 319,111***
Engineering and CMS - % of construction costs	%	15%		$ 47,867
Total Project Cost (rounded)	***$367,000***			

The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the cost presented herein.

Water Capital Improvements Project

Project Identifier: CENTRAL

Objectives: Upgrade deteriorating lines to
-Provide adequate supply to high density housing areas.
-Provide adequate Fire Flow

Potential Issues:

Project Location:
Central Ave. between E Sunnyside Rd. and Rawson St.

General Line Items	Unit	Unit Price	Estimated Quantity	2014 Cost
8-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 60	2265	$ 135,900
1" Service w/o Asphalt Patch	EA	$ 2,700	24	$ 64,800
Existing Utility Protection	LF	$ 4	2265	$ 9,060
Traffic Control - Without Flagging	LF	$ 4	2265	$ 9,060
1/2 Lane Pavement Repair	LF	$ 20	2265	$ 45,300
Subtotal				***$ 264,120***
Mobilization - Percent of Item Cost Sum	%	6%		$ 15,847
Contingency - % of construction costs	%	10%		$ 26,412
Total Construction Costs				***$ 306,379***
Engineering and CMS - % of construction costs	%	15%		$ 45,957
Total Project Cost (rounded)	***$353,000***			

The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the cost presented herein.

Water Capital Improvements Project

Project Identifier: Meadow

Objectives: Upgrade deteriorating lines to
-Provide adequate supply to high density housing areas.
-Provide adequate Fire Flow

Potential Issues:

Project Location:

Meadow Ln. between E Sunnyside Rd. and Owen St.

General Line Items	Unit	Unit Price	Estimated Quantity	2014 Cost
8-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 60	1508	$ 90,480
1" Service w/o Asphalt Patch	EA	$ 2,700	25	$ 67,500
Existing Utility Protection	LF	$ 4	1508	$ 6,032
Traffic Control - Without Flagging	LF	$ 4	1508	$ 6,032
1/2 Lane Pavement Repair	LF	$ 20	1508	$ 30,160
Subtotal				***$ 200,204***
Mobilization - Percent of Item Cost Sum	%	6%		$ 12,012
Contingency - % of construction costs	%	10%		$ 20,020
Total Construction Costs				***$ 232,237***
Engineering and CMS - % of construction costs	%	15%		$ 34,835
Total Project Cost (rounded)	***$268,000***			

The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the cost presented herein.

Water Capital Improvements Project

Project Identifier: TARGHEE

Objectives: Upgrade deteriorating lines to
-Provide adequate supply to high density housing areas.
-Provide adequate Fire Flow

Potential Issues:

Project Location:

Targhee St. between Bittern Dr. and Williams St.

General Line Items	Unit	Unit Price	Estimated Quantity	2014 Cost
12-inch Pipe - Excavation, Backfill, Valves, Hydrants	LF	$ 80	676	$ 54,080
1" Service w/o Asphalt Patch	EA	$ 2,700	2	$ 5,400
Existing Utility Protection	LF	$ 4	676	$ 2,704
Traffic Control - Without Flagging	LF	$ 4	676	$ 2,704
1/2 Lane Pavement Repair	LF	$ 20	676	$ 13,520
Subtotal				***$ 78,408***
Mobilization - Percent of Item Cost Sum	%	6%		$ 4,704
Contingency - % of construction costs	%	10%		$ 7,841
Total Construction Costs				***$ 90,953***
Engineering and CMS - % of construction costs	%	15%		$ 13,643
Total Project Cost (rounded)	***$105,000***			

The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the cost presented herein.

Ammon WFPS Rate Impact Scenarios

Prepared By: Keller Associates, Inc — **All Scenarios are for the Priority 1 Improvements Only (Designated Below)**

Last Updated: 6/5/2018

User Rate Increase Based on DEQ Loan Payment (Base Scenario) $\boxed{\$16.77}$ /connection/month

Current Rates	$ 45.75	/month for Large Lot	2016 Connections	4,248
	$ 38.25	/month for Small Lot	2016 Population	14,125
			Connections per Capita	0.30
			Inflation Rate:	*3%*

Projects

Priority 1 Needed Now		
WH WELL	$ 257,000	16-inch dia. X 350-foot, 2,600 gpm Well
WH WELLHOUSE	$ 777,000	15' X 30' Wellhouse w/generator
WH TANK AND BS	$ 3,849,000	2.0 MG Tank and 3,000 GPM Booster Station
ASPEN LN	$ 63,000	Replace galvenized 2-inch line
1st ST LOOP	$ 294,000	12-inch loop from Curlew to 1st St.
ORIGINAL TOWNSITE	$ 5,951,000	Replace undersized and failing water lines
ZONE 2 SPLIT	$ 632,000	Zone split to address low pressure in Quail Ridge
QL RDG LOOP	$ 69,000	8-inch loop from Foothill Rd to Sharptail Rd
LDY HK LOOP	$ 80,000	8-inch loop to Crowley Rd
SOUTH LOOP	$ 888,000	16-inch loop from Sunnyside to Township
Priority 2 Needed by 2037		
WELL 6	$ 1,015,000	Well, Tank, and Booster Station Improvements
W6 STORAGE	$ 1,457,000	Additional 0.5 MG Storage at Well 6
Priority 3 Funded by Development or Potentially Avoidable		
COTTAGE LOOP	$ 183,000	Loop from Sunnyside to Tildy Ln
FOX HLW LOOP	$ 149,000	8-inch loop in Fox Hollow Subdivision

Best Performed by Contractor
Possible City Crew Project
Developer Supported

Assumes growth continues at forecasted rate. Changes to population growth would significantly affect pay-as-you-go scenarios. While "Revenue from Fee Increase" assumes the number of connections forecased for each year, monthly rate increases are based on the forecasted number of connections in year 2022 (final year of construction, after which loan repayments must start). Doesn't account for payback of WH well and wellhouse by developer. Assumes all potential city crew projects are bid to contractor. Fee does not include an increase for SRF debt reserve as it is assumed that a portion of the city's reserve fund wuld be set aside to cover this. Assumes that no other city reserves would be applied to CIP projects.

Scenario 1 — Base loan scenario. **DEQ Loan** — *Interest* *2.75%* — Monthly Rate Increase $16.77

Scenario 2 — If phased-fee is saved during construction and applied to year 5 construction. **DEQ Loan** — *Interest* *2.75%* — Monthly Rate Increase $14.06

				Scenario 1: Principle Reimbursed	Scenario 1: Annual Payment	Scenario 1: Interest Accrued	Scenario 1: Balance	Scenario 2: Revenue from Fee Increase	Scenario 2: Principle Reimbursed	Scenario 2: Annual Payment	Scenario 2: Interest Accrued	Scenario 2: Balance
		Population	Connections									
0	**2018**	14,663	4,410	$ 2,572,000			$ 2,572,000	$148,758.12	$ 2,572,000			$ 2,572,000
1	**2019**	14,900	4,481	$ 2,649,160		$ 70,730.00	$ 5,291,890.00	$302,324.29	$ 2,649,160		$ 70,730.00	$ 5,291,890.00
2	**2020**	15,141	4,554	$ 2,728,635		$ 145,526.98	$ 8,166,051.78	$460,806.71	$ 2,728,635		$ 145,526.98	$ 8,166,051.78
3	**2021**	15,385	4,627	$ 2,810,494		$ 224,566.42	$ 11,201,112.04	$624,315.71	$ 2,810,494		$ 224,566.42	$ 11,201,112.04
4	**2022**	15,633	4,702	$ 2,894,809		$ 308,030.58	$ 14,403,951.28	$792,963.84	$ 565,640		$ 308,030.58	$ 12,074,782.62
5	**2023**	15,968	4,802		($945,932.41)	$ 396,108.66	$ 13,854,127.54			($792,971.87)	$ 332,056.52	$ 11,613,867.27
6	**2024**	16,310	4,905		($945,932.41)	$ 380,988.51	$ 13,289,183.63			($792,971.87)	$ 319,381.35	$ 11,140,276.75
7	**2025**	16,659	5,010		($945,932.41)	$ 365,452.55	$ 12,708,703.78			($792,971.87)	$ 306,357.61	$ 10,653,662.49
8	**2026**	17,015	5,117		($945,932.41)	$ 349,489.35	$ 12,112,260.72			($792,971.87)	$ 292,975.72	$ 10,153,666.34
9	**2027**	17,378	5,226		($945,932.41)	$ 333,087.17	$ 11,499,415.48			($792,971.87)	$ 279,225.82	$ 9,639,920.29
10	**2028**	17,748	5,338		($945,932.41)	$ 316,233.93	$ 10,869,717.00			($792,971.87)	$ 265,097.81	$ 9,112,046.23
11	**2029**	18,126	5,451		($945,932.41)	$ 298,917.22	$ 10,222,701.81			($792,971.87)	$ 250,581.27	$ 8,569,655.63
12	**2030**	18,511	5,567		($945,932.41)	$ 281,124.30	$ 9,557,893.70			($792,971.87)	$ 235,665.53	$ 8,012,349.29
13	**2031**	18,904	5,685		($945,932.41)	$ 262,842.08	$ 8,874,803.37			($792,971.87)	$ 220,339.61	$ 7,439,717.02
14	**2032**	19,305	5,806		($945,932.41)	$ 244,057.09	$ 8,172,928.05			($792,971.87)	$ 204,592.22	$ 6,851,337.37
15	**2033**	19,713	5,929		($945,932.41)	$ 224,755.52	$ 7,451,751.17			($792,971.87)	$ 188,411.78	$ 6,246,777.27
16	**2034**	20,130	6,054		($945,932.41)	$ 204,923.16	$ 6,710,741.92			($792,971.87)	$ 171,786.37	$ 5,625,591.77
17	**2035**	20,556	6,182		($945,932.41)	$ 184,545.40	$ 5,949,354.91			($792,971.87)	$ 154,703.77	$ 4,987,323.68
18	**2036**	20,989	6,313		($945,932.41)	$ 163,607.26	$ 5,167,029.76			($792,971.87)	$ 137,151.40	$ 4,331,503.21
19	**2037**	21,432	6,446		($945,932.41)	$ 142,093.32	$ 4,363,190.67			($792,971.87)	$ 119,116.34	$ 3,657,647.67
20	**2038**	21,883	6,581		($945,932.41)	$ 119,987.74	$ 3,537,246.01			($792,971.87)	$ 100,585.31	$ 2,965,261.11
21	**2039**	22,344	6,720		($945,932.41)	$ 97,274.27	$ 2,688,587.86			($792,971.87)	$ 81,544.68	$ 2,253,833.92
22	**2040**	22,813	6,861		($945,932.41)	$ 73,936.17	$ 1,816,591.62			($792,971.87)	$ 61,980.43	$ 1,522,842.48
23	**2041**	23,292	7,005		($945,932.41)	$ 49,956.27	$ 920,615.48			($792,971.87)	$ 41,878.17	$ 771,748.78
24	**2042**	23,781	7,152		($945,932.41)	$ 25,316.93	$ 0.00			($792,971.87)	$ 21,223.09	$ 0.00
25	**2043**	24,279	7,302									
					($18,918,648.17)	$ 5,263,550.86				($15,859,437.43)	$ 4,533,508.79	
				Check		$0.00	= $0.00?		Check		$0.00	= $0.00?

	Scenario 1	Scenario 2
Total Cost	$ 18,918,648.17	$ 18,638,530.88
Interest Cost	$ 5,263,550.86	$ 4,533,508.79
Years to Project Finish	5	5
Monthly Rate Increase	$16.77	$\boxed{\$14.06}$ = $14.06?

KELLER ASSOCIATES

City of Ammon

Scenario 3

If phased-fee is saved during construction and made as extra payment on loan.

DEQ Loan *Interest* *2.75%*

Monthly Rate Increase $16.77

Year		Principle Reimbursed	Annual Payment	Interest Accrued	Balance
0	2018	$ 2,572,000			$ 2,572,000
1	2019	$ 2,649,160		$ 70,730.00	$ 5,291,890.00
2	2020	$ 2,728,635		$ 145,526.98	$ 8,166,051.78
3	2021	$ 2,810,494		$ 224,566.42	$ 11,201,112.04
4	2022	$ 2,894,809		$ 308,030.58	$ 14,403,951.28
5	2023		($3,725,025.86)	$ 396,108.66	$ 11,075,034.09
6	2024		($945,932.41)	$ 304,563.44	$ 10,433,665.11
7	2025		($945,932.41)	$ 286,925.79	$ 9,774,658.50
8	2026		($945,932.41)	$ 268,803.11	$ 9,097,529.20
9	2027		($945,932.41)	$ 250,182.05	$ 8,401,778.84
10	2028		($945,932.41)	$ 231,048.92	$ 7,686,895.35
11	2029		($945,932.41)	$ 211,389.62	$ 6,952,352.57
12	2030		($945,932.41)	$ 191,189.70	$ 6,197,609.85
13	2031		($945,932.41)	$ 170,434.27	$ 5,422,111.72
14	2032		($945,932.41)	$ 149,108.07	$ 4,625,287.38
15	2033		($945,932.41)	$ 127,195.40	$ 3,806,550.37
16	2034		($945,932.41)	$ 104,680.14	$ 2,965,298.10
17	2035		($945,932.41)	$ 81,545.70	$ 2,100,911.39
18	2036		($945,932.41)	$ 57,775.06	$ 1,212,754.04
19	2037		($945,932.41)	$ 33,350.74	$ 300,172.37
20	2038		($308,427.11)	$ 8,254.74	$ (0.00)
			($17,276,506.69)	$ 3,621,409.38	
		Check		$0.00	= $0.00?

Total Cost $ 17,276,506.69
Interest Cost $ 3,621,409.38
Years to Project Finish 5
Monthly Rate Increase $16.77

Scenario 4

Pay As You Go - Raise all at once

Monthly Rate Increase $16.77

Year		Revenue from Fee Increase	Total Accumulated	2017 Project Costs	Inflated Project Costs
0	2018	$ 887,468.39	$ 630,468.39	$ 257,000	$ 257,000
1	2019	$ 901,810.46	$ 731,968.84	$ 777,000	$ 800,310
2	2020	$ 916,367.66	$ 1,648,336.50		
3	2021	$ 931,143.22	$ 2,579,479.72		
4	2022	$ 946,140.42	$ 3,525,620.14		
5	2023	$ 966,436.62	$ 30,010.85	$ 3,849,000	$ 4,462,046
6	2024	$ 987,138.75	$ 590,872.93	$ 357,000	$ 426,277
7	2025	$ 1,008,254.92	$ 1,599,127.84		
8	2026	$ 1,029,793.41	$ 2,628,921.25		
9	2027	$ 1,051,762.67	$ 3,680,683.92		
10	2028	$ 1,074,171.32	$ 756,032.06	$ 2,975,500	$ 3,998,823
11	2029	$ 1,097,028.14	$ 1,853,060.20		
12	2030	$ 1,120,342.10	$ 2,973,402.30		
13	2031	$ 1,144,122.34	$ 4,117,524.64		
14	2032	$ 1,168,378.18	$ 785,192.09	$ 2,975,500	$ 4,500,711
15	2033	$ 1,193,119.14	$ 761,538.68	$ 781,000	$ 1,216,773
16	2034	$ 1,218,354.91	$ 554,914.27	$ 888,000	$ 1,424,979
17	2035	$ 1,244,095.41	$ 1,799,009.68		
18	2036	$ 1,270,350.71	$ 3,069,360.39		
19	2037	$ 1,297,131.12	$ 31,824.55	$ 2,472,000	$ 4,334,667
20	2038	$ 1,324,447.14	$ 1,356,271.69	Soonest Well 6 Complex could be	
21	2039	$ 1,352,309.48	$ 2,708,581.16	completed. Not included in totals.	
				$ 12,860,000.00	$ 17,086,918.37

Original Townsite broken into two projects.

City may be restricted from offering a Will Serve to development until DEQ compliance in 2023.

Total Cost $ 17,086,918.37
Inflation "Cost" $ 4,226,918.37
Years to Project Finish 19
Monthly Rate Increase $16.77

Scenario 5

Pay As You Go - 5-year phase in

Monthly Rate Increase $16.77

Year		Revenue from Fee Increase	Total Accumulated	2017 Project Costs	Inflated Project Costs
0	2018	$ 177,493.68	$ 177,493.68		
1	2019	$ 360,724.18	$ 273,507.86	$ 257,000	$ 264,710
2	2020	$ 549,820.60	$ 823,328.46		
3	2021	$ 744,914.58	$ 719,194.15	$ 777,000	$ 849,049
4	2022	$ 946,140.42	$ 1,665,334.57		
5	2023	$ 966,436.62	$ 2,631,771.19		
6	2024	$ 987,138.75	$ 3,618,909.94		
7	2025	$ 1,008,254.92	$ 4,627,164.85		
8	2026	$ 1,029,793.41	$ 328,923.30	$ 4,206,000	$ 5,328,035
9	2027	$ 1,051,762.67	$ 1,380,685.97		
10	2028	$ 1,074,171.32	$ 2,454,857.29		
11	2029	$ 1,097,028.14	$ 3,551,885.44		
12	2030	$ 1,120,342.10	$ 429,876.02	$ 2,975,500	$ 4,242,352
13	2031	$ 1,144,122.34	$ 1,573,998.36		
14	2032	$ 1,168,378.18	$ 2,742,376.53		
15	2033	$ 1,193,119.14	$ 3,935,495.67		
16	2034	$ 1,218,354.91	$ 379,046.58	$ 2,975,500	$ 4,774,804
17	2035	$ 1,244,095.41	$ 332,267.98	$ 781,000	$ 1,290,874
18	2036	$ 1,270,350.71	$ 90,858.14	$ 888,000	$ 1,511,761
19	2037	$ 1,297,131.12	$ 1,387,989.26		
20	2038				
21	2039				
22	2040				
23	2041				
24	2042				
25	2043				
				$ 12,860,000.00	$ 18,261,583.93

Original Townsite broken into two projects.

City may be restricted from offering a Will Serve to development until DEQ compliance in 2026.

Total Cost $ 18,261,583.93
Inflation "Cost" $ 5,401,583.93
Years to Project Finish 18
Monthly Rate Increase $16.77

Water Rights Summary of Costs

Water Right	Diversion Rate (cfs)	Volume Limitation (AFA)	Acreage Limitation (acres)	Total Cost	Cost Per Acre-foot	Cost Per cfs
25-14405 25-14406	0.21	64	16	$89,675	$1,401	$427,024
25-14381	0.19	51.2	12.8	$38,780	$757	$204,105
35-14162/ 25-14380	0.23	60	15	$45,000	$750	$195,652
35-7192A/ 25-14396	0.28	109.6	27.4	$87,680	$800	$313,143
35-9069/ 25-14397	0.03	11.6	2.9	$9,280	$800	$309,333
Subtotal	0.94	296.4	74.1	$270,415	Average:	$289,851

Additional Irrigation Water Rights

Water Right	Diversion Rate (cfs)	Volume Limitation (AFA)	Acreage Limitation (acres)
25-14331	0.81	142	40.7
25-14333	0.57	142.8	37.8
25-14386	0.25	67.2	16.8
25-14384	0.21	60.4	15.1
Subtotal	1.84	412.4	110.4
Total	**2.78**	**708.8**	**184.5**

Allowed Period of Use	4/1/2017	10/31/2017	213 days
Diversion rate based on volume limitation over allowed period of use:			1.68 cfs

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Appendix F: Environmental Determination

Will be added after DEQ Environmental Determination is made

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Appendix G: Meetings and Public Participation

- 01-25-2017 Citizen Water Committee Meeting
- 10-19-2017 Ammon City Council Meeting
- 11-30-2017 Citizen Water Committee Meeting
- 12-14-2017 Ammon City Council Work Session
- 02-14-2018 Preliminary Information Provided for City Website

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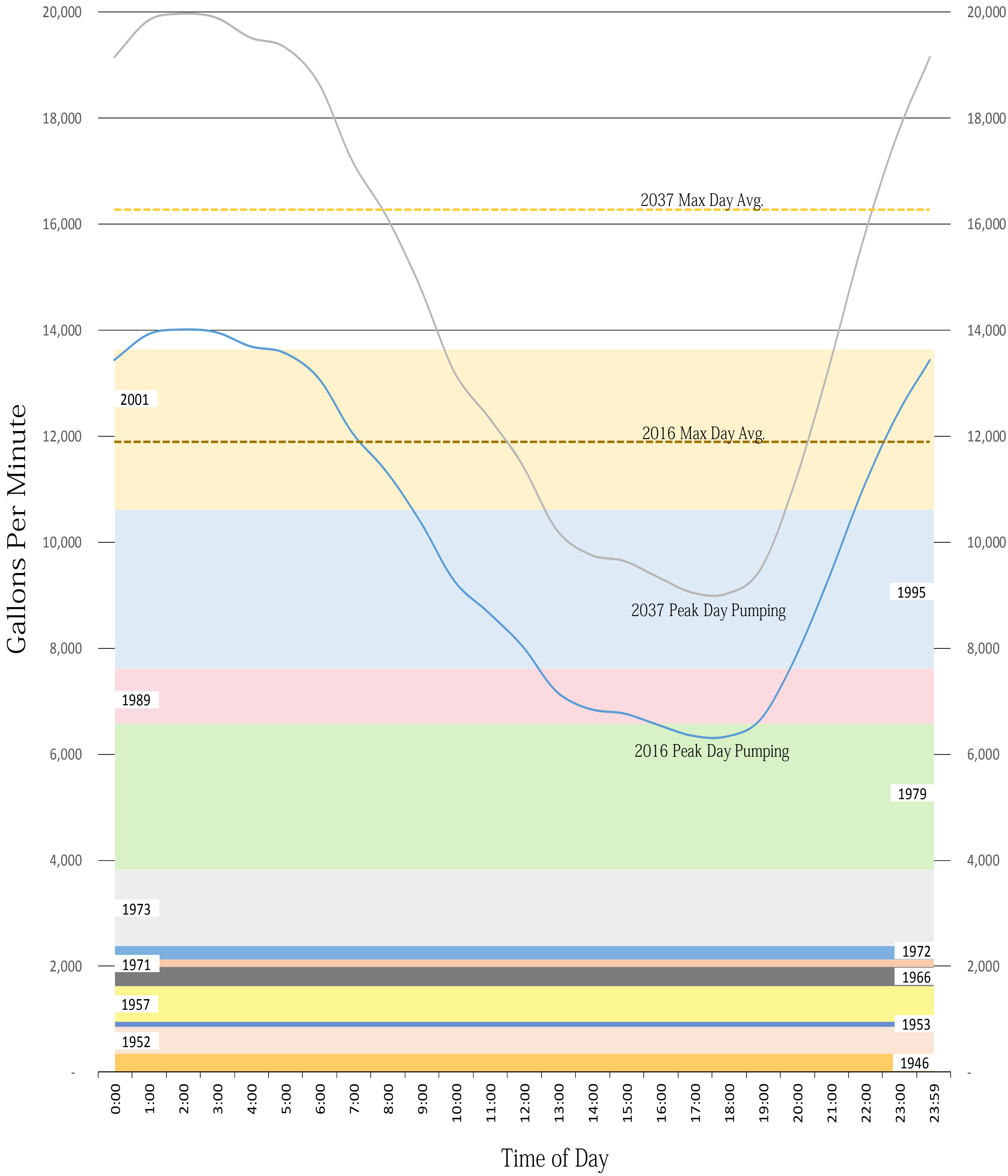
01-25-17

Citizen Water Committee Meeting

City of Ammon

Peak Day Pumping vs Water Rights



Per Capita Water Usage Comparison

	Ammon	Rigby	Rexburg	Chubbuck	Ashton[2]
Rate Structure	Flat - RP/RPA/RE Zones $45.75/mo All Others $38.25/mo	Flat $19/mo	Flow-based $15.87/mo/6,000 + $0.918/1,000 thereafter	Flow-based $24/mo + $1.15/1,000	Flow-based $42.62/mo + $1.15/1,000
Population	15,259	4,043	30,000	14,428	1,100
Avg. Day[1]	376	540	219	205	271
Max. Day[1]	1,039	1,476	514	457	1,055
Peak Hour[1]	1,257	2,214	843	958	1,446

1 - Reported in Gallons Per Capita Daily (GPCD)

2 - These numbers for Ashton do not reflect the completion of a recent water project which reduced overall flows by approximately 20%

"Irrigation Only" Water Right Summary
City of Ammon

Water Rights Summary of Costs

Water Right	Diversion Rate (cfs)	Volume Limitation (AFA)	Acreage Limitation (acres)	Total Cost	Cost Per Acre-foot	Cost Per cfs
25-14405 25-14406	0.21	64	16	$89,675	$1,401	$427,024
25-14381	0.19	51.2	12.8	$38,780	$757	$204,105
35-14162/ 25-14380	0.23	60	15	$45,000	$750	$195,652
35-7192A/ 25-14396	0.28	109.6	27.4	$87,680	$800	$313,143
35-9069/ 25-14397	0.03	11.6	2.9	$9,280	$800	$309,333
Subtotal	0.94	296.4	74.1	$270,415	Average:	$289,851

Additional Irrigation Water Rights

Water Right	Diversion Rate (cfs)	Volume Limitation (AFA)	Acreage Limitation (acres)
25-14331	0.81	142	40.7
25-14333	0.57	142.8	37.8
25-14386	0.25	67.2	16.8
25-14384	0.21	60.4	15.1
Subtotal	1.84	412.4	110.4
Total	**2.78**	**708.8**	**184.5**

Allowed Period of Use 4/1/2017 10/31/2017 213 days
Diversion rate based on volume limitation over allowed period of use: 1.68 cfs

Monthly Water Usage Per Connection by Neighborhood (gallons)

	Cortland Ridge	Hillview Village	Eagle Pointe	Founders Pointe	Woodland Hills	Bit O Heaven	Cottonwood Hills
	1/4 Acre	1/4 Acre	1/2 to 1/3 Acre	1/2 Acre	1/2 Acre	1.5 Acre	1 to 4 Acres
January	9,205	5,462	6,148	9,950	7,128	18,043	9,285
February	9,167	5,120	5,547	9,373	6,355	15,668	6,505
March	9,732	5,573	5,813	9,150	6,757	18,335	7,660
April	13,069	6,723	7,457	11,599	9,626	16,952	22,913
May	31,064	25,525	14,643	84,076	43,038	84,108	155,715
June	40,012	52,656	31,311	118,927	58,245	125,925	236,695
July	54,246	61,693	44,922	158,531	69,996	173,361	370,156
August	52,844	61,550	41,205	163,186	82,961	161,034	470,334
September	56,057	53,978	33,250	141,826	74,465	87,711	319,049
October	20,617	7,659	10,693	48,538	21,738	21,797	74,918
November	10,481	46,657	6,120	10,145	8,238	20,866	7,548
December	9,212	5,088	8,461	10,951	6,704	13,717	7,548

Flow-based Rate Scenario

	Total Annual Usage (gal)	Avg. Daily Usage (gal)	Yearly Bill if base $38.25/month+ $1.15/1,000 gal	Average Monthly Bill
Cortland Ridge	315,706	865	$822.06	$68.51
Hillview Village	337,684	925	$847.34	$70.61
Eagle Pointe	215,570	591	$706.91	$58.91
Founder Pointe	776,252	2,127	$1,351.69	$112.64
Woodland Hills	395,251	1,083	$913.54	$76.13
Bit O Heaven	757,517	2,075	$1,330.14	$110.85
Cottonwood Hills	1,688,326	4,626	$2,400.57	$200.05

Flow-based Rate by Month

	Cortland Ridge	Hillview Village	Eagle Pointe	Founders Pointe	Woodland Hills	Bit O Heaven	Cottonwood Hills
	1/4 Acre	1/4 Acre	1/2 to 1/3 Acre	1/2 Acre	1/2 Acre	1.5 Acre	1 to 4 Acres
January	$48.84	$44.53	$45.32	$49.69	$46.45	$59.00	$48.93
February	$48.79	$44.14	$44.63	$49.03	$45.56	$56.27	$45.73
March	$49.44	$44.66	$44.93	$48.77	$46.02	$59.34	$47.06
April	$53.28	$45.98	$46.83	$51.59	$49.32	$57.74	$64.60
May	$73.97	$67.60	$55.09	$134.94	$87.74	$134.97	$217.32
June	$84.26	$98.80	$74.26	$175.02	$105.23	$183.06	$310.45
July	$100.63	$109.20	$89.91	$220.56	$118.75	$237.62	$463.93
August	$99.02	$109.03	$85.64	$225.91	$133.66	$223.44	$579.13
September	$102.72	$100.32	$76.49	$201.35	$123.88	$139.12	$405.16
October	$61.96	$47.06	$50.55	$94.07	$63.25	$63.32	$124.41
November	$50.30	$91.91	$45.29	$49.92	$47.72	$62.25	$46.93
December	$48.84	$44.10	$47.98	$50.84	$45.96	$54.02	$46.93
Yearly Total	**$822.06**	**$847.34**	**$706.91**	**$1,351.69**	**$913.54**	**$1,330.14**	**$2,400.57**
Average	$68.51	$70.61	$58.91	$112.64	$76.13	$110.85	$200.05

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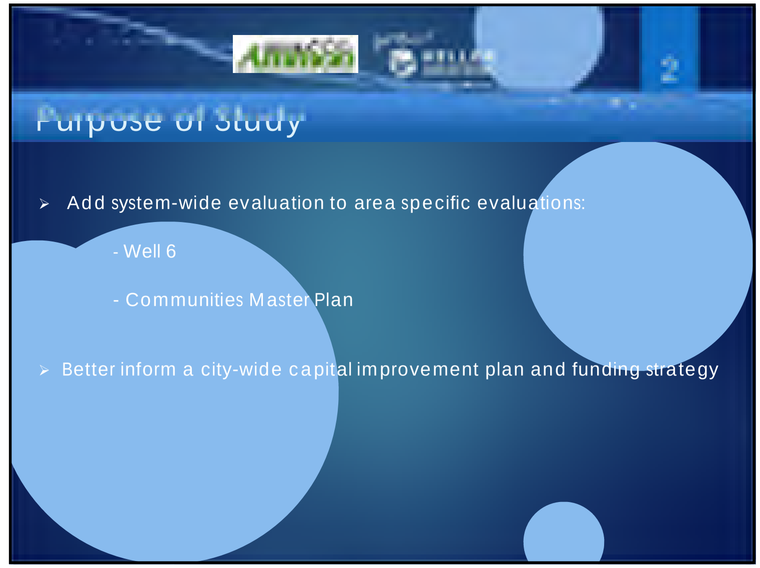
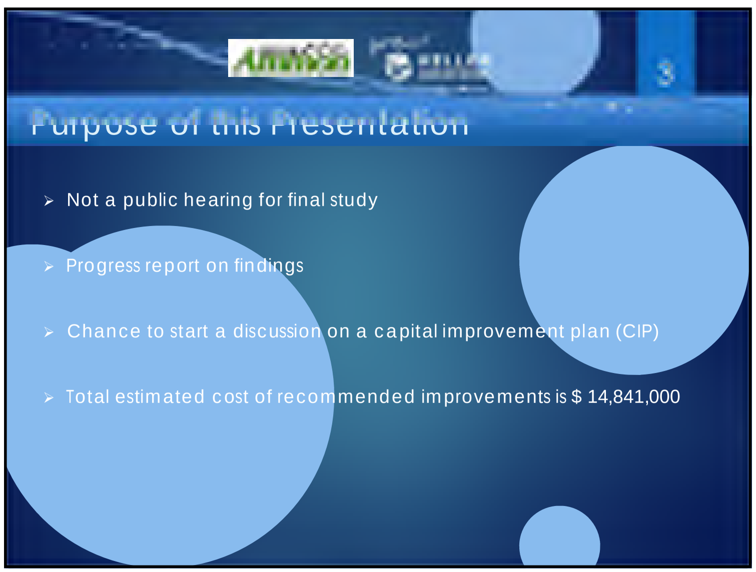
10-19-17

Ammon City Council Meeting


City of Ammon
Water Facilities Planning Study
Get There!
KELLER associates


2
Purpose of Study
Add system-wide evaluation to area specific evaluations:
- Well 6
- Communities Master Plan
Better inform a city-wide capital improvement plan and funding strategy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Purpose of this Presentation
Not a public hearing for final study
Progress report on findings
Chance to start a discussion on a capital improvement plan (CIP)
Total estimated cost of recommended improvements is $ 14,841,000


4
Guiding Strategy
Three Evaluations:
- Water Rights
- Demand vs Capacity
- Hydraulic Model
Criteria:
- DEQ State Standards
- Engineering Best Practice

Water Rights

Supply, Storage, Delivery Capacity

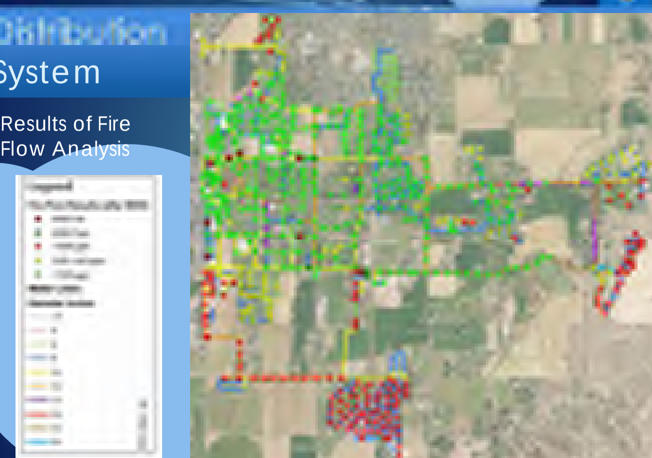
	Requirement	Surplus / (Deficit) 2016	2037
Supply	Max Day Demand	(205) gpm	(5,635) gpm
Storage	EQ, Fire, & Operational Needs	(1.6) MG	(2.6)/(3.3) MG
Delivery	Max Day + Fire Demand	935 gpm	(2,475) gpm

Distribution System

- Communities Master Plan
- Model Analysis
- Fire Flow & PHD Requirements

Distribution System

Results of Fire Flow Analysis



9

Capital Improvement Plan

10

Capital Improvement Plan

Item	Description	Cost
City Improvements (Start in 2018)		
1st ST LOOP	12-inch loop from Curlew to 1st St.	$ 294,000
LDY HK LOOP	8-inch loop to Crowley Rd	$ 79,000
AM RD LOOP	16-inch loop from Sunnyside to Township	$ 680,000
	Total City Improvements	$ 1,053,000

11

Capital Improvement Plan

Item	Description	Cost
Developer Improvements (Start as needed)		
WH WELL	16-inch dia. X 350-foot, 2,600 gpm Well	$ 257,000
WH WELLHOUSE	15' X 30' Wellhouse w/generator	$ 590,000
FOX HLW LOOP	8-inch loop in Fox Hollow Subdivision	$ 129,000
COTTAGES BPS	3,000 gpm Booster Station for Additional Supply	$ 1,055,000
	Total Developer Improvements	$ 2,031,000

12

Capital Improvement Plan

Item	Description	Cost
Contracted Improvements (Start in 2018)		
WH TANK AND BS	2.0 MG Tank and 3,000 GPM Booster Station	$ 2,734,000
COTTAGE PZ	PRV's to create a new pressure zone	$ 31,000
WELL 9 BPS	BPS upgrade to improve pressure in Quail Ridge	$ 500,000
QL RDG LOOP	8-inch loop from Foothill Rd to Sharptail Rd	$ 69,000
CMP	Replace undersized and failing water lines	$ 5,951,000
WELL 6	Well, Tank, and Booster Station Improvements	$ 1,015,000
W6 STORAGE	Additional 0.5 MG Storage at Well 6	$ 1,457,000
	Total Contracted Improvements	$ 11,757,000


13
Funding
Likely DEQ Loan Terms of 20 Years at 2.75 %
City Projects Can't Use DEQ Funding
Judicial Confirmation


14
Rate Impact
All at once
Cost $12,810,000
$16.50/Month/User
$1.30/Month/User/$1 Million
5-Years
$2.56 Million/Year
$3.30/Month increase each year for 5 years
LID or Levy – Use to help fund concurrent street improvements

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CITY OF Ammon

2135 SOUTH AMMON ROAD
CITY COUNCIL - AGENDA
THURSDAY, OCTOBER 19, 2017 – 7:00 P.M.

AGENDA:

CITY OF AMMON
CITY COUNCIL - AGENDA
THURSDAY, OCTOBER 19, 2017 - 7:00 P.M.

CALL TO ORDER: Mayor Dana Kirkham at 7:00 p.m.

Pledge of Allegiance - Councilmember Wiscombe
Prayer - Councilmember Coletti

MINUTES: September 7, 2017

ITEMS FROM MAYOR:

CONSENT AGENDA: Accounts Payable - Exhibit A

PUBLIC COMMENT REGARDING ITEMS NOT ON AGENDA: (5 Minute Limitation)

PUBLIC HEARINGS: None

ACTION ITEMS:

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]

DISCUSSION ITEMS:

1. [illegible]

MINUTES

City Officials Present: Mayor Dana Kirkham (arrived at 7:25pm)
Council President Brian Powell
Councilmember Rex Thompson
Councilmember Russell Slack
Councilmember Byron Wiscombe
City Attorney Scott Hall
City Administrator/Planning Director Ron Folsom
City Engineer Tracy Bono
Deputy City Clerk Shari Ockerman

City Officials Absent: Councilmember Sean Coletti
City Treasurer Jennifer Belfield
City Clerk Rachael Sanders

CALL TO ORDER: Council President Powell in Mayor Kirkham's absence opened the meeting at 7:00 p.m. at the Ammon City Hall building located at 2135 South Ammon Road. Councilmember Wiscombe led the Pledge of Allegiance. Councilmember Thompson offered a prayer.

MINUTES: September 7, 2017: Councilmember Thompson moved to table the September 7, 2017 minutes, since the City Clerk was unavailable and the minutes were not available for Council review. Councilmember Slack seconded. Roll Call Vote: Councilmember Thompson – Yes, Councilmember Slack – Yes, Councilmember Wiscombe – Yes and Councilmember Powell. The motion passed.

ITEMS FROM MAYOR: None

CONSENT AGENDA: Accounts Payable – Exhibit A: Councilmember Thompson moved to approve the Accounts Payable – Exhibit A, as presented. Councilmember Wiscombe seconded. Roll Call Vote: Councilmember Thompson – Yes, Councilmember Wiscombe – Yes, Councilmember Slack – Yes, and Councilmember Powell – Yes. The motion passed.

PUBLIC COMMENT REGARDING ITEMS NOT ON AGENDA: (5 Minute Limitation): None

PUBLIC HEARINGS: None

ACTION ITEMS:

1. **Final Plat – Warren Bird Division 1 1st Amended:** Councilmember Wiscombe moved to approve the Final Plat – Warren Bird Division 1 1st Amended. Councilmember Slack seconded. Roll Call Vote: Councilmember Wiscombe – Yes, Councilmember Slack – Yes, Councilmember Thompson – Yes and Councilmember Powell. The motion passed.

2. **Approve purchase order WW-700-1017 – Used sewer Vac truck:** Councilmember Slack moved to approve Purchase Order WW-700-1017 for a Used Sewer Vac Truck in the amount of $[illegible]. Councilmember Wiscombe seconded. Roll Call Vote: Councilmember Slack – Yes, Councilmember Wiscombe – Yes, Councilmember Thompson – Yes, and Councilmember Powell – Yes. The motion passed.

3. **Approve purchase order ST-700-1017 – 13' Sander body w/Power system:** Councilmember Slack moved to approve the Approve purchase order ST-700-1017 – 13' Sander body w/power system. Councilmember Thompson seconded. Roll Call Vote: Councilmember Slack – Yes, Councilmember Thompson – Yes, Councilmember Wiscombe – Yes, and Councilmember Powell – Yes. The motion passed.

4. **Policy 65-002-1 – Amending snow removal policy 65-002:** Councilmember Powell moved to approve the Policy 65-002-1 – Amending Snow Removal Policy 65-002. Councilmember Wiscombe seconded. Roll Call Vote: Councilmember Powell – Yes, Councilmember Wiscombe – Yes, Councilmember Slack – Yes, and Councilmember Thompson – Yes. The motion passed.

5. **Resolution 2017-[illegible] – Adopting snow removal policy 65-002-1:** Councilmember Powell moved to approve Resolution 2017-[illegible] – Adopting Snow Removal Policy 65-002-1. Councilmember Wiscombe seconded. Roll Call Vote: Councilmember Powell – Yes, Councilmember Wiscombe – Yes, Councilmember Slack – Yes, and Councilmember Thompson – Yes. The motion passed.

DISCUSSION ITEMS:

1. **Water Presentation – Keller & Associates:** Riley distributed a packet and did a presentation of the water study to show to the Council. Riley explained that the reason behind having a water study started with determining the general infrastructure needs for the Original Town Site, [illegible], and Hillsdale areas, which are the very oldest portions of Ammon that were built out. Prior to that they conducted a study on the [illegible] of well No. 6, where there is a tank, well and booster station that are currently [illegible], and were rendered ineffective when the improvements up on the hill went in. Riley said what they were here presenting information for the community's master plan, the Council held a long discussion regarding funding strategies, capital improvement, and how to finance this now and as we go forward. We have a full sewer study that was performed several years ago that tells us citywide sewer needs, some work has been done on citywide transportation needs, but we don't have a citywide water study that shows what the long term needs are. Those reasons are the purpose of them performing the water study. Riley stated that this is not a public hearing, this is not a completed study, and they will be back in a few months.

Riley stated that the estimated grand total for identified improvements is $[illegible]. Part of the study was to consider three different things: the first was water rights, the second was demand vs. capacity, and the third was [illegible] an accounting balance of how much capacity the city has and how much demand we have. Riley covered the water rights, how they are used, and the busiest water day of the summer. Riley explained the water need in 2037 is the target planning horizon, they are talking about a specific population, so if things grow slower the needs will arise later, or if growth accelerates, the needs will arise sooner. Riley said the City with its two tanks started twenty years. Storage is important to a system, because if you don't have any storage to help buffer during peak usage times then the wells have to provide all of the currently demanded water by running at a high flow rate [illegible] water rights place a cap on the maximum flow rate permitted for pumping water out of the ground. Having some storage allows the city to save some water during low demand times and put the saved water into the system during peak demand times, reducing the total needed water rights and total needed well capacity while also providing for peak demands without raising the maximum legal pumping rate. In addition to equalization storage, there is a certain amount of volume set aside for fighting fire, and the rest is operation storage. Because Ammon has enough backup generators Ammon doesn't need to have a standby volume in its tanks. There will be a significant deficit of [illegible] million gallons. For reference, the [illegible] tank is 2.5 million gallons, so roughly a tank of that size. However, 50 percent of this tank's volume is needed for operational storage, and if the new tanks require the same 50 percent, by 2037 we will need an additional 3.5 million gallons storage. In speaking with the water department insufficient storage is already being felt. Mayor Kirkham stated that repairing well #6 won't solve the problem because well #6 is not a large enough well to fix this deficit.

Riley said the hydraulic model identifies fire flow and peak hour demand deficiencies. In most cases fire flow governs and that is the biggest draw on the system. Riley referred to the handout charts and explained some problem areas with insufficient fire flow. Fox Hollow and 1st Street are fed from the well #5 [illegible], so essentially it is one giant dead-end which causes big problems for fire flow especially with all the higher density housing that is going in around there. Fox Hollow cannot pass about 1,000 gallons per minute. The Woodland Hills subdivision is a big red flag, and the reason this area is such an issue is because when they perform a hydraulic analysis, they require them to take any pump in the system out of line. So, in the worst case scenario where you have a pump break up the hydraulic model determines which pump affects your system the most and where your system is most vulnerable. There is nothing feeding this side of the City other than well No. [illegible], and because you have to provide use fire flow without dropping pressure in the system, well #10 is the biggest contributor to fire flows in any portion of zone one.

Capital improvements to start in 2018 would be the 1st Street loop adding a 12-inch pipe for the section of the loop from the north end of Curlew to 1st Street at a cost of $294,000, the Lady Hawk Loop addition of an 8-inch pipe for the section of the loop from Lady Hawk to Crowley Road with a cost of $79,000, and the Ammon Road Loop addition of a 16-inch loop from Sunnyside to Township at a cost of $650,000. A Developer Improvement that will be provided when needed is a new 16-inch diameter, 550-foot deep Woodland Hills Well with a 2,000 gallons per minute, with a 15'X20' well house with a generator. Additional Developer Improvements include an 8-inch loop in the Fox Hollow subdivision, and a 3,000 gallons per minute booster station for zone supply. The total developer improvements costs are projected at $2,631,000.

There is a very high probability for DEQ loan funding with a 20 year term at 2.75 percent, but City projects can't use DEQ funding. The other source of funding would be federal contributions. Discussion ensued regarding funding. Mayor Kirkham said she would like the Council to put together a plan. We have a supply issue particularly in the summer. We all know the answer to this, we all resist it, but you know if we meter we will get a 35 percent reduction in water usage. The Water Committee wanted a 5 year plan and she thinks that is wonderful, but does not think it is realistic. She would encourage the Council if they are going to meter, you make the decision this year so that you can give the citizens their trial year in 2018. Councilmember Powell asked if all of the meters can be finished by next year. The answer was no. Ron said as long as there is a plan in place for metering, then metering can begin in areas that have meters installed. Mayor Kirkham said she feels the reality needs to be addressed sooner then later. If you give the citizens the summer to see what they are using they can start to make those adjustments in their budgets. Mayor Kirkham said the Woodland Hills tank and booster station would solve the majority of the problem. In our reserves we have $2.9 million available, plus $700,000 that would come from the current developer who would recoup the cost over the years. Councilmember Slack said obviously we want to tackle our biggest problems first; well #8 is not going to push much water to where it is needed. Mayor Kirkham said we'll have DEQ funds waiting to be used, but the Council needs to understand that if the DEQ funds are used we will see an increase in the water rate next year. Councilmember Slack asked if the DEQ funds could be diverted to another project. Riley said yes it could be lumped into asking for one loan for all of it. $1 million has been approved for well #8. If you apply for this as one lump project, the loan payment doesn't start until the project is completed. Ron asked if the $1 million could be shifted to Woodland Hills. Riley said it would take a letter of agreement with good justification. Councilmember Powell said the citizens would have a $1.30 per month increase in the water rate. Mayor Kirkham said we cannot continue to be reactionary, we have to get ahead of this, so there needs to be a plan on deciding how this is going to be resolved in the next 3, 5, 7 years. There has to be a plan that can be put into the comprehensive plan for strategic planning. Councilmember Powell said if we could begin metering, we would cut usage by 35 percent. Riley stated when you switch to water meters at first usage drops by one third. After everything stabilizes, the final drop in water usage is 20 percent. Discussion ensued regarding reduction in water usage with metering. Mayor Kirkham stated that she believes one of the issues the Council will struggle with in the original town site is that in 2005 when the first bond was passed, she feels there was a misconception that that project solved all of our problems for 50 years. There was a huge benefit to doing that, but to say those improvements fixed everything and gave us endless growth is a misconception; the original town site is going to pay for that, and get no benefit. We all got a benefit, but it didn't resolve everything. Councilmember Slack said the water pressure to the south is a problem, as is the deteriorating infrastructure in the original town site. We have got to figure out how to get those two big pieces taken care of, whether that be agreeing to pass rate increases every year to save money for those projects, or taking out a loan. Discussion ensued regarding water pressure issues. Councilmember Slack said he would rather be proactive in saving money for projects with small incremental increases rather than hitting the citizens with a large rate increase. Mayor Kirkham said we need $5.5 million to get ahead of this with Woodland Hills well, the booster. There is $2.9 million in reserve, and $1 million of DEQ funds. She would recommend transferring the DEQ funds to the Woodland Hills well tank, bring the Water Committee together and have this same presentation from Keller Associates in November. By December the Council needs to make the metering decision, adopted by ordinance. Keller Associates will look into DEQ funding. Staff should start drafting the resolution to go to meters.

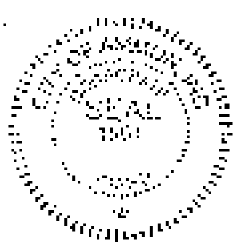
Ron reminded the Council about the Pumpkin Walk. The City Council Members will be judging the displays on Saturday at 9:00 a.m.

Scott Hall reported on the EIRWWA (Eastern Idaho Regional Waste Water Authority) meeting and informed the Council that the Feasibility Study will be finalized next month.

The meeting adjourned at 8:57 p.m.

Dana Kirkham, Mayor

Rachael Sandoval, City Clerk



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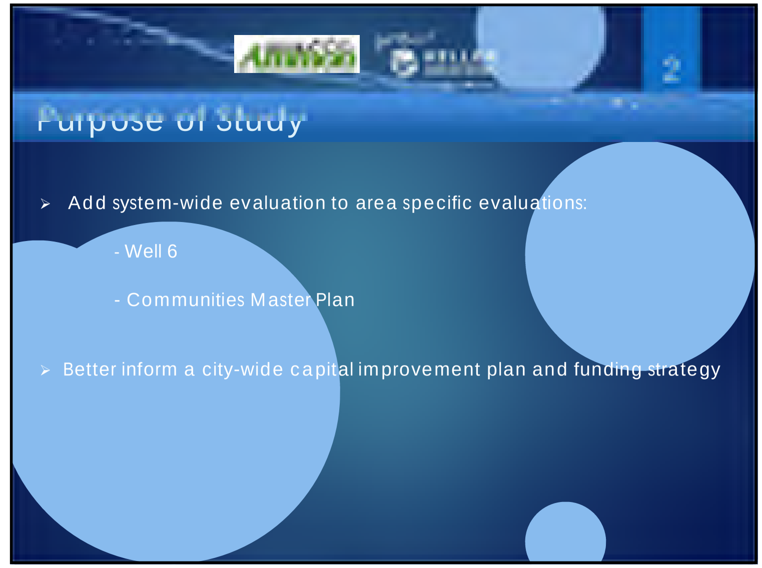
11-30-17

Citizen Water Committee Meeting


City of Ammon
Water Facilities Planning Study
Get There!
KELLER associates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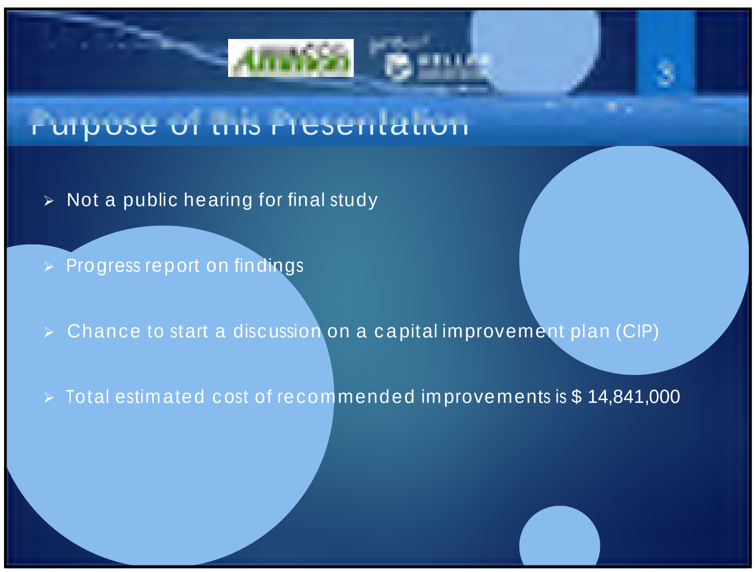
Purpose of Study
Add system-wide evaluation to area specific evaluations:
- Well 6
- Communities Master Plan
Better inform a city-wide capital improvement plan and funding strategy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Progress report on findings
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Total estimated cost of recommended improvements is $ 14,841,000


4
Guiding Strategy
Three Evaluations:
- Water Rights
- Demand vs Capacity
- Hydraulic Model
Criteria:
- DEQ State Standards
- Engineering Best Practice

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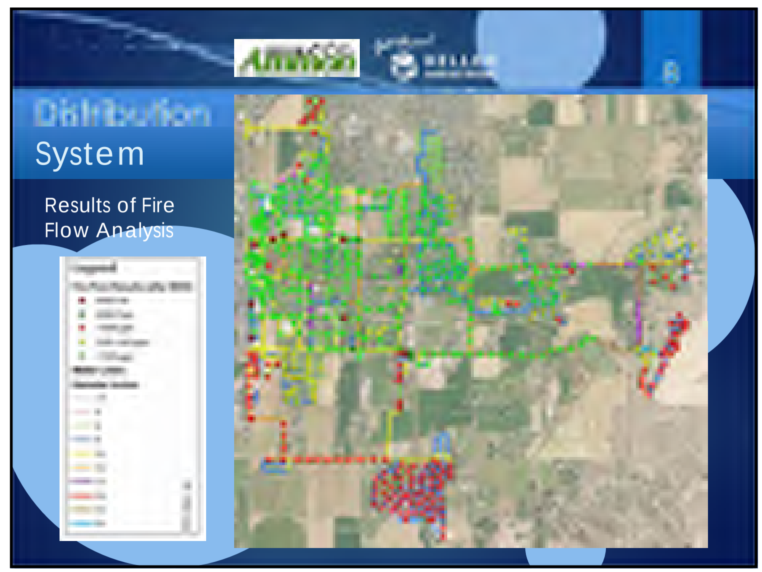

Capital Improvement Plan

Capital Improvement Plan

Item	Description	Cost
City Improvements (Start in 2018)		
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Capital Improvement Plan

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Capital Improvement Plan

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Contracted Improvements (Start in 2018)		
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	Total Contracted Improvements	$ 11,757,000


Funding
13
Likely DEQ Loan Terms of 20 Years at 2.75 %
City Projects Can't Use DEQ Funding
Judicial Confirmation


Rate Impact
14
All at once
Cost $12,810,000
$16.50/Month/User
$1.30/Month/User/$1 Million
5-Years
$2.56 Million/Year
$3.30/Month increase each year for 5 years
LID or Levy – Use to help fund concurrent street improvements

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12-14-17

Ammon City Council Work Session

CITY OF Ammon

2135 SOUTH AMMON ROAD

CITY COUNCIL WORK SESSION – MINUTES

THURSDAY, DECEMBER 14, 2017

AGENDA:

CITY OF AMMON
AGENDA – WORK SESSION
THURSDAY, DECEMBER 14, 2017 – 4:30 P.M.

DISCUSSION ITEMS:

1. Fiber Optic LID #3 – Assessment Discussion
2. Metering Water
3. [illegible]
5. Misc

MINUTES

City Officials Present: Mayor Dana Kirkham
Councilmember Rex Thompson
Councilmember Sean Coletti
Councilmember Russell Slack
Councilmember Byron Wiscombe
City Administrator/Planning Director Ron Folsom
Planning Executive Assistant Cindy Donovan
City Clerk Rachael Sanders
City Engineer Tracy Bono

City Officials Absent: Council President Brian Powell
City Attorney Scott Hall
City Treasurer Jennifer Belfield

Mayor Kirkham opened the meeting at 4:30 p.m. at the Ammon City Hall building located at 2135 South Ammon Road.

DISCUSSION ITEMS:

1. **Fiber Optic LID #3 – Assessment Discussion:** Jennifer Belfield reported on how the assessments will be handled. Initially staff was under the understanding that the assessments would be handled through the Assessor's Office, however the City is responsible for preparing the assessments and collecting them unless the property owner goes two years past due. Jennifer contacted Caselle and they have a module that will work perfectly for tracking the assessments. Jennifer explained that the property owner can pay monthly or annually, and will be able to calculate immediately what the payoff amount is. Discussion ensued.

2. **Metering Water:** Mayor Kirkham explained the Per Capita Water Usage Consumption handout, and informed the Council that Marvin and Reilly from Keller Associates are present to answer questions. Discussion ensued regarding other cities that are metering their water, and their rate schedules. Councilmember Slack said he feels it is best to perform some fine tuning through the year, and then go live the first of next the next year with billing for usage. Councilmember Coletti will work with Keller Associates to put together a rate proposal to bring back to the Council for approval. Discussion ensued regarding the implementation of water metering beginning January 2019, options for public education and the report from the Water Committee.

Marvin Fielding discussed the "pay as you go" scenario for funding improvement projects. The advantages of the "pay as you go" model are that the rates would be increased all at once, and the City would save the interest instead of paying to borrow the money. The concerns are projects would be spread to eighteen years out. The inflation rate being assumed is 3 percent, the loan rate that DEQ (Department of Environmental Quality) was offering was 2.75 percent. The projects become more expensive at a quicker rate as you "pay as you go" than borrowing the money now. Marvin presented three options for borrowing the money. The 4th option is phasing in the rate incrementally over five years, saving money and applying to the loan at the same time. Reilly discussed the critical priorities that the City needs to address. Discussion ensued regarding the available options.

3. **Smart Center:** Mayor Kirkham presented Council with the first draft explaining the concept of the Smart Center. Michael Wright has donated two acres of land located by the Maverik on Sunnyside and Ammon Rd. The estimated building cost is $1.5 million based on an 11,000 sq. ft. building. Mayor Kirkham explained the layout of the building. It will include an atrium, a room for an active learning center, a media room, a reading area, a 3-D printing room, and open space for public use. Mayor Kirkham said two Sponsors have pledged funds for equipment and there is a potential donor for the building. Councilmember Slack stated the City does not have any funding mechanism to pay for the ongoing operations of the building and equipment. Discussion ensued. Mayor

Kirkham suggested working with Councilmember Wiscombe to form a citizen committee to discuss operation and funding of the Senior Center.

4. Misc.: Miscellaneous discussion regarding grants for signal lighting on Sunnyside and Ammon Road, and a possible grant for a bridge.

The meeting adjourned at 5:45 p.m.

Dana Kirkham, Mayor

Rachael Sanders, City Clerk

Per Capita Water Usage Comparison

	Ammon	Rigby	Rexburg	Chubbuck	Ashton[3]
Rate Structure	Flat - RP/RPA/RE Zones $45.75/mo All Others $38.25/mo	Flat $19/mo	Flow-based $15.87/mo/6,000 + $0.918/1,000 thereafter	Flow-based $24/mo + $1.15/1,000	Flow-based $42.62/mo + $1.15/1,000
Population[1]	14,430	4,043	30,000	14,428	1,100
Avg. Day[2]	406	540	219	205	271
Max. Day[2]	1,180	1,476	514	457	1,055
Peak Hour[2]	1,702	2,214	843	958	1,446

1 - Ammon population is that portion of residents estimated to be on Ammon's water system, rather than Falls Water

2 - Reported in Gallons Per Capita Daily (GPCD)

3 - These numbers for Ashton do not reflect the completion of a recent water project which reduced overall flows by approximately 20%

Water/Sewer/Property Tax

$75,000 Taxable Value & 25,000 Gal/Month Water Use

1	**Chubbuck**	**Amount**	**(Pop.- 13,922)**
	Water (Yr)	$ 633.00	
	Sewer (Yr)	$ 532.08	
	City Property Taxes (Yr)	$ 745.03	
	Total	**$ 1,910.11**	

2	**Rigby**	**Amount**	**(Pop.- 3,945)**
	Water (Yr)	$ 228.00	
	Sewer (Yr)	$ 816.00	
	City Property Taxes (Yr)	$ 755.62	
	Total	**$ 1,799.62**	

3	**Blackfoot**	**Amount**	**(Pop.- 11,899)**
	Water (Yr)	$ 454.44	
	Sewer (Yr)	$ 360.48	
	City Property Taxes (Yr)	$ 831.50	
	Total	**$ 1,646.42**	

4	**Idaho Falls**	**Amount**	**(Pop.- 56,813)**
	Water (Yr)	$ 346.80	
	Sewer (Yr)	$ 260.40	
	City Property Taxes (Yr)	$ 717.14	
	Total	**$ 1,324.34**	

5	**Ammon**	**Amount**	**(Pop.- 14,460)**
	Water (Yr)	$ 504.18	
	Sewer (Yr)	$ 569.76	
	City Property Taxes (Yr)	$ 237.53	
	Total	**$ 1,311.47**	

City Property Taxes are based on 2016 rates. Ammon water rate is an average of big and small lot flat rates. Population, water rates and sewer rates are from 2017 Schiess & Associates fee survey.

Project # 216102

2-14-18

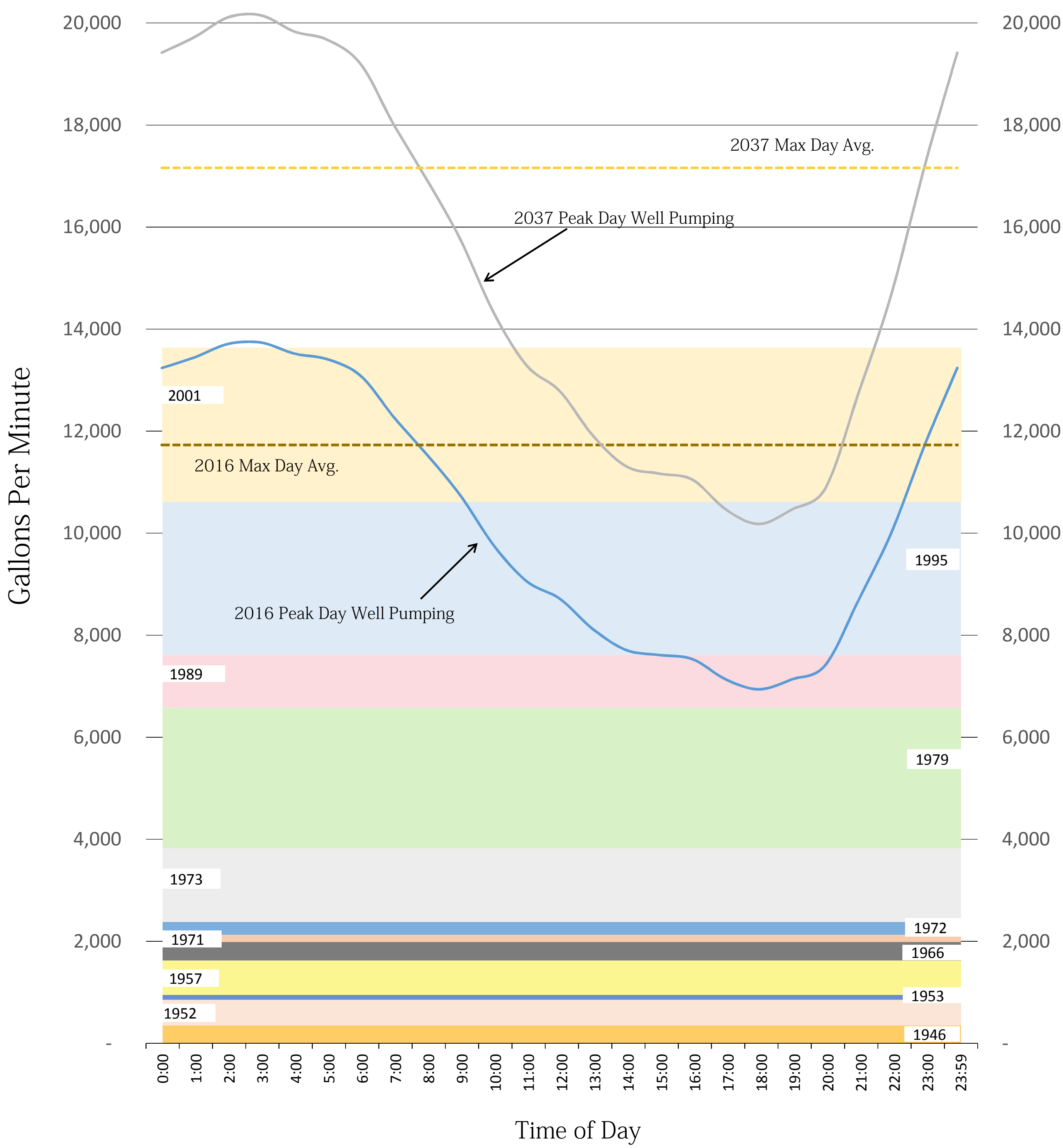
Preliminary Information Provided for City Website

Supply, Storage, Delivery Capacity

		Surplus / (Deficit)	
	Requirement	**2016**	**2037**
Supply	Max Day Demand	(205) gpm	(5,635) gpm
Storage	EQ, Fire, & Operational Needs	(1.6) MG	(2.6)/(3.3) MG
Delivery	Max Day + Fire Demand	935 gpm	(2,475) gpm

City of Ammon

Peak Day Well Pumping vs Water Rights



"Colored bars represent water rights owned by the City of Ammon and are labeled with their year of seniority. Younger water rights are restricted first in the event of a water call. Ammon currently exceeds its existing water rights during the heaviest demands of the year."

KELLER ASSOCIATES

City of Ammon, Idaho
Water Facilities Planning Study
Capital Improvement Plan

ID#	Item	Cost		Need Addressed
City Improvements (Start in 2018)				
1st ST LOOP	12-inch loop from Curlew to 1st St.	$	294,000	Looping and Fire Flow
LDY HK LOOP	8-inch loop to Crowley Rd	$	79,000	Looping and Fire Flow
AM RD LOOP	16-inch loop from Sunnyside to Township	$	680,000	Looping to South Side
	Total City Improvements	***$***	***1,053,000***	

ID#	Item	Cost		Need Addressed
Developer Improvements (Start as needed)				
WH WELL	16-inch dia. X 350-foot, 2,600 gpm Well	$	257,000	Supply on south side
WH WELLHOUSE	15' X 30' Wellhouse w/generator	$	590,000	Supply on south side
FOX HLW LOOP	8-inch loop in Fox Hollow Subdivision	$	129,000	Looping and Fire Flow
COTTAGES BPS	3,000 gpm Booster Station for Additional Supply	$	1,055,000	Delivery
	Total Developer Improvements	***$***	***2,031,000***	

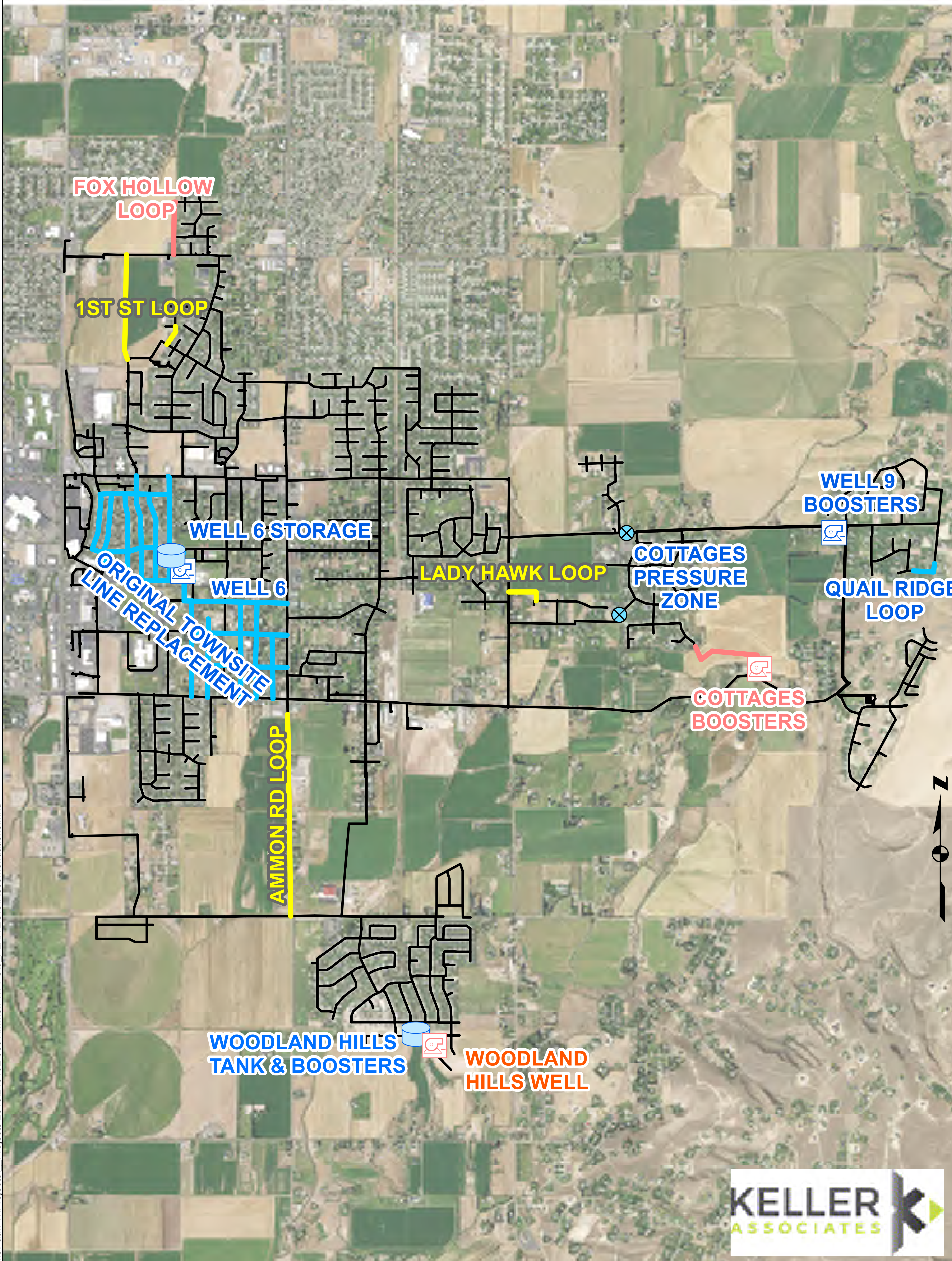
ID#	Item	Cost		Need Addressed
Contracted Improvements (Start in 2018)				
WH TANK AND BS	2.0 MG Tank and 3,000 GPM Booster Station	$	2,734,000	Storage and Delivery
COTTAGE PZ	PRV's to create a new pressure zone	$	31,000	Low Pressure, Fire Flow
WELL 9 BPS	BPS upgrade to improve pressure in Quail Ridge	$	500,000	Low Pressure, Fire Flow
QL RDG LOOP	8-inch loop from Foothill Rd to Sharptail Rd	$	69,000	Low Pressure, Fire Flow
ORIGINAL TOWNSITE	Replace undersized and failing water lines	$	5,951,000	Undersized and Leaking Lines
WELL 6	Well, Tank, and Booster Station Improvements	$	1,015,000	Supply, Storage, and Delivery
W6 STORAGE	Additional 0.5 MG Storage at Well 6	$	1,457,000	Storage
	Total Contracted Improvements	***$***	***11,757,000***	

Total All Improvements $ 14,841,000

The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the cost presented herein.

City of Ammon Water Facilities Planning Study

Capital Improvement Plan



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City of Ammon

SUMMARY OF CURRENT AND FUTURE SYSTEM DEFICIENCIES

Water Rights:

1. Need additional water rights
2. Flow-based billing, city is about 70% metered: meter pits already purchased

Water Supply:

1. Current Needs: 200 gpm of additional source capacity
2. Redundant supply needed on south side of town
3. 2037 Needs: 5,600 gpm of additional source capacity
4. Equivalent to adding a new 2,200 gpm well for every 3,000 people added to the system
5. Potential new well sites: rehab of Well 6, Woodland Hills

Water Storage Needs:

1. Current Needs: Additional 1.6 MG needed to allow for operational, equalization, and fire storage
2. 2037 Needs: Additional 2.6 MG needed to satisfy equalization storage needs if operational storage can be reduced to 25%. 3.3 MG if operational storage remains at 50%
3. 2.6 MG is equivalent to adding 1.1 MG of new storage for every 3,000 people added to the system
4. Potential tank locations: existing tank at Well 6, additional tank at Well 6, Woodland Hills, second hill tank

Water Delivery Needs:

1. Current Needs: Surplus of 900 gpm delivery capacity
2. Improved delivery to Quail Ridge, Cottages, Woodland Hills for fire flow and pressure
3. 2037 Needs: Will need 2,500 gpm additional delivery capacity
4. Equivalent to adding 1,000 gpm of delivery capacity for every 3,000 people added to the system
5. Potential booster station locations: Rebuild booster station at Well 6, Woodland Hills, Cottages, upgrades to existing booster stations

Water Distribution Needs:

1. Water line deterioration in Original Townsite identified in Communities Master Plan
2. Looping in various locations to improve fire flow and pressure
3. Parallel connection to south side of town
4. Ongoing maintenance and replacement of aging lines

Assumptions

- Assumes per capita usage over the past three years remains unchanged. Addition of high-usage industrial or commercial customers, high vs low density development, and conservation efforts all affect per capita usage
- Reference to the year 2037 is a reference to the forecasted population of 22,567. If growth occurs more rapidly these targets will occur sooner and vice versa

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