Arrowrock Dam. Boise Project, Arrowrock Division, ID. BOR Photo by Dave Walsh.

Idaho Water Resource Board

Meeting No. 10-14
September 23, 2014
Boise, Idaho

WORK SESSION IN PREPARATION FOR IWRB MEETING NO. 10-14

September 22, 2014 at 8:00 am
Idaho Water Center
Conference Rooms 602 B,C,D
322 East Front Street, Boise, Idaho 83720

WORK SESSION AGENDA

1. Financial Status Report
2. Water Supply Bank IT Infrastructure
3. Bee Line Water Association Loan (See Tab 10 under IWRB Meeting Materials)
4. Storage Studies Update (See Tab 8 under IWRB Meeting Materials)
5. Cloud-Seeding Update (See Tab 9 under IWRB Meeting Materials)
6. Recharge (See Tab 7 under IWRB Meeting Materials)
7. Statewide Aquifer Stabilization Effort Prioritization

----The Board will break for lunch at approximately 12:00 pm----

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1:00 pm: IWRB Field Trip – Boise Board of Control
(*IWRB members, IDWR staff, and invited guests)*

Americans with Disabilities

The meeting will be held in facilities that meet the accessibility requirements of the Americans with Disabilities Act. If you require special accommodations to attend, participate in, or understand the meeting, please make advance arrangements by contacting Department staff by email Mandi.Pearson@idwr.idaho.gov or by phone at (208) 287-4800.

MEMO

To: Idaho Water Resource Board
From: Brian Patton
Subject: Financial Status Report
Date: September 13, 2014

As of **August 1st** the IWRB's available and committed balances in the Revolving Development Account, Water Management Account, and the Secondary Aquifer Management Account are as follows.

Revolving Development Account (main fund)		
Committed but not disbursed		
Loans for water projects	$5,621,993	
Water storage studies	1,465,197	
Aqualife Hatchery, HB644 2014	1,635,000	
HB479 2014		
Mountain Home	1,495,500	
Galloway	2,000,000	
Boise/Arrowrock	1,500,000	
Island Park	2,500,000	
Water supply Bank	500,000	
Total committed but not disbursed		16,717,691
Loan principal outstanding		8,281,233
Uncommitted balance		1,048,233
Estimated revenues next 12 months		3,200,000
Commitments from revenues next 12 months		0
Estimated uncommitted funds over next 12 months		4,248,052
Rev. Dev. Acct. Bell Rapids Sub-Account		
Committed but not disbursed		$180,522
Estimated revenues next 12 months *(1)*		2,000
Commitments from revenues over next 12 months		2,000
Estimated uncommitted funds over next 12 months		0
Rev. Dev. Acct. Pristine Springs Sub-Account (5)		
Committed but not disbursed		
Repair fund	$1,007,428	
Total committed but not disbursed		$1,007,428
Loan principal outstanding		7,127,940
Uncommitted balance		0
Estimated revenues next 12 months		900,000
Commitments from revenues over next 12 months		900,000
Estimated uncommitted funds over next 12 months		0

Rev. Dev. Acct. Treasure Valley & Rathdrum Prairie CAMP Sub-Account		
Committed but not disbursed		$58,453
Available for RP and TV CAMP projects		173,745
Estimated revenues next 12 months (5)		200,000
Estimated Available funds over next 12 months		373,745
Rev. Dev. Acct. Upper Salmon/CBWTP Sub-Account		
Committed but not disbursed		$3,396,955
(Upper Salmon flow enhancement/reconnect projects)		
Estimated revenues next 12 months *(4)*		30,000
Commitments from revenues over next 12 months		30,000
Estimated available funds over next 12 months		0
Rev. Dev. Acct. Water District 02 Water Smart Grant Sub-Account (6)		
Committed but not disbursed		$114,663
(Water District 02 Measurement Devices)		
Commitments from revenues over next 12 months		$114,663
Estimated available funds over next 12 months		0
Rev. Dev. Acct. Water Supply Bank Sub-Account (7)		
Committed but not disbursed		$550,702
(Owners share – water bank lease/rentals)		
Estimated revenues next 12 months		1,000
Commitments from revenues over next 12 months		$550,702
Estimated available funds over next 12 months		$1,000
Rev. Dev. Acct. ESPA Sub-Account		
Committed but not disbursed		
CREP	2,419,581	
Aquifer recharge	343,494	
Bell Rapids	361,620	
Palisades storage	10,000	
Black Canyon Exchange	529,445	
Total committed but not disbursed		$3,664,140
Loan principal outstanding		299,295
Uncommitted balance		439,812
Estimated revenues next 12 months		120,000
Commitments from revenues over next 12 months		0
Estimated uncommitted funds over next 12 months		559,812
Rev. Dev. Acct. Dworshak Hydropower (2)		
Committed but not disbursed (repair fund, etc.)		$1,337,151
Estimated revenues next 12 months *(3)*		200,000
Commitments from revenues over next 12 months		200,000
Estimated uncommitted funds over next 12 months		0
Water Management Account		
Committed but not disbursed:		$111,376
Loan principal outstanding		0
Uncommitted balance		9,915
Estimated revenues next 12 months		0
Commitments from revenues over next 12 months		0
Estimated uncommitted funds over next 12 months		$9,915

Secondary Aquifer Management Fund	
Committed but not disbursed:	
HB 479 2014	
ESPA Managed Recharge Infrastructure	4,000,000
Northern Idaho Future Water Needs	500,000
Recharge wheeling fees	1,215,432
Recharge sites	130,615
Other	212,937
Total Committed	$6,078,985
Uncommitted balance	2,522,775
Estimated revenues next 12 months (Cigarette Tax)	5,000,000
Commitments from revenues over next 12 months	0
Estimated uncommitted funds over next 12 months	7,522,775
Secondary Aquifer Fund Aquifer Mon. Meas. & Model Sub-Acct (8)	
Committed but not disbursed	$716,000
Commitments from revenues over next 12 months	$716,000
Estimated available funds over next 12 months	0
Total committed but not disbursed	**$30,377,886**
Total loan principal outstanding	**15,708,468**
Total uncommitted balance	**4,195,318**
Total estimated uncommitted funds over next 12 months	**12,715,299**

(1) Exclusive of pass-through payments made by the U.S. Bureau of Reclamation.
(2) Excess funds generated by the Dworshak Hydropower Project are deposited into the Revolving Development Account (Main Fund) on a monthly basis. To the date of this report this has totaled $2,550,675.
(3) This line item includes power sales and interest income after removing debt service. Debt service is paid prior to the funds being deposited in the Revolving Development Account.
(4) Exclusive of project funds provided by Bonneville Power Administration or federal appropriation sources. These funds are provided to the Board based on individual project proposals and so are not included in the income projection.
(5) Excess funds generated by the Pristine Springs Project are deposited into the Revolving Development Account (Main Fund) or into the Rathdrum Prairie/Treasure Valley Sub Account. To the date of this report this has totaled $42,061 in the Revolving Development Account Main Fund and $271,672 into the RP/TV Sub-Account.
(6) Pass-through for Bureau of Reclamation grant to assist with installation of measurement devices in Water District 02.
(7) Pass-through for owners share of Water Supply Bank lease/rentals. Interest earned accrues to IWRB.
(8) Source is pristine Springs loan repayments of $716,000 annually through 2027.

The following is a list of potential loans:

Potential Applicant	Potential Project	Preliminary Loan Amount	Comment
Northside Pumping Company	Rebuild pump plant and rehab system	$2 million	Project in planning. Applying for NRCS cost share grants
Raft River Ground Water District	Ground water-to-surface water conversion pipeline	$4 million	Project in planning. Applying for NRCS cost share grants.
Marysville Irrigation Company/North Fremont	Gravity pipeline system – next phase	$1.5 million	Project in planning and design. Applying for NRCS cost share grants
Big Wood Canal Company	Gravity pipeline system	$2 million	
Jefferson Irrigation Company	Ground water well reconstruction	$200,000	November IWRB meeting

IDAHO WATER RESOURCE BOARD
Sources and Applications of Funds
as of July 31, 2014
REVOLVING DEVELOPMENT ACCOUNT

Original Appropriation (1969)	$500,000.00
Legislative Audits	($49,404.45)
IWRB Bond Program	($15,000.00)
Legislative Appropriation FY90-91	$250,000.00
Legislative Appropriation FY91-92	$280,700.00
Legislative Appropriation FY93-94	$500,000.00
IWRB Studies and Projects	($249,067.18)
Loan Interest	$6,852,588.06
Interest Earned State Treasury (Transferred)	$1,652,624.07
Filing Fee Balance	$47,640.20
Bond Fees	$1,469,601.45
Arbitrage Calculation Fees	($12,000.00)
Protest Fees	($475.00)
Series 2000 (Caldwell/New York) Pooled Bond Issuers fees	$43,657.93
2012 Ground Water District Bond Issuer fees	$377,000.00
Bond Issuer fees	$39,999.59
Attorney fees for Jughandle LID	($3,600.00)
Water Supply Bank Receipts	$3,857,872.30
Legislative Appropriation FY01	$200,000.00
Pierce Well Easement	$2,000.00
Transferred to/from Water Management Account	$317,253.80
Legislative Appropriation 2004, HB843	$500,000.00
Legislative Appropriation 2009, SB 1511 Sec 2, Teton/Minidoka Studies	$1,800,000.00
Legislative Appropriation 2009, SB 1511 Sec 2, Teton/Minidoka Studies Expenditures	($1,229,460.18)
Weiser Galloway Study - US Army Corps of Engineers	($1,597,099.12)
Boise River Storage Feasibility Study	($74,861.09)
Aqualife Lease receipt from Seapac	$9,000.00
Legislative Appropriation 2014, HB 479 Sec 1 and 2	$10,500,000.00
Appraisal (LeMoyne Appraisal LLC)	($4,500.00)
Payment to JR Simplot Co for water rights	($2,500,000.00)

Bell Rapids Water Rights Sub-Account

Legislative Appropriation 2005, HB392	$21,300,000.00
Interest Earned State Treasury	$692,692.54
Bell Rapids Purchase	($16,006,558.00)
Bureau of Reclamation Principal Amount Lease Payment Paid	$8,294,337.54
Bureau of Reclamation Interest Paid	$179,727.97
Bureau of Reclamation Remaining Amount Lease Payment Paid	$9,142,649.54
First Installment Payment to Bell Rapids	($1,313,236.00)
Second Installment Payment to Bell Rapids	($1,313,236.00)
Third Installment Payment to Bell Rapids	($1,313,236.00)
Fourth Installment Payment to Bell Rapids	($1,040,431.55)
Interest Credit due to Bureau of Reclamation (Part of Fourth Installment)	($19,860.45)
Fifth Installment Payment to Bell Rapids	($1,055,000.00)
Transfer to General Fund - Principal	($21,300,000.00)
Transfer to General Fund - Interest	($772,052.06)
BOR payment for Bell Rapids	$1,040,431.55
BOR payment for Bell Rapids	$1,313,236.00
BOR prepayment for Bell Rapids	$1,302,981.70
BOR prepayment for Bell Rapids	$1,055,000.00
BOR payment for Alternative Financing Note	$7,117,971.16
Payment to US Bank for Alternative Financing Note	($7,118,125.86)
Payment for Ongoing Bell Rapids Finance Costs (trustee fees, water bank, etc.)	($6,740.10)
Commitments	
Ongoing Bell Rapids Finance Costs (trustee fees, etc.)	$180,551.98
Committed for alternative finance payment	$0.00
Total Commitments	$180,551.98
Balance Bell Rapids Water Rights Sub-Account	**($0.00)**

Pristine Springs Project Sub-Account

Legislative Appropriation 2008, SB1511, Pristine Springs	$10,000,000.00
Legislative Appropriation 2006, HB870, Water Right Purchases	$5,000,000.00
Interest Earned State Treasury	$35,279.04
Loan Interest	$1,778,809.73
Transfer from ESP Sub-Account	$1,000,000.00
Payment for Purchase of Pristine Springs (3)	($16,000,000.00)
Payment from Magic Valley & Northsnake GWD for Pristine Springs	$3,252,948.42
Appraisal	($25,500.00)
Insurance	($33,662.25)
Recharge District Assessment	($24,171.45)
Water District 130 Annual Assessment	($3,841.45)
Hydro Plants Engineering Certification (Straubhar)	($3,000.00)
Payment to EHM Engineers for pipeline work	($1,200.00)
Payment to John Root for Easement Survey	($1,000.00)
Payment to MWH Americas Inc	($11,326.27)
Telemetry Station Equipment	($15,193.92)
Rein Tech LLC (Satellite phone annual payment)	($990.00)
Standley Trenching (Trac system for communication equip)	($2,783.99)
Property Taxes and other fee assessments (Jerome County)	($6,635.15)
Rental Payments	$1,440,677.46
Payments to Scott Kaster	($60,651.25)
Utility Payments (Idaho Power)	($32,716.51)
Costs for property maintenance	($31,512.60)
Travel costs for property maintenance	($351.30)
Pipeline repair (IGWA)	($170,000.00)
Transferred to Secondary Aquifer Fund (2011 Legislature; HB 291)	($2,465,300.00)

Transferred to Secondary Aquifer Fund (2012 Legislature; SB 1389)		($1,232,000.00)	
Transferred to Secondary Aquifer Fund (2013 Legislature; HB 270)		($716,000.00)	
Transferred to Secondary Aquifer Fund (2014 Legislature; HB 618)		($716,000.00)	
Pristine Springs Hydropower Projects			
Net power sales revenues		$357,052.07	
Pristine Springs Committed Funds			
ESPA CAMP (to be transferred to Secondary Fund)	0.00		
Repair/Replacement Fund	$1,007,427.96		
TOTAL COMMITTED FUNDS	$1,007,427.96		
Loans Outstanding			
North Snake and Magic Valley Ground Water Districts	$7,127,940.18		
Total Loans Outstanding	$7,127,940.18		
Funds to RP CAMP & TV CAMP Sub-Account		**$271,672.34**	
Pristine Springs Revenues into Main Revolving Development Account			**$31,830.28**
Rathdrum Prairie CAMP & Treasure Valley CAMP Sub-Account			
Pristine Springs Hydropower and Rental Revenues		$271,672.34	
Interest Earned State Treasury		$573.11	
Spokane River Forum		($3,000.00)	
Treasure Valley Water Quality Summit		($500.00)	
Kootenai-Shoshone Soil & Water Cons. Dist. - Agrimet Station		($9,000.00)	
Rathdrum Prairie-Spokane Valley Aquifer Pumping Study		($27,547.44)	
Committed Funds			
Kootenai-Shoshone Soil & Water Cons. Dist. - Agrimet Station	$11,000.00		
Spokane River Forum	$5,000.00		
Rathdrum Prairie-Spokane Valley Aquifer Pumping Study	$42,452.56		
Treasure Valley Water Quality Summit	$0.00		
TOTAL COMMITTED FUNDS	$58,452.56		
Balance Rathdrum Prairie CAMP & Treasure Valley CAMP Sub-Account		**$173,745.45**	
Upper Salmon/CBWTP Sub-Account			
Water Transaction Projects Payment Advances from CBWTP/Accord		$2,846,171.47	
PCSRF Funds for Administration of Non-Diversion Easements on Lemhi River		$237,807.26	
Interest Earned State Treasury		$99,598.12	
Transfer to Water Supply Bank		($54,088.93)	
Change of Ownership		($600.00)	
Alturas Lake Creek Appraisal		($8,989.23)	
Payments for Water Acquisition		($478,804.14)	
Committed Funds			
Administration of Non-Diversion Easements on Lemhi River	$151,326.69		
Alturas Lake Creek (Breckenridge)	($0.00)		
Bayhorse Creek	$36,028.87		
Beaver Creek (DOT LLP)	$6,182.22		
Big Hat Creek	$96.89		
Big Timber Tyler (Leadore Land Partners)	$544,986.15		
Canyon Creek/Big Timber Creek (Beyeler)	$499,125.73		
Fourth of July Creek (Vanderbilt)	$19,754.10		
Iron Creek (Phillips)	$274,786.50		
Kenney Creek Source Switch	$27,256.06		
Lemhi - Big Springs	$67,338.50		
Lemhi River & Little Springs Creek (Kauer)	$23,930.78		
Little Springs Creek (Snyder)	$320,073.96		
Lower Eighteenmile Creek (Ellsworth Angus Ranch)	$3,555.56		
Lower Lemhi Thomas (Robert Thomas)	$2,400.00		
P-9 Bowles (River Valley Ranch)	$349,180.43		
P-9 Charlton (Sydney Dowton)	$23,112.36		
P-9 Dowton (Jim Dowton Ranch)	$276,959.57		
P-9 Elzinga (Elzinga)	$342,576.34		
Patterson-Big Springs (PBSC9)	$208,584.51		
Sulphur Creek	$2,171.52		
Spring Creek RE Beard	$3,182.76		
Whitefish (Leadore Land Partners)	$214,345.93		
Total Committed Funds	$3,396,955.43		
Balance CBWTP Sub-Account		**($755,860.88)**	
Water District 02 WaterSmart Grant Sub-Account			
Received from BOR		$37,336.76	
Payments made to contractors		($37,336.76)	
Committted Funds:			
Grant Approval	$114,663.24		
Total Committed Funds	$114,663.24		
Balance WaterSmart Grant Sub-Account		**$0.00**	
Water Supply Bank Sub-Account			
Payments received from renters for 2013 season		$529,823.25	
Payments received from renters for 2014 season		$553,315.70	
Payments made to owners for 2013 season		($522,645.12)	
Payments made to owners for 2014 season		($9,792.00)	
Interest Earned State Treasury		$1,020.07	
Committted Funds:			
Owners Share	$550,701.83		
Total Committed Funds	$550,701.83		
Balance Water Supply Bank Sub-Account		**$1,020.07**	
Eastern Snake Plain Sub-Account			
Legislative Appropriation 2005, HB392		$7,200,000.00	
Legislative Appropriation 2005, HB392, CREP Program		$3,000,000.00	
Interest Earned State Treasury		$1,896,123.23	
Loan Interest		$207,230.67	
Bell Rapids Water Rights Closing Costs		($6,558.00)	
First Installment Payment to Bell Rapids Irr. Co. (Partial)		($361,800.00)	
Second Installment Payment to Bell Rapids Irr. Co. (Partial)		($361,800.00)	
Third Installment Payment to Bell Rapids Irr. Co. (Partial)		($361,800.00)	

Fourth Installment Payment to Bell Rapids Irr. Co. (Partial)		($614,744.00)	
Fifth Installment Payment to Bell Rapids Irr. Co. (Final)		($1,675,036.00)	
Reimbursement from Commerce & Labor W-Canal		$74,709.77	
Transfer to Pristine Springs Sub Account		($1,000,000.00)	
Reimbursement from Magic Valley GWD - Pristine Springs		$500,000.00	
Reimbursement from North Snake GWD - Pristine Springs		$500,000.00	
Reimbursement from Water District 1 for Recharge		$159,764.73	
Palisades (FMC) Storage Costs		($3,513,078.26)	
Reimbursement from BOR for Palisades Reservoir		$2,381.12	
W-Canal Project Costs		($326,834.11)	
Black Canyon Exchange Project Costs		($71,680.00)	
Black Canyon Exchange Project Revenues		$23,800.00	
2008 Recharge Conveyance Costs		($14,580.00)	
2009 Recharge Conveyance Costs		($355,253.00)	
2010 Recharge Conveyance Costs		($484,231.62)	
Additional recharge projects preliminary development		($6,505.89)	
Pristine Springs Cost Project Costs		($6,863.91)	
Loans and Other Commitments			
Commitment - Remainder of Bell Rapids Water Rights Purchase (1)		$361,620.00	
Commitment - CREP Program (HB392, 2005)		$2,419,580.50	
Commitment - Additional recharge projects preliminary development		$343,494.11	
Commitment - Palasades Storage O&M		$10,000.00	
Commitment - Black Canyon Exchange Project (fund with ongoing revenues)		$529,444.95	
Total Loans and Other Commitments		$3,664,139.56	
Loans Outstanding:			
American Falls-Aberdeen GWD (CREP)	$96,701.70		
Bingham GWD (CREP)	$0.00		
Bonneville Jefferson GWD (CREP)	$62,317.68		
Magic Valley GWD (CREP)	$92,072.19		
North Snake GWD (CREP)	$48,203.07		
TOTAL ESP LOANS OUTSTANDING	$299,294.64		
Uncommitted Balance Eastern Snake Plain Sub-Account		**$439,810.53**	
Dworshak Hydropower Project			
Dworshak Project Revenues			
Power Sales & Other	$6,251,812.94		
Interest Earned State Treasury	481,504.78		
Total Dworshak Project Revenues		$6,733,317.72	
Dworshak Project Expenses (2)			
Transferred to 1st Security Trustee Account	$148,542.63		
Construction not paid through bond issuance	$226,106.83		
1st Security Fees	$314,443.35		
Operations & Maintenance	$1,736,086.81		
Powerplant Repairs	$58,488.80		
Capital Improvements	$318,366.79		
FERC Payments	$43,456.05		
Total Dworshak Project Expenses		($2,845,491.26)	
Dworshak Project Committed Funds			
Emergency Repair/Future Replacement Fund	$1,314,575.00		
FERC Fee Payment Fund	$22,576.30		
Total Dworshak Project Committed Funds		$1,337,151.30	
Excess Dworshak Funds into Main Revolving Development Account			$2,550,675.16
TOTAL			**$26,046,975.82**

Loans Outstanding:	Amount Loaned	Principal Outstanding
Aberdeen-Springfield Canal Company (WRB-491; Diversion structure)	$329,761	$152,228.25
Boise City Canal Company (WRB-492)...Grove St Canal Rehab	$110,618	$29,997.00
Bonnie Laura Water Corporation (14-Jul-06; Well repairs)	$71,000	$24,101.33
Canyon County Drainage District No. 2 (28-Nov-12; Drain tile pipeline	$35,000	$32,054.85
Challis Irrigation Company (28-Nov-07; river gate replacement)	$50,000	$20,744.35
Chaparral Water Association	$90,154	$11,271.74
Chaparral Water Association (21-Jan-11; Well deepening & improvem	68,000	$27,853.56
Cloverdale Ridge Water Corp. (irrigation system rehab 25-sep-09)	106,400	$63,356.56
Consolidated Irrigation Company (July 20, 2012; pipeline project)	1,500,000.00	$690,650.00
Country Club Subdivision Water Association (18-May-07, Well Project)	$102,000	$47,040.57
Cub River Irrigation Company (18-Nov-05; Pipeline project)	$1,000,000	$692,203.48
Cub River Irrigation Company	$500,000	$374,620.59
Enterprise Irrigation District (14-Jul-06; Pipeline project)	$37,270	$13,309.58
Enterprise Irrigation District (North Lateral Pipeline)	$105,420	$44,658.95
Evergreen Terrace Water Association (water study; 25-sep-09)	$15,000	$0.00
Firth, City of	$112,888	$29,512.12
Foothills Ranch Homeowners Association (7-oct-11; well rehab)	$150,000	$128,960.06
Garden Valley Ranchettes Homeowners Association (25-Jan-05)	$2,716	$1,326.46
Genesee, City of (Storage tank, 22-Jan-10)	$250,000	$0.00
Georgetown, City of	$278,500	$0.00
Harvest Valley Homeowners Association (22-Mar-13; Pump Replaceme	4,500.00	$3,288.95
Jefferson Irrigation Company (well deepenings)	$207,016	$24,043.73
Jefferson Irrigation Company (9-May-2008 Well Replacement)	$81,000	$49,420.63
Jughandle HOA/Valley County Local Improvement District No. 1 (well p	$907,552	$720,119.76
King Hill Irrigation District (24-Sep-10; Pipeline replacement	$300,000	$106,730.14
Lake Reservoir Company (29-July-11; Payette Lake-Lardo Dam Outle	$594,000	$186,147.87
Last Chance Canal Company (WRB-497)	$500,000	$82,519.91
Lava Hot Springs, City of	$347,510	$165,572.78
Lindsay Lateral Association (22-Aug-03)	$9,600	$922.49
Lindsay Lateral Association (Engineering Design Project & Pipeline Stu	$19,700	$16,236.53
Live-More Lake Community (9-Jun-04)	$42,000	$14,084.43
Lower Payette Ditch Company (2-Apr-04; Diversion dam replacement)	$875,000	$277,725.68
Marsh Center Irrigation Company (13-May-05; Hawkins Dam)	$236,141	$134,768.26
Marysville Irrigation Company (18-May-07, Pipeline Project Phase 1)	$625,000	$331,877.80
Marysville Irrigation Company (9-May-08, Pipeline Project Phase 2)	$1,100,000	$551,866.10
McGuire Estates Water Users Association (4-Mar-05)	$60,851	$14,610.10

Meander Point Subdivsion Homeowners Association (7-Sep-07; comn	$330,000	$33,905.66	
Meridian Heights Water & Sewer Association (18-May-07)	$350,000	$216,481.64	
Mores Creek Rim Ranches Water District	$221,400	$27,282.24	
New Hope Water Corporation	$151,460	$0.00	
North Fremont Canal Systems (25-Jan-13; Marysville Project)	$2,500,000	$2,000,000.00	
Point Springs Grazing Association (July 20, 2012; storck water pipeline	48,280.00	$43,753.18	
Preston-Whitney Irrigation Company (29-May-09; Fairview Lateral Pipe	$800,000	$126,617.61	
Producers Irrigation Company (17-Mar-06; well replacements)	$185,000	$33,233.26	
Ranch Subdivision Property Owners Assoc	$24,834	$8,463.59	
Riverside Independent Water District	$350,000	$149,180.60	
Skin Creek Water Association	$188,258	$75,745.13	
Sourdough Point Owners Association (23-Jan-07; water supply & treat	$750,000	$2,999.04	
Spirit Bend Water Association	$92,000	$34,600.04	
Sunset Heights Water District (17-May-13; Exchange water project)	$48,000	$43,747.40	
Thunder Canyon Owners Association (6-Feb-04)	$92,416	$28,957.08	
Twin Lakes Canal Company - Winder Lateral Pipeline Project (13-Jul-0	$500,000	$350,383.45	
Twin Lakes Canal Company (2-Apr-04)	$90,000	$8,814.82	
Whitney-Nashville Water Company	$225,000	$33,243.94	
TOTAL LOANS OUTSTANDING			**$8,281,233.29**
Loans and Other Funding Obligations:			
Legislative Appropriation 2014, HB 479 Sec 1 and 2			
Mountain Home AFB Water Rights (HB479)		$1,495,500.00	
Galloway Dam & Reservoir Project (HB 479)		$2,000,000.00	
Boise River (Arrowrock Enlargement) Feasibility Study (HB479)		$1,500,000.00	
Island Park Enlargement (HB479)		$2,500,000.00	
Water Supply Bank Computer Infrastructure (HB 479)		$500,000.00	
Aqua Life Hatchery, HB644, 2014		$1,635,000.00	
Senate Bill 1511 - Teton Replacement and Minidoka Enlargement Studies		$678,161.82	
Boise River Storage Feasibility Study		$325,414.93	
Weiser-Galloway Study (28-May-10)		$461,620.87	
A&B Irrigation District (18-July-14; pipeline and conversion project)		$3,500,000.00	
Clearwater Water District - pilot plant (13-jul-07)		$80,000.00	
Consolidated Irrigation Company (July 20, 2012; pipeline project)		$1,284,350.00	
Dover, City of (23-Jul-10; Water Intake project)		$194,063.00	
Lake Reservoir Company (29-July-11; Payette Lake-Lardo Dam Outlet Gates)		$0.00	
Lindsay Lateral Association		$15,300.00	
North Fremont Canal Systems (25-Jan-13; Marysville Project)		$500,000.00	
Point Springs Grazing Association (July 20, 2012; storck water pipeline)		$48,280.00	
TOTAL LOANS AND OTHER FUNDING OBLIGATIONS			**$16,717,690.62**
Uncommitted Funds			**$1,048,051.91**
TOTAL			**$26,046,975.82**

(1) Actual amount needed may vary depending on final determination of water actually purchased and interest income received.
(2) Debt service on the Dworshak Project bonds is paid before the Dworshak monies are deposited into the Revolving Development Account and is therefore not shown on this balance sheet.

Idaho Water Resource Board
Sources and Applications of Funds
as of July 31, 2014
WATER MANAGEMENT ACCOUNT

Original Appropriation (1978)	$1,000,000.00
Legislative Audits	($10,645.45)
IWRB Appraisal Study (Charles Thompson)	($5,000.00)
Transfer funds to General Account 1101(HB 130, 1983)	($500,000.00)
Legislative Appropriation (6/29/1984)	$115,800.00
Legislative Appropriation (HB988, 1994)	$75,000.00
Turned Back to General Account 6/30/95, (HB988, 1994)	($35,014.25)
Legislative Appropriation (SB1260, 1995, Aquifer Recharge, Caribou Dam)	$1,000,000.00
Interest Earned	$120,475.04
Filing Fee Balance	$2,633.31
Water Supply Bank Receipts	$841,803.07
Bond Fees	$277,254.94
Funds from DEQ and IDOC for Glenns Ferry Water Study	$10,000.00
Legislative Appropriation FY01	$200,000.00
Western States Wate Council Annual Dues	($7,500.00)
Tranfer to/from Revolving Development Account	($317,253.80)
Legislative Appropriation (SB1239, Sugarloaf Aquifer Recharge Project)	$60,000.00
Legislative Appropriation (HB 843 Sec 6)	$520,000.00
Legislative Appropriation (SB1496, 2006, ESP Aquifer Management Plan)	$300,000.00
Legislative Appropriation (HB 320, 2007, ESP Aquifer Management Plan)	$849,936.99
TOTAL	**$4,497,489.85**

Grants Disbursed:

Completed Grants	$1,291,110.72
Arco, City of	$7,500.00
Arimo, City of	$7,500.00
Bancroft, City of	$7,000.00
Bloomington, City of	$4,254.86
Boise City Canal Company	$7,500.00
Bonners Ferry, City of	$7,500.00
Bonneville County Commission	$3,375.00
Bovill, City of	$2,299.42
Buffalo River Water Association	$4,007.25
Butte City, City of	$3,250.00
Cave Bay Community Services	$6,750.00
Central Shoshone County Water District	$7,500.01
Clearwater Regional Water Project Study, City of Orofino et al	$10,000.00
Clearwater Water District	$3,750.00
Cottonwood Point Water and Sewer Association	$7,500.00
Cottonwood, City of	$5,000.00
Cougar Ridge Water & Sewer	$4,661.34
Curley Creek Water Association	$2,334.15
Downey, City of	$7,500.00
Fairview Water District	$7,500.01
Fish Creek Reservoir Company, Fish Creek Dam Study	$12,500.00
Franklin, City of	$6,750.00
Grangeville, City of	$7,500.00
Greenleaf, City of	$3,000.00
Hansen, City of	$7,450.00
Hayden Lake Irrigation District	$7,500.00
Hulen Meadows Water Company	$7,500.00
Iona, City of	$1,425.64
Kendrick, City of	$7,500.00
Kooskia, City of	$7,500.00
Lakeview Water District	$2,250.00
Lava Hot Springs, City of	$7,500.00
Lindsay Lateral Association	$7,500.00
Lower Payette Ditch Company	$5,500.01
Maple Grove Estates Homeowners Association	$5,020.88
Meander Point Homeowners Association	$7,500.00
Moreland Water & Sewer District	$7,500.00
New Hope Water Corporation	$2,720.39
North Lake Water & Sewer District	$7,500.00

Northside Estates Homeowners Association	$4,492.00	
North Tomar Butte Water & Sewer District	$3,575.18	
North Water & Sewer District	$3,825.00	
Parkview Water Association	$4,649.98	
Payette, City of	$6,579.00	
Pierce, City of	$7,500.00	
Potlatch, City of	$6,474.00	
Preston Whitney Irrigation Company	$7,500.00	
Preston & Whitney Reservoir Company	$3,606.75	
Preston & Whitney Reservoir Company	$7,000.00	
Roberts, City of	$3,750.00	
Round Valley Water	$3,000.00	
Sagle Valley Water & Sewer District	$2,117.51	
South Hill Water & Sewer District	$3,825.00	
St Charles, City of	$5,632.88	
Swan Valley, City of	$5,000.01	
Twenty-Mile Creek Water Association	$2,467.00	
Valley View Water & Sewer District	$5,000.02	
Victor, City of	$3,750.00	
Weston, City of	$6,601.20	
Winder Lateral Association	$7,000.00	
TOTAL GRANTS DISBURSED		**($1,632,755.21)**
IWRB Expenditures		
Lemhi River Water Right Appraisals	$31,000.00	
Expenditures Directed by Legislature		
Obligated 1994 (HB988)	$39,985.75	
SB1260, Aquifer Recharge	$947,000.00	
SB1260, Soda (Caribou) Dam Study	$53,000.00	
Sugarloaf Aquifer Recharge Project (SB1239)	$55,953.69	
ESPA Settlement Water Rentals (HB 843 2004)	$504,000.00	
ESP Aquifer Management Plan (SB1496, 2006)	$300,000.00	
ESP Aquifer Management Plan (HB320, 2007)	$801,077.75	
TOTAL IWRB AND LEGISLATIVE DIRECTED EXPENDITURES		**($2,732,017.19)**
WATER RESOURCE BOARD RECHARGE PROJECTS		**($11,426.88)**
CURRENT ACCOUNT BALANCE		**$121,290.57**
Committed Funds:		
Grants Obligated		
Cottonwood Point Water & Sewer Association	$0.00	
Preston - Whintey Irrigation Company	$7,500.00	
Water District No. 1 (Blackfoot Equalizing Reservoir Automation)	$35,000.00	
Legislative Directed Obligations		
Sugarloaf Aquifer Recharge Project (SB1239)	$4,046.31	
ESPA Settlement Water Rentals (HB 843, 2004)	$16,000.00	
ESPA Management Plan (SB 1496, 2006)	$0.00	
ESP Aquifer Management Plan (HB320, 2007)	$48,829.24	
TOTAL GRANTS & LOANS OBLIGATED & UNDISBURSED		**$111,375.55**

Loans Outstanding:	Amount Loaned	Principal Outstanding
Arco, City of	$7,500	$0.00
Butte City, City of	$7,425	$0.00
Roberts, City of	$23,750	$0.00
Victor, City of	$23,750	$0.00

TOTAL LOANS OUTSTANDING	**$0.00**
Uncommitted Funds	**$9,915.02**
CURRENT ACCOUNT BALANCE	**$121,290.57**

Idaho Water Resource Board
Sources and Applications of Funds
as of July 31, 2014
SECONDARY AQUIFER PLANNING, MANAGEMENT, & IMPLEMENTATION FUND

Legislative Appropriation (HB 291, Sec 2)		$2,465,300.00
Legislative Appropriation (SB 1389, Sec 5)		$1,232,000.00
Legislative Appropriation (HB270, Sec 3)		$716,000.00
Legislative Appropriation (HB479, Sec 1)		$4,500,000.00
Interest Earned State Treasury (Transferred)		$55,756.95
Water Users Contributions		$100.00
Conversion project (AWEP) measurement device payments		($16,455.21)
Contribution from GWD's for 2011 ESPA Managed Recharge		$71,893.16
Contribution from GWD's for Revenue Bond Prep Expenses		$14,462.50
American Falls Res. Dist#2 - MP31 Recharge Site Engineering		($1,593.75)
American Falls Res. Dist#2 - MP31 Recharge Site Construction		($34,435.44)
Bond issuer Fees		($3,500.00)
Payments for 2012 Recharge		($260,031.02)
Payments for 2013 Recharge		($8,133.00)
Payments for 2014 Recharge		($16,404.00)
Payment for Recharge		($80,000.00)
Payment for High Country RC&D Cloud Seeding		($20,000.00)
Payment for Idaho Irrigation District		($13,200.00)
Aquifer Monitoring, Measurement, and Modeling Sub-Account		
Legislative Appropriation/Funds Transfer (HB618, Sec 3)	$716,000.00	
Balance Aquifer Monitoring, Measurement, and Modeling Sub-Account	**$716,000.00**	
Committed Funds		
Legislative Appropriation (HB479, Sec 1, 2014)		
ESPA Managed Recharge Infrastucture (HB479)		$4,000,000.00
Northern Idaho Future Water Needs Studies (HB479)		$500,000.00
Measurement devices for AWEP conversion projects		$183,544.79
High Country RC&D Cloud Seeding		$20,000.00
American Falls Res. Dist#2 - MP31 Recharge Site Engineering		$4,406.25
American Falls Res. Dist#2 - MP31 Recharge Site Construction		$564.56
Magic Valley GWD and A&B Irrig. Dist. - Walcott Recharge Engineering		$85,644.00
Five-Year Managed Recharge Pilot Program		$1,215,431.98
Contribution from GWD's for 2011 ESPA Managed Recharge		($8,106.84)
GWD Bond Prepatory Expenses		$37,500.00
Fremont-Madison Irrigation District Egin Recharge		$40,000.00
Total Committed Funds		**$6,078,984.74**
TOTAL UNCOMMITTED FUNDS		**$2,522,775.45**
CURRENT ACCOUNT BALANCE		**$8,601,760.19**

Memorandum

To: Idaho Water Resource Board

From: Remington Buyer

Date: September 18, 2014

Re: Update on the Water Supply Bank Computer Infrastructure Development Plan

Action Items: There are no action items

The Board will receive a presentation by Water Supply Bank Coordinator Remington Buyer covering recent progress and future activities associated with the development of computer infrastructure for the Water Supply Bank.

A copy of the presentation is provided in your briefing materials.

IDAHO WATER RESOURCE BOARD

WATER SUPPLY BANK

Water Supply Bank Computer Infrastructure Development Plan

Plan version 1.0

September 22, 2014

Water Supply Bank Computer Infrastructure Development Plan

Cover photo of Bank IT Proposal presented to the Idaho Water Resource Board March 20, 2014

Idaho Department of Water Resources

Water Supply Bank Program

322 East Front Street,

Boise, Idaho 83702

(208) 287-4800

www.idwr.idaho.gov/waterboard

Water Supply Bank Computer Infrastructure Development Plan

Contents

Water Supply Bank Computer Infrastructure Development Plan

Background

The Idaho Water Resource Board (IWRB, Board) has authority to operate the Idaho Water Supply Bank. Through the Board's water supply bank (Board's Bank), an initiative of the Water Supply Bank program, the Board leases valid water rights from water right owners and makes water available for rental to satisfy new and supplemental water uses. Managing lease contracts and administering rental agreements requires customized database software. Through passage of Bill H470, the 2014 Idaho Legislature appropriated $15 million in funding for the Idaho Water Resource Board to pursue water sustainability projects, of which $500,000 was allocated for development of computer infrastructure for the Water Supply Bank.

A comprehensive computer infrastructure development plan is proposed to improve how water right data is transmitted to the Bank, how it is managed and queried within the Bank, and how it is communicated from the Bank to the Board, water users, Idaho Department of Water Resources (IDWR) staff and the public. This document, the Water Supply Bank Computer Infrastructure Development Plan (plan), summarizes how computer infrastructure will be developed and/or enhanced to improve administration of lease and rental transactions within the Board's Bank.

Development Strategy

The Water Supply Bank requires an IT platform to improve lease and rental transaction administration. The IT platform includes six specific components: 1) an enhanced version of the IDWR Application Review workflow program, to assist staff with initial review of paper applications to ensure completeness; 2) a new, centralized database program to assist staff with entering, reviewing and creating documents from lease and rental data; 3) enhanced geographic information system (GIS) analysis functionality provided through IDWR's water right edit (WREdit) program; 4) enhanced lease and rental transaction status communication to the public via an improved Water Supply Bank website; and, 5) enhanced spatial querying capabilities, achieved through displaying lease and rental information in GIS maps on IDWR's website; and, 6) an improved version of the IDWR Information Search tool that will allow the tool to directly query the WSB database.

In order to successfully develop new and improved computer software, project development plans are being established for the separate but interrelated IT components; development tasks for each of the six platform components will be detailed in component-specific project plans that will feature project descriptions, detailed work tasks, work roles, work assignments, development schedules, a communication strategy and a budget for any planned expenditures.

This plan summarizes the comprehensive development of the Water Supply Bank Computer Infrastructure platform as a whole. This plan does not go into programming details regarding each of the five components, but instead details high level project work roles and assignments, a timeline to summarize development phases, budget tracking for platform development, a summary of the Bank's workflow model that will be achieved through development of the IT platform, a detailed description of work assignments and the work breakdown schedule, as well as a progress tracking and reporting strategy for plan implementation.

Project Description

Nine work roles have been identified to assist with completing the various tasks associated with development of the WSB IT platform. Multiple staff may be assigned for individual roles (eg, multiple software engineers). It is envisioned that IDWR workflow program enhancements will be developed in-house while initial development of the new database program will be contracted out before it is implemented, beta-tested and managed on IDWR's computer by IDWR technical staff. The following are critical development roles associated with implementation of this plan:

Role	Responsibilities	Individual Assigned
Project Coordinator	Drafts WSB IT platform development plan. Coordinates drafting of component-specific project development plans. Ensures development roles are identified, responsibilities are defined and work tasks are assigned. Receives development progress reports from development team members and tracks all development progress. Monitors development schedule to ensure development of project deliverables stays on track and goals are met. Communicates development progress to the Idaho Water Resource Board, IDWR staff and other stakeholders	Remington Buyer, Water Supply Bank Coordinator
Database Administrator / Architect	Performs an analysis on data management needs and makes recommendations on database design, programming and management resources to be integrated into the Bank database program. Works with Technical Writer to document all database development info	IT Database Analyst
GIS Programmer	Programs GIS applications. Ensures GIS programming needs are articulated in the development of the plan as well as successfully developed and functionally incorporated into the Bank platform. Assists Technical Writer to document all GIS programming information	IDWR IT Systems Programmer and/or Geographic Systems Analyst
Software Engineer(s)	Analyzes, designs, codes and assembles program components of the Bank database application, including the graphic user interface (GUI) used to input, analyze, query and manipulate data from Bank lease and rental transactions. Tests the interoperability of the GUI with the database, as well as other IDWR workflow applications. Assists the Technical Writer in documenting programming strategies and project hand-off to IDWR for future IT maintenance	Contracted Out
Software Quality Assurance Analyst or Software Tester *	Works closely with the software engineers to test the Bank database program, ensuring it functions according to articulated needs. Recommends design improvements to software engineers, programmers and project coordinator. Diagnoses and communicates root cause problems in programming the database and/or integrating the database program onto IDWR's network. Documents troubleshooting and problem-resolution steps with Technical Writer	Contracted Out
Network Administrator	Participates in selection, installation and programming of any network systems required to meet programming needs of the Bank platform	IDWR IT Systems Integration Analyst(s)
Technical Writer	Drafts and maintains technical, project process development documentation for all platform components (development methodology, programming approaches, data dictionaries, software support requirements, trouble shooting methods, etc)	Contracted Out
Web Developer	Codes, tests and debugs web-based applications, redesigns the Bank web site, and ensures relevant lease/rental data is properly displayed	IDWR IT Web Developer
Data Entry	Enters data into the database workflow system once it becomes	Contracted Out

Operator	operational in phase 3. Ensures data entry standards are maintained when entering new data or migrating old transaction data into the new system. Responsible for ensuring all available Water Supply Bank transaction data is transcribed into the new workflow system before the old systems are archived/retired

**** As database software development progresses, the responsibilities of the Software QA/Tester may be shifted to the Data Entry Operator. A foreseeable scenario would be for the Software QA/Tester to work full time testing the database program until it is migrated to IDWR's network, at which point additional testing can be assigned to a Data Entry Operator/Data Migration QA at IDWR.***

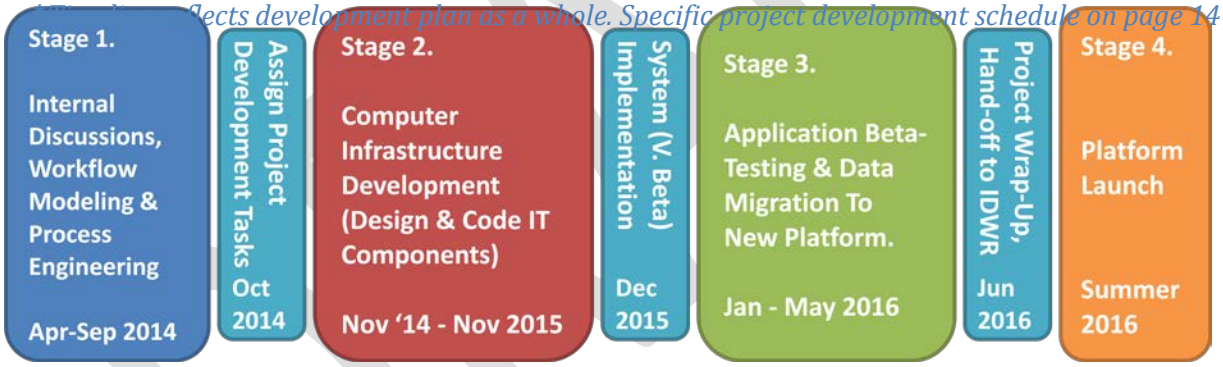
Project Timeline

The development of the Water Supply Bank program will be a collaborative endeavor between IDWR personnel and external contractors. Scheduled to be developed over a period of 18-24 months, the project will progress through four key phases or stages:

1) Workflow needs assessment and process engineering;
2) Platform component development, application coding, software engineering;
3) Application debugging, beta-testing and data migration to the new system,
4) System launch and archiving old WSB system and data.

Diagram1. Project Timeline

This diagram reflects development plan as a whole. Specific project development schedule on page 14



Phase one ran from April through September 2014. During this time, the Water Supply Bank Coordinator worked with the Water Supply Bank Lead Agent, the Water Rights Section Manager and the Water Rights Section Supervisor, GIS programmers, hydrologists and IT programmers to iterate a vision for a comprehensive workflow platform to meet Bank administrative and decisional needs.

The development plan was presented to Technical Services Bureau staff by the Water Supply Bank Coordinator at an internal IT steering committee meeting on September 8th, 2014. Technical Services Bureau staff provided feedback on which components for IT programming could be handled internally by IDWR staff, allowing the Water Supply Bank Coordinator to identify the remaining platform programming needs that can be contracted out to expedite development.

Phase one deliverables: 1) A water supply bank IT development plan (this document); **2**) Detailed work descriptions and development tasks for the assignment of internal staff and the external contractors to the development process **3)** A project development schedule.

Phase two will commence in fall 2014 and run for a year, during which time development of the following component applications of the Bank IT platform will be augmented, changed or developed:

1) **IDWR Application Review Workflow Program**: This program, currently utilized by water resource agents reviewing transfer applications, will be augmented to include questions related to initial review of Water Supply Bank lease and rental applications. Adding this functionality to the current workflow application will provide better up-front data quality analysis of lease/rental applications.

2) **Database Workflow Program**: Once paper applications are confirmed acceptable (via the above review process), application data will be entered into a comprehensive, networked database program that will facilitate data entry, analysis, management and querying. ***This is the nucleus of the Water Supply Bank IT development platform***. This database workflow program will enable Bank staff to input data from lease and rental applications and query the data to analyze transaction proposals. As proposals are approved, the program will automate production of lease contracts and rental agreements and improve contract management by enabling Bank staff to manipulate lease and rental variables (available/rented water volume, contract ownership, etc), cancel transactions, issue correspondence and manage payments. Comprehensive data management will provide accurate, real-time accounting of the availability of water being leased into and rented out of the Bank.

3) **GIS Workflow Program integration with WREdit**: The current WSB workflow program provides staff with a method to enter lease data into a static lease table from which GIS points and polygons are linked to lease and rental events via the WREdit program in ArcMap. The need to populate tabular data will be eliminated through implementation of the database workflow program; Bank staff will be able to directly link GIS data to transaction data stored in the WSB database via enhancements to WREdit. The current GIS workflow application will become redundant and will be phased out.

4) **Transaction Analysis & Audit Functionality Improvements in WREdit:** In addition to the ability to accurately associate lease and rental shapes with transaction data stored and managed through the database workflow application, lease and rental proposals can be reviewed more expediently through enhanced functionality in WREdit. Specifically, adding curtailment area shapes and information to the "Check Administrative Areas" function of WREdit, as well as adding the most recent (current year) Landsat imagery to the view extent menu under the Base Layers function.

5) **Water Supply Bank Website and Web Services**: The Bank requires an improved website that displays tabular data which can be automatically pulled from the WSB database workflow program. This will allow the public to access accurate, up to date information on water supplies available for rental that can be sorted by basin, region, water source or beneficial use type. A semi-secure subsection of the website can provide applicants with the opportunity to enter their clientID to review the status of recently submitted lease/rental applications, see active or expired transactions, download PDF copies of contracts and agreements and see a log of recent correspondence from the Bank.

6) **IDWR Web-Mapping Service**: IDWR provides the public with useful, water right spatial data through interactive maps that are accessible through our website. Currently, the public can display water right shapes and points associated with places of use and points of diversion for water right claims, adjudication recommendations, water right permits and water rights. Shapes and points for active leases and rentals should also be made available for viewing online to assist with communication about where and when water is being leased and rented.

7) **IDWR Information search Improvement**: As lease and rental transaction information is captured in the water supply bank databases, IDWR staff will use an updated version of the current Information Search program to query whether a water right is leased into the Bank and whether there is an active rental in effect for the lease.

Phase two deliverables: Functional prototypes of the above seven components of the IT platform.

Phase three begins once a production version of the workflow database application is complete and can be installed on IDWR's computer network. This "beta" version of the application will be utilized by Bank staff to stress test the application's capabilities. Software conflicts in the program will be identified by Bank staff and communicated to the software engineer(s) and programmers for correction prior to the official system launch. Bank staff will test updated versions of the Application Review workflow program, the WREdit tool, as well as interact with a private and secure version of a new Bank website featuring web services to communicate available water supplies. Software bugs within these systems will be identified during stage three and communicated to programming/development staff.

As critical software shortcomings of the component pieces of the workflow platform are addressed and corrected, Water Supply Bank staff will begin migrating transaction data into the new database system. Once it is determined that the workflow database system is stable and functional, all new transaction data will be entered into the system. As the workflow program is confirmed stable, Bank staff will work backwards, populating into the database all active lease and rental data. Once all active lease and rental data is migrated to the new system, the workflow system can be made ready for official launch.

Phase three deliverables: 1) A fully functional, database workflow program; **2)** Active and functioning web services to relay proposed and accepted transaction data; **3)** A fully functional workflow application enabling easy geospatial creation/visualization of lease and rental contract data, as well templates for auditing lease and rental transactions; **4)** A completed project development technical report including all development documentation as well as future support documentation.

Phase four is the final phase during which the new Water Supply Bank platform will be officially launched and transaction data entry and contract management will be managed exclusively through the new system. Web services will be activated, allowing applicants to identify all proposed transactions, as well as any water leased into the bank that is available for new rentals. Once all data from active lease and rental transactions are input into the new workflow database application, Bank staff will endeavor to migrate to the new system all data from formerly active, now closed lease and rental transactions.

Stage four deliverables: 1) A fully functional, dynamic Water Supply Bank platform, including the workflow database program, improved GIS workflow programs and analysis templates and website data sharing functionality **2)** Successful migration of all past transaction data into the new system.

Budget

Five hundred thousand dollars ($500,000) has been made available for development of the Water Supply Bank platform. Project funding has been earmarked for contracting the human resources necessary to develop the IT platform. Contracting needs have been preliminarily identified as follows:

Role	Duration of Active Involvement	IDWR Staff?	Cost
Project Coordinator	Project Coordinator manages the project full time for duration of the development timeline	Yes	$0.00
Database Administrator / Architect	DBA work is required full time in the first month of phase two and then full time for five months during phase three as the workflow program is integrated onto IDWR's network.	Yes	Unknown
GIS Programmer	Works on the project full time for televe months for the entirety of phase two, then part time through phase three.	Yes	Unknown
Software Engineer(s)	Software engineer works on the program full time for twelve months through phase two, then part time for up to six months through phase three.	Contracted out for stage two and transitioned to in-house staff during stage three	Unknown
Technical Writer	Documentation of project development is assigned as a full time role at the start of phase two, then goes down to part time through phase two through phase three. Handed off for completion in house phase three through four.	Contracted out to start before being handed-off and completed in house	Unknown
Network Administrator	Full time involvement for the first month of phase two and full/part time involvement through phase three.	Yes	Unknown
Web Developer	The Web Developer is assigned to the project full time at the start of phase two and goes down to part time through stage three	Yes	Unknown
Software Quality Assurance Analyst / Software Tester	As the platform nears roll out to production, midway through phase two, the Software QA/Tester is envisioned to work on the project full/part time through phase three	Contracted out to start, but done in-house as program rolls into production	Unknown
Data Entry Operator	Data entry operator will work on the project full time for 6 months (or part time for 12 months) to enter data into the workflow application in phases three and four	Contracted out	Unknown
Total Costs	The cost to fully fund eight positions necessary to develop this project		Unknown

Water Supply Bank Workflow Model

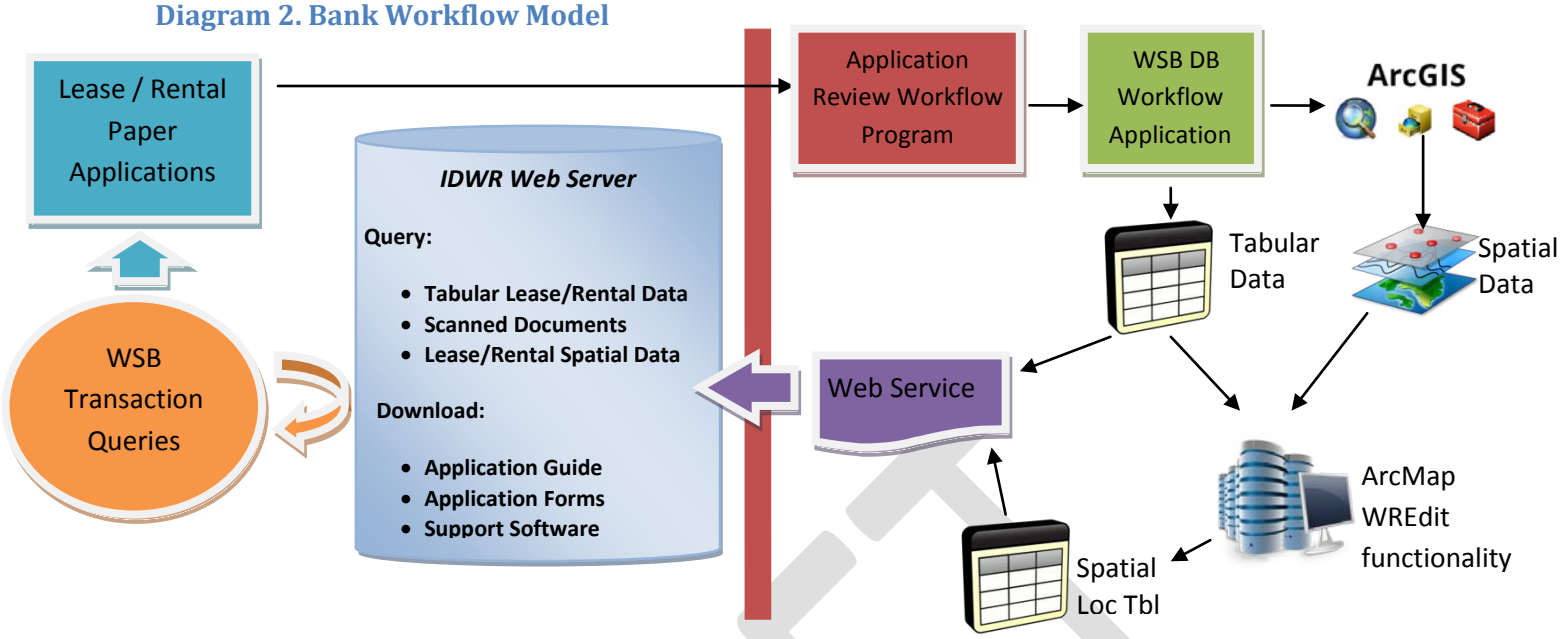
The Water Supply Bank workflow model describes how data will be transmitted to, through and from the Bank via the new database workflow program, as well as via other services, such as the Application Review workflow program, WREdit and the web-service function. The workflow model is a high level view of the workflow process by which data is transmitted through the Bank. Individual workflow processes are broken down in detail in component-specific development project plans.

The workflow model begins as paper lease or rental applications are received by the Department. Bank staff will launch the improved Application Review Workflow application to confirm that the applications received by the Department include the minimal information necessary to begin processing. Applications that don't meet minimal standards will be held for 30 days and any missing information will be requested of the applicant. Once all necessary information is received, Bank staff will launch the database workflow application and begin data entry for a new lease or rental application. All application data will be transcribed into the new database program. All data entered into the workflow database program is written to database tables stored on IDWR's network for easy retrieval. The database workflow system will match lease applications with water right numbers, as well as rental requests with lease contracts, to facilitate easy retrieval of relevant information for analysis of the application. Injury and enlargement analysis functionality will be programmed into the application review module.

ArcMap can be launched from within the database application, allowing staff to pull lease or rental information into GIS to visualize a lease or rental proposal. Within ArcMAP, staff can utilized an ehnaced version of the water right edit (WREdit) function to visually inspect lease/rental proposals, create/edit points or polygons, as well as connect spatial data to lease and rental tabular data stored in the database application. Connecting the data through WREdit will enable spatial data to be pushed to IDWR's website for viewing by the general public through IDWR's mapping service.

Once an application has been satisfactorily reviewed and is ready for approval, lease contracts and rental agreements, along with relevant correspondence (invoices, cover letters, etc) are automatically generated within the database workflow application. As contracts and agreements are signed and returned to IDWR for execution, the lease or rental of an application is updated to "active" in the database workflow program and water is deposited or withdrawn within a transaction table. Contract and agreement information will be automatically retrieved by computer script that will pull relevant data from the database and push it to the newly enhanced Water Supply Bank website, where it can be sorted, filtered and queried by the public, eliminating the need to manually enter application processing information in the current excel tracking list. This web service will thus automatically make lease and rental information available to the public, communicating the volumetric availability of water and the elements of water available for rental. Spatial information relevant to lease contracts, generated through WREdit, can be visualized online as well through IDWR's general mapping tool. The public can thus query tabular and spatial data to identify currently active/available lease and rental data. With improved information communication through the Bank's website, water users can use the data to submit new lease or rental applications, thus restarting the process.

Diagram 2. Bank Workflow Model



IDWR Information Search program is a component of the platform not shown in the above model

Water Supply Bank Workflow Platform Components

The Water Supply Bank workflow platform consists of the following separate components:

Component	Functionality	Current Status	Development Required
IDWR Application Review Workflow Program	Workflow program is utilized to ask and prompt answers to basic questions regarding paper applications received by IDWR. This service will improve functionality by ensuring all necessary questions are answered by applicants prior to applications officially being receipted by IDWR, thus improving analysis of applications once begun	The current workflow program is used to evaluate transfer applications but there is no Bank functionality	The program will be updated to ask WSB specific questions and assist staff with initial reviews of applications
WSB Database Workflow Program	Centralized location to enter, review, store and manage of all data associated with lease and rental applications & approved contracts/agreements. The program includes the following modules: 1. Client management module, 2. Lease proposal review & management module (application receipt, review, approval/denial and contract creation/management), 3. Rental request review and management module (application receipt, review, approval/denial and agreement creation/management), 4. Transaction management module (rental fee invoicing/receipting and warrant payment requesting/issuance), 5. Data query module	Non-existent	This workflow program will be developed
ArcMap WREdit Service	Load near-infrared Landsat satellite imagery from the most recent year to improve review of lease and rental proposals. Update administrative areas to query against curtailment and mitigation plan areas	WREdit is functioning, limited improvements are required	Add specified functionality to WREdit

GIS Workflow Application	The current GIS workflow application enables Bank staff to write lease and rental transaction data to tables on IDWR's network and then use WREdit to match up rental shapes and points with rental data entered through the workflow application. Through creation of the WSB Database workflow program, it will be redundant to enter transaction data in the GIS workflow program; WREdit will connect directly to the database program and the current GIS workflow application can be phased out	The GIS workflow application is currently a standalone application, used to enter lease and rental data into tables against which GIS points shapes are matched in WREdit	The current workflow application will be phased out and the WREdit function will call information directly from the WSB database workflow program
Water Supply Bank Data Web Services	Web services is an encompassing term, referring to a new Bank website that will have enhanced data communication capacities. As lease or rental applications are entered into the workflow database, their processing status and other relevant information will be pulled from the WSB data tables by the web service and pushed to the Water Supply Bank website. As applications are approved, the lease availability and any rental reductions will be communicated to website in the same manner	There is one web service that is currently operational: a script retrieves and uploads a MS Excel tracking sheet nightly and uploads it to the WSB website	Scripts will need to be generated to pull and push tabular data to the Bank's website. The website will need to be updated to incorporate the ability to display data tables. IDWR's mapping tool should be updated to display active lease and rental spatial data.
IDWR General Mapping Tool	The IDWR general mapping tool is a browser-based mapping service that displays water right information maintained by IDWR. Lease and rental data will be visualized in the current general mapping tool to assist water users and the public with knowing where active leases and rentals are occurring	The general mapping tool is functioning on IDWR's website	Lease and rental shapes need to pushed to the IDWR server so they can be visualized through the mapping service
IDWR Information Search Program	The IDWR Information Search program is a comprehensive search tool used for querying all information stored in IDWR's enterprise database. The Information Search Program will be updated to enable two new types of queries: Water Supply Bank leases and rentals. The program will be able to directly query the WSB database using RightID (or a ContactID) to identify leases and rental associated with contacts in the WSB workflow database	The Information Search tool currently allows staff to query whether a right features a Water Supply Bank lease entry	The ability to directly query the Bank database tables from Information Search will be of assistance in identifying lease and rental information

More specific information about individual components is provided in component-specific project development plans.

Project Development Schedule

Development of the Water Supply Bank IT platform will occur over a period of 24 to 30 months and move through four distinct stages: 1) planning (6 months), 2) development (12 months), 3) implementation (6 months), and 4) launch (6 months). The following table summarizes development stages and key activities associated with the project.

	Phase 1	Phase 2	Phase 3	Phase 4
Project Stage	**Planning**	**Development**	**Implementation**	**Launch**
Timelength	6 months	12 months	6 months	6 months
Key Activities	- Conduct a needs assessment and complete workflow process engineering, - Establish a vision for the project, - Draft development plan, - Identify work tasks, - Assemble development team, - Assign work tasks to development team	Begin development of the new database workflow application, as well as improvement of current IT components.	Roll out "beta" version of the platform to the IDWR network and begin testing. Once testing confirms the platform is stable, engage in heavy use of the platform to identify glitches and bugs to be worked out. Begin data entry and review of all new lease/rental transactions using the IT platform	Once glitches are addressed, the program can be officially launched
Deliverables	- Development plan, - Project service order forms (to solicit requests for qualifications (RFQs) from contractors)	- Functional prototypes of IT platform components	- Functional versions of each of the IT platform components, Data captured for all active and recently received lease and rental transactions	Functional platform
Staff Involvement	Project manager	- Project manager, - Database admin /architect, - GIS programmer, - Software engineer, - Software quality tester, - Network admin, - Technical writer, - Web developer	- Project manager, - Database admin /architect, - GIS programmer, - Software engineer, - Software quality tester, - Network admin, - Technical writer, - Web developer - Data entry operator	-Project manager, - Data entry operator

The tables on the following pages detail work tasks and timeframes allotted for actions necessary to develop the IT Platform:

Water Supply Bank Computer Infrastructure Development Plan

Phase One

Step	Task / Action	Start Date	End Date	End Objective / Deliverable
1	Complete Project Scope of Work	Jan 2014	April 2014	Project scope of work
2	Hold Internal Discussions w/ IDWR staff	April 2014	Sept 2014	Vision for IT platform
3	Model Transaction Workflows	April 2014	Sept 2014	Needs assessment for IT platform
4	Document Process Engineering	April 2014	Sept 2014	Administrative functions to be programmed and/or automated
5	Identify Necessary Development Tasks	April 2014	Sept 2014	Work breakdown schedule
6	Draft Project Development Schedule	April 2014	Sept 2014	Project development schedule
7	Complete IT Development Plan	April 2014	Sept 2014	Complete the development plan

Transitioning from stage one to two will require the following:

1. Development of Project Service Orders (PSOs), used to issue a request for qualifications (RFQs) from potential contractors
2. Evaluation of qualifications (PSO Responses),
3. Selection of contractors for project development,
4. Selection of IDWR staff for project development,
5. Holding of a project development kick-off meeting, and
6. Assignment of project development tasks and reporting schedules

Phase Two

Step	Task / Action	Start Date	End Date	End Objective / Deliverable
1	Update the IDWR Application Review Workflow Program to incorporate questions and functions for Water Supply Bank staff	Nov 2014	Nov 2015	An updated version of the IDWR Application Review workflow program
1A	Confirm changes necessary for the Water Supply Bank	Nov 2014	Nov 2014	Draft and implement a project development plan for updating the Application Review workflow program
1B	Identify the software programming tasks required to implement	Nov 2014	Nov 2014	Tasks, roles and work assignments

	necessary changes			
1C	Program changes to the workflow application software	Nov 2014	Jan 2015	An updated, improved prototype of the workflow program
1D	Test changes to the workflow application and provide feedback (change orders) to programmers	Jan 2015	Jan 2015	Issue change order request
1E	Complete a development version of the updated workflow application	Feb 2015	Mar 2015	An updated version of the IDWR Application Review workflow program
2	Program a Water Supply Bank Database Workflow Application (WSB DB App)	Nov 2014	Nov 2015	A comprehensive database management system for the Water Supply Bank
2A	Discuss as a team the database workflow application needs	Oct 2014	Nov 2014	Communicate workflow vision to programming staff
2B	Establish data standards for database workflow application functionality	Nov 2014	Nov 2014	Establish technical work requirements for project development
2C	Establish plan for development of a prototype workflow application	Nov 2014	Nov 2014	Draft and implement a project development plan for the WSB database program
2D	Engineer conceptual workflow application prototype	Nov 2014	Feb 2014	Develop a prototype of the database workflow application
2E	Demonstrate functional workflow application prototype	Feb 2014	Feb 2014	Demonstrate functional prototype to IDWR
2F	Identify prototype shortcomings and issue change orders	Feb 2014	Feb 2014	Change order request #1
2G	Implement changes and program a development version of the application	Feb 2014	May 2014	Functional development version of the database workflow program
2H	Demonstrate functional development version of application	Jun 2014	Jun 2014	Demonstrate development version of the program
2I	Confirm development program is sound and issue change orders	Jun 2015	Jun 2015	Change order request #2
2J	Enter production development stage for functional workflow application	Jul 2015	Oct 2015	Functional production version of the program
2K	Begin debugging production version	Aug 2015	Oct 2015	Debug production version of the program

	of application			
2L	Complete production version and prepare to roll out beta version to IDWR	Oct 2015	Oct 2015	Functional, debugged workflow application ready for roll out to IDWR network
3	Integrate the WSB DB App with WSB transaction functionality in WREdit	Nov 2014	Nov 2015	New, enhanced WREdit tool that integrates with WSB database program
3A	Discuss current WSB workflow-WREdit functionality and requested changes	Dec 2014	Dec 2014	Establish development plan for WREdit enhancements
3B	Ensure tabular data structure for WSB DB App is established	Dec 2014	Dec 2014	Prepare "dummy" versions of the WSB database workflow program
3C	Populate WSB DB App tables with junk data to test WREdit functionality	Dec 2014	Dec 2014	Populate "dummy" tables
3D	Program WSB WREdit functions to link directly to WSB DB App tables	Jan 2015	Mar 2015	Program enhancements to WREdit
3E	Demonstrate the enhanced version of WREdit, able to link points/shapes directly to WSB DB workflow tables	Apr 2015	April 2015	Demonstrate new WREdit function
3F	Identify shortcomings with WREdit functionality and request changes	Apr 2015	Apr 2015	Issue change order
3G	Program change requests to WREdit function ***AND*** implement any changes to WREdit (developed in step #4)	May 2015	Jun 2015	Implement changes
3H	Prepare enhanced WREdit for roll out to IDWR network	Jul 2015	Jul 2015	Make new tool ready for roll out
4	Improve WREdit functionality	Nov 2014	Nov 2015	Improved data loading functionality within WREdit
4A	Develop methodology to update base layers w/ Landsat imagery	Dec 2014	Dec 2014	Establish a vision and plan for base layer improvements
4B	Prepare near-IR irradience Landsat imagery to be incorported into WREdit	Jan 2015	Jan 2015	Ensure data is ready for incorporation into WREdit

4C	Implement Functionality into Base Layers Function	Feb 2015	Mar 2015	Program new functionality into WREdit
4D	Develop methodology for updating admin features of the tool	Dec 2014	Dec 2014	Establish a vision and plan for admin feature improvements
4E	Identify additional administrative features to be added (ie. Curtailment areas)	Jan 2015	Jan 2015	Discuss additional data to be incorporated into WREdit
4F	Digitize additional administrative features and prepare for inclusion into WREdit	Feb 2015	Mar 2015	Prepare data for inclusion into WREdit
4G	Implement Functionality into Base Layers Function	Apr 2015	May 2015	Program changes to WREdit
5	Develop & enhance WSB data web-based services	Nov 2014	Nov 2015	Improve the WSB website and data sharing capacities
5A	Discuss which/how tabular data from WSB DB App will be communicated online	Nov 2014	Nov 2014	Discuss the vision for the new website and web-services
5B	Discuss the look and function of an enhanced WSB website	Nov 2014	Nov 2014	Establish the vision for the new look of the WSB website
5C	Develop a new version of the WSB website featuring data display functionality	Dec 2014	Feb 2015	Develop an improved WSB website that can easily display and sort tabular data
5D	Develop web service to pull data from WSB DB app and push it to the Bank website	Dec 2014	Feb 2015	Program scripts to pull data from “dummy” tables (step 3C)
5E	Demonstrate the functionality of the tabular data push/pull automation services on the new Bank website	Mar 2015	Mar 2015	Demonstrate new website and data communication services
5F	Request changes to the website and tabular data push/pull service	Mar 2015	Mar 2015	Issue change order
5G	Program changes to the Bank website and the push/pull/display of tabular data and/or web-services	Apr 2015	May 2015	Program changes
5H	Demonstrate a confirmed stable version of the new WSB website with	Jun 2015	Jun 2015	Ready website and web services for launch

	data push/pull/display services			
5I	Develop a web lease/rental search tool to query against WSB DB App tabular data	Jul 2015	Sept 2015	Enable easy filtering of tabular data via website to identify rights that are leased in and rentable
5J	Test the web lease/rental search tool to ensure functionality	Sept 2015	Sept 2015	Demonstrate functional version of the enhanced website search function
5K	Request changes to the web search tool	Sept 2015	Sept 2015	Issue change order
5L	Implement changes and program development version of the website transaction search tool	Oct 2015	Nov 2015	Program final changes to development version
5M	Complete development and prepare search tool for roll out	Nov 2015	Nov 2015	Ready search tool for launch with Bank website
6	Update IDWR's web-based mapping tool with active lease and rental data from the WSB database	Nov 2014	Nov 2015	WSB data on active leases and rentals can be displayed in IDWR's internet mapping tool
6A	Discuss how to display WSB transactions points/shapes in the internet mapping application	Dec 2014	Dec 2014	Establish method for acquiring and displaying active lease and rental data from loc tables
6B	Implement a plan to display WSB transaction data on IDWR's wesbite mapping application	Dec 2014	Dec 2014	Establish a project development plan
6C	Develop web-based maps that include WSB transaction data	Jan 2015	Mar 2015	Develop a prototype version of the online mapping tool that incorporates Bank data
6D	Test web-based maps for WSB data visualization functionality	Apr 2015	April 2015	Demonstrate an interactive map that displays Bank data
6E	Request changes for integration of WSB data into web-based maps	Apr 2015	Apr 2015	Issue change order
6F	Incorporate changes and prepare to launch map service that displays Bank data	May 2015	Jul 2015	Prepare for launch of new system
7	Improve IDWR's Information Search ('Infosearch') workflow application	Nov 2014	Nov 2015	Incorporate the ability to directly query WSB database data from Information Search
7A	Discuss the vision for implementing	Dec 2014	Dec 2014	Establish project

	changes to Information Search and prepare a development plan			development plan
7B	Add WSB application and WSB transaction queries to Infosearch query types	Jan 2015	Feb 2015	Program changes to Information search and begin queries against "dummy" tables
7C	Demonstrate the ability to query WSB DB App tabular data from Infosearch	Mar 2015	Mar 2015	Demonstrate enhanced version of information search
7D	Issue change requests for programming of Information Search	Mar 2015	Mar 2015	Issue change order
7E	Incorporate changes and prepare updated version of Information Search for roll out to IDWR network	Apr 2015	Jun 2015	Updated Information Search tool that can directly query the WSB database

Transitioning from stage one to two will require the following:

1. Activating the new version of the IDWR Application Review Workflow Program with WSB functionality,
2. Rolling out the WSB Database workflow application to the IDWR network
3. Activating new WREdit functionality in ArcMap,
4. Handing off program development reporting and documentation to IDWR

Phase Three

Step	Task / Action	Start Date	End Date	End Objective / Deliverable
1	Ensure WSB DB App database table architecture is fully developed and functional	Dec 2015	Dec 2015	Ensure the database app is fully operational
2	Probe and assess the functionality of the beta WSB DB App through transaction data entry/review	Dec 2015	Feb 2016	Stress test the database program to identify bugs and glitches
3	Identify major shortcomings and software glitches associated with WSB DB App	Feb 2016	Feb 2016	Issue change order request
4	Implement changes and debugging of the WSB DB App	Mar 2016	Mar 2016	Improved glitches with WSB DB app
5	Evaluate debug version of DB App	Apr 2016	Apr 2016	Ensure DB app is operational
6	Begin data entry of all lease and rental	Apr2016		Begin shift to new database

	applications into the new system			system
7	Stress test integration of beta WSB DB App w/ Infosearch capabilities	Dec 2015	Jan 2016	Identify glitches in integration of DB workflow app with Infosearch
8	Request changes and debugging of the Infosearch workflow app	Jan 2016	Jan 2016	Issue change order request
9	Incorporate program improvements to Infosearch program	Feb 2016	Feb 2016	Improve Infosearch tool
10	Test integration of beta WSB DB App w/ ArcMap launch capabilities	Dec 2015	Dec 2015	Ensure WSB DB app is integrated with ArcMap and can display transaction data
11	Test integration of beta WSB DB App w/ ArcMap WREdit functionality	Dec 2015	Feb 2016	Identify glitches in linking GIS data to WSB database data
12	Issue change orders for WREdit programming to improve functionality	Feb 2016	Feb 2016	Issue change order
13	Activate a protected website to test data display of WSB DB App tabular data	Feb 2016	May 2016	Ensure data pushed to website is accurate and functional
14	Test functionality of web services by confirming tabular data can be pushed/pulled	Feb 2015	Feb 2016	Ensure tabular data is being pulled from the database and pushed to the web
15	Test web-based WSB transaction query capabilities through secure website	Mar 2016	Mar 2016	Ensure lease and rental data can be filtered and queried through website
16	Identify major shortcomings of web-service to display web-based WSB tabular data	Apr 2016	Apr 2016	Issue change order for web services programming
17	Test the changed and debugged version of the WSB website to confirm it is stable	May 2016	May 2016	Ensure website is ready to go live
18	Confirm WSB DB App is stable and ready for launch	May 2016	May 2016	Ready platform for launch

Transitioning from stage three to four will require the following:

1. Completing debugging of all WSB IT components

Phase Four

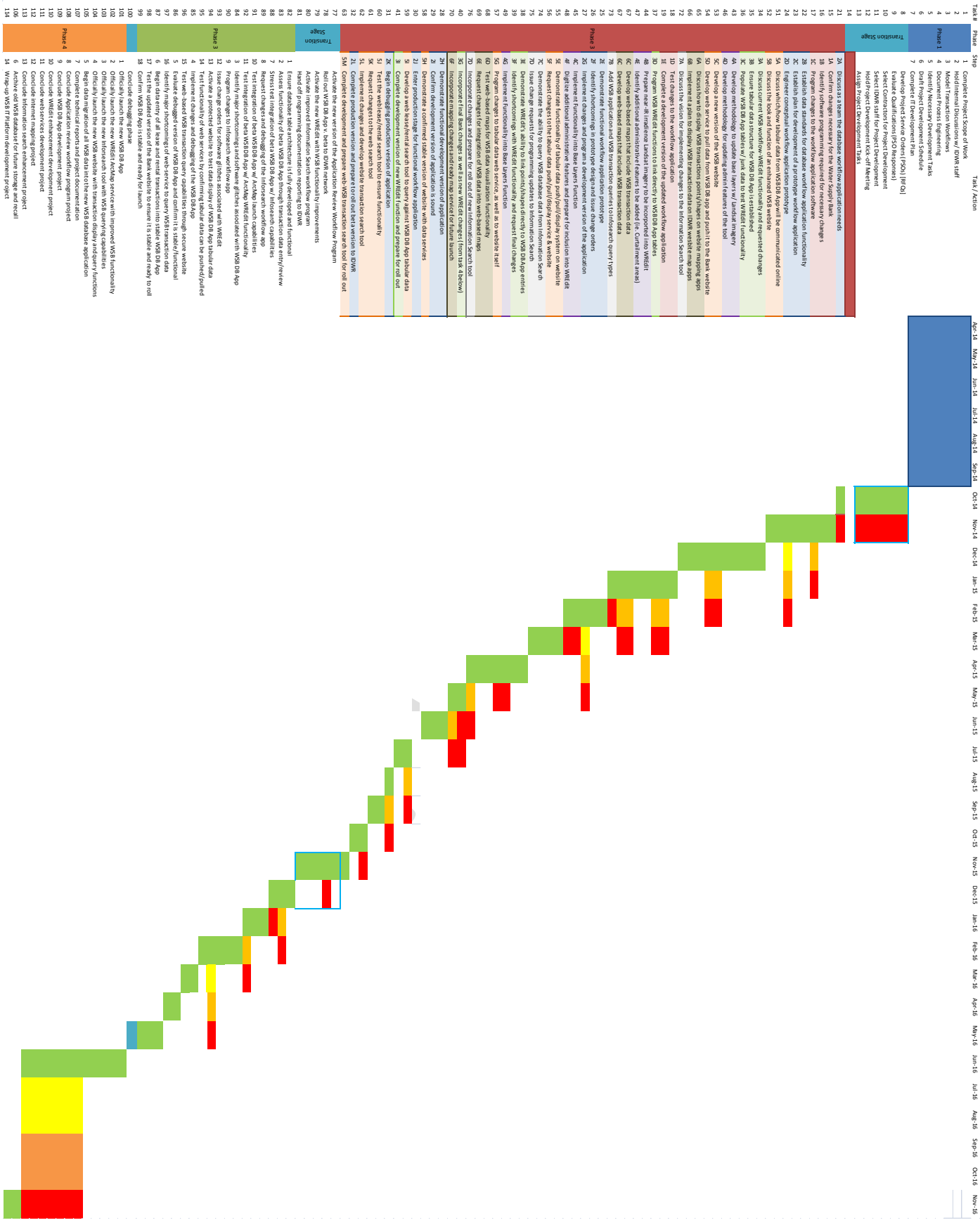
Step	Task / Action	Start Date	End Date	End Objective / Deliverable

Water Supply Bank Computer Infrastructure Development Plan

1	Launch the new WSB database application	Jun 2016	Jun 2016	Launch of the new WSB database application
2	Officially launch the new WREdit ArcMap service with WSB functionality	Jun 2016	Jun 2016	Launch of the new WREdit service for IDWR staff
3	Officially launch the new Infosearch tool with WSB querying capabilities	Jun 2016	Jun 2016	Launch of the improved Infosearch tool for IDWR staff
4	Officially launch the new WSB website with enhanced functionality	Jun 2016	Jun 2016	Launch of the new WSB website for staff and the public
5	Import and/or manually enter all WSB transaction data into the WSB DB App	Jun 2016	Nov 2016	Have all available WSB transaction data copied to new database system
6	Archive old WSB database for future storage and recall	Nov 2016	Nov 2016	Archive old WSB data/system
7	Complete technical reports and project documentation	Jun 2016	Nov 2016	Finish reports
8	Conclude IDWR Application Review Workflow program development project	Jun 2016	Nov 2016	Wrap-up
9	Conclude WSB database application development project	Jun 2016	Nov 2016	Wrap-up
10	Conclude WREdit enhancement development project	Jun 2016	Nov 2016	Wrap-up
11	Conclude WSB web services and website development project	Jun 2016	Nov 2016	Wrap-up
12	Conclude IDWR internet map service development project	Jun 2016	Nov 2016	Wrap-up
13	Conclude IDWR Information Search update development project	Jun 2016	Nov 2016	Wrap-up
14	Wrap-up WSB IT Platform Development Project	Nov 2016	Nov 2016	Wrap-up

Water Supply Bank Computer Infrastructure Development Plan

Work Breakdown Schedule



Progress Tracking and Reporting

The successful completion and implementation of the individual IT platform components, as well as the IT platform as a whole, requires that synchronized progress is made on all development tasks. As development begins in phase two, the Water Supply Bank Coordinator will receive weekly updates from development teams and the coordinator will produce a monthly progress tracking report for the platform development project at large. Monthly progress tracking reports will identify objectives achieved, deliverables completed and note 'on track', 'behind schedule' or 'accelerated' tasks.

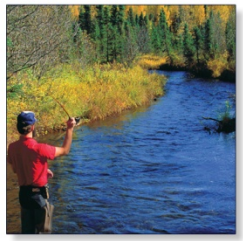
Project development stakeholders, such as the Idaho Water Resource Board, Idaho Department of Water Resources staff, members of the development teams and other involved parties will be kept informed on progress developments through access to monthly reports and through information communicated by the WSB Coordinator. The WSB Coordinator will be responsible for informing all key stakeholders if complications arise that may have unintended impacts on project development.

IDAHO
Water Resource Board

Water Supply Bank

Computer Infrastructure Development Plan

Remington Buyer
Water Supply Bank Coordinator
Sept 8, 2014

WSB Computer Infrastructure Development Plan

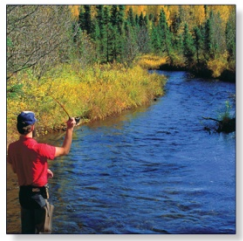
An enhanced WSB IT platform

- What it will do
- How it will do it
- Why it matters

Platform Development

- Project Phases
- Development Timeline
- Work Assignments

Project Accomplishments and Next Steps

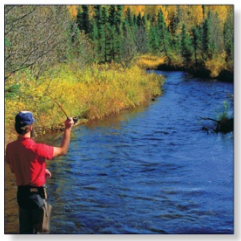


WSB Computer Infrastructure Development Plan

Water Supply Bank Platform

The current WSB System

IDAHO Water Resource Board

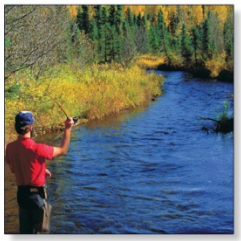


WSB Computer Infrastructure Development Plan

Water Supply Bank Platform

The new WSB System

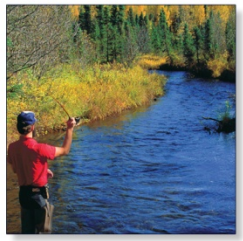
- Automated processes
- Enhanced transaction MGMT
- Data centralization
- Improved Program Administration



WSB Computer Infrastructure Development Plan

Platform Development

Identify needs	Enhance Application Review Program	Develop WSB Database Application	Enhance WREdit (ArcMap) Software	Enhance WSB info on IDWR's website	Enhance Info Search Workflow Program
Establish Schedule	Identify development tasks and establish work schedules				

WSB Computer Infrastructure Development Plan

Platform Development

Timeline provided for project development

Stage 1.

Internal Discussions, Workflow Modeling & Process Engineering

Apr-Sep 2014

Assign Project Development Tasks

Oct 2014

Stage 2.

Computer Infrastructure Development (Design & Code IT Components)

Nov 2014-Nov 2015

System (V. Beta) Implementation

Dec 2015

Stage 3.

Application Beta-Testing & Data Migration To New Platform.

Jan - May 2016

Project Wrap-Up, Hand-off to IDWR

Jun 2016

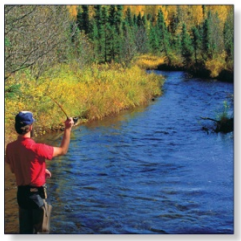
Stage 4.

Platform Launch

Summer 2016

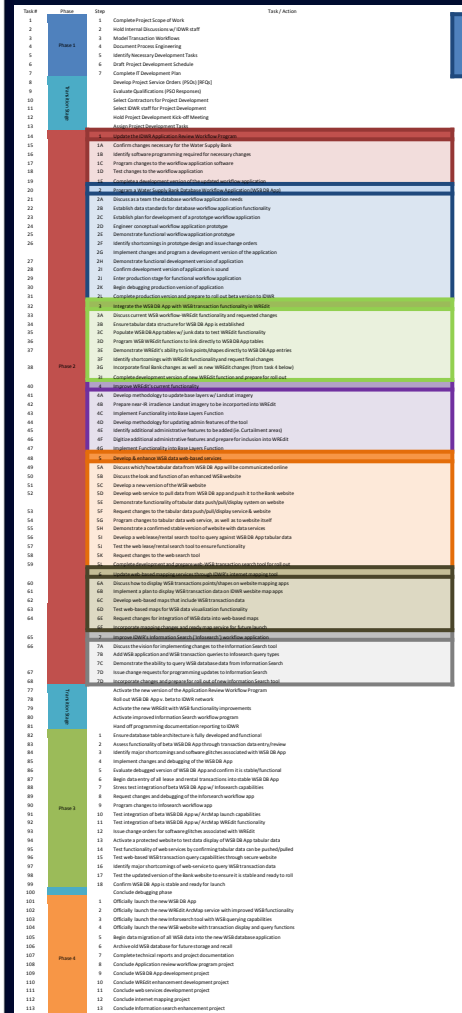
- Six months for planning
- Six months for debugging
- Twelve months for development
- Project development: 24 months

Project Launch: **Summer 2016**



Platform Development

Project tasks and work assignments identified



Plan

Develop

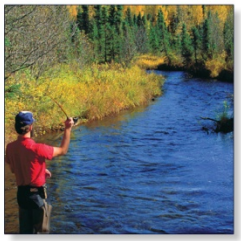
3 phases
26 tasks

Test

Launch

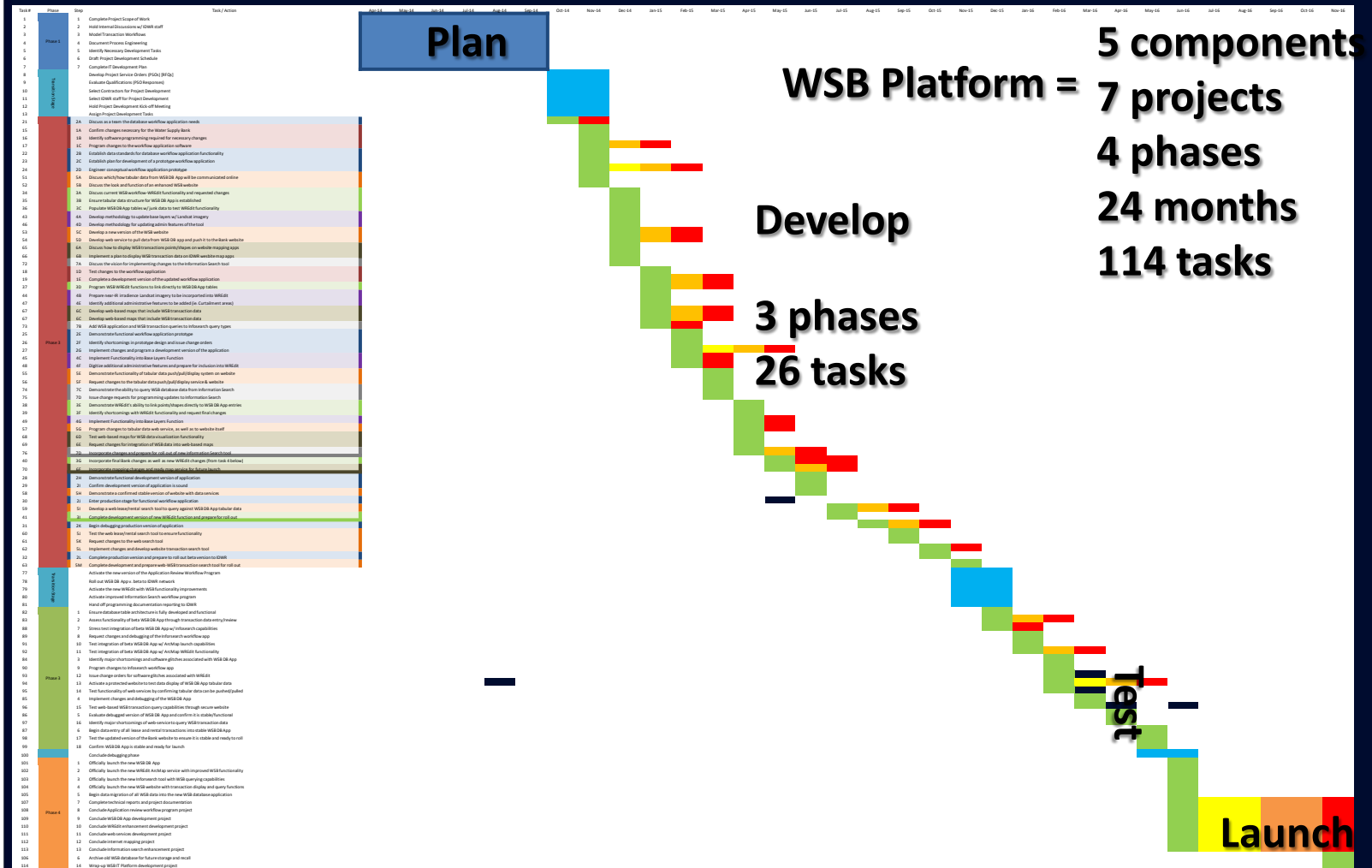
WSB Platform =

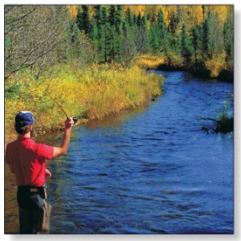
5 components
7 projects
4 phases
24 months
114 tasks



Platform Development

Project tasks and work assignments identified

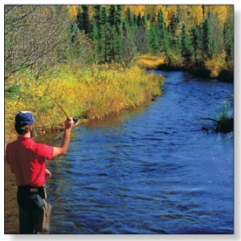




WSB Computer Infrastructure Development Plan

Platform Development

Identify needs	Enhance Application Review Program	Develop WSB Database Application	Enhance WREdit (ArcMap) Software	Enhance WSB info on IDWR's website	Enhance Info Search Workflow Program
Establish Schedule	Identify development tasks and establish work schedules				
Develop plan	Water Supply Bank Computer Infrastructure Development Plan				

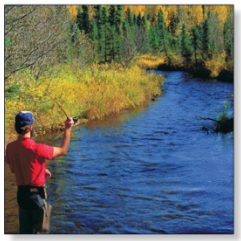



WSB Computer Infrastructure Development Plan

Platform Development

Development Roles

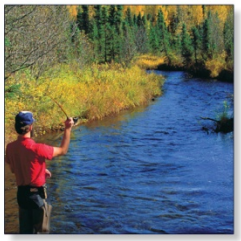
Role	Work Assignment
Project Coordinator	Water Supply Bank Coordinator
Database Administrator/ Architect	IDWR IT Database Analyst
GIS Programmer	IDWR IT Systems Programmer and Geographic Systems Analyst
Software Engineer(s)	Contract Out & IDWR Staff Collaboration
Software Quality Assurance Analyst or Software Tester *	Contract Out & IDWR Staff Collaboration
Network Administrator	IDWR IT Systems Integration Analyst(s)
Technical Writer	Contract Out & IDWR Staff Collaboration
Web Developer	IDWR IT Web Developer
Data Entry Operator	Contract Out & IDWR Staff Collaboration



WSB Computer Infrastructure Development Plan

Platform Development

Identify needs	Enhance Application Review Program	Develop WSB Database Application	Enhance WREdit (ArcMap) Software	Enhance WSB info on IDWR's website	Enhance Info Search Workflow Program
Establish Schedule	Identify development tasks and establish work schedules				
Develop plan	Water Supply Bank Computer Infrastructure Development Plan				
Assemble Development Team	Assemble development team and assign work tasks				
Implement Development Projects	Workflow program enhancement documentation	Database development documentation	WREdit project documentation	Website & internet map development documentation	Information Search Enhancement documentation



WSB Computer Infrastructure Development Plan

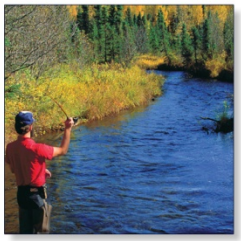
Project Accomplishments & Next Steps

Accomplishments

- Visioning is complete
- Development roles and work assignments are identified
- Development plan is drafted,
- Project component documentation also drafted
- Coordination with IDWR IT/WSB staff on going

Next Steps

- Oct 2014 - Requests for qualifications from software engineers/programmers
- Oct 2014 – Complete draft documentation for project development
- Oct 2014 - Establish project development teams and assign work tasks
- Nov 2014 - Phase two implementation



Memorandum

To: Idaho Water Resource Board (IWRB)

From: Neeley Miller, IDWR Planning and Projects Bureau

Date: September 12, 2014

RE: Statewide Aquifer Stabilization Prioritization Effort

Action: Staff requests the Board assign the Statewide Aquifer Stabilization Prioritization Effort to the Water Resource Planning Committee

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House Bill 547 authorizes the annual appropriation in the amount of $5 million to the Idaho Water Resource Board (Board) for statewide aquifer stabilization. HB 547 revised the distribution of cigarette tax revenue beginning in fiscal year 2015 by re-allocating funds that had previously been used to pay for the Capital renovation project to the Board's secondary aquifer planning, management and implementation fund.

The Eastern Snake Plain Aquifer has been identified as the first priority for the Board's statewide aquifer stabilization effort. The ESPA Comprehensive Aquifer Management Plan (CAMP) lays out a goal for ESPA stabilization and recovery to be accomplished through a series of management actions. Progress toward stabilization and recovery on the ESPA has been made using some Board funds to leverage water user funds and through staff applying for and securing federal funds for implementation. The aquifer stabilization funds will be used to fund previously under-funded management actions identified in the CAMP.

While the first priority for aquifer stabilization is the ESPA, other aquifers in the State also have needs. For example, there is on-going technical work taking place in several aquifers throughout the state, including the Wood River Valley, Mountain Home, Treasure Valley, Lewiston Bench, and in the Rathdrum Prairie. Additionally, there may be an opportunity for the Board to support aquifer stabilization projects that address declining ground water levels in these aquifers, as well as other aquifers where work is not currently underway such as the Palouse aquifer.

Staff has been working on developing a two-track approach for prioritizing aquifer stabilization funding statewide. The first track would be a Board-initiated approach similar to the Board's use of aquifer stabilization funds to enhance recharge activities on the ESPA where the Board directly identifies projects and undertakes them to accomplish aquifer stabilization. For the second track staff is working to develop a process where the Board would partner with local aquifer stakeholders to investigate/undertake/provide financial assistance for water resource projects that support the stabilization of a State-identified Priority Aquifer. Under this second track the Board would, initially, solicit letters of interest and, later, proposals for aquifer stabilization from throughout the State, targeting State-identified Priority Aquifers. These locally-driven proposals would include a description of how the proposed project (or group of projects) will assist in the stabilization of a State Priority Aquifer. Board staff will work to identify State Priority Aquifers, develop criteria for evaluating proposals and review and present proposals for aquifer stabilization funding to the Water Resource Planning Committee.

Staff requests permission to continuing working on this two-track approach with the Water Resource Planning Committee.

AGENDA

IDAHO WATER RESOURCE BOARD
MEETING NO. 10-14

September 23, 2014 at 8:00 am

Idaho Water Center
Conference Rooms 602 B,C,D
322 East Front Street, Boise, Idaho 83720

1. Roll Call
2. Executive Session – Board will meet pursuant to Idaho Code § 67-2345 (1) subsection (f), for the purpose of communicating with legal counsel regarding legal ramifications of and legal options for pending litigation, or controversies not yet being litigated but imminently likely to be litigated. Executive Session is closed to the public.
   Following adjournment of Executive Session -- meeting reopens to the public
3. Agenda and Approval of Minutes 8-14 and 9-14
4. Public Comment
5. Project and Program Tracking and Reporting
6. State-Protected River- Fall River Fishery Enhancement Project
7. ESPA Recharge
8. Weiser-Galloway Project
9. Cloud-Seeding
10. Bee Line Water Association Loan
11. IDWR Director's Report
12. Other Non-Action Items for Discussion
13. Next Meetings and Adjourn

STREAMFLOW ENHANCEMENT AND MINIMUM STREAMFLOW COMMITTEE MEETING 2-14

September 23, 2014 upon adjournment of IWRB Meeting 10-14

1. Teton Basin Transactions
2. Upper Salmon Basin Transactions
3. Discussion of Transactions Expansion
4. Adjourn

Americans with Disabilities

The meeting will be held in facilities that meet the accessibility requirements of the Americans with Disabilities Act. If you require special accommodations to attend, participate in, or understand the meeting, please make advance arrangements by contacting Department staff by email Mandi.Pearson@idwr.idaho.gov or by phone at (208) 287-4800.

MATERIALS FOR THIS SECTION WILL BE PROVIDED AT THE MEETING.

IDAHO WATER RESOURCE BOARD

MEETING MINUTES 8-14

Kootenai River Inn
Ktunaxa Room
7169 Plaza Street, Bonners Ferry, ID 83805

July 17, 2014
Work Session

Chairman Roger Chase called the meeting to order at approximately 8:00 am and designated Bob Graham to chair the meeting. Mr. Chuck Cuddy was absent. All other Board members were present.

During the Work Session the following items were discussed:

- Financial Status Report by Brian Patton
- Review of A&B Irrigation District Loan Request by Brian Patton
- Island Park and Storage Studies Update by Cynthia Clark
- North Idaho Future Water Demand by Neeley Miller, Mark Solomon, and Paul Klatt
- State Water Plan by Brian Patton
- Project and Program Tracking and Reporting by Cynthia Clark
- ESPA Recharge Strategic Planning by Brian Patton

No action was taken by the Board during the Work Session.

July 18, 2014
IWRB Meeting

Chairman Roger Chase called the meeting to order at approximately 8:00 am and designated Bob Graham to chair the meeting. Mr. Chuck Cuddy was absent. All other Board members were present.

Agenda Item No. 1, Roll Call

Board Members Present

Roger Chase, Chairman
Bob Graham, Secretary
Vince Alberdi
Albert Barker
Peter Van Der Meulen, Vice-Chairman
Jeff Raybould
Bert Stevenson

Staff Members Present

Gary Spackman, Director
Brian Patton, Bureau Chief
Neeley Miller, Senior Planner
Morgan Case, Biologist
Mat Weaver, Deputy Director
Cynthia Bridge Clark, Engineer
Chad Goodwin, Water Resource Agent
Mandi Pearson, Admin. Assistant

Clive Strong, Deputy Attorney General
Harriet Hensley, Deputy Attorney General

Guests Present

Jeff Tyler, NWPOA
Phillip Cernera, Coeur d'Alene Tribe
Richard Hart, Coeur d'Alene Tribe
Mark Solomon, Idaho Water Resources Research Institute
Heather Scott, Bonner County
Doug and Maureen Paterson, Bonner County
Sage Dixon, Bonner/Boundary County
Janet Conlin, Farm Bureau
Molly McCahon, Lakes Commission
Senator Shawn Keough, Idaho State Legislature
Bill Booth, Northwest Power and Conservation Council
Aaron Bohachek, Bonners Ferry Herald
Howard Funke, Coeur d'Alene Tribe
Dylan Hedda, HFA
Dan Temple, A&B Irrigation District
Lynn Tominaga, Idaho Ground Water Appropriators
Representative Cindy Agidius, Idaho State Legislature
Caroline Troy, District 5 House candidate
Eric Redman, District 2B House candidate

Agenda Item No. 2, Executive Session

At approximately 8:05 am the Board resolved into Executive Session by unanimous consent pursuant to Idaho Code Section 67-2345 (1) subsection (f), for the purpose of communicating with legal counsel regarding legal ramifications of and legal options for pending litigation, or controversies not yet being litigated but imminently likely to be litigated. No action was taken by the Board during the Executive Session. The Board resolved out of Executive Session and into Regular Session at approximately 8:45 am.

Agenda Item No. 3, Agenda and Approval of Minutes

There were no additions or deletions from the agenda. Mr. Raybould made a motion that the minutes for meetings 4-14, 5-14, 6-14, and 7-14 be approved as printed. Mr. Alberdi seconded the motion. Voice Vote. All were in favor. Motion passed.

Agenda Item No. 4, Public Comment

Chairman Graham opened up the meeting for public comment. Mr. Jeff Tyler of Kootenai County, representing the North West Property Owners Alliance, expressed concerns for Northern Idaho water users due to the Tribe charging users for water. Mr. Barker stated that the Board strongly supports the State's position in those proceedings.

Agenda Item No. 5, Northern Idaho Adjudication Update

Mr. Chad Goodwin provided an update on the Northern Idaho Adjudication. He discussed milestones that have been completed to date, and provided a timeline for projected milestones. Mr. Goodwin gave a summary of claims to be reported to the Court. He also reported on the status of the Palouse River Basin Adjudication. There was discussion among the parties regarding late claims.

Mr. Clive Strong discussed federal reserved water right claims in the Coeur d'Alene- Spokane River Basin Adjudication (CSRBA). He provided a background on the federal governments' power to reserve tribal water rights and specifically discussed the Coeur d'Alene Tribal reserved water right claims. Mr. Strong provided a summary of tribal claims submitted in the CSRBA. He also provided a summary of non-tribal federal reserved water rights, including Avista Corporation claims, United States Forest Service claims, and Bureau of Land Management claims. He discussed the next steps in the

adjudication. There was discussion among the parties regarding new claims and previously-decreed federal claims.

Agenda Item No. 6, North Idaho Future Water Demand Study Proposal

Mr. Neeley Miller discussed the Rathdrum Prairie CAMP (RP CAMP) Future Water Demand Study Proposal funding request. The RP CAMP identifies "studies necessary to support RAFN water right applications" as a critical action item for RP CAMP implementation. The Idaho Water Resources Research Institute (IWRRI) was asked by Rathdrum Prairie municipal water providers to develop a proposal to determine the extent of future water needs to ensure availability for future economic development. This proposal received support from the Rathdrum Prairie Advisory Committee.

Mr. Raybould moved to approve the resolution to allocate funds for the RP CAMP Future Water Demand Study Proposal. Mr. Stevenson seconded the motion.

Roll Call Vote: Mr. Cuddy: Absent; Mr. Alberdi: Aye; Mr. Stevenson: Aye; Mr. Raybould: Aye; Mr. Van Der Meulen: Aye; Mr. Graham: Aye; Mr. Barker: Aye; Chairman Chase: Aye. Motion passed.

Agenda Item No. 7, Spokane River Forum Conference Funding Request

Mr. Miller presented a request from the Spokane River Forum (SRF) to support the Spokane River Conference scheduled for November 18th-20th in Coeur d'Alene, Idaho. The organizers are requesting a $5,000 contribution. The SRF is a clearinghouse of information about the Spokane River and more recently has been involved with the regional water issues, including the Spokane Valley-Rathdrum Prairie Aquifer. The 2014 Spokane River Conference brings together the public, technical experts and researchers, water users and governmental representatives to learn about and discuss regional water issues and solutions. Staff recommends support for the Spokane River Conference because SRF supports RP CAMP objectives. There was discussion among the parties regarding the cost and location of the conference.

Chairman Chase moved to approve the resolution to allocate $5,000 for the Spokane River Forum Conference. Mr. Raybould seconded the motion.

Roll Call Vote: Mr. Cuddy: Absent; Mr. Alberdi: Aye; Mr. Stevenson: Aye; Mr. Raybould: Aye; Mr. Van Der Meulen: Aye; Mr. Graham: Aye; Mr. Barker: Aye; Chairman Chase: Aye. Motion passed.

Agenda Item No. 8, Northwest Power and Conservation Council Update

Mr. Bill Booth provided an update to the Board on the Northwest Power and Conservation Council (NPCC). Mr. Booth updated on the Board on salmon and steelhead returns to Bonneville Dam, the Council's amendment process to its Fish and Wildlife Program, and on issues surrounding northern Idaho. There was discussion among the parties regarding public pressure to eliminate dams below Lewiston, boat inspections, de-listing/recovery of fish, Lake Pend Oreille lake level management, Lake Coeur d'Alene management, the restoration project on the Clark Fork delta, the Albany Falls wildlife settlement, and the Columbia River Treaty.

Agenda Item No. 9, Bohannon Creek Water Transaction

Ms. Morgan Case discussed the 2014 Bohannon Creek water transaction administration. On May 22, 2014, the Board entered into early season agreements with water users to maintain a flow of 2 cfs in Bohannon Creek through June 30. The Watermaster of Water District 74C visited the Bohannon Creek diversion daily during that period, which was above and beyond his typical Watermaster duties. The Water District has requested $600 to compensate the Watermaster for his additional duties. Funds will come through the Columbia Basin Water Transactions Program or the Idaho Fish Accord. There was discussion among the parties regarding the ongoing nature of this issue, as well as the amount of the request.

Mr. Raybould moved to approve the resolution in the matter of the Bohannon Creek Water Transaction Administration. Mr. Alberdi seconded the motion.

Roll Call Vote: Mr. Cuddy: Absent; Mr. Alberdi: Aye; Mr. Stevenson: Aye; Mr. Raybould: Aye; Mr. Van Der Meulen: Aye; Mr. Graham: Aye; Mr. Barker: Aye; Chairman Chase: Aye. Motion passed.

Agenda Item No. 10, A&B Irrigation District Loan Request

Mr. Patton discussed a loan request from A&B Irrigation District (ABID). ABID is requesting a loan in the amount of $7,000,000 for a new pumping plant and pipeline that will deliver water to areas of declining groundwater. This has been a high-priority project for the IWRB through the AWEP program as it will offset ground water withdrawals from the ESPA. Mr. Dan Temple of ABID discussed the purpose of the project. This project will 1) convert 1,500 acres from declining ground water to surface water supplies, 2) reliably deliver surface water to 1,500 acres that were previously converted from ground water to surface water but to which A&B has difficulty making reliable surface water deliveries, and 3) improve the reliability and efficiency of deliveries to approximately 4,500 acres. Mr. Temple discussed the current status of the project. There was discussion among the parties regarding water demand trends in the area, aquifer recharge, ABID cash reserves, and the interest rate.

Mr. Stevenson moved to approve the resolution in the matter of the funding commitment to A&B Irrigation District. Mr. Alberdi seconded the motion. Mr. Raybould suggested a change in the resolution to strike the phrase "at 3.5% interest rate" from the paragraph beginning "NOW THEREFORE BE IT RESOLVED."

Roll Call Vote: Mr. Cuddy: Absent; Mr. Alberdi: Aye; Mr. Stevenson: Aye; Mr. Raybould: Aye; Mr. Van Der Meulen: Aye; Mr. Graham: Aye; Mr. Barker: Abstain; Chairman Chase: Aye. Motion passed.

Mr. Temple thanked the Board for their time and consideration.

Agenda Item No. 11, Island Park Enlargement

Ms. Cynthia Clark discussed a draft resolution for the Board's consideration to commit funds and provide signatory authority for two activities related to the Island Park Enlargement project. Additional evaluation of potential impacts to land and real estate as a result of a raise of the Island Park Reservoir is required to determine the viability of the project. The resolution provides spending authority to advance an evaluation of those impacts. Also, staff recommends that the Board continue advisory services with Rick Gold as the project moves forward.

Mr. Barker moved to approve the resolution in the matter of the Island Park Reservoir Enlargement Project. Mr. Stevenson seconded the motion.

Roll Call Vote: Mr. Cuddy: Absent; Mr. Alberdi: Aye; Mr. Stevenson: Aye; Mr. Raybould: Abstain; Mr. Van Der Meulen: Aye; Mr. Graham: Aye; Mr. Barker: Aye; Chairman Chase: Aye. Motion passed.

Agenda Item No. 12, Water District 02 WaterSmart Grant Update

Mr. Miller provided an update to the Board regarding the Water District 02 WaterSmart grant. Phase-one of the project is on-going. Installation and calibration of equipment is on-going and will continue through summer/fall 2014. In June 2014 the Bureau of Reclamation announced that the IWRB WaterSmart proposal for phase-two would receive funding in the amount of $297,761.

Agenda Item No. 13, Regional Conservation Partnership Program Proposal

Mr. Miller provided an update on the Regional Conservation Partnership Program (RCPP) that was included in the 2014 Farm Bill. The RCPP replaced the Agricultural Water Enhancement Program (AWEP). A proposal drafting committee consisting of IWRB staff, NRCS, and other interested parties has been meeting since last summer to identify eligible future projects and develop a framework for a

proposal focused on ESPA stabilization. The drafting committee met on a weekly basis during June and early July 2014 to develop and submit a pre-proposal prior to the July 14th deadline. If the Board's RCPP pre-proposal is selected for further evaluation, staff will coordinate with the proposal drafting committee to submit a full proposal by September 26, 2014. NRCS will announce proposals that have been selected for funding on October 17, 2014.

In addition to the IWRB's RCPP proposal, the Upper Salmon Basin Watershed Program (USBWP) also submitted a proposal for RCPP funds. They requested RCPP program funding over five years to move habitat actions forward in the Upper Salmon Basin Watershed. The USBWP RCPP proposal will not compete for funding with the IWRB's RCPP proposal. There was discussion among the parties regarding how the USBWP proposal might impact the Columbia Basin Water Transactions program, and discussion among the parties regarding the match percentage.

Agenda Item No. 14, ESPA Recharge

Mr. Patton provided a status report on ESPA Managed Recharge. So far this calendar year, the Board has accomplished 10,753 acre-feet of early-season recharge. This is significantly below average, due to dry season conditions earlier in the year and limited availability of canal systems. This demonstrates the need to develop infrastructure availability to make use of flow present at the Milner Pool. Mr. Patton and Mr. Alberdi have been in discussions with canal companies that divert at Milner with the goal of getting them on board for winter recharge activities. Mr. Patton discussed further recharge activities that are ongoing this year, including discussions regarding expansion of the Mile Post 31 site, the geotechnical investigation at the Walcott site, and the identification and testing of additional potential recharge sites in several locations. There was discussion among the parties regarding the Walcott project, exploratory work to determine the viability of the potential recharge sites, and average early season recharge.

Mr. Alberdi moved to approve the resolution to allocate funds in the matter of the ESPA Managed Recharge Program. Mr. Stevenson seconded the motion.

Roll Call Vote: Mr. Cuddy: Absent; Mr. Alberdi: Aye; Mr. Stevenson: Aye; Mr. Raybould: Aye; Mr. Van Der Meulen: Aye; Mr. Graham: Aye; Mr. Barker: Aye; Chairman Chase: Aye. Motion passed.

Agenda Item No. 15, State Water Plan

Mr. Patton discussed a draft letter to the Legislature concerning the Board's review of certain policies in the State Water Plan. The letter outlines the findings of that review process and what the Board's proposed path forward would be.

Mr. Raybould moved to authorize the letter to be sent to the Cochairs of the Interim Natural Resources Committee as well as legislative leadership and anyone else the Chairman deems should receive a copy of it. Mr. Alberdi seconded the motion. Voice Vote. All were in favor. Motion passed.

Agenda Item No. 16, Underground Injection Control Rule Change

Mr. Weaver presented a request to change a word in IDAPA 37.03.03-Rules & Minimum Standards for the Construction & Use of Injection Wells. He provided a background of the pertinent rules. A statutory revision to the definition of an "injection well" occurred this year. The passage of the revised injection well definition in the statute generated an inconsistency between the statute and the existing rule. There is concern that the inconsistency would broaden the exemption for underground injection wells as they deal with oil and gas. The current rule (IDAPA 37.03.03, Section 010.49.e) states "Provided however, that 'injection well' does not mean or include any well ***drilled*** for oil, gas, or geothermal production activities…" (emphasis added). Staff requests to change the word "drilled" to the word "used."

Mr. Barker moved to approve the resolution to amend the rules for the construction and use of injection wells. Mr. Raybould seconded the motion. Voice Vote. All were in favor. Motion passed.

Agenda Item No. 17, Aqua Life Facility

Mr. Patton provided background information on the Aqua Life Hatchery and the proposed 2nd Letter of Intent from Idaho Ground Water Appropriators (IGWA) requesting the use of some of the water from the Aqua Life Hatchery to assist with resolving water use conflicts in the Hagerman Valley. He discussed the water supplies associated with the hatchery and a history of state involvement with the hatchery. Mr. Patton discussed the House Bill 644 Statement of Purpose, the status of the purchase of the property from the Idaho Department of Parks and Recreation, and the status of the tenant lease.

Mr. Patton discussed IGWA's first and second Letter of Intent, and the Board's remaining assets if the second Letter of Intent were to be implemented. There was discussion among the parties regarding the springflow associated with the property. Mr. Lynn Tominaga of IGWA encouraged the Board to authorize the Second Letter of Intent in a timely manner in order to avoid the economic upheaval created by a curtailment. There was further discussion among the parties regarding the details of the Letter of Intent. Mr. Stevenson declared a possible conflict due to his ownership of water rights in the Magic Valley Ground Water District. He asked for unanimous consent that he be allowed to participate in the discussion and vote on the issue. None were opposed to Mr. Stevenson's participation on this item. Mr. Barker expressed concerns regarding the ownership of the water rights and the value of the property. He recommended that the Board go ahead with the negotiations with IGWA, but have a portion of the Board without a direct interest in the arrangement to be a participant in those negotiations. He suggested Mr. Raybould and Mr. Van Der Meulen to assist in those discussions. Mr. Tominaga discussed the value of owning water in the area. There was discussion among the parties regarding the resolution and negotiations with IGWA.

Mr. Barker moved to approve the resolution authorizing the execution of the Letter of Intent with an amendment to correct the date, and moved to appoint a subcommittee consisting of Mr. Van Der Meulen and Mr. Raybould to work with staff to negotiate the terms of the final agreement with IGWA. Mr. Alberdi seconded the motion. There was discussion among the parties regarding the sale of the water rights.

Roll Call Vote: Mr. Cuddy: Absent; Mr. Alberdi: Aye; Mr. Stevenson: Aye; Mr. Raybould: Aye; Mr. Van Der Meulen: Aye; Mr. Graham: Aye; Mr. Barker: Aye; Chairman Chase: Aye. Motion passed.

Agenda Item No. 18, IDWR Director's Report

Director Spackman discussed scheduled meetings and deadlines regarding delivery calls. He reminded the Board of the January 19, 2015 deadline by which the ground water users needs to provide at least 3.4 cfs of mitigation to Rangen to avoid a curtailment. There is a total obligation of 9.1 cfs that will need to be provided in stages over the next five years.

Director Spackman discussed staffing for the Board. He provided a background on reassignment of Board staff to Department tasks. He also discussed issues regarding Department staff retention, and staffing needs for Board projects. There was discussion among the parties regarding funding and staffing needs for Board projects, as well as the urgency and timeline for staffing needs.

Director Spackman also spoke about the potential for a Bear River Adjudication.

Agenda Item No. 19, Other Non-Action Items for Discussion

Chairman Chase, along with other Board members, expressed his appreciation to Mr. Graham for chairing the meeting, as well as for the opportunity to hold a meeting in Northern Idaho. Mr. Barker congratulated Mr. Strong on his award from the American Bar Association.

Agenda Item No. 20, Next Meetings and Adjourn

The next Board meeting is currently scheduled for September 18th and 19th in Boise, however a conflict was identified with those dates. The meeting was rescheduled for September 22nd and 23rd. A Cloud-Seeding Subcommittee will be scheduled around the first week of August. A Water Storage

Projects Committee will also be scheduled in late August or early September. Mr. Raybould made a motion to Adjourn, and Mr. Alberdi seconded the motion. Voice Vote. All were in favor. Motion Carried.

The IWRB Meeting 8-14 adjourned at approximately 12:15 pm.

Respectfully submitted this _____ day of September, 2014.

_____
Bob Graham, Secretary

_____
Mandi Pearson, Administrative Assistant II

Board Actions:

1. Mr. Raybould made a motion that the minutes for meetings 4-14, 5-14, 6-14, and 7-14 be approved as printed. Mr. Alberdi seconded the motion. Voice Vote. All were in favor. Motion passed.
2. Mr. Raybould moved to approve the resolution to allocate funds for the RP CAMP Future Water Demand Study Proposal. Mr. Stevenson seconded the motion. Roll Call Vote. 7 Ayes, 1 Absent. Motion passed.
3. Chairman Chase moved to approve the resolution to allocate $5,000 for the Spokane River Forum Conference. Mr. Raybould seconded the motion. Roll Call Vote. 7 Ayes, 1 Absent. Motion passed.
4. Mr. Raybould moved to approve the resolution in the matter of the Bohannon Creek Water Transaction Administration. Mr. Alberdi seconded the motion. Roll Call Vote. 7 Ayes, 1 Absent. Motion passed.
5. Mr. Stevenson moved to approve the resolution in the matter of the funding commitment to A&B Irrigation District. Mr. Alberdi seconded the motion. Mr. Raybould suggested a change in the resolution to strike the phrase “at 3.5% interest rate” from the paragraph beginning “NOW THEREFORE BE IT RESOLVED.” Roll Call Vote. 6 Ayes, 1 Abstain, 1 Absent. Motion passed.
6. Mr. Barker moved to approve the resolution in the matter of the Island Park Reservoir Enlargement Project. Mr. Stevenson seconded the motion. Roll Call Vote. 6 Ayes, 1 Abstain, 1 Absent. Motion passed.
7. Mr. Alberdi moved to approve the resolution to allocate funds in the matter of the ESPA Managed Recharge Program. Mr. Stevenson seconded the motion. Roll Call Vote. 7 Ayes, 1 Absent. Motion passed.
8. Mr. Raybould moved to authorize the letter to be sent to the Cochairs of the Interim Natural Resources Committee as well as legislative leadership and anyone else the Chairman deems should receive a copy of it. Mr. Alberdi seconded the motion. Voice Vote. All were in favor. Motion passed.

9. Mr. Barker moved to approve the resolution to amend the rules for the construction and use of injection wells. Mr. Raybould seconded the motion. Voice Vote. All were in favor. Motion passed.

10. Mr. Barker moved to approve the resolution authorizing the execution of the Letter of Intent with an amendment to correct the date, and moved to appoint a subcommittee consisting of Mr. Van Der Meulen and Mr. Raybould to work with staff to negotiate the terms of the final agreement with IGWA. Mr. Alberdi seconded the motion. There was discussion among the parties regarding the sale of the water right. Roll Call Vote. 7 Ayes, 1 Absent. Motion passed.

IDAHO WATER RESOURCE BOARD

MEETING MINUTES 9-14

Idaho Water Center
Conference Room 602D
322 East Front St, Boise ID 83720

August 20, 2014

Chairman Roger Chase called the meeting to order at approximately 1:30 pm. There were seven Board members present. Mr. Bob Graham was absent at Roll Call, but joined the meeting at a later time. A quorum was present.

Agenda Item No. 1, Roll Call

Board Members Present

Roger Chase, Chairman
Peter Van Der Meulen, Vice-Chairman
Bob Graham, Secretary
Vince Alberdi
Jeff Raybould
Chuck Cuddy
Bert Stevenson
Albert Barker

Staff Members Present

Gary Spackman, Director
Mathew Weaver, Deputy Director
Brian Patton, Planning Bureau Chief
Cynthia Bridge Clark, Water Projects Section Manager
Lyle Swank, Regional Manager
Mandi Pearson, Administrative Assistant

Guests Present

Stephen Goodson, Special Assistant to the Governor
Walt Poole, Idaho Dept. of Fish and Game
Matt Uranga, J-U-B Engineers, Inc.
Hal Anderson, Idaho Water Engineering
Norm Semanko, Idaho Water Users Association

Agenda Item No. 2, Recharge

Mr. Patton discussed ESPA managed recharge. He discussed recharge investigations findings, Board strategy, water availability, the Board's current delivery payment plan, and to-date average yearly recharge. Mr. Patton presented a potential incentive-based payment plan.

There was discussion among the parties regarding the seasonal aspect of the plan and which areas of the state would be included. There was discussion

among the parties regarding the structure of the program and the Board's priorities, and the possibility of recharging with water that is a storage water right rather than natural flow. Further items of discussion included agreements with environmental groups, water-savings contracts, and the addition of a clause in the resolution that identifies a 5-year review.

Mr. Patton provided examples of potential payments to canal companies based on the proposed payment schedule. There was discussion of average annual limits and equitable distribution among the canal companies in years with less water. Mr. Patton discussed infrastructure needs and the possibility of the Board paying for engineering assessments to determine infrastructure needs and costs. There was discussion regarding the costs associated with infrastructure and assessments, as well as the value of recharge.

Mr. Patton provided letters that have been sent to the Twin Falls Canal Company and American Falls Reservoir District No. 2 discussing this concept. A letter to Northside Canal Company is forthcoming. There was discussion among the parties regarding other recharge areas. There was discussion regarding the resolution. Mr. Barker suggested adding, "Be it further resolved that the Board will evaluate projects on an individualized basis, taking into consideration hydrology and finances." Mr. Raybould suggested an alteration the addition to say "… hydrology, retention time, and financial constraints." Mr. Barker also requested that the resolution be amended to be consistent in its references to Milner Dam and Milner Pool.

Mr. Barker moved to adopt the resolution to approve a winter-time payment schedule for delivery of water for managed recharge, with the amendments discussed earlier. Mr. Alberdi seconded the motion.

Roll Call Vote: Mr. Cuddy: Aye; Mr. Alberdi: Aye; Mr. Stevenson: Aye; Mr. Raybould: Aye; Mr. Van Der Meulen: Aye; Mr. Graham: Aye; Mr. Barker: Aye; Chairman Chase: Aye. Motion passed.

Agenda Item No. 3, Other Non-Action Items Board Members May Wish to Discuss

Mr. Stevenson discussed an email regarding new development and the impact on water management. There was further discussion among the parties regarding this topic. There was also discussion among the parties regarding additional staff positions and next meetings.

Agenda Item No. 4, Adjourn

Mr. Alberdi made a motion to Adjourn, and Mr. Cuddy seconded the motion. Voice Vote. All were in favor. Motion Carried.

The IWRB Meeting 9-14 adjourned at approximately 2:40 pm.

Respectfully submitted this _____ day of September, 2014.

_____
Bob Graham, Secretary

_____
Mandi Pearson, Administrative Assistant II

Board Actions:

1. Mr. Barker moved to adopt the resolution to approve a winter-time payment schedule for delivery of water for managed recharge, with the noted amendments. Mr. Alberdi seconded the motion. Roll Call Vote. 8 Ayes. Motion passed.

Big Wood Canal Company
Lynn Harmon, Manager
208-886-2331
409 North Apple Street
Shoshone, ID 83352
09/22/2014

Idaho Department of Water Resources
322 East Front Street
P.O. Box 83720
Boise, ID 83720-0098

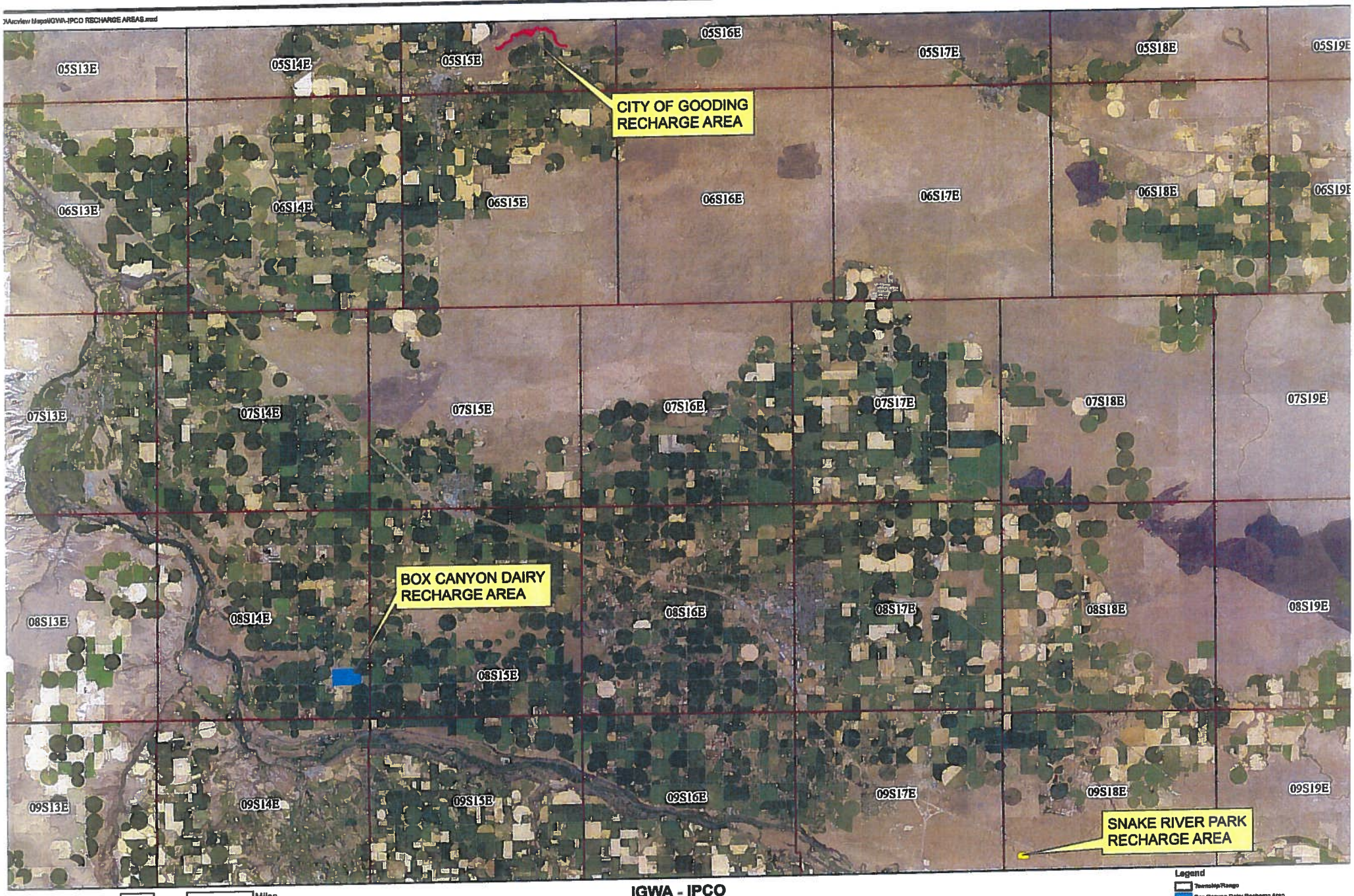
RE: Funding for the 702 Project

Attached you will find a map of the 702 project. This project replaces 23 miles of open laterals, which will reduce maintenance cost. It is estimated that there is a 55% loss on the current open ditch system. There are 23 water users and over 3500 acres affected by the 702 project. It is projected to extend the Magic Reservoir irrigation season by five to seven days. There are currently two potential recharge sites that can be developed with this 702 project. The project would entail installing two 30" pipe running side by side for approximately 13,350 feet and one 15" pipe for approximately 11,200 feet. The cost of this project will be approximately $3.5 million. The Big Wood Canal Co. is asking to be considered for funding through grants or a low interest loan. More information will be provided prior to the November meeting.

Sincerely,

Big Wood Canal Company
Lynn Harmon, Manager
Manager

Google



GINEERING, PLLC.
2014

IGWA - IPCO
RECHARGE AREAS
NAIP 2013 AERIAL

Memorandum

To: Idaho Water Resource Board

From: Cynthia Bridge Clark

Date: September 15, 2014

Re: Project and Program Tracking and Reporting

The Idaho Water Resource Board (IWRB) oversees a wide range of projects and programs. The number of projects implemented by the IWRB will increase as a result of 2014 legislative appropriations and potential grant opportunities. An updated Progress Report summarizing the status and progress of projects and programs associated with the IWRB's sustainability and aquifer stabilization initiative will be provided at the IWRB meeting.

Project	Major Milestones Completed	Recent Progress & Upcoming Work	Project Schedule
ESPA Stabilization: Managed Aquifer Recharge (Milner-Area Efforts)			
Non-Irrigation Season/Winter Delivery Contracts with Existing Canal Systems			
Participating Canal Systems: Twin Falls Canal Company (TFCC), American Falls Reservoir District No. 2 (AFRD2), Southwest Irrigation District (SWID)		• 5-year contracts in place or under development	• Anticipate operational trial run of deliveries winter 2015
Infrastructure Modifications (associated with non-irrigation season delivery from Milner)			
Twin Falls Canal Company (TFCC): Milner-Murtaugh Reach		• Engineering study underway for making keeping ice off gates at Murtaugh Lake	
American Falls Reservoir District No. 2 (AFRD2): Milner-Gooding Canal		• Winter-capable road to MP31 proposed • Engineering study for replacement of deteriorated concrete flume at Shoshone proposed	• Sept IWRB Mtg – Resolution to fund road improvement proposal
Southwest Irrigation District (SWID): West Cassia Pipeline		• Engineering study for making West Cassia Pipeline winter-capable proposed	
Mile Post 31	• Initial construction phase complete (spring 2013) – operational to 125 cfs		
Direct Pumping to Injection Systems			
Direct Pumping to injection Activities		• Pursuing test well drilling and injection at A&B Pumping Plant, NSCC Pumping Plant, SWID pumping plant, Nightengale private site, 2 USBOR sites, A&B at Milner pumping plant	• Several injection well permits being processed • Drilling and test injections at several locations anticipated fall 2014

Project	Major Milestones Completed	Recent Progress & Upcoming Work	Project Schedule
Other ESPA Stabilization Efforts			
Conversion Projects: Ground Water to Surface Water			
A&B Irrigation District Pipeline	• Project will provide new pumping plant and associated pipeline to offset ground water pumping • Partially funded through AWEP and land owners	• Estimated project costs increased from $7.8 mil to $12.5 mil • July 2014 – IWRB passed Resolution approving loan not to exceed $7 mil	
Demand Reduction			
End Gun Removal/Conversion to Dryland Farming Program	• First of 2-3 yr contracts complete	• Approximately 10 contracts in Teton Valley area	• Contracts expire in 2016 or 2017
Conservation Reserve Enhancement Program (CREP)	• 17,227 ac currently enrolled (goal of 100,000 ac or 200,000 af) in 10 counties	• On-going compliance review and review of new applications	• Contracts begin expiring 2021
Other Activities/Projects			
Regional Conservation Partnership Program (RCPP) Projects	• Invited to submit full proposal (targets conversion and demand reduction projects)	• Proposal being drafted in coordination with contributing partners	• Oct 2, 2014 – Full proposal due • Nov 15, 2014 – Funding announcement
Hagerman Valley (Below-the-Rim)			
Aqualife Hatchery Acquisition	• In process of acquiring from IDPR • Letter of intent with IGWA for use of facility under consideration	• Required ground survey near completion	
Pristine Springs	• Pristine Springs purchased by the IWRB 2008 • Agreements to sell water supplies to IGWA and City of Twin Falls executed	• Pursuing options for long-term lease or sale of assets	

Project	Major Milestones Completed	Recent Progress & Upcoming Work	Project Schedule
Cloud Seeding			
Expansion of Upper Snake cloud seeding program into tribs above Palisades Reservoir	• Existing program-19 remote operated ground generator stations installed since 2009 to supplement High Country RC&D efforts	• August 15 - Cloud Seeding Committee mtg discussed proposed expansion and proposal for IWRB provide funding for a portion of capital costs	• Sept IWRB Mtg – Resolution to fund portion of infrastructure for program expansion
Establishment of program in Boise and Big Wood River basins		• August 15 - Cloud Seeding Committee mtg discussed proposed program and proposal for IWRB provide funding for a portion of capital costs	• Sept IWRB Mtg – Resolution to fund portion of infrastructure for program expansion
Statewide Aquifer Modeling, Monitoring and Measurement			
Enhanced Snake Plain Aquifer Model (ESPAM)	• ESPAM Version 2.1 completed 2013	• Recommended enhancements have been issued by Eastern Snake Hydrologic Modeling Committee (ESHMC)	• Review by ESHMC ongoing
ESPA Well Depth Measurement Program	• Measurement sites include: ground water, managed recharge, geothermal, ground water quality, water level measurements • FY 2013 Water level mass measurement synoptic include wells across ESPA, Wood River Valley, Thousand-Springs area	• Investigating expansion of continuous monitoring network in Milner Dam area using existing USBOR wells	• Annual measurement activities on-going
ESPA Spring and Return Flow Measurement Program	• FY 2013 Surface Water measurement sites (USGS gages and return flow sites)	• Investigating expansion of return flow network between Blackfoot and Idaho Falls • Installing 3 new recorders in Little Lost Valley	• Annual measurement activities on-going
Hagerman Valley (Below-the-Rim)		• 3 new monitoring sites identified and equipment purchased	• Fall 2014 - Installation to be complete
Wood River Valley Groundwater Flow Model Project	• Spring 2013 - Modeling Tech Advisory Committee (MTAC) formed • April 2014 – Model framework constructed	• Ongoing model calibrations activities • Ongoing MTAC meetings	• End 2015 – Model completion

Project	Major Milestones Completed	Recent Progress & Upcoming Work	Project Schedule
Statewide Aquifer Modeling, Monitoring and Measurement			
Treasure Valley Groundwater Model	• Treasure Valley Hydrologic Project (TVHP) Model completed (2004) • 2010 IWRB funded evaluation of groundwater models for TV CAMP • 2013 USBOR completed Time-Dependent Model of the TV	• A technical advisory committee for the Treasure Valley Groundwater Model provided comments on the existing models	• 2014 – IDWR to complete evaluation of BOR time-dependent model to direct further model development
North Ada County Hydrogeologic Investigation	• Detailed investigation of hydrogeology to characterize the aquifer in North Ada County (initiated 2007)	• Ongoing monitoring and measurement efforts • Data integrated into TV Groundwater Model • Expanded to include new developments	
East Ada County Hydrologic Project	• Detailed investigation of aquifer system in East Ada County (initiated 2007)	• Ongoing monitoring and measurement efforts • Data integrated into TV Groundwater Model	
Spokane Valley Rathdrum Prairie (SVRP) Model	• Phase 1 – Data Collection and Groundwater flow model completed 2004-2008 • Phase 2 – Additional technical studies and modeling 2008-2010	• Monitoring and measurement activities are ongoing • Additional data collected when available to expand network for model calibration	
Lewiston Plateau Ground Water Management Area	• Ground Water Management Plan (August 2014)	• Developing a monitoring network in deep aquifer; data availability is limited	

Project	Major Milestones Completed	Recent Progress & Upcoming Work	Project Schedule
Surface Water Storage			
Weiser-Galloway Project (Weiser River Basin)	• Gap Analysis of previous project studies completed • Foundation and Geotechnical analysis completed	• Operations Analysis – ongoing • Hydropower Integration Study - ongoing • Sept 11, 2014 - Storage Subcommittee Meeting in Weiser • FERC preliminary permit application public comment period closed	• Sept 2014 IWRB Mtg – Resolution to fund supplemental studies to Operations Analysis • Spring 2014 – Present final results Operations Analysis and supplemental studies
Boise River Feasibility Study – Arrowrock Raise	• Storage project screening analysis completed; (Aug 2010) • Preliminary evaluation of Arrowrock Dam raise completed (Oct 2011)	• EIS public scoping meetings completed • Corps finalizing SOW • Hydrologic modeling of Arrowrock raise ongoing	• Fall 2015 – Draft feasibility rpt and EIS for public review • Summer 2017 - Final Feasibility Rpt/EIS for public review • Fall 2017 – Signed Record of Decision
Island Park Reservoir Enlargement (Henrys Fork Basin)	• Henrys Fork Basin Study complete (July 2014)	• July 2014 – IWRB passed resolution to fund advisory services and land impacts assessment	• Sept 22, 2014 – JFAC Tour to include visit and discussion of project • Fall 2014 – Initiate Land and Real Estate Impacts study
Other Water Management Projects			
Mountain Home Water Rights	• Purchase and sale agreement executed	• Begin discussions with US Air Force Base.	
Water District 2 Measurement Project (WaterSMART Grant)	• 15 projects at various stages of completion • New grant (phase 2) approved to install measurement equip at 40+ sites • Phase 2 financial assistance with BOR in place	• Phase 1 - Ongoing coordination with water users, equip purchasing and installation • Phase 2 – Ongoing coordination, measurement device purchasing, dev of reimbursement contracts	• End 2015 – Complete Phase 1 • End 2016 – Complete phase 2
North Idaho Future Water Demand Study	• Executed contract for future demands study between U of I and IWRB	• July IWRB Mtg – Funding of North Idaho future demands study approved	• May 30, 2015 – Completion of future demands study
IWRB Financial Program New Applications			
Bee Line Water Assoc. Loan		• New loan application for system improvements	• Sept 2014 – Resolution before the IWRB

Program	Major Milestones Completed	Recent Progress & Upcoming Work	Project Schedule
Water Supply Bank			
IT Infrastructure Development	• April 2014 – Development Scope of Work Complete	• IT Development plan near completion - Sept 2014 • Generation of a development plan ongoing (includes justification for IT programming and software engineering services contract)	• Oct 2014 – Expect to issue RFQ • Summer 2016 – Complete launch of WSB IT platform
Idaho Water Transactions Program			
Columbia Basin Water Transactions Program	• Bohannon Creek 2014 - delivering 2 cfs instream • FTR Spring Creek – delivering 0.85 cfs instream • Pole Creek 2014 – Delivering 6 cfs instream • Morgan Creek 2014 – Delivering 2 cfs instream	• Development of power estimates for Carmen Creek transaction • Power estimates for Pole Creek transaction • Aug 2014 - Public Meeting in Pahsimeroi Basin • Aug 2014 - Presentation to IEF Boise River Forum	• Sept 2014 – Complete 2014 Transactions • Sept 2014 - IWRB Streamflow Committee review potential Upper Salmon & Teton River transactions • Nov. 2014 - Propose 2015 transactions
Idaho Fish Accord	• Lower Lemhi 2014-2015 delivering 15.56 cfs instream	• Finalized Lower Lemhi Transactions for 2014-2015	• Sept. 2014 – Complete 2014 transactions

Memorandum

To: Idaho Water Resource Board (IWRB)

From: Sandra Thiel, IDWR Planning Bureau

Date: September, 8, 2014

RE: Fall River Fish Habitat Enhancement Project

Background

The Henrys Fork Basin Comprehensive State Water Plan was adopted by the Board in 1992 and approved by the legislature in 1993. The Plan designates the Fall River (see attached map), from 100 feet upstream of the Yellowstone Diversion Dam to Kirkham Bridge as a recreational river. Under this designation pursuant to Idaho Code 42-1734A(6) the Plan outlines activities allowed in the 11 miles of the recreational river: *Stream channel alterations are prohibited except those necessary to maintain, improve, or relocate existing utilities, roadways, diversion works, fishery enhancement facilities and managed stream access facilities; for the maintenance of private property; for new off-stream storage projects; and for public agencies to construct public access facilities and fishery enhancement facilities.*

The Henrys Fork Comprehensive State Water Plan includes a provision that allows individuals or groups to request amendments to the Plan. According to the Plan, the Board will consider requests from individuals to amend a component of the comprehensive state water plan on a case-by-case basis.

Proposed Project

Jay Ellis, a land owner in Teton County, submitted a stream channel alteration permit application in June 2014. Dave Rosgen with Wildland Hydrology designed and engineered the proposed project. According to the Joint Application for Permits submitted by Ellis and Rosgen the purpose of the project is fish habitat enhancement. The proposed project identifies six objectives:

- Improve in-stream holding cover during high and low flow periods
- Creation of habitat diversity
- Increase biomass for trout
- Implement proposed enhancements to withstand high flows
- Enhance or maintain the visual values
- Establish a Yellowstone cutthroat fishery

The Board Books contain a copy of the Fall River Fish Habitat Enhancement Project prepared for Jay Ellis by Dave Rosgen.

Comments
Steve Schmidt, regional supervisor with the Idaho Department of Fish and Game provided comments on July 1, 2014 (see attached letter). On page 2 of the letter Mr. Schmidt states: *As the state agency responsible for fisheries management, IDFG does not recommend un-natural modification of the reach based on the justification of fisheries enhancement. We recommend that the reach be left in its current functioning state mid-channel and be modified only in the instance of protection of real property (bank stabilization as proposed) should in-stream work be permitted.*

As of September 8, 2014 the Department has receive no other comments about this project

Action
The Henrys Fork Comprehensive State Water Plan allows the Board to consider requests from individuals to amend a component of the plan. A resolution is attached for your consideration.

Request for Consideration to Enhance the Fish Habitat, Reduce Streambank Erosion, and Improve the Riparian Corridor for 4,000 ft. of the Fall River Below the Yellowstone Diversion Dam

by

Dave Rosgen, P.H., Ph.D.

Wildland Hydrology

On Behalf of

Jay Ellis, Owner

1. **From the Henry's Fork Comprehensive Plan:**

   "Existing uses will continue and in many instances some other new uses will be allowed."

2. **The *"board shall consider requests to amend a component of the plan on a case-by case basis."***

3. **The determination will be based partially on the assumption that such use will not defeat the "*protection and preservation of the recreational river status*" of this reach.**

4. ***"The board may amend the plan only if the proposal has a substantial possibility of not impairing the values which were the basis for protection of the recreational designation."***

Overall Project Objectives:

- Enhance fish habitat
- Reduce streambank erosion
- Improve and expand the riparian corridor

These objectives are a ***complimentary use*** rather than a ***competing use*** utilizing the criteria established for the Recreational River designation. There will be open access to the public as well.

Fishery Objectives:

1. Provide substantial instream holding and overhead cover
2. Create fish habitat diversity
3. Provide rearing or juvenile habitat for trout
4. Establish potential spawning habitat

Limiting Factors for Fish Habitat:

1. Instream and overhead cover
2. Winter and summer/fall low flow refugia
3. High flow refugia
3. Spawning habitat
4. Streamflow depth (usable area)
5. Food chains

Fisheries assessment in the Comprehensive Plan identified that spawning habitat on Fall River rated a 3 (or limiting), where:

1 = “outstanding” resource value
2 = “substantial” resource value
3 = “moderate” resource value

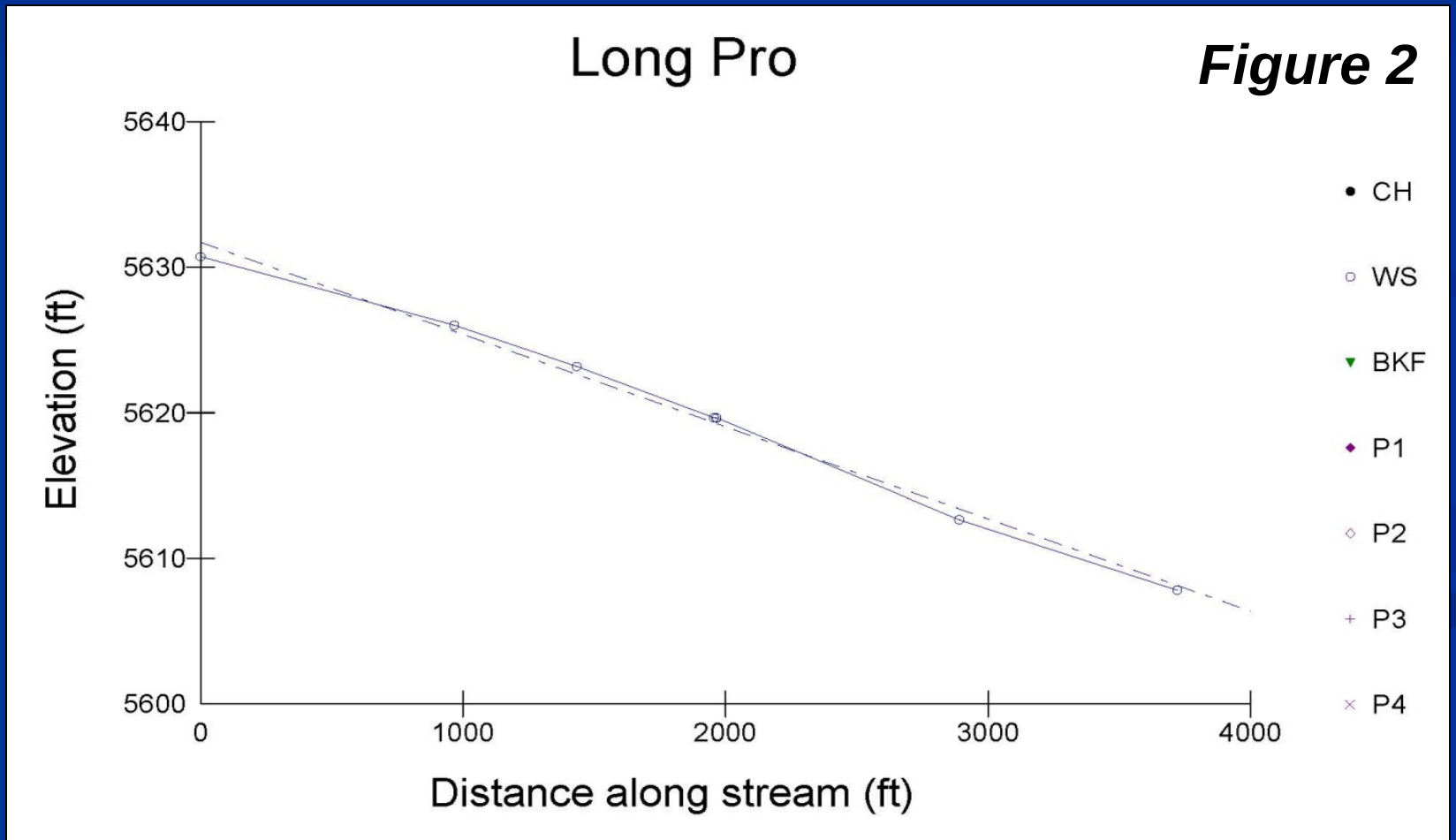
Although there is sufficient, outstanding habitat along some of the reaches of the Fall River elsewhere that rate a 1, this particular one mile reach has severe limitations of the five limiting factors previously listed.

***Figure 1*. Very wide and shallow (high width/depth ratio) channel of a riffle on Fall River located on the proposed project reach.**

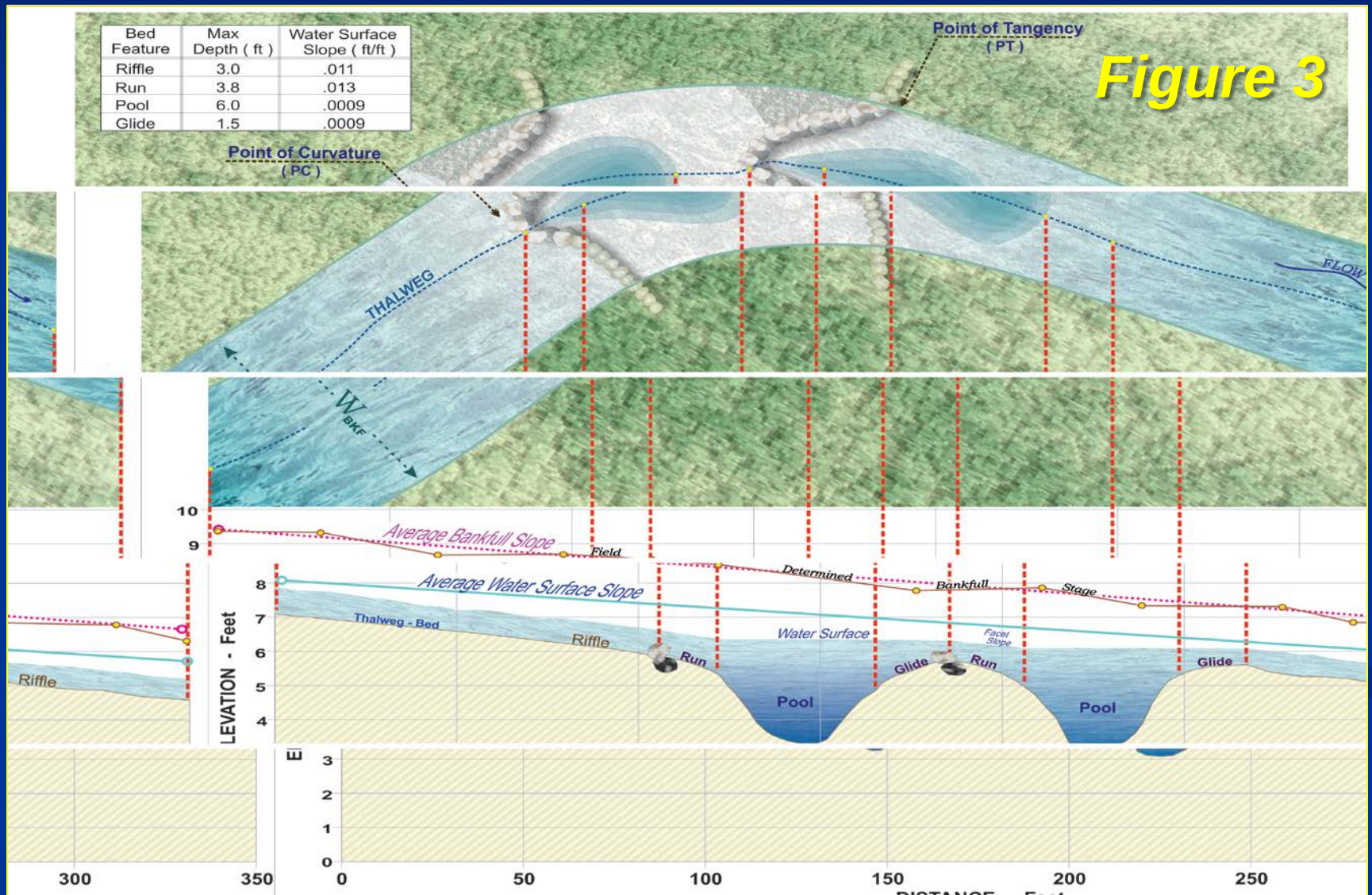
Typical Conditions for Riffle shown in Figure 1

- Existing width/depth ratio is 44 (stable reference for same stream type is 18)
- Little depth to hold fish during high or low flows and shallow depths promote ice buildup
- Little to no boulders in the riffles or deep pools needed to hold fish during all flow levels

Spawning habitat (as identified by the IDGF&G and rated 3) is basically nonexistent in this 4,000 ft. reach due to the lack of pool/glide complexes. *Figure 2* shows the uniform bed profile with no apparent pools or glides.



The proposed bed features shown in *Figure 3* will create the adverse slope of the bed to naturally sort spawning size gravels instead of the coarse cobbles

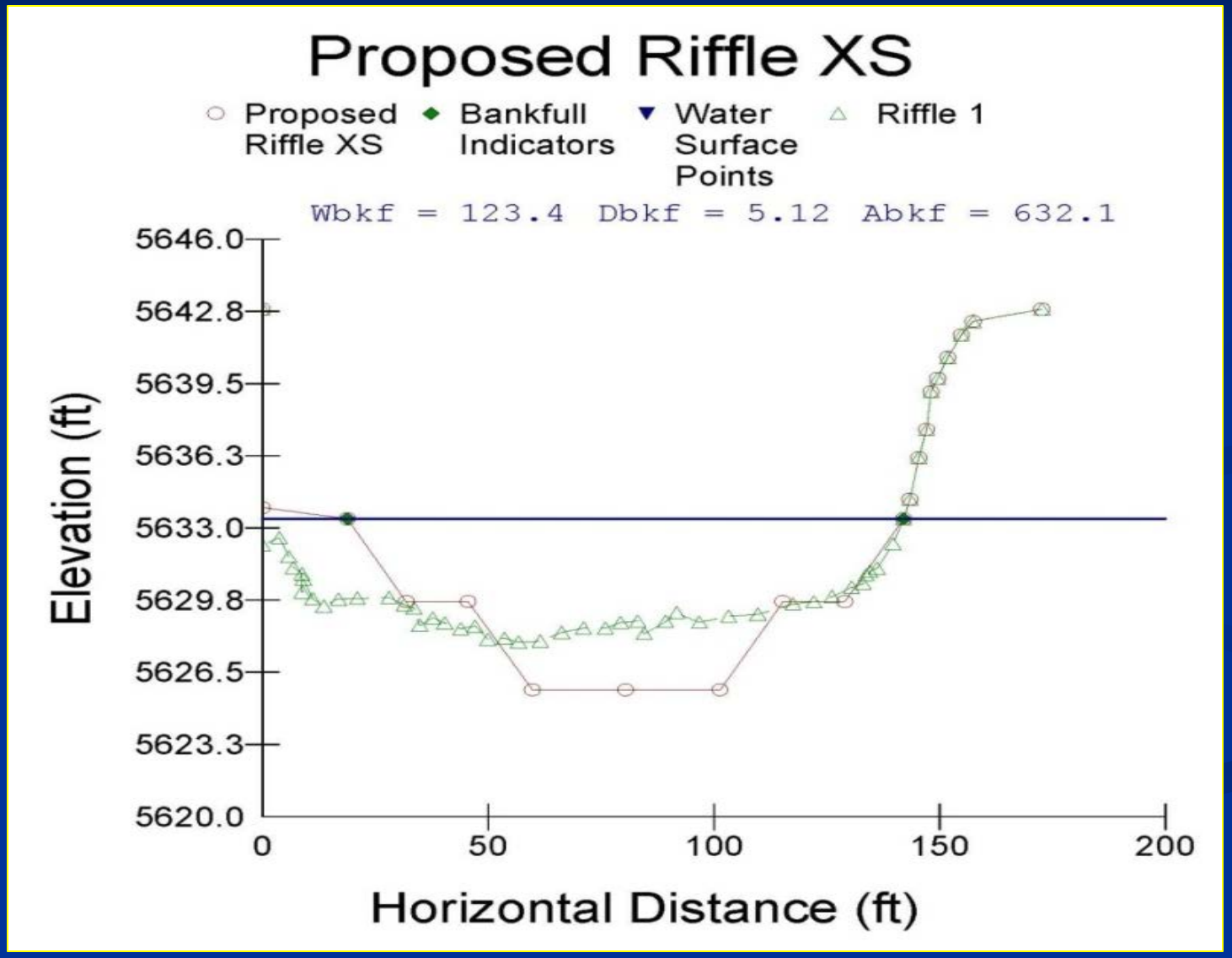


Advantages of a Lower Width/Depth Ratio:

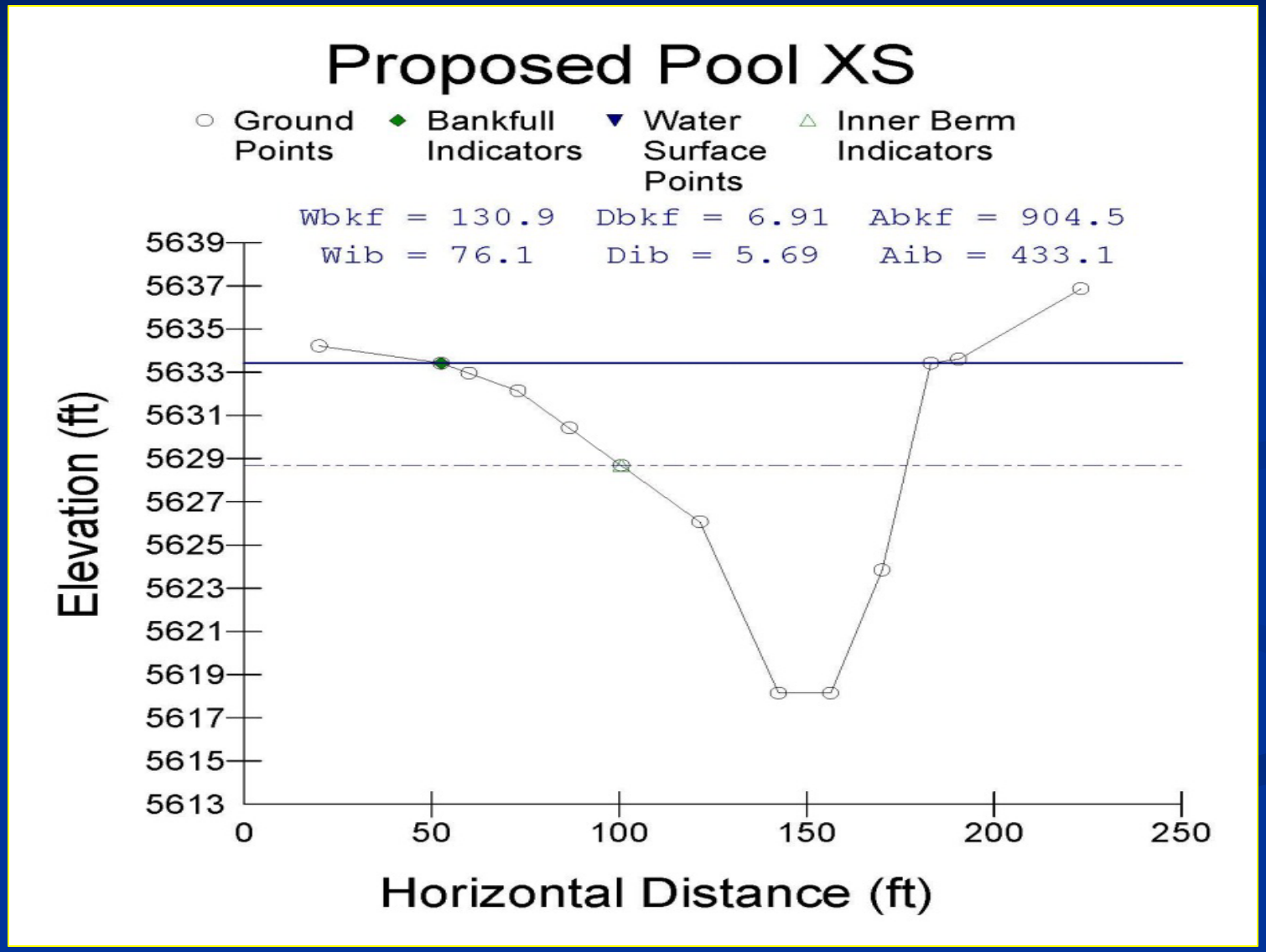
1. Reduces surface area by 40 feet, creating reduction in evaporative loss
2. Decreases summer water temperatures
3. Better insolation for winter base flows
4. Improves sediment transport capacity
5. Improves instream cover due to depth and turbulence (seams)
6. Improves high flow refugia
7. Provides room for a new floodplain and riparian corridor

Figure 4. **Reducing the width/depth ratio and constructing a bankfull bench and floodplain will improve riparian establishment and overhead cover for fish and terrestrial insects and will increase the depth for instream cover. Note the existing narrow bench and limited riparian vegetation.**

The proposed riffle cross-section will narrow and deepen the channel (previous width is 165 feet)



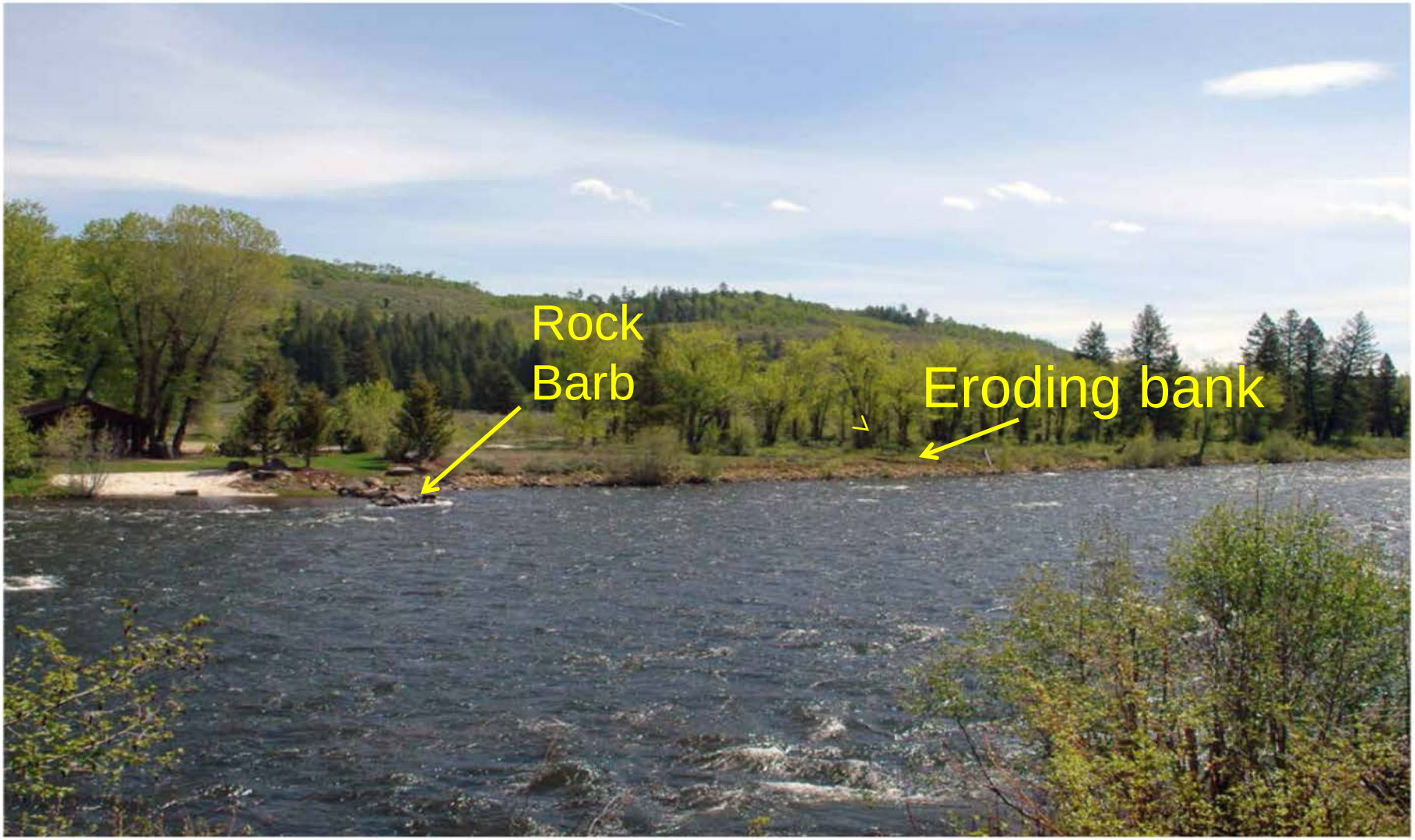
The Proposed pool cross-section will also narrow and deepen the channel to hold fish at all flows



Past Land Uses:

- This area and the riparian corridor has been grazed heavily by livestock
- The young age class of the vegetation shows a relatively slow riparian recovery as depicted in *Figures 4 and 5*
- Recent ownerships have excluded livestock from the riparian
- A rock “barb” was previously placed to prevent bank erosion, but was not effective as indicated in *Figure* 5. Note the bank erosion and lack of riparian cover.

Figure 5. Rock "barb" and eroding streambank – Note the lack of riparian vegetation on impacted stream adjacent slopes



Instream Structures are Needed to:

- Meet the project objectives
- Allow time to establish riparian vegetation
- Provide instream and overhead cover for fish

The Proposed Structures:

1. Toe Wood for bank cover and sediment reduction
2. J-Hook rock vanes with sills to hold the narrower pattern, new floodplain, and winding thalweg

Pre-Restoration Condition, Bitterroot River, MT, 2009

Finished Toe Wood and Constructed Bankfull Bench 7/2010

Pre-restoration condition, Bitterroot River, MT, 2009

Finished toe wood and constructed bankfull bench 7/2010

Close-up of Toe Wood with Willow Cuttings, Sod Mats and Transplants, Bitterroot River, MT

Transition from a J-Hook Vane to Toe Wood

Existing Bank before Construction, 2002

Same Bank with Rock J-Hook Constructed in 2002

J-Hook Rock Vane on the Blue River, Colorado

The Recreational status of the Fall River allows for “public agencies” to construct fishery improvements rather than a private entity.

I have formally trained over 178 professionals from the public sector in Idaho alone. Many of the practices for fish habitat enhancement that I have developed are being implemented on Idaho Rivers by those professionals I trained.

Demonstration Reach

Because the Fall River has multiple diversions, to make better fishery use in diminished low flows, creating "a channel within a channel" will offset the shallow water in an over-sized channel.

This project can provide a solution and demonstration of such an approach to help offset declining, low flows due to diversions.

Summary

The proposed fish enhancement and riparian corridor establishment will be complimentary to the criteria used to protect the Fall River from development. This will provide a benefit not only to the resource but to the fishing public as well. It will not impair but rather will enhance the values utilized for the Recreational River status.

Thank you for your consideration to this amendment

BEFORE THE IDAHO WATER RESOURCE BOARD

IN THE MATTER OF THE	)	
FALLS RIVER FISH HABATIT	)	RESOLUTION
ENHANCEMENT PROJECT	)	

WHEREAS**,** on December 3, 1992, the Idaho Water Resource Board adopted the Henrys Fork Basin Comprehensive State Water Plan and the Plan specifies that where the designation of a state protected river precludes a project or development, the Board will consider requests from individuals to amend a component of the comprehensive state water plan on a case-by-case basis; and

WHEREAS, the Jay Ellis is planning a fish habitat enhancement project on the Falls River; and

WHEREAS, Joint Application for Permit to Alter a Stream Channel, No. 21-20059 was filed with the Idaho Department of Water Resources for this project; and

WHEREAS, it has been concluded that the proposed stream channel alteration would support the intent and goals of the Henrys Fork Basin Comprehensive State Water Plan; and

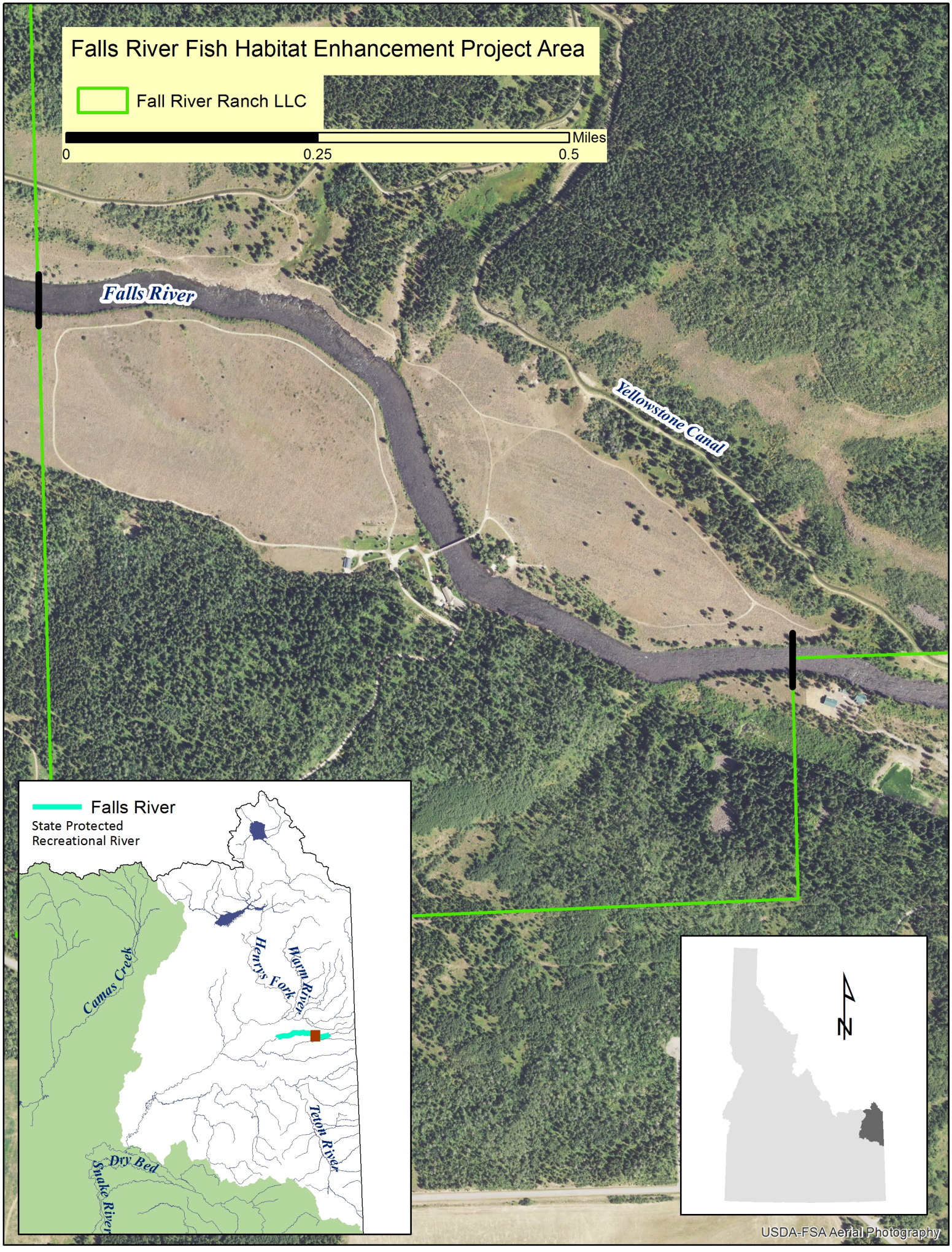
WHEREAS, the proposed project on the Falls River is in the public interest.

NOW THEREFORE BE IT RESOLVED that the Board hereby approves the Falls River Fish Habitat Enhancement Project on a State Protected River as filed with the Department through Permit No. 21-20059.

Dated this 23th day of September 2014.

_____
ROGER CHASE
Chairman

Attest: _____
BOB GRAHAM
Secretary


Falls River Fish Habitat Enhancement Project Area
Fall River Ranch LLC
Miles
0
0.25
0.5
Falls River
Yellowstone Canal
Falls River
State Protected
Recreational River
Camas Creek
Henry's Fork
Warm River
Teton River
Dry Bed
Snake River
N
USDA-FSA Aerial Photography

IDAHO DEPARTMENT OF FISH AND GAME
UPPER SNAKE REGION
4279 Commerce Circle
Idaho Falls, Idaho 83401

C.L. "Butch" Otter / Governor
Virgil Moore / Director

July 1, 2014

Kerrie Mathews
Idaho Department of Water Resources
900 North Skyline Dr. Suite A
Idaho Falls, ID 83402

RE: Review of Joint Application for Permits (21-20059), Fall River 5 LLC

Dear Kerrie:

Thank you for the opportunity to comment on the proposed stream channel alteration submitted by landowner Jay Ellis (Applicant) and Dave Rosgen (Consultant/Agent). The proposed project, designed and engineered by Dave Rosgen and Wildland Hydrology intends to promote holding water for large fish, and to stabilize banks in 2 places of the Fall River east of Ashton, ID. The design proposes using a combination of large rocks introduced mid-stream and woody bank protection along the banks. The mid-stream structures are primarily J-hook vanes and converging rock clusters.

IDFG regional staff is very familiar with the project location. Several staff have reviewed the application and have visited with the consultant in person to discuss the project design and objectives. One of our staff biologists has repeatedly reviewed the proposal with the consultant as it has changed.

All fish and wildlife are property of Idaho citizens, and the Idaho Department of Fish and Game (Fish and Game) and the Idaho Fish and Game Commission are expressly charged with statutory responsibility to preserve, protect, perpetuate, and manage all fish and wildlife in Idaho (Idaho Code 36-103 (a)). In fulfillment of our statutory charge and direction as provided by the Idaho Legislature, we offer the following comments and recommendations.

The project is proposed in a state protected river reach of the Fall River (IDWR 1992). This segment is given the status of "Recreational" in the Comprehensive State Water Plan, Henrys Fork Basin (IDWR 1992, page ii). We believe that the IDWR board very appropriately protected this river reach for its outstanding values including scenery and ecosystem services, not just catchable fisheries. The Henrys Fork Basin plan (page 173) prohibits stream channel alterations in the river reach proposed for modifications as follows:

> *Stream channel alterations are prohibited except those necessary to maintain, improve, or relocate existing utilities, roadways, diversion works, fishery enhancement facilities and managed stream access facilities; for the maintenance of private property; for new off-stream storage projects; and for public agencies to construct public access facilities and fishery enhancement facilities."*

As IDFG interprets this language from the Henrys Fork Basin plan, this application is not provided for in the exemptions and therefore not permitted in this location. Further, was the IDWR board to interpret this differently or allow an exemption for this work in this location, IDFG believes that the mid-stream modifications proposed are neither necessary nor appropriate for this river reach and would recommend against their approval.

The Proposed Fish Habitat Enhancements (as shown beginning on page 23, and as J-hooks and rock clusters in Figures 42c -42e) are appropriate techniques if the sole goal of the project is to enhance holding cover for large fish. They are not necessarily appropriate to maintain fingerling escape habitat, to provide wade-fishing opportunities, or to provide other ecosystem services which might benefit fisheries. They are not 'restoration' in this location but would change the function of this un-impacted river reach. These techniques are appropriate for introduction into an impacted system with the sole goal of large fish holding cover, but are not appropriate in this protected and un-impacted river reach.

In summary IDFG appreciates the IDWR Board's foresight in protecting this river reach as "Recreational" in the Henrys Fork Basin plan. As the state agency responsible for fisheries management, IDFG does not recommend un-natural modification of this reach based on the justification of fisheries enhancement. We recommend that the reach be left in its current functioning state mid-channel and be modified only in the instance of protection of real property (bank stabilization as proposed) should in-stream work be permitted.

The Department appreciates the opportunity to comment on the proposed stream channel alteration. If you have any questions or require further assistance please contact our Environmental Staff Biologist Gary Vecellio at 208.525.7290.

Sincerely,

Steve Schmidt
Regional Supervisor

SLS: gmv

CC: Sharon Kiefer (IDFG-HQ-Directors Office)
Sandra Thiel (IDWR- via email)
Scott Grunder (IDFG-HQ-Fisheries Bureau)

Literature Cited

Idaho Department of Water Resources (IDWR). 1992. Comprehensive State Water Plan. Henrys Fork Basin. Idaho Water Resources Board, Boise, USA.

RECEIVED
JUN 23 2014
Department of Water Resources
Eastern Region

JOINT APPLICATION FOR PERMITS

U.S. ARMY CORPS OF ENGINEERS - IDAHO DEPARTMENT OF WATER RESOURCES - IDAHO DEPARTMENT OF LANDS

Authorities: The Department of Army Corps of Engineers (Corps), Idaho Department of Water Resources (IDWR), and Idaho Department of Lands (IDL) established a joint process for activities impacting jurisdictional waterways that require review and/or approval of both the Corps and State of Idaho. Department of Army permits are required by Section 10 of the Rivers & Harbors Act of 1899 for any structure(s) or work in or affecting navigable waters of the United States and by Section 404 of the Clean Water Act for the discharge of dredged or fill materia ls into waters of the United States, including adjacent wetlands. State permits are required under the State of Idaho, Stream Protection Act (Title 42, Chapter 38, Idaho Code and Lake Protection Act (Section 58, Chapter 13 et seq., Idaho Code).

Joint Application : Applicant will need to send a completed application, along with one (1) set of legible and reproducible drawings illustrating the location and character of the proposed activities/project to both the Corps and the State of Idaho. Information provided on this application will be used in evaluating the proposed activities. Disclosure of requested information is voluntary, however, if the information is not provided, the application may not be processed and permits may not be issued. Information requested in Block 26 and Block 27 are not required to process the application. DO NOT START WORK UNTIL YOU RECEIVE ALL PERMITS FROM BOTH THE CORPS AND THE STATE OF IDAHO.

Drawings & Supplemental Requirements : See Instruction Guide for required vicinity map, plan-view, and section-view drawings on 8-1/2 x 11 paper size.

INCOMPLETE APPLICATIONS MAY NOT BE PROCESSED

[1] DATE:

[2] CONTACT INFORMATION - APPLICANT: Required	[3] CONTACT INFORMATION - AGENT: Completion of Block #29 Required
Name: Jay Ellis Company: Fall River 5 LLC Mailing Address: 3953 Maple Ave STE 290 City: Dallas State: TX Zip: 75219 PH #: (214) 720-9561 E-mail: jellis@sportingranchcapital.com	Name: Dave Rosgen Company: Wildland Hydrology Mailing Address: 11210 N County Road 19 City: Fort Collins State: CO Zip: 80524 PH #: (970) 568-0002 E-mail: dave@wildlandhydrology.com

[4] PROJECT NAME or TITLE:	[5] PROJECT STREET ADDRESS:
Fall River Fish Habitat Enhancement Project	See Design Report for Vicinity Map

[6] PROJECT CITY:	[7] PROJECT COUNTY:	[8] PROJECT ZIP CODE:	[9] NEAREST WATERWAY/WATERBODY:
12 mi. East of Ashton, ID	Fremont		Fall River

[10] TAX PARCEL ID#:	[11] LATITUDE/LONGITUDE (Required with vicinity Map):	[12a] 1/4	[12b] 1/4	[12c] SECTION	[12d] TOWNSHIP	[12E] RANGE
	See Vicinity Map in attached report -111 12.436 44 3.773			36	09N	44E

[13a] ESTIMATED START DATE: August 1, 2014 [13b] ESTIMATED END DATE: December 15, 2014

[14] DESCRIBE INTENDED USE (Commercial, Industrial, Public, Private, Other): Private

[15] HAVE ALL ADJACENT PROPERTY OWNERS BEEN NOTIFIED OF PROPOSED ACTIVITY OR PROJECT? ☒ NO ☐ YES
Complet the attached sheet by providing list of contract information (including names, address, phone number) of all adjacent property owners.

[16] ☐ CHECK BOX IF ALTERATION(S) ARE LOCATED ON PUBLIC TRUST LANDS ADMINISTERED BY STATE OF IDAHO DEPARTMENT OF LANDS.

[17] DIRECTIONS TO PROJECT SITE Include vicinity map with legible crossroads, street numbers/names, landmarks, attach additional sheet(s), if needed:
See figures in attached Design Report

[18] HAS WORK BEGAN ON THIS PROJECT/ACTIVITY? ☒ NO ☐ YES If yes, describe ALL work that has occurred, including dates; attach additional sheet(s), if needed:

[19] PREVIOUSLY ISSUED PERMIT AUTHORIZATIONS:
None

[20] TYPE(S) AND MATERIALS BEING DISCHARGED AND THE AMOUNT OF EACH TYPE IN CUBIC YARDS:
(1) TYPE See pg. 42 Cubic Yards See pg. 42 (2) TYPE See pg. 42 Cubic Yards See pg. 42 (3) TYPE See pg. 42 Cubic Yards See pg. 42

[21] SURFACE AREA IN ACRES OF WETLAND OR OTHER WATERS FILLED See Instructions Guide:
See Report Pg. 42 Acres OR Square Feet

[22] SIZE AND FLOW CAPACITY OF BRIDGE OR CULVERT & DRAINAGE AREA SERVED: Drainage area approx. See Report Square Miles

[23] IS PROJECT LOCATED IN A MAPPED FLOODWAY? ☐ NO ☒ YES If yes, contact the floodplain administrator in the local government jurisdiction in which the project is located. A Floodplain Development permit and a No-Rise Certification may be required.

FOR AGENCY USE ONLY

Corps of Engineers #:	ID Water Resources #: 21-20059	ID Dept of Lands #:
Date Received:	Date Received: 6-23-2014	Date Received:
☐ Incomplete App. - Return Date:	Fee Received: $2000 Receipt #:	Fee Received: Receipt #:

24a OVERALL DESCRIPTION & PURPOSE OF PROJECT TO WATERS OF U S , INCLUDING WETLANDS Attach additional sheet(s), if needed
Fish habitat enhancement and wetland creation to improve fish and wildlife habitat

See Design Report Fall River Fish Enhancement Project (DESIGN) prepared by Dave Rosgen Wildland Hydrology, March 3, 2014

24b DETAILED DESCRIPTION OF EACH INDIVIDUAL ACTIVITY, WITHIN OVERALL PROJECT (Include dimensions, equipment, construction methods, etc.)
See DESIGN report

25a DESCRIBE MEASURES TAKEN TO AVOID, MINIMIZE, COMPENSATE FOR IMPACTS TO WATERS OF THE UNITED STATES, INCLUDING WETLANDS
See Instruction Guide for specific details
We have decided to withdraw the Beaver Pond Complex No other wetlands will be impacted See Design report for Riparian Features

25b PROPOSED MITIGATION PLAN Attach copy of proposed mitigation plan or statement/reasoning why no mitigation plan is required. Attach additional sheet(s), if needed

26 LIST EACH IMPACT TO STREAM, RIVER, LAKE, RESERVOIR, INCLUDING SHORELINE Attach site map with location of EACH impact listed; attach additional sheet(s)

Activity Number	Name of Waterbody	Seasonal or Perennial	Avg Stream Width (Linear Feet)	Description of Impact (road crossing, impound, culvert, etc.)	Impact Length (Linear Feet)
1	Fall River	Perennial	see design report	see design report	see design report
2					
3					
4					

TOTAL STREAM IMPACTS (Linear Feet): SEE ATTACHED DESIGN REPORT

27 LIST EACH WETLAND IMPACT, INCLUDING MECHANIZED CLEARING, FILL, EXCAVATION, FLOOD, DRAINAGE, ETC
Attach site map with location of EACH impact listed; attach additional sheet(s)

Activity Number	Wetland Type (Emergent, Forested, Scrub/Shrub)	Distance to Waterbody (Linear Feet)	Description of Impact (purpose of road crossing, impoundment, culvert, etc.)	Impact Size (Acres or Square Feet)
1				
2				
3				
4				

TOTAL WETLAND IMPACTS (Linear Feet)

28 AUTHORIZATION OF AGENT I hereby authorize the Agent (listed in Block 3 of this application) to act in my behalf in the processing of this application and to furnish all information, drawings, maps, and supplemental information in support of this application.

Signature of Applicant — Date: 6/19/14

29 CERTIFICATION Application is hereby made for permit, or permits, to authorize the work and uses of the work as described in this application and all supporting documentation. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or I am acting as the duly authorized agent for the applicant.*

Signature of Applicant — Date: 6/19/14 — Signature of Agent — Date: 6/19/14

* The application must be signed by the person who desires to undertake the proposed activity AND signed by a duly authorized agent, if the authorization statement in both Blocks 27 & 28 have been completed and signed. 18 USC Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

ADJACENT PROPERTY OWNERS NOTIFICATION REQUIREMENT

Provide the name, physical address, and telephone number of ALL adjacent property owners.

This includes adjacent property owners with ownership located on both sides of the near stream bank AND/OR all other ownership on the waterway that may be affected by the proposed activities/project. Also, include homeowner or community associations within the proposed project area.

CONTACT INFORMATION - OWNERSHIP NEAR STREAM BANK

DOWNSTREAM NOTIFICATION

Name: Johnson Garrett

Mailing Address: 3360 Couchtown Path

City: Rosemount State: MN Zip: 55068

PH #:( ) E-mail:

UPSTREAM NOTIFICATION

Name: U.S Forest Service

Mailing Address: 1405 Hollipack Dr

City: Idaho Falls State: ID Zip: 83404

PH #:( ) E-mail:

CONTACT INFORMATION - OWNERSHIP ON WATERWAY

Name: Ashton Forty LLC

Mailing Address: 14901 E Old Spanish Trail

City: Vail State: AZ Zip: 85641-6254

PH #:( ) E-mail:

Name:

Mailing Address:

City: State: Zip:

PH #:( ) E-mail:

Name:

Mailing Address:

City: State: Zip:

PH #:( ) E-mail:

Name:

Mailing Address:

City: State: Zip:

PH #:( ) E-mail:

Name:

Mailing Address:

City: State: Zip:

PH #:( ) E-mail:

Name:

Mailing Address:

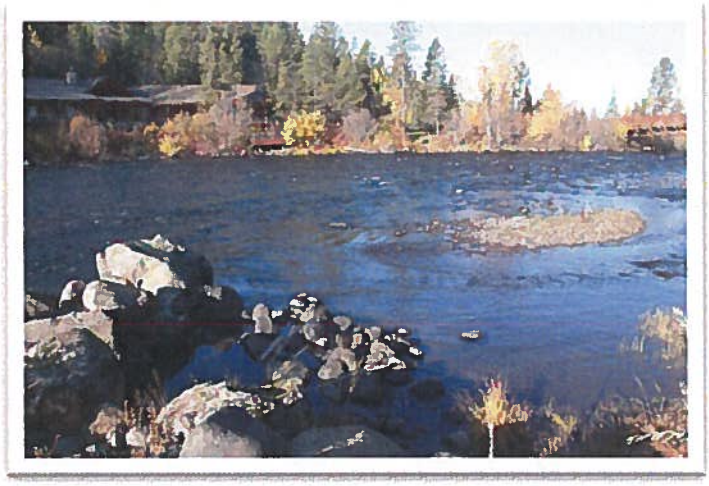
City: State: Zip:

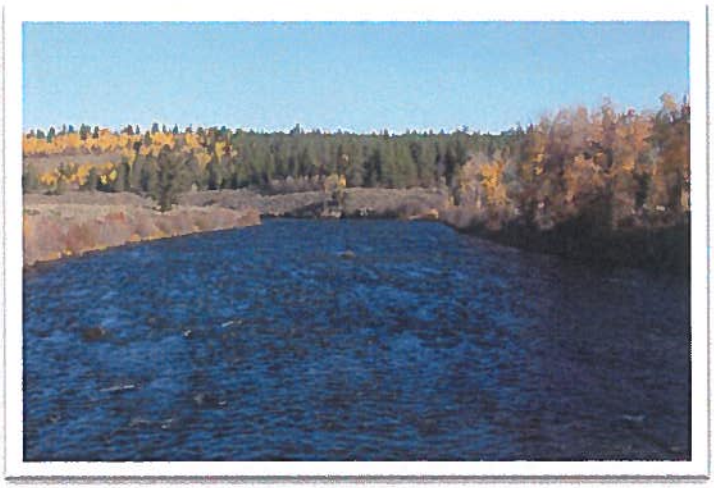
PH #:( ) E-mail:

Attach as many additional sheets as needed.

Fall River Fish Habitat Enhancement Project

March 3rd, 2014





Prepared for:

Jay Ellis, Sporting Ranch Capital

Prepared by:

Dave Rosgen, P.H., Ph.D.

11210 N County Road 19
Fort Collins, CO 80524

wildland@wildlandhydrology.com

Phone: 970-568-0002
Fax: 970-568-0014

www.wildlandhydrology.com

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FALL RIVER FISH HABITAT ENHANCEMENT PROJECT

Introduction

The Fall River is a free-flowing river in Fremont county, originating from Yellowstone National Park approximately seven miles upstream, and flows through the Targhee National Forest adjacent to the reach proposed for fish habitat enhancement. The owner, Jay Ellis, contacted Wildland Hydrology to determine the potential to create an exceptional trout fishery for this reach of the Fall River. Past land use impacts appear to have had minimal adverse impacts on the river; thus the assessment focused on the local reach. An irrigation diversion two miles upstream (Yellowstone diversion) diverts less than 2.0–8.0% of the low flow. A much larger diversion (Marysville canal) exists approximately one mile downstream of the project reach.

Project Objectives

The project objectives are to:

- Improve instream holding cover during high and low flow periods as well as over-wintering refugia
- Create habitat diversity
- Increase the biomass for trout
- Implement the proposed enhancements to withstand high flows and high bedload transport with minimal maintenance requirements
- Enhance or maintain the visual values
- Establish a Yellowstone cutthroat fishery by re-activating abandoned beaver dams on a tributary within the boundaries of the ranch

Vicinity Map & Ownership Boundary

The proposed project is located approximately 12 miles east of Ashton, Idaho (**Figure 1** and **Figure 2**). The Fall River Ranch contains 603.6 acres, containing nearly one mile of the Fall River (**Figure 3**). The property's north and east boundary is adjacent to the Targhee National Forest.

Figure 1. Broad level vicinity map of SE Idaho showing location of the Fall River reach near Ashton, Idaho.

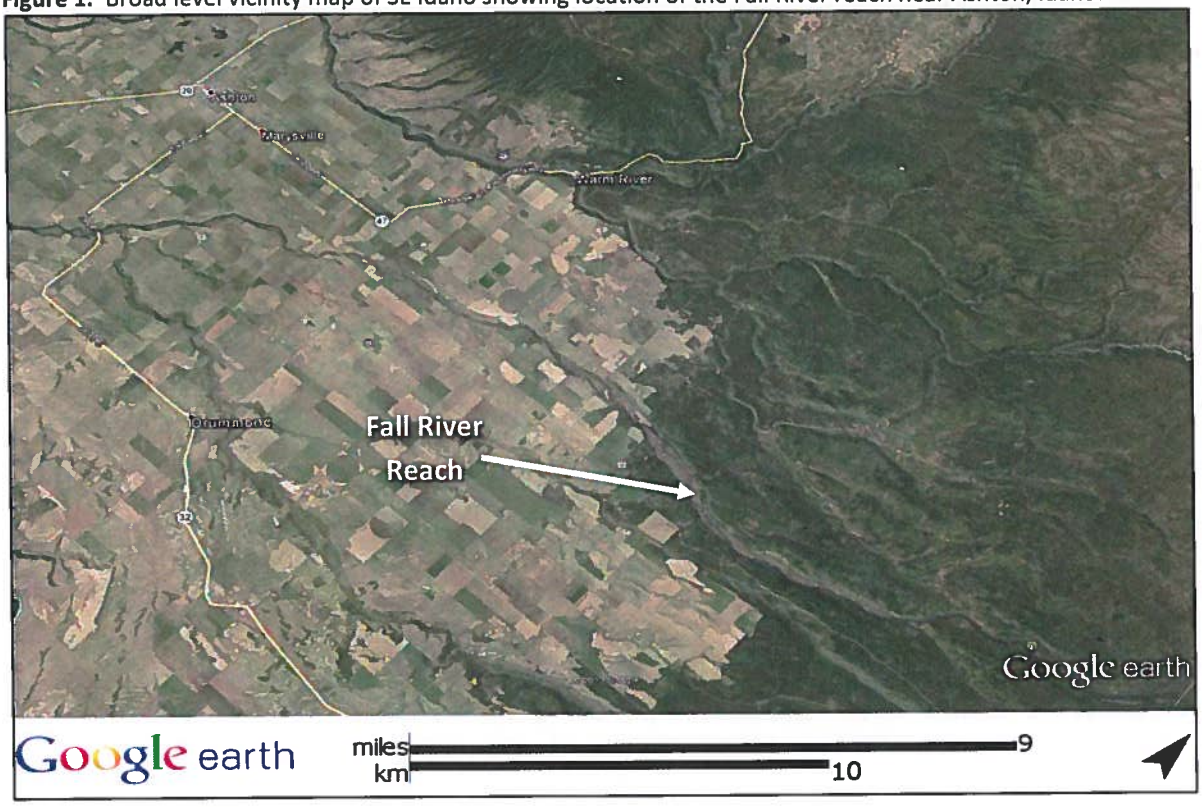


Figure 2. Vicinity map of the Fall River project.

Figure 3. Fall River reach location for proposed fishery enhancement within the ranch boundary.

Land Use

Past land use in the watershed primarily on National Forest lands involved timber harvest, road construction, and summer/fall livestock grazing. Livestock grazing impacts along the upper reaches of the riparian corridor of Fall River appear to be negligible. Previous timber harvest blocks have regenerated, and the relatively low road densities and skid trails on gentle slopes provide very low sediment supply to the drainage network. There are no apparent negative land use issues and associated impacts that need to be addressed that could influence the proposed project. The proposed land use is that of a recreational ranch for fishing and wildlife viewing.

Hydrology & Water Rights

The drainage area of Fall River at the project location is approximately 313 square miles, which includes the headwaters located in Yellowstone National Park within the Pitchstone Plateau. The Fall River continues downstream for more than 35–40 miles to join the Henry's Fork of the Snake River near Ashton, Idaho. Approximately 20 additional miles of the Fall River exist upstream of the property. There are no diversions planned for this project on the Fall River; however, enhancing the fishery is proposed on a small, dewatered tributary by potentially creating groundwater-fed beaver dams for a diversified fishery. This may require a ground water right to accommodate for evaporative loss.

The average annual hydrograph for the Fall River at the streamgage site two miles upstream of the Fall River Ranch above the Yellowstone diversion is shown in **Figure 4**. The Fall River at this location has a winter baseflow of approximately 450 cfs (300–475 cfs range) and a summer/fall baseflow of 550 cfs (320–580 cfs range) for 20

years of flow record. The momentary maximum or bankfull discharge for Fall River at the streamgage site is approximately 3,170 cfs (1.6 year return period discharge) that occurs in mid-June during the spring snowmelt runoff season (May through June) (**Table 1**). The hydraulic geometry summary from the streamflow measurements at the Fall River gage is shown in **Figure 5** and **Figure 6**. This data is used to determine stable dimensions and hydraulic conditions for the proposed downstream fish habitat enhancement proposals. The Yellowstone diversion canal (the first, uppermost diversion of the Fall River) is located immediately below the USGS streamgage. As a result, bankfull discharge for the Fall River Ranch is decreased by 40 cfs (average diversion magnitude during snowmelt runoff); thus the revised bankfull discharge at the Fall River Ranch reach is 3,130 cfs. Baseflow varies from 11–17% of bankfull, although the upper basin is associated with a low drainage density of spring-fed drainages. The available baseflow may also be reduced by approximately 20–30 cfs (or around 5.0%); hence, a summer/fall baseflow is estimated at approximately 460 cfs on an average year, or less than 250 cfs on a low runoff year.

The flow-duration curve for the Fall River above the Yellowstone Canal diversion is shown in **Figure 7**. An extensive number of diversions exist for irrigation and hydro-power (Marysville canal) from the Fall River for the remaining 35–40 miles below the Fall River Ranch, resulting in substantial reductions of summer baseflow. Thus it is critical that the Fall River reach and the reaches above can sustain fish habitat due to ample winter and summer baseflow levels. A small perennial tributary of approximately 2.0–3.0 cfs is also located on the upper one-third of the reach (**Figure 3**).

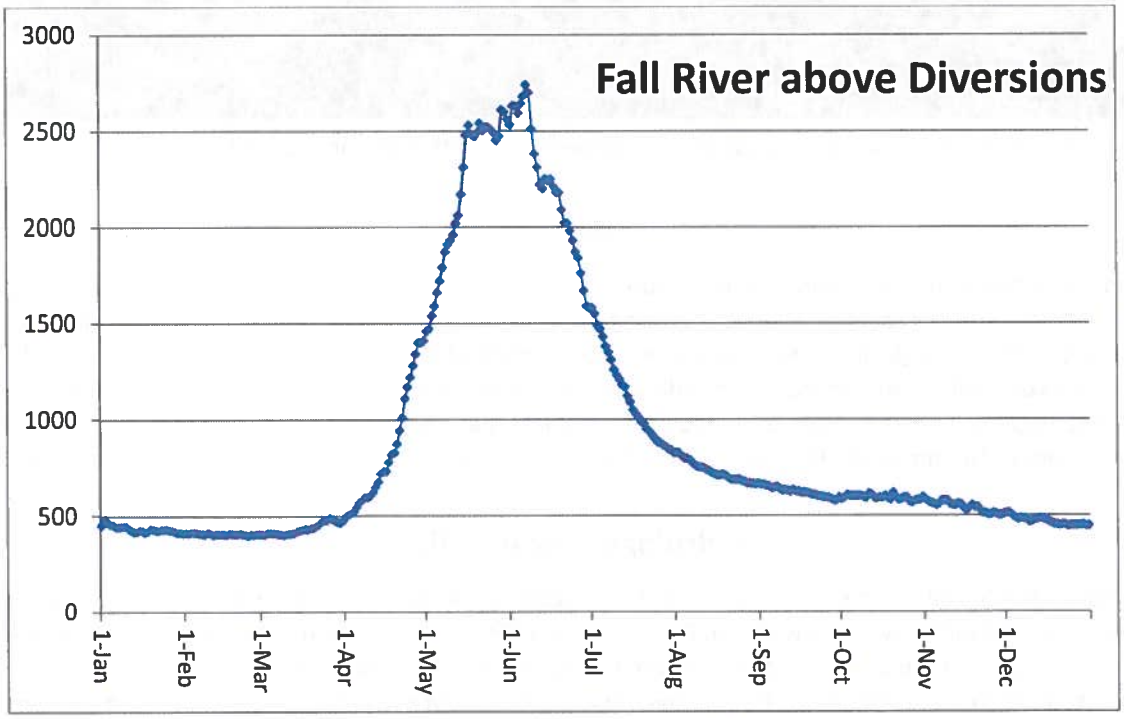


Figure 4. Fall River USGS streamgage 13046995 record of mean daily discharge hydrograph above Yellowstone canal diversion, located two miles above the Fall River reach.

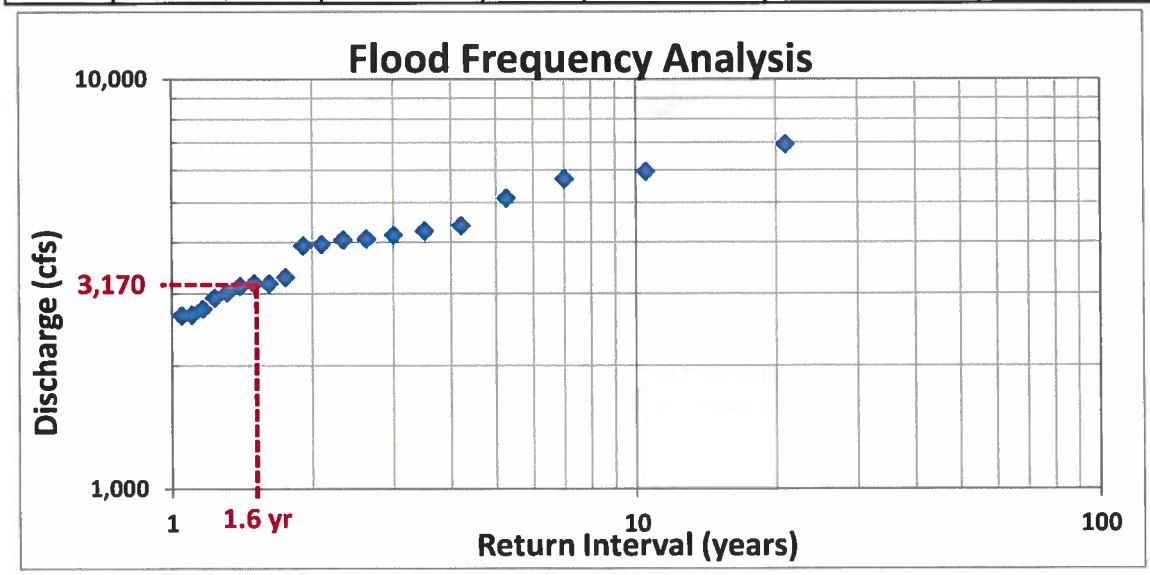
Table 1. Peak streamflow data from the Fall River streamgage two miles upstream of ranch, indicating a bankfull discharge of 3,170 cfs, corresponding to a 1.6 year return interval.

Peak Streamflows: 13046995

Fall River above Yellowstone Canal near Squirrel, Idaho

Fremont County, Idaho
Hydrologic Unit Code 17040203
Latitude 44°03'43", Longitude 111°09'07", Drainage Area 323 mi^2

Water Year	Date	Discharge (cfs)	Rank (m)	Exceedence Probability [m/(n+1)]	Percent Exceedence 100*[m/(n+1)]	Return Interval (RI) 1/[m/(n+1)]
2010	Jun. 07, 2010	6,930	1	0.048	4.76	21.00
1997	30-May-97	5,940	2	0.095	9.52	10.50
2011	Jun. 08, 2011	5,700	3	0.143	14.29	7.00
2008	19-May-08	5,120	4	0.190	19.05	5.25
1996	16-May-96	4,390	5	0.238	23.81	4.20
2002	Jun. 03, 2002	4,260	6	0.286	28.57	3.50
1999	31-May-99	4,160	7	0.333	33.33	3.00
2006	20-May-06	4,070	8	0.381	38.10	2.63
2009	Jun. 22, 2009	4,050	9	0.429	42.86	2.33
1994	29-May-94	3,950	10	0.476	47.62	2.10
2003	30-May-03	3,920	11	0.524	52.38	1.91
2005	22-May-05	3,280	12	0.571	57.14	1.75
1995	Jun. 06, 1995	3,170	13	0.619	61.90	1.62
2012	Apr. 26, 2012	3,170	14	0.667	66.67	1.50
2000	27-May-00	3,120	15	0.714	71.43	1.40
1998	Jun. 14, 1998	3,010	16	0.762	76.19	1.31
2001	16-May-01	2,920	17	0.810	80.95	1.24
2013	15-May-13	2,750	18	0.857	85.71	1.17
2007	Apr. 30, 2007	2,660	19	0.905	90.48	1.11
2004	7-May-04	2,650	20	0.952	95.24	1.05



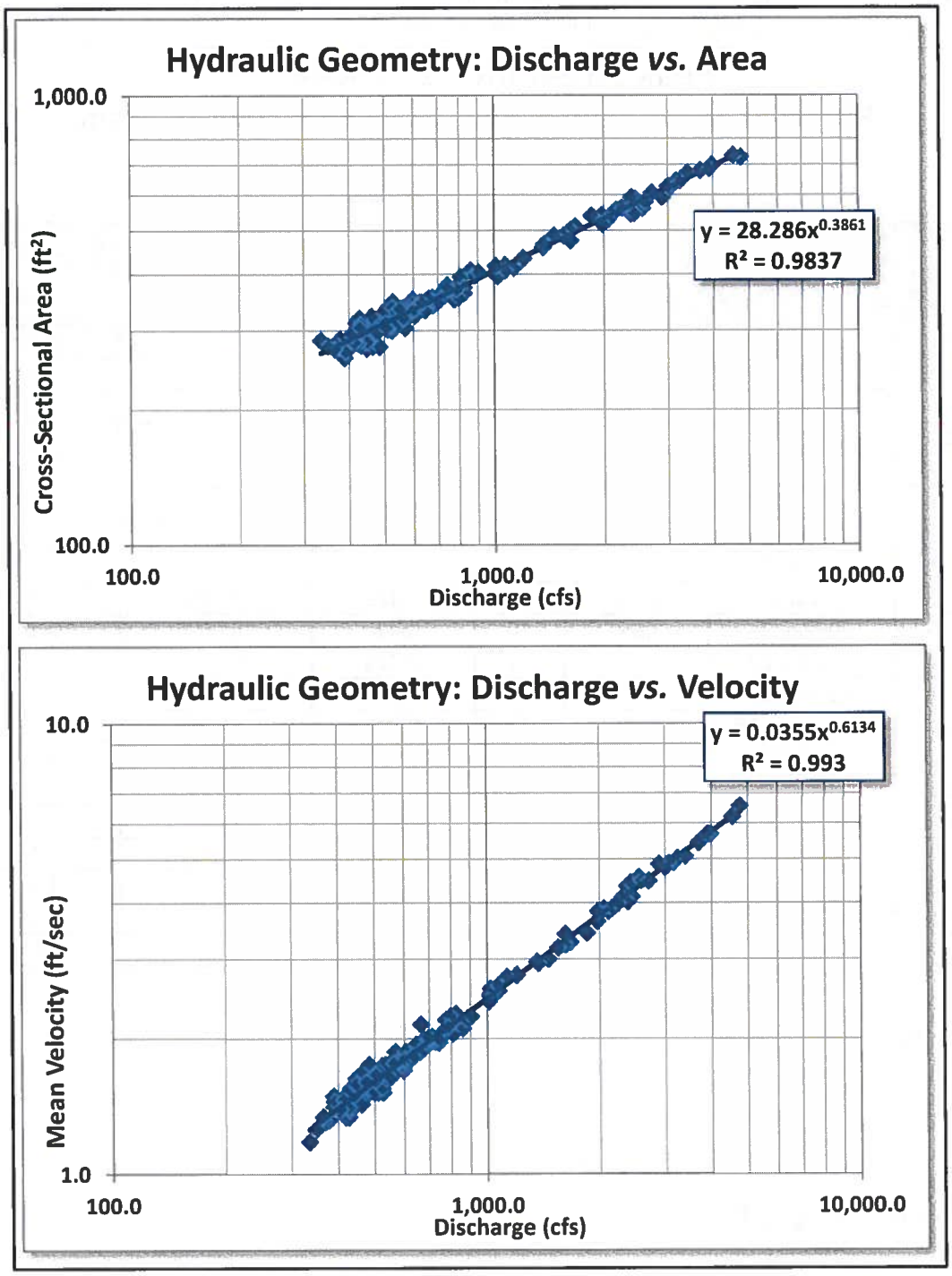


Figure 5. Hydraulic geometry data from the USGS streamgage two miles upstream of Fall River reach, showing cross-sectional area and mean velocity plotted as a function of discharge.

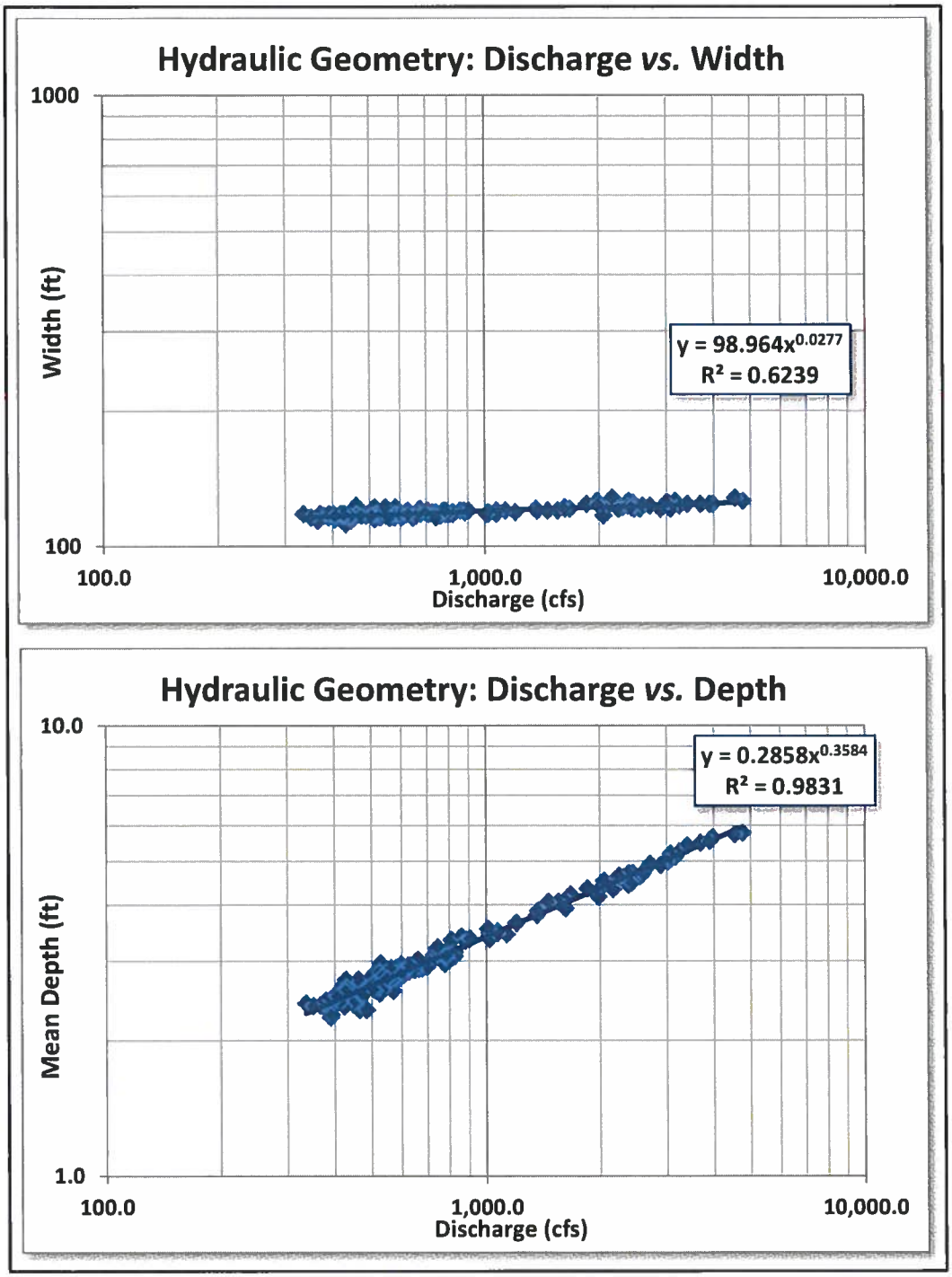


Figure 6. Hydraulic geometry data from the USGS streamgage two miles upstream of Fall River reach, showing width and mean depth plotted as a function of discharge.

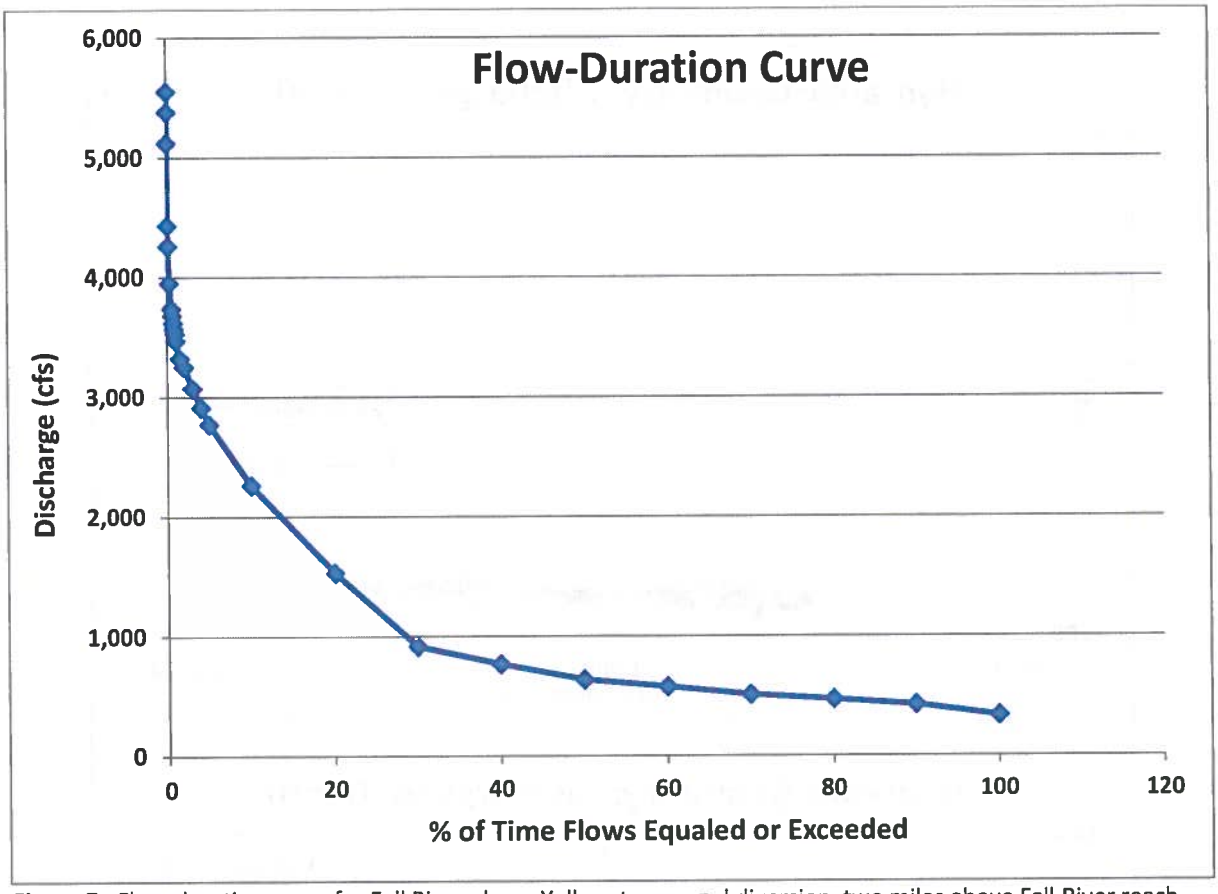


Figure 7. Flow-duration curve for Fall River above Yellowstone canal diversion, two miles above Fall River reach.

Geomorphology

The underlying geology of the area is dominated by volcanism mixed with surface depositional features from glaciation. Outcrops of igneous rock are present on the ranch property as well as glacial terraces cut by the Fall River throughout the Holocene period. Along with the bedrock influence throughout the watershed, river alluvium is the product of a landscape reworked by alpine glaciation. The boundary of Fall River is controlled by a mixture of rock outcrops of basalt and similar volcanic rock along with glacial terraces on both sides of the river (**Figure 8**). The relatively high (8.0–20.0 ft) glacial terraces that confine the Fall River are associated with glacial till (morainal deposit) composed of a heterogeneous mixture of unsorted or non-stratified small boulders, large cobble, gravel, and sand material (**Figure 9**). The alluvium contained in the river terraces is well-drained with outcrops of bedrock that influence the local base level of the river.

The valley type is a U-shaped, glacial trough valley with an entrenched and confined F3/1 stream type (a bedrock-controlled, cobble-dominated channel that is vertically and laterally contained with a high width/depth ratio and slope gradients less than 2.0%, Rosgen, 1994, 1996). The entrenchment ratio of the Fall River at this reach is 1.1 (width of the flood-prone area divided by bankfull width), indicating a vertically-contained river. The glacial terraces that bound the river are not within the flood-prone area and are rarely, if ever, flooded within the present climate (**Figure 8**). The Fall River over time has cut through the glacial terraces into resistant bedrock strata and has been widening over time. The rate of channel enlargement is low based on the age class of the older conifers and cottonwoods along the terrace margins with the coarse cobble-dominated streambanks and discontinuous bedrock outcrops (**Figure 10**).

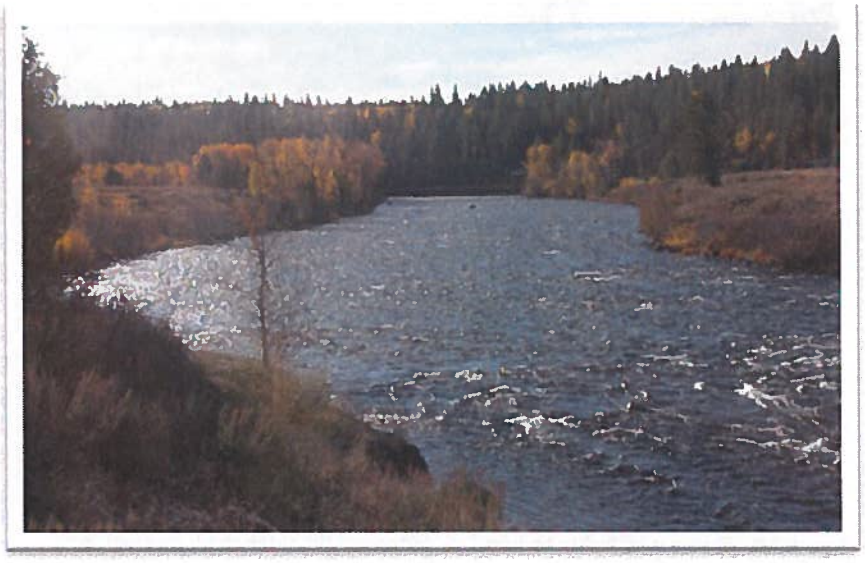


Figure 8. Fall River looking upstream between glacial terraces that entrench and confine the river as well as the bedrock outcrop shown in the foreground. The stream type is an F3/1 (bedrock-controlled, entrenched, cobble-bed channel). The width/depth ratio at this location for this flow is 44 – wide and shallow.

Figure 9. Typical coarse, glacial till (morainal deposit) soils that border the banks of Fall River. The high banks (6.0–12.0 ft) and droughty nature of the soils limit the riparian vegetation density and width. The bankfull stage (normal high water) is indicated.

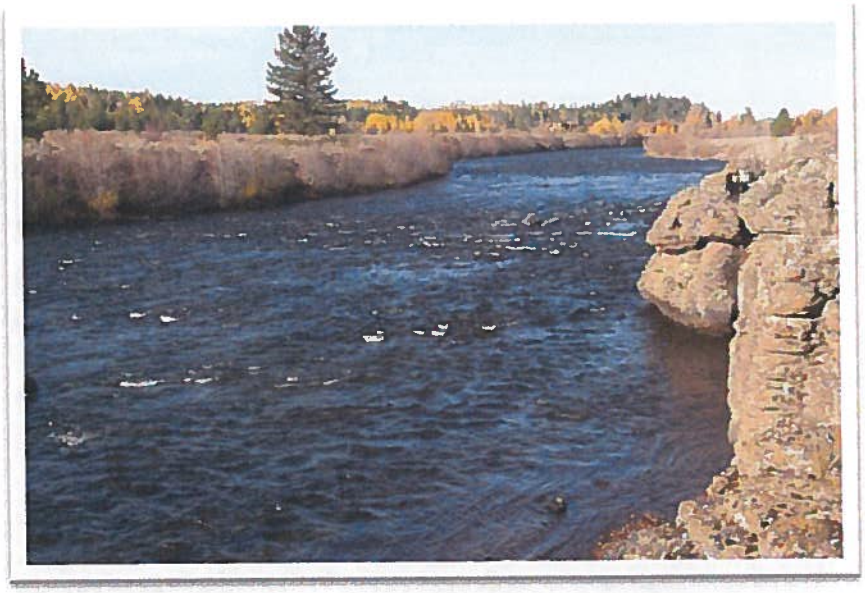


Figure 10. Stable width due to bedrock outcrop and alder bank on river left (looking downstream).

Riparian Vegetation & Wetlands

The side slopes associated with the glacial terraces are moderately erodible with a vegetated community composed of mixed conifers and cottonwoods. Understory woody species are primarily alder, willow, and smaller cottonwood saplings. An understory of grasses and forbs is sparse due to the droughty nature of the soils as shown in **Figure 9**. The extent of the riparian corridor is limited to a narrow fringe along a discontinuous and often poorly-defined "bankfull bench" (**Figure 11**) due to the droughty nature of the cobble-dominated, glacial terrace streambanks, high bank-height ratios (bank height divided by height of bankfull stage), and the entrenched F3/1 stream type.

A small ephemeral drainage with abandoned beaver dam relics is associated with sparse upland emergent vegetation wetlands comprised of Carex/Juncus with a willow/alder riparian fringe (**Figure 12**). On the upstream part of the meadow, the Yellowstone diversion canal intercepts any surface water by the diversion ditch; thus this small drainage does not receive surface runoff from the upper catchment. The drainage is associated with groundwater that emerges to the surface near the lower portion of the drainage. At baseflow, there is approximately 0.5 cfs at the mouth of this drainage. Seepage losses from the unlined Yellowstone diversion canal that circumvent the area outlined in **Figure 12** may be responsible for the wetland fringe in the valley floor. A detailed survey of soils and wetland delineation by Intermountain Aquatics may be included, if required, based on the proposed fish habitat enhancement proposal.

Figure 11. Discontinuous bankfull bench with marginal riparian vegetation on cobble bank. Bedrock outcrop on near bank as well as on streambed, typical of the F3/1 stream type.

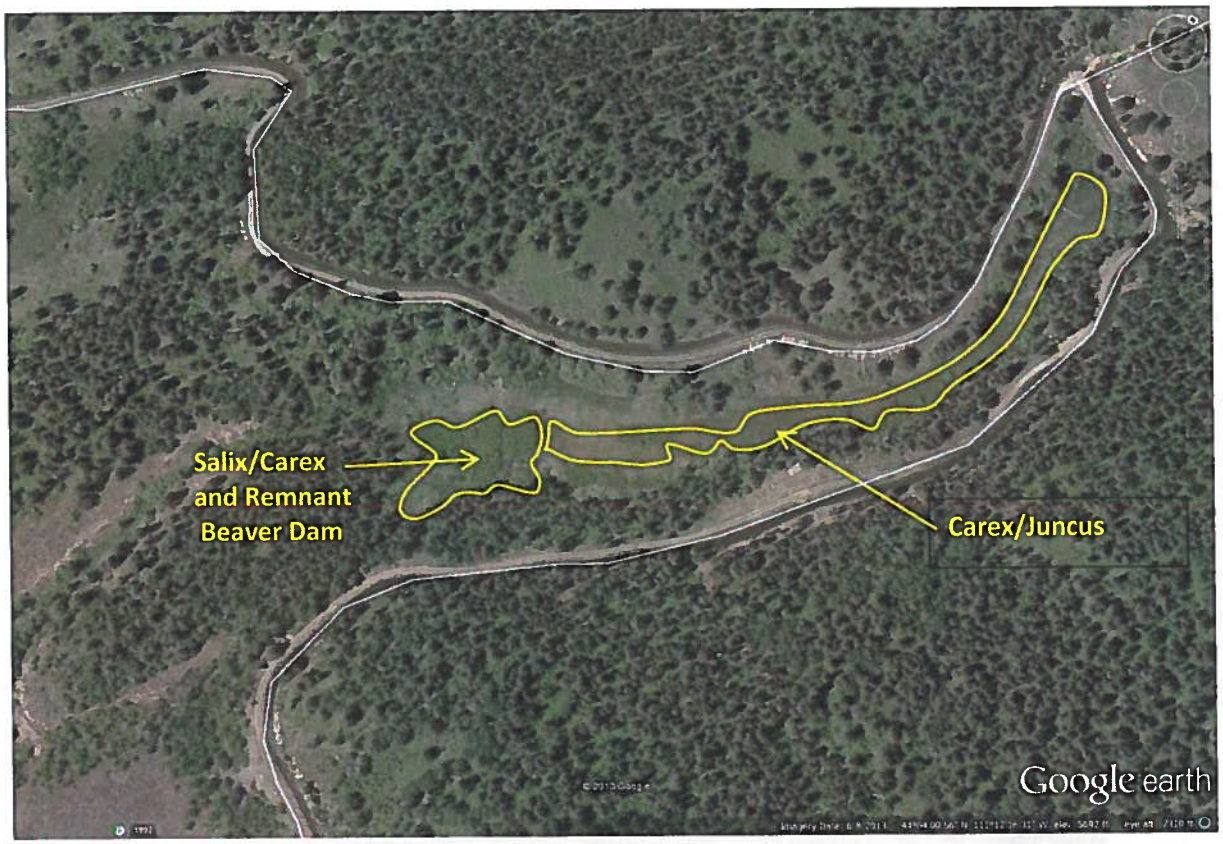


Figure 12. Small dewatered tributary draw into Fall River circumvented by the Yellowstone diversion canal showing wetland and riparian vegetation. The canal intercepts all of the surface water from the catchment.

Assessment

Stream System

The Fall River reach is a relatively stable stream due to a low upstream bedload supply, low rates of streambank erosion, and a bedrock-controlled bed. The F3/1 channel (bedrock-controlled, entrenched, high width/depth ratio stream) is related to natural geologic processes. Due to the presence of bedrock, the channel adjustment over recent flood events is that of widening with an associated high width/depth ratio. For such a large river with a bankfull discharge of 3,130 cfs, the shallow depths at low flows are characteristic of a high width/depth ratio channel. The measured stream slope of the Fall River at this location in 0.0067 (0.6%) and varies from 0.004 (pool) to 0.01 for steeper riffles (**Figure 13**).

Typical cross-sections of riffles are shown in **Figure 14** (800 ft upstream of the bridge) and **Figure 15** (900 ft downstream of the bridge). The riffle at cross-section #1 is shown in **Figure 16**, and the riffle at cross-section #2 is shown in **Figure 17** and **Figure 18**. These cross-sections and photographs display the very high width/depth ratios of the Fall River. The upstream reach of Fall River two miles above this reach has a width/depth ratio of 24 for the same bankfull discharge, which is considered a "reference condition". The bed material of the reach is a coarse substrate of cobble with smaller quantities of gravel and very little sand.

The obvious lack of a defined thalweg and inner-berm (low flow channel feature) promotes the high width/depth ratio and does not provide good depth at low flows as shown in both riffle cross-sections (**Figure 15** and **Figure 16**). The stream pattern at the location of riffle #2 is on a bend, which should be a lateral scour pool (deep and flat gradient) rather than a riffle. Pool features are rare in this lower reach of the Fall River Ranch. The predominance of bedrock outcrops is responsible for the lack of deep pools in this reach.

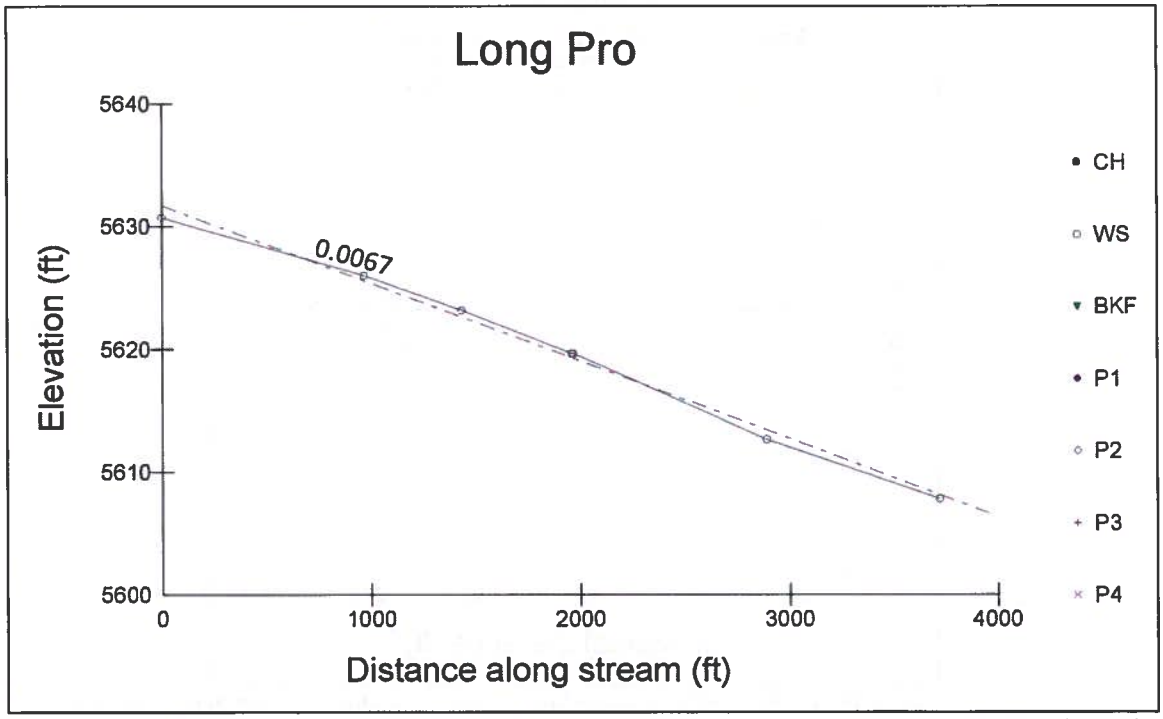


Figure 13. Longitudinal profile of the Fall River for 4,000 ft of reach with an average slope of 0.0067 (0.67%).

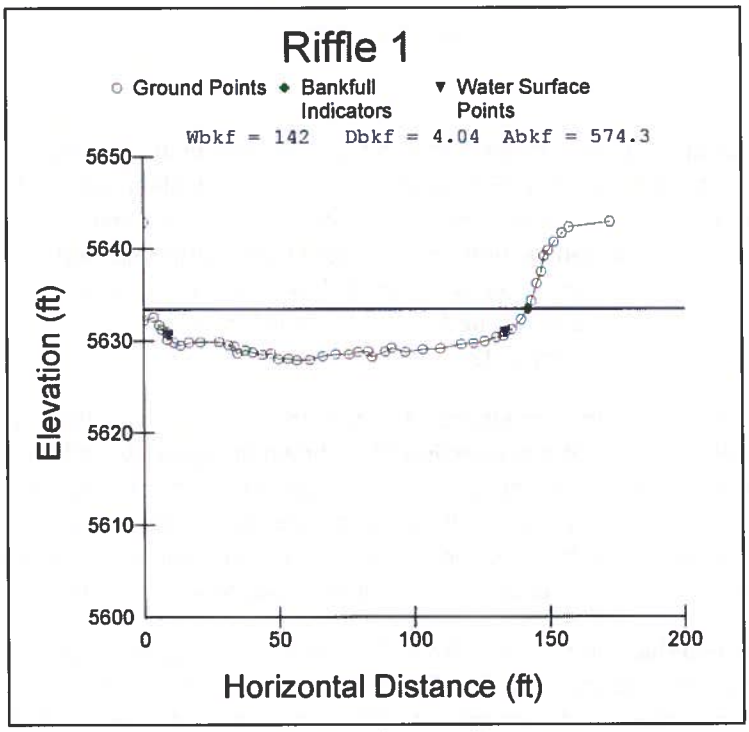


Figure 14. Fall River riffle cross-section #1 with a bankfull stage width of 142 ft, a mean bankfull depth of 4.04 ft, and a corresponding width/depth ratio of 35.

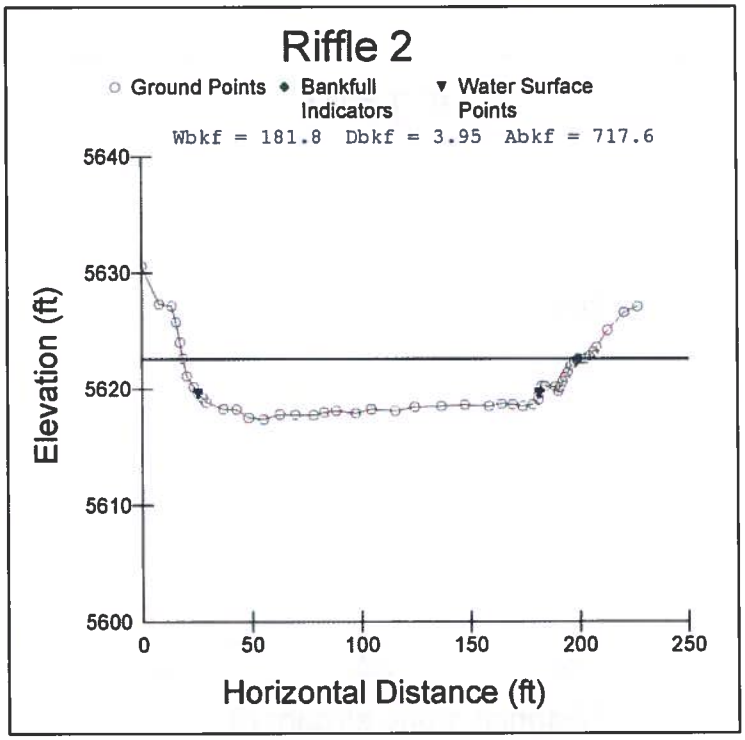


Figure 15. Fall River riffle cross-section #2 with a bankfull stage width of 181.8 ft, a mean bankfull depth of 3.95 ft, and a corresponding width/depth ratio of 46.

Figure 16. Typical of riffle cross-section #1, 800 ft upstream of bridge as shown in **Figure 14**, with a width/depth ratio of 35 (the reference width/depth ratio for a riffle and same stream type on Fall River at upstream gage station is 24).

Figure 17. Riffle cross-section #2, 900 ft downstream of bridge as shown in **Figure 15** with a corresponding high width/depth ratio of 46 – too high for a good fishery. Excessive sediment deposition is also evident that reduces river depth. Photo taken at streamflow discharge at slightly below 500 cfs, yet note the shallow depths.

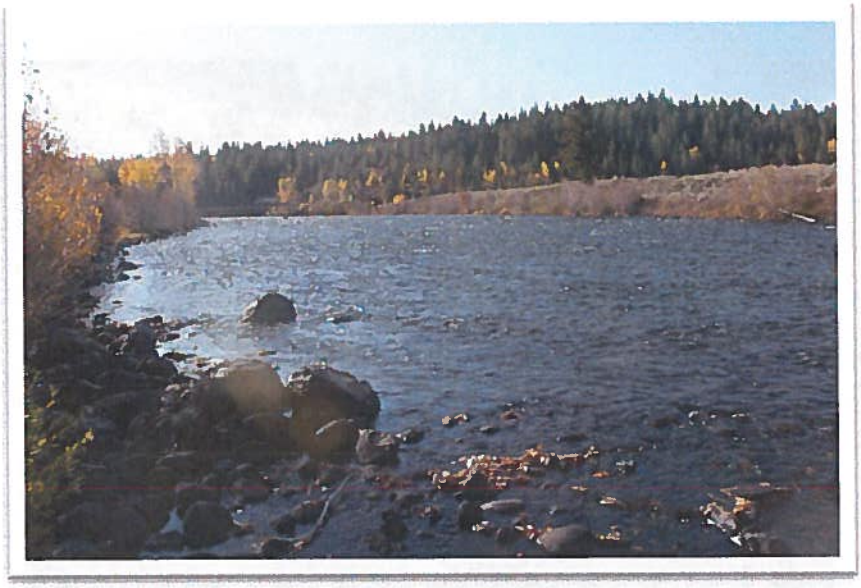


Figure 18. Riffle cross-section #2 looking upstream showing the high width/depth ratio of 46 and associated shallow depths.

Sediment Relations

Streambank erosion is discontinuous along this reach. The bank across from the home site has experienced recent streambank erosion as shown in **Figure 19**. The proposed fish habitat enhancement will help offset this active streambank erosion. The cause for the accelerated streambank erosion is due to:

1) The lack of dense woody riparian vegetation
2) A bank height greater than bankfull stage (bank-height ratio > 2.0)
3) The downstream rock barb protruding into the flows that causes recirculation eddies and resultant accelerated streambank erosion (**Figure 19**)

The predicted lateral annual erosion rate for approximately 1,100 ft of river channel (out of 8,000 ft, which includes both sides of the channel for the length of the study reach) is *0.018 ft/yr* (**Figure 20**); this value is predicted using the BANCS model detailed in Rosgen (2006), which utilizes a Bank Erosion Hazard Index (BEHI) rating and a Near-Bank Stress (NBS) rating. The BEHI (erodibility potential of bank) is rated *Low* for the Fall River reach, and the NBS rating is *Very Low*, which for this region relates to *0.018 ft/yr* (**Figure 20**). This lateral erosion rate corresponds to an annual sediment yield from streambank erosion in this reach of *6.16 tons/yr* (0.018 *x* 6.0 ft bank height *x* 1,100/27 *x* 1.4), or *0.0015 tons/ft/yr* of channel. This is not a high value for this size of a river; however, the values are often an order of magnitude less for a reference condition (thick vegetation and dense roots for 100% of bank length). A stable reference reach generates an annual lateral erosion rate of approximately *0.0006 ft/yr* based on bankfull discharge (not a flood). For comparison, the reference condition for Fall River is associated with a sediment yield from streambank erosion in this location of approximately *0.74 tons/yr*, or *0.0002 tons/ft/yr*.

The sediment transport capacity was also determined for the existing high width/depth ratio channel using the FLOWSED/POWERSED model (Rosgen, 2006). The FLOWSED/POWERSED model predicts the annual suspended and bedload sediment yield in tons/yr for the existing high width/depth ratio riffle compared to the upstream reference condition with a width/depth ratio of 24. The existing high width/depth ratio of the Fall River reach promotes deposition of sediment and coarse bedload as depicted in **Figure 17**. The input of sediment is based

on suspended and bedload data versus discharge extrapolated from sediment data from the Teton River near St. Anthony and the Henrys Fork near Ashton, Idaho. The Fall River sediment yields would be higher than the Henrys Fork for the same discharge, but lower than the Teton River; thus adjustments were made from the existing data for the model.

The predicted sediment yield for the upstream, stable reach with the width/depth ratio of 24 is *35,063 tons/yr* for suspended sediment and *8,303 tons/yr* for bedload, corresponding to a total sediment yield of *43,366 tons/yr* (**Table 2**). The sediment yield for the high width/depth ratio riffle in the Fall River reach (**Figure 14**) relates to a major reduction in transport capacity; the suspended sediment transport is *21,666 tons/yr* and the bedload transport is *8,276 tons/yr*, corresponding to an annual suspended transport of *29,942 tons/yr* (**Table 3**). The excess deposition of sediment (aggradation) is reflected in the comparative evaluation of the high width/depth ratio reach versus the reference reach with a width/depth ratio of 24, summarized in **Table 4**. The sediment values are low compared to rivers of this size elsewhere, which may indicate the effect of a healthy riparian community upstream and the spring-fed influence of the watershed. The reduced values of sediment transport capacity can be related to sediment deposition, which is characterized by the very high width/depth ratio of the riffles. The proposed design will reduce the high width/depth ratio channel to improve fish habitat by increasing the depth of flow and associated instream cover.

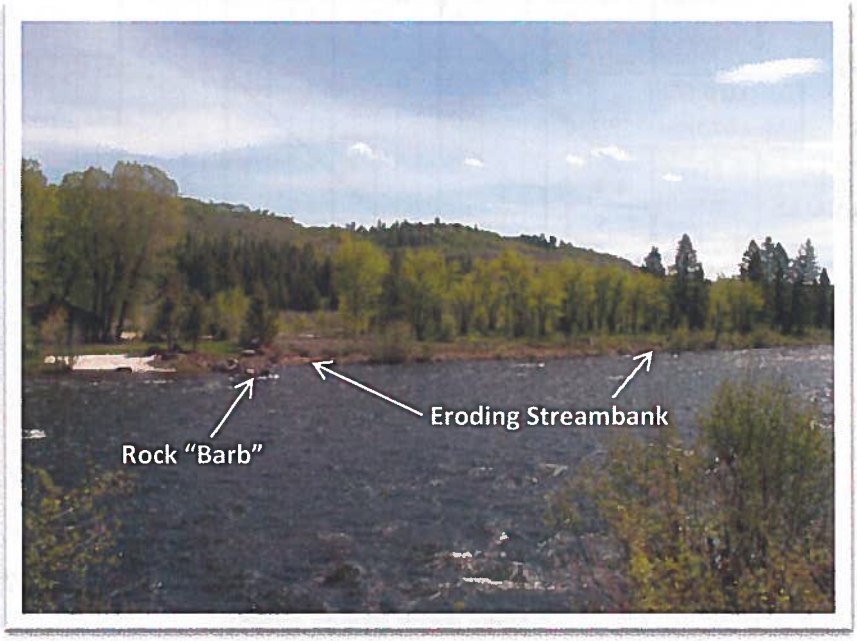


Figure 19. Streambank erosion showing exposed gravel/cobble material and limited riparian vegetation.

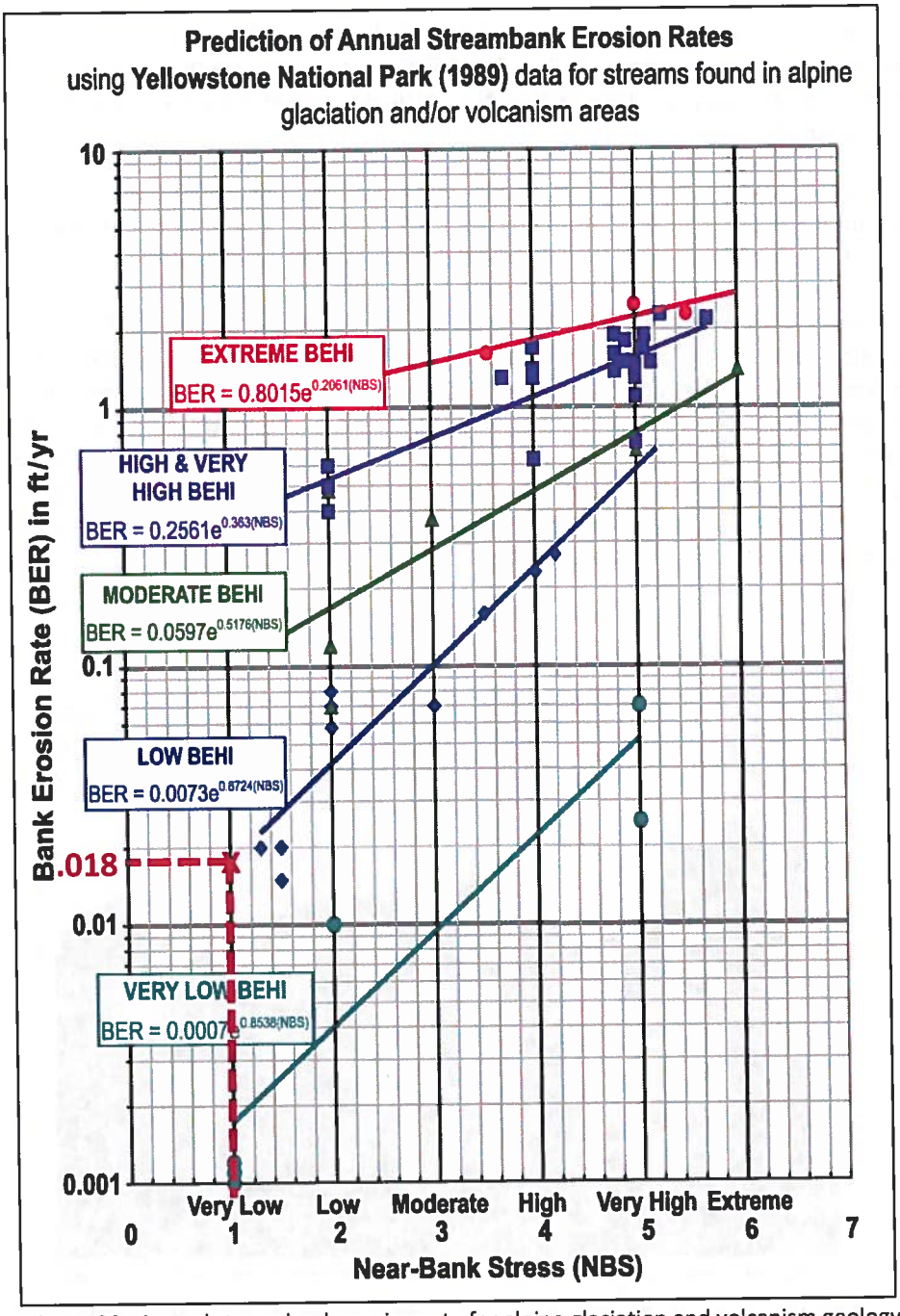


Figure 20. Annual streambank erosion rate for alpine glaciation and volcanism geology (Yellowstone region), indicating the anticipated erosion rate for Fall River reach.

Table 2. Summary of annual suspended, bedload, and total sediment yields for the stable, upstream reference reach, Fall River.

Stream:	Fall River - FLOWSED Results						Location: Reach 1						Date:	
Observers:	Rosgen et al						Gage Station #: 13046995			Stream Type:			Valley Type:	
Equation type		**Intercept**	**Coefficient**	**Exponent**	**Form (e.g., linear, non-linear, etc.)**		**Equation name**		**Bankfull discharge (cfs)**		**Bankfull bedload (lbs/s)**		**Bankfull suspended (mg/l)**	
1. Bedload (dimensionless)		-0.0113	1.0139	2.1929	Non-Linear		Pagosa Springs Reference Curve		3129.65		4.56		105	
2. Suspended sediment (dimensionless)		0.0636	0.9326	2.4085	Non-Linear		Pagosa Springs Reference Curve							
From dimensioned flow-duration curve							**From sediment rating curves**				**Calculate**	**Calculate sediment yield**		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Flow exceedence	Daily mean discharge	Mid-ordinate	Time increment (percent)	Time increment (days)	Mid-ordinate streamflow	Dimension-less streamflow	Dimension-less suspended sediment discharge	Suspended sediment discharge	Dimension-less bedload discharge	Bedload	Time adjusted streamflow	Suspended sediment [(5)×(9)]	Bedload sediment [(5)×(11)]	Suspended + bedload [(13)+(14)]
(%)	(cfs)	(%)	(%)	(days)	(cfs)	(Q/Q_{bkf})	(S/S_{bkf})	(tons/day)	(b_s/b_{bkf})	(tons/day)	(cfs)	(tons)	(tons)	(tons)
100.000	256.6													
90.000	378.7	95.00	10.00	36.50	317.7	0.10	18.5	6.1	0.1363	0.00	3176.60	221.19	0.00	221.19
80.000	413.1	85.00	10.00	36.50	395.9	0.13	22.1	7.9	0.2449	0.00	3959.00	286.89	0.00	286.89
70.000	453.8	75.00	10.00	36.50	433.5	0.14	24.2	8.8	0.3062	0.39	4334.60	321.20	14.24	335.44
60.000	503.9	65.00	10.00	36.50	478.8	0.15	27.6	10.0	0.4003	1.04	4788.40	365.37	37.96	403.33
50.000	560.2	55.00	10.00	36.50	532.0	0.17	31.5	11.6	0.5105	1.86	5320.40	421.94	67.89	489.83
40.000	638.5	45.00	10.00	36.50	599.3	0.19	37.7	13.8	0.6784	3.11	5993.30	502.60	113.52	616.12
30.000	769.9	35.00	10.00	36.50	704.2	0.22	48.9	17.8	0.9747	5.36	7041.70	650.06	195.64	845.70
20.000	1114.2	25.00	10.00	36.50	942.0	0.30	85.9	30.8	1.8990	12.14	9420.20	1124.20	443.11	1567.31
10.000	1993.6	15.00	10.00	36.50	1553.9	0.50	255.4	104.1	5.7661	40.78	15538.70	3799.29	1488.47	5287.76
5.000	2584.4	7.50	5.00	18.25	2289.0	0.73	305.1	326.2	6.8445	98.37	11444.90	5952.97	1795.25	7748.22
4.000	2744.7	4.50	1.00	3.65	2664.5	0.85	305.1	526.2	6.8445	138.11	2664.53	1920.59	504.10	2424.69
3.000	2926.5	3.50	1.00	3.65	2835.6	0.91	305.1	642.3	6.8445	158.63	2835.57	2344.29	579.00	2923.29
2.000	3248.6	2.50	1.00	3.65	3087.5	0.99	305.1	845.8	6.8445	191.64	3087.51	3087.17	699.49	3786.66
1.500	3408.4	1.75	0.50	1.83	3328.5	1.06	305.1	1080.8	6.8445	226.41	1664.26	1972.41	413.20	2385.61
1.000	3674.2	1.25	0.50	1.83	3541.3	1.13	305.1	1324.8	6.8445	259.68	1770.66	2417.67	473.92	2891.59
0.900	3752.5	0.95	0.10	0.37	3713.3	1.19	305.1	1549.1	6.8445	288.36	371.33	565.43	105.25	670.68
0.800	3838.7	0.85	0.10	0.37	3795.6	1.21	305.1	1665.5	6.8445	302.70	379.56	607.91	110.49	718.40
0.700	3947.5	0.75	0.10	0.37	3893.1	1.24	305.1	1811.4	6.8445	320.11	389.31	661.17	116.84	778.01
0.600	4018.5	0.65	0.10	0.37	3983.0	1.27	305.1	1953.9	6.8445	336.66	398.30	713.17	122.88	836.05
0.500	4100.3	0.55	0.10	0.37	4059.4	1.30	305.1	2081.3	6.8445	351.09	405.94	759.66	128.15	887.81
0.250	4657.6	0.38	0.25	0.91	4379.0	1.40	305.1	2678.9	6.8445	414.98	1094.74	2444.51	378.67	2823.18
0.100	5064.5	0.18	0.15	0.55	4861.1	1.55	305.1	3799.4	6.8445	522.33	729.16	2080.17	285.98	2366.15
0.050	5220.7	0.08	0.05	0.18	5142.6	1.64	305.1	4589.7	6.8445	591.28	257.13	837.62	107.91	945.53
0.010	5627.1	0.03	0.04	0.15	5423.9	1.73	305.1	5489.8	6.8445	664.80	216.96	801.51	97.06	898.57
0.005	5627.1	0.01	0.01	0.02	5627.1	1.80	305.1	6213.6	6.8445	720.84	28.14	113.40	13.16	126.56
0.001	5627.1	0.00	0.00	0.01	5627.1	1.80	305.1	6213.6	6.8445	720.84	22.51	90.72	10.52	101.24
											Annual totals:	35,063 (tons/yr)	8,303 (tons/yr)	43,366 (tons/yr)

Table 3. Summary of bedload and suspended bed-material load transport for the high width/depth ratio riffle #1, Fall River.

Stream:	**Fall River, Reach 1, Riffle 1, (Riffle)**						Location: **Proposed vs. Existing - Including Floodplain**									Date:	
Observers:	**Rosgen et al**						Stream Type:			Valley Type:			Gage Station #: **13046995**				
Flow-duration curve		**Calculate**	**Hydraulic geometry**				**Measure**	**Calculate**									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Percentage of time	Daily mean discharge	Mid-ordinate stream-flow	Area	Width	Depth	Velocity	Slope	Shear stress	Stream power	Unit power	Time increment	Time increment	Daily mean bedload transport	Daily mean suspended sand transport	Time adjusted bedload transport [(13)×(14)]	Time adjusted suspended sand transport [(13)×(15)]	Time adjusted total transport [(16)+(17)]
(%)	(cfs)	(cfs)	(ft^2)	(ft)	(ft)	(ft/s)	(ft/ft)	(lb/ft^2)	(lb/s)	(lb/ft/s)	(%)	(days)	(tons/day)	(tons/day)	(tons)	(tons)	(tons)
100.000	256.63									0.00			0.00	0.00		0.00	
90.000	378.69	317.66	133.67	117.52	1.14	2.37	0.0067	0.47	132.81	1.13	10.000	36.50	0.00	6.06	0.00	221.19	221.19
80.000	413.11	395.90	153.89	119.78	1.28	2.57	0.0067	0.53	165.52	1.38	10.000	36.50	0.00	7.86	0.00	286.89	286.89
70.000	453.80	433.46	163.15	120.92	1.35	2.66	0.0067	0.56	181.22	1.50	10.000	36.50	0.39	8.80	14.24	321.20	335.44
60.000	503.87	478.84	174.14	122.42	1.42	2.75	0.0067	0.59	200.19	1.64	10.000	36.50	1.04	10.01	37.96	365.37	403.33
50.000	560.21	532.04	186.33	123.62	1.51	2.85	0.0067	0.62	222.44	1.80	10.000	36.50	1.86	11.56	67.89	421.94	489.83
40.000	638.45	599.33	200.74	124.31	1.61	2.98	0.0067	0.67	250.57	2.02	10.000	36.50	3.11	13.77	113.52	502.60	616.12
30.000	769.89	704.17	221.65	124.81	1.78	3.18	0.0067	0.73	294.40	2.36	10.000	36.50	5.36	17.81	195.64	650.06	845.70
20.000	1114.15	942.02	267.35	128.70	2.08	3.52	0.0067	0.85	393.84	3.06	10.000	36.50	12.14	30.80	443.11	1124.20	1567.31
10.000	1993.59	1553.87	366.18	133.20	2.75	4.24	0.0067	1.13	649.64	4.88	10.000	36.50	40.78	104.09	1488.47	3799.29	5287.76
5.000	2584.37	2288.98	472.85	140.53	3.36	4.84	0.0067	1.38	956.98	6.81	5.000	18.25	97.16	236.58	1773.17	4317.59	6090.76
4.000	2744.70	2664.53	519.56	141.22	3.68	5.13	0.0067	1.50	1113.99	7.89	1.000	3.65	137.55	329.57	502.06	1202.93	1704.99
3.000	2926.45	2835.57	540.04	141.52	3.82	5.25	0.0067	1.55	1185.50	8.38	1.000	3.65	158.33	376.91	577.90	1375.72	1953.62
2.000	3248.58	3087.51	569.40	141.94	4.01	5.42	0.0067	1.63	1290.83	9.09	1.000	3.65	191.16	451.74	697.73	1648.85	2346.58
1.500	3408.43	3328.51	596.60	142.27	4.19	5.58	0.0067	1.70	1391.58	9.78	0.500	1.83	226.24	530.23	412.89	967.67	1380.56
1.000	3674.21	3541.32	620.00	142.53	4.35	5.71	0.0067	1.76	1480.56	10.39	0.500	1.83	259.89	604.86	474.30	1103.87	1578.17
0.900	3752.45	3713.33	638.55	142.74	4.47	5.82	0.0067	1.81	1552.47	10.88	0.100	0.37	288.75	668.53	105.39	244.01	349.40
0.800	3838.74	3795.59	647.31	142.83	4.53	5.86	0.0067	1.83	1586.86	11.11	0.100	0.37	302.88	699.74	110.55	255.41	365.96
0.700	3947.45	3893.09	657.60	142.95	4.60	5.92	0.0067	1.86	1627.62	11.39	0.100	0.37	320.50	738.32	116.98	269.49	386.47
0.600	4018.47	3982.96	667.02	143.05	4.66	5.97	0.0067	1.88	1665.20	11.64	0.100	0.37	336.74	774.07	122.91	282.54	405.45
0.500	4100.32	4059.39	674.96	143.14	4.72	6.01	0.0067	1.90	1697.15	11.86	0.100	0.37	351.39	805.81	128.26	294.12	422.38
0.250	4657.64	4378.98	707.57	143.48	4.93	6.19	0.0067	1.99	1830.76	12.76	0.250	0.91	414.76	943.50	378.47	860.94	1239.41
0.100	5064.50	4861.07	754.95	143.82	5.25	6.44	0.0067	2.11	2032.32	14.13	0.150	0.55	522.33	1172.84	285.98	642.13	928.11
0.050	5220.70	5142.60	781.86	144.02	5.43	6.58	0.0067	2.18	2150.02	14.93	0.050	0.18	591.45	1318.24	107.94	240.58	348.52
0.010	5627.11	5423.90	808.20	144.21	5.60	6.71	0.0067	2.25	2267.62	15.72	0.040	0.15	664.37	1471.04	97.00	214.77	311.77
0.005	5627.11	5627.11	826.93	144.35	5.73	6.80	0.0067	2.29	2352.58	16.30	0.005	0.02	720.88	1587.69	13.16	28.98	42.14
0.001	5627.11	5627.11	826.93	144.35	5.73	6.80	0.0067	2.29	2352.58	16.30	0.004	0.01	720.88	1587.69	10.52	23.18	33.70
										Total annual sediment yield (bedload and suspended sand bed-material load) (tons/yr):					8,276.0	21,665.5	29,941.6

Table 4. Summary of bedload and suspended bed-material load transport for the upstream reference reach compared to the high width/depth ratio reach, indicating excess deposition (aggradation), Fall River.

Stream:	**Fall River, Reach 1, Proposed Riffle XS, (Riffle)**							Location: **Proposed vs. Existing - with Floodplain**								Date:		
Observers:	**Rosgen et al.**							Stream Type:		Valley Type:			Gage Station #: **13046995**					
Flow-duration curve		**Calculate**	**Hydraulic geometry**				**Measure**	**Calculate**										
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	
Percentage of time	Daily mean discharge	Mid-ordinate stream-flow	Area	Width	Depth	Velocity	Slope	Shear stress	Stream power	Unit power	Time increment	Time increment	Daily mean bedload transport	Daily mean suspended sand transport	Time adjusted bedload transport [(13)×(14)]	Time adjusted suspended sand transport [(13)×(15)]	Time adjusted total transport [(16)+(17)]	
(%)	(cfs)	(cfs)	(ft^2)	(ft)	(ft)	(ft/s)	(ft/ft)	(lb/ft^2)	(lb/s)	(lb/ft/s)	(%)	(days)	(tons/day)	(tons/day)	(tons)	(tons)	(tons)	
100.000	248.50								0.00				0.00	0.00		0.00		
90.000	366.69	307.60	118.45	58.35	2.03	2.60	0.0067	0.84	128.60	2.20	10.000	36.50	4.32	7.45	157.68	271.93	429.61	
80.000	400.03	383.36	137.30	60.60	2.27	2.79	0.0067	0.94	160.28	2.64	10.000	36.50	8.08	10.84	294.92	395.66	690.58	
70.000	439.43	419.73	145.95	61.60	2.37	2.88	0.0067	0.98	175.48	2.85	10.000	36.50	10.11	12.79	369.01	466.83	835.84	
60.000	487.92	463.68	156.13	62.76	2.49	2.97	0.0067	1.03	193.86	3.09	10.000	36.50	12.61	15.42	460.26	562.83	1023.09	
50.000	542.47	515.20	167.71	64.05	2.62	3.07	0.0067	1.08	215.39	3.36	10.000	36.50	16.85	19.75	615.03	720.88	1335.91	
40.000	618.23	580.35	181.92	65.61	2.77	3.19	0.0067	1.14	242.63	3.70	10.000	36.50	22.20	25.98	810.30	948.27	1758.57	
30.000	745.51	681.87	203.19	67.87	2.99	3.36	0.0067	1.23	285.08	4.20	10.000	36.50	30.07	36.93	1097.56	1347.94	2445.50	
20.000	1078.87	912.19	283.97	101.54	2.80	3.21	0.0067	1.15	381.37	3.76	10.000	36.50	23.16	41.84	845.34	1527.16	2372.50	
10.000	1930.45	1504.66	394.60	108.90	3.62	3.81	0.0067	1.49	629.07	5.78	10.000	36.50	67.65	153.77	2469.23	5612.61	8081.84	
5.000	2502.53	2216.49	511.20	116.15	4.40	4.34	0.0067	1.81	926.67	7.98	5.000	18.25	141.26	417.36	2577.99	7616.82	10194.81	
4.000	2657.78	2580.16	566.40	119.44	4.74	4.56	0.0067	1.95	1078.71	9.03	1.000	3.65	188.27	591.80	687.19	2160.07	2847.26	
3.000	2833.77	2745.78	590.80	120.86	4.89	4.65	0.0067	2.01	1147.96	9.50	1.000	3.65	211.64	680.27	772.49	2482.99	3255.48	
2.000	3145.70	2989.73	625.99	122.88	5.09	4.78	0.0067	2.09	1249.95	10.17	1.000	3.65	247.49	819.09	903.34	2989.68	3893.02	
1.500	3300.49	3223.09	691.57	140.98	4.91	4.66	0.0067	2.02	1347.51	9.56	0.500	1.83	214.70	806.10	391.83	1471.13	1862.96	
1.000	3557.85	3429.17	722.39	143.08	5.05	4.75	0.0067	2.07	1433.67	10.02	0.500	1.83	239.20	919.39	436.54	1677.89	2114.43	
0.900	3633.62	3595.73	744.14	143.32	5.19	4.83	0.0067	2.13	1503.30	10.49	0.100	0.37	265.64	1030.17	96.96	376.01	472.97	
0.800	3717.17	3675.39	754.41	143.43	5.26	4.87	0.0067	2.16	1536.61	10.71	0.100	0.37	278.55	1084.64	101.67	395.89	497.56	
0.700	3822.44	3769.81	766.41	143.52	5.34	4.92	0.0067	2.1900	1576.08	10.98	0.100	0.37	294.84	1152.31	107.62	420.59	528.21	
0.600	3891.21	3856.82	777.37	143.60	5.41	4.96	0.0067	2.2200	1612.46	11.23	0.100	0.37	310.35	1216.70	113.28	444.10	557.38	
0.500	3970.47	3930.84	786.63	143.67	5.48	5.00	0.0067	2.2400	1643.41	11.44	0.100	0.37	323.74	1272.32	118.17	464.40	582.57	
0.250	4510.14	4240.31	824.68	143.94	5.73	5.14	0.0067	2.3400	1772.79	12.32	0.250	0.91	383.05	1518.46	349.53	1385.59	1735.12	
0.100	4904.11	4707.13	880.25	144.35	6.10	5.35	0.0067	2.4800	1967.96	13.63	0.150	0.55	481.51	1926.98	263.63	1055.02	1318.65	
0.050	5055.37	4979.74	911.82	144.58	6.31	5.46	0.0067	2.5600	2081.93	14.40	0.050	0.18	545.14	2188.63	99.49	399.42	498.91	
0.010	5448.91	5252.14	942.76	144.80	6.51	5.57	0.0067	2.6400	2195.81	15.16	0.040	0.15	612.19	2464.48	89.38	359.81	449.19	
0.005	5448.91	5448.91	964.74	144.96	6.66	5.65	0.0067	2.6900	2278.08	15.72	0.005	0.02	664.37	2676.27	12.12	48.84	60.96	
0.001	5448.91	5448.91	964.74	144.96	6.66	5.65	0.0067	2.6900	2278.08	15.72	0.004	0.01	664.37	2676.27	9.70	39.07	48.77	
Notes:														Total annual sediment yield (bedload and suspended sand bed-material load) (tons/yr):		14,250.3	35,641.4	49,891.7
														Upstream total annual sediment comparative reach (tons/yr):		8,276.0	21,666.0	29,942.0
														Difference in sediment transport capacity (tons/yr) (+ or -):		5,974.3	13,975.4	19,949.7
														Stability evaluation: Aggradation, Degradation or Stable:		Aggradation		

Fish & Wildlife

The fishery has an exceptional opportunity to be enhanced. The excellent streamflows, including winter and summer baseflow discharges, and the coarse substrate promote a large and diverse assemblage of aquatic macro-invertebrates. Terrestrial insects, mayflies, caddis and stoneflies are present. The Fall River reach has the potential to see an increase in the size and number of cutthroat and rainbow trout due to the abundant food supply and lack of significant fishing pressure.

The observed limiting factors of the Fall River reach are primarily the lack of habitat diversity and instream and overhead cover, including holding cover for trout during high flows and summer/fall baseflow periods. The riffle width/depth ratios of 35 and 46 are exceptionally high, as values closer to 25 are typical for this stream type from an upstream reference reach. A good example of the shallow depth and lack of instream cover is shown in **Figure 21**, located across from the home site. There is also a definite lack of pocket water habitat in this riffle-dominated reach related to minimal large roughness elements in the stream channel. The pool depths are low due to bedrock outcrops and the high width/depth ratio. The steep and shallow pools do not promote good holding cover; the pool slopes of 0.004–0.006 are very steep and should be closer to 0.001, and in some locations are nearly the same as the riffle slopes.

Additionally, the Fall River reach does not have spawning habitat due to the medium to coarse cobble substrate that presently dominates the reach and the lack of glide features on the streambed. Rearing habitat is limited due to the uniform, higher cross-channel velocities and limited tributaries in this reach. Providing significant instream and overhead cover for adult fish that are migrating upstream for spawning or returning is required to increase fish numbers and size.

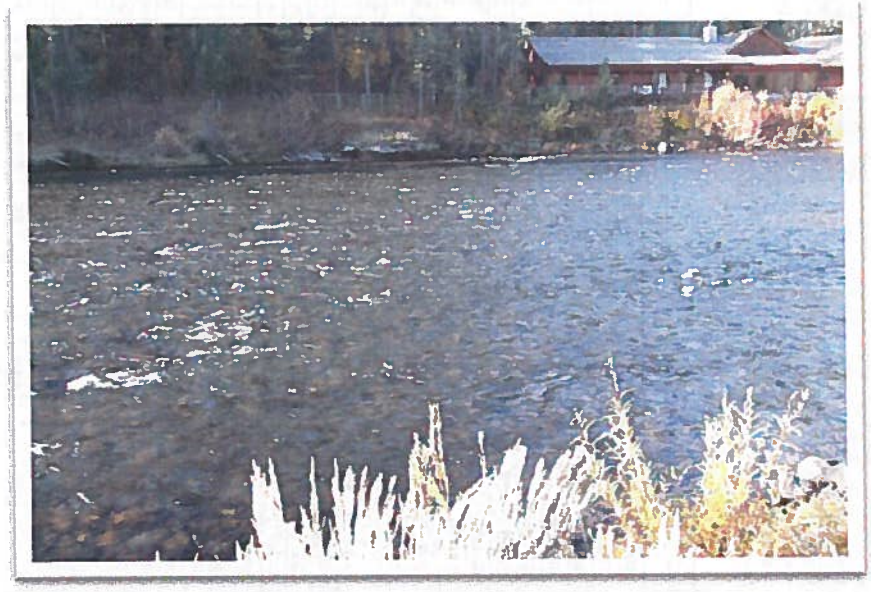


Figure 21. Photograph looking south of the ranch house, depicting the high width/depth ratio channel and little instream or holding cover for trout.

Big Game/Upland Game

The ranch and immediately-adjacent areas contain excellent habitat for deer, elk, moose, and black and grizzly bears. Grouse are observed on the property as well. The proposed fish habitat work will not adversely affect any of the existing wildlife habitats.

Proposed Fish Habitat Enhancement

Based on the assessment and limiting factors evaluation, the following four objectives are proposed:

Objective 1. *Provide substantial instream holding and overhead cover*

Objective 2. *Create fish habitat diversity*

Objective 3. *Provide rearing or juvenile habitat for trout*

Objective 4. *Establish potential spawning habitat*

The details and methods for each objective are discussed in the following sections.

Objective 1. Provide Substantial Instream Holding and Overhead Cover

To provide instream holding and overhead cover, the following general treatments are proposed:

1. Deepen and flatten pools
2. Reshape the riffles by decreasing their width/depth ratios
3. Provide large woody debris along the streambanks for overhead cover and streambank stabilization
4. Increase the density of overhead riparian vegetation in conjunction with structures
5. Establish pocket water habitat using large boulders with footers
6. Provide additional holding cover and variations in flow velocity creating "seams" of secondary flow currents by the use of J-Hook rock vanes
7. Define an inner berm feature for the entire channel length to deepen the low flow channel to provide high water and over-wintering refugia

Methods: Channel Reshaping. The shaping of the channel cross-section is critical to decrease the very high width/depth ratios of 46 and 35 for the riffles to the reference condition width/depth ratio of 24. Channel reshaping can be completed in the alluvial reach, but obviously the bedrock areas will not be able to be reshaped. The proposed channel dimensions to secure a width/depth ratio of 24, including the inner berm (low flow channel), are included in **Table 5**. **Figure 22** shows the proposed cross-section overlay on the existing riffle cross-section #1 (**Figure 14**). A typical pool cross-section design for Fall River is shown in **Figure 23**, and a typical glide cross-section is shown in **Figure 24**.

Table 5. Existing and proposed stream channel dimensions and slopes for various bed features at the bankfull discharge stage (3,130 cfs) and the low flow (460 cfs) stage.

	Bankfull Stage Channel (3,130 cfs)		Low Flow (Inner Berm) Channel (460 cfs)	
RIFFLE Variables	**Existing**	**Proposed**	**Existing**	**Proposed**
Width	161	124	120	70–90
Mean Depth	4.0	5.1	1.3	2.5
Maximum Depth	4.4	7.6	2.1	4.0
W/d Ratio	40	24	82	30
Cross-Sectional Area	646	632	156	185
Mean Velocity	4.8	4.9	1.4	2.5
Slope	0.007	0.010	0.008	0.009
POOL Variables	**Existing**	**Proposed**	**Existing**	**Proposed**
Width	181	128	130–150	80
Mean Depth	5.0	7.0	2.0	5–6
Maximum Depth	6.5	14.3	2.5	8–10
W/d Ratio	36	18.3	70	14.5
Cross-Sectional Area	905	896	280	480
Mean Velocity	3.5	3.5	1.6	1.0
Slope	0.006	0.0015	0.007	0.002
GLIDE Variables	**Existing**	**Proposed**	**Existing**	**Proposed**
Width	161	138	N/A	90
Mean Depth	4.0	4.0	N/A	3.5
Maximum Depth	4.4	4.6	N/A	3.2
W/d Ratio	40	34.5	N/A	26
Cross-Sectional Area	646	552	N/A	315
Mean Velocity	4.8	5.7	N/A	2.0
Slope	0.007	0.0015	N/A	0.002

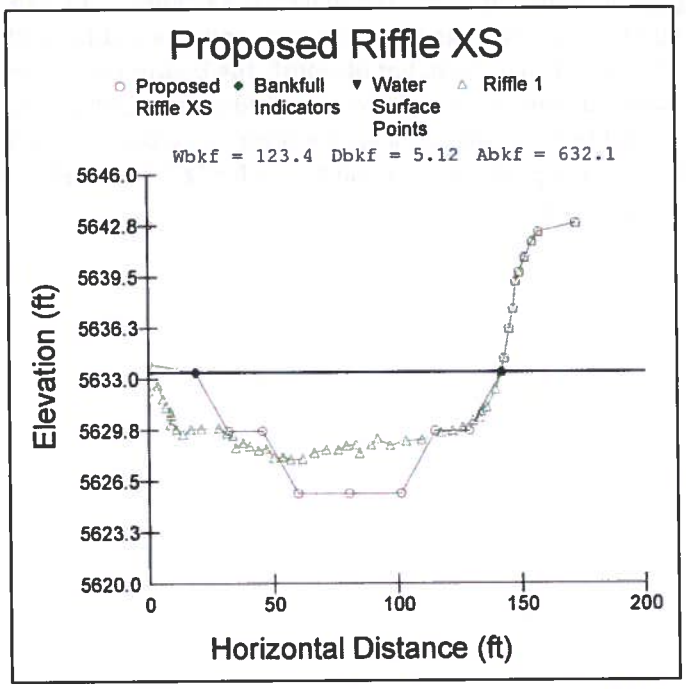


Figure 22. Proposed riffle cross-section overlay of Riffle #1 (**Figure 14**), showing a design width/depth ratio of 24 and a defined low flow, inner berm feature.

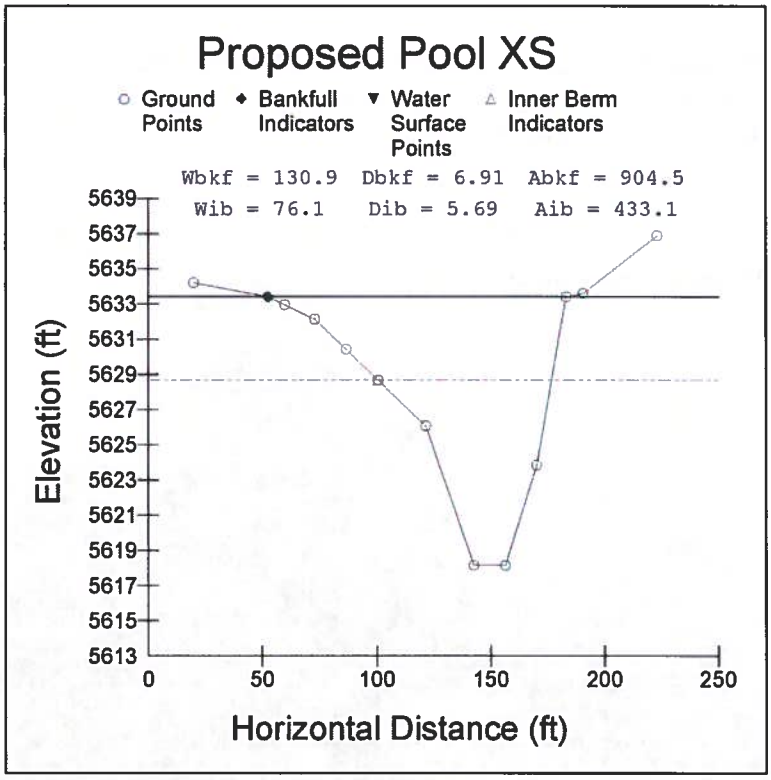


Figure 23. Proposed pool cross-section for Fall River.

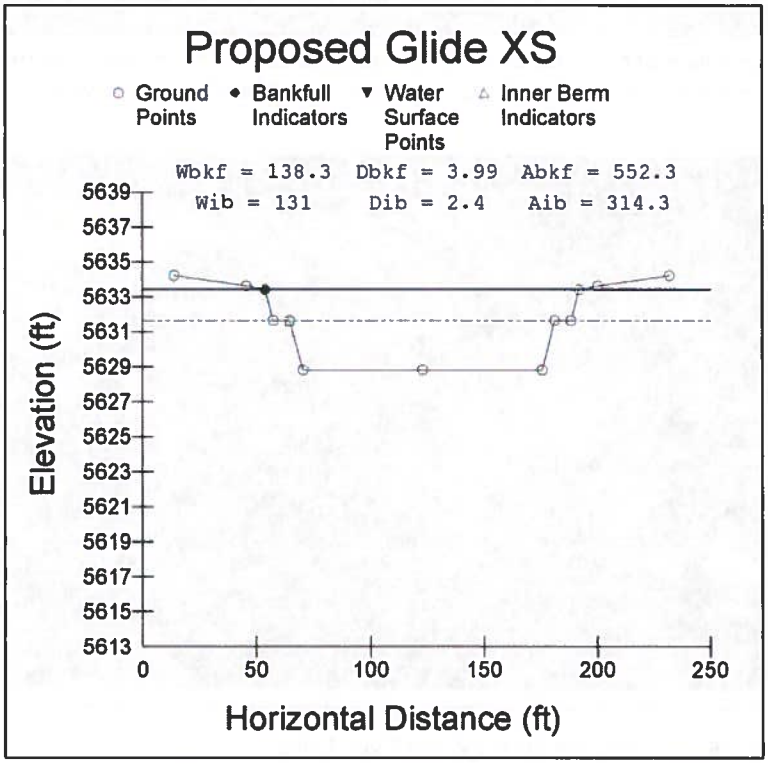


Figure 24. Proposed glide cross-section for Fall River.

Methods: Toe Wood. The use of toe wood on two streambanks is designed to stabilize the streambank and to provide instream and overhead cover. The toe wood design is shown in **Figure 25**. Examples of toe wood applications on large rivers are shown in **Figures 26–31**.

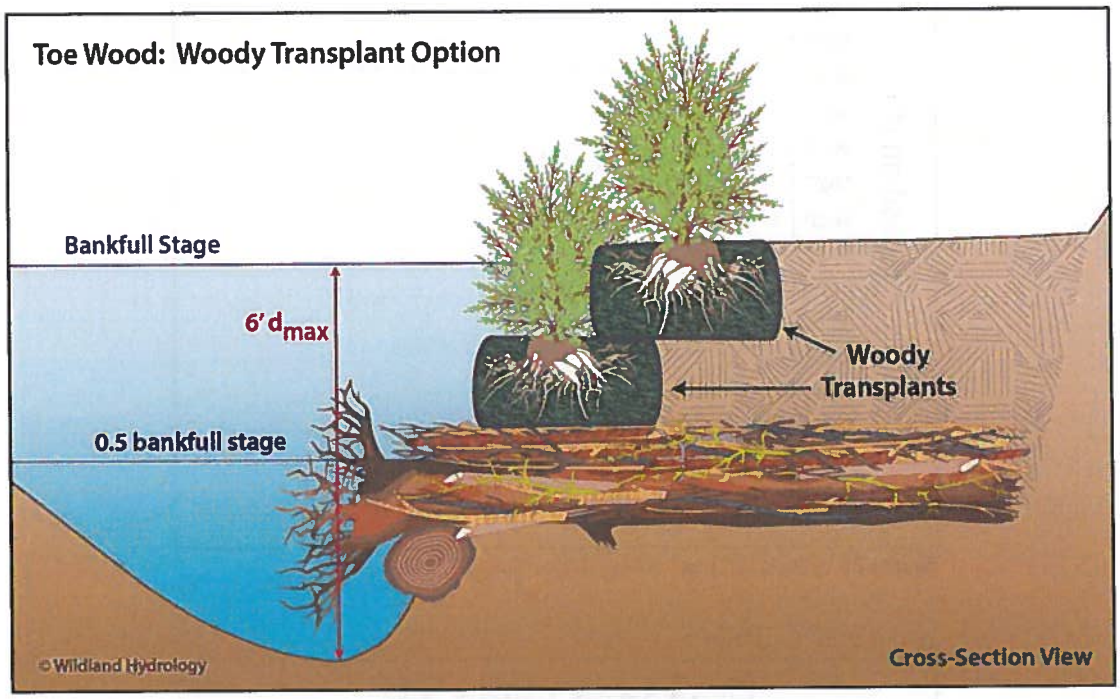


Figure 25. Design details of toe wood on a typical pool cross-section for providing instream and overhead cover for habitat enhancement. Note the undercut bank and transplanted woody vegetation on upper half of bank.

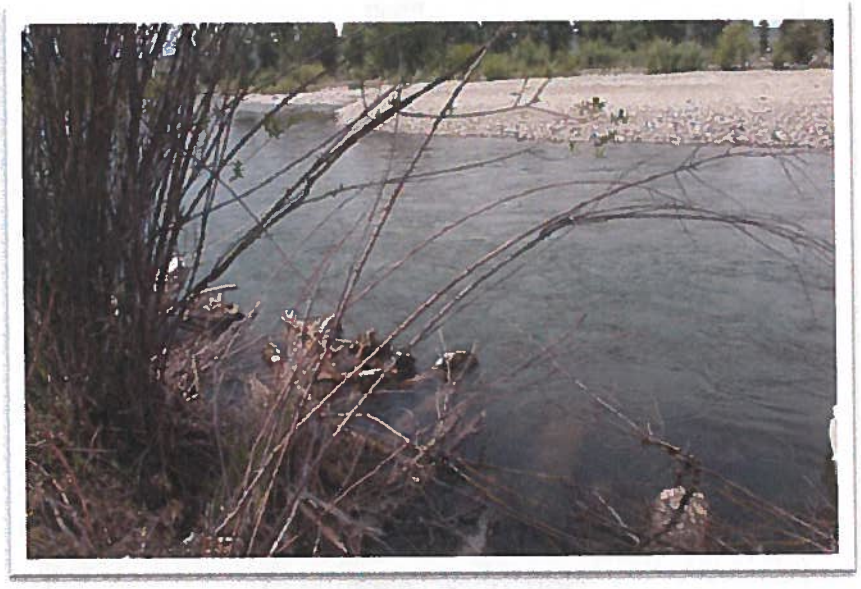


Figure 26. Toe wood on the Big Wood River, Idaho.

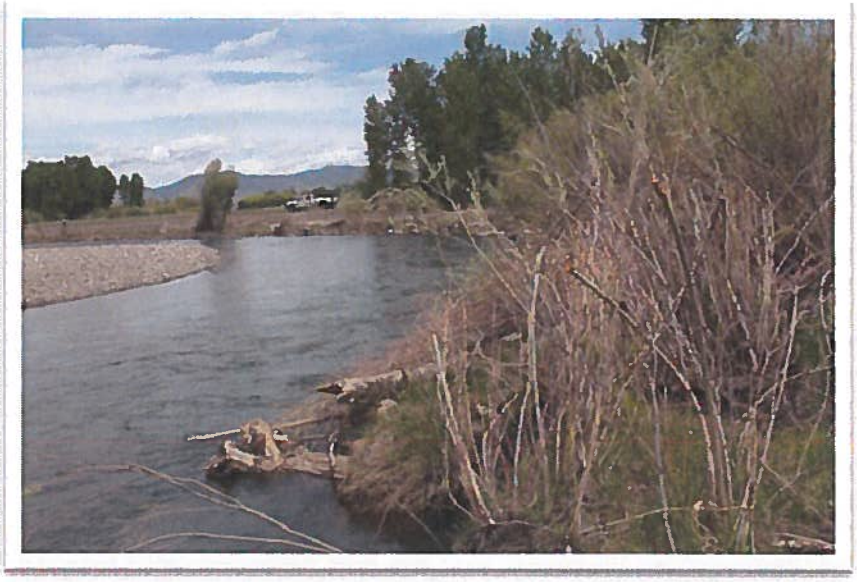


Figure 27. Toe wood on the Big Wood River, Idaho.

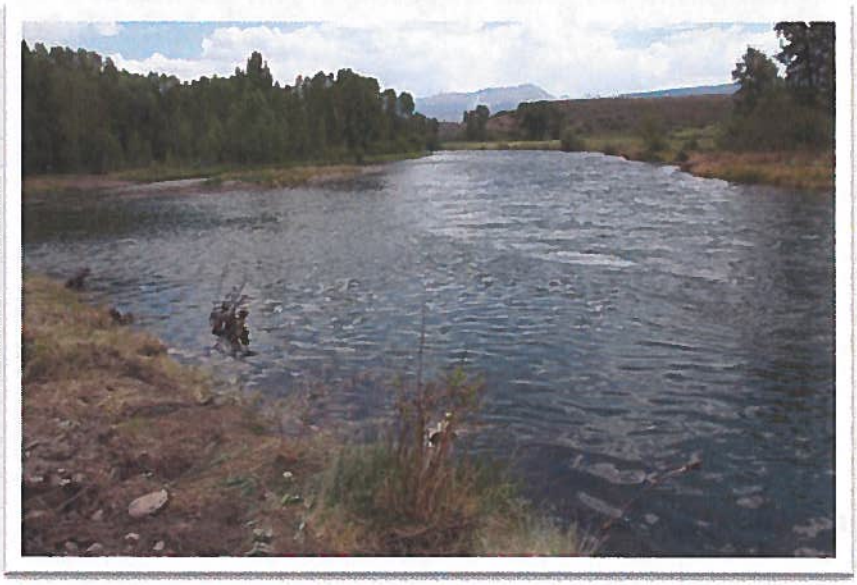


Figure 28. Toe wood on the Blue River, Colorado.

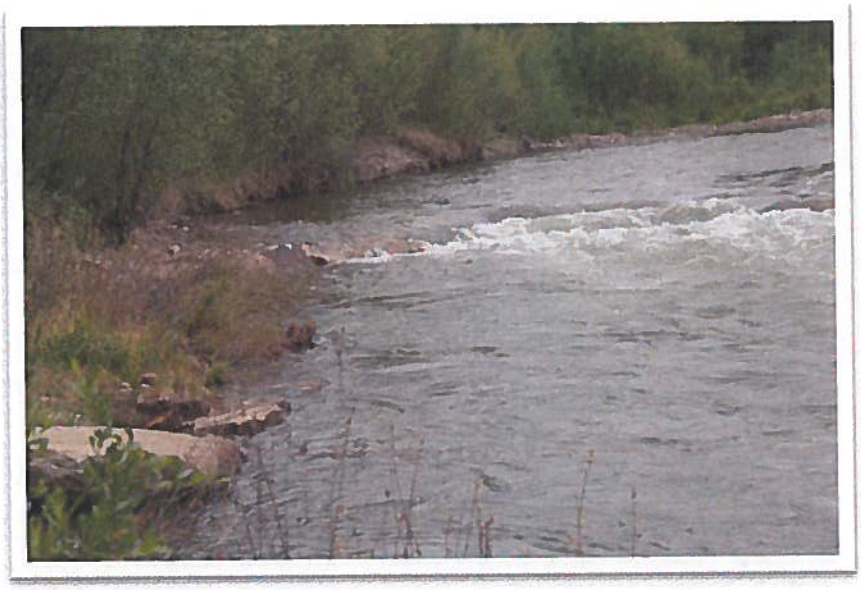


Figure 29. Toe wood with a rock J-Hook vane on the Blue River, Colorado.

Figure 30. Toe wood on the Bitterroot River, Montana.

Figure 31. Toe wood on the Bitterroot River, Montana.

Methods: J-Hook Rock Vanes. The J-Hook rock vanes, as illustrated in **Figure 32**, provide holding cover, redistribute velocity vectors, create "seams" that hold fish, reduce near-bank shear stress, and create or maintain bed features, including glides as shown in the diagram in **Figure 33**. Examples of installed J-Hook rock vanes are shown in **Figure 34** (Little Snake River, Colorado) and **Figure 35** (Blue River, Colorado).

The proposed J-Hook design and channel shaping will help correct the shallow depths and bed feature slope reversals that exist on the Fall River. The use of a J-Hook Vane will also be used in conjunction with toe wood, by placing the J-Hook vane immediately upstream of the toe wood as depicted in **Figure 36**. This will ensure that flood stages do not get behind the placed logs of the toe wood. Additionally, the J-Hook vane creates a bed feature transition from a riffle to a run and into a pool in front of the toe wood.

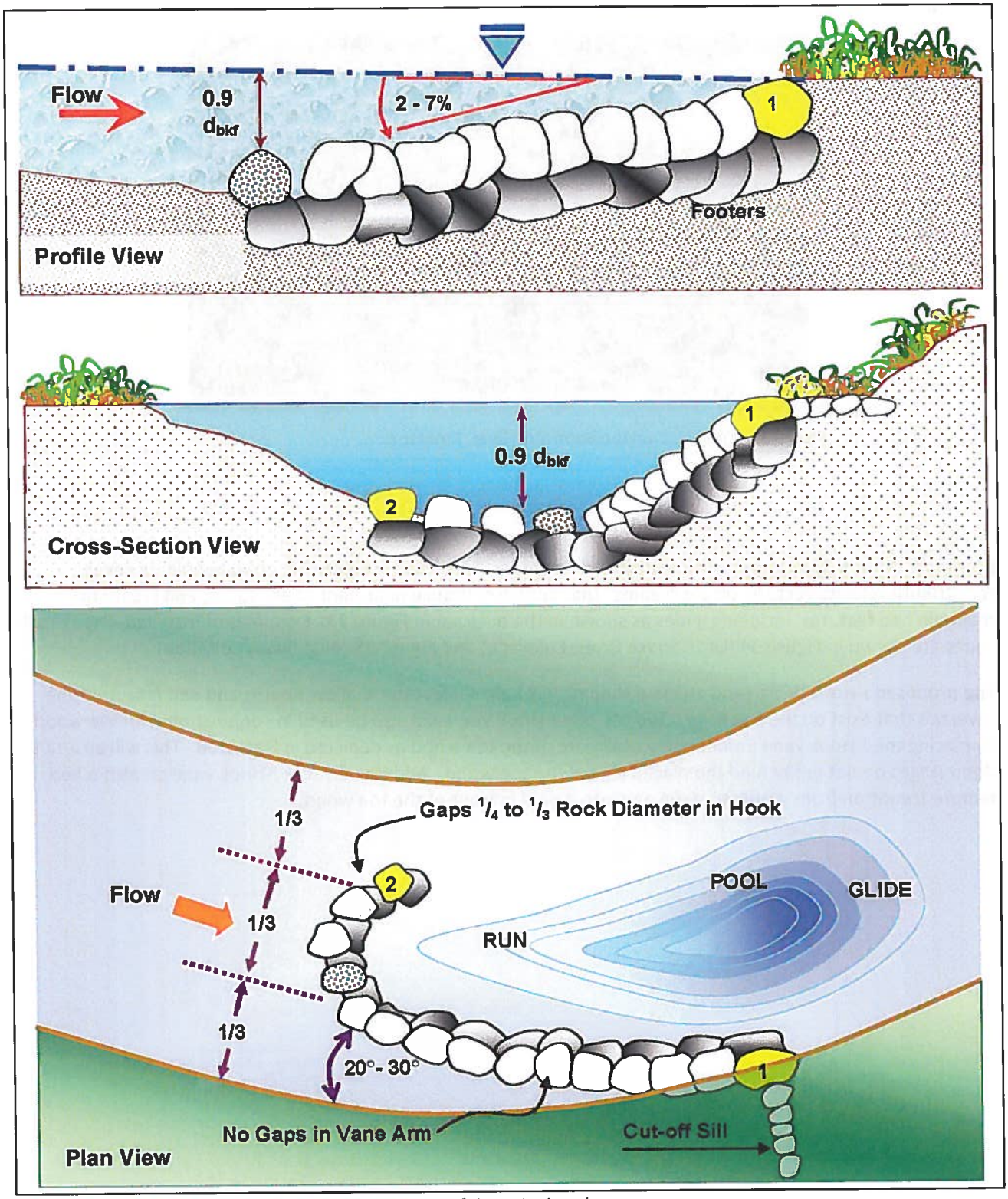


Figure 32. Longitudinal, cross-section, and plan views of the J-Hook rock vane.

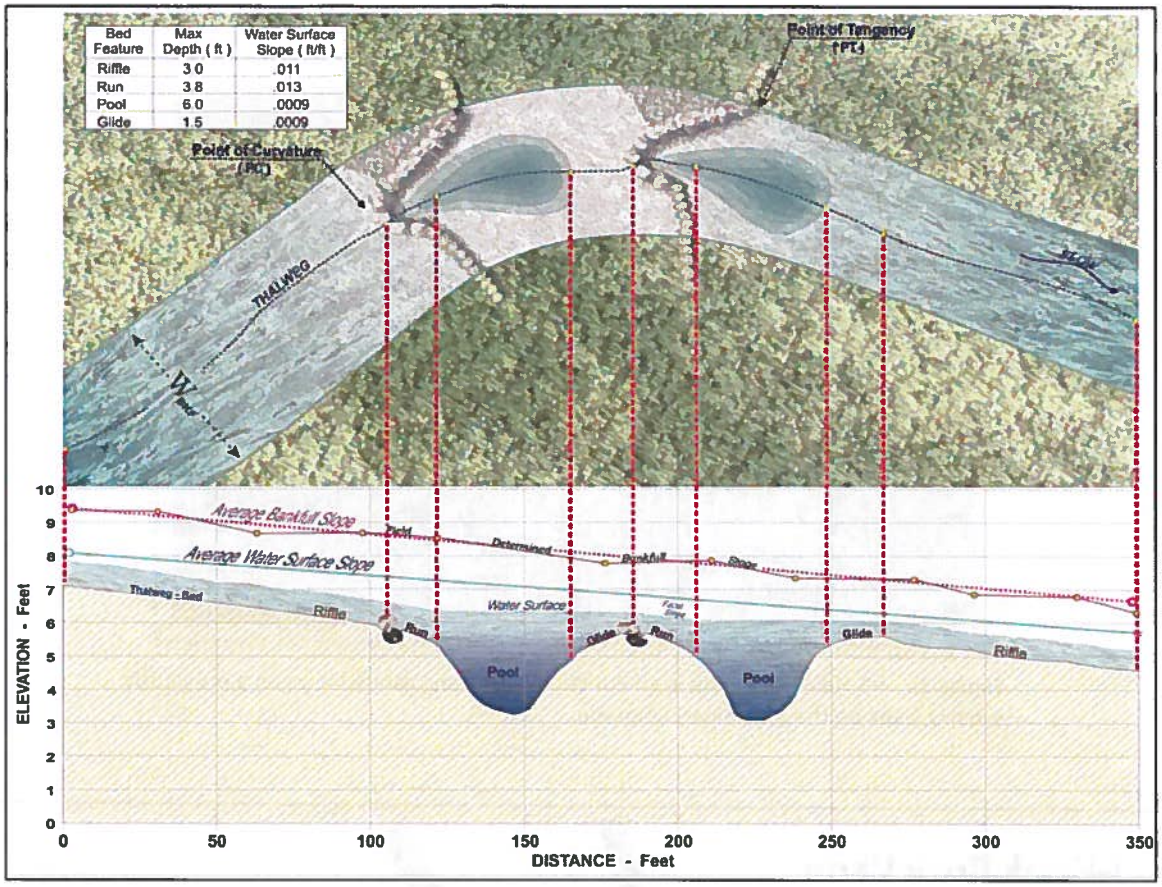


Figure 33. Diagram of a plan and profile view depicting flow depths and slopes for various bed features for a typical riffle/pool stream type. The values do not depict the Fall River at this location (see **Table 5** for the proposed values related to the Fall River).

Figure 34. A J-Hook rock vane at bankfull stage, Little Snake River, Colorado. Note the variation in velocity distribution.

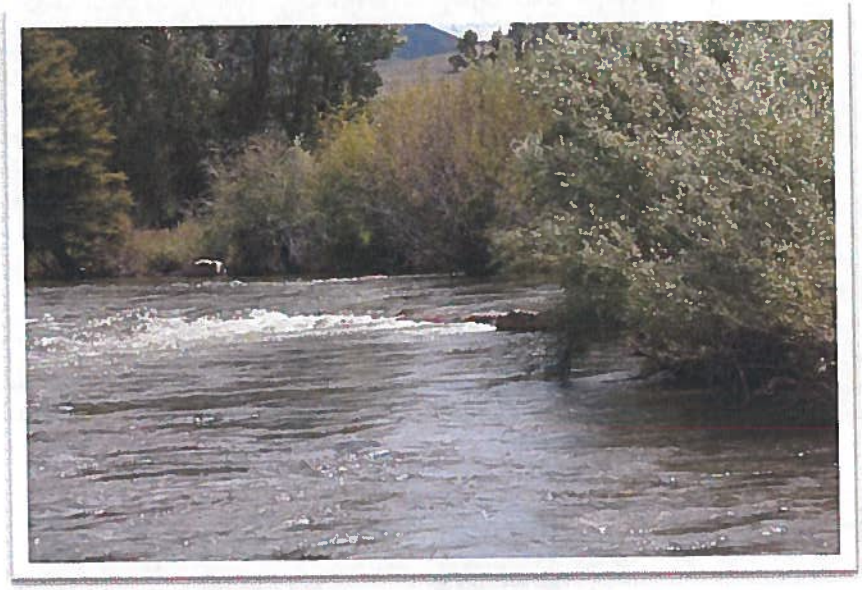


Figure 35. A J-Hook rock vane in conjunction with transplant willows on a previously eroding bank on the Blue River, Colorado.

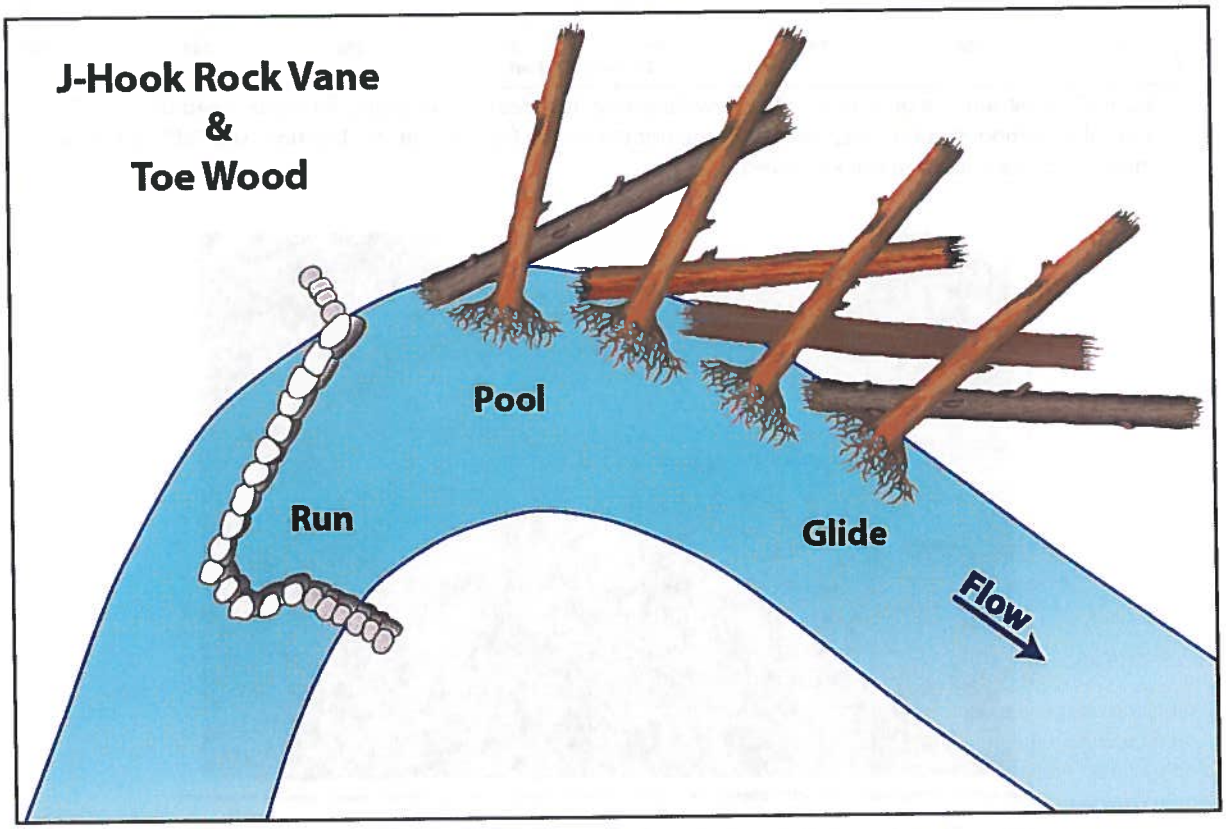


Figure 36. The use of a J-Hook rock vane in conjunction with toe wood.

Methods: Converging Rock Clusters. Converging rock clusters (**Figure 37** and **Figure 38**) will be used throughout the Fall River reach to create pocket water pool habitat for cover in riffle reaches.

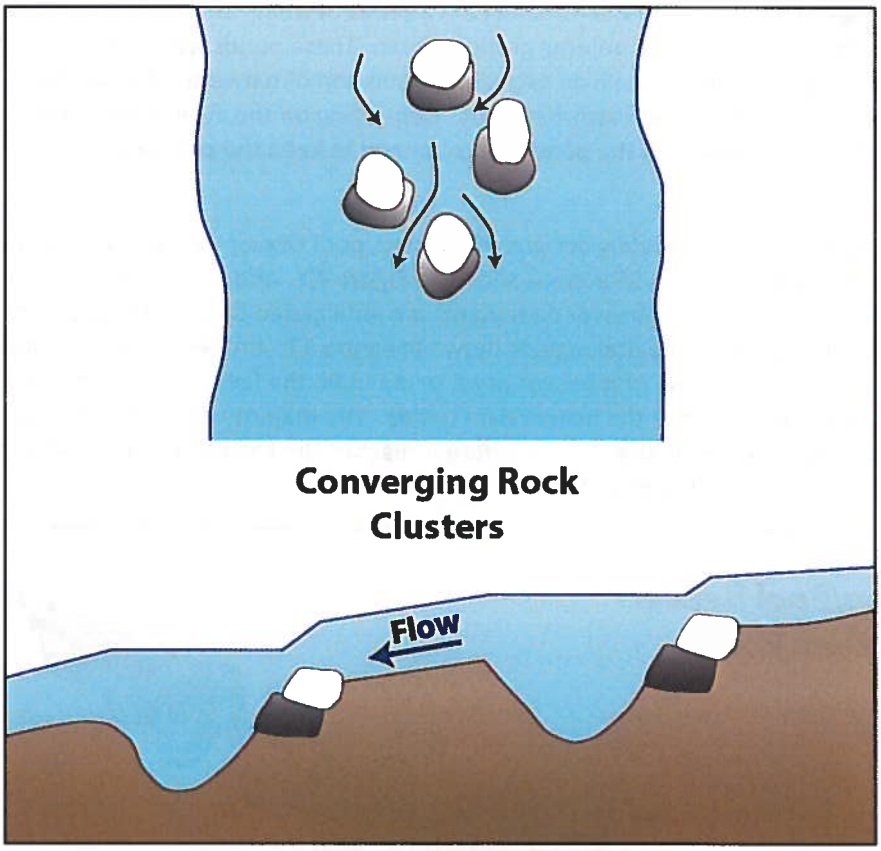


Figure 37. Plan and profile views of converging rock clusters, showing pocket water pool habitat for cover in riffle reaches.

Figure 38. Installed converging rock clusters at low flow on the Laramie River, Colorado. These structures create excellent holding cover for trout.

Objective 2. Create Fish Habitat Diversity

To improve the habitat diversity, the design proposes to develop an off-channel fishery in the dewatered small tributary shown in **Figure 12**. The proposal is to develop a series of small, interconnected, step/pool habitat features that mimic beaver dam ponds, utilizing ground water. These ponds will be stocked with Yellowstone cutthroat trout. The river does not contain an exclusive population of native trout as rainbow and cut-bows occupy the river as well as Yellowstone cutthroat trout. Depending on the availability of Yellowstone cutthroat trout, rainbow trout may be stocked in the ponds and screened to keep the population isolated from the Fall River.

Figure 39 depicts the profile and plan view designs of the step/pool beaver dam ponds. A constructed chain of beaver dam ponds of approximately 0.35 acres is shown in **Figure 40**. Although there is no surface water because it is intercepted, these linked beaver dam ponds are anticipated to be fed by groundwater and seepage from the canal immediately above the drainage as shown in **Figure 12**. Groundwater pumping may be required with the use of a shallow pump in the first beaver pond to maintain the fishery. A groundwater right may be used to mitigate evaporative losses of the beaver dam ponds. The majority of the water would most likely be returned back to groundwater below the project before it reaches the Fall River. **Figure 41** depicts a constructed beaver dam pond on the Blue River Ranch, Colorado.

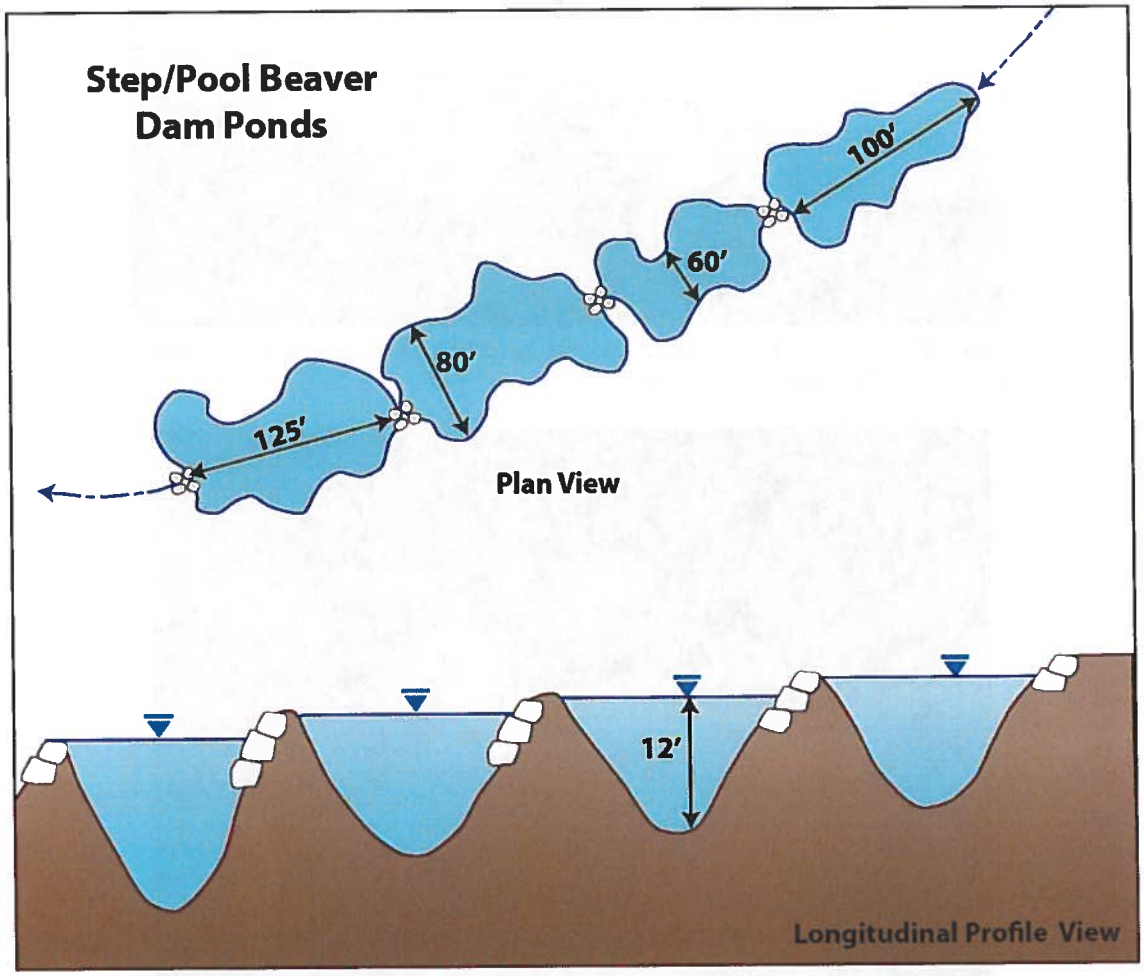


Figure 39. Plan and profile views of step/pool beaver dam ponds.

Figure 40. Overlay of plan view layout of the proposed linked beaver dam ponds.

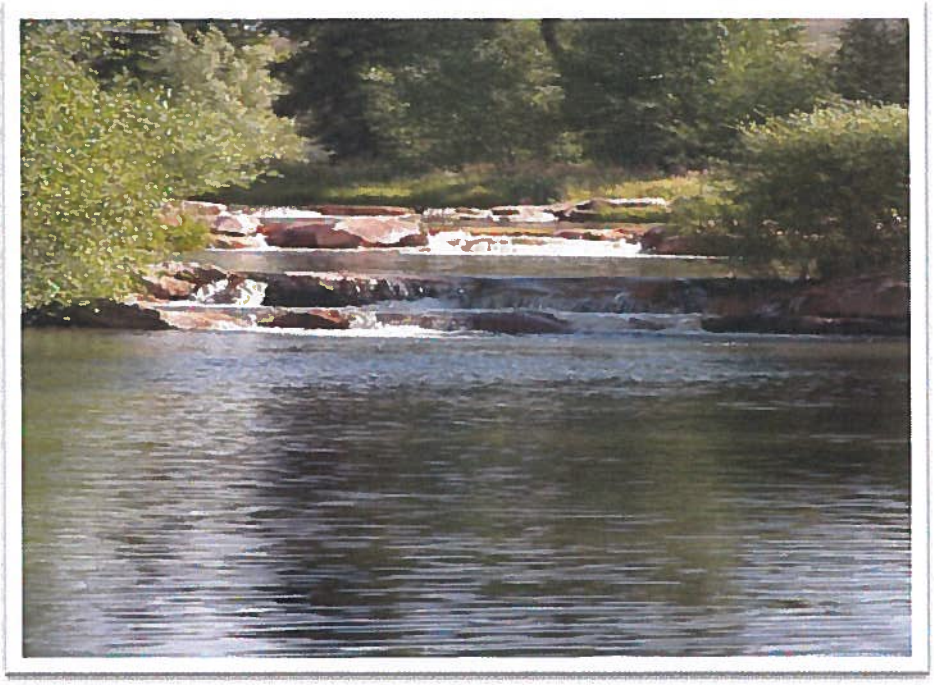


Figure 41. Step/pool beaver dam ponds, proposed for the dewatered tributary area (Blue Valley Ranch, Colorado).

Objective 3. Provide Rearing or Juvenile Habitat for Trout

Providing a staging area at the mouth of the perennial small tributary shown in **Figure 3** will provide rearing and juvenile habitat for trout. The staging area will be established by creating a deep pool and holding cover on Fall River at the confluence with the tributary, making it easier for juvenile fish to locate the existing habitat within the tributary. Toe wood will be utilized to leave a gap for the tributary as it enters the Fall River. The flat slope and deep water will help juvenile trout access this low gradient tributary.

Objective 4. Establish Potential Spawning Habitat

The establishment of glide bed features at the tailout of the pool feature by reshaping the channel and using the J-hook rock vane (**Figure 32**) creates the upwelling flows and hyporheic conditions for deposition of smaller gravels. The shallow depths, upwelling flows, and deposited smaller gravels often induce spawning activity. In lower velocity areas, 10–40 mm gravel was observed in Fall River; thus there may be sufficient recruitment from upstream gravels to provide potential, sustainable spawning habitat. Instream boulder cover will also be placed close to the glide bed features to encourage spawning activity.

Plan View Design

The proposed fish habitat enhancement is shown in the aerial photo overlay in **Figure 42a**. The delineation of the page breaks that indicate the locations of the enlarged-scale plan sheets is presented in **Figure 42b**. The locations of toe wood, J-Hook rock vanes, and converging rock clusters are included on the enlarged-scale sheets in the overall plan view (**Figure 42c–e**).

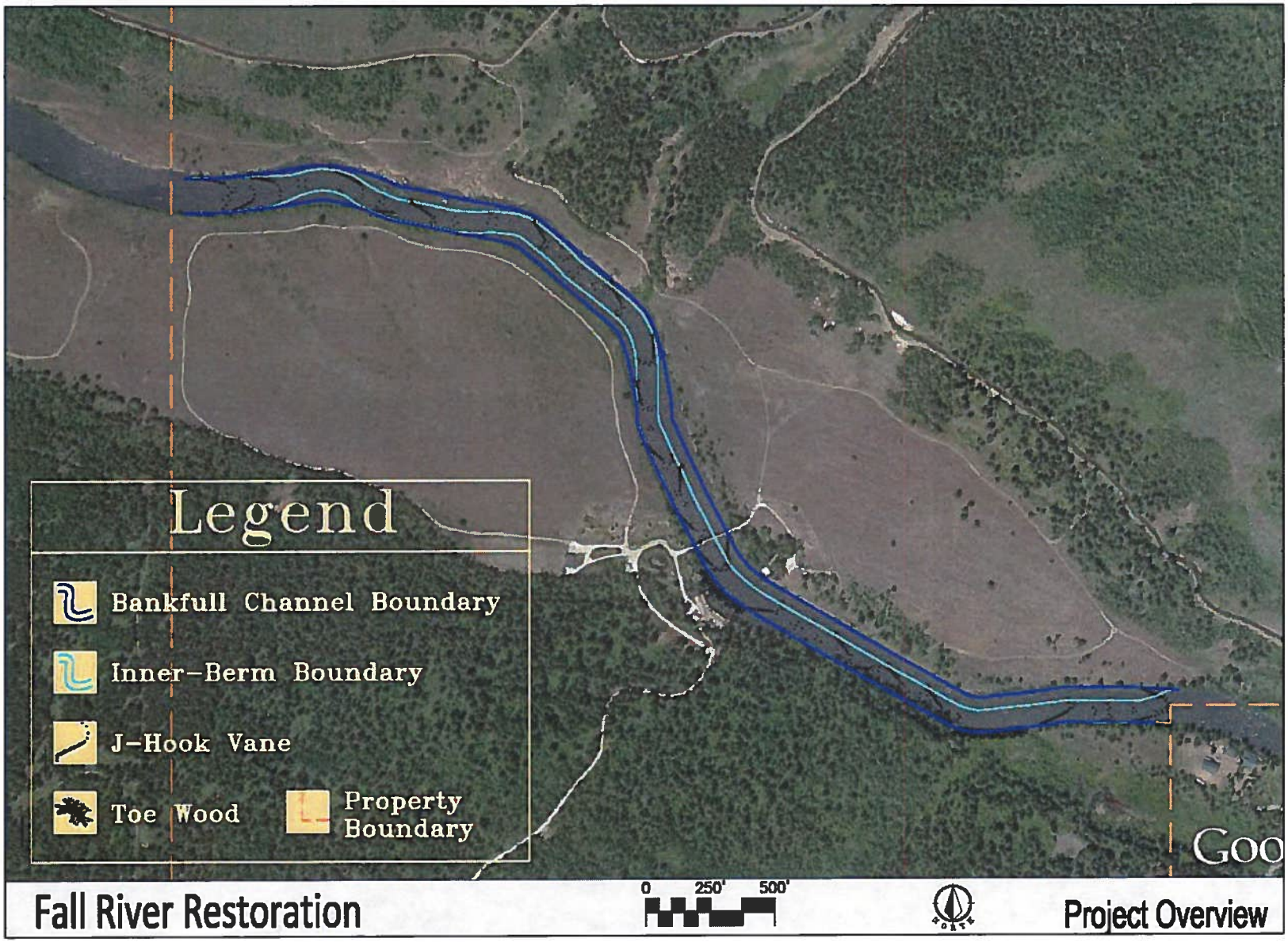


Figure 42a. General overview of the proposed fish habitat enhancement work for Fall River.

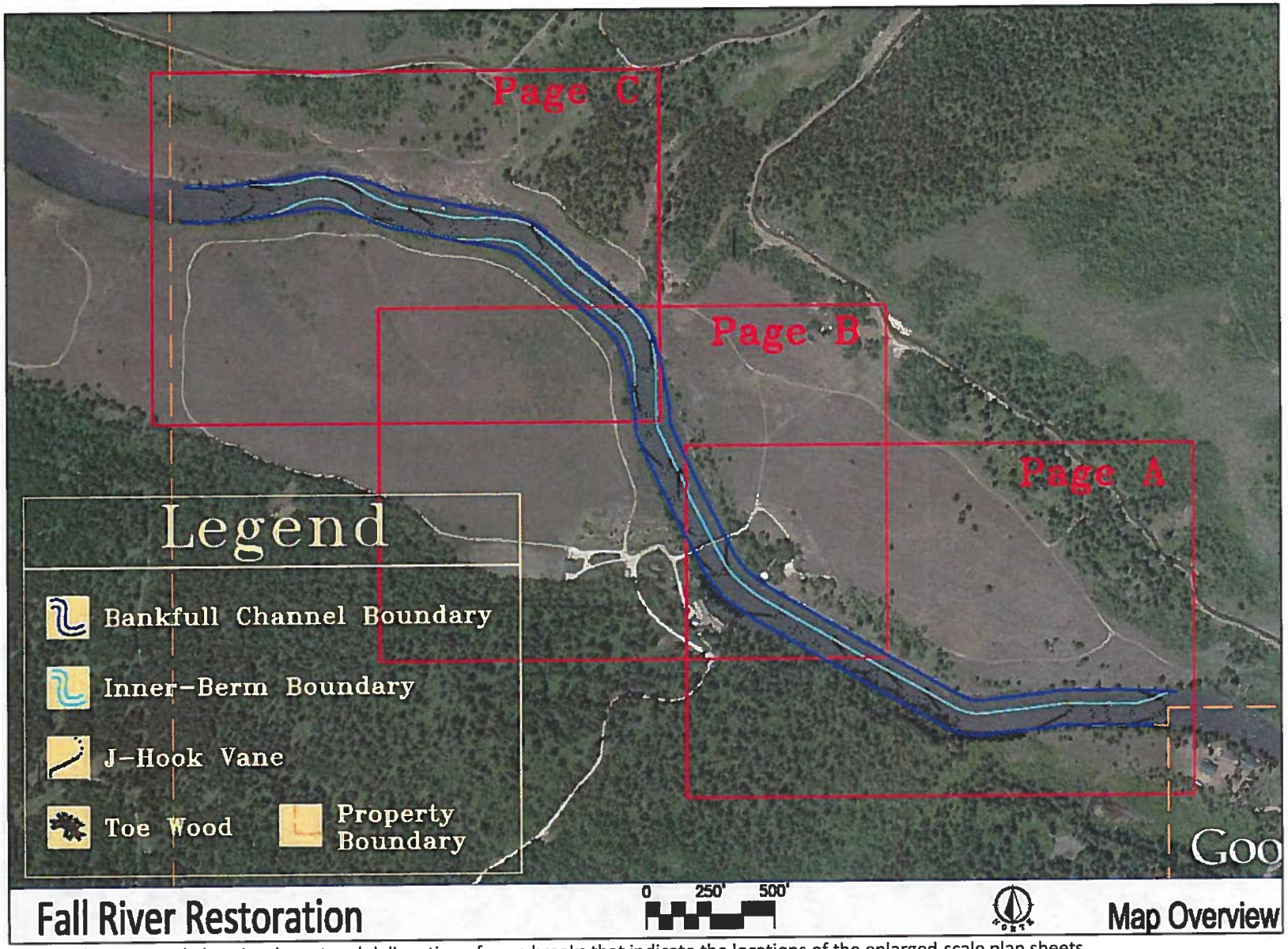


Figure 42b. Proposed plan view layout and delineation of page breaks that indicate the locations of the enlarged-scale plan sheets.

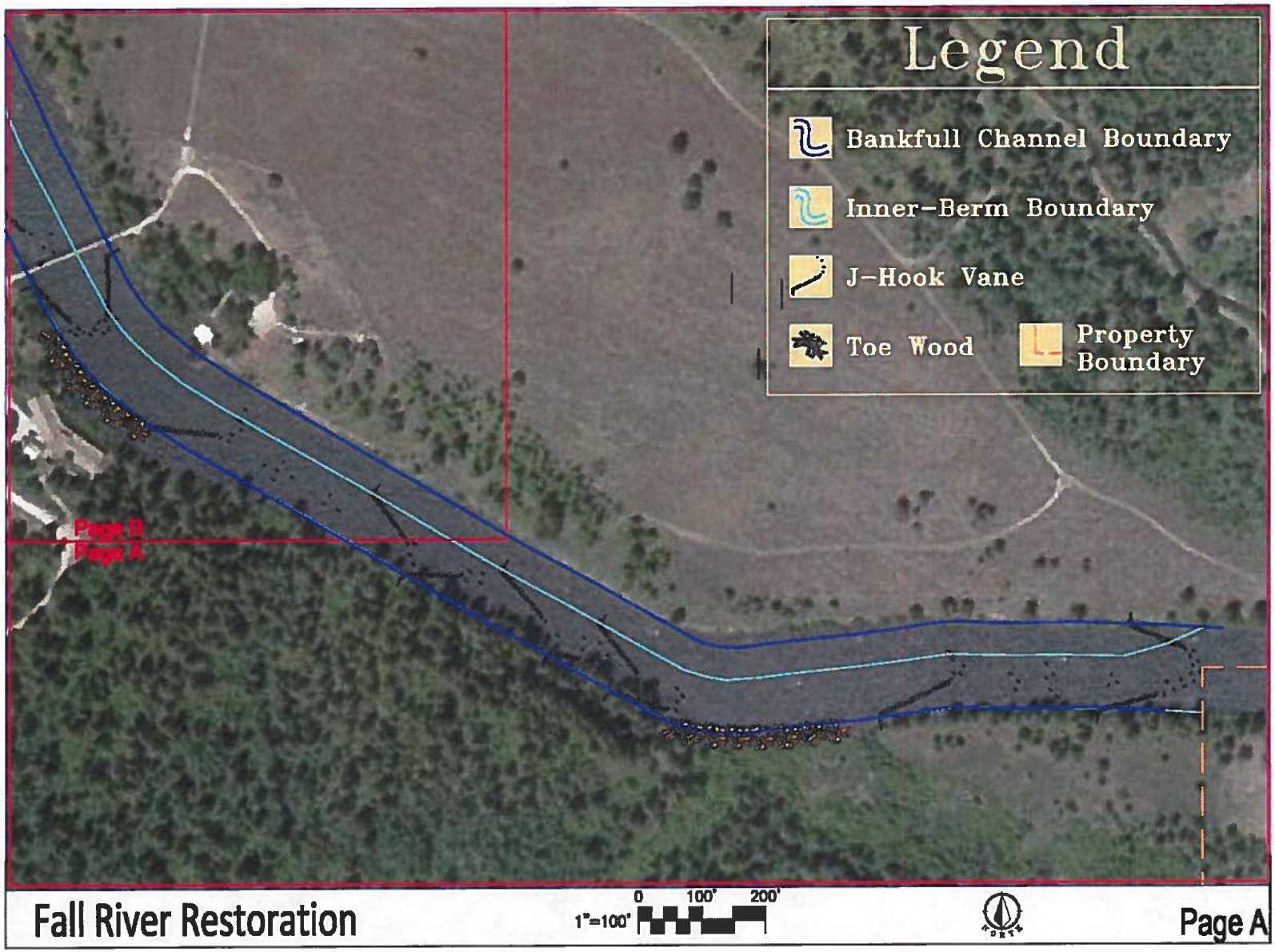


Figure 42c. Plan view detail of the proposed fish habitat enhancement for Fall River for the enlarged-scale, Page A plan sheet.

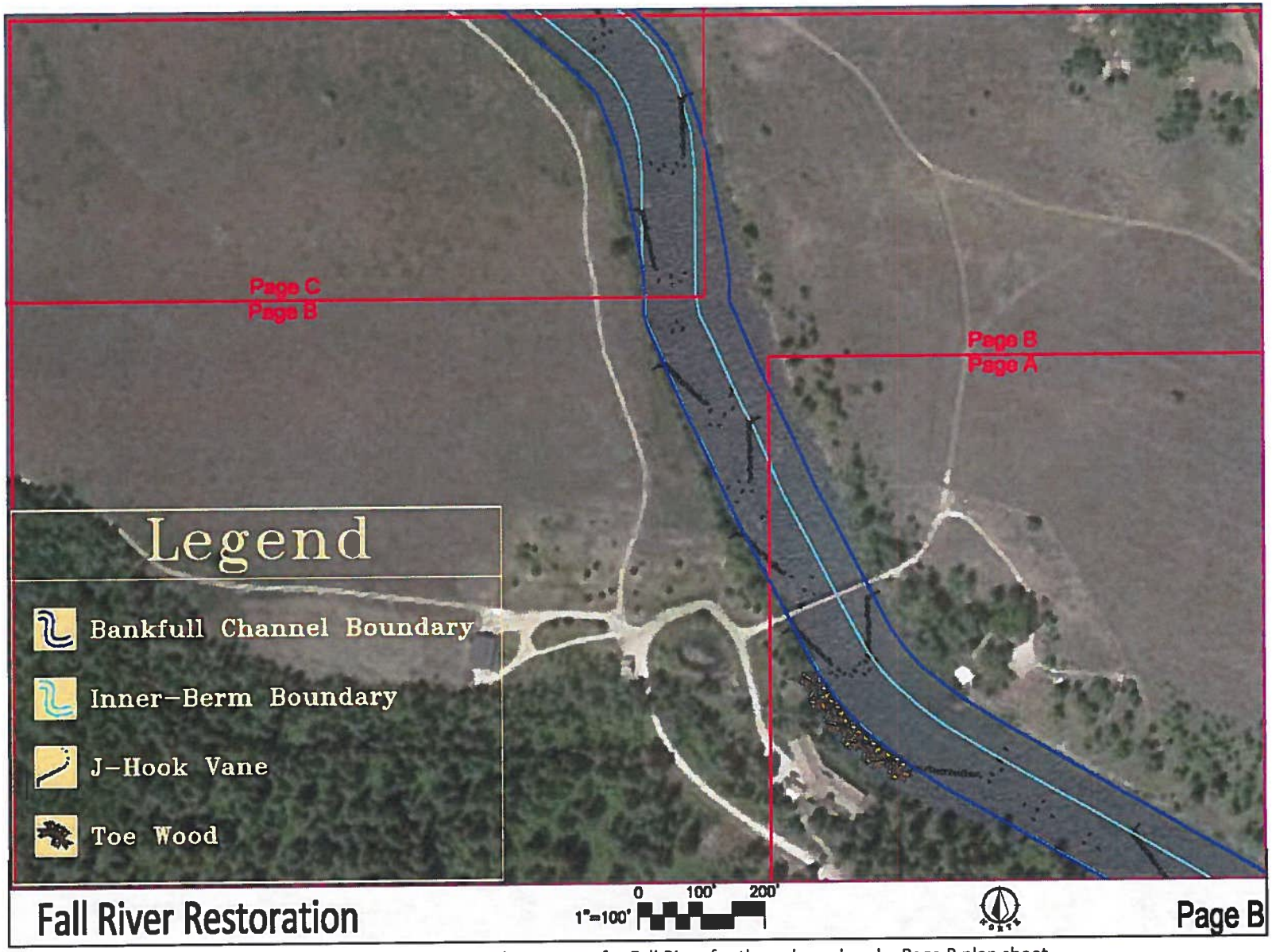


Figure 42d. Plan view detail of the proposed fish habitat enhancement for Fall River for the enlarged-scale, Page B plan sheet.

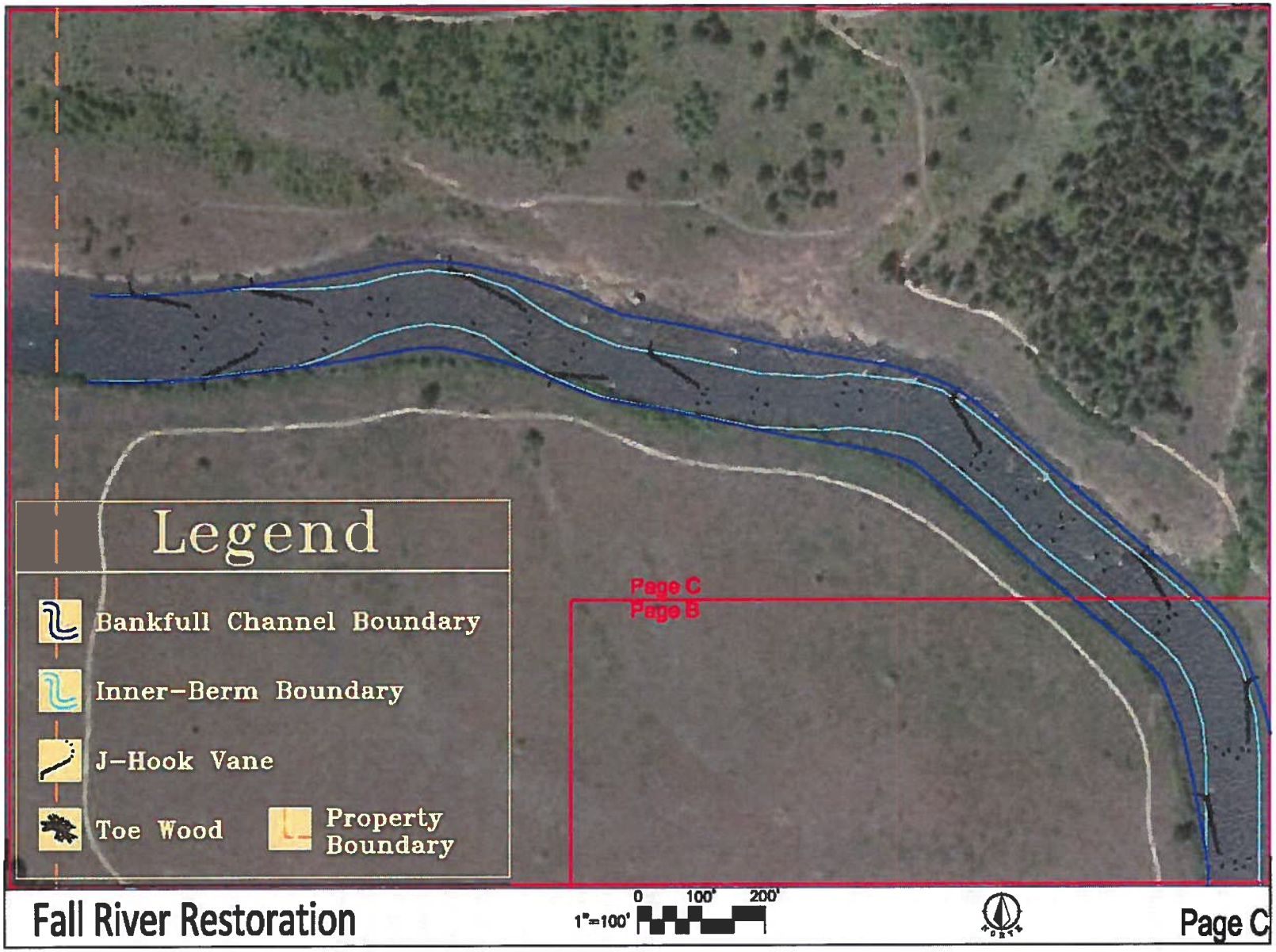


Figure 42e. Plan view detail of the proposed fish habitat enhancement for Fall River for the enlarged-scale, Page C plan sheet.

Volume Earthwork

The following list summarizes the volume earthwork and materials required for the proposed enhancement work related to channel reshaping, boulder structures, toe wood, and the step/pool beaver dam ponds:

1. ***Channel Reshaping***: The excavated material will match the amount of material required to narrow the channel (net balance of cut/fill)
   - ***Fill***: 30 ft narrowing *x* 2.0 ft *x* 4,000 ft channel length = *8,888 yds*^{3}
   - ***Cut***: *8,888 yds*^{3}

2. ***Boulder Structures***:
   - ***Converging Rock Clusters***: 320 rocks = *427 yds*^{3}
   - ***J-Hook Rock Vanes***: 25 structures with 75 rocks per structure = 1,875 rocks = *2,500 yds*^{3}

3. ***Toe Wood***:
   - 500 lineal ft, 4.0 ft high and 20.0 ft deep = *1,481 yds*^{3}

4. ***Step/Pool Beaver Dam Ponds***:
   - 110 ft *x* 10 ft *x* 70 ft = 2,850 yds^3 per pond = *11,407 yds*^{3}
     (material disposed on glacial terrace and re-seeded)

Reduced Sediment Supply

The sediment reduction from streambank erosion based on the proposed work is related to an annual bank erosion rate of *0.0018 tons/ft* (an order of magnitude lower than the existing condition), as determined from a *Very Low* BEHI rating and a *Very Low* NBS rating (**Figure 20**). This amounts to a sediment reduction of approximately *5.5 tons/yr*, or over an 88% reduction in streambank erosion rate, in this 4,000 ft reach.

Based on a specified sediment supply to assess the sediment transport capacity of the design, the existing high width/depth ratio channel is compared to the proposed low width/depth ratio channel; the results indicate that the lower width/depth ratio of the proposed restoration will reduce excess sediment deposition related to the existing high width/depth ratio. The post-restoration increase in sediment transport capacity and decrease in stream aggradation (**Table 4**) indicates that the Fall River will potentially maintain the proposed lower width/depth ratio channel.

Literature Cited

Rosgen, D.L. (1994). A Classification of Natural Rivers. *Catena, 22,* 169–199.

Rosgen, D.L. (1996). *Applied River Morphology*. Wildland Hydrology Books, Pagosa Springs, Colorado.

Rosgen, D.L. (2006). *The Watershed Assessment of River Stability and Sediment Supply (WARSSS)*. Wildland Hydrology Books, Fort Collins, Colorado.

Memo

To: Idaho Water Resource Board

From: Brian Patton, Mat Weaver, Cynthia Bridge Clark, Neal Farmer

Date: September 12, 2014

Re: ESPA Managed Recharge Status Report

Goal: Develop program to recharge 250,000 acre-feet on average annual bases to stabilize and recover the Eastern Snake Plain Aquifer (ESPA is currently losing about 200,000 AF/yr from aquifer storage.) This is necessary to 1) assist with resolving existing and future water use conflicts, and 2) maintain the minimum flows at the Murphy Gage under the Swan Falls Agreement.

Current Status: Since 2009 ESPA recharge has averaged about 74,000 acre-feet per year. This has been done on an opportunistic basis and not all accomplished recharge has been achieved at high ranking locations with respect to long-term aquifer storage.

Key to Achieving Goal: Maximize diversion of flows spilling past Milner during the non-irrigation season, including winter time diversions, which are available for recharge under the IWRB's current water right for recharge and which have not been utilized to a significant degree in the past. Even in the driest years there is always at least 500 cfs spilling past Milner when irrigation diversions have ceased. In addition, continue current opportunistic recharge efforts throughout the basin.

IWRB Funds Available for ESPA Recharge:

$1,215,432	Currently committed for delivery costs in Secondary Aquifer Fund
$4,000,000	Currently committed for infrastructure costs in Secondary Aquifer Fund ($300,000 approved by the IWRB for engineering)
$343,494	Currently committed for preliminary development costs in Revolving Development Account
$2,540,746	Unallocated in Secondary Aquifer Fund available for recharge (Cloud Seeding Committee has recommended allocating $492,000 from these funds)
$5,000,000/yr	Ongoing annual funds from Cigarette Tax to be deposited into Secondary Aquifer Fund for "statewide aquifer stabilization." 1st installment expected July 2015.

Milner-Area Efforts:

The Idaho Water Resource Board (IWRB) to date has only utilized a portion of the water to which it has access for recharge at Milner, so efforts are focused on ways to utilize more of this water supply.

1) Non-irrigation season delivery with existing canal systems

a) New incentivized payment structure in place to encourage canals to divert available recharge water as long as possible during non-irrigation season:

Number of Days Recharge Water Delivered **(between when recharge permit turns on in fall at Milner and turns off following spring)**	**Payment rate per AF delivered**
1-to-25 days	$3/AF
26-to-50 days	$5/AF
51-to-80 days	$7/AF
81-to-120 days	$10/AF
More than 120 days	$14/AF

- A number of winter delivery contracts have been executed or are expected to be executed shortly with canals systems that divert from Milner:

Canal System	**Contract Status**	**Expected Recharge Rate**	**Aquifer Retention**
Twin Falls Canal Company (TFCC): Milner-Murtaugh reach	In place with 5-year term	50 cfs	~50% after 5 years
American Falls Reservoir District No. 2 (AFRD2): Milner-Gooding Canal	In progress -expect to be signed shortly with 5-year term	250 cfs in canal and in MP31	~40% after 5 years
Southwest Irrigation District (SWID): West Cassia Pipeline	In progress -expect to be signed shortly with 5-year term	25 cfs through pipeline to injection wells	~55% after 5 years

- Discussions of a similar contract have been held with the North Side Canal Company (NSCC) Board and manager; however we don't anticipate having a contract in place with NSCC for recharge delivery this coming winter.
- It should be noted that this coming winter will be a trial run for winter recharge deliveries, and only this operational trial will tell us how much each of these canal systems will really be able to recharge during the winter months.

b) Infrastructure Modifications Associated with Winter Delivery from Milner

- The IWRB has offered to help pay for infrastructure modifications needed for winter recharge deliveries. A summary of activities follows:

American Falls Reservoir District No. 2	Cost	Status
Winter-capable road to MP31	$177,000	Resolution attached for IWRB authorization
Engineering study for replacement of deteriorated concrete flume at Shoshone	Not yet determined, but should be a cost-share	Can be executed under prior IWRB authorization for engineering work
Replacement of concrete flume at Shoshone -- if made winter-capable this would open up more canal and Shoshone Recharge Site to winter deliveries and increase capacity by ~250 cfs	Not yet determined but total cost could be about $4M for 2 miles of flume	To be determined
Twin Falls Canal Company		
Engineering study for keeping ice of gates at Murtaugh Lake	$20,000	In progress – executed under prior IWRB authorization for engineering work
De-icing bubblers at Murtaugh gates	To be determined	To be determined
Southwest Irrigation District		
Engineering study for making West Cassia Pipeline winter-capable	$50,000	Can be executed under prior IWRB authorization for engineering work
Making West Cassia Pipeline winter-capable	To be determined	To be determined

- If the NSCC decides to participate in winter deliveries, there could be substantial infrastructure modifications needed.
- Staff is inserting a clause in any agreement where IWRB provides funds infrastructure modifications that if the canal system fails to deliver a certain amount of recharge over the 5-year contract term, that IWRB's infrastructure investment becomes repayable to IWRB at loan terms.

2) Direct Pump-to-Injection Systems

In addition, we are investigating the possibility of direct pump-to-injection systems that would divert surface water from the Milner Pool. These projects, if built, would be independent of irrigation delivery systems. Water would be diverted by dedicated, IWRB-owned, pumping plants, similar to the proposed Walcott Project. All identified locations around the Milner pool would retain approximately 50% of recharged water after 5 years, assuming the water is injected into the regional aquifer. A number of possible locations have been identified, and a brief update on the status of each follows:

a. A&B Pumping Plant Location – The permit from the U.S. BOR has been approved and signed to perform a test injection at an existing large diameter deep well. The state injection permit is pending but approval may occur in September.

b. NSCC Pumping Plant Location – The NSCC's Board has approved drilling a test well at their Milner pump station. An application to drill a test well has also been submitted for this site to the U.S. BOR on June 9th and they are currently processing the application.
c. Southwest Irrigation District Pumping Plant Location – An injection well application has been submitted to IDWR and is currently being processed for approval. Arrangements have been made to seek assistance from A&B Irrigation District to help with drilling this well for SWID.
d. Nightengale Private Property Site – A signed 'permission to drill' is completed and LSRARD has located a driller that is available to start drilling by the end of September.
e. U.S. BOR site upstream from A&B Pump Plant – An application to drill a test well has been submitted to the BOR on June 16th and they are currently processing that application.
f. A third site on U.S. BOR land has been scoped and evaluated for another possible test well located on the north side of the reservoir and downstream of A&B's pumping plant.
g. A&B is considering drilling a test well at their Milner pumping plant.

3) The Walcott Project is not located at the Milner Pool, but is located just upstream at Lake Walcott. The concept was to pump natural flow under the IWRB's recharge water right from Lake Walcott, through a ½ mile long pipeline across the wildlife refuge, to a series of injection wells located on state lands. Test drilling by the A&B Irrigation District found locations for injection wells with reasonable intake rates, but on the far northern edge of the state land section, which would significantly increase the required pipeline length. This placed the project cost estimate at about $6M, which is probably too costly to pursue at the present time.

Upper Valley Recharge:

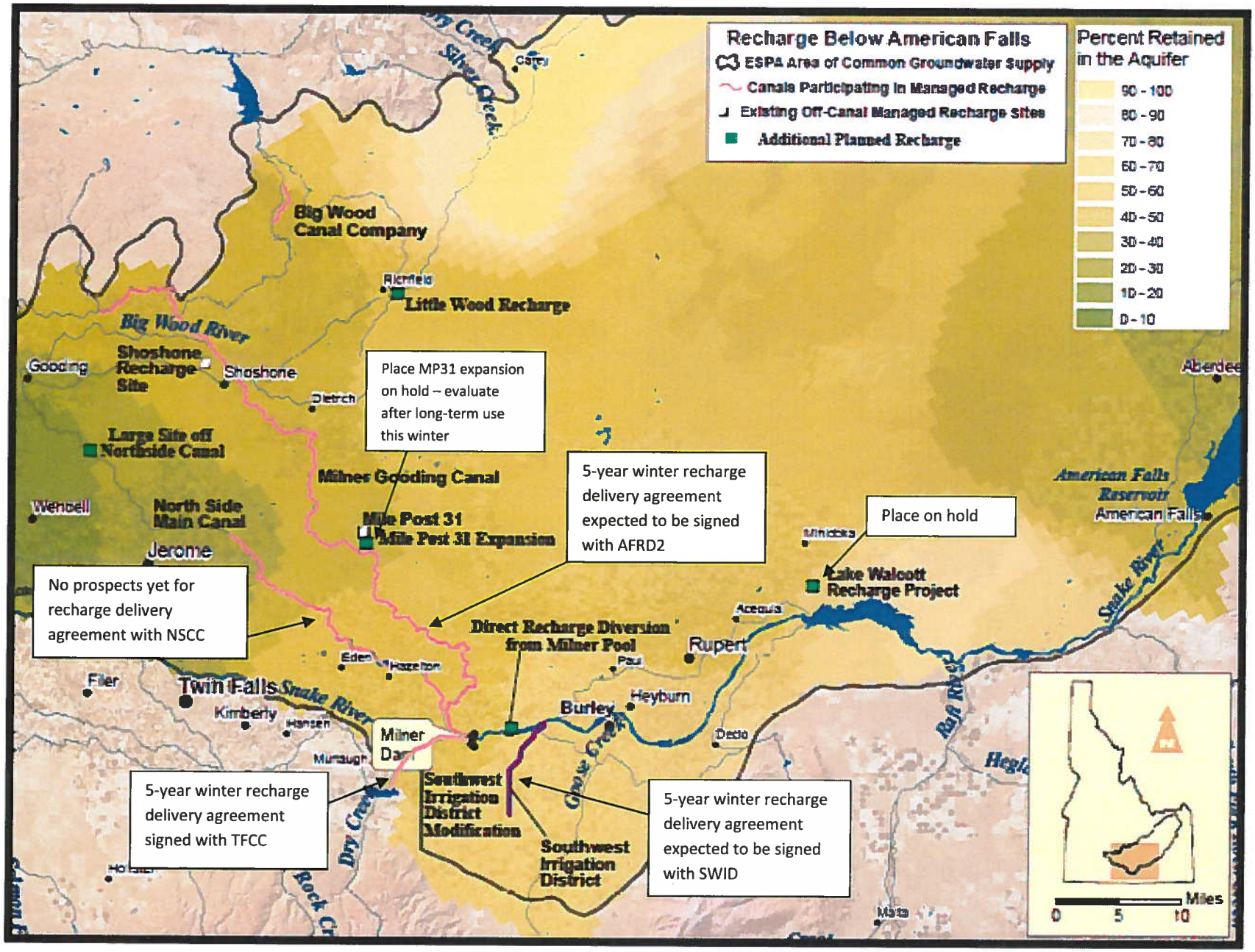
We currently anticipate the Upper Valley (upstream of American Falls Reservoir) will have an important place in ESPA recharge efforts, but on an intermittent basis, as our analysis indicates water is available for recharge in only about 50% of years. We have also found that most locations in the Upper Valley have shorter aquifer retention characteristics than areas near the Milner Pool. Regardless, the recharge capacity of the Upper Valley will be needed during high flow years. Upper Valley considerations for recharge include:

1) Reservoir Re-Fill: The re-fill issue currently complicates recharge above American Falls Reservoir, because recharge diverting in priority could potentially intercept water that historically has been used to re-fill storage space evacuated for flood control and other reservoir operations. Negotiations are on-going to resolve this issue and define "re-fill water rights,". These refill WRs include elements and conditions that, if decreed, will clearly establish when natural flow water is available for recharge above the Minidoka Dam. The IWRB's position has been that it will support maximum reservoir fill by ensuring that recharge does not occur at the expense of reservoir fill.

2) Payment Structure for Upper Valley Canals: The incentivized payment structure was approved only for those canals that divert from the Milner Pool, as there is water supply available for recharge at Milner during the non-irrigation season that has not been utilized. The water availability in the Upper Valley has different characteristics. It is intermittent and available in about 50% of the years. When it occurs, its usually in large volumes for short durations. Therefore, the payment structure designed to encourage winter deliveries at Milner may not work for the Upper Valley. The IWRB needs to give some thought to what an Upper Valley payment structure might look like.

3) Proposal from the Great Feeder system for recharge improvements: Representatives of the Great Feeder system have been working with IWRB on a proposal for recharge conveyance and capacity improvements in their system. Representatives from the Great Feeder will be presenting this proposal at the IWRB's November meeting.

4) Proposal by the Recharge Development Corporation for public/private recharge partnership: Representatives from the Recharge Development Corporation, which is allied with the firm, Idaho Water Engineering, have also requested time to present a proposal for a public/private partnership for recharge development. This presentation will be provided at the September 22nd work session.


Recharge Below American Falls
ESPA Area of Common Groundwater Supply
Canals Participating in Managed Recharge
Existing Off-Canal Managed Recharge Sites
Additional Planned Recharge
Percent Retained in the Aquifer
90 - 100
80 - 90
70 - 80
60 - 70
50 - 60
40 - 50
30 - 40
20 - 30
10 - 20
0 - 10
Big Wood Canal Company
Little Wood Recharge
Big Wood River
Shoshone Recharge Site
Shoshone
Gooding
Large Site off Northside Canal
Milner Gooding Canal
North Side Main Canal
Wendell
Jerome
Mile Post 31
Mile Post 31 Expansion
Place MP31 expansion on hold – evaluate after long-term use this winter
5-year winter recharge delivery agreement expected to be signed with AFRD2
Place on hold
No prospects yet for recharge delivery agreement with NSCC
Direct Recharge Diversion from Milner Pool
Lake Walcott Recharge Project
American Falls Reservoir
American Falls
Snake River
Rupert
Burley
Heyburn
Twin Falls
Kimberly
Filer
Milner Dam
Southwest Irrigation District Modification
Southwest Irrigation District
5-year winter recharge delivery agreement signed with TFCC
5-year winter recharge delivery agreement expected to be signed with SWID
Dry Creek
Rock Creek
Raft River
Miles
0
5
10

BEFORE THE IDAHO WATER RESOURCE BOARD

IN THE MATTER OF AQUIFER STABILIZATION AND EASTERN SNAKE PLAIN AQUIFER RECHARGE	))))	A RESOLUTION TO APPROVE FUNDS FOR RECHARGE INFRASTRUCTURE IMPROVEMENTS

WHEREAS, House Bill 547 passed and approved by the 2014 legislature allocates $5 million annually from the Cigarette Tax to the Idaho Water Resource Board (IWRB) for statewide aquifer stabilization, with the funds to be deposited into the Secondary Aquifer Planning, Management, and Implementation Fund; and

WHEREAS, House Bill 479 passed and approved by the 2014 legislature allocated $4 million in one-time funds for managed aquifer recharge infrastructure on the Eastern Snake Plain; and

WHEREAS, managed aquifer recharge was identified as a key strategy in the Eastern Snake Plain Aquifer Comprehensive Aquifer Management Plan (ESPA CAMP) which has stabilization and recovery of the ESPA as a goal; and

WHEREAS, on August 20, 2014, the Idaho Water Resource Board (IWRB) adopted an incentivized recharge water delivery payment plan for those canals that divert from the Milner Pool in order to encourage them to deliver water that is available under the IWRB's recharge water right at Milner during the non-irrigation season; and

WHEREAS, the American Falls Reservoir District No. 2 (AFRD2), which owns and operates the Milner-Gooding Canal, is expected to enter into a 5-year recharge water delivery agreement with the IWRB under the incentivized payment plan; and

WHEREAS, AFRD2 plans to deliver recharge water during the non-irrigation season through seepage from the Milner-Gooding Canal and at the Milepost 31 Site; and

WHEREAS, the canal access road is currently not suitable for wet weather or winter-time travel; and

WHEREAS, in order to accomplish non-irrigation season recharge in the Milner-Gooding Canal down to the Milepost 31 Site, improvements to the canal access road need to be made so AFRD2 personnel can access the canal along the Milner Dam-to-Milepost 31 reach; and

WHEREAS, AFRD2 has submitted a proposal from a contractor to improve the road at a cost of $177,000.

NOW THEREFORE BE IT RESOLVED that the IWRB authorizes the expenditure of up to $177,000, not to exceed actual costs, from the legislative appropriation for ESPA recharge infrastructure in Secondary Aquifer Planning, Management, and Implementation Fund, for

improving the canal bank access road which is needed to manage recharge deliveries during the non-irrigation season.

BE IT FURTHER RESOLVED that AFRD2 shall execute the 5-year recharge water delivery agreement with the IWRB under the incentivized payment plan.

BE IT FURTHER RESOLVED that if AFRD2 does not accomplish the delivery of at least 60,000 acre-feet of recharge water over the 5-year delivery agreement, the IWRB's expenditure authorized by this resolution shall become repayable to the IWRB, however, in this event, AFRD2 may elect repay these funds over a 10-year period at 3.5% interest.

DATED this 23rd day of September, 2014.

_____
ROGER CHASE, Chairman
Idaho Water Resource Board

ATTEST _____
BOB GRAHAM, Secretary

Dan Lafferty Construction, Inc.
P.O. Box 16
Wendell, ID 83355
(208) 536-6547

PROPOSAL

Date
9/10/2014

To:

Big Wood Canal
409 N. Apple St.
Shoshone, ID 83352

Description	Total
Crushing along Canal for Approx. 31 Miles	
Crushing 3" Base Material- Crusher and Excavator to feed- Approx. 30,000 CY @ $5.50/CY	165,000.00
Mobilize to the project including Moves along the Project 1 LS @ $12,000.00	12,000.00
Exclusions: Excavation, Survey, Utility Locates, Traffic Control, Site Preparation, Site Access, Dust Control, SWPPP, Any other Permits other than listed.	
Stockpiling of material to be done by Big Wood Canal	
Total	**$177,000.00**

Force Majeure:
The parties hereto shall not be liable to the other for any loss, damage, detention, or delay caused directly or indirectly by labor or civic disturbance, accidents, acts of public enemy, embargoes or other governmental acts (including voluntary compliance with governmental request), delays in or failure to manufacture, transport, deliver or obtain supplies, labor, fuel, power or raw materials, acts of God or to any other cause (weather or not similar to the forgoing) beyond the control of the obligatory party hereto and which occurrences, causes, or circumstances directly or indirectly effect the obligation of the parties under this agreement.

This proposal will remain good for your acceptance for 30 days, at which time it will become subject to price changes.

Recharge Development Corporation Proposal
For the
Idaho Water Resource Board

September 15, 2014

Background and Purpose:

The Recharge Development Corporation (RDC) is an Idaho corporation created for the purpose of developing infrastructure, processes and strategies that will facilitate water retention projects to benefit residents of the State of Idaho. RDC principals have expertise and many years of experience related to water resource management, administration, agriculture and business. RDC has been working with water users and evaluating recharge opportunities above American Falls Reservoir since 2011. RDC's experience, relationships developed, and water right appropriations in process provide a significant contribution to this proposed recharge effort. RDC strongly supports the Idaho Water Resource Board (IWRB) managed recharge efforts and desires to partner with and assist the IWRB in stabilizing and enhancing aquifers statewide. This proposal is focused on managed recharge on the Eastern Snake River Plain Aquifer (ESPA) above American Falls Reservoir and is anticipated to be completed within 24 months after approval. The proposed tasks are summarized below:

- **Category 1. Potential Recharge Site Reconnaissance and Inventory:** In recognition of the data documenting reductions in incidental irrigation-related recharge to the ESPA of nearly 500,000 acre-feet annually over the past six decades, RDC will conduct reconnaissance level investigative work on both new and existing recharge sites above American Falls. This work will include the evaluation of site suitability, accessibility and availability. In addition, a review and evaluation of past studies and proposals and other relevant data and literature will be completed. Under this Category 1 analysis RDC will seek to both evaluate and rank potential and existing recharge sites. The evaluation and ranking process will include the seeking of comments and information from various interest groups especially those that may be concerned about environmental, fish and wildlife, access and easements, water quality and water rights impacts.

- **Category 2. Recharge Simulation and Modeling:** Conduct modeling runs with the current ESPAM to determine the short-term and long-term effects of developing recharge projects for identified and proposed sites. Modeling will include the tracking of project recharge over time to identify both annual and long-term effects.

- **Category 3. Pilot Recharge Effort:** Evaluate systemic limitations that could impact the feasibility of constructing dedicated recharge facilities. It is anticipated that this evaluation will require delivering available recharge water to known recharge sites. Part of the proposed evaluation process will require the use of

private recharge permits. This work anticipates significant assistance from IDWR, Water District 1 and participating canal companies and irrigation districts.

- **Category 4. Preliminary Engineering for High Value Sites:** Past studies and subsequent recharge efforts conducted by Water District 1 (WD 1) have revealed that there are high value recharge sites in the Egin area. Expansion of the existing delivery systems that have been used to deliver water to these sites is recognized as an important first step in establishing dedicated recharge facilities above American Falls. The RDC is requesting the funding to accomplish the preliminary engineering necessary to increase the capacity of the delivery canal to the Egin Lakes recharge site. As funds allow, RDC will also do preliminary engineering for sites on the New Sweden and Aberdeen-Springfield systems.

- **Category 5. Final Report:** Prepare a final report documenting the results of RDC's work and including recommendations

Proposal Details:

Category 1. Potential Recharge Site Reconnaissance and Inventory:

RDC proposes to evaluate recharge strategies that will be acceptable to all participants for maximizing recharge by leveraging both public and private funding. RDC proposes reviewing and evaluating available information and data, and identifying potential recharge sites and projects for the purpose of providing the IWRB with a set of potential projects that should be considered as the Board seeks to improve the management of Snake River water supplies.

There have been numerous recharge studies proposed over the past 45 years, however, land management policies have changed significantly in that time. Sites proposed in the past may be much more difficult to acquire now than they would have been even 25 years ago. In addition there are new sites that have been identified and even recently used for recharge. RDC has identified several of these potential sites over the last few years. These additional recharge site opportunities also need to be evaluated in more detail and ranked by criteria RDC will develop during this process. In some cases access to sites may be accessible through the implementation of land exchanges.

We anticipate that the Water District 1 distribution and accounting processes will be a vital part of the Category 1 work effort. If water supply conditions permit, RDC intends to do test-of-concept recharge runs with the recharge water rights partnering water distribution entities have applied for. As a part of a reconnaissance level study RDC will seek needed assistance from WD 1 to initiate diversions of pilot recharge studies. With these data, or if necessary, simulated recharge data, the effects of site specific recharge will be modeled and tracked using proprietary software developed by RDC principals. The proposed budget for Category 1 efforts is $174,000.

Category 2. Recharge Simulation and Modeling

The Eastern Snake River Plain Aquifer Model (ESPAM) has acquired legal standing via Idaho state court decisions. ESPAM reflects the current "legal reality" associated with conjunctive administration and conjunctive management. The RDC proposes to develop and use both real and simulated data in estimating the hydrologic effects of recharge from potential existing managed recharge sites. The modeling will also be used to evaluate conclusions that were reached using older analog modeling techniques employed during studies completed in the 1960s. While modeling was included as part of the budget for Category 1 work, broader analyses are anticipated with this task and $42,000 has been included in the Category 2 budget.

Category 3. Pilot Recharge Effort

This task contemplates the implementation of a pilot recharge effort above American Falls utilizing existing and pending recharge water rights. The work involved will include physical modifications and improvements of structures including canals and recharge sites. Any water delivered to these pilot recharge sites will have to be diverted from the river and measured. Automation of the data collection processes will be necessary and will involve the acquisition of some additional equipment. Because the Watermaster has the responsibility for authorizing the diversion of water we anticipate part of the work in Category 3 will be both assessing processes and working with Water District 1 personnel in gaining the needed understanding of how dedicated recharge projects can be incorporated in the Snake River water distribution and accounting processes. RDC anticipates that diversions for recharge must fit within the priority parameters established by Water District 1. The budget to accomplish the envisioned tasks in Category 3 is proposed at $38,000 to cover the non-water distribution and acquisition costs involved.

Category 4. Preliminary Engineering for High Value Sites:

Recharge projects have a long history within the Fremont Madison Irrigation District, the New Sweden Irrigation District and the Aberdeen Springfield Canal Company. We anticipate that engineering evaluations or actual small-scale construction work will be necessary within the service areas of all three of these entities. RDC is seeking funding to do needed engineering and limited site improvement within the service areas of these three entities. It is clear that the development of any sites will require a significant investment of time and money. The effort will focus first on the Egin Lakes site and as funds allow we will also do work on the New Sweden and Aberdeen-Springfield systems. RDC is requesting $100,000 specifically for engineering, and to the extent possible enhancement of existing recharge sites.

Category 5. Final Report:

Evaluation and summarization of data collected and assembled will likely be a significant part of the report preparation. The RDC estimates that the Category 5 work will require a budget of $24,500. We anticipate that RDC can begin work immediately upon receiving funding and the work can be completed within 24 months. It is the intent of RDC to submit a report on RDC work accomplished pursuant to the request no later than April 2017.

Proposal Summary

The RDC appreciates any opportunity to assist the IWRB with development and implementation of comprehensive managed aquifer recharge for the ESPA and other aquifers in Idaho. This proposal is aimed at generating new data, insights and important information that the Board can use in setting a viable long-term managed recharge plan and associated policies for the ESPA. RDC is seeking funding from the IWRB to accomplish the tasks that have been proposed. The funding request is summarized below:

Category 1 :	$174,000
Category 2 :	$42,000
Category 3 :	$38,000
Category 4 :	$100,000
Category 5 :	$24,500
TOTAL:	$378,500

Disclosure: While RDC has provided a breakdown of estimated costs by category, it may be necessary to adjust amounts between categories. RDC will account for and document expenditures and will provide the IWRB with a competent analysis of recharge efforts and the potential for recharge above American Falls at a cost not to exceed $378,500.

Memorandum

To: Idaho Water Resource Board

From: Cynthia Bridge Clark

Date: September 15, 2014

Re: Status of Storage Water Studies

The following is a status report on the surface water storage studies initiated by the Idaho Water Resource Board (IWRB). This memorandum describes activities and progress since the last IWRB meeting in July 2014.

Weiser-Galloway Project

- A Water Storage Projects Committee meeting was held in Weiser, Idaho on September 11, 2014. U.S. Army Corps of Engineers (Corps) and Idaho Department of Water Resources (IDWR) staff provided background information on the project and presented preliminary results of the Operations Analysis. Approximately 150 people attended the meeting including interested stakeholders and local residents. Testimony was given by the public and a number of written comments were submitted outside the meeting. Comments will be compiled by staff for consideration in the study process.
- The evaluation of potential hydropower integration from the Galloway project with the Northwest power grid is ongoing. Results of the hydropower integration study will be incorporated into the Operational Analysis and a final report is scheduled for completion spring 2015.
- Based on preliminary results of the Operations Analysis and corresponding economics evaluation, IDWR staff recommend completion of two additional analyses to supplement the current study: 1) The reservoir size and corresponding project design can be further refined using the models, hydrologic data, operational constraints, water demands, and total benefits developed for the Operations Analysis. The Corps is prepared to initiate an additional cost-share agreement through the Planning Assistance to States program to complete a study of the optimal reservoir size and configuration. 2) Given the importance of understanding the water supply benefits associated with proposed project, a more detailed economic analysis that builds on the Corps recent work is recommended. This work could be completed by an independent contractor and economist.
- In addition, the project as proposed would inundate 15 miles of the Weiser River Trail (WRT). Given the level of concern by the public about potential impacts to the WRT as well as the complexities surrounding relocation options, staff recommend completion of an assessment of the legal and engineering issues associated with the potential relocation of the WRT.
- A notice of the IWRB's preliminary permit application and a 60-day period for solicitation of comments, motions to intervene and competing applications was issued by FERC on July 17, 2014. Staff will report on the response at a subsequent IWRB meeting.

REQUIRED ACTIONS: A draft resolution is provided for the IWRB's consideration to authorize execution of the necessary agreements or contracts for completion of the three studies referenced above: 1) Optimal sizing and configuration study; 2) Economics and valuation of additional water supplies from the Galloway project; 3) Weiser River Trail relocation analysis.

Lost Valley Reservoir Enlargement

- A potential enlargement of the Lost Valley Reservoir in the Weiser River Basin was discussed at September 11, 2014 Storage Projects Committee meeting in Weiser, Idaho. The current proposal is to increase the reservoir capacity from 10,000 acre-feet to approximately 30,000 acre-feet by raising the existing Lost Valley dam.
- Mr. Dave Tuthill and proponents of the project described the history and current interest in enlargement of reservoir. Potential benefits listed include: (1) increased water supply and flood control for the Weiser River Basin, (2) improved fisheries in the reservoir and downstream of the dam, and (3) enhanced recreation in the late summer and fall.
- Prominent concerns about the project, as sited in correspondence from the U.S. Forest Service, include: (1) an increase in water storage would inundate National Forest System lands with potential loss of wildlife habitat and loss of wetlands; (2) increasing the reservoir holding capacity would have adverse impacts to areas with significant populations of the northern Idaho ground squirrel, which is federally listed as a Threatened species under the Endangered Species Act of 1973.

REQUIRED ACTIONS: No action is required by the IWRB at this time. However, staff request feedback regarding possible assistance from the IWRB in evaluating project potential.

Lower Boise River Feasibility Study

- Reservoir modeling of the Arrowrock Dam raise measure is underway to determine the expected refill frequency which will influence the optimum size of a potential raise. The Corps is coordinating with IDWR and U.S. Bureau of Reclamation (Reclamation) staff in this process. Initial analyses of structural considerations and costs have been conducted and will be expanded through the feasibility study.
- An Environmental Impact Statement (EIS) will be completed through the feasibility study process. The Corps is compiling comments received during the public scoping meetings and is preparing to confirm the scope of the environmental analysis and alternatives for study with their internal team (Division and Headquarters).

REQUIRED ACTIONS: No action is required by the IWRB at this time.

Island Park Reservoir Enlargement Project

IDWR staff is completing a scope of work for the Island Park Reservoir Enlargement Project Land and Real Estate Assessment. Staff anticipates this work will be completed in part by a private contractor in cooperation with Reclamation. To address access needs within Reclamation's existing flood easement as well as assistance with technical evaluation of the Island Park Dam facility (e.g. safety of dams issues related to the proposed reservoir enlargement), a memorandum of agreement between the IWRB and Reclamation is also being developed.

REQUIRED ACTIONS: No action is required by the IWRB at this time.

BEFORE THE IDAHO WATER RESOURCE BOARD

IN THE MATTER OF THE	)	RESOLUTION TO COMMIT
WEISER-GALLOWAY DAM	)	FUNDS AND PROVIDE
AND RESERVOIR PROJECT	)	SIGNATORY AUTHORITY

WHEREAS, House Joint Memorial No. 8 passed and approved by the 2008 Idaho legislature encouraged the Idaho Water Resource Board (IWRB), in coordination with other public and private entities, to initiate and complete the study of additional water storage projects in the state of Idaho including, but not limited to, the study of the potential benefits of a dam and reservoir at the Galloway Damsite (Galloway project, project); and

WHEREAS, the IWRB and the U.S. Army Corps of Engineers (Corps) completed the *Weiser-Galloway Gap Analysis, Economic Evaluation and Risk-Based Cost Analysis Project* (Gap analysis), a reexamination of the previously identified Galloway project intended to identify gaps in earlier studies, address changed conditions and determine whether to move forward with comprehensive feasibility studies; and

WHEREAS, two primary gaps were identified that required resolution prior to initiation of feasibility studies: 1) Determine the safety, suitability and integrity of geologic structures at the potential dam and reservoir site; 2) Evaluate whether basin and regional benefits would be realized by analyzing a series of system operating scenarios with new storage on the Weiser River; and

WHEREAS, the IWRB and the Corps completed the *Foundation Investigation and Evaluation, Weiser-Galloway Potential Damsite* and is currently performing the *Snake River System Operational Analysis Project* (Operations analysis) and the *Weiser Hydropower Integration Project*; and

WHEREAS, the Operations analysis includes evaluation of a potential dam and reservoir with a capacity of 750,000 acre-foot, 40-60 MW hydropower plant, and would result in inundation of approximately 15 miles of the Weiser River Trail, formerly the Northern Pacific Railroad; and

WHEREAS, additional optimization of the reservoir size and project configuration, as well as a detailed economic analysis of the water supply benefits associated with the project, are important to quantifying the benefits of the Galloway project; and

WHEREAS, relocation of the Weiser River Trail has been identified as a significant area of concern for project beneficiaries. An evaluation of the legal and technical requirements associated with relocation of the Weiser River Trail would provide clarification of this issue.

WHEREAS, estimated costs to complete an analysis of the optimal size of the project based on results of Operations analysis are $175,000, fifty percent of which will be shared with the U.S. Army Corps of Engineers through a Planning Assistance to States Agreement. The IWRB obligation under such an agreement will be $87,500;

WHEREAS, estimated costs to complete an analysis of the economics of the additional water supply provided by the project and the relocation of the Weiser River Trail are estimated to be approximately $150,000;

NOW, THEREFORE, BE IT RESOLVED that the IWRB authorizes the expenditure of up to $240,000 from the Revolving Development Account for completion of Galloway project optimal sizing study, economic analysis of water supply from the Galloway project, and the Weiser River Trail relocation study.

NOW, THEREFORE, BE IT RESOLVED that the IWRB authorizes its chairman or designee to execute the necessary agreements or contracts to carry out the Galloway project optimal sizing study, economic analysis of water supply from the Galloway project, and the Weiser River Trail relocation study.

Dated this 23th day of September, 2014.

_____
ROGER W. CHASE
Chairman

Attest: _____
BOB GRAHAM
Secretary

MEMO

To: Idaho Water Resource Board
From: Brian Patton
Subject: Cooperative Cloud Seeding Program
Date: August 29, 2014

This memo discusses background related to a proposed cooperative cloud seeding program and the IWRB Cloud Seeding Committee's recommendation from its August 15, 2014 meeting regarding the IWRB's participation.

BACKGROUND

Cloud seeding (also sometimes knows as Weather Modification) was identified as a key strategy for improving water supplies in the Eastern Snake Plain Aquifer Comprehensive Aquifer Management Plan (ESPA CAMP) and in the draft Treasure Valley CAMP (TV-CAMP). The science generally indicates that a professionally managed program can increase winter snowpack and thereby increase run-off by up to 10%. Idaho Power (IPCo) has been operating such a program in the Payette River Basin since 2003 with an estimated run-off increase of 14.4% (about 300,000 AF/yr). IPCo's Payette Basin program is designed to provide additional flow through their Hells Canyon Complex.

During the ESPA CAMP process could seeding in the Upper Snake Basin and the Wood River Basin was evaluated. More flow in the river should result in less supplemental well pumping, and better water supplies for all uses including recharge and GW-to-SW conversion projects. A locally-led effort using manual ground-based generators had been operating in the Upper Snake since about 2000 that had probably resulted in a modest run-off increase. IPCo offered to conduct a "Pilot Program" in the Upper Snake as a result of the CAMP process. IPCo installed a number of remote operated generators and provided its professional experience gained on the Payette program. **The IPCo program and the locally-led effort are currently being run in parallel, but are cooperating**. IPCo's current estimate is that Cloud Seeding in the Upper Snake is resulting in an estimated run-off increase of 5% (about 283,000 AF/yr).

Cloud Seeding in the Wood River Basin was also identified as a strategy in the ESPA CAMP as the Wood is a major river system that crosses the Eastern Snake Plain. Potential water-use conflicts now surfacing in the Wood River Basin add additional justification for considering a program in the Wood.

Cloud seeding was also evaluated during Treasure Valley CAMP process, and is identified as a strategy in the draft report. The Boise Project Board of Control had been running an on-and-off effort in the 1990's and 2000's that probably resulted in a modest run-off increase of 1%-3% during the seeded years.

PROPOSAL

Numerous discussions have occurred over the past year between the IWRB, IPCo, and water users in the Boise, Wood, and Upper Snake about cloud seeding. As a result of these discussions, the following proposal was developed. It would include expansion in the Upper Snake Basin into the Salt and Wyoming range areas above Palisades Reservoir, and development of programs in the Wood and Boise River Basins.

		Upper Snake Expansion		Wood & Boise			
		IPCo	IWRB	IPCo	IWRB	Wood Basin water users	Boise Basin water users
2015	*Capital*	*$48,000*	*$32,000*	*$252,000*	*$168,000*		
	O&M	$260,050		$289,600		$134,491	$174,091
2016	*Capital*	*$48,000*	*$32,000*	*$120,000*	*$80,000*		
	O&M	$769,956		$289,600		$166,891	$199,291
2017	*Capital*	*$90,000*	*$60,000*	*$60,000*	*$40,000*		
	O&M	$831,756		$289,600		$181,291	$213,691
2018	*Capital*	*$75,000*	*$50,000*	--	--		
	O&M	$883,256		$289,600		$181,291	$213,691
2019	*Capital*	*$45,000*	*$30,000*	--	--		
	O&M	$914,156		$289,600		$191,291	$213,691

Total 2015-2019 IWRB	$492,000
Total 2015-2019 IPCo	$5,845,174
Total 2015-2019 Wood Basin water users	$855,255
Total 2015-2019 Boise Basin water users	$1,014,455

Capital costs include the costs of remote ground-based generators and radiometers. O&M includes the costs of operation, staffing, consumables such as silver iodide, and repairs. More detailed program and cost information is included in the attached material from Idaho Power.

Idaho Power has developed the following estimates for increased water supplies:

Basin	Estimated Increase in run-off
Upper Snake	Existing average from cloud seeding: 283 KAF/yr Est. increase from expansion: 115 KAF For total of 398 KAF
Wood	100 KAF
Boise	196 KAF

COMMITTEE RECOMMENDATION

The IWRB Cloud Seeding Committee met on August 15, 2014 in Jerome. The Committee reviewed this information and heard recommendations from water users in the various basins. **The Committee recommended that the IWRB invest $492,000 into the Cooperative Cloud Seeding Program in the Upper Snake, Wood, and Boise River Basins, for capital costs during the 2015-2019 period.** The funds would come from the Secondary Aquifer Planning, Management, and Implementation Fund, since cloud seeding in all three basins has been identified as an aquifer management strategy. A resolution is attached for the IWRB's consideration.

BEFORE THE IDAHO WATER RESOURCE BOARD

IN THE MATTER OF AQUIFER STABILIZATION AND CLOUD SEEDING IN THE UPPER SNAKE, WOOD, AND BOISE RIVER BASINS	A RESOLUTION TO APPROVE FUNDS FOR A COOPERATIVE CLOUD SEEDING PROGRAM

WHEREAS, House Bill 547 passed and approved by the 2014 legislature allocates $5 million annually from the Cigarette Tax to the Idaho Water Resource Board (IWRB) for statewide aquifer stabilization, with the funds to be deposited into the Secondary Aquifer Planning, Management, and Implementation Fund; and

WHEREAS, cloud seeding was identified as a strategy in the Eastern Snake Plain Aquifer Comprehensive Aquifer Management Plan (ESPA CAMP) which has stabilization and recovery of the ESPA as a goal; and

WHEREAS, cloud seeding was identified as a strategy in the draft Treasure Valley Comprehensive Aquifer Management Plan currently under consideration by the IWRB; and

WHEREAS, a well-managed cloud seeding program can increase winter snow pack, thereby increasing surface water run-off by perhaps 10%, resulting in more surface water for all uses, including aquifer management projects, and also results in less supplemental ground water pumping; and

WHEREAS, in support of the ESPA CAMP, cloud seeding in both the Upper Snake River Basin and in the Wood River Basin was supported; and

WHEREAS, an existing water user and county-led cloud seeding program has existed in the Upper Snake basin and a similar water user led program has existed in the Boise River Basin that has resulted in some increased run-off; and

WHEREAS, resulting from the ESPA CAMP, the Idaho Power Company (IPCo) established a remote-operated "Pilot Program" and brought its operational experience gained from its Payette Basin program; and

WHEREAS the two programs in the Upper Snake are currently operating in parallel but are cooperating on operational matters; and

WHEREAS, in the Wood River Basin and Boise River Basin water users have agreed to share in the operation and maintenance costs of an operational cloud seeding program with IPCo; and

WHEREAS, discussions between IPCo, the IWRB, and water users have resulted in a proposal for establishment of a Cooperative Cloud Seeding Program that would include

expansion of existing IPCo operations in the Upper Snake River Basin and establishment of IPCo run programs in the Wood River Basin and the Boise River Basin; and

WHEREAS, the proposal for the Cooperative Cloud Seeding Program requires additional capital costs for ground based generators and weather information gathering systems as well as on-going operation and maintenance costs and a proposed formula for cost sharing between IPCo, the IWRB, and the water users in the Wood and Boise River Basins; and

WHEREAS, the IWRB Cloud Seeding Committee met on August 15, 2014 and considered the proposal for the Cooperative Cloud Seeding Program and recommended that the IWRB authorize the expenditure of up to $492,000 to assist with capital expenses associated with the program.

NOW THEREFORE BE IT RESOLVED that the IWRB authorizes the expenditure of up to $492,000 from the Secondary Aquifer Planning, Management, and Implementation Fund, for capital expenses associated with a Cooperative Cloud Seeding Program in partnership with Idaho Power Company and water users in the various basins, with the IWRB's funds not to exceed 40% of the actual capital expenses.

BE IT FURTHER RESOLVED that the Cooperative Cloud Seeding program shall be consistent with the proposal provided by Idaho Power to the IWRB Cloud Seeding Committee on August 15, 2014 in Jerome, Idaho, however, the IWRB may resolve in the future to invest additional funds into the program if justified by costs and benefits.

BE IT FURTHER RESOLVED that the IWRB strongly suggests that water users in the Upper Snake Basin that are funding the locally-led cloud seeding effort and Idaho Power hold discussions about consolidation of their two parallel cloud seeding programs.

BE IT FURTHER RESOLVED that Idaho Power shall make its analysis of additional run-off generated from cloud seeding available to staff at the Department of Water Resources for technical review.

BE IT FURTHER RESOLVED that Idaho Power shall make a formal presentation to the IWRB at least annually describing the benefits from the Cooperative Cloud Seeding Program.

DATED this 23rd day of September, 2014.

_____
ROGER CHASE, Chairman
Idaho Water Resource Board

ATTEST _____
BOB GRAHAM, Secretary

Cloud Seeding

Benefit Summary – IWRB, Aug 15, 2014

Current program

- Payette
  - 14.4% precip. inc. (Target-Control 2003-2013, run-off simulated 1951-2001)
  - Average run-off increase 300 KAF/year
- Upper Snake
  - 5% precip. inc. (Assumed precip increase: HF/Teton = 5%, 0% Salt/Wyoming Range, run-off simulated 1951-2001)
  - Average run-off increase 283 KAF/year

Expansion Potential

- Boise Basin
  - 10% precip. Inc. (run-off simulated 1951-2001)
  - Average run-off increase 196 KAF/year
- Wood River Basin
  - 10% precip. Inc. (run-off simulated 1951-2001)
  - Average run-off increase 100 KAF/year
- Salt/Wyoming Range (above Palisades)
  - 10% precip. Inc. (run-off simulated 1951-2001)
  - Average run-off increase 115KAF/year

Cloud Seeding Expansion for the Upper Snake Basin (2014 Dollars)

		Remote Ground Generators (Total by year) Generators in 2014, U Snake-16, Wyoming-3			Radiometer (2)	Weather Balloon (2)	Aircraft (1)		Precip Gauges (4)	Forecasting &	Total	Funding Allocation, $	
Water Yr	Type	Henry's/Teton	Salt & Wyoming Range	Cost	Cost	Cost	Fixed	Variable	Cost	Operations		IPC	IWRB
2015		16	5										
	O&M			$216,300	$1,600	$40,150	$0	$0	$2,000	$0	$260,050	$260,050	$0
	Capital			$50,000	$0	$0	$0	$0	$30,000	$0	$80,000	$48,000	$32,000
2016		16	7										
	O&M			$236,900	$1,600	$40,150	$362,000	$75,306	$4,000	$50,000	$769,956	$769,956	$0
	Capital			$50,000	$0	$0	$0	$0	$30,000	$0	$80,000	$48,000	$32,000
2017		19	10										
	O&M			$298,700	$1,600	$40,150	$362,000	$75,306	$4,000	$50,000	$831,756	$831,756	$0
	Capital			$150,000	$0	$0	$0	$0	$0	$0	$150,000	$90,000	$60,000
2018		24	10										
	O&M			$350,200	$1,600	$40,150	$362,000	$75,306	$4,000	$50,000	$883,256	$883,256	$0
	Capital			$125,000	$0	$0	$0	$0	$0	$0	$125,000	$75,000	$50,000
2019		27	10										
	O&M			$381,100	$1,600	$40,150	$362,000	$75,306	$4,000	$50,000	$914,156	$914,156	$0
	Capital			$75,000	$0	$0	$0	$0	$0	$0	$75,000	$45,000	$30,000

Cost Summary

Fixed Costs: Aircraft + Forecasting & Operations	$412,000	
Variable Costs (based on assumptions below)	$357,956	These costs will vary based seeding opportunities.

Assumptions:

Operational Season - November 1 - April 30

IWRB covers 40% of equipment costs (Generators, Precipitation Gauges)

Ground Generators

New - estimate based on approximately 50 hrs / unit, includes solution, materials, and travel (no labor).

Aircraft

Estimate based on Payette aircraft expenses.

Storms per season	20
Flight time (season)	50
Ejectable flares	800
End Burning flares	180
Fuel Cost	$6 per gallon

Radiometer

Weather Balloon

Estimate based on following costs:

Launches per season	$75
Sondes and Helium	$166 per launch (price of helium varies)
Launch Labor	$75 per launch
Facility Rental	$2,000 per season

Forecasting and Operations

An additional aircraft will require additional meteorological support.

Collaborative Cloud Seeding Expansion for Boise & Wood Basins (2014 Dollars)

		Remote Ground Generators						Radiometer	Weather Balloon	Aircraft		Forecasting & Operations	Total	Funding Allocation, $				Funding Allocation, %			
Water Yr	Type	Payette for Boise	Boise (new)	Wood (new)	Boi/Wood Shared	Boise Cost	Wood Cost	Cost	Cost	Fixed	Variable			IPC	IWRB	Boise Basin	Wood Basin	% IPC	% IWRB	% Boise	% Wood
2015		9	4	3	1																
	O&M					$64,800	$25,200	$800	$20,075	$362,000	$75,306	$50,000	$598,181	$289,600	$0	$174,091	$134,491	48%	0%	29%	22%
	Capital					$112,500	$87,500	$200,000	$20,000	$0	$0	$0	$420,000	$252,000	$168,000	$0	$0	60%	40%	0%	0%
2016		9	6	6	4																
	O&M					$90,000	$57,600	$800	$20,075	$362,000	$75,306	$50,000	$655,781	$289,600	$0	$199,291	$166,891	44%	0%	30%	25%
	Capital					$87,500	$112,500	$0	$0	$0	$0	$0	$200,000	$120,000	$80,000	$0	$0	60%	40%	0%	0%
2017		9	8	8	4																
	O&M					$104,400	$72,000	$800	$20,075	$362,000	$75,306	$50,000	$684,581	$289,600	$0	$213,691	$181,291	42%	0%	31%	26%
	Capital					$50,000	$50,000	$0	$0	$0	$0	$0	$100,000	$60,000	$40,000	$0	$0	60%	40%	0%	0%
2018		9	8	8	4																
	O&M					$104,400	$72,000	$800	$20,075	$362,000	$75,306	$50,000	$684,581	$289,600	$0	$213,691	$181,291	42%	0%	31%	26%
	Capital					$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0				
2019		9	8	8	4																
	O&M					$104,400	$72,000	$800	$20,075	$362,000	$75,306	$50,000	$684,581	$289,600	$0	$213,691	$181,291	42%	0%	31%	26%
	Capital					$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0				

Cost Summary - 2015

Boise	**$174,091**	
Fixed Costs: Aircraft + Forecasting & Operations	$61,200	
Variable Costs (based on assumptions below)	$112,891	These costs will vary based seeding opportunities.
Wood	**$134,491**	
Fixed Costs: Aircraft + Forecasting & Operations	$61,200	
Variable Costs (based on assumptions below)	$73,291	

Assumptions:

Operational Season - November 1 - April 30

IWRB covers 40% of equipment costs (Radiometer, Weather Balloon, Generators)

Ground Generators

Boise & Wood (new) - estimate based on approximately 50 hrs / unit, includes solution, materials, and travel (no labor). Units may be used to target Wood River Basin under some conditions.

Payette (existing) - estimate based on approximately 25 hrs / unit targeting Boise, includes solution, materials, and travel (no labor)

Boise / Wood (shared) - these generators will essentially target both the Boise and Wood Basins, and costs are split 50%/50%.

Irrigation interests will assist in securing sites to place ground generators and data collection equipment

Aircraft

Estimate assumes Boise Basin irrigation interests (Boise Project and others) will cover 50% of variable costs (flight time, fuel, flares), and 10% of aircraft fixed costs and Wood River Basin will cover 50% of variable costs and 10% of aircraft fixed costs.

Aircraft flight tracks may be established to target the Boise and Wood Basins

Payette flight tracks may be extended to better target the Boise

Storms per season	20	
Flight time (hrs / season)	50	
Ejectable flares, season	800	
End Burning flares, season	180	
Fuel Cost	$6	per gallon

Radiometer

Estimate assumes Boise Basin irrigation interests (Boise Project and others) will cover 50% of operating costs (internet access, calibration) and Wood River Basin will cover 50%.

Weather Balloon

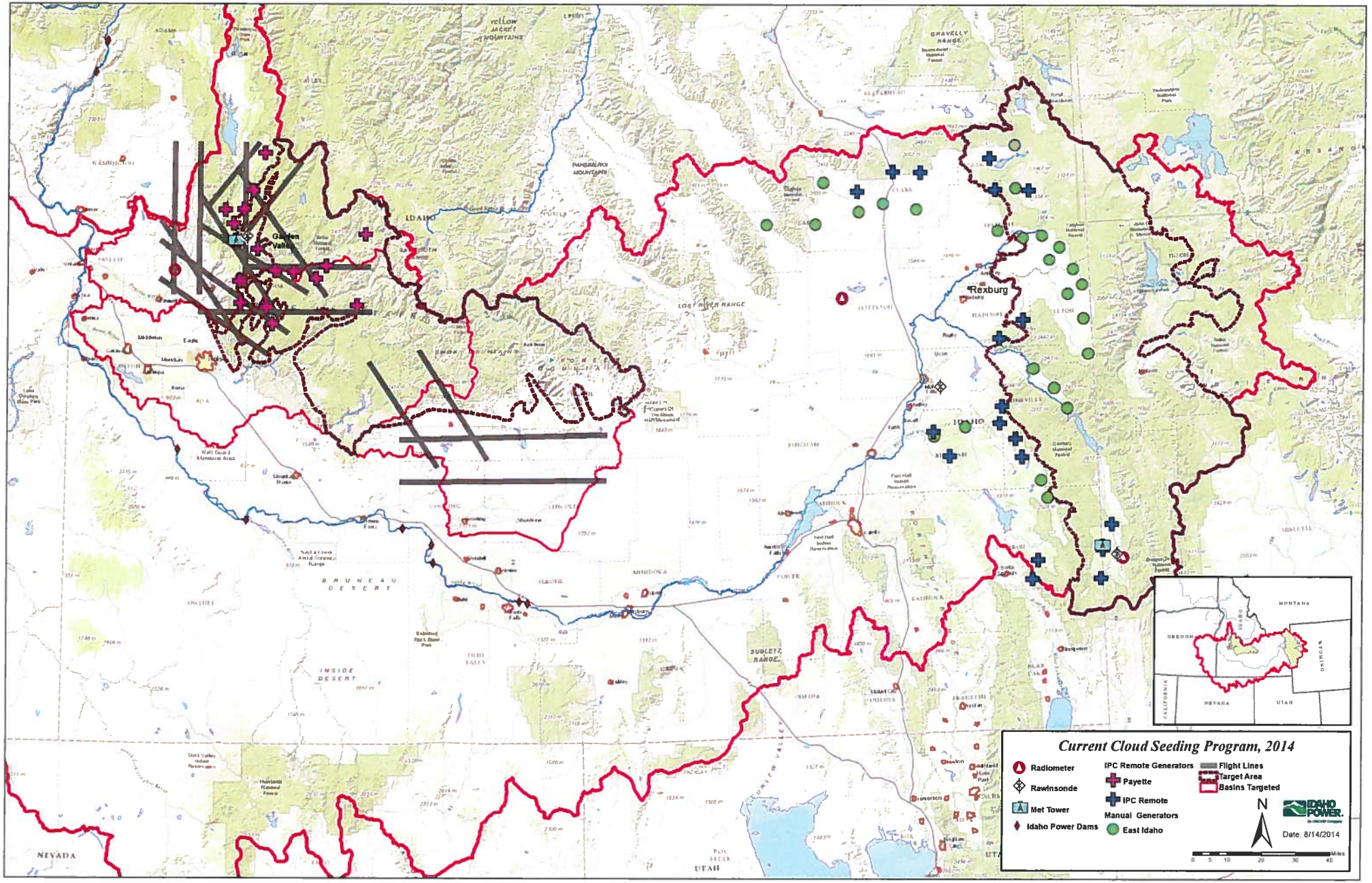
Estimate assumes Boise Basin irrigation interests (Boise Project and others) will cover 50% of weather balloon operating costs (launch fees, sondes, helium, facility) and Wood River Basin will cover 50%.

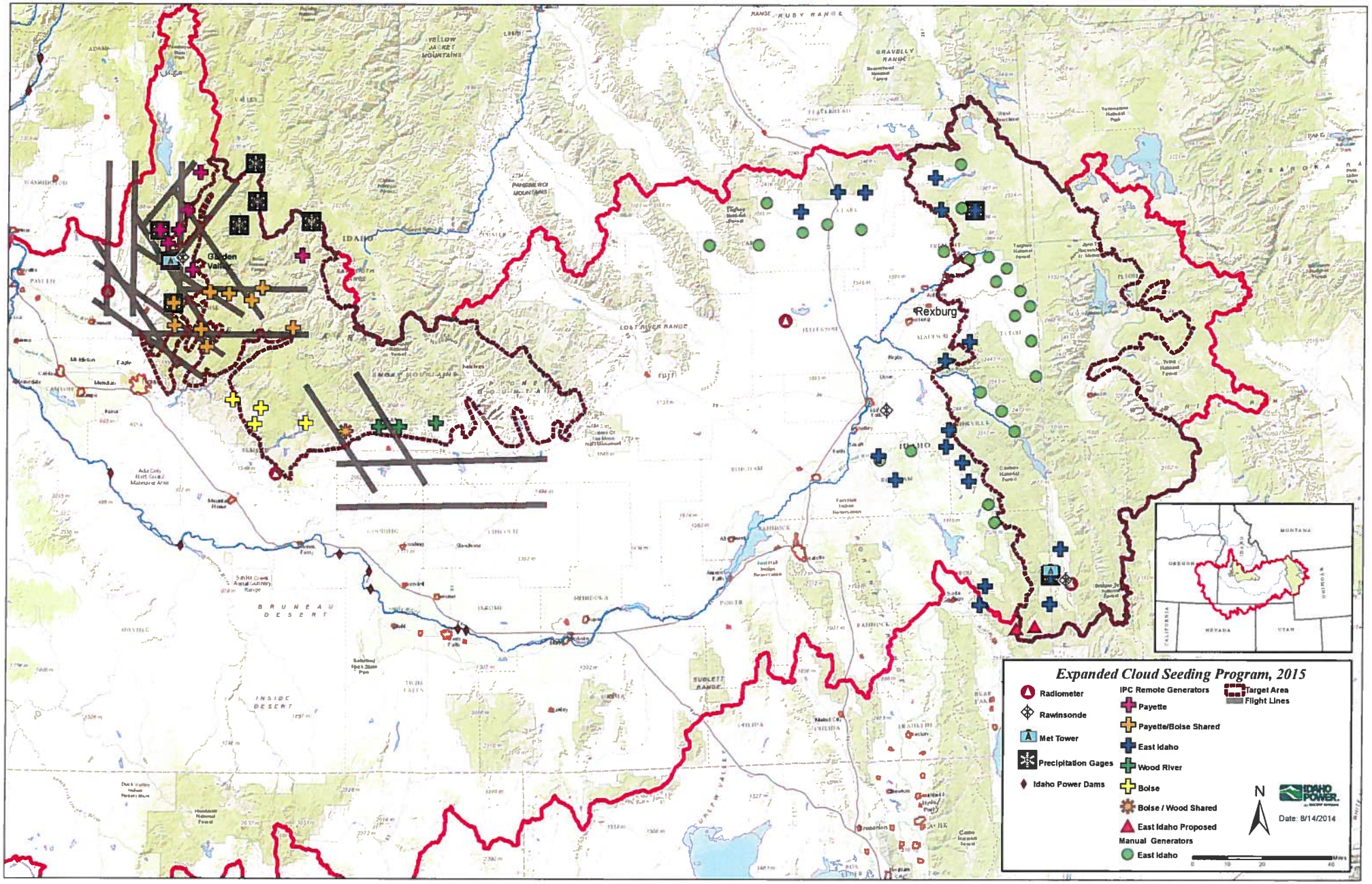
Launches per season	75	
Sondes and Helium	$166	per launch (price of helium varies)
Launch Labor	$75	per launch
Facility Rental	$2,000	per season

Forecasting and Operations

Estimate assumes Boise Basin irrigation interests (Boise Project and others) will cover 50% of forecasting, reporting, and operation expenses

Includes daily forecasts, compliance reporting, montly reports, annual report, operation of remote ground generators, operation of seeding aircraft


Current Cloud Seeding Program, 2014
Radiometer
Rawinsonde
Met Tower
Idaho Power Dams
IPC Remote Generators
Payette
IPC Remote
Manual Generators
East Idaho
Flight Lines
Target Area
Basins Targeted
N
Date: 8/14/2014
Miles
Rexburg
Garden Valley
IDAHO
NEVADA
UTAH
MONTANA
OREGON
WYOMING
CALIFORNIA
NEVADA
UTAH


Rexburg
Glenns Ferry
Expanded Cloud Seeding Program, 2015
Radiometer
Rawinsonde
Met Tower
Precipitation Gages
Idaho Power Dams
IPC Remote Generators
Payette
Payette/Boise Shared
East Idaho
Wood River
Boise
Boise / Wood Shared
East Idaho Proposed
Manual Generators
East Idaho
Target Area
Flight Lines
N
Date: 8/14/2014

MEMO

To: Idaho Water Resource Board
From: Stuart VanGreuningen
Subject: Bee Line Water Association – Loan Request
Date: September 5, 2014

The Bee Line Water Association is requesting a water project construction loan in the amount of $400,000 to construct several needed water system improvements.

1.0 BACKGROUND

The Bee Line Water Association is located north of Bonners Ferry in Boundary County. Bee Line provides water to an estimated population of 440. There are 189 residential connections. Water is supplied from wells and from Meadow Creek. The Meadow Creek water is processed through a slow-sand filter treatment plant.

In 2001 the IWRB approved a $157,500 loan for improvements to the Bee Line which included the distribution system, control building and well development. That loan was paid off in a timely manner.

2.0 THE PROJECT

The project is to upgrade the system associated with Meadow Creek. At this time it would involve replacing the water intake structure, replacing the slow sand filter, and other associated improvements. Engineering services are provided by Mike Klaus, P.E., who acts the engineer for many of the community water systems in the area.

3.0 PROJECT COST ESTIMATE

The project cost estimate is $399,168. A detailed breakout of the estimated cost is attached.

4.0 FINANCIAL ANALYSIS

For a $400,000 loan at 3.5%:

Annual payment for 15 year term:	$34,740
Annual Payment for 20 year term:	$28,144

The current monthly charge is $41.00 for 21,000 gallons with and incremental increase for every additional 1000 gallons of water used.

In reviewing Bee Line's revenues and expenses, it appears that Bee Line may be able to absorb this loan payment with no increase in water rates:

Year	Revenue	Expenditures
2013	$110,826.11	$67,607.02
2012	$119,305.72	$82,312.00

Reserve funds and cash on-hand totals $158,000.

6.0 WATER RIGHTS

The Association holds water right 98-02133 for 0.8 cfs from Meadow Creek, and water right 98-07309 for 1.01 cfs from the Busch Wells (jointly held with the 3-Mile Water Association). These rights have a 1966 and

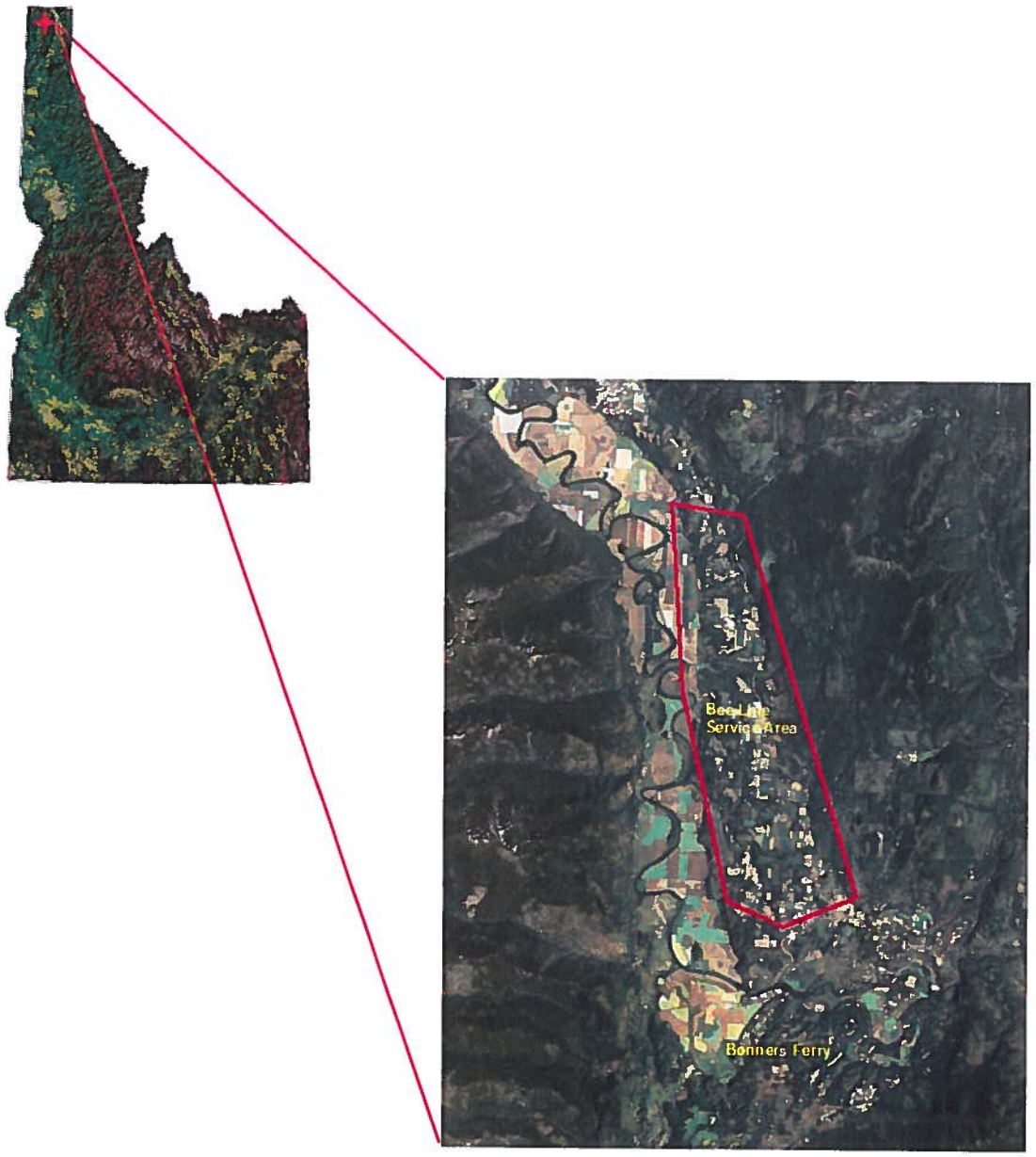
1979 priority date respectively. In addition to these water rights there are 2 other groundwater rights, 98-7625 (0.27 cfs) and 98-7819 (0.14 cfs) both having priority dates of 1986.

7.0 SECURITY

The IWRB will hold Bee Line's water rights, and newly constructed features and equipment associated with this loan as security.

8.0 CONCLUSION AND RECOMMENDATION

This is a good project which will replace aging infrastructure and assure a reliable water supply from Meadow Creek for Bee Line and its water users. Bee Line has a good track record with the Board on the previous loan made in 2001 therefore; **Staff is recommending that a loan for $400,000 dollars be approved for the Bee Line Water Association for a term of 15 years at 3.5% interest.** A resolution is attached for your consideration.



BEFORE THE IDAHO WATER RESOURCE BOARD

IN THE MATTER OF THE BEE LINE WATER ASSOCIATION	)	A RESOLUTION TO MAKE A FUNDING COMMITMENT

WHEREAS, a letter of Intent from the BEE LINE WATER ASSOCIATION (Association) has been submitted to the IDAHO WATER RESOURCE BOARD (Board) requesting a loan in the amount of $400,000; and,

WHEREAS, the Association provides water service to approximately 189 connections in Boundary County; and,

WHEREAS, the Association needs to undertake several improvement projects including replacing their Meadow Creek water intake and replacing the slow sand filter; and,

WHEREAS, these funds will be used to undertake the needed improvements; and,

WHEREAS, the Association is a qualified applicant and the proposed project qualifies for a loan from the Revolving Development Account; and,

WHEREAS, the proposed project is in the public interest and in compliance with the State Water Plan.

NOW THEREFORE BE IT RESOLVED that the Board approves a loan not to exceed $400,000 at 3.5% interest with a _____ - year repayment term, and provides authority to the Chairman of the Idaho Water Resource Board or his designee to enter into contracts with the Association.

BE IT FURTHER RESOLVED that this resolution and the approval of the loan is subject to the following conditions:

1. The Association shall provide collateral for the loan that is acceptable to the Board.

2. The Association shall establish a reserve account in an amount equal to one annual payment.

DATED this 23rd day of September, 2014.

_____

ROGER W. CHASE, Chairman
Idaho Water Resource Board

ATTEST _____

BOB GRAHAM, Secretary

BEE LINE WATER ASSOCIATION

August 29, 2014

Idaho Department of Water Resources
Attn: Brian Patton
PO Box 83720
Boise ID 83720-0098

Re: Bee Line Water Association Application for Water Loan

Dear Mr. Patton,

Bee Line Water Association would like to ask for your consideration in a loan for improvements to the Bee Line Water Association system.

In 2001 we were privileged to work with Idaho Water Resources for a loan of $157,500.00 for various improvements to our distribution system, control building, and well development. At this time we want to put our focus on our Meadow Creek water source. This would include repairs and or replacement of our diversion dam, a new slow sand filter, a contact chamber reservoir, and associated mechanical equipment. We would greatly appreciate the opportunity to submit an application for possible funding for some or all of the improvements listed above. We look forward to hearing from you.

If you have any questions or would like to discuss this further, please contact Mike Klaus Engineer (208) 946-9488 or Ivan Wedel Chairman (208)290-3280.

Thank you,

Ivan Wedel

Ivan Wedel
Board Chairman

P.O. BOX 676 • BONNERS FERRY, IDAHO • 83805
PHONE: 208-267-5166 • FAX: 208-267-3515

Bee Line Water Association

3-Sep-14

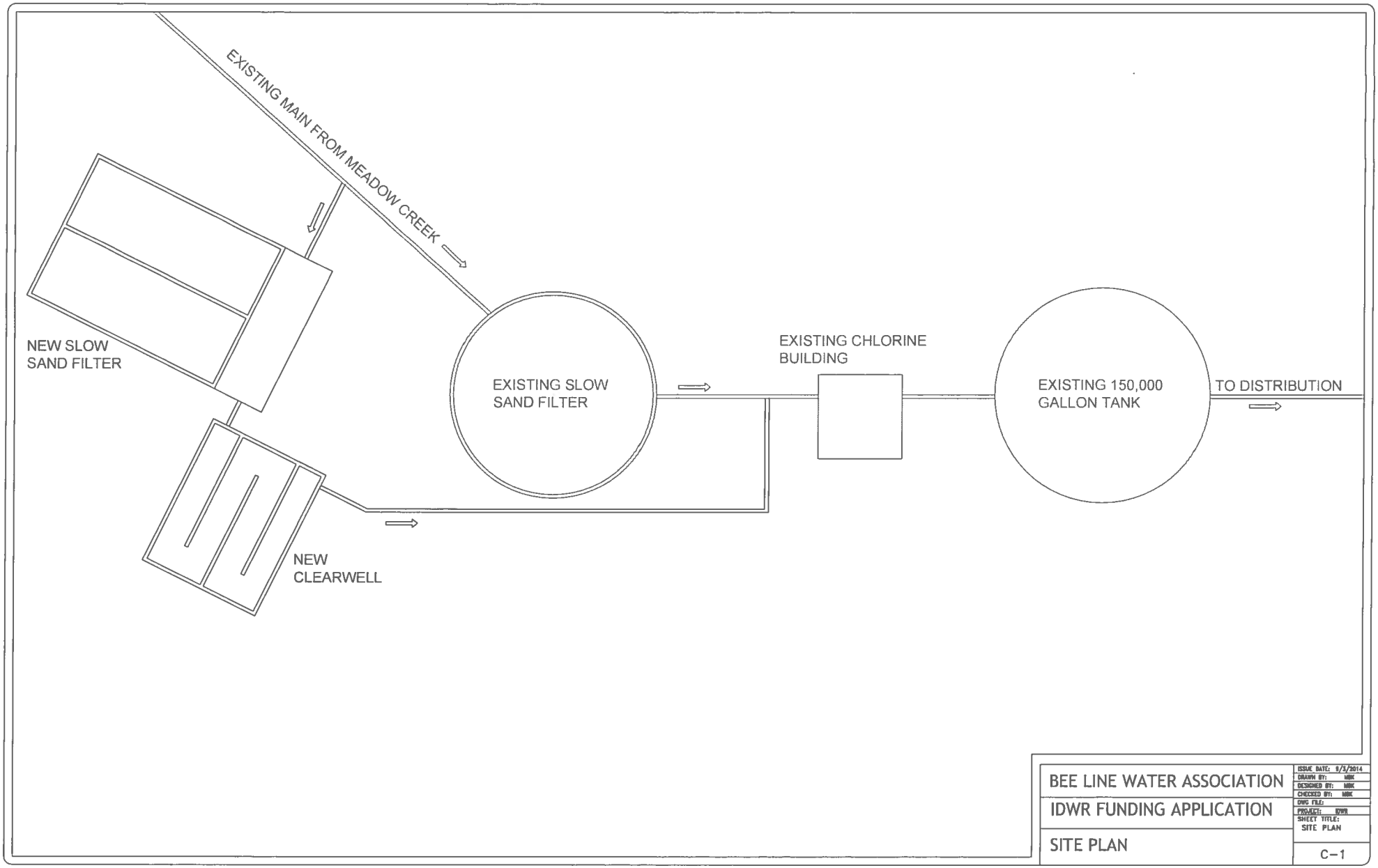
Cost Estimates for New Slow Sand Filter

Item	Unit	Quantity	Unit Price	Total
Mobilization	LS	1	$ 10,370	$ 10,370
Site Work	LS	1	$ 20,000	$ 20,000
Structure	LS	1	$ 73,125	$ 73,125
Filter Media	LS	1	$ 9,100	$ 9,100
Mechanical Work and Controls	LS	1	$ 75,900	$ 75,900
Turbidimeters	EA	2	$ 3,179	$ 6,358
Chlorine Analyzer	LS	1	$ 2,770	$ 2,770
Dual Chart Recorder	LS	1	$ 1,155	$ 1,155
Telemetry/Controls	LS	1	$ 5,000	$ 5,000
Intake Security Improvements	LS	1	$ 14,000	$ 14,000
				$ 217,778
			10% Construction Contingency	$ 21,778
			Construction Estimate Subtotal	$ 239,556
			Engineering	$ 50,412
			Grant Admin	$ 31,000
			Total For New Slow Sand Filter	$ 320,968

Data in gray area was developed by Welch-Comer Engineers previously

Cost Estimates for New Clearwell

Item	Unit	Quantity	Unit Price	Total
Site Work	LS	1	$ 7,000	$ 7,000
Structure	LS	1	$ 60,000	$ 60,000
				$ 67,000
			10% Construction Contingency	$ 6,700.0
			Construction Estimate Subtotal	$ 73,700.0
			Engineering	$ 4,500
			Total for Clearwell	$ 78,200.0
			Total for Slow Sand Filter and Clearwell	**$ 399,167.80**



BEE LINE WATER ASSOCIATION

IDWR FUNDING APPLICATION

SITE PLAN

ISSUE DATE: 9/3/2014
DRAWN BY: MBK
DESIGNED BY: MBK
CHECKED BY: MBK
DWG FILE:
PROJECT: IDWR
SHEET TITLE: SITE PLAN

C-1

IDAHO WATER RESOURCE BOARD
322 East Front Street, Statehouse Mail
Boise, Idaho 83720
Tel: (208) 287-4800
FAX: (208) 287-6700

APPLICATION FOR FINANCIAL ASSISTANCE FOR POTABLE WATER SYSTEM CONSTRUCTION PROJECT

Answer the following questions and provide the requested material as directed. All pertinent information provided. Additional information may be requested by the Idaho Water Resource Board (IWRB) depending on the scope of the project and amount of funding requested. For larger funding amounts an L.I.D. may be required.

Incomplete documents will be returned and no further action taken will be taken by IWRB staff. All paperwork must be in twenty eight (28) working days prior to the next bi-monthly Board meeting.

Board meeting agendas can be found at: http://www.idwr.idaho.gov/waterboard/

I. Prepare and attach a "Loan Application Document".

The Loan Application Document requirements are outlined in the Water Project Loan Program Guidelines. The guidelines can be found at:
http://www.idwr.idaho.gov/waterboard/Financial%20program/financial.htm.
You can also obtain a copy by contacting IWRB staff.

II. General Information:

A. Type of organization: (Check box)

- ☐ Municipality
- ☐ Water and/or Sewer District
- ☐ Non-Profit Water Company
- ☐ For-Profit Water Company
- ☐ Homeowner's Association
- ☒ Water Association
- ☐ Other

Explain: _____

Bee Line Water Association
Organization name

Ivan Wedel, Chairman
Name and title of Contact Person

7193 Main St.
PO Box/Street Address

208-290-3280
Contact telephone number

Bonners Ferry, ID 83805
City, County, State, Zip Code

ivan@bfbuilders.com
e-mail address

Project location legal description _____

B. Is your organization registered with the Idaho Secretary of State's office? Yes ☒ No ☐

C. Purpose and name of project for this loan application.

- ☐ New Project
- ■ Rehabilitation or replacement of existing facility
- ☐ DEQ requirement
- ☐ Other: _____

D. Briefly describe the existing water supply facilities and describe any existing operational or maintenance problems. Attach map of the service area and a separate sheet if necessary to complete the explanation.

Bee Line's existing slow sand filter needs to be replaced, while also providing additional treatment capacity.

III. WATER SYSTEM:

A. Source of water:

- ■ Stream
- ■ Groundwater
- ☐ Reservoir
- ☐ Other

B. Water Right Numbers:

Water Right	Stage	Priority Date	Source	Amount
98-2133	License	11/28/1966	Meadow Creek	0.8 CFS
98-7309	License	6/25/1979	Ground Water	1.01 CFS
98-7625	License	6/2/1986	Ground Water	0.27 CFS
98-7819	License	6/2/1986	Ground Water	0.14 CFS

Note: Stage refers to how the water right was issued. (License, Decree, or Permit)

C. Hook-ups on the system:

Approximate number of residential hook-ups: 189
Approximate number of commercial hook-ups: _____
Approximate number of industrial hook-ups: _____

D. On average, how much water is provided per day? 35,000 to 40,000 estimated

IV. USER RATES:

A. How does you organization charge user rates

- ☐ Per Hook up
- ■ Per Volume Used
- ☐ Other
  Explain: _____

B. Current user rate? $ 41.00 per 21,000 gallons per month
(gallons used, monthly, yearly, etc.)

If a graduated or progressive rate structure or different rates for different classes of users are used, attach a separate sheet with explanation.

C. When was the last rate change? APRIL 2012 (month/year)

D. Does your organization measure water use? Yes ■ No ☐
If yes, how?

- ☒ Meters at User Hook-ups
- ☐ Master Meter
- ☐ Other (explain) _____

E. Does you organization have a regular assessment for a reserve fund? Yes ☐ No ■
If yes, explain how it is assessed:

_____

F. Does your organization have an assessment for some future special need? Yes ☐ No ■
If yes, explain for what purpose and how it is assessed:

_____

V. PROPOSED METHOD FOR PAYING LOAN PAYMENTS

How will you pay the annual loan payments? Check revenue sources below:

- ☐ Tax Levies
- ☐ Capital Improvement Reserve Account or Sinking Fund
- ■ User Fees and Tap/Hookup Fees
- ☐ Other (explain) _____

Will an increase in assessment be required? Yes ■ No ☐
When will new assessments start and how long will they last?

_____

VI. SECUREMENT OF LOAN

List all land, buildings, waterworks, reserve funds, and equipment with estimated value that will be used as collateral for the loan:

Property	Estimated Value
SLOW SAND FILTER, BUILDING, TANK	$400,000
WELLS AND WELL PROPERTY	$200,000

Please attach a legal description of the property being offered along with a map referencing the property.

VII. PROOF OF OWNERSHIP

Please provide proof of ownership, easements or agreements that are held or can be acquired for the construction and operation of the project.

VIII. FINANCIAL INFORMATION:

A. Attach a copy of each of the last 3 year's financial statement. **(Copies must be attached)**

B. Reserve fund (current) $104,775.04

C. Current cash on hand $ 45,517.53

D. Outstanding indebtedness:

To Whom	Annual Payment	Amt. Outstanding	Years Left

G. Have you done business with the Idaho Water Resource Board before? Yes ■ No ☐
If yes what was the loan for? WELL DEVELOPMENT, DISTRIBUTION, BUILDING
How much was the loan for? $157,500
Is the loan paid off? Yes ■ No ☐
If no what is the payment and expected payoff date. _____

I. What other sources of funding have been explored to fund the project? (example: NRCS, USDA Rural Development, Banks, Local Government, etc.)

IDAHO DEPT.

VIII. ORGANIZATION APPROVAL:

Is a vote of the shareholders, members, etc. required for loan acquisition? Yes ☐ No ☒
If yes, a record of the vote must be attached.

Amount of funds requested: 400,000

By signing this document you verify that all information provided is correct and the document is filled out to the best of your ability.

Authorized signature& date: Luan Weibel Aug. 29, 2014

Bee Line Water Association - Additions to Water Loan Application

September 2, 2014

Below is a list of the items assembled to complete the emailed application on August 29, 2014:

Part II.A.

The project will take place on the following Boundary County parcel; RP63N01E230621A, at the site of Bee Line's current slow sand filter plant and storage tank.

Part VI.

Legal descriptions of the properties listed are included in this packet. The upgrade work will take place on property purchased by Bee Line that now adjoins parcel RP63N01E230621A. That adjoining parcel is described within the attached document shown as Instrument number 226025.

Part VII.

The ownership information is included in Part VI.

Part VIII.

Financials for Bee Line have been included from 2011 to present.

Part VIII.I.

This answer was incomplete on the application. Previously, Idaho Department of Commerce grants were pursued, but denied (approximately 2003-2004)

Bee Line Water Association

Bee Line Water Prices - 21,000 Gallons is $41.00 per month

Bee Line Water Association Rates

0 Gallons	To 20,999	Gallons	$41.00
21,000 to	30,999	@ 1.60/1,000	Gallons
31,000 to	40,999	@ 1.70/1,000	Gallons
41,000 to	50,999	@ 1.80/1,000	Gallons
51,000 to	60,999	@ 1.90/1,000	Gallons
61,000 to	70,999	@ 2.00/1,000	Gallons
71,000 to	And above	@ 3.00/1,000	Gallons

Bee Line Water Meetings are every 3rd, Monday of the month at 5:30 p.m.
at 7193 Main Street, Bonners Ferry ID 83805.

Bee Line Water Association, Inc
Balance Sheet
July 31, 2014

ASSETS

Current Assets			
Wells Fargo - Checking	$	45,517.53	
Wells Fargo - Savings		104,775.04	
Accounts Receivable - User		8,168.21	
Total Current Assets			158,460.78
Property and Equipment			
Office Equipment		5,210.89	
Water System: 1-Wheeler Road		13,732.80	
Water System: 2-Wheeler Road		12,559.25	
Water System: 3-Wheeler Road		15,773.00	
Water System: Amoth Line Ext		6,189.00	
Water System: Camp 9		28,246.81	
Water System:Communication Sys		56,489.64	
Water System: Dam Shut Off		11,086.15	
Water System: Hops Well		35,966.66	
Water System: Hop Well 2		31,888.39	
Water System: Improvements		61,339.91	
Water System: Intertie		1,820.29	
Water System: Kings Row		61,516.03	
Water System: Main Plant		2,615.79	
Water Sysytems - Master Enginr		17,694.78	
Water System: Road 41		26,217.04	
Water System: Rock Creek		31,036.82	
Water System: Thatcher Road		4,382.00	
Water System:Wedel Subdivision		2,284.37	
Water System: Weir		1,814.07	
Water System - Other		272,535.00	
Wells- 50% Ground		53,046.00	
Accumuated Depreciation		(316,777.00)	
Total Property and Equipment			436,667.69
Other Assets			
Land		20,509.61	
Total Other Assets			20,509.61
Total Assets			$ 615,638.08

LIABILITIES AND CAPITAL

Current Liabilities

Bee Line Water Association, Inc
Income Statement
For the Seven Months Ending July 31, 2014

	Year to Date
Revenues	
Income - Water Charges Monthly	53,956.00
Income - Water - Fnance Chrgs	204.48
Discount / Credits	(382.00)
Income - Water - Overages	6,547.77
New Membership	10,000.00
Income - Interest	28.20
Total Revenues	70,354.45
Cost of Sales	
Total Cost of Sales	0.00
Gross Profit	70,354.45
Expenses	
Advertising / Notices	274.42
Accounting & Tax Prep	4,936.40
Bank & Finance Charges	24.50
Chemicals	1,049.55
Communication Wells	350.00
Drug Lab Testing	685.00
Insurance	122.00
Legal & Professional	120.00
Locates	237.85
Meeting Expenses	148.39
Postage	440.33
Repair & Maintenance	893.77
Subcontractors	1,838.00
Supplies	27.54
Telephone	419.36
Water System Operator	11,888.00
Utilities	1,526.66
Fawn Lane Water Main Project	2,168.00
Total Expenses	27,149.77
Net Income	$ 43,204.68

Bee Line Water Association, Inc
Income Statement
For the Twelve Months Ending December 31, 2013

	Year to Date
Revenues	
Income - Water Charges Monthly	92,446.80
Income - Water - Fnance Chrgs	613.21
Discount / Credits	(236.00)
Income - Water - Overages	7,720.20
Income - Water Bulk	33.55
Income-Disconnect/Reconnect	150.00
Income - New Hookups	2,500.00
New Membership	7,500.00
Income - Interest	23.35
Income - Other	75.00
Total Revenues	110,826.11
Cost of Sales	
Water Purchased	1,650.00
Total Cost of Sales	1,650.00
Gross Profit	109,176.11
Expenses	
Advertising / Notices	22.98
Accounting & Tax Prep	8,722.40
Bank & Finance Charges	71.01
Building - Repair/ Maint.	355.64
Camp Nine Filter Plant	1,998.31
Chemicals	3,206.24
Communication Wells	900.00
Drug Lab Testing	1,110.00
Dues & Subscriptions	885.00
Hops Well Field	174.71
Insurance	2,865.50
Locates	371.58
Meeting Expenses	175.06
Mileage	15.00
Office Expenses	82.24
Permits	653.19
Postage	1,019.41
Rent Equipment	50.00
Repair & Maintenance	5,761.33
Subcontractors	6,852.00
Supplies	6,548.86
Tax - Property	17.50
Telephone	657.15
Water System Operator	19,637.00
Utilities	2,006.87
Turner Hill Road Work	3,448.04
Total Expenses	67,607.02
Net Income	$ 41,569.09

Bee Line Water Association, Inc
Income Statement
For the Twelve Months Ending December 31, 2012

	Year to Date
Revenues	
Income - Water Charges Monthly	92,640.09
Income - Water - Fnance Chrgs	647.94
Discount / Credits	(429.00)
Income - Water - Overages	6,314.91
Income - Water Bulk	25.50
Income-Disconnect/Reconnect	50.00
Income - New Hookups	19,400.00
New Membership	600.00
Income - Interest	56.28
Total Revenues	119,305.72
Cost of Sales	
Wages- Employees	9,212.00
Payroll Taxes & Work Comp	1,073.58
Total Cost of Sales	10,285.58
Gross Profit	109,020.14
Expenses	
Advertising / Notices	24.42
Accounting & Tax Prep	6,200.00
Bank & Finance Charges	147.50
Chemicals	3,036.92
Communication Wells	964.42
Drug Lab Testing	1,041.00
Dues & Subscriptions	881.00
Insurance	3,104.00
Interest Expense	13,267.91
Legal & Professional	4,320.00
Locates	444.89
Meeting Expenses	31.07
Office Expenses	318.63
Permits	640.98
Postage	871.82
Repair & Maintenance	13,002.00
Subcontractors	9,006.50
Tax - Property	17.50
Telephone	763.63
Travel & Entertainment	574.18
Water System Operator	21,140.69
Utilities	2,512.94
Total Expenses	82,312.00
Net Income	$ 26,708.14