PAPO
BOARD
MEETING

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November 10, 2026

Pinedale Anticline Project Office
Board of Directors Meeting
BLM Pinedale Field Office
1625 Pine Street, Pinedale, WY 82941
November 10, 2026, 1:30 pm

Virtual Option Available:
https://teams.microsoft.com/meet/254971824143627?p=AbHsEF2LeT00AGriTH

Welcome and Introductions	**Chairwoman Kirby**
Approval of Agenda	**Chairwoman Kirby**
Approval of Meeting Minutes	**Chairwoman Kirby**
Agency Updates	**Dave Richey, BLM** **Amber Potts, WDEQ** **Chris Whichmann, WDA** **Brandon Scurlock, WGFD**
Wildlife Monitoring Results	**Brandon Scurlock, WGFD** **Mark Thonoff, BLM**
Operator Update	**PureWest**
PAPO/JIO Budget Update **JIO Account Closure**	**Wyletta Sheldon** **Kelsey Smith**
PAPO Funded Projects Update	**Project Proponents**
2026 Project Applications	**Mark Thonhoff**
PAPO Chairmanship	**Chairwoman Kirby**
Public Comments	**Chairwoman Kirby**
Next Meeting Location and Dates	**Chairwoman Kirby**
Adjourn	**Chairwoman Kirby**

Pinedale Anticline Project Office Board of Directors Meeting
July 9, 2026, 1:30 pm
Virtual Option Available

Name	Organization		Name	Organization
Craig Smith	WGFD	Board Member	Mark Thonhoff	BLM
Amber Potts	DEQ	Board Member		
Kris Kirby	BLM	Board Member	Kacey Baldwin	BLM
Joe Budd	WDA	Board Member	Michael Henn	WDA (SCCD)
Janessa Saxton	Sublette County		Sarah Brown	DEQ
Ben Smith	BLM		Wyletta Sheldon	BLM
Brad Purdy	BLM		Frank Keeler	BLM
Brandon Scurlock	WGFD		Kelsey Smith	BLM
Chris Wichmann	WDA			
Jacqueline Alderman	BLM		Linda Baker	public
Dave Richey	BLM		Carmel Kail	public
Madison Harper	JHLT		Kerry Shultz	JHLT
Jennifer Fleuret McConchie	BLM		Sonja Hunt	BLM
Keith Guille	DEQ		John Lund	WGFD

Welcome and Introductions **Chairwoman Kirby**

Meeting called to order by Kris Kirby at 1:30pm.

Approval of Agenda **Chairwoman Kirby**

Amber Potts moved to approve the agenda, seconded by Craig Smith, motion passed.

Approval of Meeting Minutes **Chairwoman Kirby**

Kris Kirby moved to approve the agenda, seconded by Craig Smith, motion passed.

Agency Updates **Dave Richey, BLM**
Brandon Scurlock, WYGF
Amber Potts, WDEQ
Chris Wichmann, WDA

- **Oil and Gas Development Status:** Dave Richie reported that the BLM Pinedale field office currently has one drilling rig running, generating 15-20 spuds per year, which is significantly

lower than historical activity. The office takes in $7,500 per spud, and the reduced pace of development has led to budgetary challenges and fewer staff.

- **Wildlife Monitoring Results:** Craig Smith shared that sage grouse lek monitoring showed a 12% decrease in average male attendance, pronghorn populations are recovering slowly after the 2022-23 winter, and mule deer herds are in good condition. The governor recently designated a pronghorn migration corridor, affording stricter protections to bottlenecks and high-use habitats.
- **Air Quality Redesignation Efforts:** Amber Potts and Sarah Brown explained that the Department of Environmental Quality is focused on collecting a future year inventory to support a demonstration that emissions will not return to non-attainment levels, aiming to finalize a maintenance plan for redesignation by the end of the year and begin formal redesignation in early 2027.
- **Personnel and policy updates :** Chris Wichmann explained that Holly Siebert is new in the policy shop. She oversees the north and east parts of the state, around Newcastle. WDA is looking at the grazing regs and support the proposed changes. a

PAPO Budget Update **Dave Richey/ Wyletta Sheldon**

- **Account Balances and Obligations:** The JIO account has a balance of $17,880.98 with no current projects drawing from it, while the PAPO account's checkbook balance as of March 31st is $2.5 million, with $1.735 million in obligations, leaving $820,000 available for new projects.
- **Open Projects and Remaining Funds:** The board reviewed open projects, including habitat restoration, vegetation management, and wildlife monitoring, noting remaining balances for each. Some projects are nearly complete, requiring board approval to close out and reallocate small remaining funds.
- **Salary Funding Decisions:** For 2025 and 2026, only the Department of Agriculture continues to receive salary funding, with a remaining balance of $75,000 for 2026. Other agencies have discontinued salary funding due to declining budgets.
- **Budget Cap and Future Projections:** Total spend to date is $29 million, with an upper fund limit of $36 million. Given current drilling rates, the board does not expect to reach the cap in the next decade, and future project funding will be limited by ongoing low spud fee revenues.

Future Monitoring Scenarios **PAPO Team: Mark Thonhoff**

- **Monitoring Scenarios and Board Decision:** Mark presented three monitoring scenarios—status quo, hybrid, and sunset—with the board voting to adopt the hybrid option, balancing ongoing monitoring of key species and project funding over the next decade.
    - **Scenario Descriptions:** The status quo scenario maintains current monitoring and salary allocations, leaving only $130,700 for mitigation after ten years. The hybrid option continues annual monitoring for mule deer and pronghorn, discontinues noise monitoring, and limits other species monitoring to every five years, resulting in $1.8 million available for projects after ten years. The sunset option ends all monitoring and salary allocations, maximizing funds for projects.
    - **Decision to adopt the Hybrid Option** (see summary below)**:** Craig Smith moved to adopt the hybrid option, seconded by Kris Kirby, motion passed. The hybrid option was recognized as providing a longer glide path for both monitoring and mitigation projects.

Hybrid Option

Monitoring and Salary	2026 Annual Cost	Total 10 Year Cost
Mule Deer & Pronghorn	$ 54,000	$ 163,000
Sage Grouse (noise)	$ -	$ -
Pygmy Rabbit **cost only in 2028 and 2033*	$ 0	$ 266,875
Salary (*one time cost 2026)*	$ 75,000	$ 75,000
Total	$ 129,000	**$ 504,875**
Assuming a deposit of $112,500 a year from spud fees (15 spuds)	**Project Dollars Available after 10 years**	**$ 1,897,126**
	Available Project Dollars 2027	$ 932,868

- Board approved funding Mule Deer & Pronghorn monitoring funds would last for annual monitoring until **2034.** Monitoring frequency could be revisited at that time.
- Pygmy Rabbit monitoring to in 2028 and 2033 for an estimated $125k, and $145K respectively.
- Cease Prairie Dog monitoring
- BLM would take over noise monitoring for Sage Grouse
- Sage Grouse male lek attendance would continue to be monitored by agency staff.
- No further salary expenditures after this year.

PAPO Team supports the hybrid option.

PAPO Funded Projects Update **Kelsey Smith**

- Mike Henn described ongoing mitigation projects, including work crews conducting restoration on both private and BLM-administered lands, funded by distributed mitigation funds. The project is focused on the low-tech mesic restoration within the PAPA.
- Willow Lake Fence Reroute lost IRA matching funds, but they weren't really needed. Project needs to be resubmitted for full amount.
- Sublette County invasives project is moving forward, and spraying will continue this fall.
- Pinedale North is a sagebrush mowing project that is on hold due to drought conditions this year. It's delayed until next year.
- Sage Grouse mitigation projects are going forward. A wildlife guzzler will be installed this summer.

Funds transfer request

- **Funds Transfer and Project Reallocation Discussion:** Kerry, with the Jackson Hole Land Trust, and board members discussed the reallocation of funds from the Ball Place Conservation Easement to the Haven Conservation Easement, ultimately deciding to table the request and review it alongside other projects in November, following established process.
    - **Reason for Reallocation Request:** Kerry explained that the Ball Place Conservation Easement did not close due to the landowner's decision, prompting a request to reallocate the approved funds to the Haven Conservation Easement, which had been previously submitted but not funded.
    - **Decision to Table Request:** Kris Kirby moved to solicit new projects for November and review the reallocation request at that time. Joe Budd seconded, motion passed.
    - **Clarification of Submission Requirements:** Kelsey D. Smith confirmed that the Land Trust's letter and application are sufficient for resubmission, and Kerry agreed that no additional materials are needed unless the board requests them.

    - **2025 Application Ranking Table on following page (corrected)**

2025 PAPO Application Summary and Team Recommendations

Project Title	Total PAPO Request	PAPO % of Total	Project Summary	Project Location	Pros	Cons	Project Score	Recommendations
Targeted Fence Modifications in Crucial Ungulate Migratory Habitats ($1,936,900 Total Required)	$250,000	12.9%	Improve wildlife passage through fence conversions, crossings, and seasonal management of fences (e.g., lowering and raising fences and/or wires).	PAPO Off-site Mitigation Priority Area and WGFD Pinedale Region	Funds spent within the PAPA. Cultural not needed. Large inter-agency effort. Leverage of dollars. Addresses Pronghorn and Mule Deer.	May exceed mitigation dollars available (could be funded with the Beaver Creek Ranch WFF dollars 70,0000). Not on-site mitigation, however, the on-site opportunity is minimal due to completed	60.0	Recommend Fund and possibly use the $70,000 Beaver Creek Ranch WFF funds
The Haven Conservation Easement ($2,991,950 Total Required)	$100,000	3.3%	Permanently protect 539.80 acres of ecologically valuable agricultural land along the New Fork River in Sublette County, Wyoming.	Less than 1 mile south of Pinedale, WY; contains about 0.7 miles of New Fork River; overlaps several critically important wildlife habitats. T33N, R109W, Sec 14,22,23.	90% in hand. On-site. Meets both mitigation triggers and PAPO priorities. Cultural not needed. Collared PH and SG that use the property. Main corridor for moose. Within the PAPA.	May exceed mitigation dollars available.	63.3	Recommend Fund with additional language to Section 3.6, p.8. "With regard to any new or replacement fencing on the Property, Grantor may construct or replace fencing on the Property for reserved agricultural uses or purposes or for the protection of any Conservation Value provided that fencing where applicable utilizes the current version of "A Wyoming Landowners's Handbook to Fences and Wildlife" for wildlife friendly fence specifications where livestock concentrations allow for permiable fencing on the Property.
Pygmy Rabbit Distribution and Occupancy in the Pinedale Anticline ($85,208 total required w/ grant funding and in kind match?)	$30,000	24.0%	In response to the USFWS petition for listing under the ESA 90-day review and 12-month status review, conduct an updated evaluation of pygmy rabbit occupancy to assess current population trends and inform conservation efforts.	Pinedale Anticline Project Area (PAPA) and Boulder, WY reference area.	Matrix species identified specifically in the ROD. Continues monitoring efforts. Cultural not needed. 100% Funding secured.	Ahead of five-year monitoring cycle (year 3 of 5) but warranted by USFWS petition for listing.	56.7	Recommend Fund
Antelope Flats Water Development (Reservoir) ($24,000 Total Required)	$12,000	50.0%	Construct a 3-surface acre reservoir to provide a reliable water source for livestock and wildlife.	South of Hoback Rim and 20 miles northwest of Pinedale, WY. T36N, R113W, Sec 24,25; T36N, R112W, Sec 25, 19, 30, 31; T36N, R111W, Sec 19, 20, 29, 30, 31, 32.	Cultural not needed. NEPA not needed. Off-site. Permits are complete.	Benefits to wildlife are not apparent as it is a new livestock water source in an area that is not water-limiting for wilflife. 0% funding secured.	33.3	No Recommendation

Future of the PAPO Board **Chairwoman Kirby**

- **Meeting Cadence and Process:** The board agreed to continue with two meetings per year, usually occurring in November and March, continuing to use available project dollars, and recognized that the hybrid monitoring option allows for longer-term planning and stability.

Public Comments **Chairwoman Kirby**

- Members of the public raised questions about operator forecasting, monitoring results, and the importance of public accountability, with the board acknowledging past practices and planning to include operator input and monitoring recaps in future meetings.
    - **Operator Forecasting:** Public participants requested that operators present their anticipated drilling plans at future meetings, noting that operator planning meetings were previously held separately but have not occurred since COVID.
    - **Monitoring Recaps:** The board discussed the possibility of recapping monitoring results and matrix triggers at future meetings, with agency staff confirming that data is still being collected and can be released publicly.
    - **Public Accountability:** Comments emphasized the importance of revising the ROD for public accountability and codifying changes and using existing funds to pick up monitoring items that may have fallen to the wayside, such as PDMS, with the board agreeing to consider these issues in upcoming discussions.

JIO Account

- **Account Closure Process:** The board considered allocating remaining JO funds to approved projects and closing the account, but noted unresolved issues related to potential incoming funds from a conservation easement litigation.
- **Coordination with WWNRT:** The work group was tasked with coordinating with WWNRT to ensure all parties are aware of activities and potential fund transfers, and to report back to the board in November with recommendations.

Next Meeting Location and Dates **Chairwoman Kirby**

- **Meeting Schedule and Project Submission Timeline:** The board set the next meeting for **November 10th in Pinedale with a virtual option**, established a project submission window from July 15th to September 15th, and clarified review and approval processes for upcoming projects.

- **Project Submission Timeline:** The project submission window was set for July 15th to September 15th, allowing the team time to review applications before the November board meeting, with guidelines to be posted publicly.

Adjourn **Chairwoman Kirby**

Motion to adjourn by Craig Smith. Motion seconded by Joe Budd.
Motion passed. Meeting adjourned at 3:26 pm.

Follow-up tasks:

- **Project Closeout and Fund Reallocation:** Review and propose closeout plans for projects with small remaining balances and obtain board approval to reallocate unused funds. (PAPO Team)
- **Groundwater and Vegetation Monitoring Data Accessibility:** Develop a plan to make groundwater and vegetation monitoring data publicly available and report back to the board. (Dave Richey)
- **Jonah Account Closure and Fund Allocation:** Coordinate with WWNRT to clarify the process for closing the Jonah account, including handling potential returned funds from litigation, and report back to the board. (PAPO Team)
- **Project Solicitation Process:** Prepare and distribute a call for project applications by July 15th and notify the board if the team cannot meet this timeline. (BLM team)
- **Haven Conservation Easement Application Review:** Include the Haven Conservation Easement reallocation request and supporting materials in the November project review, ensuring the board has the correct score sheet and application details. (PAPO Team)
- **Operator Forecast Inclusion:** Invite operators to present their future drilling plans and forecasts at the November board meeting. (Dave Richey)

Pinedale Anticline Project Office (PAPO) Checkbook Snapshot September 2026

Checkbook Balance September 30th, 2026	**$2,487,271.70**
Unpaid balances for all open projects (includes all Agency salaries through 2026 and any approved Wildllife Monitoring and new projects to date)	***-$1,552,349.86***
Spud Fees for 2026 received but not yet on WCF Financials	***$217,500.00***
Projected Dollars Available in Checkbook Sept 30, 2026	**$1,152,421.84**

Salary Information by Agency -Approved for 2026 $472,500.00	*Projected Calender 2026*	*Actual to date FY2026*	*Remaining 2025 Salary $ by Agency*
DEQ 100%	$0.00	$0.00	$0.00
WDA 100%	$75,000.00	$0.00	$75,000.00
BLM 100%	$0.00	$0.00	$0.00
WG&F 100%	$0.00	$0.00	$0.00
TOTALS	**$75,000.00**	**$0.00**	**$75,000.00**

Checkbook balance September 30, 2026	**$2,487,271.70**
Less Unpaid balance for Open Board Approved Commitments(Obligated/Approved Projects)	**-$1,552,349.86**
Spud Fees for 2026 received but not yet on WCF Financials	***$217,500.00***
Projected Available Dollars for Future Years	**$1,152,421.84**

Project Name	Approved by Board/Committed	Committed/Final Cost to Date	Expenses/Payments to Date	Unpaid Balance
Wildlife Mitigation Projects				
Green River Huston to Sommers Habitat Restoration (approved May 2023)	$40,000.00	**$40,000.00**	-$38,125.00	$1,875.00
Monument Ridge Vegetation Management (2022)	$350,000.00	**$350,000.00**	-$275,000.00	$75,000.00
Mule Deer Aspen & Riparian Enhancement (2022)	$40,000.00	**$40,000.00**	-$39,998.00	$2.00
North Pinedale Wildlife Habitat Plan (funded April 2021)	$200,000.00	**$200,000.00**	-$15,000.00	$185,000.00
Sage Grouse Flushing Bars for Hayland Producers *(approved May 2015)*	$15,000.00	**$15,000.00**	-$9,759.34	$5,240.66
Sage Grouse Miscellaneous Mitigation Projects (on-site projects only) *$50K add-on approved May 2015*	$150,000.00	**$105,800.00**	-$70,280.35	$35,519.65
Sublette County Invasive Species Management *(funded April 2021)*	$500,000.00	**$500,000.00**	-$164,313.02	$335,686.98
Trappers Point Game Fence Extension (2022)	$40,000.00	**$40,000.00**	$0.00	$40,000.00
Willow Lake Elk Fence Reroute (May 2024)	$40,000.00	**$40,000.00**	$0.00	$40,000.00
Ball Place Conservation Easement (May 2024)	$80,000.00	**$80,000.00**	$0.00	$80,000.00
Lower New Fork Restoration (May 2024)	$25,000.00	**$25,000.00**	-$3,984.00	$21,016.00
Targeted Fence Modification (July 2025)	$70,000.00	**$70,000.00**	-$67,627.00	$2,373.00
Wildlife MitigationTotal	***$1,550,000.00***	***$1,505,800.00***	***($684,086.71)***	***$821,713.29***
Noise Monitoring	$46,996.00	**$46,996.00**	-$46,822.00	$174.00
Mule Deer Monitoring	$325,000.00	**316,329.50**	(109,971.61)	$206,357.89
Pronghorn Monitoring	$325,000.00	**$313,229.66**	(121,939.98)	$191,289.68
Wildlife Monitoring Total	***$696,996.00***	***$676,555.16***	***($278,733.59)***	***$397,821.57***
Air Quality Projects				
Ozone Mitigation Projects *(approved May 2017)*	$250,000.00	**$250,000.00**	$0.00	$250,000.00
Air Quality Total	***$250,000.00***	***$250,000.00***	***$0.00***	***$250,000.00***
All Salaries/Admin by Agency Fiscal Year beginning 2011				
PADMS Operational Systems 2020	$25,800.00	**$25,800.00**	-$17,985.00	$7,815.00
2025- Salaries/Admin for DEQ, WG&F, WDA & BLM. Board approved Nov 2023 WG&F REDUCED 7/17/2025	$472,500.00	**$273,426.23**	-$273,426.23	$0.00
2026- Salaries/Admin for DEQ, WG&F, WDA & BLM. Board approved **July 17th 2025**	$75,000.00	**$75,000.00**	$0.00	$75,000.00
Admin Totals	***$573,300.00***	***$299,226.23***	***($291,411.23)***	***$82,815.00***
PAPO Totals	**$3,070,296.00**	**$2,731,581.39**	**($1,254,231.53)**	**$1,552,349.86**

Continuing pages are more detailed and historical PAPO budget information

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PAPO Budget RECAP September 2026

Total Deposits to date (includes investment income/gains and losses	**$27,606,184.23**
Other income (includes interest income/gains and losses	$715,162.19
TOTAL INCOME TO DATE	$28,321,346.42

TOTAL COMMITMENTS THROUGH September 2026		**-$29,739,132.18**
WILDLIFE	**$11,474,998.17**	
includes all Wildlife funded projects thru 2026		
WILDLIFE MONITORING	**$8,391,482.23**	
includes all funded Wildlife Monitoring thru 2026		
AIR QUALITY	**$616,220.00**	
includes all Air Quality projects thru 2026		
AIR QUALITY MONITORING	**$543,001.00**	
includes all Air Quality projects funded through 2026		
SALARIES/ADMIN	**$5,534,407.16**	
Includes All salaries for DEQ, WDA, WG&F and BLM projected through December 2026		
OTHER ADMINISTRATIVE COMMITMENTS	**$1,787,225.00**	
Includes Budget Administrator Position through 2026 and PADMS commitments through 2022		

Savings from Completed Projects		**$1,020,330.81**
Wildlife Mitigation	**$204,644.21**	
Wildlife Monitoring through 2010	**$51,655.08**	
Wildlife Monitoring beyond 2010 to date (included savings & overages)	**$648,971.11**	
Air Quality	**$0.00**	
Other Admin savings (includes Budget Administrator)	**$115,060.41**	
Reconcilling Item May 1 st 2025		

Agency Salary/Admin Savings 2011 through 2026	**$1,448,013.00**
Less Project Cost Overruns for completed projects to date (excluding Wildlife Monitoring) (20% of committed amount is allowed)	**-$115,636.21**
Less 20% allowance for all projects that are currently not completed (see breakdown on separate spreadsheet)	
Spud Fees for 2026 received but not yet on WCF Financials	*$217,500.00*
Current Projected Balance Available June 2026	**$1,152,421.84**

Total Income to date (includes investment income/gains and losses	$28,321,346.42
Less Total Board Approved Commitments	-$29,739,132.18
Dollars Available before adjustments	-$1,417,785.76
Less Actual Project Overruns to date (within 20% of committed cost overrun allowed)	-$115,636.21
Salary/Admin Savings to date (added back in)	$1,563,073.41
Project Savings to date (added back in)	$905,270.40
Spud Fees for 2025 received but not yet on WCF Financials	
Projected Available Dollars for Future Years	$934,921.84

Wyoming Wildlife - The Foundation	
Statement as of 09/30/2026	
$27,606,184.23	TOTAL DEPOSITS TO DATE
$2,331,955.20	First Interstate Bank activity (interest/gains to
-$1,616,793.01	First Interstate Bank activity (losses/fees to date)
$28,321,346.42	*TOTAL INCOME to date*
-$25,834,074.72	Disbursements made to date (includes uncleared)
$2,487,271.70	Checkbook balance

$	2,487,271.70	$0.00	
$	934,921.84	$0.00	-$217,500.00

Project Name	Approved by Board/Committed	Committed/Final Cost to Date	Expenses/Payments to Date	Unpaid Balance	Project Completed	Project Final Cost over committed $	Project Savings
Wildlife Mitigation Projects							
Bald Eagle Key Habitats (Beringia South)	$60,000.00	$60,000.00	-$60,000.00	$0.00	x		$0.00
Beaver Creek Ranch Wildlife Friendly Fencing (approved May 2023)	$70,000.00	$0.00	$0.00	$0.00			$70,000.00
Dogwood Ranch (approved May 2023)	$22,050.00	$22,050.00	-$22,050.00	$0.00	x		$0.00
Great Conservation Idea (Assistance Grant program/Sage Grouse only) *approved*	$20,000.00	$3,939.83	-$3,939.83	$0.00	x		$16,060.17
Green River Huston to Sommers Habitat Restoration (approved May 2023)	$40,000.00	$40,000.00	-$38,125.00	$1,875.00			$0.00
Habitat Assessment	$3,375.00	$3,375.00	-$3,375.00	$0.00	x		$0.00
Hoback Mitigation & Protection Project	$200,000.00	$200,000.00	-$200,000.00	$0.00	x		$0.00
Hoback Ranches Wildlife Friendly Fence *(approved May 2018)*	$128,000.00	$128,590.00	-$128,590.00	$0.00	x	-$590.00	$0.00
Hoback Rim Wildlife Friendly Fence *(approved May 2017)*	$178,800.00	$118,952.34	-$118,952.34	$0.00	x		$59,847.66
Hoback Rim Wildlife Friendly Fence **Phase II** *(approved Jan 2020)*	$59,847.66	$61,554.26	-$61,554.26	$0.00	x	-$1,706.60	$0.00
Horse Creek Wyoming Range Weed Treatments *(approved May 2016)*	$25,000.00	$24,928.71	-$24,928.71	$0.00	x		$71.29
Jackson Fork Ranch -Bison Fence Modifications *(approved May 2019)*	$25,000.00	$20,433.75	-$20,433.75	$0.00	x		$4,566.25
Mesa Fertilization 2010	$46,000.00	$33,646.00	-$33,646.00	$0.00	x		$12,354.00
Mesa Fertilization 2011*(Project approved for $215,700/project savings of $161,158 were returned to General Fund per Board decision May 2015)*	$54,542.00	$54,542.00	-$54,542.00	$0.00	x		$0.00
Mesa Fertilization Data Collection	$100,000.00	$79,720.00	-$79,720.00	$0.00	x		$20,280.00
Mesa Habitat Improvement Project (water well) Deposit from Upper Green River Cattle Assn $20,000 11/2013 **	$71,500.00	$84,135.98	-$84,135.98	$0.00	x	-$12,635.98	$0.00
Mesa Mule Deer Shrub Planting *(approved May 2018)*	$58,000.00	$49,160.61	-$49,160.61	$0.00	x		$8,839.39
Mesa Wildlife Friendly Fence Modification Phase 1 **	$500,000.00	$500,000.30	-$500,000.30	$0.00	x	-$0.30	$0.00
Mesa Wildlife Friendly Fence Modification Phase 2	$175,000.00	$175,000.00	-$175,000.00	$0.00	x		$0.00
Monument Ridge Project *(approved December 2017) Funded from Wildlife Savings ($36,018.35 and Wildlife Monitoring thru 2010 Savings ($11,981.65)*	$50,000.00	$45,327.61	-$45,327.61	$0.00	x		$4,672.39
Monument Ridge Vegetation Management (Approved 2022)	$350,000.00	$350,000.00	-$275,000.00	$75,000.00			$0.00
Mountain King Ranch Wildlife Friendly Fence (approved May 2020)	$42,600.00	$42,600.00	-$42,600.00	$0.00	x		$0.00
Mule Deer Aspen & Riparian Enhancement (Approved 2022)	$40,000.00	$40,000.00	-$39,998.00	$2.00			$0.00
North Mesa Reservoir *(approved May 2014)*	$47,500.00	$47,500.00	-$47,500.00	$0.00	x		$0.00
North Pinedale Wildlife Habitat Plan (funded April 2021)	$200,000.00	$200,000.00	-$15,000.00	$185,000.00			$0.00
Pape-Miller Mule Deer Habitat *(approved May 2018)*	$100,000.00	$100,000.00	-$100,000.00	$0.00			$0.00
Pinedale Anticline Reclamation Seed Trial (paid in FBMS)	$5,243.51	$5,243.51	-$5,243.51	$0.00	x		$0.00
Pronghorn Collaring Study	$144,650.00	$144,650.00	-$144,650.00	$0.00	x		$0.00
Red Desert to Hoback Mule Deer Migration Corridor *(approved May 2016)*	$24,000.00	$24,000.00	-$24,000.00	$0.00	x		$0.00
Rolling Thunder Ranch Aspen Treatments	$60,000.00	$60,000.00	-$60,000.00	$0.00	x		$0.00
Roosevelt Fire Vegatation Restoration & Rehabilitation *(funded December 2018)*	$200,000.00	$200,000.00	-$200,000.00	$0.00	x		$0.00
Sage Grouse Flushing Bars for Hayland Producers *(approved May 2015)*	$15,000.00	$15,000.00	-$9,759.34	$5,240.66			$0.00
Sagebrush Mower *(approved May 2015 -will be owned & maintained by WG&F & will be used for habitat improvement projects for mule deer and sage grouse)*	$10,000.00	$9,187.92	-$9,187.92	$0.00	x		$812.08
Sage Grouse Fence Marking for Collision Reduction **	$6,330.00	$6,643.53	-$6,643.53	$0.00	x	-$313.53	$0.00
Sage Grouse Miscellaneous Mitigation Projects (on-site projects only) *$50K add-on approved May 2015*	$105,800.00	$105,800.00	-$70,280.35	$35,519.65			$0.00
1. South Mesa Wildlife Guzzlers	$14,200.00	$14,200.00	-$14,200.00	$0.00			$0.00
2. Mt. Airy Pipeline Ring Tank #2 and Mesa Reservoir #1 (Wells)	$22,000.00	$22,000.00	-$22,000.00	$0.00			$0.00

Project Name	Approved by Board/Committed	Committed/Final Cost to Date	Expenses/Payments to Date	Unpaid Balance	Project Completed	Project Final Cost over committed $	Project Savings
3. Desert Reservoir #3 (Well)	$8,000.00	$8,000.00	-$8,000.00	$0.00			$0.00
Soaphole Perennial Pepperweed Project *(approved May 2018)*	$20,000.00	$20,000.00	-$20,000.00	$0.00	x		$0.00
Sommers/Grindstone Conservation Project	$6,000,000.00	$6,000,000.00	-$6,000,000.00	$0.00	x		$0.00
Sublette County Invasive Species *(funded May 2019)*	$120,000.00	$120,000.00	-$120,000.00	$0.00	x		$0.00
Sublette County Invasive Species Management *(funded April 2021)*	$500,000.00	$500,000.00	-$164,313.02	$335,686.98			$0.00
Sublette Fence Project - Koch Ranch (funded April 2021)	$70,000.00	$70,000.00	-$70,000.00	$0.00	x		$0.00
Sublette Mule Deer EA & Cultural Work 2013-2016 (Labor $3850.02 FBMS)	$130,000.00	$127,499.02	-$127,499.02	$0.00	x		$2,500.98
Sublette Mule Deer Habitat Treatments *(approved May 2017)*	$20,560.00	$17,920.00	-$17,920.00	$0.00	x		$2,640.00
Sublette Mule Deer Mitigation Projects- BLM 7122 Account number LLWYD01000.L71220000.MR0000.LVTFKX799010. $164,000.00 (BLM FBMS LABOR/OPS revised Costs to date from this 7122 account =$71,872.03 *WCF refunded available $ in 7122 account on 3/19/2020 $92,127.97.*	$300,000.00	$329,800.77	-$329,800.77	$0.00	x	-$29,800.77	$0.00
Trappers Point Game Fence Extension (2022)	$40,000.00	$40,000.00	$0.00	$40,000.00			$0.00
Webb Draw Sagebrush Treatment *(approved May 2015) Project completed by other means. $2K returned to Wildlife Savings*	$2,000.00	$0.00	$0.00	$0.00	x		$2,000.00
Weed Inventory & Treatment *(approved May 2015)*	$25,000.00	$25,000.00	-$25,000.00	$0.00	x		$0.00
Wind River Front Wildlife Friendly Fence	$250,000.00	$250,000.00	-$250,000.00	$0.00	x		$0.00
Targeted Fence Mode							$0.00
Mesic Meadow Restoration (May 2024)	$500,000.00	$500,000.00	-$500,000.00	$0.00			$0.00
Willow Lake Elk Fence Reroute (May 2024)	$40,000.00	$40,000.00	$0.00	$40,000.00			$0.00
Ball Place Conservation Easement (May 2024)	$80,000.00	$80,000.00	$0.00	$80,000.00			$0.00
Lower New Fork Restoration (May 2024)	$25,000.00	$25,000.00	-$3,984.00	$21,016.00			$0.00
Targeted Fence Modification (July 2025)	$70,000.00	$70,000.00	-$67,627.00	$2,373.00			$0.00
Wildlife MitigationTotal	***$11,474,998.17***	***$11,315,401.14***	***($10,493,687.85)***	***$821,713.29***	***$0.00***	***($45,047.18)***	***$204,644.21***
				TOTAL Wildlife Mitigation Savings			**$204,644.21**
Wildlife Monitoring Projects prior to 2011							
Monitoring Cameras	$8,044.35	$8,044.35	-$8,044.35	$0.00	x		$0.00
Mule Deer Monitoring Data Analysis	$35,500.00	$35,500.00	-$35,500.00	$0.00	x		$0.00
Mule Deer Monitoring 2009/2010	$205,550.00	$189,795.77	-$189,795.77	$0.00	x		$15,754.23
Noise Monitoring 2010	$17,924.98	$17,924.98	-$17,924.98	$0.00	x		$0.00
Pronghorn Monitoring 2010	$217,604.95	$203,232.67	-$203,232.67	$0.00	x		$14,372.28
Pygmy Rabbit Monitoring (Nov 09-Feb 10) UW-WINDD	$80,000.00	$80,000.00	-$80,000.00	$0.00	x		$0.00
Raptor Monitoring 2010	$48,858.90	$48,858.90	-$48,858.90	$0.00	x		$0.00
Sage-Grouse Monitoring Equipment	$26,305.00	$26,305.00	-$26,305.00	$0.00	x		$0.00
Sage-Grouse Monitoring (Mar 09-Jan 10)	$209,583.00	$205,468.36	-$205,468.36	$0.00	x		$4,114.64
Sage-Grouse Winter & Lek Search Flights	$33,000.00	$23,718.16	-$23,718.16	$0.00	x		$9,281.84
Snow Depth & Traffic Monitoring (Nov 09-May 10)	$42,826.40	$42,789.40	-$42,789.40	$0.00	x		$37.00
Spot Image/Satellite Imagery for Wildlife Monitoring (09-10)	$4,745.00	$4,745.00	-$4,745.00	$0.00	x		$0.00
Third Party Review of PAPA Wildlife Monitoring Projects	$8,400.00	$7,500.00	-$7,500.00	$0.00	x		$900.00
White-tailed Prairie Dog Monitoring (May 09-Dec 09)	$95,361.50	$88,166.41	-$88,166.41	$0.00	x		$7,195.09
Monument Ridge Project *(approved December 2017) Funded from Wildlife Savings ($38,018.35 and Wildlife Monitoring thru 2010 Savings ($11,981.65)* **this line is for information only**							$0.00
Wildlife Monitoring Projects prior to 2011	***$1,033,704.08***	***$982,049.00***	***-$982,049.00***	***$0.00***	***$0.00***	***$0.00***	***$51,655.08***
				Wildlife Monitoring Savings (prior to 2011)			**$51,655.08**
Mule Deer and Pronghorn Web-based Mapping Tool (funded April 2021)	$18,000.00	$18,000.00	(18,000.00)	$0.00	x		
				Wildlife Monitoring Savings (prior to 2011) remaining			**$51,655.08**
Revised Wildlife Monitoring Total prior to 2011	$1,051,704.08	$1,000,049.00	($1,000,049.00)	***$0.00***	***$0.00***	***$0.00***	

Project Name	Approved by Board/Committed	Committed/Final Cost to Date	Expenses/Payments to Date	Unpaid Balance	Project Completed	Project Final Cost over committed $	Project Savings
Board approval to fund Wildlife Monitoring by State Fiscal Year/by total needed for all Species beginning 2011							
State FY11 Wildlife Monitoring Projects - $683,199.00 (Actual committed $693,631.00)							
Mule Deer Monitoring	$98,600.00	$98,600.00	-$98,600.00	$0.00	x		$0.00
Noise Monitoring	$10,432.00	$10,432.00	-$10,432.00	$0.00	x		$0.00
Pronghorn Monitoring	$163,500.00	$163,500.00	-$163,500.00	$0.00	x		$0.00
Pygmy Rabbit Monitoring	$167,554.00	$167,554.00	-$167,554.00	$0.00	x		$0.00
Raptor Monitoring (BLM contribution $80,000 - TOTAL PROJECT pd in FBMS. $22,156 from 7122 PAPO operating fund)	$22,156.00	$22,156.00	-$22,156.00	$0.00	x		$0.00
Sage Grouse Nesting	$100,860.00	$100,860.00	-$100,860.00	$0.00	x		$0.00
Sage-Grouse Winter & Lek Search Flights	$35,000.00	$34,522.75	-$34,522.75	$0.00	x		$477.25
Spot Image/Satellite Imagery for Wildlife Monitoring	$4,475.00	$4,475.00	-$4,475.00	$0.00	x		$0.00
Snow Depth & Traffic Monitoring	$26,050.00	$26,050.00	-$26,050.00	$0.00	x		$0.00
White-tailed Prairie Dog Monitoring	$65,004.00	$65,004.00	-$65,004.00	$0.00	x		$0.00
State FY12 Wildlife Monitoring Projects - $846,130.50 (Actual Committed $846,130.50)							$0.00
Mule Deer Monitoring	$155,110.00	$155,110.00	-$155,110.00	$0.00	x		$0.00
Pronghorn Monitoring	$165,700.00	$165,700.00	-$165,700.00	$0.00	x		$0.00
Pygmy Rabbit Monitoring	$256,499.00	$256,499.00	-$256,499.00	$0.00	x		$0.00
Raptor Monitoring	$126,066.00	$126,066.00	-$126,066.00	$0.00	x		$0.00
Spot Image/Satellite Imagery for Wildlife Monitoring	$5,625.00	$5,625.00	-$5,625.00	$0.00	x		$0.00
Sage-Grouse Winter & Lek Search Flights	$36,732.50	$30,584.59	-$30,584.59	$0.00	x		$6,147.91
Snow Depth & Traffic Monitoring	$35,135.00	$35,047.50	-$35,047.50	$0.00	x		$87.50
White-tailed Prairie Dog Monitoring	$65,263.00	$65,263.00	-$65,263.00	$0.00	x		$0.00
State FY13 Wildlife Monitoring Projects - $827,162.00 (Actual committed $791,962.00)							$0.00
Mule Deer Monitoring	$160,000.00	$160,000.00	-$160,000.00	$0.00	x		$0.00
Pygmy Rabbit Monitoring	$256,499.00	$256,499.00	-$256,499.00	$0.00	x		$0.00
Raptor Monitoring	$100,000.00	$94,606.70	-$94,606.70	$0.00	x		$5,393.30
Revised Noise Report from Sandhill Company	$4,800.00	$4,800.00	-$4,800.00	$0.00	x		$0.00
Sage-Grouse Winter & Lek Search Flights	$35,000.00	$35,000.00	-$35,000.00	$0.00	x		$0.00
Snow Depth & Traffic Monitoring - *cancelled (was committed @ $40,000)*	$0.00	$0.00	$0.00	$0.00	x		$0.00
White-tailed Prairie Dog Monitoring	$65,663.00	$65,663.00	-$65,663.00	$0.00	x		$0.00
State FY14 Wildlife Monitoring Projects - $750,000.00 approved (Actual committed $575,816.55)							$0.00
Mule Deer Monitoring	$98,300.00	$98,300.00	-$98,300.00	$0.00	x		$0.00
Pronghorn Monitoring	$121,101.00	$121,101.00	-$121,101.00	$0.00	x		$0.00
Pygmy Rabbit Monitoring	$197,420.00	$197,420.00	-$197,420.00	$0.00	x		$0.00
Sage-Grouse Winter & Lek Search Flights	$35,000.00	$11,512.96	-$11,512.96	$0.00	x		$23,487.04
Spot Image/Satellite Imagery for Wildlife Monitoring	$5,700.00	$5,700.00	-$5,700.00	$0.00	x		$0.00
Noise Monitoring	$55,930.00	$55,930.00	-$55,930.00	$0.00	x		$0.00
White-tailed Prairie Dog Monitoring	$62,365.55	$62,365.55	-$62,365.55	$0.00	x		$0.00
State FY15 Wildlife Monitoring Projects - $650,000.00 approved (Actual committed $545,857.42)							$0.00
Mule Deer Monitoring	$90,700.00	$65,128.82	-$65,128.82	$0.00	x		$25,571.18
Pronghorn Monitoring	$85,483.00	$85,483.00	-$85,483.00	$0.00	x		$0.00
Pygmy Rabbit Monitoring	$197,420.00	$197,420.00	-$197,420.00	$0.00	x		$0.00
Pygmy Rabbit Power Analysis Project	$8,270.00	$8,270.00	-$8,270.00	$0.00	x		$0.00
Sage-Grouse Winter & Lek Search Flights	$35,000.00	$0.00	$0.00	$0.00	x		$35,000.00
Noise Monitoring	$55,066.00	$55,066.00	-$55,066.00	$0.00	x		$0.00
White-tailed Prairie Dog Monitoring	$64,405.55	$64,405.55	-$64,405.55	$0.00	x		$0.00
White-tailed Prairie Dog Power Analysis Project	$8,905.55	$9,512.85	-$9,512.85	$0.00	x	-$607.30	$0.00
State FY16 Wildlife Monitoring Projects - $490,000.00 (Actual committed $591,200.00)							$0.00
Mule Deer Monitoring *(additional $32,200 needed here- new total $123K)*	$123,000.00	$0.00	$0.00	$0.00	x		$123,000.00
Pronghorn Monitoring *(additional $34K need here - new total $121K)*	$121,000.00	$44,743.23	-$44,743.23	$0.00	x		$76,256.77
Pygmy Rabbit Monitoring	$191,000.00	$191,000.00	-$191,000.00	$0.00	x		$0.00
Sage-Grouse Winter & Lek Search Flights *(added after 2015/2016 was approved)*	$35,000.00	$0.00	$0.00	$0.00	x		$35,000.00
Noise Monitoring	$56,000.00	$56,000.00	-$56,000.00	$0.00	x		$0.00
White-tailed Prairie Dog Monitoring	$65,000.00	$65,000.00	-$65,000.00	$0.00	x		$0.00
							$0.00
State FY17 Wildlife Monitoring Projects - $509,000							$0.00
Mule Deer Monitoring	$93,000.00	$0.00	$0.00	$0.00	x		$93,000.00
Pronghorn Monitoring	$85,000.00	$0.00	$0.00	$0.00	x		$85,000.00
Pygmy Rabbit Monitoring	$180,000.00	$180,000.00	-$180,000.00	$0.00	x		$0.00
Noise Monitoring	$65,000.00	$65,000.00	-$65,000.00	$0.00	x		$0.00
White-tailed Prairie Dog Monitoring	$86,000.00	$86,000.00	-$86,000.00	$0.00	x		$0.00
							$0.00

Project Name	Approved by Board/Committed	Committed/Final Cost to Date	Expenses/Payments to Date	Unpaid Balance	Project Completed	Project Final Cost over committed $	Project Savings
State FY18 Wildlife Monitoring Projects - $617,992 ***Board approved to use $450K from Wildlife Monitoring Savings May 2017***							**$0.00**
Mule Deer/Pronghorn Monitoring	$257,992.00	**$257,992.00**	-$257,992.00	$0.00	x		**$0.00**
Pygmy Rabbit Monitoring	$185,000.00	**$185,000.00**	-$185,000.00	$0.00	x		**$0.00**
Noise Monitoring	$70,000.00	**$70,000.00**	-$70,000.00	$0.00	x		**$0.00**
White-tailed Prairie Dog Monitoring	$100,000.00	**$100,000.00**	-$100,000.00	$0.00	x		**$0.00**
							$0.00
State FY19 Wildlife Monitoring Projects - $450,000							**$0.00**
Mule Deer/Pronghorn Monitoring	$100,000.00	**$99,913.42**	-$99,913.42	$0.00	x		**$86.58**
Pygmy Rabbit Monitoring	$185,000.00	**$185,000.00**	-$185,000.00	$0.00	x		**$0.00**
Noise Monitoring	$65,000.00	**$65,000.00**	-$65,000.00	$0.00	x		**$0.00**
White-tailed Prairie Dog Monitoring	$100,000.00	**$100,000.00**	-$100,000.00	$0.00	x		**$0.00**
							$0.00
State FY20 Wildlife Monitoring Projects - $450,000							**$0.00**
Mule Deer/Pronghorn Monitoring	$100,000.00	**$0.00**	$0.00	$0.00	x		**$100,000.00**
Pygmy Rabbit Monitoring	$185,000.00	**$185,000.00**	-$185,000.00	$0.00	x		**$0.00**
Noise Monitoring	$65,000.00	**$65,000.00**	-$65,000.00	$0.00	x		**$0.00**
White-tailed Prairie Dog Monitoring	$100,000.00	**$100,000.00**	-$100,000.00	$0.00	x		**$0.00**
				$0.00			**$0.00**
State FY21 Wildlife Monitoring Projects - $350,000 ***(approved May 2020)***							**$0.00**
Pygmy Rabbit Monitoring	$185,000.00	**$182,976.34**	-$182,976.34	$0.00	x		**$2,023.66**
Noise Monitoring	$65,000.00	**$65,000.00**	-$65,000.00	$0.00	x		**$0.00**
White-tailed Prairie Dog Monitoring	$100,000.00	**$100,000.00**	-$100,000.00	$0.00	x		**$0.00**
							$0.00
State FY22 Wildlife Monitoring Projects - $65,000 ***(approved to date April 2021)***							**$0.00**
Noise Monitoring	$65,000.00	**$65,000.00**	-$65,000.00	$0.00	x		**$0.00**
Pygmy Rabbit Monitoring	$50,000.00	**$50,000.00**	-$50,000.00	$0.00	x		**$0.00**
White-tailed Prairie Dog Monitoring	$50,000.00	**$32,000.92**	-$32,000.92	$0.00	x		**$17,999.08**
							$0.00
State FY23 Wildlife Monitoring Projects - $85,000 ***(approved to date Dec 2022)***							**$0.00**
Noise Monitoring	$80,000.00	**$80,000.00**	-$80,000.00	$0.00			**$0.00**
							$0.00
State FY24 Wildlife Monitoring Projects - $701,000.00 ***(approved to date Nov 2024)***							**$0.00**
Noise Monitoring	$46,996.00	**$46,996.00**	-$46,822.00	$174.00			**$0.00**
Mule Deer Monitoring	$325,000.00	**316,329.50**	-$109,971.61	$206,357.89			**$8,670.50**
Pronghorn Monitoring	$325,000.00	**$313,229.66**	-$121,939.98	$191,289.68			**$11,770.34**
							$0.00
State FY25 Wildlife Monitoring Projects - $0 ***(approved to date July 2025)***							**$0.00**
							$0.00

							$0.00
Wildlife Monitoring Total	***$7,357,778.15***	***$6,709,414.34***	***($6,311,592.77)***	***$397,821.57***	***$0.00***	***($607.30)***	***$648,971.11***
				Wildlife Monitoring Savings/overages 2011 to present			**$648,971.11**
				additional dollars needed for 2018 monitoring to cover agreement			
				Wildlife Monitoring Savings 2011 to present (revised)			**$648,971.11**

Project Name	Approved by Board/Committed	Committed/Final Cost to Date	Expenses/Payments to Date	Unpaid Balance	Project Completed	Project Final Cost over committed $	Project Savings
Air Quality Projects							**$0.00**
ARRA/DERA	$262,470.00	**$262,470.00**	-$262,470.00	$0.00	x		**$0.00**
Wood Stove Changeout 2010	$103,750.00	**$103,750.00**	-$103,750.00	$0.00	x		**$0.00**
Ozone Mitigation Projects *(approved May 2017)*	$250,000.00	**$250,000.00**	$0.00	$250,000.00			**$0.00**
Air Quality Total	***$616,220.00***	***$616,220.00***	***($366,220.00)***	***$250,000.00***	***$0.00***	***$0.00***	***$0.00***
UW Spatial Air Quality Assessment-PASQUA (monitoring)	$543,001.00	**$543,001.00**	-$543,001.00	$0.00	x		**$0.00**
Air Quality Monitoring Total	***$543,001.00***	***$543,001.00***	***($543,001.00)***	***$0.00***	***$0.00***	***$0.00***	***$0.00***
					Air Quality		**$0.00**
Administrative Costs by Calendar Year							
USGS Data Management System 2010 & 2011 -Paid FBMS	$125,000.00	**$125,000.00**	-$125,000.00	$0.00	x		**$0.00**
PADMS Operational Systems 2011- Paid FBMS (L12PG00040)	$14,000.00	**$14,000.00**	-$14,000.00	$0.00	x		**$0.00**
PADMS Operational Systems 2012-2013 -Paid FBMS (L12PG00040)	$46,375.00	**$46,375.00**	-$46,375.00	$0.00	x		**$0.00**
PADMS Operational Systems 2014 - Paid FBMS (L12PG00040)	$25,800.00	**$25,800.00**	-$25,800.00	$0.00	x		**$0.00**
PADMS Operational Systems 2015 - L12PG00040	$25,800.00	**$0.00**	$0.00	$0.00	x		**$25,800.00**
PADMS Operational Systems 2016 - L12PG00040	$25,800.00	**$0.00**	$0.00	$0.00	x		**$25,800.00**
PADMS Operational Systems 2017 - L12PG00040 (needs New Agreement aft	$25,800.00	**$0.00**	$0.00	$0.00	x		**$25,800.00**
PADMS Operational Systems 2018	$25,800.00	**$0.00**	$0.00	$0.00	x		**$25,800.00**
PADMS Operational Systems 2019	$25,800.00	**$25,800.00**	-$25,800.00	$0.00	x		**$0.00**
PADMS Operational Systems 2020	$25,800.00	**$25,800.00**	-$17,985.00	$7,815.00			**$0.00**
Additional cubicles for Staff 2010 - Paid FBMS	$23,000.00	**$23,000.00**	-$23,000.00	$0.00	x		**$0.00**
DEQ Ambient Monitoring Network & Data Management (5 years) **	$1,250,000.00	**$1,319,303.15**	-$1,319,303.15	$0.00	x	**-$69,303.15**	**$0.00**
Budget Administrator Contract 2013	$19,750.00	**$18,667.08**	-$18,667.08	$0.00	x		**$1,082.92**
Budget Administrator Contract 2014	$18,500.00	**$16,788.63**	-$16,788.63	$0.00	x		**$1,711.37**
Budget Administrator Contract 2015	$18,500.00	**$17,121.26**	-$17,121.26	$0.00	x		**$1,378.74**
Budget Administrator Contract 2016	$18,500.00	**$17,141.50**	-$17,141.50	$0.00	x		**$1,358.50**
Budget Administrator Contract 2017	$18,500.00	**$18,366.38**	-$18,366.38	$0.00	x		**$133.62**
Budget Administrator Contract 2018	$18,500.00	**$19,029.65**	-$19,029.65	$0.00	x	**-$529.65**	**$0.00**
Budget Administrator Contract 2019	$9,000.00	**$9,148.93**	-$9,148.93	$0.00	x	**-$148.93**	**$0.00**
Budget Administrator Contract 2020	$9,000.00	**$8,843.88**	-$8,843.88	$0.00	x		**$156.12**
Budget Administrator Contract 2021	$9,000.00	**$9,000.00**	-$9,000.00	$0.00	x		**$0.00**
Budget Administrator Contract 2022	$9,000.00	**$8,345.53**	-$8,345.53	$0.00	x		**$654.47**
Paid to BLM for salaries/admin costs thru Dec 2010 - earmarked $182,965	$199,391.67	**$194,007.00**	-$194,007.00	$0.00	x		**$5,384.67**
Paid to WGF for salaries/admin costs thru Dec 2010- earmarked $102,000	$63,204.00	**$63,204.00**	-$63,204.00	$0.00	x		**$0.00**
Paid to DEQ for salaries/admin costs thru Dec 2010- earmarked $265,100	$27,404.68	**$27,404.68**	-$27,404.68	$0.00	x		**$0.00**
Paid to WDA for salaries/admin costs thru Dec 2010 - earmarked $60,250	$0.00	**$0.00**	$0.00	$0.00	x		**$0.00**
All Salaries/Admin by Agency Fiscal Year beginning 2011							**$0.00**
2011 - Salaries/Admin for DEQ, WG&F, WDA & BLM	$642,590.66	**$428,844.31**	-$428,844.31	$0.00	x		**$213,746.35**
2012 - Salaries/Admin for DEQ, WG&F, WDA & BLM	$587,071.00	**$484,044.66**	-$484,044.66	$0.00	x		**$103,026.34**
2013 - Salaries/Admin for DEQ, WG&F, WDA & BLM	$568,467.00	**$503,216.95**	-$503,216.95	$0.00	x		**$65,250.05**
2014 - Salaries/Admin for DEQ, WG&F, WDA & BLM	$581,267.92	**$470,003.21**	-$470,003.21	$0.00	x		**$111,264.71**
2015 - Salaries/Admin for DEQ, WG&F, WDA & BLM (no reductions)	$504,345.15	**$410,663.03**	-$410,663.03	$0.00	x		**$93,682.12**
2016 - Salaries/Admin for DEQ, WG&F, WDA & BLM (Salary phase out begins)	$442,367.41	**$280,060.47**	-$280,060.47	$0.00	x		**$162,306.94**
2017 - Salaries/Admin for DEQ, WG&F, WDA & BLM.	$397,852.53	**$215,015.79**	-$215,015.79	$0.00	x		**$182,836.74**
2018 - Salaries/Admin for DEQ, WG&F, WDA & BLM.	$311,067.67	**$200,721.37**	-$200,721.37	$0.00	x		**$110,346.30**
2019 - Salaries/Admin for DEQ, WG&F, WDA & BLM.	$272,378.55	**$172,630.24**	-$172,630.24	$0.00	x		**$99,748.31**
2020 - Salaries/Admin for DEQ, WG&F, WDA & BLM.	$231,998.92	**$186,361.32**	-$186,361.32	$0.00	x		**$45,637.60**
2021- Salaries/Admin for DEQ, WG&F, WDA & BLM.	$195,000.00	**$195,000.00**	-$195,000.00	$0.00	x		**$0.00**
2022- Salaries/Admin for DEQ, WG&F, WDA & BLM. (included 7122 $ on hand to cover BLM salaries)*Board approved April 2021*	$195,000.00	**$189,716.00**	-$189,716.00	$0.00	x		**$5,284.00**
2023- Salaries/Admin for DEQ, WG&F, WDA & BLM. *Board approved Dec 2021*	$315,000.00	**$315,000.00**	-$315,000.00	$0.00	x		**$0.00**
2024- Salaries/Admin for DEQ, WG&F, WDA & BLM. *Board approved Nov 2023*	$315,000.00	**$259,190.23**	-$259,190.23	$0.00	x		**$55,809.77**
2025- Salaries/Admin for DEQ, WG&F, WDA & BLM. *Board approved Nov 2023*	$472,500.00	**$273,426.23**	-$273,426.23	$0.00	x		**$199,073.77**
2026- Salaries/Admin for DEQ, WG&F, WDA & BLM. *Board approved July 17th 2025*	$75,000.00	**$75,000.00**	$0.00	$75,000.00			**$0.00**
Admin Totals	***$8,184,132.16***	***$6,691,040.48***	***($6,608,225.48)***	***$82,815.00***	***$0.00***	***($69,981.73)***	***$1,563,073.41***

Project Name	Approved by Board/Committed	Committed/Final Cost to Date	Expenses/Payments to Date	Unpaid Balance	Project Completed	Project Final Cost over committed $	Project Savings
					Agency Salary/Admin Savings		$1,448,013.00
					Other Admin Project Savings (includes Budget Administrator		$115,060.41
Other Budget Items impacting Balance							
Wyoming Wildlife - The Foundation annual fees to date	$168,156.69	$168,156.69	-$168,156.69	$0.00			$0.00
Board Approved Audit PMCH Accounting Firm 5/2024	$20,945.00	$20,945.00	(20,945.00)	$0.00	X		$0.00
Budget adjument per Board meeting 11/4/2024							$0.00
Noise Monitoring	$69,122.00	$69,122.00	(69,122.00)	$0.00	x		$0.00
Wildlife Monitoring Mule deer Pronghorn	$48,917.06	$48,917.06	(48,917.06)	$0.00	x		$0.00
White-tailed Prairie Dog	$106,463.56	$106,463.56	(106,463.56)	$0.00	x		$0.00
Pygmy Rabbit	$97,694.31	$97,694.31	(97,694.31)	$0.00	x		$0.00
Total Other Items	*$511,298.62*	*$511,298.62*	*($511,298.62)*	*$0.00*	*$0.00*	*$0.00*	*$0.00*
20% allowance is shown here for all projects that are not yet completed and any new projects (see breakdown on separate spreadsheet) Board voted Dec 2020 meeting to return these funds ($398,179.93) to the General Fund.							
PAPO Totals	**$29,739,132.18**	**$27,386,424.58**	**($25,834,074.72)**	**$1,552,349.86**	**$0.00**	**($115,636.21)**	**$905,270.40**

Jonah Interagency Office (JIO) Checkbook Snapshot-September 2026	
Checkbook Balance 9/30/26	**$18,121.77**
Unpaid balances for all open projects to date (Includes Agency Salaries for 2023) as of April 2025	***$0.00***
Projected Dollars Available in Checkbook September 2026 for future years	**$18,121.77**

Salary Information by Agency	*Projected FY2022*	*Actual to date FY2022*	*Remaining 2022 Salary $ by Agency*
DEQ (FY22) 100% (ends 6/30/22)	$90,000.00	$90,000.00	$0.00
WDA (FY22) 50% (ends 6/30/22)	$30,000.00	$30,000.00	$0.00
WG&F (FY22) 50% (ends 6/30/22)	$37,500.00	$37,500.00	$0.00
BLM (FY22) 50% (ends 9/30/22)	$37,500.00	$37,500.00	$0.00
Subtotal	**$195,000.00**	**$195,000.00**	**$0.00**
Budget Administrator (CY22) 50% (ends 11/30/22)	$9,000.00	$8,602.84	$397.16
TOTALS	**$204,000.00**	**$203,602.84**	**$397.16**

Salary Information by Agency	*Projected FY2021*	*Actual to date FY2021*	*Remaining 2021 Salary $ by Agency*
DEQ (FY21) 100%	$90,000.00	$90,000.00	$0.00
WDA (FY21) 50%	$30,000.00	$30,000.00	$0.00
WG&F (FY21) 50%	$75,000.00	$75,000.00	$0.00
BLM (FY21) 50%	$75,000.00	$74,752.87	$247.13
Subtotal	**$270,000.00**	**$269,752.87**	**$247.13**
Budget Administrator (CY21) 50%	$9,000.00	$9,247.13	-$247.13
TOTALS	**$279,000.00**	**$279,000.00**	**$0.00**

Checkbook balance September 30, 2026	**$18,121.77**
Less Total Open Board Approved Commitments (Projects) UNPAID	**$0.00**
Projected Available Dollars for Future Years	**$18,121.77**

Project Name	Committed-Board Approved	Final Cost to date	Exp/Payments to Date	Unpaid Balance
Wildlife Projects				
Fence Modification for Sage Grouse Mortality *(funded May 2018)*	$50,000.00	$49,961.23	-$49,961.23	$0.00
New Fork Gas Wells Habitat Restoration Phase II *(funded April 2021)*	$25,000.00	$25,000.00	-$25,000.00	$0.00
New Fork River: Area 351 Restoration *(funded by JIO/PAPO Team Oct 2021)*	$75,000.00	$75,000.00	-$75,000.00	$0.00
Salary & Administrative Costs by Calendar Year				
2022 - Salaries/Admin for DEQ, WG&F, WDA & BLM *(funded by Board April 2021)*	$195,000.00	$108,264.17	-$108,264.17	$0.00
2023- Salaries/Admin for BLM (paid from remaining 7122 funds)	$35,825.33	$35,825.33	-$35,825.33	$0.00
JIO Totals	**$345,000.00**	**$294,050.73**	**-$294,050.73**	**$0.00**

2026 PAPO Application Summary and Team Recommendations

Project Title	Applicant	Total PAPO Request	PAPO % of Total	Project Summary	Project Location	Pros	Cons	Project Score	Recommendations
Targeted Fence Modifications in Crucial Ungulate Migratory Habitats ($1,936,900 Total Required)	Twin Eagle Ranch	$750,000	100.0%	Improve wildlife passage through fence conversions, crossings, and seasonal management of fences (e.g., lowering and raising fences and/or wires) 30 miles of fencing through PAPO funding	18 mi N of Cora, 23 mi nw of Pinedale ; w/in offsite mitigation area; T37N; Private	High priority area for fence modification, in Sublete Mule Deer corridor, Crucial winter range and Sage Grouse Core, 3-5 miles are planned to be completed next season any PAPO dollars would go to additional miles.	New construction/new fences discussed in application; Need more information on which fences are priority and overall rankings; Big ask.	0.0	Team does not recommend to fund without more information
The Haven Conservation Easement ($2,991,950 Total Required)	GRVT	$20,000 + transfer $80,000 from another project, for a total of $100000	3.3%	Permanently protect 539.80 acres of ecologically valuable agricultural land along the New Fork River in Sublette County, Wyoming.	Less than 1 mile south of Pinedale, WY; contains about 0.7 miles of New Fork River; overlaps several critically important wildlife habitats. Private T33N, R109W, Sec 14,22,23.	90% in hand. On-site. Meets both mitigation triggers and PAPO priorities. Cultural not needed. Collared PH and SG that use the property. Main corridor for moose. Within the PAPA.		68.3	Recommend to fund
Hwys 191 & 351 Big Game Crossing and Mortality	Aster Canyon	$74,272	74.7%	Driving surveys to collect data on big game mortalities, crossings, and movements;	HWY 191 between Pinedale and Farson, and HWY 351		Collecting similar data to what has already been collected.	6.7	Do not fund
North Horse Creek Channel Re-meandering	WGFD	$25,000	6.25%	Floodplain, ripairan and in-stream habitat treatment along a 3.5 mile long corridor. Goal to increase riparian vegetation and overall forage prodution as well as habitat improvement for Colorado River cutthroat trout.	18 mi W of Daniel, T34N, 113W 85% State, 15% Private	Grouse, Sublette Mule Deer Migration Corridor; meets intent of ROD for wildlife benefits; substantial match		46.7	
Green River: Huston to Sommers Habitat Restoration	WGFD	$50,000	5.6%	Continuing river bank and riparian work along 5 miles of the Green River.	5 mi W of Pinedale on the Green River, 100% Private	GSG, pronghorn, deer, meets intent of ROD for wildlife benefits; substantial match; almost on-site		63.3	Recommend to fund

PINEDALE ANTICLINE PROJECT OFFICE (PAPO)

1625 West Pine Street
PO Box 768
Pinedale, WY 82941

2026 PAPO APPLICATION FOR FUNDING

(Deadline for applicants is September 15, 2026. Use additional sheets if necessary)

GENERAL PROJECT INFORMATION

Project Name: Targeted Fence Modifications in Crucial Ungulate Migratory Habitats

General Location **(distance and direction from nearest city/town, attach map if applicable)**
Project Location Map attached. Eighteen (18) miles north of Cora, WY; twenty-three (23) miles northwest of Pinedale, WY - JHLT Conservation Easement on Twin Eagle Ranch

Legal Location of Project: *Please see attached Property Location Map*
Township: T37N
Range: Multiple
Section(s): Multiple
County: Sublette

Surface Ownership (check all that apply): Federal_____ State_____ Private___XXX__

**If project includes a mix of federal, state and/or private lands, provide a breakdown for each ownership by acres and percent of total project area

Contact Information for Affected Parties of Agencies:

WGFD – Wildlife Friendly Fencing (WFF) Coordinator – 307-823-2181
JHLT – Conservation Easement Holder – 307-367-7007

APPLICANT INFORMATION

Name/Organization: Cyndi Bardman / Environmental Steward / Twin Eagle Ranch
Mailing Address (include city, state and zip): 75 Black Butte Ranch Road; Cora, WY 82925
Daytime Phone: 484-357-5131
Fax: None
Email Address: cbardman@twineagleranchwy.com
Point of Contact (if different from above): Same as above

PROJECT DESCRIPTION

General Project Type (check all that apply):

Land Use/Livestock XXX
Lane Use/Recreation ___
Cultural ____
Wildlife/Aquatic XXX
Air ____
Other ____

Describe Project Proposal (such as, mechanical treatments, water improvements, etc.)
Project Narrative*

Located in the shadows of the Wind River Mountains, Twin Eagle Ranch (ranch) is situated between Kendall Valley and Cora, Wyoming with Bridger Teton National Forest flanking it's north/northwest boundaries (see attached map). Approximately 8 miles of the Upper Green River and associated riparian corridor meander through the ranch with numerous prairie potholes, springs, wetlands, and streams dotting the landscape. Diverse ecological communities abound including forests, scrub communities, sage fields, and meadows. The ranch is an active cattle ranch and has over eighty-seven (87) miles of fencing within and around it's approximately 18,000 acres (fencing was inventoried by the Sublette County Conservation District in 2024). In 2025, 9.25 miles of new wildlife friendly fencing (WFF) were constructed with the help of Wyoming Game and Fish Department and the Wyldlife Fund. In 2026, approximately 7 miles of new WFF were constructed with the help of Wyoming Game and Fish Department and The Wyldlife Fund.

WFF is used to maintain necessary animal movement and habitat connectivity while still containing livestock. These fences are designed to improve access to critical habitats and prevent injury and death to wildlife, which can become entangled in or blocked by traditional fences.

As shown on attached mapping, the ranch hosts the migration routes for mule deer, pronghorn, and elk that flow through Sublette County. In addition to the migration routes, large sections of ranch serve as parturition areas for elk, mule deer, pronghorn, and moose. The ranch also hosts a variety of seasonal ranges for elk, including crucial winter/yearlong, summer, and transitional habitats. The ranch prioritizes and conserves natural habitats, ecosystems, and wildlife alongside our traditional ranching operations. It provides critical ecosystem services such as habitat for wildlife and watershed protection and serves as protection from fragmentation and development through regenerative grazing of roughly 5,400 acres of land under conservation easement and 12,600 acres of land that is not in easement.

The ranch is aiming to complete another seventy (70) miles of WFF by 2030. The project proposal is for Spring 2027 to Winter 2028 to construct approximately thirty (30) miles of WFF. Notification of award is requested as soon as possible so the ranch can hire proper staff to complete the project.

The ranch will hire a seasoned and reliable fencing contractor to supply materials and labor to construct the new fence. The ranch will provide equipment and labor to remove the existing fence and prepare the area for the new fence.

Specifically, the ranch proposes completing the project mainly within the conservation easement portion of property (see attached map). The majority of this easement is Carney Ranch Company (CRC) Conservation Easement was purchased utilizing $2,093,800 of JIO funding in 2009. This area serves as migratory pathway, seasonal and yearlong range, and parturition habitat for mule deer, pronghorn and elk and is located within sage grouse core area.

Habitat types within the project area include Aspen groves, Grassland, Irrigated Pasture, Meadow, Mixed Conifer, Mountain Shrub , Riparian, Sagebrush Steppe, and Wetland. The ranch serves as a migration corridor, parturition area, all seasons of habitat/range for multiple species of big game to include elk, moose, mule deer, pronghorn, black bear, and grizzly bear. The owners and operators take protecting these areas for use by these species very close to heart and intend to operate the ranch as a yearling cattle operation for a very long time. The majority of the 87 miles of fence at the ranch is in poor condition and the animals get caught up in it frequently. They will benefit by being able to move through and within the ranch boundaries with ease once wildlife friendly fencing is installed.

Total Project Acres (if applicable): Seventy (70) miles total – 30 miles requested for this grant.

Acres Indirectly Affected (if applicable, explain): The project will indirectly impact elk, mule deer, pronghorn, and other wildlife travelling from southern winter ranges (the Mesa, Red Desert, Calpet) into summer ranges as far north as the Hoback Canyon drainages, depending on migration routes. The ranch also hosts winter range and parturition range for elk, mule deer, and pronghorn.

WHAT ARE THE OBJECTIVES OF THE PROJECT?

The objective of this project is to maintain connected migration routes, winter and summer range, and parturition areas for ungulate species by completely removing, replacing, or modifying fences that may hinder the use of these pathways. Updated fences will be structured according to WFF standards to increase permeability to wildlife, especially mule deer and pronghorn, and reduce the threat of injury or death due to entanglement.

HOW DOES THE PROJECT MEET THE PAPO STRATEGIC PLAN GOALS? ? (please refer to the PAPO 2026 Ranking Score Sheet)

The primary goal of this project is to conserve and support the functionality of the Sublette mule deer, elk, and pronghorn migration corridors as well as to improve movement within seasonal ranges and parturition areas at a landscape level while also improving access to functional, off-site habitats for wildlife species impacted by energy extraction activities on the Pinedale Anticline Project Area. (Objective 1). To achieve this, efforts will focus on targeted fence improvements (conversions) on Twin Eagle Ranch within the approximately 5,400-acre Conservation Easement that JIO provided most of the funding for in 2009. This easement is in high-priority area (Strategy 1 – the Sublette Mule Deer Corridor, crucial winter ranges, and Sage Grouse Core Areas) and on collaborating with partners (WGFD, JHLT) to implement habitat projects that benefit affected species (Strategy 2 – engaging private partners and interagency members). As discussed, this project will be completed on private property of Twin Eagle Ranch that is under JHLT Conservation Easement. Twin Eagle Ranch will work with JHLT and WGFD to ensure that the fencing is built per WFF guidelines and that it will be monitored by WGFD and JHLT to ensure ongoing maintenance for access to wildlife use over time (Objective 3)

This project also aligns with Goal 2 of PAPO's Strategic Plan. Sublette mule deer and pronghorn populations have shown a general decline over time. To address these trends, the project aims to enhance mule deer and pronghorn habitat functionality. This project will enhance functionality by preserving connectivity of migration corridors (Objective 2).

HOW DOES THE PROJECT MEET THE 2026 PAPO PRIORITIES? (please refer to the PAPO 2026 Ranking Score Sheet)

This fencing project enhances habitat connectivity through the installation of passable livestock fencing it ensures access to crucial habitats for wildlife, particularly pronghorn, mule deer, and elk of which pronghorn and mule deer have been disproportionately impacted by activities of the PAPA, therefore it aligns with the intent of the PAPA Record of Decision (ROD).

The converted fences will be designed following WGFD WFF guidelines. These guidelines require a maximum height of forty (40) inches with wire spacing of twelve (12) inches between the top two wires, with the bottom wire positioned eighteen (18) inches above the ground. These specifications will allow mule deer and pronghorn to easily jump over or crawl under, benefiting other species such as moose and elk as well.

The project area is located within the Sublette Mule Deer (SMD) Corridor, contains sage grouse core area, and is located within antelope designated high use corridor as well as hosting stop over areas. It is also located within 5,492 acres of Conservation Easement. Fence conversion and removal in this area will play a key role in conserving vital migration routes.

Additional funding for fencing is needed to complete the entire ranch fence conversion. The funding requested with this application applies to 30 miles of fencing related to the ranch's conservation easements. Rocky Mountain Elk Foundation (RMEF), The Wyldlife Fund (WGFD), and Mulie Fanatics applications have been submitted and will be submitted again to assist with the remaining 30 miles of needed fence conversion.

WHAT ARE THE DIRECT AND/OR INDIRECT EFFECTS ON OTHER RESOURCES?
The direct benefits to wildlife have been discussed in the above write ups. In addition, the project will also enhance livestock management through the installation of updated fencing. It is important to understand that this ranch runs steer on average 100 days per year. It is not cost practical to collar these animals nor would fenceless containment be something the cowboys could teach these temporary cattle year to year. Also, the ranch is willing to showcase the fencing project to foster increased collaboration for others in developing further conservation projects.

WHAT IS THE POTENTIAL FOR FUTURE EXPANSION OF THE PROJECT?
Once the fencing is constructed it should last for at least fifty (50) years. Additional fencing is needed in areas of the ranch that are not within the conservation easement. Should PAPA have additional funding in the future before the ranch raises the funds elsewhere, Twin Eagle may apply for additional funding.

LIST ALL PROJECT PARTNERS/COOPERATORS, THEIR ROLES AND/OR CONTRIBUTIONS:
Should the project be awarded, anticipated partners/cooperators would include:
WGFD – Guidelines for WFF and inspections
JHLT – Approval for new fence and inspections
Twin Eagle Ranch – Removal of old and construction of new fencing
The efficiency of a reduced number of partners will allow more funding to go directly to the materials and labor for the project itself.

PROJECT MONITORING AND REPORTING: (describe how monitoring and reporting will be done, and how it relates to the objectives)
All fence modifications / reconstruction will be inspected by WGFD and JHLT.

RESEARCH POTENTIAL: (describe the research potential of the project)
Twin Eagle Ranch is willing to work with entities who may be interested in doing research on this fencing project. The Environmental Steward for the ranch should be contacted to discuss these opportunities.

PERMITS AND AUTHORIZATIONS REQUIRED PRIOR TO PROJECT IMPLEMENTATION:
(including but not necessarily limited to the following):

PERMIT OR AUTHORIZATION	REQUIRED		SUBMITTED		APPROVED	
	YES	NO	YES	NO	YES	NO
Cultural Resource Inventory		XXX				
USACE Section 404 Permit		XXX				
Cooperative Agreement (s)		XXX				
NEPA Analysis		XXX				
Pesticide Application Permit		XXX				
Private Landowner Agreement		XXX				
Sensitive Species Clearance		XXX				
Surface/Ground Water Permits		XXX				
T/E Species Clearance		XXX				
Other(explain)						
Review and approval by JHLT – Fencing would be on ranch conservation easement that requires approval from easement holder. Approval is expected.	XXX			XXX		XXX

TOTAL PROJECT COST: (attach detailed budget)

Project Planning and Design: $ _____0_____
Unlike a government or NGO sponsored grant, the landowner will be responsible for this phase and will garner approval from JHLT. This and bringing on contractor and general administration will be "in kind"

Project Implementation:$ 750,000
30 miles of fence at approximately $25,000 per mile – materials and construction only – removal of old fencing will be an "in kind" contribution

Project Operations and Maintenance: $___0____
Twin Eagle Ranch will donate "in kind" labor and materials to maintain the fencing.

Total Required: $750,000 over 2 years (15 miles a year)

MATCHING FUNDS ANTIPATED IN CASE (list source and amount)
In-Hand – None at this time.

Pending Applications – All pending applications will go toward the 30 miles of fencing needed outside of the ranch's conservation easement.

ANTICIPATED "IN-KIND" MATCHING FUNDS (list source, valuation, and valuation method)

Anticipated landowner In-Kind: 34.8% cost-share from in-kind plus $9,000 per year maintenance

Twin Eagle Ranch is committed to utilizing their environmental steward for any necessary planning, coordination, obtaining approvals, and for design of the fencing project. This cost will vary but roughly may equal $4,000 through completion.

Twin Eagle Ranch is committed to the removal of old fencing and surface preparation for new fence construction. The ranch will provide the labor, fuel, and disposal fees as well as equipment costs. On average, this cost is approximately $2.50 per foot or for a 30-mile stretch equal to $396,000.

Twin Eagle Ranch is committed to absorbing the operation and maintenance costs of the fencing (checking fence, letting down and putting up wire, fixing fence – materials and manhours). This would equal roughly $300/mile or $9,000 per year for a 30-mile project (using this rate without escalation over 20 years would amount to $180,000).

PERCENTAGE OF FUNDING IN HAND OR COMMITTED _34.8__%

This project grant is being requested from a private entity that has fencing mileage which has been part of other organization grant applications (such as the Upper Green Fence Initiative). It is a highly efficient way to get the money for the project directly to materials and contractors to complete the project without going through numerous NGOs or governmental entities.

TOTAL PAPO FUNDING REQUESTED: $750,000 (Implementation)

EXPECTED/ANTICIPATED LIFE OF PROJECT (LOP)

Perpetual _____ >50 years ___XXX_____ 25-50 years ____ <25 years _____
Explain Basis for Projected LOP:
Fencing materials typically last 50 years or greater. Landowners and managers will maintain fences in accordance with wildlife friendly fence standards in place with WGFD the year the fence is constructed.

PROJECT TIMELINE AND ESTIMATED COMPLETION DATE: Please Explain
This fencing project is located on a high-priority, shovel-ready private property/ conservation easement. The ranch has completed sixteen (16) miles of fencing in the last 2 years and we have worked with a very reliable contractor. We can easily complete 15 miles of fence removal and replacement each year (2027 and 2028). The fencing will be monitored yearly during the JHLT conservation easement monitoring events in perpetuity.

ATTACHMENTS AND SUPPORTING DOCUMENTATION

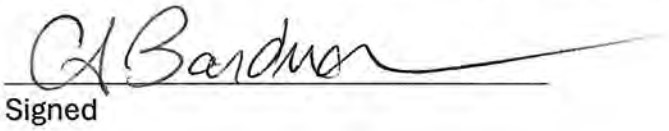
Map of Project _XXX____ (scale of not less than 1"=2000 feet) - attached
Project Design _____
Letters of Support _____
Management Plan ____ Long Term ___Short Term ___
Monitoring Plan ___ Long Term ___ Short Term___
Relevant Past Experience _XXX_
Other __XXX__ (please explain) – Please see attached project location, migration corridors and other mapping for your use.

ADDITIONAL INFORMATION FOR PAPO CONSIDERATION:

Why will this project work? Working with an experienced contractor and ranch. Ranch has environmental steward familiar with project mitigation requirements, monitoring, and importance of completing these types of projects efficiently with the most bang for the buck to aid in PAPA mitigation commitments.

Reduce ranch expenses from animals ripping through fencing, allow for additional let down fence, etc. while increasing permeability of fencing for ungulates.

All funds awarded by PAPO will be dedicated exclusively to fence conversion efforts on the JHLT Conservation Easement on Twin Eagle Ranch. This project will allow PAPO to contribute to preservation initiatives tied to this previous contribution.



Signed

_Cyndi Bardman_____
Printed Name

_Environmental Steward – Twin Eagle Ranch
Title

9/14/26_____
Date

Maps

43.157397,-110.043807

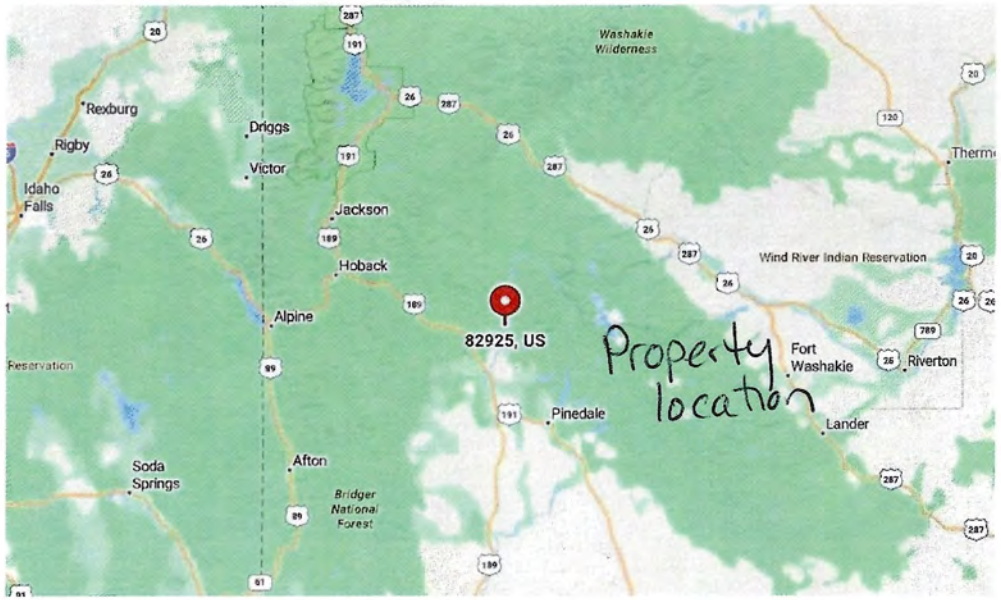
Directions

Sign in

82925, US

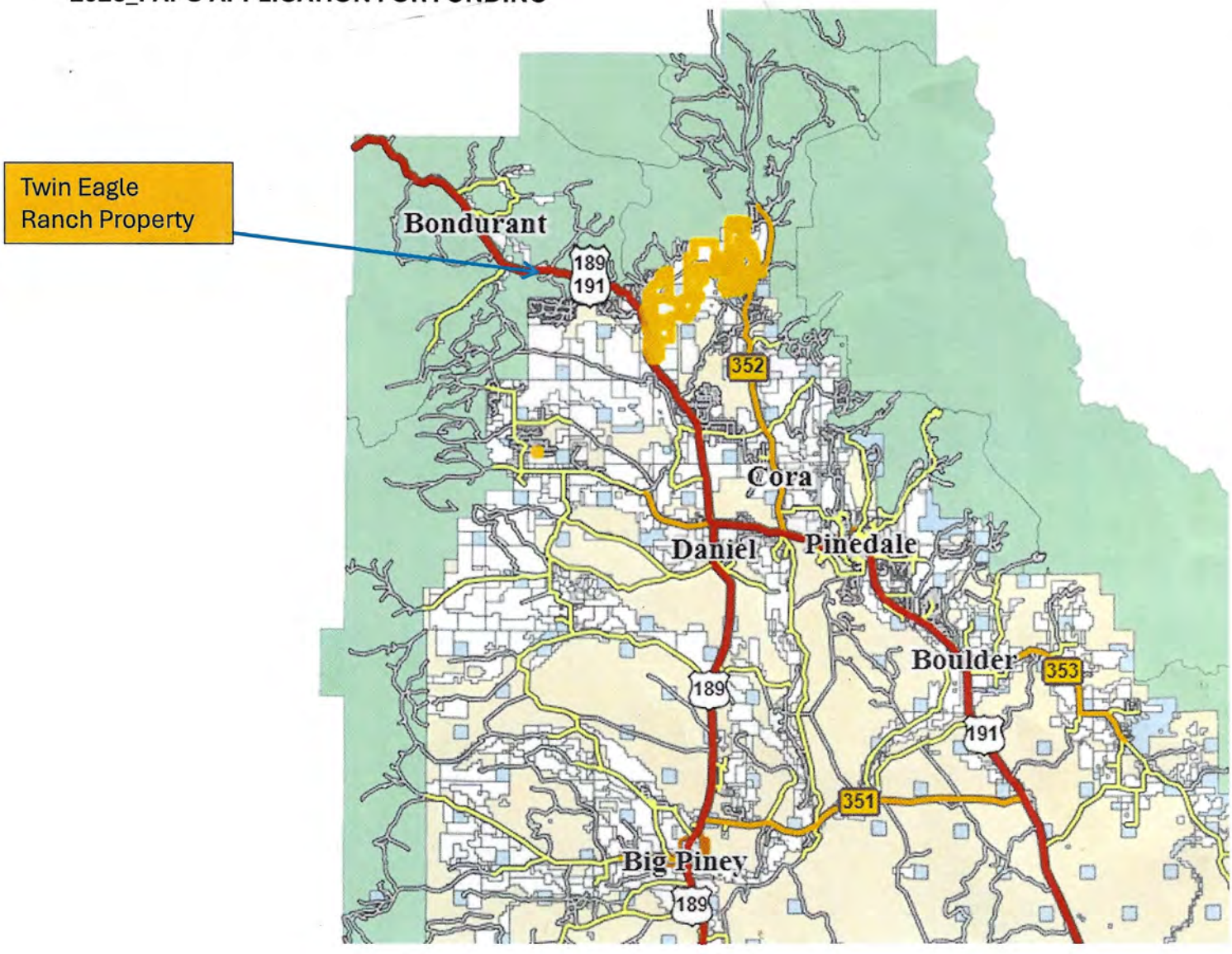
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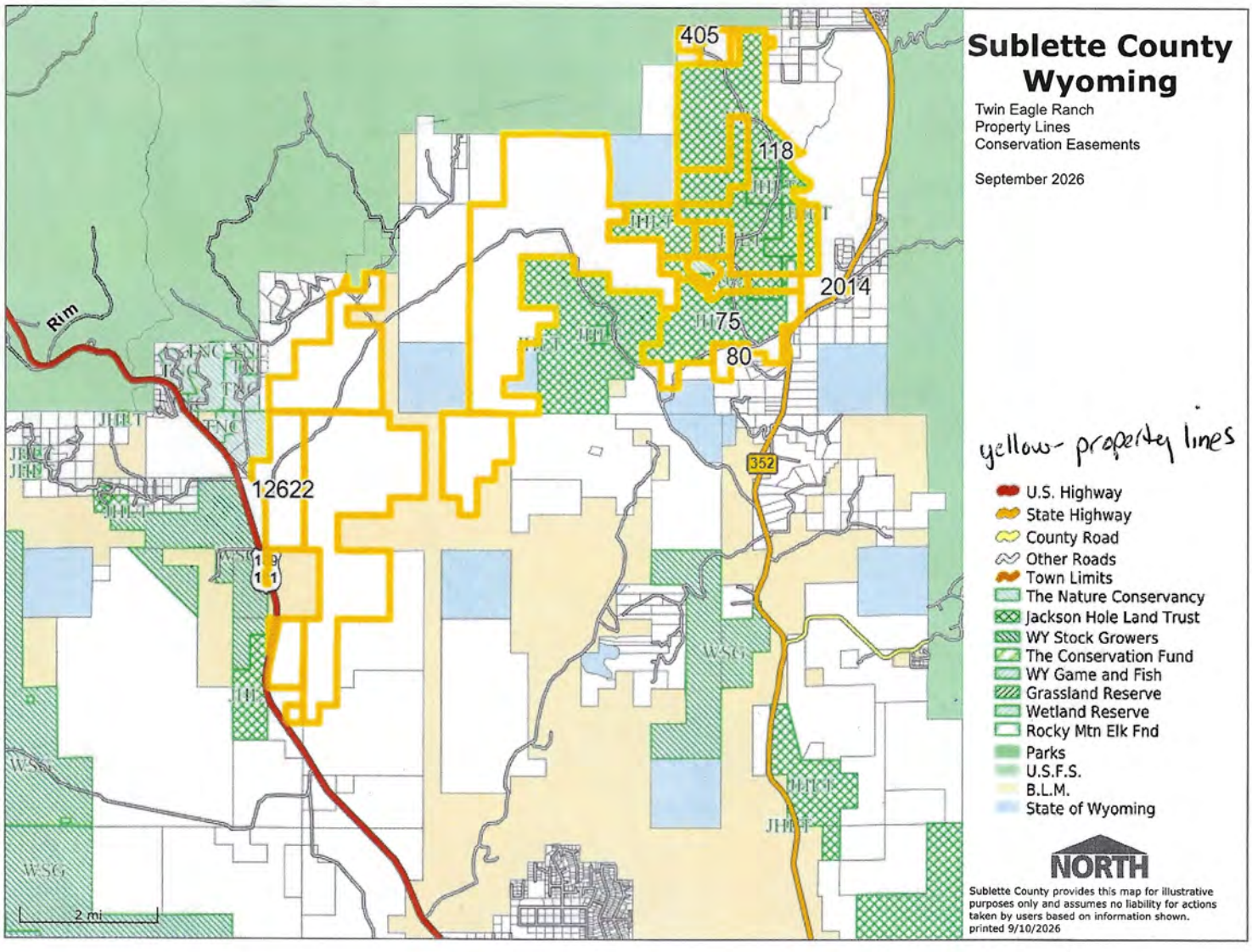
United States, WY · Sublette Co.
43.157398, -110.043808

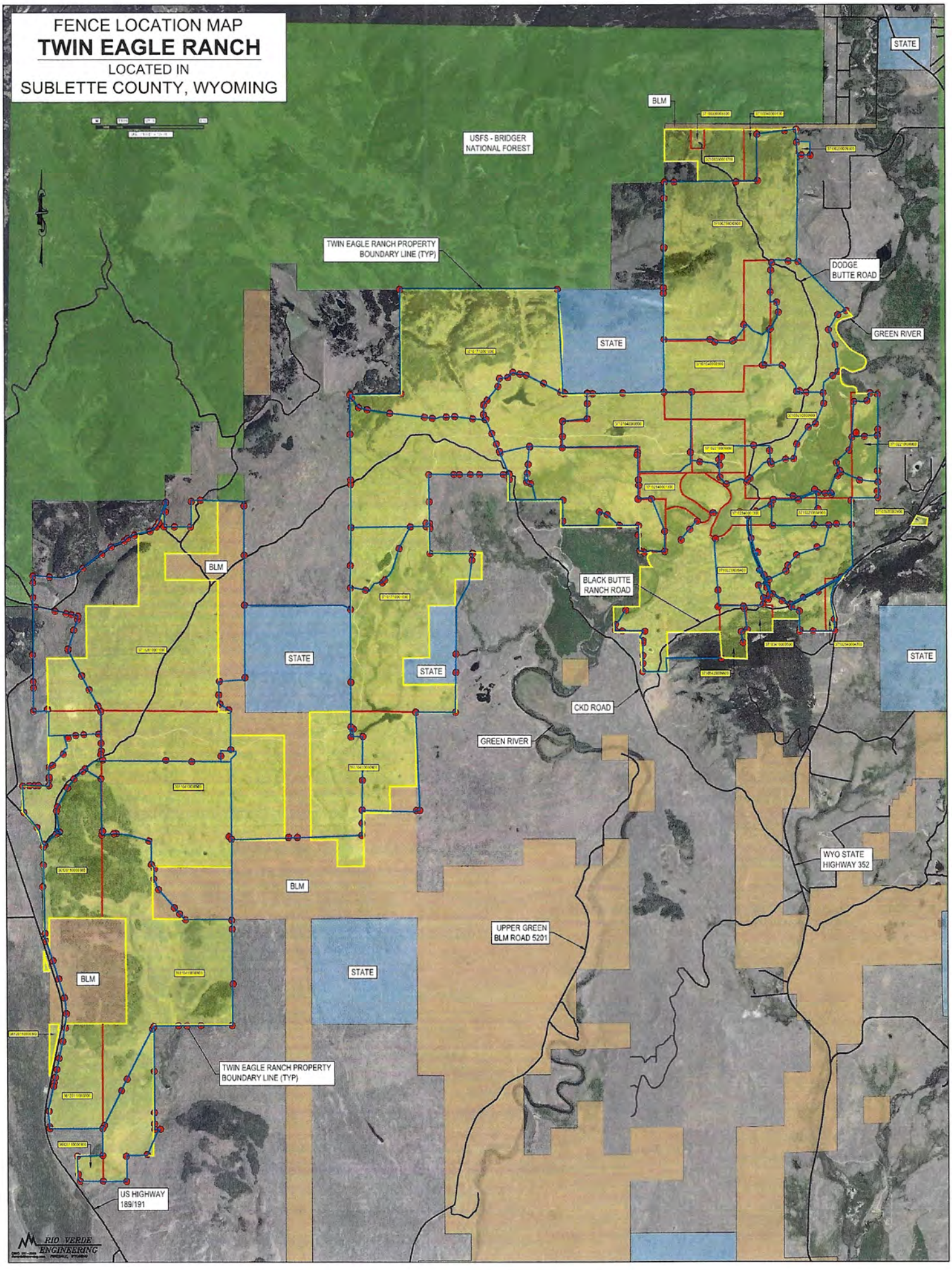


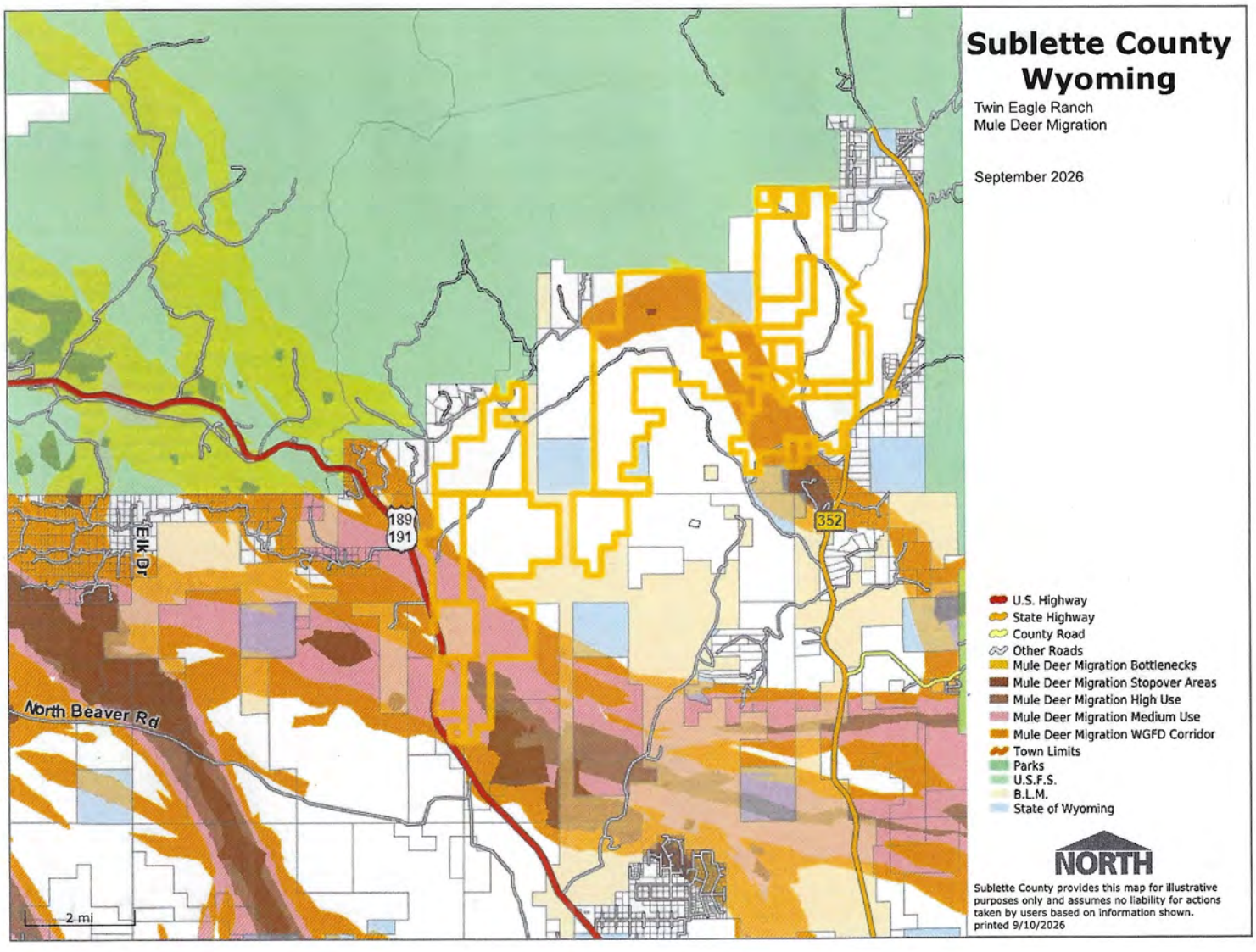
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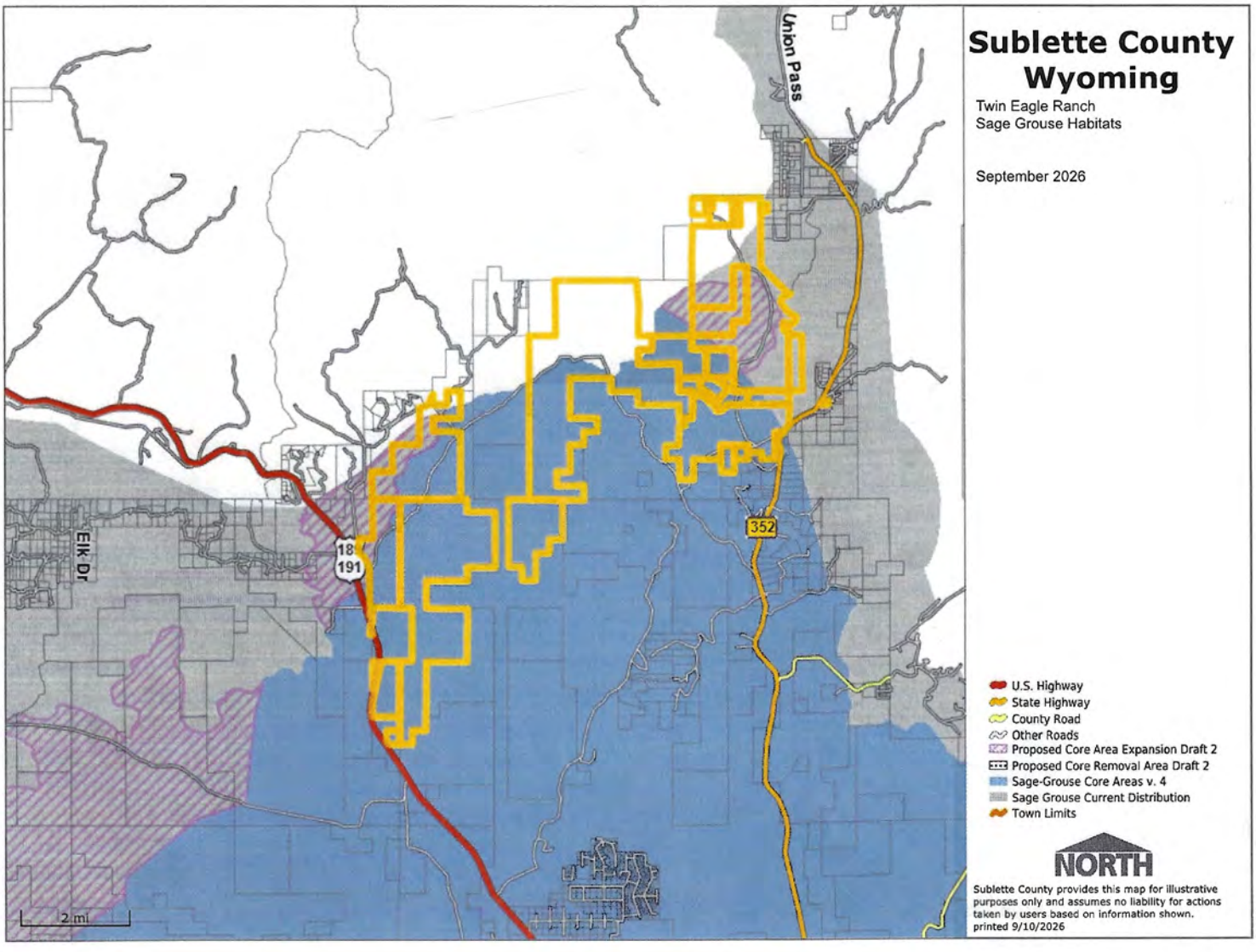
Project Location Map
Twin Eagle Ranch
2026_PAPO APPLICATION FOR FUNDING




405
118
2014
175
80
352
12622
Rim
2 mi
Sublette County
Wyoming
Twin Eagle Ranch
Property Lines
Conservation Easements
September 2026
yellow- property lines
U.S. Highway
State Highway
County Road
Other Roads
Town Limits
The Nature Conservancy
Jackson Hole Land Trust
WY Stock Growers
The Conservation Fund
WY Game and Fish
Grassland Reserve
Wetland Reserve
Rocky Mtn Elk Fnd
Parks
U.S.F.S.
B.L.M.
State of Wyoming
NORTH
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FENCE LOCATION MAP
TWIN EAGLE RANCH
LOCATED IN
SUBLETTE COUNTY, WYOMING
STATE
BLM
USFS - BRIDGER NATIONAL FOREST
TWIN EAGLE RANCH PROPERTY BOUNDARY LINE (TYP)
DODGE BUTTE ROAD
GREEN RIVER
STATE
BLM
BLACK BUTTE RANCH ROAD
STATE
STATE
STATE
CKD ROAD
GREEN RIVER
WYO STATE HIGHWAY 352
BLM
UPPER GREEN BLM ROAD 5201
BLM
STATE
TWIN EAGLE RANCH PROPERTY BOUNDARY LINE (TYP)
US HIGHWAY 189/191
RIO VERDE ENGINEERING


Sublette County
Wyoming
Twin Eagle Ranch
Mule Deer Migration
September 2026
189
191
352
Elk Dr
North Beaver Rd
2 mi
U.S. Highway
State Highway
County Road
Other Roads
Mule Deer Migration Bottlenecks
Mule Deer Migration Stopover Areas
Mule Deer Migration High Use
Mule Deer Migration Medium Use
Mule Deer Migration WGFD Corridor
Town Limits
Parks
U.S.F.S.
B.L.M.
State of Wyoming
NORTH
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Sublette County Wyoming

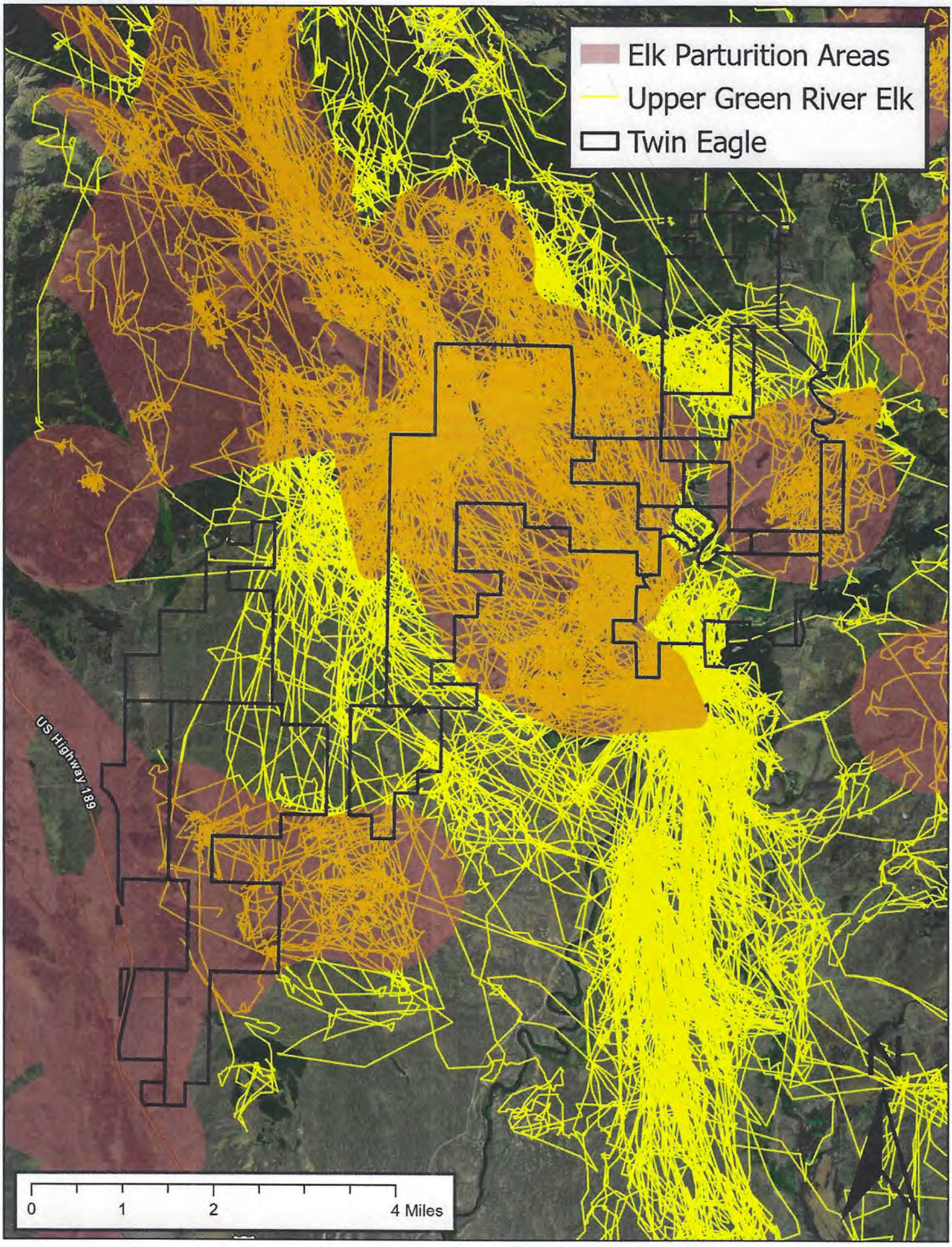
Twin Eagle Ranch
Sage Grouse Habitats

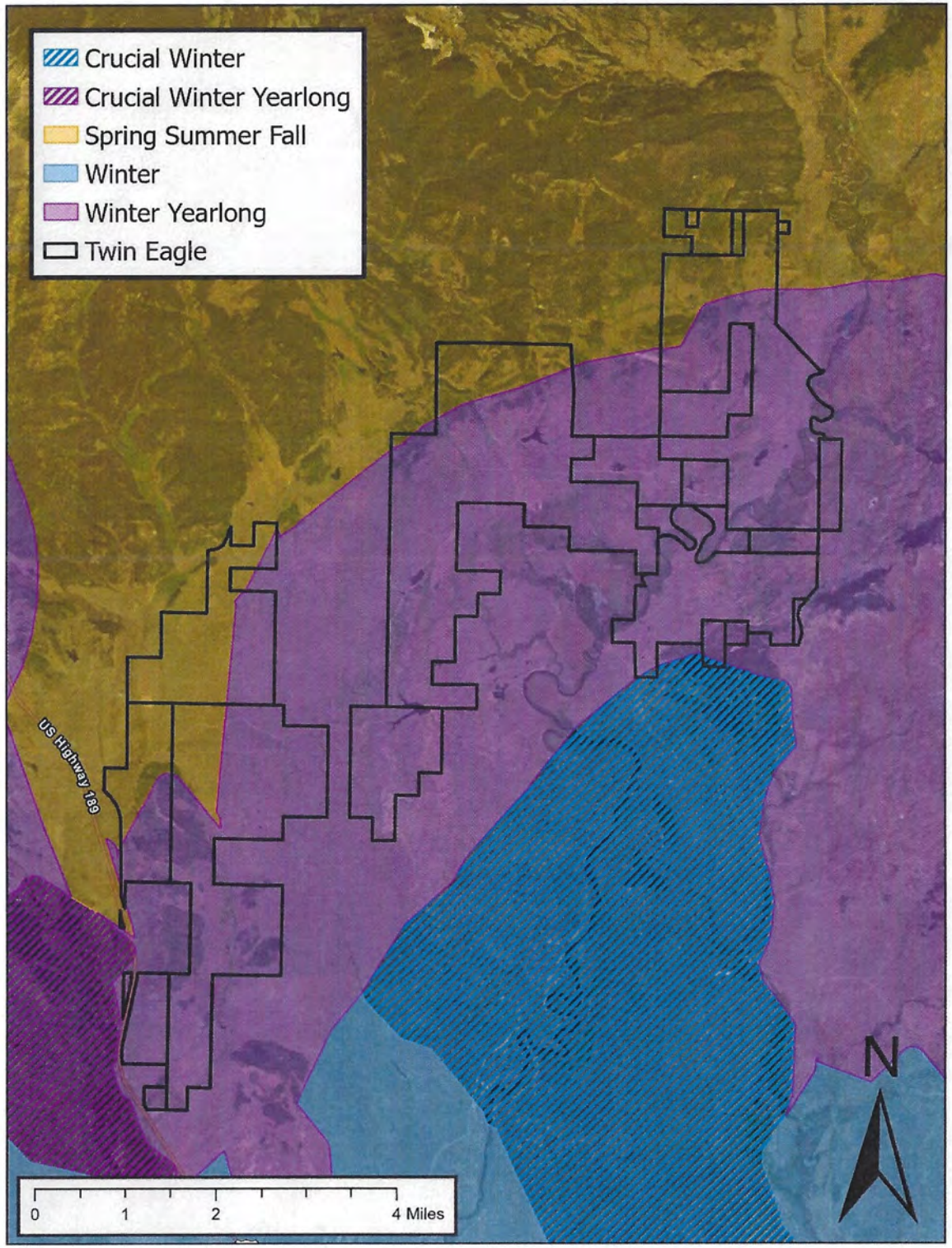
September 2026

- U.S. Highway
- State Highway
- County Road
- Other Roads
- Proposed Core Area Expansion Draft 2
- Proposed Core Removal Area Draft 2
- Sage-Grouse Core Areas v. 4
- Sage Grouse Current Distribution
- Town Limits

NORTH

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Elk Parturition Areas
Upper Green River Elk
Twin Eagle
US Highway 189
0
1
2
4 Miles


Crucial Winter
Crucial Winter Yearlong
Spring Summer Fall
Winter
Winter Yearlong
Twin Eagle
US Highway 189
0
1
2
4 Miles
N

ELK

GREEN RIVER VALLEY
JACKSON HOLE LAND TRUST

Visit: 7 West Pine St, Pinedale, WY 82941
Mail: PO Box 1580, Pinedale, WY 82941
Explore: jhlandtrust.org/GRVP
Call: (307) 367-7007



March 6, 2025

Pinedale Anticline Project Office Board of Directors

1625 West Pine Street P.O. Box 768

Pinedale, WY 82941

Dear PAPO Board Members,

We hope this letter finds the PAPO Board of Directors well. We are writing to respectfully request the PAPO Board to consider transferring approved funds from the Green River Valley Program's project, Ball Place conservation easement, to the previously viewed project, The Haven conservation easement presented at the July 2025 Board Meeting.

The PAPO Board awarded $80,000 to the Ball Place conservation easement in May 2024.Unfortunately, the Ball Place conservation easement is not moving forward. The Green River Valley Program requests a transfer of $80,000 of approved funds to the previously viewed project, The Haven conservation easement. The Haven conservation easement grant request was originally $100,000, but would benefit significantly from a reallocation of$80,000, which would lower the funding gap from $209,500 to $129,500. The full request of $100,000 is welcomed and would help decrease the funding gap from $209,500 to $109,500, ensuring lasting impact of a viable productive agricultural operation.

At the May 2025 PAPO Board meeting, the Haven was the only "on-site" mitigation project proposed to the PAPO Board and was ranked by the PAPO Interagency Team as the highest scoring and most recommended project to the board for funding. The Board decided at the May 2025 meeting to postpone critical budget allocations around wildlife monitoring that would have informed how much funding was available and ultimately did not make any official decisions regarding funding the Haven project proposal. This request to reallocate funds from an approved project to a project proposal is based on the PAPO Board decision at the same meeting to reallocate funds from the previously approved Beaver Creek Ranch WFF project to the proposed Targeted Fence Modifications project. We hope the Board will consider making the same reallocation decision for the Ball Place and Haven conservation easement projects.

The Haven conservation easement will permanently protect 539.80 acres of ecologically valuable agricultural land along the New Fork River in Sublette County, Wyoming adjacent to the Pinedale

GREEN RIVER VALLEY
JACKSON HOLE LAND TRUST

Visit: 7 West Pine St, Pinedale, WY 82941
Mail: PO Box 1580, Pinedale, WY 82941
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Call: (307) 367-7007



Anticline Project Area. The long-term protection of The Haven's intact wildlife habitats builds on PAPO habitat mitigation projects and safeguards ecologically valuable parts of the New Fork River corridor that contribute to the ecological health of the Green River Valley. The Haven project meets all of the criteria for conservation easement project funding as established by the PAPO Board.

The Haven conservation easement will enhance habitat functionality by protecting crucial and seasonal big game ranges and ensuring the continued viability of vital habitats, as outlined in the Pinedale Anticline SEIS ROD's Mitigation Responses (Appendix B.2) and PAPO's Strategic Plan (Goal 1, Objective 1 & Goal 2, Objective 2). Located within the PAPA wildlife utilization network, the property provides high value sage-grouse, pronghorn, moose and mule deer habitats, several of which are target mitigation species for PAPO and otherwise scarce in Wyoming's high-desert sagebrush steppe ecosystem, making them a top conservation priority.

We are confident that The Haven conservation easement will make a meaningful impact on conservation and mitigation and successfully align with PAPO's strategic funding goals. The Green River Valley Program would be honored to partner with PAPO on The Haven conservation easement.

Thank you for your time and consideration of transferring $80,000 from previously awarded Ball Place conservation easement to The Haven conservation easement. If additional information is needed or if there are any questions about the request, we would be happy to provide clarification.

Sincerely,

Kerry Schultz

Green River Valley Program Director

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PINEDALE ANTICLINE PROJECT OFFICE (PAPO)

1625 West Pine St.
PO Box 768
Pinedale, WY 82941

2025 PAPO APPLICATION FOR FUNDING

(Deadline for applicants is January 31, 2025. Use additional sheets if necessary)

GENERAL PROJECT INFORMATION

Project Name: The Haven Conservation Easement

General Location **(distance and direction from nearest city/town, attach map if applicable):** Located less than one mile from Pinedale off US Highway 191. (map attached)

Legal Location of Project:
Township 33N
Range 109W
Section(s) 14, W2SE4, E2SW4, Section 22, NE4 and Section 23, NW4 and W2NE4
County: Sublette

Surface Ownership (check all that apply): Federal _____ State _____ Private __X___
**If the project includes a mix of federal, state and/or private lands, provide a breakdown for each ownership by acres and percent of total project area.

Contact Information for Affected Parties of Agencies:
Madison Harper, Jackson Hole Land Trust
madison@jhlandtrust.org, (307) 733-4707

Sydney Simmerman, Wyoming Game and Fish Dept
sydney.simmerman@wyo.gov, (307)367-5629

Leslie Hagenstein, Landowner
lhagenstein@wyoming.com, 307-231-9562
Valerie Lee, Landowner
valerielee@wyoming.com, 307-231-9562

APPLICANT INFORMATION

Name/Organization: Green River Valley Program of the Jackson Hole Land Trust

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Mailing Address (include city, state and zip): P.O. Box 2897, Jackson, WY 83001
***Daytime Phone*:** 307-733-4707
***Fax*:**
Email Address: madison@jhlandtrust.org

Point of Contact (if different from above): Kerry Gold, kerry@jhlandtrust.org

PROJECT DESCRIPTION

General Project Type (check all that apply):

Land Use/Livestock __X___
Land Use/Recreation _____
Cultural _____
Wildlife/Aquatic __X___
Air _____
Other __X___

Describe Project Proposal (such as, mechanical treatments, water improvement, etc.)

The Green River Valley Program (GRVP) of the Jackson Hole Land Trust (JHLT) is excited to be working with Leslie Hagenstein and Valerie Lee toward the bargain-sale purchase of a conservation easement of over 539.80 acres of ecologically valuable agricultural land along the New Fork River in Sublette County, Wyoming. Located less than one mile from Pinedale off US Highway 191, the proposed "The Haven" Conservation Easement (the "Property") lies in a highly desirable location. The Property's western boundary is 3.38 miles away from the PAPO Offsite Mitigation Area and the long-term protection of the Property's intact wildlife habitats builds on PAPO habitat mitigation projects. It also safeguards ecologically valuable parts of the New Fork River corridor that contribute to the ecological health of the Green River Valley. The property is a mosaic of riverine, riparian, sagebrush, wetland, and wet meadow habitats that provide a variety of services to an extensive list of wildlife in the vicinity of the Pinedale Anticline.

The Property's protection will safeguard approximately 0.7 miles of the New Fork River corridor and roughly 69 acres of the river's riparian habitat. This stretch of the New Fork River is designated as an Aquatic Crucial Habitat by the Wyoming Game and Fish Department (WGFD) and is part of the Upper Green River Wetland Complex as well as a restoration and conservation priority for WGFD because of its important role as one of the most popular fisheries in western Wyoming. It is classified as a Blue Ribbon Stream of national importance with over 600 pounds of trout per mile and is recognized as a special resource under the US Army Corps of Engineers Wyoming Stream Mitigation Procedure, making it a high priority for conservation and mitigation

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under its permit authority. Establishing a conservation easement on this stretch of the New Fork River will make investments in habitat restoration and fisheries improvements along the New Fork River complex and the Anticline area more sustainable and impactful.

A conservation easement on The Haven will build upon existing PAPO habitat mitigation efforts by protecting important big game species habitat, including 91 acres of crucial winter/yearlong moose range and 152 acres of mule deer winter/yearlong range along the New Fork Corridor. Across the rest of the property, spring/summer/fall range of mule deer and pronghorn habitat are also supported. The Haven's owners are role model stewards of their land and have made extensive efforts to improve ungulate migrations across their property. They have removed defunct fencing from the river corridor and updated other fence lines to wildlife friendly standards to benefit big game and improve habitat connectivity.

We respectfully request funding to complete The Haven Conservation Easement that will permanently protect 539.80 acres of valuable wildlife habitat to benefit mule deer, sage grouse, and numerous other species vital to the local ecosystem.

Total Project Acres (if applicable): 539.80 acres

Acres Indirectly Affected (if applicable, explain)
The Haven is contiguous with 352 acres By The Way Ranch, which established a conservation easement in 2001. Conserving The Haven would extend the protection of the New Fork River and the habitat connectivity utilized by Mesa wildlife.

WHAT ARE THE OBJECTIVES OF THE PROJECT?

The project will proactively address declining sage-grouse, pronghorn, and mule deer populations by establishing a 539.80-acre conservation easement on the ecologically significant Property. This easement will permanently protect critical intact wildlife habitats, working lands, and open spaces. The agreement prohibits development, subdivision, and mineral extraction to safeguard the property's wildlife habitat and agricultural values. JHLT will monitor the conserved Property annually in accordance with its established stewardship policy which has been developed and refined since JHLT was founded in 1980. JHLT is an accredited member of the Land Trust Alliance and accordingly, the stewardship policy is compliant with the Land Trust Alliance's Standards and Practices.

The Haven conservation easement will enhance habitat functionality by shielding the mule deer migration corridor and ensuring the continued viability of vital habitats, as outlined in the Pinedale Anticline SEIS ROD's Mitigation Responses (Appendix B.2). Located within the Pinedale Anticline Project Area (PAPA) wildlife utilization network, the property provides high-

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value sage-grouse, moose and mule deer habitats, which are scarce in Wyoming's high-desert sagebrush steppe ecosystem, making them a top conservation priority.

This project will build upon existing PAPO habitat mitigation efforts by protecting 152 acres of seasonal mule deer winter range, 91 acres of crucial moose range and 69 acres of wetlands, riparian areas, and wet hay meadows that support sage-grouse brood-rearing. Collar data shows direct use of the Hagenstein property by pronghorn and sage grouse that utilize the Anticline. The easement will act as a protective buffer for the mule deer migration corridor. Outcomes include preventing further habitat loss and fragmentation, preserving water quality in the Green River watershed headwaters, reducing human disturbance in sensitive areas, and maintaining vital open spaces and sustainable agricultural resources.

HOW DOES THE PROJECT MEET THE PAPO STRATEGIC PLAN GOALS? (please refer to the PAPO 2025 Ranking Score Sheet)

The PAPO Strategic Plan refers to the Anticline SEIS ROD's Wildlife Monitoring and Mitigation Matrix (WMMM [Appendix B.1]) as a guide for mitigation responses.

According to the WMMM, "Priority for mitigation will be given to those habitats designated as most crucial or important (big game crucial winter ranges; sage grouse breeding, nesting, and winter habitats…)". The Haven's wildlife habitats include 152 acres of mule deer crucial winter range, 91 acres of crucial winter/yearlong range for moose and 69 acres of wetland and mesic habitats that provide nesting and brood rearing habitat for sage grouse. Across the rest of the property, spring/summer/fall range of mule deer and pronghorn habitat are also supported.

The WMMM goes on to describe appropriate mitigation responses, including off-site conservation easements: "Off-site -- Conservation Easements or property rights acquisitions to assure their continued habitat function, or provide an area for enhanced habitat function (e.g., maintenance of corridor and bottleneck passages, protection from development, establishment of forage reserves, habitat enhancements…"

In addition to being consistent with the WMMM's mitigation responses, the project meets PAPO's Strategic Plan Goal 1, Objective 1, as a project that benefits wildlife on a landscape scale in the Upper Green River Basin with a focus on populations impacted by development. Collar data from pronghorn and sage grouse that utilize the Anticline shows use of the Hagenstein property.

Mule deer and sage grouse are both species that have been impacted by development on the PAPA and have both declined in population compared to baseline estimates (PAPO Annual Wildlife Reports, 2023). Additionally, Mesa deer numbers have fallen below PAPO-set decline

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thresholds in 2017/2018 and 2021/2022. Goal 2 of the PAPO Strategic Plan details that declining wildlife population trends should be responded to in a manner that minimizes undesired trends. As detailed above, the WMMM describes conservation easements as an appropriate and proactive mitigation response to declines in populations of species impacted by development on the PAPA.

HOW DOES THE PROJECT MEET THE 2025 PAPO PRIORITIES? (please refer to the PAPO 2025 Ranking Score Sheet)

The Property will safeguard an active agricultural operation and prime haying acreage while ensuring the perpetual protection of state-designated big game seasonal ranges. The Property is suitable habitat for Greater sage grouse under Executive Order 2019-3 and contains Crucial Winter/Yearlong habitat of statewide importance for moose under the 2020 Statewide Habitat Plan (SHP). The western side of the Property includes roughly 3,000 feet of the New Fork River, designated by WGFD's SHP as Crucial Aquatic Habitat and a Restoration Habitat Priority Area. Additionally, the Property falls within The Upper Green River Wetlands also designated by the SHP.

This project provides permanent protection for pronghorn, mule deer and sage grouse habitats, all PAPO mitigation focus species that have had declining trends compared to baseline population numbers in 2006 and 2007, respectively. Additionally, PAPA mule deer have declined to the point of exceeding mitigation thresholds within the past three years. When considered with the impacts of the severe 2022/2023 winter, substantial, proactive conservation of sage grouse brood rearing habitats and big game seasonal ranges is needed.

WHAT ARE THE DIRECT AND/OR INDIRECT EFFECTS ON OTHER RESOURCES?

The SEIS ROD's Wildlife Monitoring and Mitigation Matrix speaks to, "Fragmentation and direct loss of native habitats by surface disturbance is expected to adversely affect migratory birds, particularly in habitats used by sagebrush-obligate species. Decreased raptor nesting habitat effectiveness is likely within 1 mile of New Fork River riparian zone." The Haven's protection will mitigate these effects by permanently securing intact raptor nesting habitat along the New Fork River. The Property also provides habitat for observed WGFD avian Species of Greatest Conservation Need such as American Goshawk, Clark's Grebe, and Bald Eagle. The SEIS also mentions, "nesting bald eagles may be affected by surface disturbance and associated human presence by each Alternative. The effects are expected to be substantial within 1 mile of the New Fork River riparian habitat which is utilized by wintering bald eagles." Multiple bald eagles are known to nest in the cottonwood galleries along the New Fork River through the Haven and By The Way Ranch conservation easement. Expanding the river's protection through

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the Haven supports habitat availability and connection for resident eagles. Permanent protection of The Haven Conservation Easement is a high-priority project that bolsters landscape scale conservation efforts in the Upper Green River basin to keep high-quality, big game and aquatic habitats open and viable.

The Pinedale area is experiencing increasing development pressures and over 399 platted subdivisions exist within five miles of the Property. The area is seeing increased demand from second homeowners seeking the exceptional recreational opportunities nearby. Safeguarding this portion of the New Fork River contributes to the high quality fisheries and recreation residents and visitors value. The area is already experiencing accelerated subdivision for vacation homes, and the Pinedale area is a likely candidate for increased development in the future given its incredible scenic attributes. The landowners wish to sell an easement on the western 539.80-acre portion of the property to safeguard the river corridor, prohibit subdivision, maintain wildlife habitat, and support the continued agricultural heritage of the area.

WHAT IS THE POTENTIAL FOR FUTURE EXPANSION OF THE PROJECT?

The Green River Valley Program maintains over 38,000 acres of conservation easements in Sublette County and has five other protection projects in progress totaling over 3,000 acres of important wildlife habitats and working lands in the Green River Basin.

The landowners have another 229 acres adjacent to the current project and will sign a letter of intent to conserve the additional acreage at a future date. The project, as part of the greater landscape, offers significant potential to expand the number of permanently conserved acres in the Pinedale area, especially properties associated with wildlife habitat connected to the Pinedale Anticline and along the New Fork River. There are opportunities for additional conservation easements in the area, and nearby landowners have already started reaching out to express interest.

LIST ALL PROJECT PARTNERS/COOPERATORS, THEIR ROLES AND/OR CONTRIBUTIONS:

Jackson Hole Land Trust- Protection project administration, fundraising, conservation easement drafting and recording, conservation easement stewardship and monitoring
Leslie Hagenstein and Valerie Lee- Landowners, conservation easement stewardship, matching funds
Natural Resource Conservation Service, matching funds (all funder amounts in budget section below)
Wyoming Wildlife and Natural Resource Trust, matching funds
Wyoming Governor’s Big Game License Coalition, matching funds

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Ducks Unlimited, matching funds
Cinnabar Foundation, anticipated matching funds

PROJECT MONITORING AND REPORTING: (describe how monitoring and reporting will be done, and how it relates to the objectives)

All conservation easements established with the JHLT are subject to annual on-site monitoring and documentation in accordance with Standards and Practices set by the national Land Trust Alliance organization that the JHLT is accredited by. Furthermore, easement agreements include terms for landowners to correspond with the JHLT when considering any actions that may impact conservation values so the land trust can provide guidance to landowners to avoid impacts as much as possible.

RESEARCH POTENTIAL: (describe the research potential of the project)
N/A

PERMITS AND AUTHORIZATIONS REQUIRED PRIOR TO PROJECT IMPLEMENTATION: (including but not necessarily limited to the following)

PERMIT OR AUTHORIZATION	REQUIRED		SUBMITTED		APPROVED	
	Yes	No	Yes	No	Yes	No
Cultural Resource Inventory		X				
COE Section 404 Permit		X				
Cooperative Agreement(s)		X				
NEPA Analysis		X				
Pesticide Application Permit		X				
Private Landowner Agreement(s)	X		X		X	
Sensitive Species Clearance		X				
Surface/Ground Water Permits		X				
T/E Species Clearance		X				
Other (explain)						

TOTAL PROJECT COST: (attach detailed budget)

Project Planning and Design	$ 27,700
Project Implementation	$2,920,000
Project Operation and Maintenance	$44,250
Total Required	$2,991,950

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MATCHING FUNDS ANTICIPATED IN CASH (list source and amount)
$16,250 Expected Transactional Costs to be paid by JHLT (0.5%)
$14,250 Stewardship Gift requested from landowners (0.5%)
$730,000 easement value donated by landowners (24.4%)
$2,190,000 CE purchase price made up of the following:

- $1,460,000 awarded from Natural Resource Conservation Service (48.8%)
- $395,000 awarded from Wyoming Wildlife and Natural Resource Trust (13.2%)
- $25,000 awarded from WGBGLC (0.8%)
- $500 anonymous gift (0.1%)
- $25,000 awarded from Ducks Unlimited (0.8%)
- $184,500 requested from Cinnabar Foundation (6.2%)
- Amount requested from PAPO indicated below ($100,000)

Total Cash Anticipated: $2,850,500 (95.3%)

ANTICIPATED "IN KIND" MATCHING FUNDS (list source, valuation, and valuation method)
Estimated In-Kind Matching Funds:

A. 215 Hours Projected JHLT Staff and Legal Time - $11,450 (0.4%)
   i. Fundraising & Communication 5 Hrs @ $30/Hr = $150
   ii. Legal 10 Hrs @ $450/Hr = $4,500
   iii. Protection 120 Hrs @ $34/Hr = $4,080
   iv. Stewardship 80 Hrs @ $34/Hr = $2,720
B. Projected Annual Stewardship Costs X 20 years @ $1,500/yr = $30,000 (1%)

Total In-Kind = $41,450 (1.4%)

PERCENTAGE OF FUNDING ON HAND OR COMMITTED: 90.5%

TOTAL PAPO FUNDING REQUESTED: $100,000 (3.3%)

EXPECTED/ANTICIPATED LIFE OF PROJECT (LOP)

Perpetual __X___ >50 Years _____ 25-50 Years _____ <25 Years _____
Explain Basis for Projected LOP:
Conservation easements are legal agreements that are tied to their specific properties in perpetuity once established. The JHLT is a nationally accredited land trust obligated to uphold the terms of the easement agreement through regular monitoring and correspondence with landowners in perpetuity.

PROJECT TIMELINE AND ESTIMATED COMPLETION DATE: Please explain.

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If requested funding is granted, JHLT and the landowners will immediately move towards closing the conservation easement. Closing and recording is expected as early as July 2026.

ATTACHMENTS AND SUPPORTING DOCUMENTATION

Map of Project __X___ (scale of not less than 1" = 2,000 feet)
Project Design _____
Letters of Support __X___
Management Plan _____ Long Term _____ Short Term _____
Monitoring Plan _____ Long Term _____ Short Term _____
Relevant Past Experience _____
Other _X____ (please explain) Conservation easement template

ADDITIONAL INFORMATION FOR PAPO CONSIDERATION:

The Green River Valley Program is the Sublette County based and focused branch of the Jackson Hole Land Trust. The Program office is located at 7 W Pine Street, Pinedale, Wyoming.
The Hagenstein family purchased the property in 1943. Leslie and Valerie Hagenstein are second generation inherited the agricultural operation. Leslie lives on and manages the ranch full-time. The family started out using the property as a dairy farm and then transitioned to cattle ranching and growing hay. The family continues to operate its ranch and supports wildlife by maintaining habitat services.
The Green River Valley Program knows that the PAPO Board has been a contributor in conserving and restoring wildlife habitats in our region, and we hope that you will consider partnering with us to secure this important conservation Property for the benefit of the community and the fragile New Fork River corridor that we recreate in and cherish.

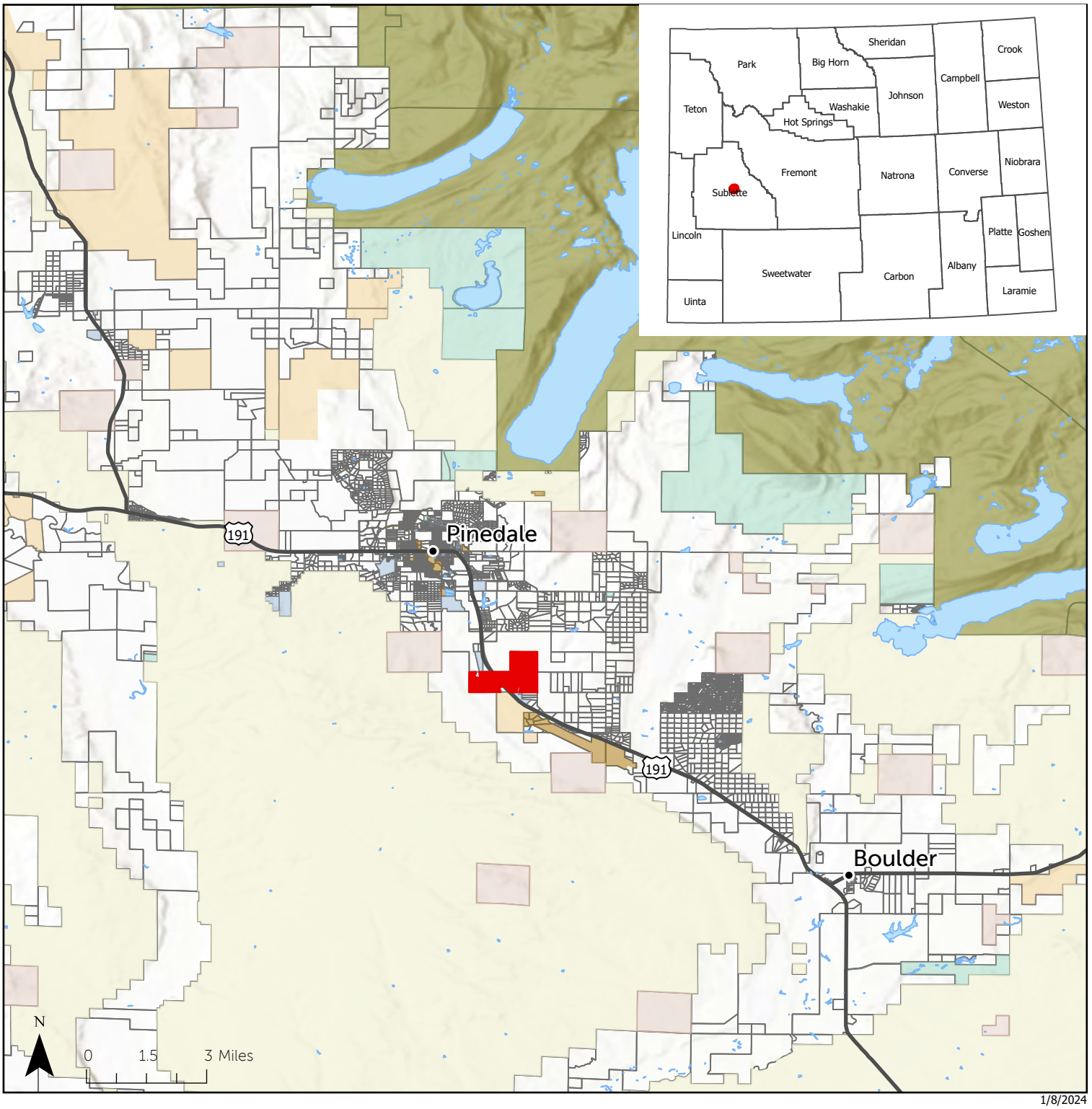
ACKNOWLEDGEMENT: This project and requested funding is subject to approval by the Pinedale Anticline Monitoring and Mitigation Board of Directors

Signed by:
Madison Harper
3BC5F80517C7473...
1/30/2025

Signed
_Madison Harper_____
Printed Name
_Conservation Project Manager_____
Title
_January 29th, 2025_____
Date

Docusign Envelope ID: 9B6D24F9-0974-459B-ABFA-78E5E9A492A2

Hagie's Haven, LLC - Locator



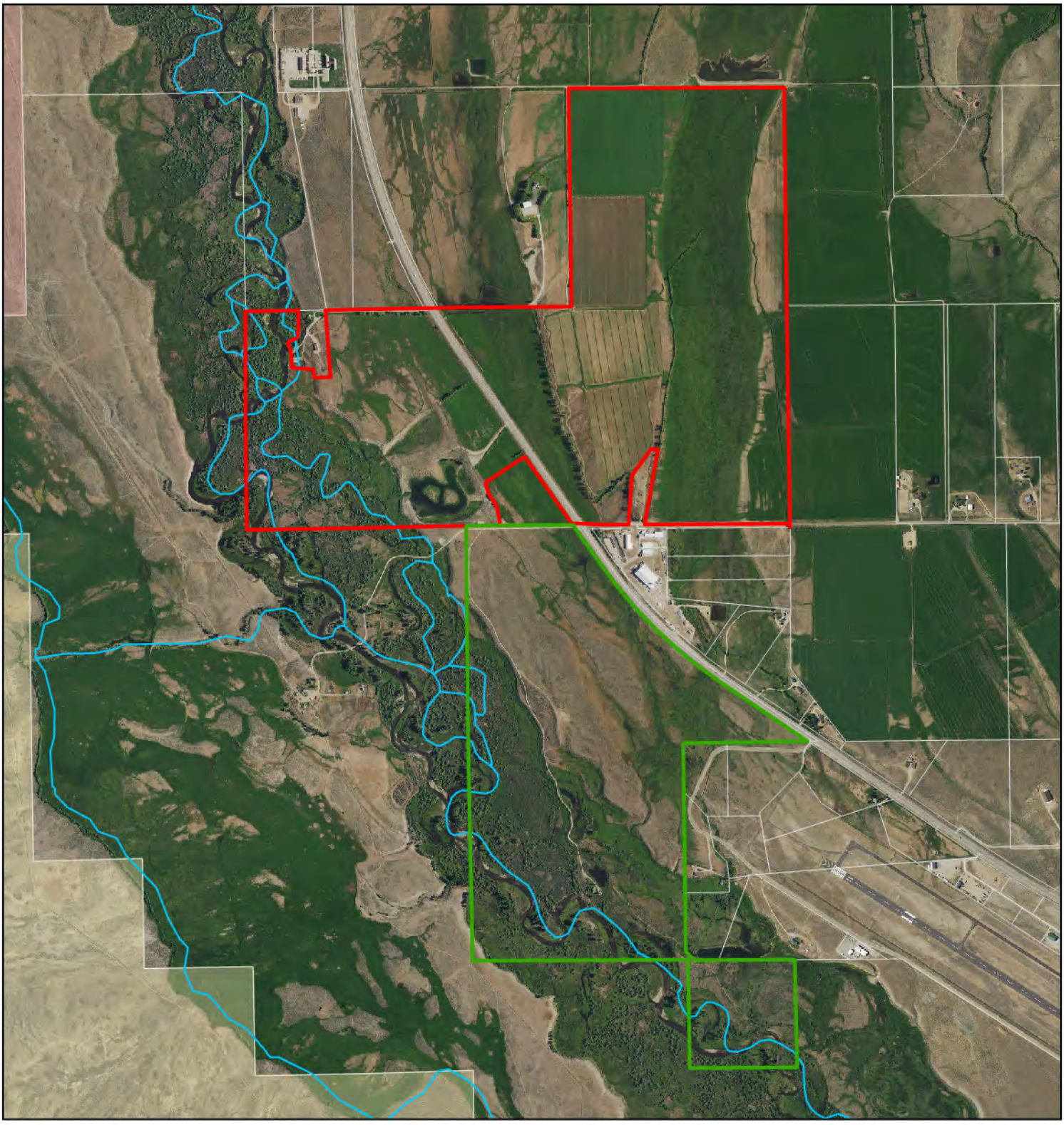
1/8/2024

JACKSON HOLE LAND TRUST

Jackson Hole Land Trust
P.O. Box 2897
690 S Highway 89
Jackson, WY 83001
307-733-4707
www.jhlandtrust.org

- Hagie's Haven, LLC CE
- Private Parcels
- JHLT Easements
- Town of Pinedale
- Sublette County
- State of Wyoming Land
- Bureau of Land Management
- National Forest
- Wyoming Game and Fish

Docusign Envelope ID: 9B6D24F9-0974-459B-ABFA-78E5E9A492A2



The Haven Conservation Easement (539.8 acres)

GREEN RIVER VALLEY
JACKSON HOLE LAND TRUST

Green River Valley Program
P.O. Box 1580
Pinedale, WY 82941
(307) -367-7007
jhlandtrust.org/grvp

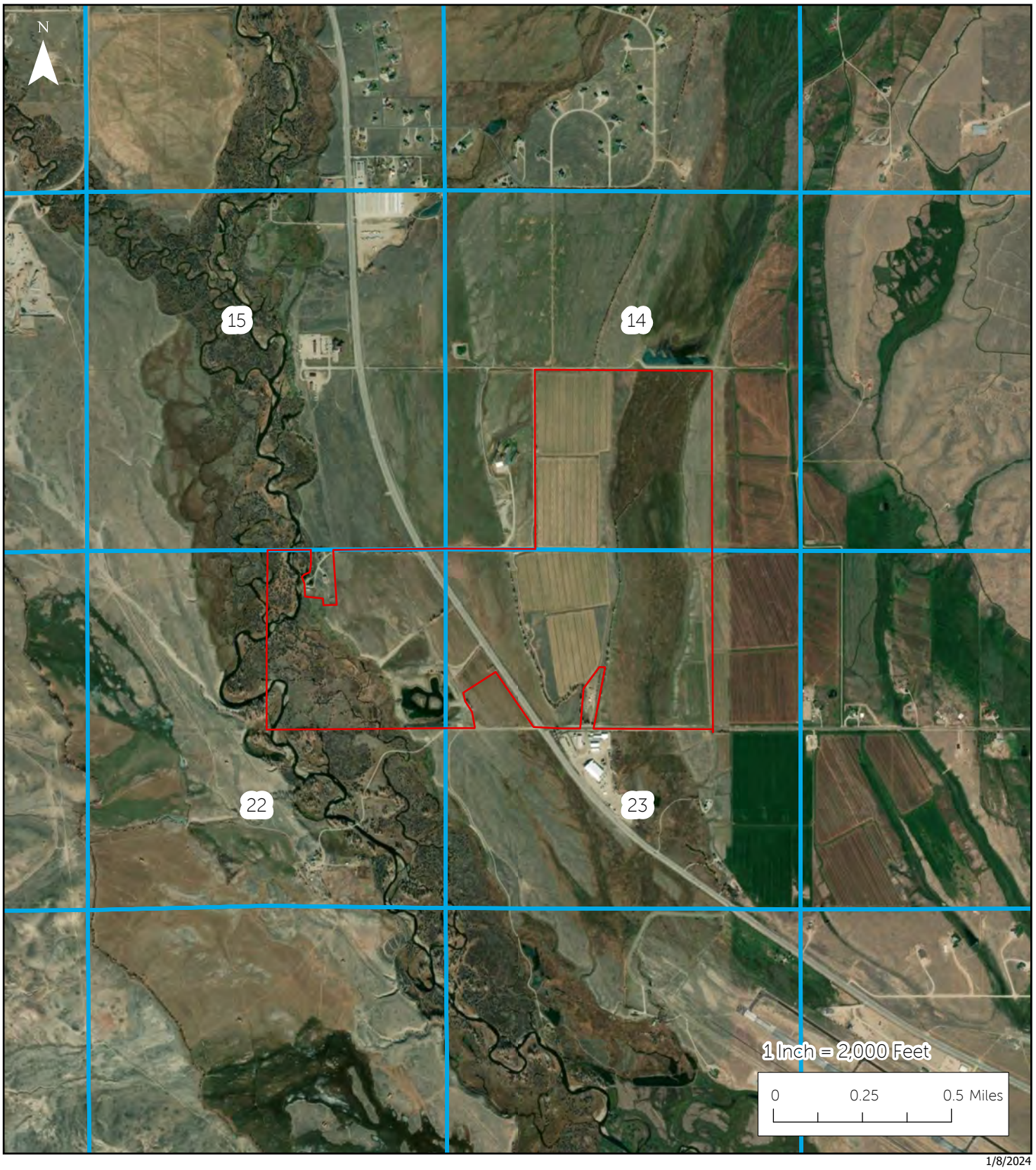
- The Haven
- GRVP Conservation Easements
- New Fork River Crucial Stream Corridor
- Ownership
- BLM
- OSLI

N

1:20,000

Docusign Envelope ID: 9B6D24F9-0974-459B-ABFA-78E5E9A492A2

Hagie's Haven, LLC - Legal Location



1/8/2024

JACKSON HOLE LAND TRUST
Jackson Hole Land Trust
P.O. Box 2897
690 S Highway 89
Jackson, WY 83001
307-733-4707
www.jhlandtrust.org

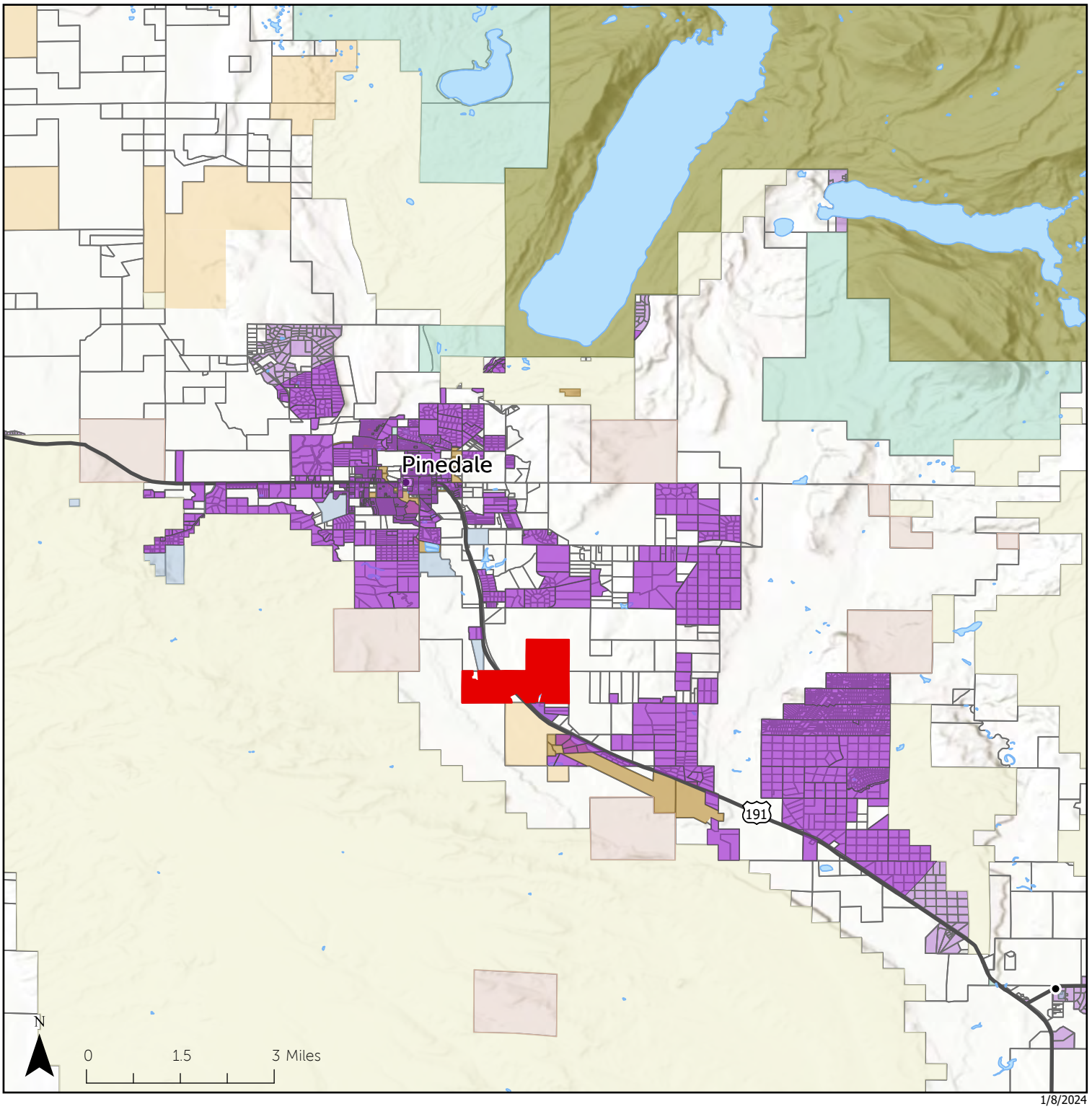
Hagie's Haven, LLC CE

Section

Township
Not available at this scale
Property is in 33N-109W

Docusign Envelope ID: 9B6D24F9-0974-459B-ABFA-78E5E9A492A2

Hagie's Haven, LLC - Development Pressure



1/8/2024

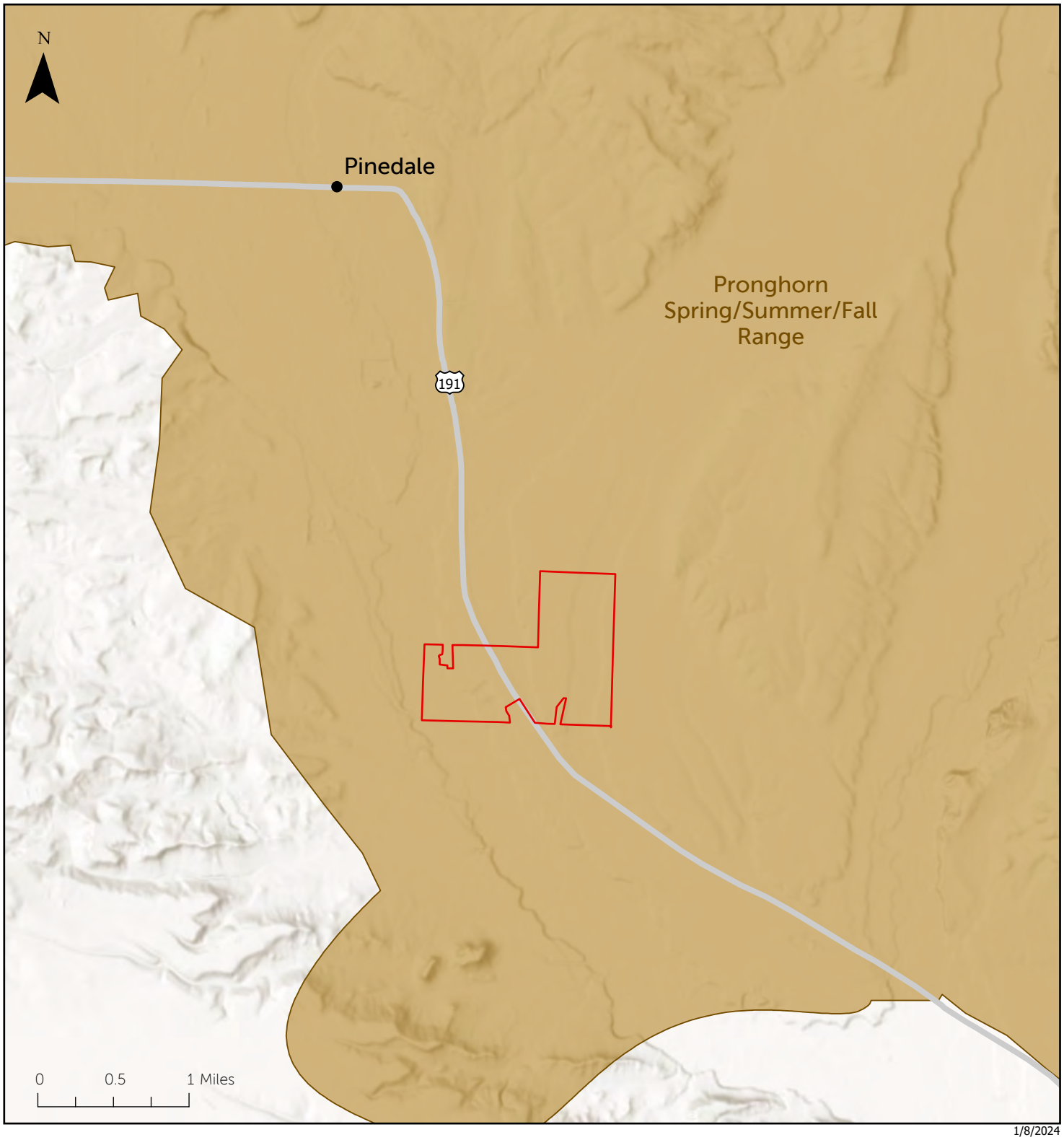
JACKSON HOLE LAND TRUST

Jackson Hole Land Trust
P.O. Box 2897
690 S Highway 89
Jackson, WY 83001
307-733-4707
www.jhlandtrust.org

- Hagie's Haven, LLC CE
- Subdivisions (5 mi radius of The Haven)
- Subdivisions
- Private Parcels
- JHLT Easements
- Town of Pinedale
- Sublette County
- State of Wyoming Land
- Bureau of Land Management
- National Forest
- Wyoming Game and Fish

Docusign Envelope ID: 9B6D24F9-0974-459B-ABFA-78E5E9A492A2

Hagie's Haven, LLC - Wildlife Values



1/8/2024

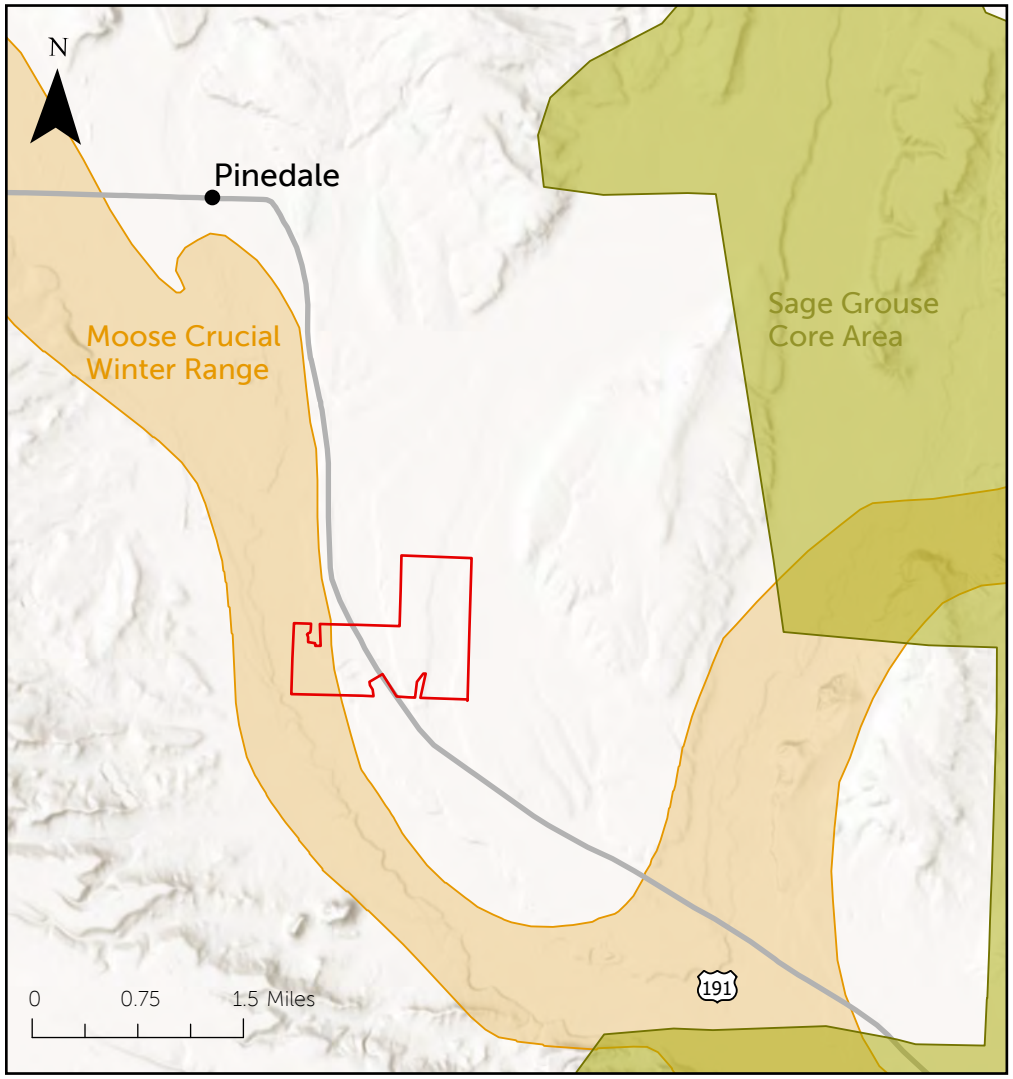
Jackson Hole Land Trust
P.O. Box 2897
690 S Highway 89
Jackson, WY 83001
307-733-4707
www.jhlandtrust.org

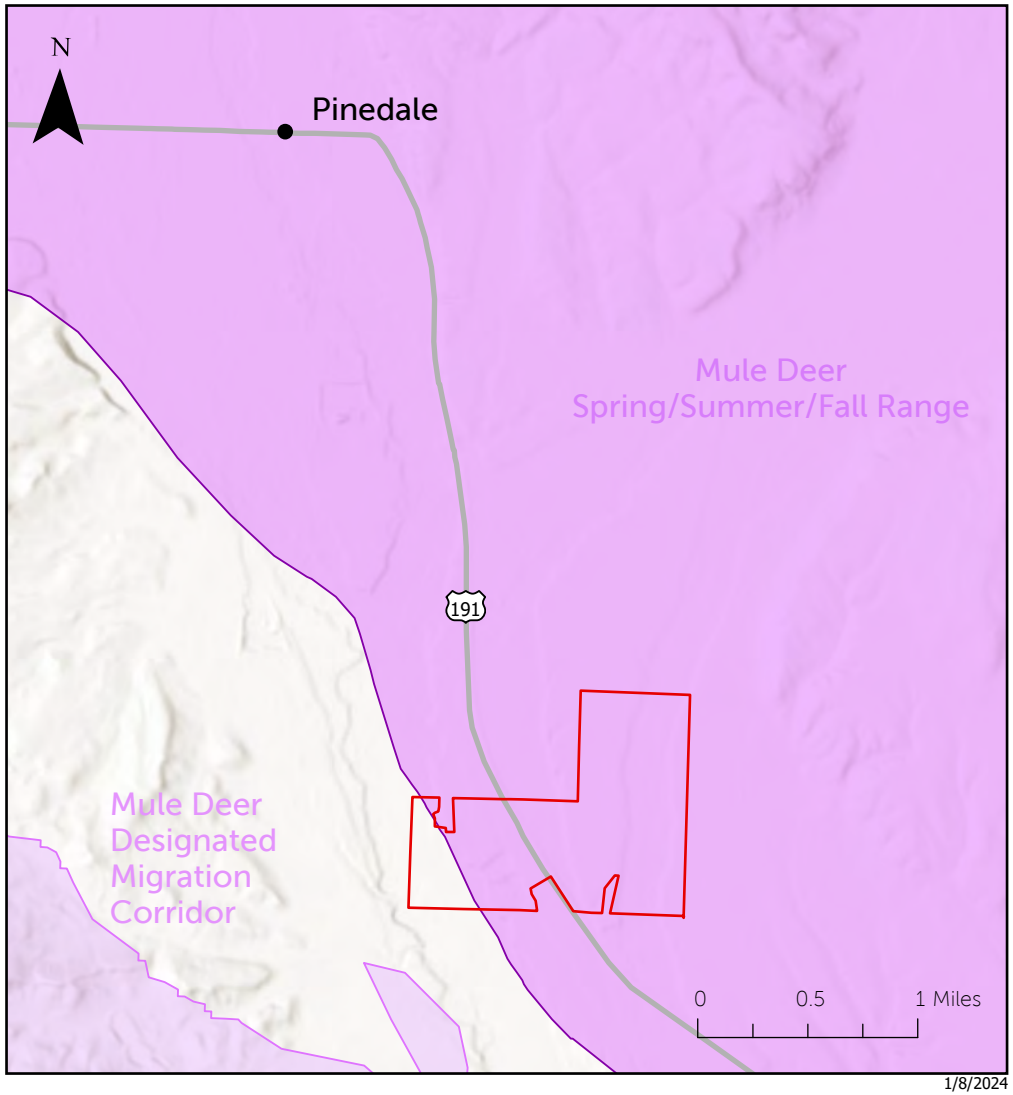
Hagie's Haven, LLC CE

Pronghorn Spring/Summer/Fall Range

Docusign Envelope ID: 9B6D24F9-0974-459B-ABFA-78E5E9A492A2

Hagie's Haven, LLC - Wildlife Values





1/8/2024

JACKSON HOLE LAND TRUST
Jackson Hole Land Trust
P.O. Box 2897
690 S Highway 89
Jackson, WY 83001
307-733-4707
www.jhlandtrust.org

- Hagie's Haven, LLC CE
- Moose Crucial Range
- Sage Grouse Core Area
- Mule Deer Designated Migration Corridor
- Mule Deer Spring/Summer/Fall Range

Docusign Envelope ID: 9B6D24F9-0974-459B-ABFA-78E5E9A492A2

Wyoming Game and Fish Department
Conserving Wildlife, Serving People
Governor Mark Gordon • Director Angi Bruce

Commissioners
Richard Ladwig, President
Mark Jolovich, Vice President
Rusty Bell
Ralph Brokaw
Ashlee Lundvall
John Masterson
Kenneth D. Roberts

January 30, 2025

Madison Harper
Conservation Project Manager
Jackson Hole Land Trust
Green River Valley Program
PO Box 1580
Pinedale, WY 82941

Dear Madison,

The Wyoming Game and Fish Department (Department) is statutorily charged with managing and protecting all Wyoming wildlife (W.S. 23-1-103). Conservation easements compensate willing landowners for their rights to develop their lands and are often valid in perpetuity. Thus, conservation easements are pursuant to the Department's mission by ensuring that conserved lands remain available for wildlife habitat, while also providing for recreation and traditional uses like forage and livestock production.

The proposed Hagies Haven, LLC easement consists of 539.8 acres in Sublette County approximately 2 miles south of the town of Pinedale. The property borders a 352 acre conservation easement to the south, contains about ½ mile of the New Fork River, and overlaps several critically important wildlife habitats. Securing a conservation easement on the property would ensure that these important wildlife habitats remain undeveloped.

Terrestrial Wildlife Values:
The willow bottoms along the New Fork River within the proposed conservation easement are crucial winter yearlong habitat for Sublette herd moose, and the upland portions of the property are spring/summer/fall habitat for Sublette pronghorn. Pronghorn captured on the Pinedale Anticline have utilized habitats on the proposed easement. Riparian areas along the New Fork River and irrigated pastures on the property provide brood rearing habitat for sage grouse, along with foraging areas for waterfowl and habitat for neotropical songbirds. Sage grouse collared on the Pinedale Anticline have been documented to use the property. Permanent protection of the property would ensure continued functionality of the diverse terrestrial habitat present and continued support of the known terrestrial wildlife values.

Aquatic Wildlife Values:
Several Department identified aquatic habitat areas overlap this property, including the Upper Green River wetland complex, the New Fork River riparian corridor and the New Fork River restoration area. Collectively, efforts to protect this property in perpetuity would be valuable in the conservation of numerous native aquatic and riparian-dependent species, and a valuable suite of introduced sport fishes. The stretch of the New Fork River overlapping this property in part, constitutes one of the few blue ribbon streams in western Wyoming. This designation is given to

Docusign Envelope ID: 9B6D24F9-0974-459B-ABFA-78E5E9A492A2

rivers and streams in Wyoming supporting greater than 600 pounds of trout per mile. Blue ribbon streams represent the top 3 – 5 percent of rivers or streams in the state for trout production. In addition, the department has previously invested in stream habitat restoration within the New Fork River restoration area, downstream of the proposed conservation easement. Further conservation of riparian habitat within the restoration area would enhance the value of these investments.

The Department applauds the decision of the current landowner to move forward with permanently protecting the diverse habitats on their property from future development by enrolling their acreage in a conservation easement. Additionally, the landowner has expressed their willingness to enroll additional acreage into an easement in the future.

Sincerely,



Brandon Scurlock, Wildlife Management Coordinator, Wyoming Game and Fish Department

BS/al/rc

cc: John Lund, WGFD Pinedale Wildlife Supervisor
Jordan Kraft, WGFD Big Piney Game Warden
Dean Clause, WGFD Pinedale Wildlife Biologist
Troy Fieseler, WGFD Terrestrial Habitat Biologist
Hilda Sexauer, WGFD Pinedale Fisheries Supervisor
Pete Cavalli, WGFD Pinedale Fisheries Biologist
Alex LeCheminant, WGFD Pinedale Fisheries Biologist
Ross Crandall, WGFD Pinedale Habitat Protection Program Biologist

Docusign Envelope ID: 9B6D24F9-0974-459B-ABFA-78E5E9A492A2

The Haven







PINEDALE ANTICLINE PROJECT OFFICE (PAPO)

1625 West Pine St.
PO Box 768
Pinedale, WY 82941

2026 PAPO APPLICATION FOR FUNDING

(Deadline for applicants is September 15, 2026. Use additional sheets if necessary)

GENERAL PROJECT INFORMATION

Project Name: 2026 PAPO Highway 191 and Highway 351 Big Game Crossing and Mortality Study

General Location **(distance and direction from nearest city/town, attach map if applicable):**

Driving surveys will be conducted along US Highway 191 between Pinedale and Farson and along WY Highway 351 from the junction of US Highway 191 to US Highway 189. Data may also be compiled from other efforts in the general area, but not ground efforts are intended to occur outside of the driving routes identified on Map 1.

Legal Location of Project:

US Highway 191 Route:

- S3, S10, S15, S22-23, & S25-26, T33N, R109W
- S30-32, T33N, R108W
- S5-6, S8-9, S15-16, S21-22, S27-28, & S33-34, T32N, R108W
- S3, S10-11, S14, & S23-25, T31N, R108W
- S30-31, T31N, R107W
- S5-6, S8, S16-17, S21, S28, & S33, T30N, R107W
- S3-4, S10, S14-15, S23, S26, & S35-36, T29N, R107W
- S3, S10, S14-15, S23, S25-26, & S36, T28N, R107W
- S1 & S12, T27N, R107W
- S7, S18-20, S29-30, & S32, T27N, R106W
- S4-5, S9, S16, S20-21, S29, & S32, T26N, R106W
- S4-5, S9, S16, S21, & S27-28, T25N, R106W

WY Highway 351 Route:

- S6, T30N, R107W
- S1-6, T30N, R108W
- S1-7, T30N, R109W
- S11-12, S14-18, & S21, T30N, R110W
- S13-17, T30N, R111W

Counties: Sublette and Sweetwater

Surface Ownership (check all that apply): Federal _____ State X Private _____

**If project includes a mix of federal, state and/or private lands, provide a breakdown for each

ownership by acres and percent of total project area.

Although the targeted driving routes are surrounded by a mixture of government and privately owned lands, all physical survey efforts will be done from US Highway 191 and WY Highway 351. Staff will not travel off of the state managed highways or the ROWs.

Contact Information for Affected Parties of Agencies:

There are no affected agencies that require contact, and therefore none are listed. However, Aster Canyon intends to contact the WGFD and WYDOT to request sharing of data.

WGFD Pinedale Regional Office: (307) 367-4352
WYDOT Pinedale Office: (307) 367-4488

APPLICANT INFORMATION

Name/Organization: Aster Canyon Consulting; Owner: Matt Bean; Manager: Megan Sciolla
Mailing Address (include city, state and zip): PO Box 1704, Pinedale, WY 82941
***Daytime Phone*:** Owner: 205-873-8212; Manager: 724-816-5197
***Fax*:** N/A
Email Address: Owner: matt.bean@astercanyon.com; Manager: megan.sciolla@astercanyon.com
Point of Contact (if different from above): N/A

PROJECT DESCRIPTION

General Project Type (check all that apply):

Land Use/Livestock _____
Land Use/Recreation _____
Cultural _____
Wildlife/Aquatic X
Air _____
Other _____

Describe Project Proposal (such as mechanical treatments, water improvement, etc.)

Please see the attached Scope of Work document.

Total Project Acres (if applicable)

US Highway 191 Route: approximately 60 miles

WY Highway 351 Route: approximately 24 miles

Physical surveys will be conducted along the above routes. Acreage can be calculated based on mileage and ROW with of the identified highways if desired.

Additional data may be compiled from other efforts across the area.

Acres Indirectly Affected (if applicable, explain)

See above.

WHAT ARE THE OBJECTIVES OF THE PROJECT?

The objectives of this project are to:

- Acquire data on big game mortalities, crossings, and movements along US Highway 191 and WY Highway 351;
- Acquire incidental data on other species mortalities, crossings, and movements along US Highway 191 and WY Highway 351;
- Compile data from other agencies, such as WYDOT and WGFD to include in data analysis of big game movements and mortalities in relation to the identified highways;
- To analyze and use the data collected and compiled to inform necessary locations for future mitigation projects such as fence modifications, installation of traffic signage, seasonal or time-of-day speed limit changes, etc.;
- And to use the above objectives to secure funding for desired mitigation projects.

HOW DOES THE PROJECT MEET THE PAPO STRATEGIC PLAN GOALS? (please refer to the PAPO 2026 Ranking Score Sheet)

Please see the attached Scoresheet responses and Maps 1-3.

HOW DOES THE PROJECT MEET THE 2026 PAPO PRIORITIES? (please refer to the PAPO 2026 Ranking Score Sheet)

Please see the attached Scoresheet responses and Maps 1-3.

WHAT ARE THE DIRECT AND/OR INDIRECT EFFECTS ON OTHER RESOURCES?

There are no direct or indirect effects on other resources beyond those that exist already. Surveys will be done from a vehicle and given the existence of other vehicular traffic on both identified highways, no additional impacts are presumed to occur.

WHAT IS THE POTENTIAL FOR FUTURE EXPANSION OF THE PROJECT?

There is significant potential for future expansion of the project, and it is the hope of Aster Canyon, that future efforts will be implemented. Future efforts may include:

- Continuation of research beyond a single year;
- Extending the project area to other roadways;
- Implementation of mitigation based on research results, to include mitigation such as fence modifications, traffic signage, seasonal or time-of-day reduced speed limits, wildlife crossings, etc.;
- Evaluation of big game mortality and crossings before and after implementation of mitigation;
- And The creation of a central database accessible to the public, agencies, or other interested parties that could house compiled vehicle-big game collision data to inform future decisions and research.

LIST ALL PROJECT PARTNERS/COOPERATORS, THEIR ROLES AND/OR CONTRIBUTIONS:

Aster Canyon intends to conduct all field efforts and to compile all information into reports for the PAPO.

Aster Canyon is interested in acquiring data from other agencies, not limited to, WGFD (collar data), and WYDOT (vehicle collision data/carcass collection data). These agencies will be contacted upon project approval but can be contacted prior to implementation of funds. The expectation of the agencies is that they would provide data that can be included in data analysis and final conclusions. Their data would be valuable in evaluating big game movement patterns, as well as to ensure that any roadkill that is not discovered by Aster Canyon, but is found by DOT, can be included in the data. Raw data or formal reports would be of value.

PROJECT MONITORING AND REPORTING: (describe how monitoring and reporting will be done, and how it relates to the objectives)

Monitoring will be done by conducting driving surveys on US Highway 191 and WY Highway 351, along routes identified in Map 1. While driving, Aster Canyon personnel will collect data focused on big game roadkill, incidents of road crossings, and other movements along the highways. In addition, incidental observation of other species roadkill, incidents of road crossings, and other movements along the highways will also be documented. Other available data such as WGFD collar data and WYDOT carcass/wildlife-vehicle collision data will be used. Aster Canyon can provide quarterly reports to the PAPO to update them on project progress. A final report will be delivered once all data is compiled and analyzed and will include a written report, appropriate tables and figures, maps, and spatial files. All methods will be conducted, and all information will be collected/disseminated in a manner that will allow for potential continuation of research and/or informing mitigation decisions. More detailed information on methods is included in the attached Scope of Work document.

RESEARCH POTENTIAL: (describe the research potential of the project)

There is significant research potential related to this project proposal. Research efforts may include:

- Developing a documented baseline of environmental conditions and/or resource use against which future observations can be compared.
- Improving understanding of seasonal variation, including periods when particular resources, species, habitats, or environmental conditions may be more sensitive or require additional consideration.
- Continuation of monitoring beyond a single year and extending the project area to other roadways;
- Evaluation of big game mortality and crossings before and after implementation of mitigation;
- The creation of a central database accessible to the public, agencies, or other interested parties that could house compiled vehicle-big game collision data to inform future decisions and research.
- Helping identify areas of concern, prioritize potential mitigation efforts, and inform the timing or design of future mitigation measures.

PERMITS AND AUTHORIZATIONS REQUIRED PRIOR TO PROJECT IMPLEMENTATION: (including but not necessarily limited to the following)

PERMIT OR AUTHORIZATION	REQUIRED		SUBMITTED		APPROVED	
	Yes	No	Yes	No	Yes	No
Cultural Resource Inventory		X				
COE Section 404 Permit		X				
Cooperative Agreement(s)		X				
NEPA Analysis		X				
Pesticide Application Permit		X				
Private Landowner Agreement(s)		X				
Sensitive Species Clearance		X				
Surface/Ground Water Permits		X				
T/E Species Clearance		X				
Other (explain)						

All physical survey efforts will be conducted on existing roadways.

TOTAL PROJECT COST: (attach detailed budget)

Project Planning and Design $6,600
Project Implementation $86,240
Project Operation and Maintenance $6,640
Total Required $99,480

MATCHING FUNDS ANTICIPATED IN CASH (list source and amount)

20% of project labor costs above from Aster Canyon Consulting: $18,568.00

ANTICIPATED "IN KIND" MATCHING FUNDS (list source, valuation, and valuation method)

Gas to be covered at the standard IRS mileage rate for 2026 ($0.76): $6,640.00

PERCENTAGE OF FUNDING ON HAND OR COMMITTED

Aster Canyon will commit to the funding described above.

TOTAL PAPO FUNDING REQUESTED: $74,272.00

EXPECTED/ANTICIPATED LIFE OF PROJECT (LOP)

Perpetual _____ >50 Years _____ 25-50 Years _____ <25 Years X
Explain Basis for Projected LOP:

Currently, Aster Canyon desires to secure funding to conduct research for one full year (to include all months/seasons), followed by time needed to analyze and compile the data (likely 3 months). However, it is the hope of Aster Canyon that, based on project results, future surveying can be continued to either 1) continue to collect data to inform mitigation efforts, or 2) collect data after mitigation efforts have been implemented to compare results.

If, based on initial results, mitigation is implemented, monitoring could continue for several years.

PROJECT TIMELINE AND ESTIMATED COMPLETION DATE: Please explain.

The project is intended to begin within 1 month of project approval. It is anticipated that project preparations will occur across one month, to include preparation of field materials, acquisition of existing data, scheduling, etc. This will be followed by one full year (to include all months/seasons) of field efforts. After field efforts are concluded, it is expected that approximately 3 months will be needed to analyze and compile all data. Providing some flexibility, the project is expected to be completed within 1 year and 6 months of approval.

As stated above, it is the hope that these efforts will warrant future mitigation and research that can be funded by the PAPO or other sources.

ATTACHMENTS AND SUPPORTING DOCUMENTATION

Map of Project (see statement below)(scale of not less than 1"
= 2,000 feet)
Project Design X (included in Scope of Work)
Letters of Support _____
Management Plan _____ Long Term _____ Short Term _____
Monitoring Plan X (included in Scope of Work) Long Term ____
Short Term _____
Relevant Past Experience X (see attached resumes)
Other X (please explain)

Three maps, along with responses to the Scoresheet are attached in addition to the attachments identified above. Given the length and the simplicity of the project area, a map with a scale of not less than 1" = 2,000 feet is not included. However, if one is required, it can be provided. Also attached is a detailed Cost Estimate.

ADDITIONAL INFORMATION FOR PAPO CONSIDERATION:

Aster Canyon Consulting and its personnel bring experience conducting environmental work in the Pinedale Anticline and surrounding Sublette County area. This experience provides familiarity with the

local environmental conditions, project logistics, seasonal considerations, and the regulatory and operational context in which the proposed study will be conducted.

Our team has experience supporting environmental monitoring, environmental studies, field data collection, and environmental documentation associated with energy development and other projects in the region. This work has required the collection of reliable field information, coordination with project stakeholders, and the preparation of organized data and reporting materials suitable for environmental review and decision-making.

This prior experience will allow Aster Canyon to approach the proposed project with an understanding of the local landscape and the practical requirements of conducting fieldwork in the area. It also provides a foundation for developing a study that is methodical, repeatable, and capable of producing useful information for PAPO and the BLM.

ACKNOWLEDGEMENT: This project and requested funding is subject to approval by the Pinedale Anticline Monitoring and Mitigation Board of Directors

_____

Signed: 

_____

Printed Name: Matt Bean

_____

Title: Owner

Date 09/14/2026

PINEDALE ANTICLINE PROJECT OFFICE

2026 PROJECT APPLICATION

2026 PAPO HIGHWAY 191 AND HIGHWAY 351 BIG GAME CROSSING AND MORTALITY STUDY: SCOPE OF WORK

ASTER CANYON CONSULTING

INTRODUCTION AND BACKGROUND INFORMATION

Aster Canyon Consulting, Inc., located in Pinedale, WY is applying for funding from the Pinedale Anticline Project Office (PAPO). Funding is being requested to conduct a big game mortality and crossing study along US Highway 191 (60 miles) and WY Highway 351 (24 miles) to inform future mitigation and research efforts.

Objectives

The objectives of this project are to:

- Acquire data on big game mortalities, big game road crossings, and movements along US Highway 191 and WY Highway 351;
- Acquire incidental data on other species mortalities, other species road crossings, and movements along US Highway 191 and WY Highway 351;
- Compile data from other agencies and organizations to include in data analysis of big game movements and mortalities in relation to the identified highways;
- To analyze and use the data collected and compiled to inform necessary locations for future mitigation projects such as fence modifications, installation of traffic signage, seasonal or time-of-day speed limit changes, etc.;
- To use the above objectives to secure funding for desired future mitigation projects and research.

Project Location

The proposed project is set to occur in Sublette County and Sweetwater County, Wyoming. Field efforts will be concentrated along US Highway 191 and WY Highway 351. Survey routes are identified on the attached Maps 1-3 and include approximately 60 miles of US Highway 191 and 24 miles of WY Highway 351. All field efforts will occur on the highways, with occasional stopping in the highway rights-of-way (ROWs).

These routes overlap the Pinedale Anticline Project Area (PAPA) and also travel through a significant amount of Bureau of Land Management (BLM) and State lands beyond the PAPA. Survey routes will travel through the following sections:

US Highway 191 Route:

- S3, S10, S15, S22-23, & S25-26, T33N, R109W
- S30-32, T33N, R108W
- S5-6, S8-9, S15-16, S21-22, S27-28, & S33-34, T32N, R108W
- S3, S10-11, S14, & S23-25, T31N, R108W
- S30-31, T31N, R107W
- S5-6, S8, S16-17, S21, S28, & S33, T30N, R107W
- S3-4, S10, S14-15, S23, S26, & S35-36, T29N, R107W
- S3, S10, S14-15, S23, S25-26, & S36, T28N, R107W
- S1 & S12, T27N, R107W
- S7, S18-20, S29-30, & S32, T27N, R106W

- S4-5, S9, S16, S20-21, S29, & S32, T26N, R106W

WY Highway 351 Route:

- S6, T30N, R107W
- S1-6, T30N, R108W
- S1-7, T30N, R109W
- S4-5, S9, S16, S21, & S27-28, T25N, R106W
- S11-12, S14-18, & S21, T30N, R110W
- S13-17, T30N, R111W

The proposed routes overlap several important big game areas, including crucial range and designated migration corridors (Maps 2-3). The routes primarily travel through sagebrush dominated habitats.

Additional existing data may be compiled for the general surrounding area beyond the identified survey routes. However, there will be no additional field efforts associated with this data compilation. Data may include, but is not limited to, Wyoming Game and Fish Department (WGFD) big game collar study data, Wyoming Department of Transportation (WYDOT) carcass collection data, and published data from other non-governmental organizations (NGOs) and Universities.

Project Timeline

The project is intended to begin within 1 month of project approval and will be completed in accordance with the schedule below:

Project Phase	Month of Completion*	Tasks to be Completed
Phase 1: Project Preparations	1	• Contact agencies/organizations to initiate conversations about receiving outside data • Finalize methods and data to be collected • Create field materials such as necessary data sheets • Generate detailed project schedule • Finalize a general plan for data analysis
Phase 2: Field Study	2-13	• Conduct field surveys along the identified driving routes at least twice weekly (once at dawn and once at dusk) • Continue to acquire outside data as needed and as is possible • Provide quarterly updates to the PAPO

Phase 3: Data Analysis and Reporting	14-16	• Compile all field data and outside data • Begin analyzing data to find any trends in conflicts between big game and transportation-related issues • Summarize results in a manner to be interpreted by PAPO and other relevant personnel • Develop a summary of implications of the results and identify next steps for research or mitigation

** To provide some flexibility to account for project roadblocks, it is expected that the project will be completed within 18 months of approval.*

While the above timeline is only inclusive of one year of field efforts and other associated project tasks, it is the hope of Aster Canyon Consulting that these efforts will warrant future mitigation and research that can be funded by the PAPO or other sources. Continued research or mitigation efforts would warrant a new proposal and scope of work to be generated, which would include updated timelines.

DATA COLLECTION METHODS

Existing Data Compilation

Aster Canyon Consulting intends to acquire and compile existing data relevant to the movement and mortality of big game species across and in proximity to the targeted survey driving routes. Aster Canyon personnel will contact the WGFD and WYDOT to request any available data. In addition, existing research from NGOs, Universities, and any other relevant resources will be consulted. These data will be compiled in a manner that is appropriate based on information provided and the format in which they are provided. Outside data will be compiled in conjunction with data collected from field efforts in an attempt to develop a well-rounded perspective of impacts to big game that are generated from the surveyed highways and other associated infrastructure, such as fencing. Aster Canyon can update the PAPO as data availability becomes clearer and therefore, the methods of data compilation are determined.

Field Surveys

Field surveys will be conducted for a period of one year, to include all months and seasons starting after PAPO funding is secured (future surveys will be conducted if the research is warranted, and funding is acquired through the PAPO or other entities). Surveys will include driving the approximately 60-mile Highway 191 route and 24-mile Highway 251 route twice weekly. Once will be starting at approximately dawn, and the other will be finishing at approximately dusk. The routes will be driven in conjunction with each other, but the order at

which they are driven may be alternated to account for differences is big game movement at specific times during each survey.

While driving, biologists will search for big game carcasses, big game crossing the highways, and big game present in proximity to the highways. For big game in proximity to highways, Aster Canyon will survey out to up to 50 meters from the edge of the road. Data including species, sex, age class, condition of carcass, activity of live animal, weather data, and any other relevant information will be collected. Carcasses observed on more than one occasion will be noted, but duplicate observations will not be included in data analysis.

In addition to data on big game mortalities and movements, biologists will also document other incidental wildlife mortalities and movements. Biologists will also take note of any predators on carcasses. Common species seen on or near roadways, such as black-billed magpies and ravens, will not be documented every time, unless they are feeding on visible carcasses.

PREPARATION OF REPORT

Methods of data analysis will be defined once outside data availability and initial survey results become clear. Aster Canyon will update the PAPO as soon as data analysis methods are selected. The goal of data analysis will be to identify areas with the highest concentration of big game mortality, big game road crossings, and big game movement along highway fencelines. Not only will this allow interpretation of where big game are unsuccessfully crossing, but also where they are successfully crossing and where they are attempting to cross (i.e., stuck along fencelines).

Aster Canyon intends to use data analysis methods to generate multiple "heat maps" utilizing ArcGIS software for easy display of information to include the results mentioned above.

Presentation of Results

Aster Canyon is committed to providing quarterly reports to the PAPO to update them on project progress. More frequent communication will occur as needed. A final report will be delivered once all data is compiled and analyzed. Final reporting will include a written report, appropriate tables and figures, maps, and spatial files. All information will be disseminated in a manner that will allow for easy interpretation and for potential communication of research and/or mitigation.

COST ESTIMATE

Provided below is a general summary of costs for the proposed project. In addition, an excel spreadsheet is attached to this application with more detailed information.

Project Phase	Month of Completion*	Estimated Cost – Aster Canyon Contribution (20% and Gas)
Phase 1: Project Preparations	1	$6,600 – $1,320 = $5,280
Phase 2: Field Study	2-13	$68,640 – $13,728 = $54,912 Gas: $6,640 – $6,640 = $0
Phase 3: Data Analysis and Reporting	14-16	$17,600 – $3,520 = $14,080
Total:		$92,840 – $18,568 = $74,272

** To provide some flexibility to account for project roadblocks, it is expected that the project will be completed within 18 months of approval.*

Pinedale Anticline Project Office (PAPO)
2026 Project Application Ranking Score Sheet

1. **Does the project meet the intent of the Pinedale Anticline Record of Decision (ROD) (20 points)?**

Yes, the project will benefit big game, including pronghorn and mule deer, which are both identified in the ROD.

Additionally, the 2026 PAPO applicant letter states: "*To date, mitigation responses have been necessary for mule deer and greater sage-grouse as required by the September 2008 Pinedale Anticline Record of Decision."* This indicates further that mitigation responses are needed for mule deer, which will also benefit other big game species.

2. **Is the project a priority for the PAPO Board, or has a Wildlife Monitoring and Mitigation Matrix trigger been met (20 points)?**

Yes, the project will benefit big game, including pronghorn and mule deer, which are a priority of the PAPO. The 2026 PAPO applicant letter states: "*Projects funded in prior years, when completed, will benefit mule deer, pronghorn, and greater sage-grouse by increasing water sources, improving habitat and reducing barriers to migration. Most funded projects are located on the Pinedale Anticline, as onsite mitigation is an initial first step when a mitigation response is necessary*." The intent of this project is to collect data on barriers to migration for big game to determine where mitigation should occur.

According to the Strategic Plan, a primary goal is to achieve the following: "*Actively pursue projects to benefit wildlife on a landscape scale within the Upper Green River Basin with a focus on those populations impacted by development on the PAPA."* Maps 2 and 3 clearly show that several important big game areas overlap US Highway 191, WY Highway 351, and the PAPA.

According to the Wildlife Monitoring and Mitigation Matrix, mule deer and antelope are a priority and mitigation should be done if there are changes to their populations. The WGFD's 2025 Job Completion Reports include the following information:

- The Sublette mule deer herd has been below the population objective for 9 years in recent trend, and as of 2025, was below the objective by 29.9%.
- The Sublette antelope herd has declined from the 2020-2024 average (33,379) to 25,250 in 2025. Additionally, as of 2025, the herd was below the population objective by 47.4%.

3. **Is the project inside the delineated project area as described in the Pinedale Anticline ROD (On-Site, 15 points; Mitigation Area, 5 points)?**

Yes, the project overlaps PAPA (Map 1).

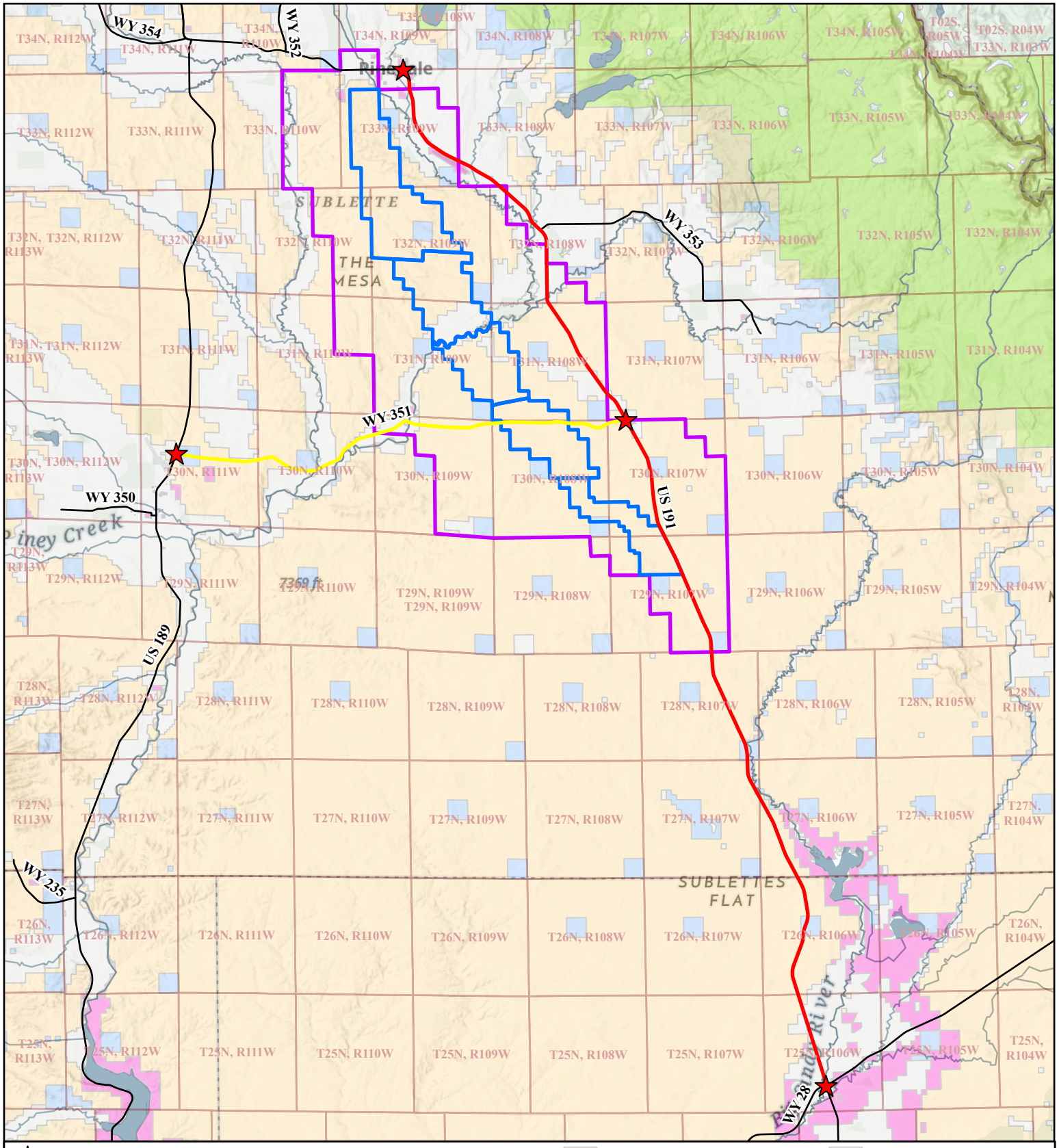
4. **Cost Share brought with the application:**

   Non-Easement

   0-25%, 5 points: Aster canyon is willing to cover 20 percent of costs.
   26-50%, 10 points
   51-75%, 15 points
   76-100%, 20 points

   Easement

   80-85%, 5 points
   86-90%, 10 points
   91-95%, 15 points
   96-100%, 20 points



DRAFTED BY:	M. SCIOLLA	09/09/2026
COMPLETENESS REVIEW BY:	C. ALEXANDER	09/10/2026
TECHNICAL REVIEW BY:	C. ALEXANDER	09/10/2026

MAP PROJECTION: NAD 1983 UTM ZONE 12N

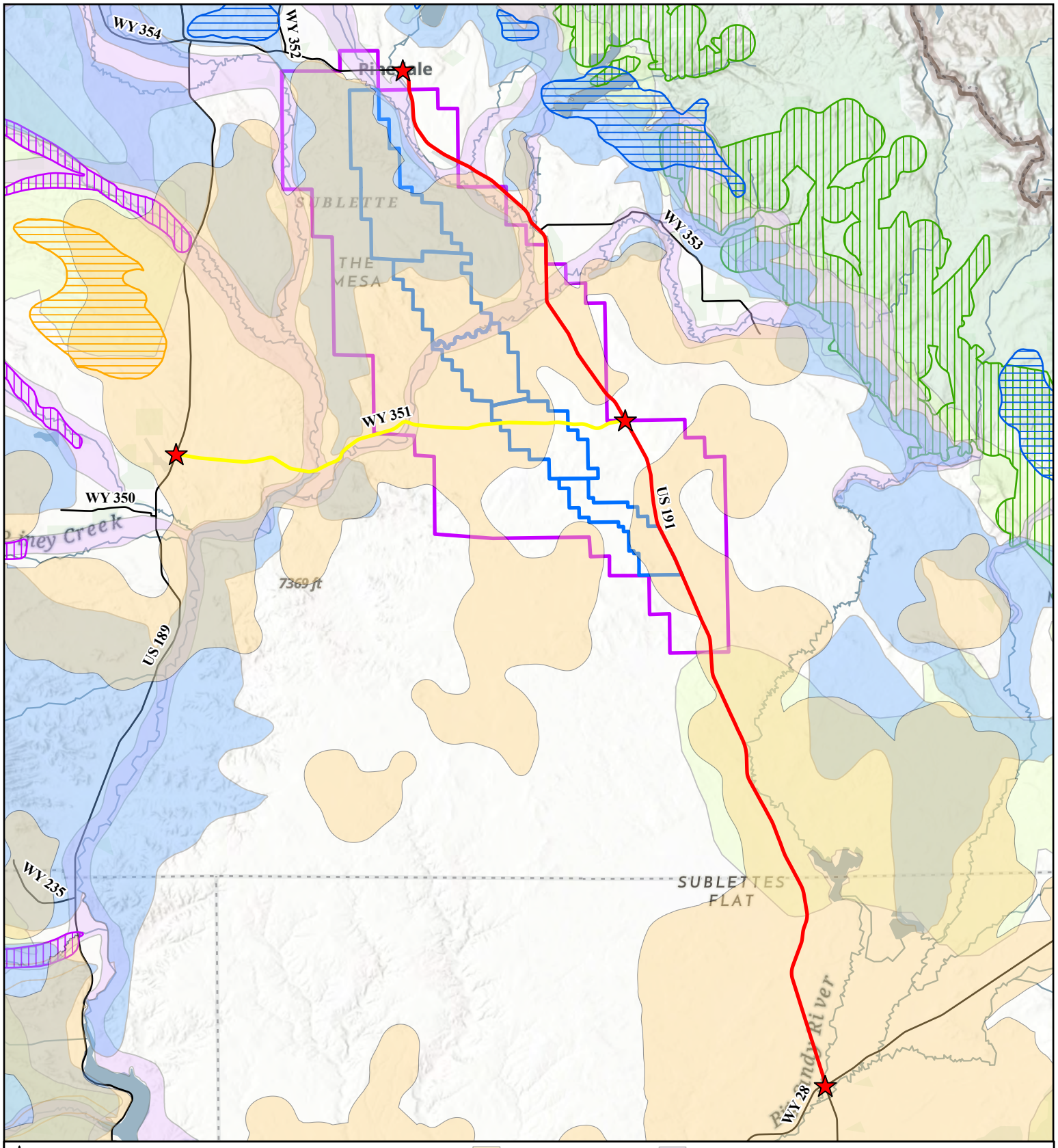
2026 Pinedale Anticline Project Office Highway 191 and 351 Big Game Crossing and Mortality Study Proposal Map 1

N

0 5 10 Miles

Easter Canyon

Balanced solutions for people and nature



Driving Route Start/Stop Points
Driving Route A
Driving Route B
Highways
Pinedale Anticline Core Development Areas
Pinedale Anticline Flanks
Antelope Parturition Areas
Antelope Crucial Range
Mule Deer Parturition Areas
Mule Deer Crucial Range
Moose Parturition Areaa
Moose Crucial Range
Elk Parturition Areas
Elk Crucial Range

DRAFTED BY:	M. SCIOLLA	09/09/2026
COMPLETENESS REVIEW BY:	C. ALEXANDER	09/10/2026
TECHNICAL REVIEW BY:	C. ALEXANDER	09/10/2026

MAP PROJECTION: NAD 1983 UTM ZONE 12N

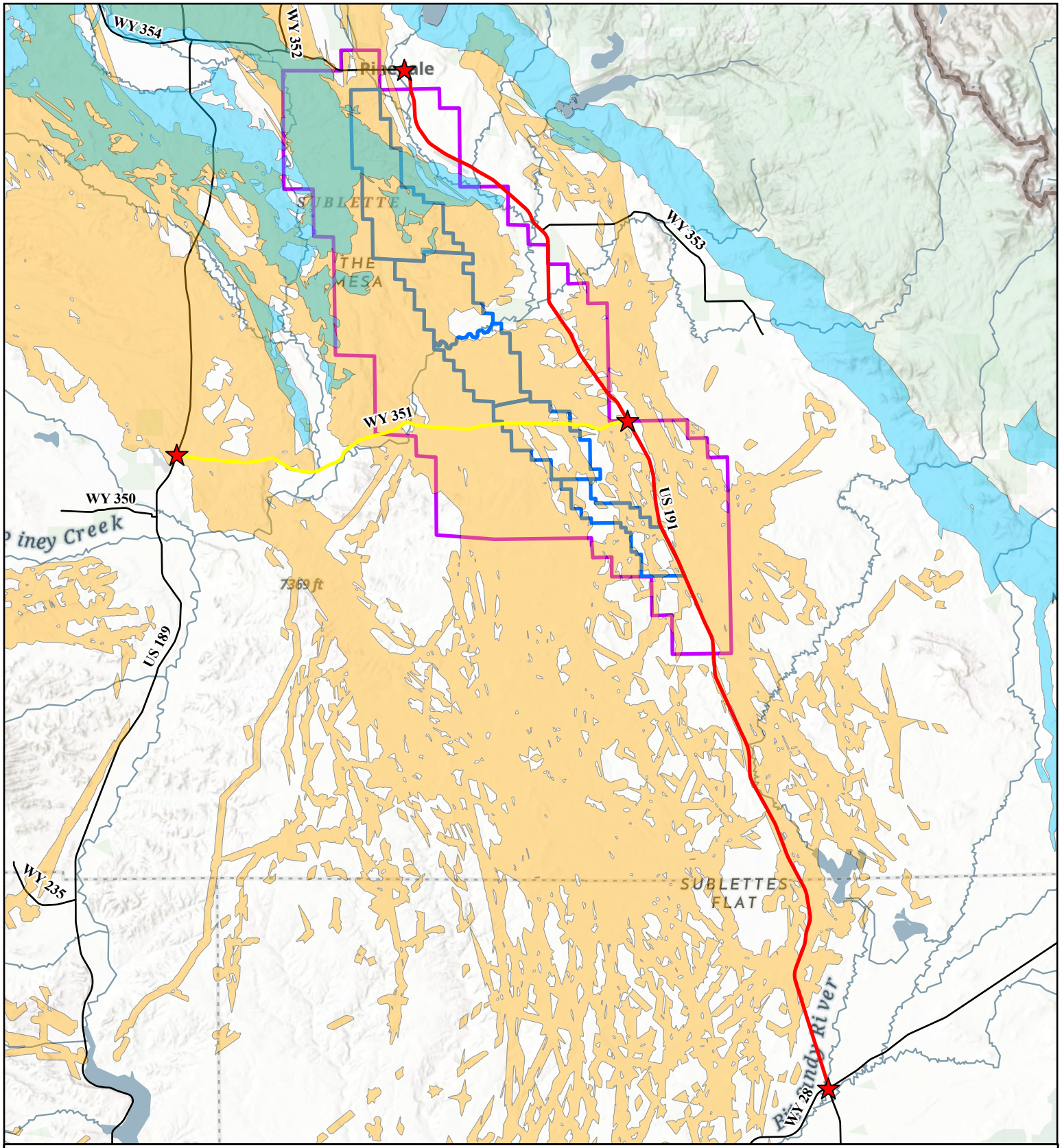
2026 Pinedale Anticline Project Office Highway 191 and 351 Big Game Crossing and Mortality Study Proposal Map 2

N

0 5 10 Miles

Easter Canyon

Balanced solutions for people and nature



Driving Route Start/Stop Points
Driving Route A
Driving Route B
Highways
Pinedale Anticline Core Development Areas
Designated Sublette Mule Deer Migration Corridor
Designated Sublette Antelope Migration Corridor
Pinedale Anticline Flanks

DRAFTED BY:	M. SCIOLLA	09/09/2026
COMPLETENESS REVIEW BY:	C. ALEXANDER	09/10/2026
TECHNICAL REVIEW BY:	C. ALEXANDER	09/10/2026

MAP PROJECTION: NAD 1983 UTM ZONE 12N

2026 Pinedale Anticline Project Office Highway 191 and 351 Big Game Crossing and Mortality Study Proposal Map 3

N

0 5 10 Miles

Easter Canyon

Balanced solutions for people and nature

MEGAN SCIOLLA 724-816-5197
Project and Office Manager megan.sciolla@astercanyon.com

EDUCATION

Degree Obtained

- B.S., Wildlife Biology, Frostburg State University, Frostburg, MD — Awarded 2019
  - Includes: 1 Semester Abroad at Murdoch University, Perth, Western Australia — Fall 2018

Other Academic/Merit Based Highlights

- Certified Associate Wildlife Biologist, The Wildlife Society
- Graduated Cum Laude
- Minors in Biology and Animal Behavior

WORK HISTORY

Project and Office Manager; Aster Canyon Consulting — November 2025 - Current

- Established new standard operating procedures under new business ownership.
- Completed the hiring process for seasonal employees including reviewing applications, conducting interviews, and acquiring employment information.
- Ensured safety compliance for clients.
- Managed all office and project procedures, including staffing, scheduling, maintenance of office supplies and vehicles, employee training, field operations, and completion of deliverables.
- Successfully continued client relationships while transitioning to new business ownership.
- Oversaw and participated in field studies including avian point-count surveys, songbird and raptor nest clearances, raptor nest monitoring, reclamation monitoring, wetland delineations and mitigation, and soil classification.

Lead Wildlife Biologist; Precision Wildlife Resources — September 2022 - November 2025

- Conducted various field surveys including, but not limited to lagomorph spotlighting, prairie dog colony mapping, raptor nest monitoring, aerial wildlife counts (big game, raptors, and grouse), lek surveys, noxious weed monitoring, Integrated Monitoring in Bird Conservation Regions (IMBCR) surveys, aquatic vertebrate sampling, and general wildlife inventory for project baseline data.
- Assisted in the training of new staff and led large scale projects such as raptor nest monitoring of over 300 square miles in Converse County, WY.
- Managed and wrote project budgets and oversaw coordination of field efforts, including securing housing for long-term survey efforts.
- Developed various documents for clients and/or agencies including annual wildlife monitoring reports, project baseline data reports, habitat assessment results, permit applications, wildlife maps, and habitat management plans.

- Compiled large sums of monitoring data for clients such as coal mines, oil and gas operators, utility line companies, and NGO's.
- Consulted with agency personnel to determine appropriate processes to remain in compliance with wildlife policy such as ESA, BGEPA, and MBTA.
- Assisted large mines with long and short term mitigation plans and actions to provide appropriate nesting availability to raptors and to ensure nesting success.
- Successfully coordinated with a large number of private landowners to acquire and maintain access to private lands while cultivating positive, ongoing relationships.

Wildlife Biologist Aide; Pennsylvania Game Commision January 2025 - March 2025

- Assisted in the capture of white-tailed deer in Fulton County Pennsylvania as part of a multi-county, multi-year study into the effects of Chronic Wasting Disease and its impacts on mortality in areas of high prevalence.
- Successfully utilized clover traps, drop-net traps, and rocket-net traps to capture deer.
- Safely immobilized and extracted samples from deer including ear tissue, blood, nasal and oral swabs, fecal materials, and body measurements.
- Collared deer and responded to mortality events to retrieve telemetry collars and deer carcasses.
- Took lymph tissue and blood samples from deceased deer.
- Subsequently took over as the primary person responsible for maintaining and injecting immobilizing and reversing drugs, as well as landowner contacts, after our crew leader left prematurely.

Wildlife Biologist/Project Manager; Aster Canyon Consulting May 2022 - September 2022

- Located and monitored raptor nests for various raptor species in Wyoming's Upper Green River Valley as per NEPA and BLM requirements.
- Acted as the primary biologist on a large raptor monitoring project on the Pinedale Anticline Project Area (approx. 198,000 acres in total).
- Meticulously followed protocols set forth by the BLM for appropriate raptor nest monitoring while minimizing disturbance to raptors.
- Successfully completed all aspects of the project including surveying, mapping, data keeping, and reporting while staying under budget.
- Aided another biologist on pygmy rabbit surveys monitoring for species presence/absence.
- Assisted with wetland delineation for the ecology team on private lands.

Wildlife Rehabilitator; Humane Animal Rescue of Pittsburgh May 2021 - May 2022

- Provided medical care for large quantities of native wildlife through means of vaccinations, radiographs, pain management treatment, wound care, infection treatment, immobilization, and euthanasia.
- Directly handled numerous species of all major taxa, including rabies vector species, with proper technique and caution.
- Utilized chemical and physical restraint with accurate medical calculations, holding techniques, traps, catch poles, and more.
- Helped in the prevention of disease spread and assisted in upkeep of quarantine protocols.

- Assisted in overseeing daily clinic operations including oversight/training of interns, seasonal staff and volunteers.
- Managed facility ordering of foods and materials within budget and instated a new inventory program.
- Developed new nutrition plans for various species including raccoons, foxes, pigeons, and doves.
- Created new disease control protocols for lagomorphs and more appropriate housing requirements for reptiles.

Wildlife Caretaker; Humane Animal Rescue of Pittsburgh June 2020 - April 2021

- Provided daily husbandry to large quantities of native wildlife through feeding, cleaning, and safe handling.
- Assisted medical staff with procedures and medical care. Supported training of volunteers, interns, and seasonal staff.

SPECIALTY AREAS

Mammal Capture/Research

Responsibilities in educational and professional environments included conducting small mammal and ungulate research. Ungulate research included the participation in the capture, immobilization, sample extraction, and collaring of white-tailed deer in Pennsylvania. Deer were captured using multiple trap methods including clover traps, drop-nets, and rocket-nets to assist in a multi-year study on the relationship between Chronic Wasting Disease and mortality in deer in the state. Deer were also recorded and tracked using camera traps and telemetry equipment. Small mammal research efforts ranged from spotlighting to trapping of small mammals. Assisted in a long term study of Australian Western brown bandicoots - safely capturing, microchipping, and releasing individuals. Bandicoot data collected included DNA samples, sex, size measurements, and number of joeys. In addition, handled many species of small mammals of rodents, lagomorphs, mustelids, etc. Lagomorphs (jackrabbits, cottontails, and pygmy rabbits) were surveyed via spotlight efforts by traveling at low speeds in a vehicle, as well as by walking plots to record presence/absence and abundance data. Prairie dog colony mapping was conducted by walking the outermost perimeter of active colonies and mapping using GPS tracking to accurately estimate colony size. General big game counts were conducted via fixed wing aircraft, flying transects to cover a large area and delineate presence of species in given habitat types.

Raptor Research

Major responsibilities in the last four years included overseeing large scale raptor monitoring projects for oil and gas operators across Wyoming. Surveys included massive swaths of land, as well as small scale project-based survey efforts. Involvement included creation of budgets; creation/organization of all field materials; project oversight; client, landowner, and agency coordination; directing of field efforts; training of new staff; data reporting; and more. Heavy

focus was also given to raptor mitigation efforts for particular clients to ensure minimal disruption to regular raptor nesting activity and occasional raptor rescue efforts. Previous work included the care and rehabilitation of a large number of raptors to provide optimal circumstances for release. Care ranged from general husbandry and feeding to intensive medical treatment.

Wildlife Handling

Handled numerous wildlife species in both field and rehabilitation settings. Safe handling includes proper physical and/or chemical restraint through the use of direct handling, raptor hoods, gloves, traps, nets, anesthetic injections and gas, catchpoles and more. Categories of animals handled include ungulates, passerines, waterfowl, raptors, rodents, lagomorphs, mustelids, canids, felids, bats, snakes, turtles, etc.

OTHER RELATED EXPERIENCE AND CERTIFICATIONS

- Basic Wetland Delineation Training Certification; Wetland Training Institute, Wyoming 2026
- Rocky Mountain Amphibian Project Volunteer; University of Wyoming, Wyoming 2026
- First Aid Training; Game Commission, Pennsylvania 2025
- Rabies Vector Species Handling Certification & Vaccinations; Dept. of Health & Dept. of Agriculture, Pennsylvania 2020
- Wildlife Care Volunteer; Kanyana Wildlife Center, Australia 2020
- Western Brown Bandicoot Research; Murdoch University, Australia 2018

ADDITIONAL SKILLS

- Ability to create maps with ArcGIS software
- Comfortable utilizing ATVs, small watercraft, snowshoes, snowmobiles, and 4x4 vehicles off-road
- Ability to use camera traps, live traps, and telemetry equipment
- Capable of towing a trailer
- Experience with aerial surveys via fixed wing aircraft and helicopter
- Comfortable handling wildlife utilizing chemical or physical restraint
- Excellent navigation skills with compass, GPS unit, and topographic maps
- Well rounded species identification abilities
- Superb communication skills with peers, clients, landowners, and agencies
- Extensive Microsoft software use: Word, Outlook, Excel, and Teams
- Detailed report writing, preparation of deliverables and data management
- Successful completion of projects on time and under budget

Crystal Alexander, BSF

316-218-5387 crystal.alexander@astercanyon.com

EDUCATION

Stephen F. Austin State University, Nacogdoches, Texas
Graduated May 2019
Major: Forest Wildlife Management, GPA: 3.3 Minor: Biology
Transferring Credits towards degree: University of Alaska Fairbanks- Wildlife Biology and Conservation

WORK EXPERIENCE

Aster Canyon Consulting: Wildlife & Rangeland Ecologist
March 2026-Present
Pinedale, Wyoming

- Conduct wildlife surveys to include point-count surveys, songbird and raptor nest clearances and raptor nest monitoring
- Conduct rangeland plant surveys following reclamation monitoring procedures and establishing baseline plant diversity, frequency and basal cover
- Follow US Army Corp of Engineers procedures to conduct wetland delineations, monitoring and establishment of mitigation banks
- Create habitat management plants for private landowners with wildlife, aesthetics and native species in mind
- Manage office and project procedures, including staffing, employee training, scheduling, maintenance of field supplies and vehicles, field operations, safety compliance and completion of deliverables

New Mexico Department of Game & Fish: Private Lands Program Manager
September 2025-February 2026
Santa Fe, New Mexico

- Supervise the Elk Private Lands Use System (EPLUS), recognizing the contributions of private land to the management of elk and issue hunting permits to qualifying landowners
- Enroll landowners in the EPLUS program through habitat evaluations, determining elk use, and mapping land boundaries through ArcPro, written deeds and county mapping
- Supervise the Open Gate (OG) program, working with private landowners to gain public hunting, fishing, or trapping access to private land or improve access to public land
- Work with coordinators of each program to ensure annual agreements, authorization statements and other program documents are being sent out and processed in a timely manner
- Through the established programs, and other agencies that may assist, work with landowners to help improve their property for the benefit of wildlife
- Review habitat projects for properties already enrolled in the EPLUS program and determine if eligible for bonus allocation elk tags
- Work with the Private Land Specialist Supervisor with field reviews of properties and assist in conservation management plans, population management hunts, and distribution of damage materials such as fencing or traps
- Work with I&E division to develop educational materials to promote private land programs, attend landowner workshops conferences and other meetings to promote the programs

Wyoming Game & Fish Department: Regional Wildlife Technician
January 2024-September 2025
Pinedale, Wyoming

- Coordinate with wardens, biologists and landowners to conduct damage control through hazing and depredation by big game animals to livestock and agriculture
- Manage wildlife conflict situations in urban and rural areas through hazing, chemical immobilization or take, perform field necropsies when necessary
- Contact hunters at check stations and field checks to record harvest information and collect biological data such as CWD samples or teeth
- Conduct population surveys and classifications of wildlife by air or ground to include deer, elk, moose, pronghorn, sage grouse and other non-game species
- Assist biologists with captures and immobilizations to place radio collars, ear tags and collect biological data such as age, weight, temperature, nasal swabs, fecal and blood samples
- Assist feed personnel with elk feed ground operations to include elk feeding, horse maintenance, and writing the Feedground Management Action Plan
- Conduct fence inventory on private lands to create maps and help landowners with wildlife friendly recommendations
- Conduct vegetation and habitat surveys on select sites to evaluate long term objectives following treatment
- Assist biologists with captures and immobilizations to place radio collars, ear tags and collect biological data such as age, weight, temperature, nasal swabs, fecal and blood samples
- Assist feedground personnel with elk feed ground operations to include elk feeding, horse maintenance, and writing the Feedground Management Action Plan
- Assist office managers with license sales, phone calls, public contacts and AIS inspections
- Additional training to include: authorization to take wildlife, aerial surveying and safety, chemical immobilization and capture, and furbearers/trappers education

Idaho Department of Fish & Game: Fish Technician
March-November 2023
McCall, Idaho

- Install, operate and maintain a rotary screw trap to pit tag juvenile anadromous salmonids, as well as training incoming technicians on standard protocol
- Conduct creel surveys, operate check stations, and take biological samples from chinook salmon
- Inform the public and angling community about regulations regarding harvest limits, seasons, boundaries, and scientific protocol
- Lead author on “Fecundity-length relationship of yellow perch (Perca flavescens) in Lake Cascade” conducting egg counts on previously collected skeins, organizing both biological samples as well as data
- Assisting resident crew on trapping, tagging and gillnetting a variety of species conducting necropsies when given the opportunity
- Assist hatchery and tribal fishery operations on releasing smolts, feeding fry and smolts, spawning adult chinook and kokanee, taking biological samples and other general operations
- Conduct spawning ground surveys or “redd walks”, identifying chinook redds, carcasses and taking biological samples

Montana Fish, Wildlife & Parks: Chronic Wasting Disease Technician
October 2022-December 2022
Darby, Montana

- Locate and extract lower incisor, obex, retropharyngeal, parotid and submandibular lymph nodes from hunter-harvested and roadkill white-tailed deer, mule deer and elk
- Age deer using wear and tooth replacement method
- Organize, prepare, and submit biological data to a diagnostic laboratory
- Manage data using ArcGIS/Survey 123 applications
- Establish and maintain excellent working relationship with biologists, game wardens, administrative staff, fellow technicians, and volunteers
- Interact with the public and answered questions about diseases, procedures and hunting regulations

Biological Science Technician/Forestry Technician (Trails)
June 2020-October 2020, May 2022-October 2022
Caribou-Targhee National Forest, Palisades Ranger District, GS-0404-4/1, GS-0462-5/1

- Perform back-country trail construction and maintenance by plowing, grading, removing trees and dense brush
- Access back-country sites by horseback with packstrings of mules carrying tools and camping equipment using packsaddles with panniers and proper hitches tied
- Maintain and clean aforementioned equipment, tools, and tack
- Maintain health of stock through feed, water, pasture rotation and basic first aid
- Construct and assemble ATV bridges
- Operate power tools including chainsaws, hedgers, weed eaters, augers, compacting plates, electric saws, and pole saws
- Utilize hand tools such as rakes, shovels, axes, pulaskis, loppers, mcleod, and rock bars
- Utilize off road vehicles, such as ATVs and UTVs and operate four-wheel drive vehicles with bumper pull and gooseneck trailers
- Install picnic tables, utility tables, fire rings, retaining walls, and pour concrete for anchoring the infrastructure
- Assist in permit assessments for cabin leases on forest service property
- Assist in fire safety patrols, educating the general public on firework hazards, red flag warnings, and camping stay limits

Magnum Guide Service: Hunting Guide & Landowner Liaison
November 2021-May 2022
Eldorado, Texas

- Guide clients on whitetail, axis deer, feral hog, turkey and exotic species hunts
- Recover, photograph, and field dress game, score, skin and process game meat by quartering or completely deboning, as well as properly skinning furbearing species
- Assist in field inventory in native and exotic species, and write or research land management recommendations for property owners
- Communicate with landowners for new hunting property to include multiple pronghorn and mule deer leases, as well as permission to hunt coyotes on over 500,000 acres of land in New Mexico
- Maintain relationships with current landowners, and ranch foreman to access property for both feeder/blind maintenance as well as bringing clients for hunting

- Utilize and maintain a variety of equipment to include firearms, trail cameras, hunting blinds, corn feeders, feed hoppers and other trailers, UTV's, 4x4 pickups, chainsaws, weedeaters and other hand tools

Loomacres Wildlife Management:Airport Wildlife Biologist
December 2019-May 2020, November 2020-October 2021
Hutchinson, Kansas & Klawock, Alaska

- Create a wildlife hazard assessment and sequential wildlife hazard management plan based on the airport's activity and needs
- Harass and dispatch wildlife with the use of vehicles, pyrotechnics, propane cannons lasers, traps, and firearms including: paintball gun, air rifle, .17 HMR, .22 LR, and 12 gauge shotguns
- Conduct wildlife surveys both on and off site, to include spotlight, vegetation, insect, small mammal, nesting and aerial surveys
- Create monthly reports based on surveys, incidents, depredation, and project improvements
- Follow airport standards and procedures for moving within the air operations area, and train airport staff in use of pyrotechnics and other harassment standards
- Ability to identify local wildlife particularly meso-mammals, waterfowl, raptors, and flocking birds

Kansas Department of Wildlife and Parks:Mule Deer Technician
October-November 2019

- Conduct spotlight surveys to estimate abundance of white-tailed deer and mule deer populations
- Design survey routes across the entire western half of Kansas to be completed in the most efficient manner
- Coordinate with local law enforcement, conservation officers and landowners on survey routes and times to avoid conflict with poaching suspicions
- Determine species, sex, and age class of deer in low light, varying distances and inclement weather conditions
- Operate range finder, GPS, spotlight, binoculars or spotting scope, and survey app
- Operate and maintain the equipment, four-wheel drive vehicles and spotlight rack

Byron Walker Wildlife Area: Habitat Conservation Technician
July-October 2019

- Conduct wildlife surveys such as upland bird brood counts, furbearer roadkill, and track migration numbers of waterfowl
- Introduction to measuring and manipulating water levels via drop board risers
- Implement patch burn/patch graze on 4,600 acres by burning over 400 acres of summer grassland
- Operate power tools such as weed eaters, chainsaws, pole saws and various hand tools
- Introduction to operating and maintaining trucks, tractors, UTVs and mowers to include additional equipment such as disks, brush hogs, sprayers, seed drills and trailers
- Sanitize and remove trash from public bathrooms, boat ramps, fishing jetties and campgrounds

Farmers Fallow Deer: Fawn Technician
May-June 2019

- Capture and tag fallow deer fawns and record data such as date of birth, sex and color
- Use trucks to feed fallow deer, cattle and donkeys
- Set traps and fix hot wire fencing to keep out predators
- Operate and maintain trucks, tractors, mowers and farm equipment such as trailers, graders and swathers

- Operate power tools such as weed eaters, chainsaws, sanders and impact drills

Arthur Temple College of Forestry
November 2017-May 2019
Nacogdoches, Texas
Field Technician

- East Texas Pine Plantation Restoration Project
- Thinning Study research project
- Measure trees using calipers, DBH tapes and digital hypsometers in varied basal area stands
- Student Research Assistant
- Organized research materials to streamline accessibility
- Interpreted and analyzed data for storage
- Met with professor to maintain communication regarding quality performance

Peer Mentor

- Academic support and encouragement for fellow students
- Supported students on academic probation
- Represented the college at recruiting events

Camp Habitat: Assistant Director
Fairbanks, Alaska
April-August 2018

- Interviewed, hired and trained new instructors and counselors
- Coordinate guest speakers for training
- Assisted with administrative duties and logistics
- Designed new camp curriculum for teen age groups

Camp Instructor Ages 4-11
Summer 2016 & 2017

- Taught children the ecology of the boreal forest and surrounding region
- Guided and led exploration of Interior Alaska
- Conducted education and outreach to the public

United States Army Reserves: Ammunition Specialist
March 2014-May 2017
Conroe, Texas

- Assist in the reciept, storage, issue, maintenance, modification, destruction and demilitarization of explosive items
- Perform ammunition supply stock control and accounting duties using automated procedures
- Assists in the preparation of transportion of ammunition components and explosives
- Operate large vehicles, humvees and forklifts
- Supervises lower grade Soldiers and provides technical guidance to the Soldiers in the accomplishment of their duties

UNDERGRADUATE RESEARCH

- Poster: “Silvicultural Systems in Southern Bottomland Hardwoods: A Review of Avifauna Community Response to Forest Management Practices”. Presented at Texas A&M Ecological Integration Symposium and Stephen F. Austin State University Undergraduate Research Conference, April 2019.

VOLUNTEER EXPERIENCE

Alaska Department of Fish & Game: August 2018

- Volunteered briefly with ADF&G to band ducks within Creamer's Field Migratory Waterfowl Refuge. We used baited traps to capture and band green-winged teal, northern pintails and mallards, feather samples were taken from juvenile birds for USGS project.

Alaska Songbird Institute: August 2017 & 2018

- Worked at Creamer's Field Migration Station to collect data on migratory songbirds. Work included setting up and taking down mist nets, extracting and safe handling of birds, data collection and release. Data collected included species, sex, body condition, age and various measurements. While most species collected were songbirds- handling of waterfowl and small falcons also occurred.

Butterfly Measurement Study: May 2016

- Worked with Kathryn Daly and the UAF Museum of the North to collect measurements of butterfly specimens from Interior Alaska from 1970's to present. Data was used to determine if climate change was affecting the size of butterflies.

PINEDALE ANTICLINE PROJECT OFFICE (PAPO)

1625 West Pine St.
PO Box 768
Pinedale, WY 82941

2026 PAPO APPLICATION FOR FUNDING

(Deadline for applicants is September 15, 2026. Use additional sheets if necessary)

GENERAL PROJECT INFORMATION

Project Name:

Floodplain enhancement of North Horse Creek

General Location **(distance and direction from nearest city/town, attach map if applicable):**
North Horse Creek, located 18 miles west of Daniel, WY

Legal Location of Project:
34N range 113W Section 6, 34N range 114W section 1, section 2

Surface Ownership (check all that apply): Federal ___ State X (85%) Private X (15%)

**If project includes a mix of federal, state and/or private lands, provide a breakdown for each ownership by acres and percent of total project area.

Contact Information for Affected Parties of Agencies:

Wyoming Game and Fish Department: Luke Schultz, Alex LeCheminant, (307)-367-4353
Bridger-Teton National Forest: Chance Roberts
Trout Unlimited: Nick Walrath
Ralph Parks: (917)-971-7047 (Private landowner)

APPLICANT INFORMATION

Name/Organization:
Luke Schultz, Wyoming Game and Fish Department
Mailing Address (include city, state and zip):
PO Box 850
432 East Mill St. Pinedale, WY 82941
***Daytime Phone*:**
(307)-231-6996
***Fax*:**

Email Address:
Luke.schultz@wyo.gov
Point of Contact (if different from above):

PROJECT DESCRIPTION

General Project Type (check all that apply):

Land Use/Livestock _____
Land Use/Recreation __X__
Cultural _____
Wildlife/Aquatic __X__
Air _____
Other _____

Describe Project Proposal (such as, mechanical treatments, water improvement, etc.)

This work will address floodplain, riparian, and in-stream habitat limitations in a 3.5-mile long corridor of North Horse Creek, and specifically restore function and productivity to 250 acres of the North Horse Creek floodplain within the Sublette Mule Deer Migration Corridor (specifically the Mesa Mule Deer). These habitats are particularly important as fawn rearing locations and stopover areas along the migration route that provide critical forage to fuel the journey and build fat reserves for winter and parturition.

North Horse Creek and its associated floodplain on the Bridger-Teton National Forest and adjacent private land is degraded largely due to deliberate channelization in the mid-1900s. Associated channel avulsions, stream degradation, and downcutting in the decades since have resulted in a floodplain that is disconnected from the stream's water table and a transition from high quality, wetland-associated forage to lower-quality upland species. Presently, vigorous riparian vegetation occurs in a band approximately 125' wide, and much of the valley is poorly connected with the water table.

We propose to complete stream and floodplain restoration to reconnect abandoned meanders and raise the stream bed and water tables to pre-incision conditions. Re-meandering of the stream channel will be accomplished by identifying relict channels within the floodplain (project designs area available) and utilizing channel plugs and minor excavation to redirect the river's flow into those relict channels. Reconnection of water tables in this area will recreate floodplain wetlands, increase productivity, and initiate transition of floodplain communities to much more valuable cover types. Additionally, the work will restore nearly 3,000' of stream channel (and 28 acres of directly adjacent riparian habitat) within the project footprint and bolster strong populations of Colorado River Cutthroat Trout (CRC; a native trout of greatest conservation need). The restored floodplain's riparian belt width will extend up to 1000' in this area to boost overall productivity, increase late-season forage, and provide a significant fuel break in the valley.

In addition to the work occurring within the Sublette Mule Deer Migration Corridor, it also falls within 1.5 miles of the Daniel Sage Grouse Core Area. River, riparian, and floodplain restoration are well documented to improve early brood rearing habitat for greater sage grouse. Other wildlife species stand to benefit from the work as the project overlaps with crucial ranges for elk and moose. Furthermore, riparian obligate species including waterfowl and amphibians will benefit from improved conditions in the North Horse Creek corridor.

Total Project Acres (if applicable)

250 acres

Acres Indirectly Affected (if applicable, explain)

Improved habitat conditions and forage quality in stopover areas along the mule deer migration corridor have strong carryover effects to winter survival in locations well outside of the project's footprint.

WHAT ARE THE OBJECTIVES OF THE PROJECT?

The objectives of this project are to 1) increase the riparian beltwidth of North Horse Creek from ~125' to ~1,000' to enhance livestock and forage production; 2) increase stream channel length by ~3,000' to retain water on the landscape longer; 3) reconnect the water table throughout the ~3.5 mile valley to transition back to high quality wetland associated forage; and, 4) increase suitable habitat for CRC Trout and riparian-obligate species.

HOW DOES THE PROJECT MEET THE PAPO STRATEGIC PLAN GOALS? (Please refer to the PAPO 2025 Ranking Score Sheet)

This project improves not only the quality, but also quantity, of riparian habitat available offsite for wildlife species impacted by development on the Pinedale Anticline Project Area (hereafter, PAPA), specifically Sublette mule deer and sage grouse, both which have experienced population declines in recent decades.

HOW DOES THE PROJECT MEET THE 2025 PAPO PRIORITIES? (Please refer to the PAPO 2025 Ranking Score Sheet)

The population of the Sublette mule deer herd has generally declined over time following development of the Pinedale Anticline Gas Field, establishment of the IAG, increased road traffic and suburban sprawl, and drought and harsh winters, among other factors. Riparian communities are disproportionally important habitat areas relative to their availability on the landscape, particularly in the arid Upper Green River Basin. This work occurs within stopover and medium use habitats in the Sublette Mule Deer Migration Corridor. Off-site mitigation along the migration route has been identified as a priority strategy in numerous PAPO documents.

Additionally, Greater sage-grouse have experienced ongoing population declines here, with the portion of the population residing within the PAPA having hit mitigation triggers in the past. The 2019 Sage Grouse Executive Order encourages riparian enhancement projects within the Greater Sage-Grouse Core Area, with the intent of maintaining habitats that provide reliable food and water resources during drought and late summer drying. Studies have shown that 85% of sage-grouse occur within six miles of riparian habitats, which provide a bounty of nutrient-dense insects and forbs to hens and their growing chicks (Donnelly et al. 2016). Restoring floodplain connectivity and seeding constructed bankfull benches will allow root systems to reestablish which can help reduce soil compaction, improve water infiltration, and increase levels of soil moisture retention. Additionally, sage grouse use of restored riparian areas has been documented in other river restoration projects locally.

WHAT ARE THE DIRECT AND/OR INDIRECT EFFECTS ON OTHER RESOURCES?

In addition to enhancing habitat for mule deer and sage grouse, the work also promotes ecosystem resilience to uncharacteristically large wildfires by facilitating the establishment of a broadened floodplain fuel break within the Wildland-Urban Interface near the US Forest Service boundary. This area has been identified in several county-wide planning documents as an area of concern for large fire. Additionally, the work occurs within valuable riparian habitats for the Sublette moose herd. Improved floodplain habitats and hydrologic connectivity provides a mosaic of vegetation, and can boost overall forage productivity, particularly during the autumn transitional periods.

North Horse Creek has one of the strongest populations of CRC in western Wyoming. In concordance with this habitat restoration, we are evaluating CRC demography (recruitment, growth, mortality, immigration/emigration) to gain a mechanistic understanding of how habitat manipulations affect populations, which is of both scientific and management interest. These insights will be broadly transferable across the West to inform stream restoration approaches.

WHAT IS THE POTENTIAL FOR FUTURE EXPANSION OF THE PROJECT?

The potential for expansion on this project is probable. Obvious meander scrolls are evident upstream of the proposed restoration area that could be re-connected in future work.

LIST ALL PROJECT PARTNERS/COOPERATORS, THEIR ROLES AND/OR CONTRIBUTIONS:

Wyoming Game and Fish Department (Luke Schultz, Alex LeCheminant): Project leads. Complete site assessments, develop river designs, and supervise project construction.
Ralph Parks (Landowner): cooperating landowner, providing materials for restoration.
Trout Unlimited (collaborator): Assisting with contracting and project implementation.
U.S. Forest Service (Government landowner/collaborator): NEPA lead, assist with implementation.

PROJECT MONITORING AND REPORTING: (describe how monitoring and reporting will be done, and how it relates to the objectives)

Various site visits to North Horse Creek post-construction will occur for several years to monitor how stream channel alteration has maintained and how riparian vegetation growth has progressed. Advanced remote sensing analyses may also be conducted to understand vegetative patterns on the site (e.g., NDVI, cover type composition). Collar data are available for many individual mule deer in the Sublette Herd, allowing potential investigations into use of the project area by deer. Fish monitoring will be conducted via annual sampling events through 2030.

RESEARCH POTENTIAL: (describe the research potential of the project)

Research potential for this project is considerable, as a component of the work is focused on fisheries/habitat research. The project aims to inform how CRC respond to pre- and post- stream channel alteration. It would be useful for future stream restoration projects to have a mechanistic understanding of CRC to see what would be most beneficial for their management. PAPO funds would not be sought for any of the research components of the project.

PERMITS AND AUTHORIZATIONS REQUIRED PRIOR TO PROJECT IMPLEMENTATION: (including but not necessarily limited to the following)

PERMIT OR AUTHORIZATION	REQUIRED		SUBMITTED		APPROVED	
	Yes	No	Yes	No	Yes	No
Cultural Resource Inventory		X				
COE Section 404 Permit	X			X		
Cooperative Agreement(s)	X		X		X	
NEPA Analysis	X		X			X
Pesticide Application Permit		X				
Private Landowner Agreement(s)	X			X		
Sensitive Species Clearance	X		X			
Surface/Ground Water Permits		X				
T/E Species Clearance	X		X			
Other (explain)						

TOTAL PROJECT COST: (attach detailed budget)

Project Planning and Design	$ 33,500
Project Implementation	$350,000
Project Operation and Maintenance	$16,500
Total Required	$400,000

MATCHING FUNDS ANTICIPATED IN CASH (list source and amount)

In-hand Cash Awards
Bureau of Reclamation "Bucket 2E" grant - $125,000
Colorado River Sustainability Campaign - $125,000 (verbal commitment for 2027)

Pending requests:
WGFD Habitat Trust Fund - $35,000 (Spring 2027 ask)

ANTICIPATED "IN KIND" MATCHING FUNDS (list source, valuation, and valuation method)

WGFD Heavy Equipment time: $35,000 (Parks and Sherman work areas)
WGFD Design and project management: $25,000 (Surveys, Designs, Project Management)
Trout Unlimited: $20,000 (Project management and administration)
Landowner in-kind - $10,000 (materials and mobilization)

PERCENTAGE OF FUNDING ON HAND OR COMMITTED

$340,000 (85%)

TOTAL PAPO FUNDING REQUESTED:

$25,000 (6.25% of total project cost)

EXPECTED/ANTICIPATED LIFE OF PROJECT (LOP)

Perpetual __X__ >50 Years _____ 25-50 Years _____ <25 Years _____
Explain Basis for Projected LOP:

Stream channel realignment and lift to water tables function perpetually following construction.

PROJECT TIMELINE AND ESTIMATED COMPLETION DATE: Please explain.

2019-2022 – Initial project conceptualization and cursory data collection

2023 – Conducted stream surveys to inform restoration designs

2024 – Developed conceptual designs, initiated cutthroat trout tagging and demographic study (PIT tagging), coordinated with the U.S. Forest Service on NEPA and permitting

2025 – Finalize restoration designs, work with U.S. Forest Service to complete NEPA and permitting, conduct year 2 of cutthroat trout demographic study (PIT and radio tagging)

2026 – Stage materials, complete bidding and contracting with Trout Unlimited, conduct year 3 of cutthroat trout demographic study (PIT tagging)

2027 – Complete construction, provide project oversight and administration, conduct year 4 of cutthroat trout demographic and behavioral study (response to restoration)

2028-30 – Address maintenance following spring runoff, conduct year 5-7 of cutthroat trout demographic study (post-restoration effects)

ATTACHMENTS AND SUPPORTING DOCUMENTATION

Map of Project __X__(scale of not less than 1" = 2,000 feet)
Project Design __X__
Letters of Support _____
Management Plan _____ Long Term _____ Short Term _____
Monitoring Plan _____ Long Term _____ Short Term _____
Relevant Past Experience _____

ADDITIONAL INFORMATION FOR PAPO CONSIDERATION:

ACKNOWLEDGEMENT: This project and requested funding is subject to approval by the Pinedale Anticline Monitoring and Mitigation Board of Directors



Signed

Luke Schultz

Printed Name

Aquatic Habitat Biologist

Title

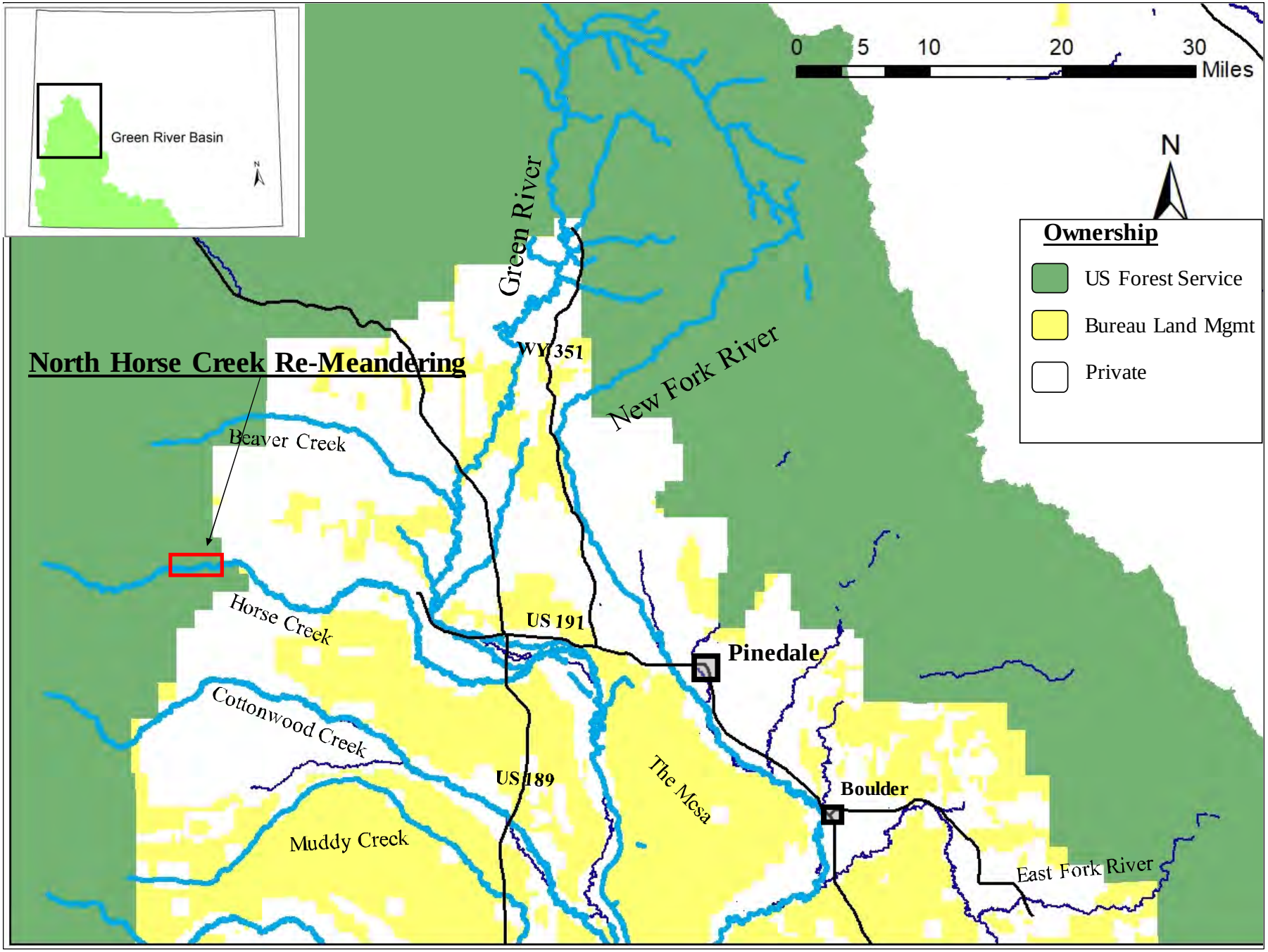
September 11, 2026

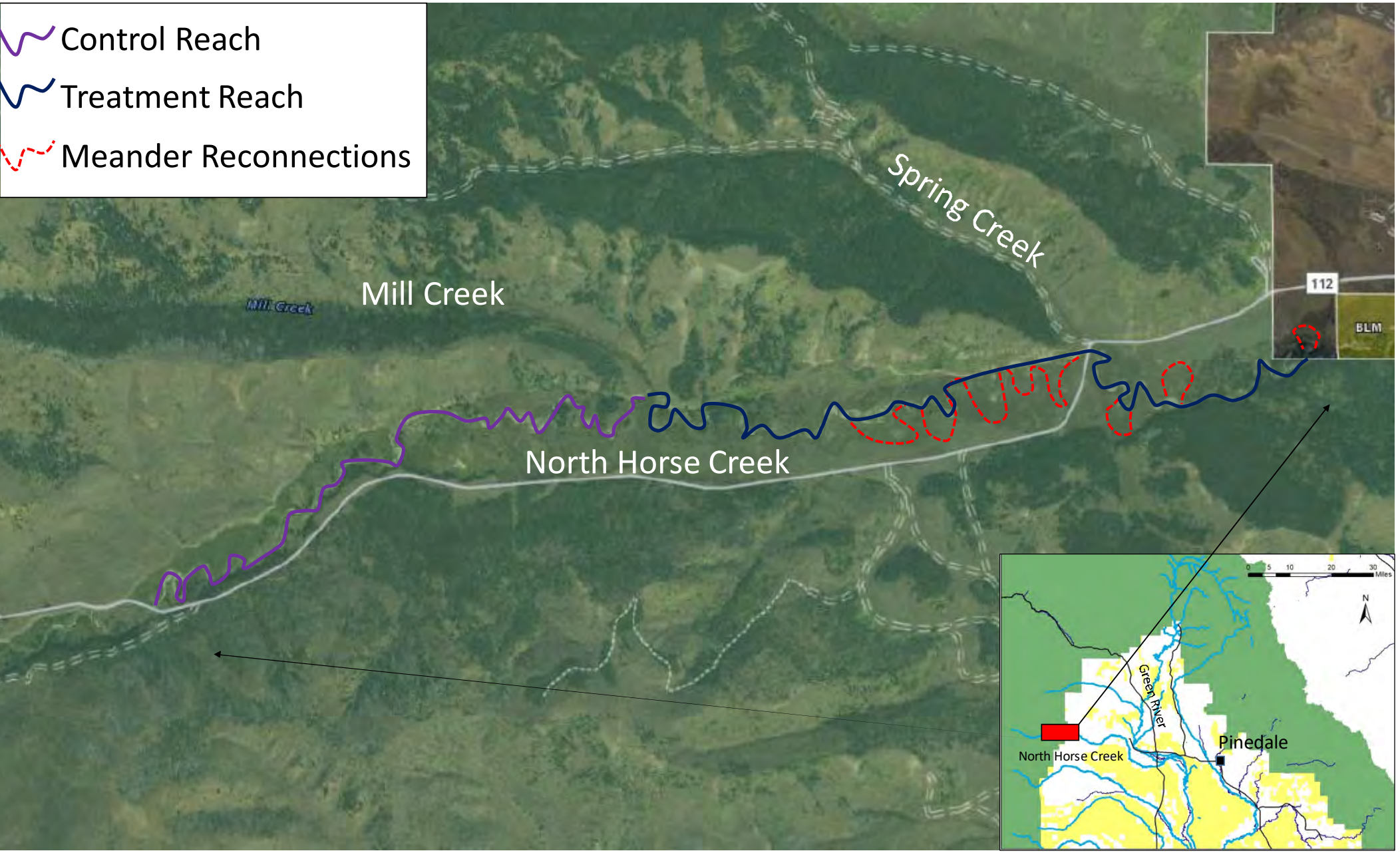
Date

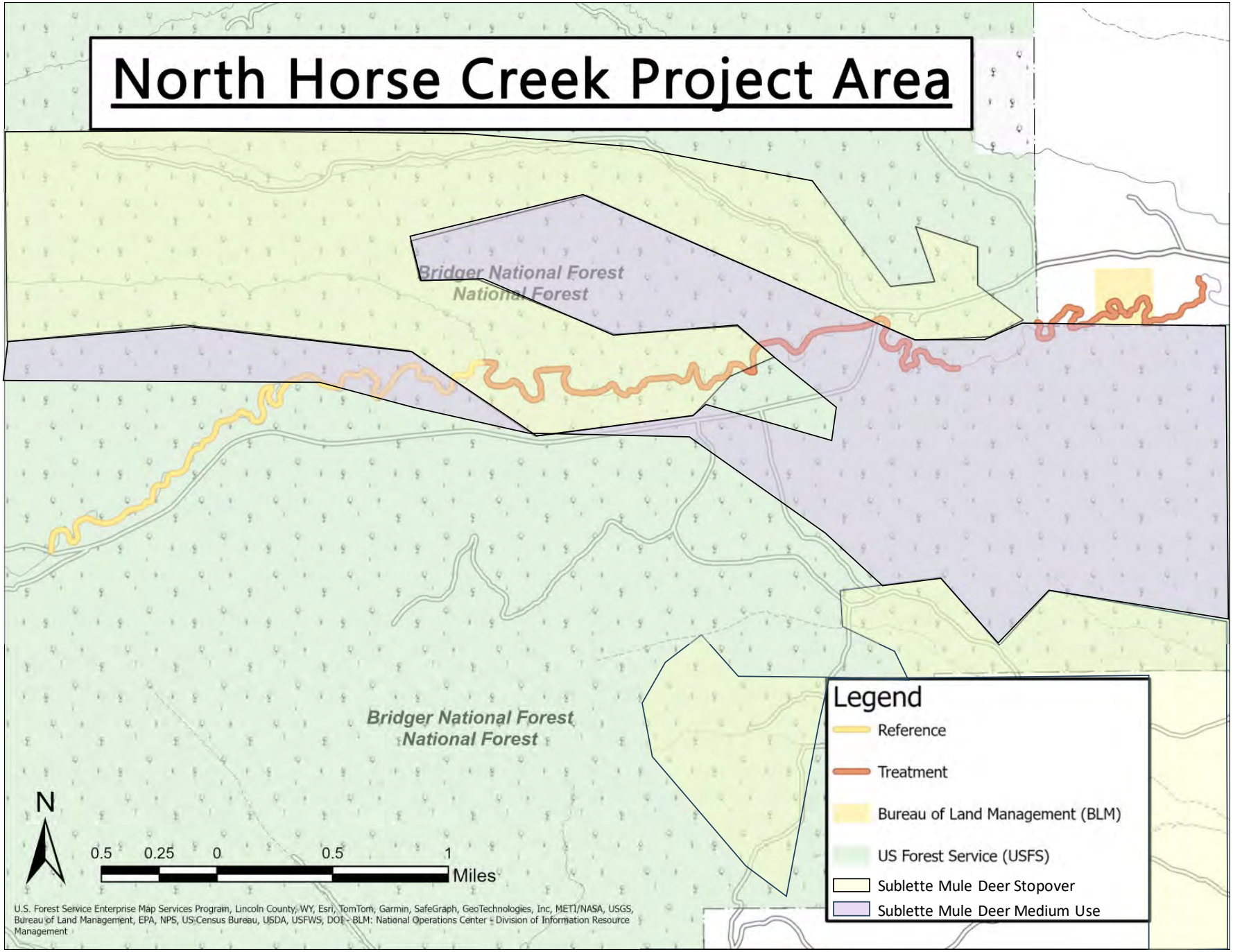
North Horse Creek Channel Re-Meandering

Designs and Basis of Design

Prepared by: WGFD


Green River Basin
0 5 10 20 30 Miles
N
Ownership
US Forest Service
Bureau Land Mgmt
Private
North Horse Creek Re-Meandering
Green River
WY 351
New Fork River
Beaver Creek
Horse Creek
US 191
Pinedale
Cottonwood Creek
US 189
The Mesa
Boulder
Muddy Creek
East Fork River


Control Reach
Treatment Reach
Meander Reconnections
Spring Creek
Mill Creek
Mill Creek
112
BLM
North Horse Creek
0 5 10 20 30 Miles
N
Green River
Pinedale
North Horse Creek


North Horse Creek Project Area
Bridger National Forest
National Forest
Bridger National Forest
National Forest
N
0.5
0.25
0
0.5
1
Miles
Legend
Reference
Treatment
Bureau of Land Management (BLM)
US Forest Service (USFS)
Sublette Mule Deer Stopover
Sublette Mule Deer Medium Use
U.S. Forest Service Enterprise Map Services Program, Lincoln County, WY, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS, DOI - BLM: National Operations Center - Division of Information Resource Management

Background

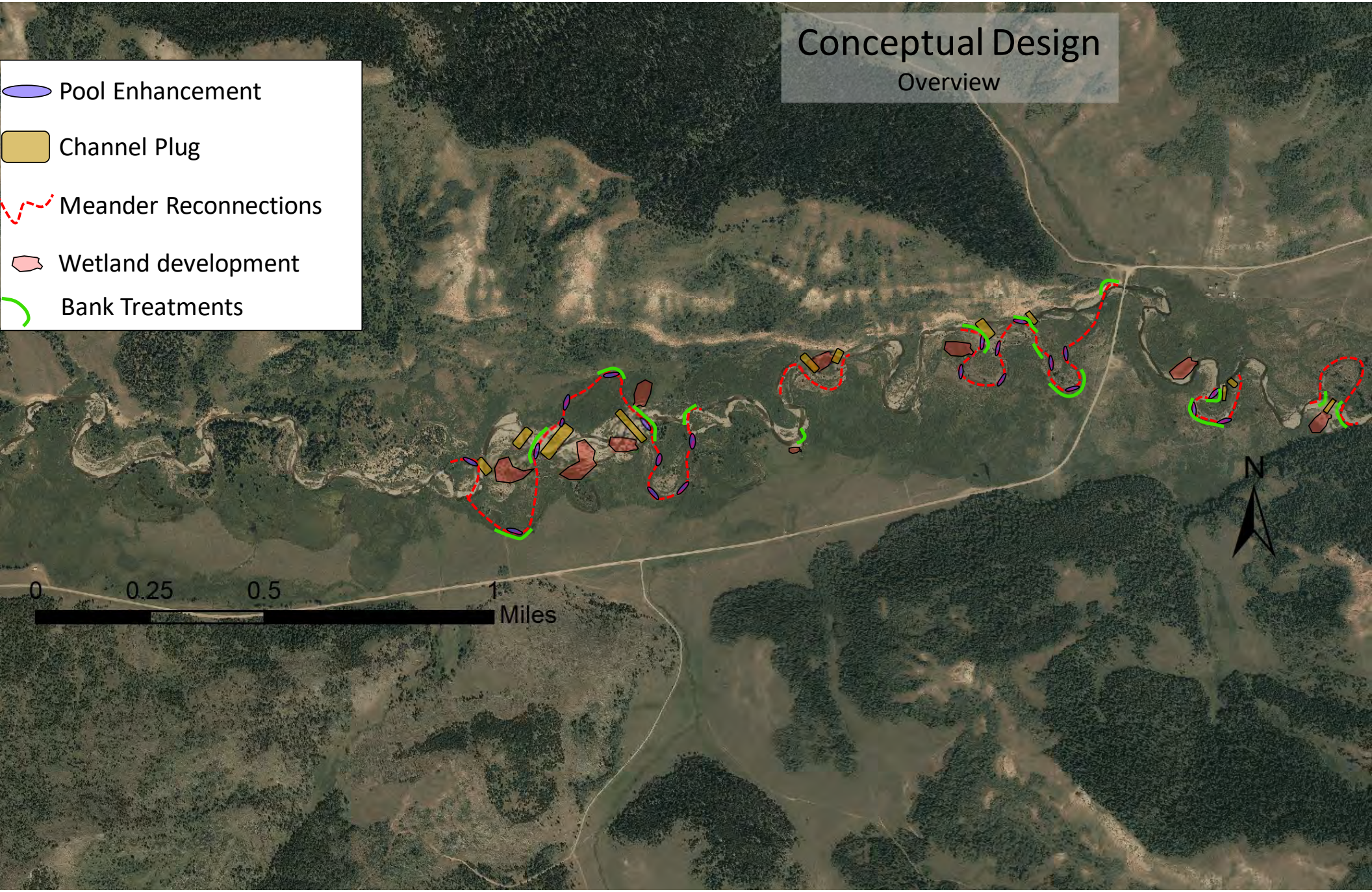
The Horse Creek watershed is a focal conservation area of regional importance and provides one of the strongest Colorado River Cutthroat Trout (CRC) fisheries in Wyoming. North Horse Creek originates in the Wyoming Range near Grizzly Peak, Lookout Mountain, and Mount McDougal. As North Horse Creek loses elevation and gains tributaries, it flows through a relatively long (5 miles), flat (~1.1.% valley slope), and unconfined alluvial valley downstream of the South Fork of North Horse Creek confluence before crossing the USFS boundary as it flows easterly. Within this valley, direct channelization of the creek occurred in the mid-1900s, and destabilization of the streambed resulted in numerous channel avulsions throughout nearly 2 miles of the valley between Mill Creek and the USFS boundary. Abandoned meander scrolls are readily evident in aerial images, and it appears the channel has lost nearly 5,000' of its previously meandering planform. However, the potential for reconnection appears very possible for much of this segment.

The overarching goal of this work is to increase stream length and restore stream and floodplain function within this reach. Specifically, our work will increase stream length by nearly 50% through this portion of the valley. In newly constructed channels, we will use a variety of restoration methods to stabilize banks, grading to restore channel form and function, develop off-channel alcove and other valuable rearing habitats, enhance adult fish habitat, and improve stream function to route surplus sediment across this reach. This work will also include a research component where we will evaluate demographic responses of CRC to this broad-ranging restoration.

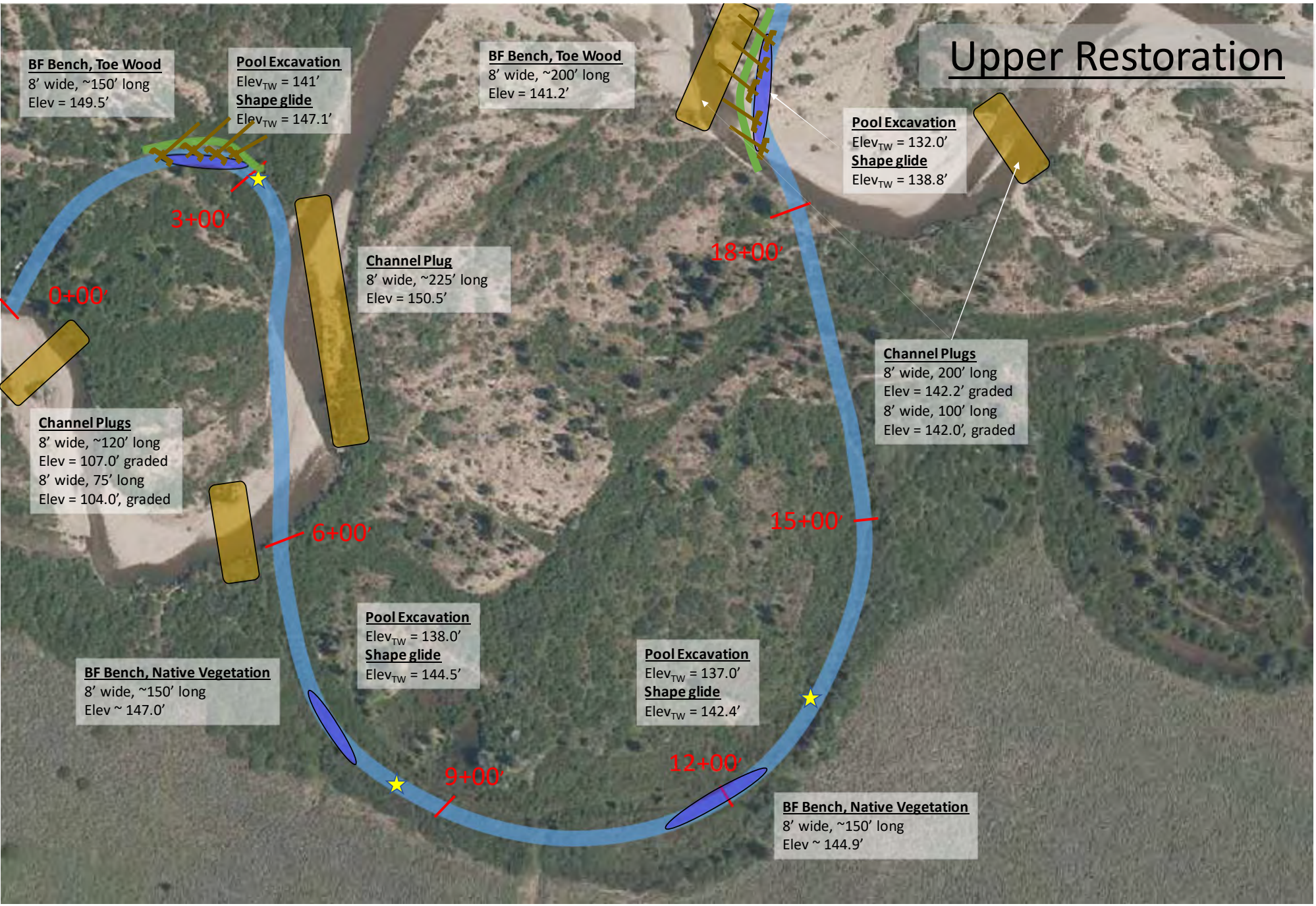
River surveys were conducted throughout the reach in 2022 to understand river dynamics and develop restoration plans within the reach; additional survey work was added in 2023 and 2026 to evaluate potential meander reconnection locations, conduct longitudinal surveys of relict channels, and identify vegetation transplant sources. These surveys suggested several meander avulsions that will be restored, and also identified control reaches that will inform stable dimensions in the design channel. Channel avulsions will be plugged with transplanted willow clumps and root wads, and re-graded relict channels will increase sinuosity to pre-disturbance conditions. Short backwaters, alcove areas, and oxbow features will be retained in the reach to enhance floodplain function and support rearing areas for juvenile fishes. Toe wood, transplanted willows, and other woody structure will help enhance adult holding habitat. Lastly, restored riffles will support productive macroinvertebrate communities that fuel stream food webs and increase growth and condition of Colorado River Cutthroat Trout.

Conceptual designs sought to restore channel to abandoned meander paths and recreating channel slopes as close to existing as possible. In many locations, instability and lateral migration of the avulsed channel within the floodplain obliterated the relict channel planform. In these locations, we designed new channel slopes to accommodate existing valley fall with relatively uniform riffle gradients based on expected channel length between hydraulic control points.

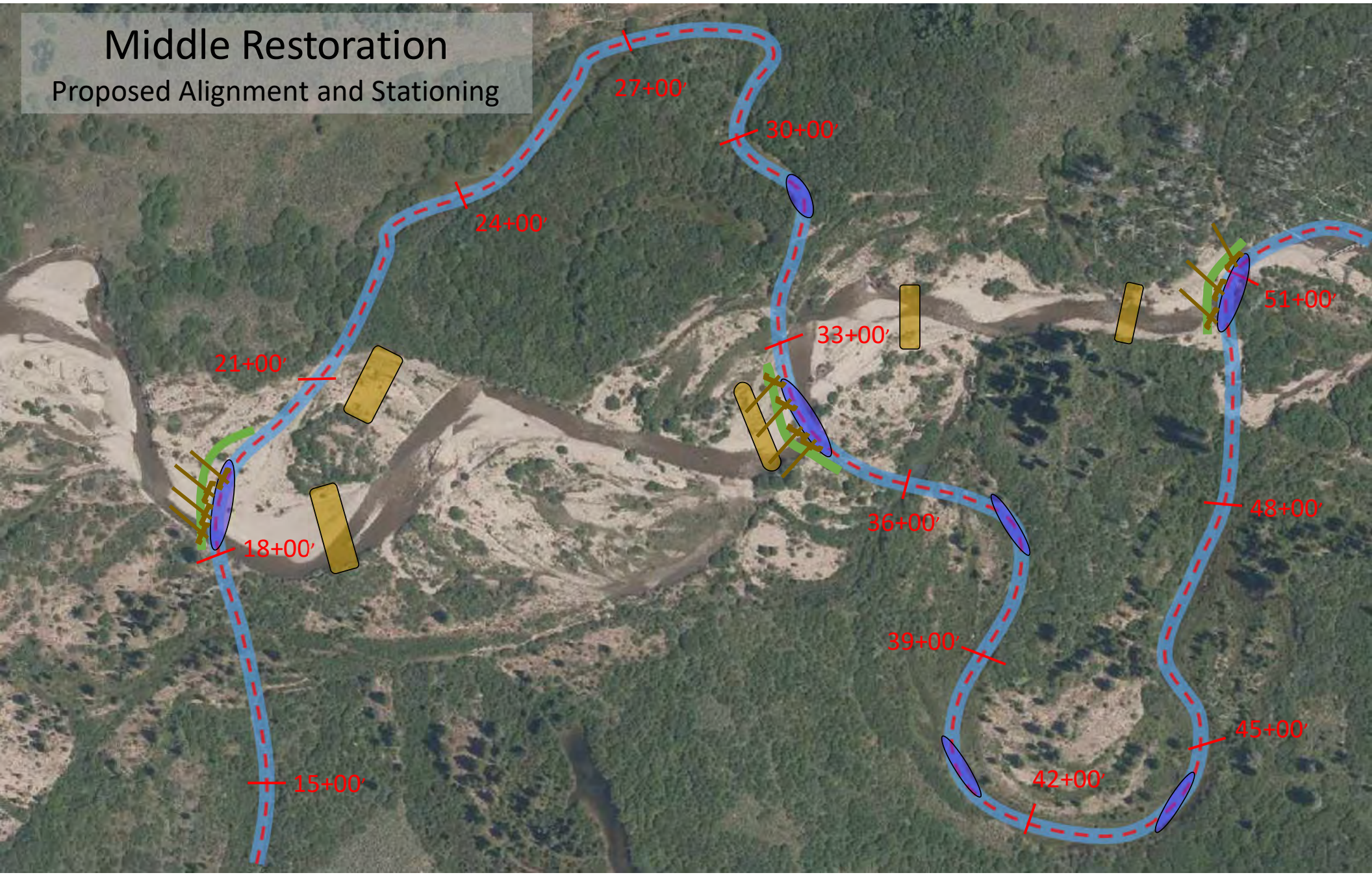

N
0
0.25
0.5
1
Miles

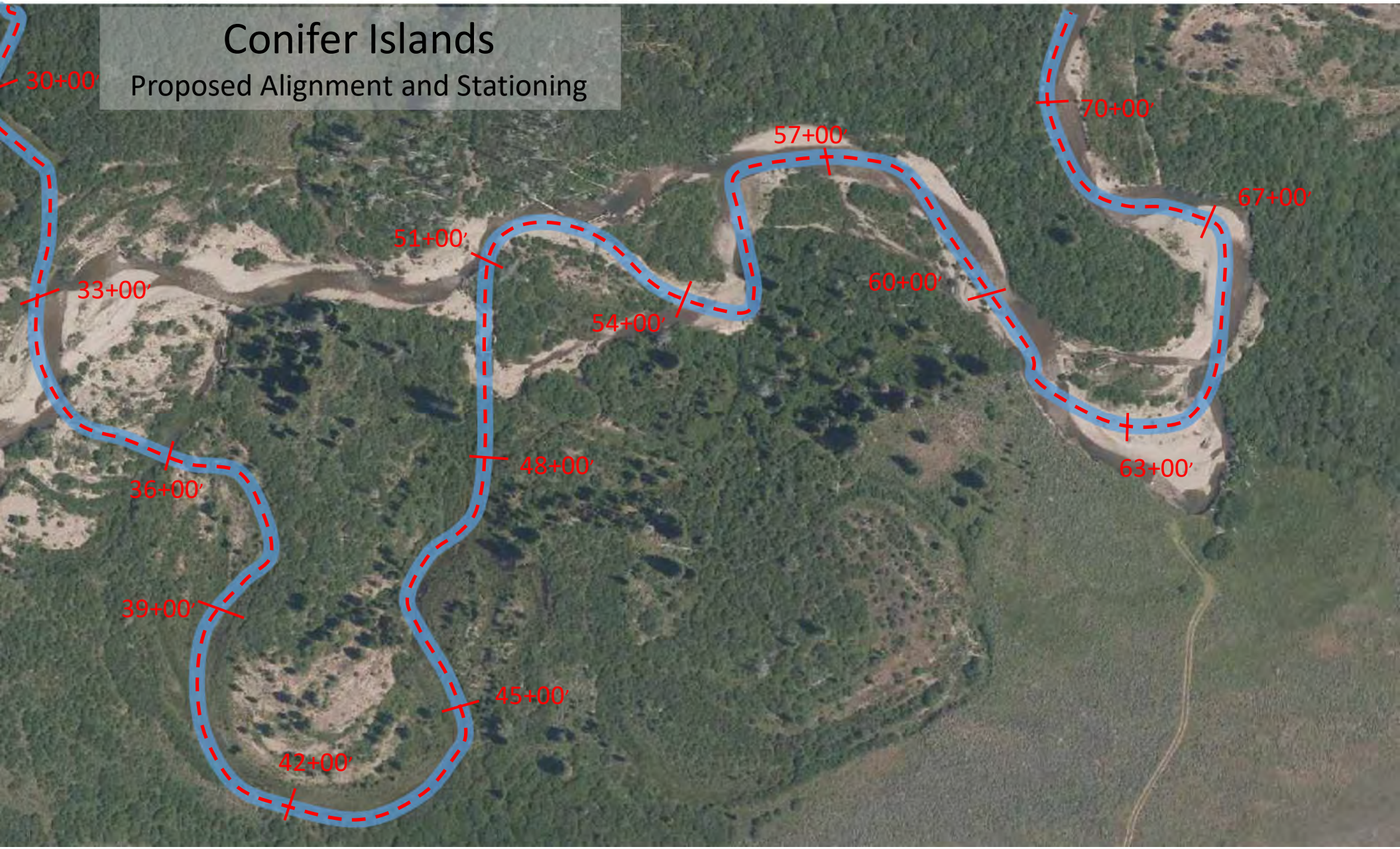

Conceptual Design
Overview
Pool Enhancement
Channel Plug
Meander Reconnections
Wetland development
Bank Treatments
N
0
0.25
0.5
1
Miles

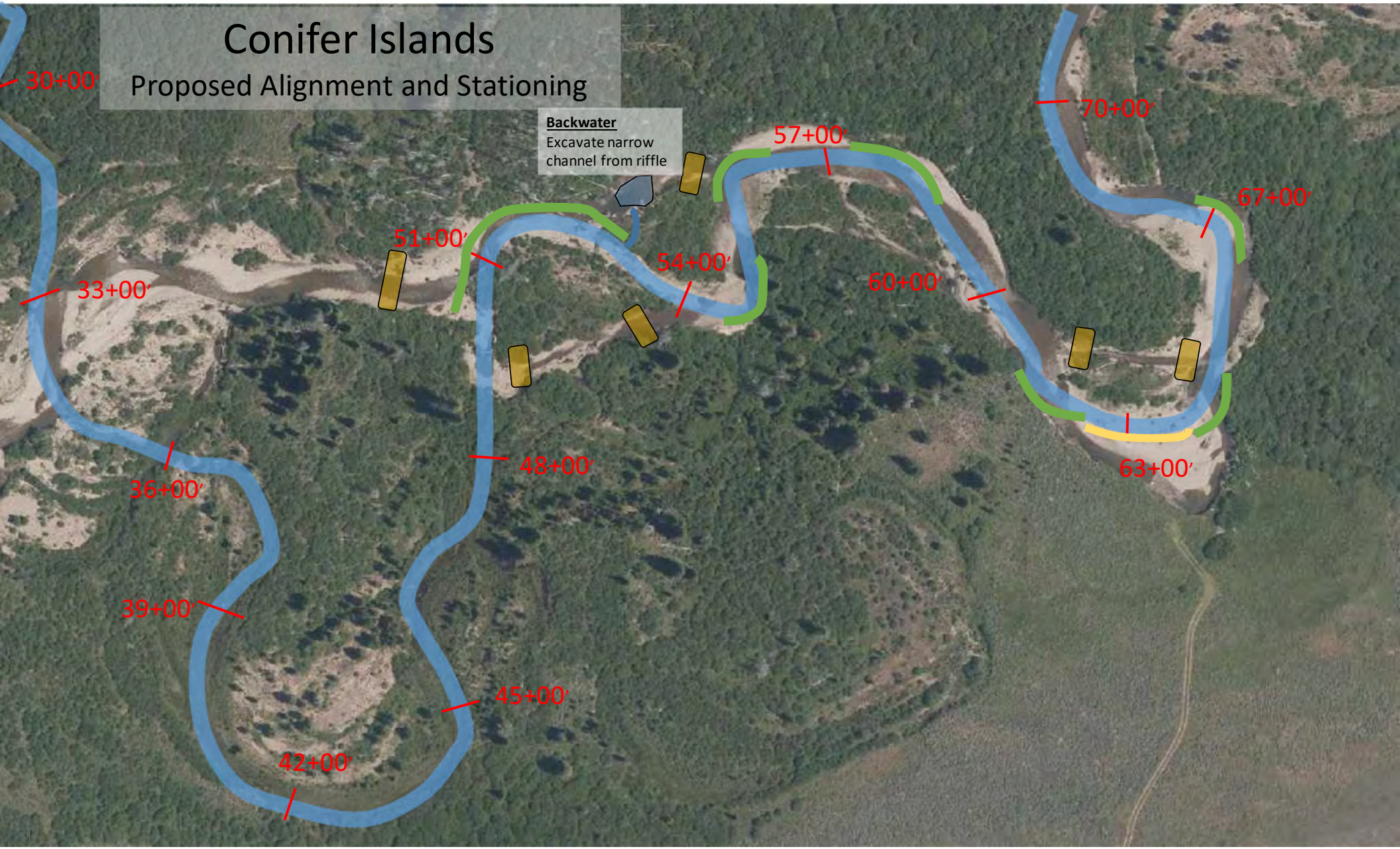

Upper Restoration
Proposed Alignment and Stationing
0+00'
3+00'
6+00'
9+00'
12+00'
15+00'
18+00'

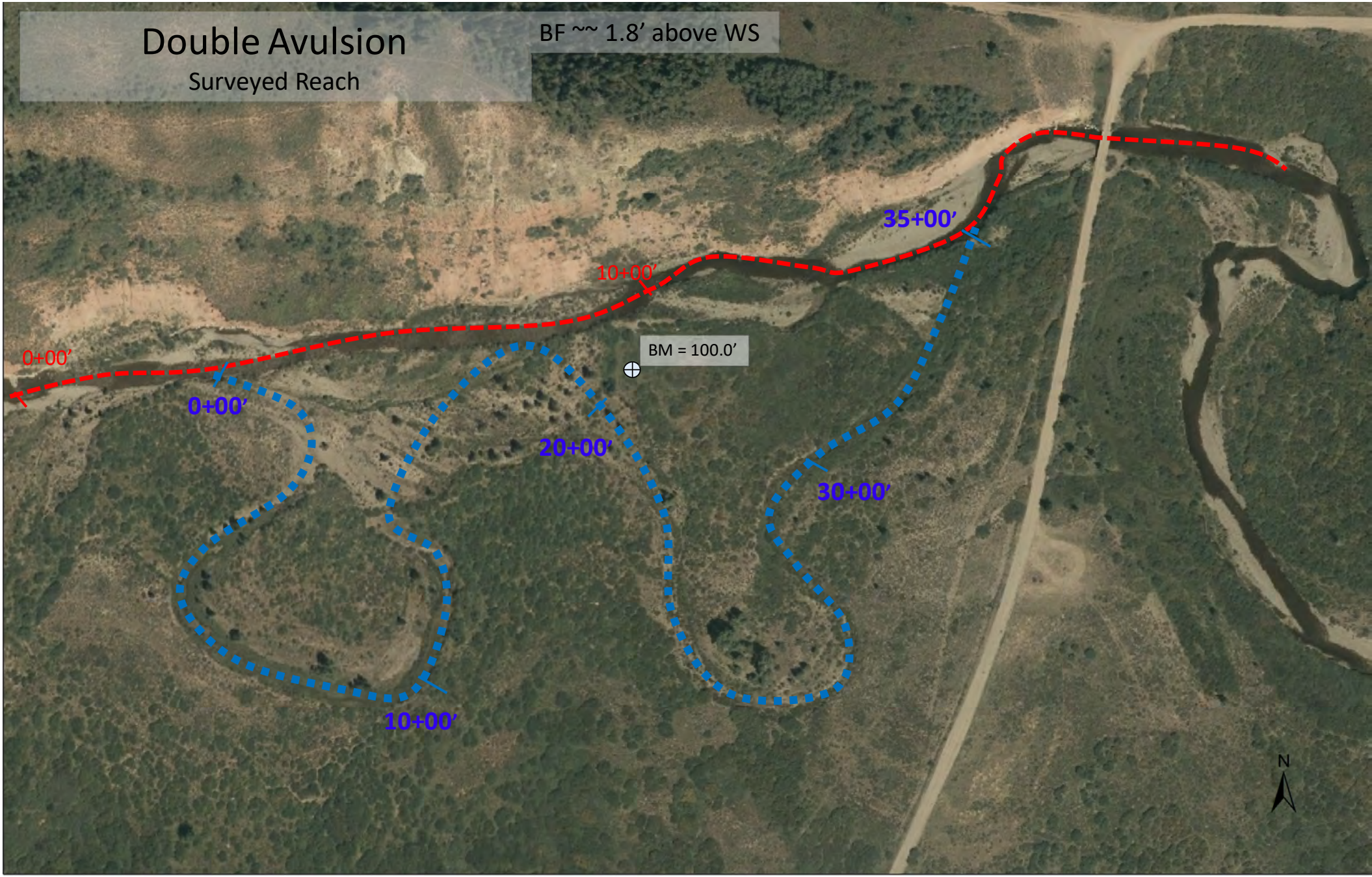

Upper Restoration
BF Bench, Toe Wood
8' wide, ~150' long
Elev = 149.5'
Pool Excavation
Elev$_{TW}$ = 141'
Shape glide
Elev$_{TW}$ = 147.1'
BF Bench, Toe Wood
8' wide, ~200' long
Elev = 141.2'
Pool Excavation
Elev$_{TW}$ = 132.0'
Shape glide
Elev$_{TW}$ = 138.8'
3+00'
18+00'
0+00'
Channel Plug
8' wide, ~225' long
Elev = 150.5'
Channel Plugs
8' wide, 200' long
Elev = 142.2' graded
8' wide, 100' long
Elev = 142.0', graded
Channel Plugs
8' wide, ~120' long
Elev = 107.0' graded
8' wide, 75' long
Elev = 104.0', graded
6+00'
15+00'
Pool Excavation
Elev$_{TW}$ = 138.0'
Shape glide
Elev$_{TW}$ = 144.5'
Pool Excavation
Elev$_{TW}$ = 137.0'
Shape glide
Elev$_{TW}$ = 142.4'
BF Bench, Native Vegetation
8' wide, ~150' long
Elev ~ 147.0'
9+00'
12+00'
BF Bench, Native Vegetation
8' wide, ~150' long
Elev ~ 144.9'

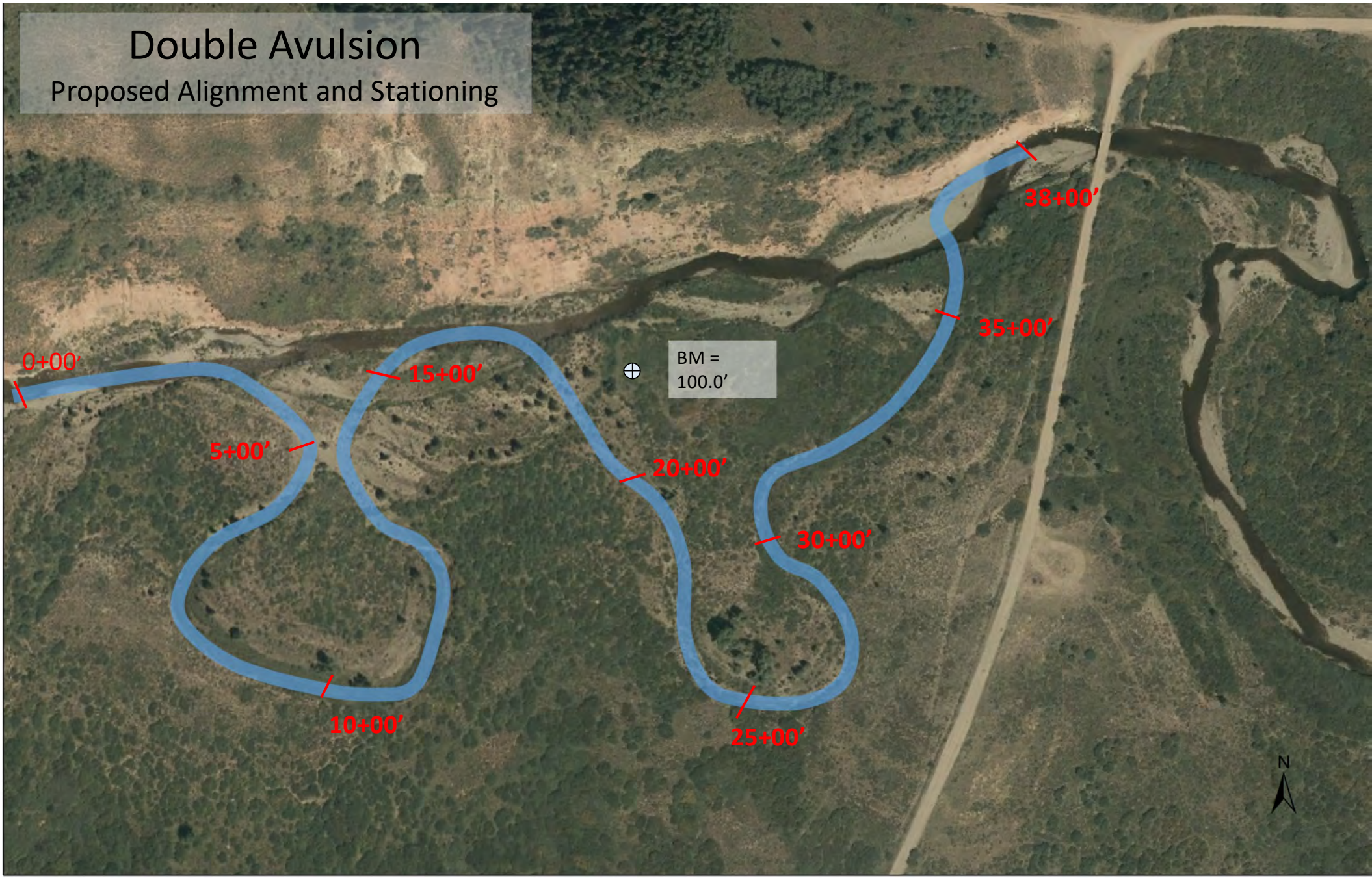

Middle Restoration
27+00'
30+00'
24+00'
51+00'
33+00'
21+00'
36+00'
48+00'
18+00'
39+00'
45+00'
15+00'
42+00'

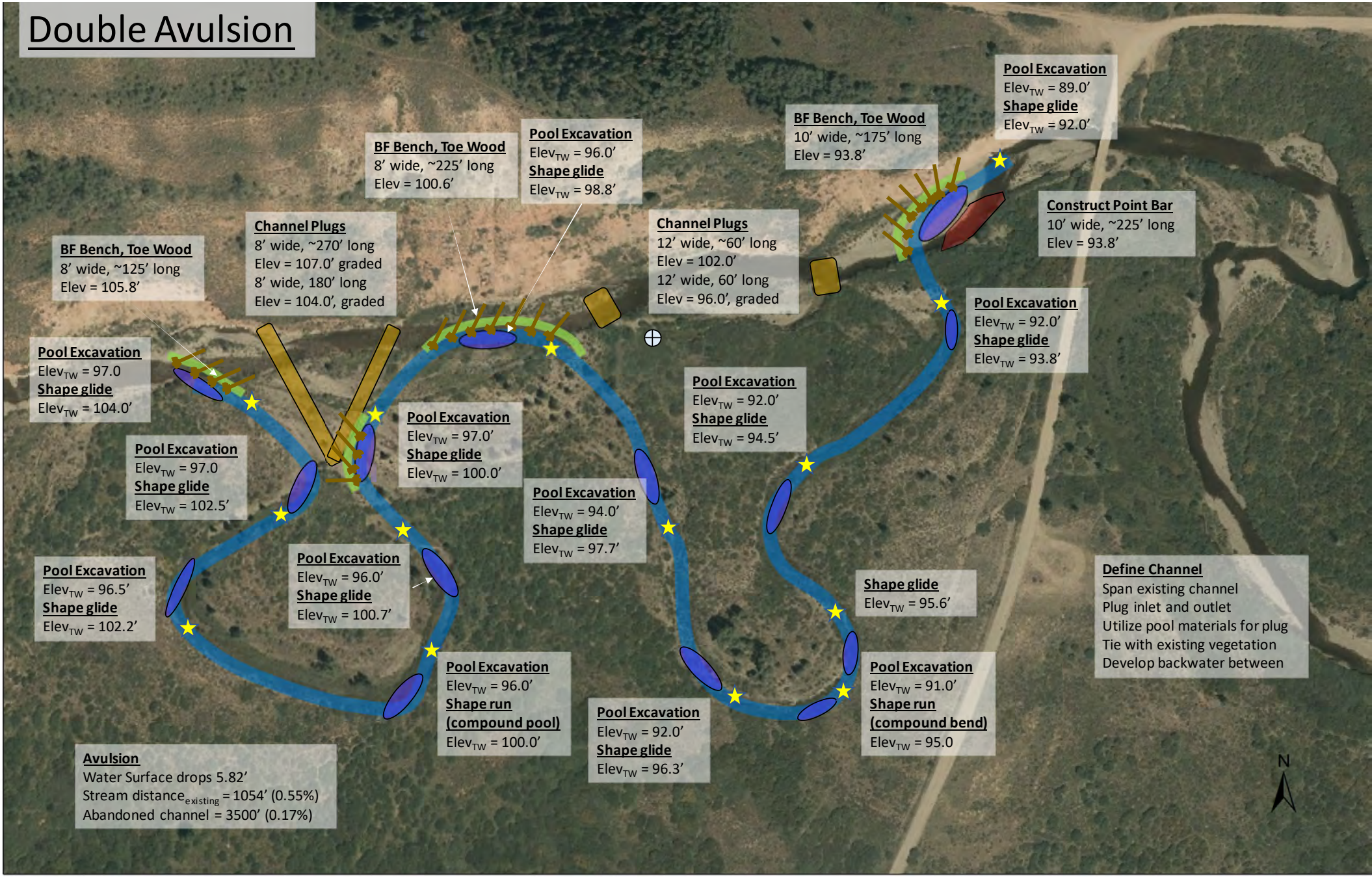

Middle Restoration
Proposed Alignment and Stationing
27+00'
30+00'
24+00'
33+00'
21+00'
51+00'
36+00'
48+00'
18+00'
39+00'
45+00'
42+00'
15+00'


Conifer Islands
Proposed Alignment and Stationing
30+00′
33+00′
36+00′
39+00′
42+00′
45+00′
48+00′
51+00′
54+00′
57+00′
60+00′
63+00′
67+00′
70+00′


Conifer Islands
Proposed Alignment and Stationing
Backwater
Excavate narrow channel from riffle
30+00'
33+00'
36+00'
39+00'
42+00'
45+00'
48+00'
51+00'
54+00'
57+00'
60+00'
63+00'
67+00'
70+00'


Double Avulsion
Surveyed Reach
BF ~~ 1.8’ above WS
35+00’
10+00’
0+00’
BM = 100.0’
0+00’
20+00’
30+00’
10+00’
N


Double Avulsion
Proposed Alignment and Stationing
0+00'
5+00'
10+00'
15+00'
20+00'
25+00'
30+00'
35+00'
38+00'
BM =
100.0'
N


Double Avulsion
BF Bench, Toe Wood
8' wide, ~125' long
Elev = 105.8'
Channel Plugs
8' wide, ~270' long
Elev = 107.0' graded
8' wide, 180' long
Elev = 104.0', graded
BF Bench, Toe Wood
8' wide, ~225' long
Elev = 100.6'
Pool Excavation
Elev$_{TW}$ = 96.0'
Shape glide
Elev$_{TW}$ = 98.8'
Channel Plugs
12' wide, ~60' long
Elev = 102.0'
12' wide, 60' long
Elev = 96.0', graded
BF Bench, Toe Wood
10' wide, ~175' long
Elev = 93.8'
Pool Excavation
Elev$_{TW}$ = 89.0'
Shape glide
Elev$_{TW}$ = 92.0'
Construct Point Bar
10' wide, ~225' long
Elev = 93.8'
Pool Excavation
Elev$_{TW}$ = 97.0
Shape glide
Elev$_{TW}$ = 104.0'
Pool Excavation
Elev$_{TW}$ = 97.0
Shape glide
Elev$_{TW}$ = 102.5'
Pool Excavation
Elev$_{TW}$ = 97.0'
Shape glide
Elev$_{TW}$ = 100.0'
Pool Excavation
Elev$_{TW}$ = 92.0'
Shape glide
Elev$_{TW}$ = 94.5'
Pool Excavation
Elev$_{TW}$ = 92.0'
Shape glide
Elev$_{TW}$ = 93.8'
Pool Excavation
Elev$_{TW}$ = 94.0'
Shape glide
Elev$_{TW}$ = 97.7'
Pool Excavation
Elev$_{TW}$ = 96.5'
Shape glide
Elev$_{TW}$ = 102.2'
Pool Excavation
Elev$_{TW}$ = 96.0'
Shape glide
Elev$_{TW}$ = 100.7'
Shape glide
Elev$_{TW}$ = 95.6'
Define Channel
Span existing channel
Plug inlet and outlet
Utilize pool materials for plug
Tie with existing vegetation
Develop backwater between
Pool Excavation
Elev$_{TW}$ = 96.0'
Shape run
(compound pool)
Elev$_{TW}$ = 100.0'
Pool Excavation
Elev$_{TW}$ = 92.0'
Shape glide
Elev$_{TW}$ = 96.3'
Pool Excavation
Elev$_{TW}$ = 91.0'
Shape run
(compound bend)
Elev$_{TW}$ = 95.0
Avulsion
Water Surface drops 5.82'
Stream distance$_{existing}$ = 1054' (0.55%)
Abandoned channel = 3500' (0.17%)
N

PINEDALE ANTICLINE PROJECT OFFICE (PAPO)

1625 West Pine St.
PO Box 768
Pinedale, WY 82941

2026 PAPO APPLICATION FOR FUNDING

(Deadline for applicants is September 15, 2026. Use additional sheets if necessary)

GENERAL PROJECT INFORMATION

Project Name: **Green River Huston to Sommers Habitat Restoration**

General Location **(distance and direction from nearest city/town, attach map if applicable):**
Five miles west of Pinedale, WY on the Green River

Legal Location of Project:
Township/Range/Section: 1) 33N, 110W: secs 10, 22, 27, 28; 2) 32N, 110W: sec 4; 3) 36N, 113W: 33N: secs 26, 27, 34, 35; and 4) 35N, 113W: sec. 29
County: Sublette

Surface Ownership (check all that apply): Federal _____ State _____ Private X (100%)

**If project includes a mix of federal, state and/or private lands, provide a breakdown for each ownership by acres and percent of total project area.

Contact Information for Affected Parties of Agencies:
Sommers Ranch: Albert Sommers and Ty Swain, 307-231-1397 (Ty)
Grindstone Cattle Company: Maggie Miller and Jon Brown, 307-749-7550 (Jon)
Moore Family: Jerry, Bonnie, and Jerome Moore, 334-546-1949 (Jerome)
Wyoming Game and Fish Department: Luke Schultz (307-367-5633), Paul Dey (307-777-4505)
Trout Unlimited: Nick Walrath

APPLICANT INFORMATION

Name/Organization:
Wyoming Game and Fish Department, Luke Schultz
Mailing Address (include city, state and zip):
PO Box 850
Pinedale, WY 82941
***Daytime Phone*:**
307-367-4353

***Fax*:** N/A
Email Address: luke.schultz@wyo.gov
Point of Contact (if different from above):
Luke Schultz, (307)-367-563

PROJECT DESCRIPTION

General Project Type (check all that apply):

Land Use/Livestock _X_
Land Use/Recreation _X_
Cultural _____
Wildlife/Aquatic _X_
Air _____
Other _____

Describe Project Proposal (such as, mechanical treatments, water improvement, etc.)

This project will address habitat limitations along a 5-mile corridor of the Green River and its associated floodplain, and will specifically address bank instability and fish habitat on over 16,000' of river and bank, in a total of 12 individual work areas. This area was identified in 2022 and over the last several years we have completed different elements of the broadly-envisioned project as materials and cost-effective equipment time allow. Work between 2023-2025 completed 4,400' of restoration on 6 previous work areas. Planned work in 2026 (as of this application) will address bank and riparian impairments on an additional 4,000' of river. This application pertains to the remaining ~8,000' of river and riparian enhancements within the corridor.

This section of river is located just west of the Pinedale Anticline in the vicinity of the Huston and Sommers access areas, which experiences increased sediment loads resulting from road and pad development from the Pinedale Anticline natural gas field. Greater sage-grouse have been documented utilizing river restoration sites extensively for brood rearing following the first phases of construction of this project. The project lies within designated Sage-Grouse Core Area and within the 2-mile buffer of the North Tyler Draw lek and multiple additional leks along the Mesa and Grindstone Butte areas. Additionally, our work will employ a variety of restoration methods to stabilize river banks, reduce erosion along valuable pasture and hay meadow lands, develop floodplain wetlands, enhance fish habitat, and improve stream function to route surplus sediment. Healthy, functioning, and productive floodplains provide habitat diversity, cover and nutritional resources for moose and mule deer, whose migration corridor intercepts much of the project area. Furthermore, recreational users benefit from the improved habitat and access to the fishery that our project provides.

Total Project Acres (if applicable)

This project will improve floodplain habitat on approximately 25 acres along 5 miles of the Green River and directly address over 16,000 feet of river, riparian, and depressional wetland habitat.

Acres Indirectly Affected (if applicable, explain)

Addressing bank instability through this reach will reduce sediment loadings to the Green River, which can have ripple effects for several miles downstream. Additionally, depressional and floodplain wetlands serve as sediment storage areas from elevated erosional runoff associated with development of the Pinedale Anticline Field.

WHAT ARE THE OBJECTIVES OF THE PROJECT?

The overarching goal of this work is to restore and enhance riparian and aquatic habitats on the Green River, while protecting working lands within the Sublette County community. Our specific objectives are: 1) increase riparian belt widths to >10' on all project banks; 2) increase Greater Sage Grouse brood rearing habitat throughout this corridor; 3)reduce bank erosion throughout this 5-mile reach of the Green River by >90% annually; and 4) returning channel dimensions to near reference conditions.

HOW DOES THE PROJECT MEET THE PAPO STRATEGIC PLAN GOALS? (please refer to the PAPO 2025 Ranking Score Sheet)

This project improves not only the quality, but also quantity, of riparian habitat available offsite for wildlife species impacted by development on the Pinedale Anticline Project Area (hereafter, PAPA), specifically greater sage-grouse, which have experienced population declines below thresholds defined in the Wildlife Monitoring and Mitigation Matrix (WMMM). Our restoration efforts along the Green River specifically meet both Goal 1, Objective 1 and Goal 2, Objective 2.

Secondly, elevated sediment loads from road development and pad construction in the PAPA are delivered to the Green River via ephemeral drainages such as Hennick and Tyler draws. By narrowing channel dimensions where appropriate, the river will better transport these sediment loads and maintain habitat quality. Additionally, depressional wetlands along the floodplain can also retain these sediments and develop productive foraging areas for waterfowl and other wildlife.

HOW DOES THE PROJECT MEET THE 2025 PAPO PRIORITIES? (please refer to the PAPO 2025 Ranking Score Sheet)

Riparian communities are disproportionally important habitat areas relative to their availability on the landscape, particularly in the arid Upper Green River Basin. Greater sage-grouse have experienced ongoing population declines here, with the portion of the population residing within the PAPA having hit mitigation triggers in the past. The 2019 Sage Grouse Executive Order

encourages riparian enhancement projects within the Greater Sage-Grouse Core Area, with the intent of maintaining habitats that provide reliable food and water resources during drought and late summer drying. Studies have shown that 85% of greater sage-grouse occur within six miles of riparian habitats, which provide a bounty of nutrient-dense insects and forbs to hens and their growing chicks (Donnelly et al. 2016). Restoring floodplain connectivity and seeding constructed bankfull benches will allow root systems to reestablish which can help reduce soil compaction, improve water infiltration, and increase levels of soil moisture retention. Additionally, sage grouse use of restored areas in this project area has been documented extensively.

WHAT ARE THE DIRECT AND/OR INDIRECT EFFECTS ON OTHER RESOURCES?

Addressing bank instability through this reach will reduce sediment loadings to the Green River, which can have ripple effects for several miles downstream. Additionally, in-stream channel manipulations are very valuable for adult trout. Deepened pools with wood and/or rock cover can hold more and larger trout, as well as increase survival of these older age classes. Improved riparian vegetation also increases inputs of terrestrial invertebrates to the river system, which has been shown to increase growth rates for fish. Anglers on the Green River will enjoy the benefits of this habitat work and with adjacent access facilities present already to accommodate their use.

WHAT IS THE POTENTIAL FOR FUTURE EXPANSION OF THE PROJECT?

The potential for future expansion of this project is high, and has already occurred. Since we first approached the PAPO team with this project in 2023, we have added nearly 3,000' of stream channel and multiple landowners to the project scope. Landowners initially involved in this project not only own large expanses of the river corridor, but are highly influential in their community and have recruited their neighbors. Successful completion of river work in the past by Wyoming Game and Fish has led to confidence from these landowners and their increased interest in completing this work. We fully anticipate additional participation following completion of this specific work.

LIST ALL PROJECT PARTNERS/COOPERATORS, THEIR ROLES AND/OR CONTRIBUTIONS:

Wyoming Game and Fish Department (Luke Schultz): lead agency on the project. Has completed site assessments (river and aspen enhancement areas), developed river designs, initiated permitting, and will supervise both river construction and aspen enhancements.
Grindstone Cattle Company (Maggie Miller and Jon Brown): Landowners and ranch manager, respectively. They are responsible for the maintenance of the property and will be assisting with material movement, cattle exclusion and other logistics.
Sommers Ranch (Albert Sommers and Ty Swain): Landowner and agricultural producers on a portion of the river work. Have provided and mobilized rock material to the site and will provide additional project support.
Jerry Moore and Anthony Rizzo: Landowners on a portion of the river work. Will provide project support, rock material, and livestock exclusion.
Trout Unlimited (Nick Walrath): Project partner and funding and contract administrator for the

majority of contracted components of project. Assisting with design, implementation, evaluation, and revegetation.

PROJECT MONITORING AND REPORTING: (describe how monitoring and reporting will be done, and how it relates to the objectives)

Rosgen Level II assessments were conducted by Wyoming Game and Fish to inform restoration designs, and these data will be collected again following construction and runoff at select sites to evaluate project performance. Pre-project sediment contributions were quantified along the stream channel using the Bank Assessment for Non-point source Consequence of Sediment (BANCS; Rosgen, 2006) model, and this methodology will be repeated following construction to evaluate reductions in erosion through the reach. A fish population monitoring station was also be established in the reach to evaluate trout use of the reach pre- and post-restoration.

RESEARCH POTENTIAL: (describe the research potential of the project)

N/A. There is no research potential for this project. This project is entirely focused on restoration goals rather than research implications.

PERMITS AND AUTHORIZATIONS REQUIRED PRIOR TO PROJECT IMPLEMENTATION: (including but not necessarily limited to the following)

PERMIT OR AUTHORIZATION	REQUIRED		SUBMITTED		APPROVED	
	Yes	No	Yes	No	Yes	No
Cultural Resource Inventory	X		X		X	
COE Section 404 Permit	X		X		X	
Cooperative Agreement(s)	X		X			
NEPA Analysis		X				
Pesticide Application Permit		X				
Private Landowner Agreement(s)		X				
Sensitive Species Clearance	X		X		X	
Surface/Ground Water Permits		X				
T/E Species Clearance	X		X		X	
Other (explain)						

TOTAL PROJECT COST: (attach detailed budget)

Project Planning and Design	$ 75,000
Project Implementation	$ 825,000
Project Operation and Maintenance	$ N/A
Total Required	$ 900,000

MATCHING FUNDS ANTICIPATED IN CASH (list source and amount)

In-hand Cash Awards
WGFD Habitat Trust Fund - $30,000
WY Governor's Big Game License Coalition - $35,000
Bureau of Reclamation "Bucket 2E" grant - $115,000
WY Landscape Conservation Initiative - $50,000 (Spring 2024 award)
WY Wildlife and Natural Resource Trust - $185,000 (Spring 2023 award)
WY DEQ 319 program funding - $50,000 (2024 Award)

Pending requests:
WY Wildlife and Natural Resource Trust - $150,000 (Spring 2026 ask)

ANTICIPATED "IN KIND" MATCHING FUNDS (list source, valuation, and valuation method)

WGFD Heavy Equipment time: $65,000 (Sommers Bend, Moore-Rizzo work areas)
WGFD Design and project management: $60,000 (Surveys, Designs, Project Management)
Trout Unlimited: $20,000 (Project management and administration
Landowner in-kind - $50,000 (materials and mobilization)

PERCENTAGE OF FUNDING ON HAND OR COMMITTED

$700,000 (77.8%)

TOTAL PAPO FUNDING REQUESTED:

$50,000 (5.6% of total project cost)

EXPECTED/ANTICIPATED LIFE OF PROJECT (LOP)

Perpetual____ >50 Years __X__ 25-50 Years _____ <25 Years _____
Explain Basis for Projected LOP:

Restoration of river processes and riparian vegetation has the potential to last well over 50 years.

PROJECT TIMELINE AND ESTIMATED COMPLETION DATE: Please explain.

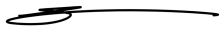
The project will be implemented in several rounds of construction between 2023 and 2029. In 2023, construction was completed at the Upper Sommers Bend, addressing severe bank erosion along ~600' of the river. In 2024, we completed restoration on 4 work areas within the project's footprint: Moore-Rizzo Bend, Side Channel Exit, Todd View Bend, and Grindstone Bar. Collectively, this work addressed nearly 2600' of the river. In 2025, we did nearly 1000' of river restoration at the Lost Tree work area. And in 2026, we are presently working on nearly 4500' of river restoration at two work areas: Grindstone Confluence and Double Bend. Remaining work areas will be completed as funding and construction efficiency dictate. Generally, we are most cost effective completing 1-3 work areas annually, but we currently anticipate finishing all currently-identified work areas by 2029. However, as adjacent landowners learn of the project, we have seen additional requests to expand the project, which we remain very open to.

ATTACHMENTS AND SUPPORTING DOCUMENTATION

Map of Project __X__(scale of not less than 1" = 2,000 feet)
Project Design __X__
Letters of Support _____
Management Plan _____ Long Term _____ Short Term _____
Monitoring Plan _____ Long Term _____ Short Term _____
Relevant Past Experience _____
Other _____ (please explain)

ADDITIONAL INFORMATION FOR PAPO CONSIDERATION:

ACKNOWLEDGEMENT: This project and requested funding is subject to approval by the Pinedale Anticline Monitoring and Mitigation Board of Directors



Signed

Luke Schultz

Printed Name

Aquatic Habitat Biologist

Title

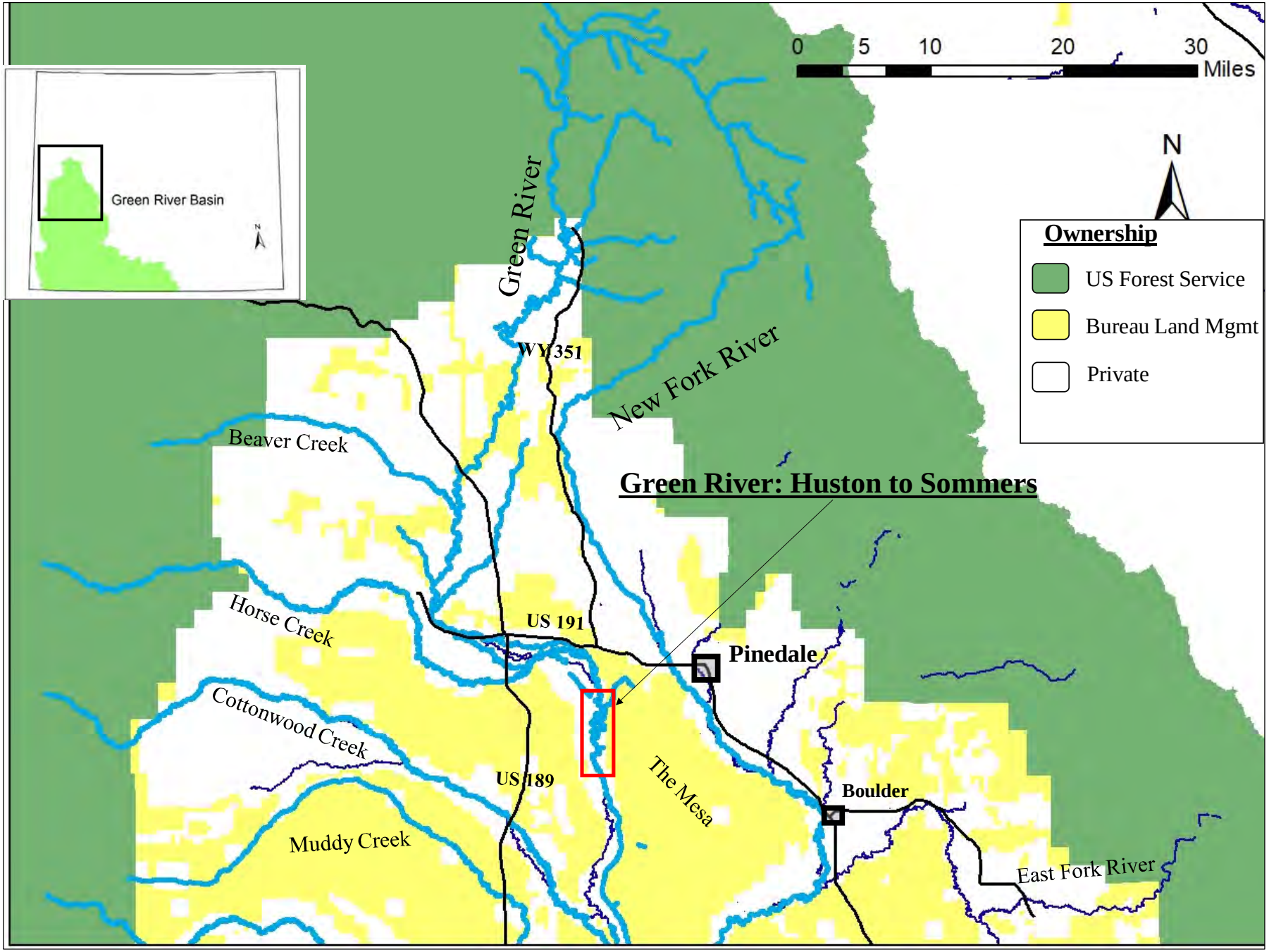
August 31, 2026

Date

Green River: Huston to Sommers Habitat Restoration

Designs and Basis of Design

Prepared by: WGFD


Green River Basin
0 5 10 20 30 Miles
N
Ownership
US Forest Service
Bureau Land Mgmt
Private
Green River
New Fork River
WY 351
Beaver Creek
Green River: Huston to Sommers
Horse Creek
US 191
Pinedale
Cottonwood Creek
US 189
The Mesa
Boulder
Muddy Creek
East Fork River

Background

The Green River is a focal conservation area of regional importance and provides one of the most popular river fisheries in Wyoming. Accordingly, angler pressure has increased in recent years. The watershed originates in the northern Wind River Mountain Range and the river picks up tributaries from the eastern slope of the Gros Ventre and Wyoming ranges as it flows south. From Green River Lakes near its headwaters, the Green River flows nearly 150 miles to Fontenelle Reservoir. Along it's course, it transitions from relatively intact habitat on the Bridger-Teton National Forest to lower quality habitat moving downstream as development and human uses affect the river. River diversions impair channel conditions and agricultural uses have a large effect on riparian conditions, which in turn leads to many instances of bank instability and poor wetland function. Ameliorating the degraded habitat conditions and improving stream function in the Green River would be beneficial to many fishes, in addition to other aquatic and riparian-obligate organisms.

Additional stressors have cropped up throughout the Upper Green River basin in the last quarter century. The Pinedale Anticline formation lies between the New Fork and Green rivers south of Pinedale and has one of the largest natural gas fields in Wyoming at an estimated gas reserve of 40 trillion cubic feet. The northern end of this field is called the Mesa, and lies directly between the New Fork and Green rivers. Gas pipelines directly cross the New Fork River in multiple locations, and impacts from this development are noticeable on local hydrology and vegetation. While the Green River has remained largely intact in the face of this development, excess sediment from roads and pads on the Mesa winds up in the Green River via ephemeral draws and washes.

While more than 70% of the watershed is publically-owned and managed, over 85% of the Green downstream of the Forest boundary is privately held. Therefore, working with private landowners is critical for efforts to restore their corridors. This work is occurs on private ground within the vicinity of the Huston and Sommers boat accesses, at approximately 80 river miles downstream from Green River Lakes. Along this 4 mile corridor of the valley, much of the land is protected under the Sommers-Grindstone conservation easement, which also contains a permanent fishing and wildlife viewing access easement. In this reach, the river is primarily managed as a wild brown trout fishery, and the watershed encompasses roughly 900 square miles. Landowners here approached Game and Fish about problems with high erosion on several stream banks, and site visits suggested that additional restoration work would be beneficial for fish and wildlife in this corridor.

Because of the large footprint of this work and the multiple landowners involved, several work areas and at least two phases of construction will necessary to complete the entire reach. The 11 work areas we have identified will be constructed roughly half in the first year and the remainder in following years, so long as finances are available to fund construction. All told, this work will improve conditions along over 2.5 miles of streambed and river bank and over 100 acres of floodplain habitat to improve habitat at this public access for fishing and wildlife viewing opportunities. These designs were developed to address the following goals and objectives:

Goals:

- Restore degraded river habitats to enhance productivity of this sport fishery
- Enhance productivity and wetland function along floodplain corridor

Objectives:

- Reduce bank erosion by 90% on project banks
- Increase riparian wetland vegetation width to >15' on all banks
- Narrow channel and enhance pools to more closely replicate reference width:depth ratios and pool to pool spacing
- Increase overall habitat value for all trout life history stages by deepening pools and adding cover, enhancing alcove and off-channel habitat, and improving riffle function

Field Assessment and Design Criteria

Field observations and a gage analysis for the Green River at Warren Bridge were used to define a design bankfull discharge. The gage is located ~25 miles upstream of this work, but is likely informative. Two major tributaries enter the Green River between Warren Bridge and our project location: the gaged Beaver Creek and the un-gaged Horse Creek. Bankfull discharge at Warren Bridge is approximately 2500 cfs. Horse Creek is approximately twice the size of Beaver Creek, for which gage analysis indicates a roughly 350 cfs bankfull discharge. Together these three drainages sum to roughly 3500 cfs at the Huston-Sommers reach, which we use as the design bankfull discharge. Generally, the modeled bankfull discharge (i.e., 2900 cfs) and constructed elevations from the Daniel Access Habitat Restoration on the Green River in 2021 appeared accurate; at observed discharge near 2500 cfs we observed inundation of bankfull benches. This provides some corroboration for using this design discharge in this watershed.

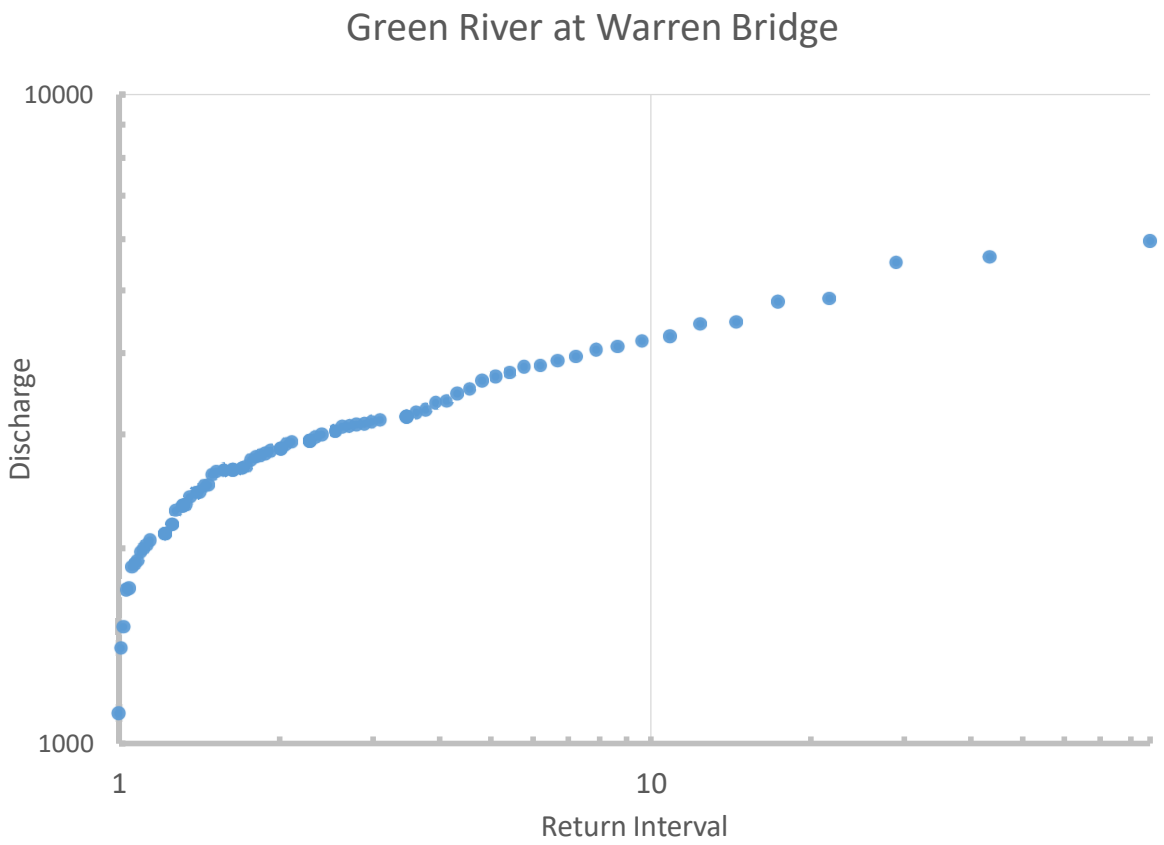
Surveys of this ~5 mile segment of the Green River valley were conducted on several dates in September 2022 to inform restoration designs. Following a detailed reach walk with aerial images to note specific landscape features, surveyed segments included ~13,600' of main river channel and ~700' of one of the side channels in the reach. A longitudinal profile along the channel thalweg surveyed bed and water surface elevation for at least every change of channel feature, and included additional features like low/eroding bank heights, and bankfull elevation if discernable. Initial site walks indicated locations of informative cross sections throughout the reach; surveyed cross sections measured channel dimensions in likely work areas as well as locations that could describe hydraulic conditions throughout the reach. Pebble counts were also conducted at several riffles and benchmarks were established to allow efficient surveying in future work. We broke the segment into 11 distinct work areas: Moore "Pipe" Bends, Moore Side Channel, Rizzo-Moore Bend, Side Channel Exit, Todd View Bend, Side Channel Re-Enters, Grindstone Bar, Lost Tree, Grindstone Double Bend, and Upper and Lower Sommers Bends (Sheet 9). Generally, independent bench marks were established for each work area (sheets 6, 7, 8).

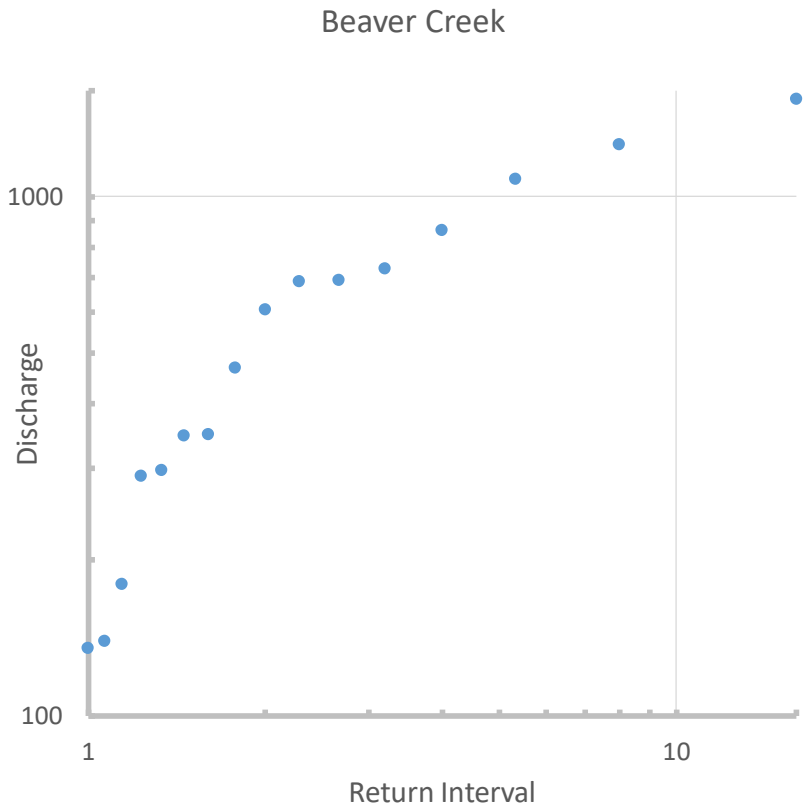
Field data were summarized for channel dimensions and slope, substrate composition, and sediment transport and competence metrics (see sheet 5). A Rosgen geomorphic analysis was completed to evaluate vertical and horizontal stability, describe channel type and indicated likely stable conditions for the reach. In short, the reach was vertically stable, but slightly laterally unstable due to bank erosion, and trended toward aggradation. Riparian vegetation was present throughout the floodplain, but it was in fair to poor condition. Woody species are heavily browsed and medium aged conttonwood trees are virtually non-existent. Reed canary grass *Phalaris arundinacea* was common along much of the channel margins, typically overcrowding other, more valuable, herbaceous species. While this non-native plant provides excellent bank stability, its thick rhizomatous roots can create artificial berms along the bankfull elevation (visible in some of the surveyed typicals). These berms reduce floodplain function and increase bank stress on outside bends by artificially elevating river stage necessary for overbank flows.

Design criteria for restoration were developed from reference reach information from the New Fork River near the confluence with Pine Creek (see following table), and from other work we have done in similarly-sized restorations in the Green and New Fork rivers. We strove to restore channel dimension ratios (scaled to local discharge estimates) in the proposed conditions to these reference site ratios. In most of our proposed designs, channel pattern is not modified due to infrastructure conflict, cost, or landowner concerns, so our proposals strive to adjust primarily dimension with some minor modification to channel profile. Due to these constraints, dimension and profile is often proposed to help progress the channel toward a more stable form than directly constructing the channel to meet reference criteria. For instance, the BF mean width:depth ratio on the Moore-Rizzo Bend would be 35.6-71 in reference condition, but we propose a ratio of 80 due to being limited in the width of the proposed Bankfull Bench there.

In these work areas, channel slopes often exceeded 0.25%, suggesting the need for fairly robust bank structures. For this reason, we specify degrees of towood "robustness" as light (~40% longitudinal area coverage of root masses along the bank), unspecified (~50% "), or robust (~60+% longitudinal area coverage of root masses).

Site Hydrology





Available USGS gages for the Green River were on the Green at Warren Bridge and on Beaver Creek. Bankfull Discharge for the Green River at Warren Bridge (~25 miles upstream) is about 2500 cfs; Beaver Creek enters the Green between Warren Bridge and the project location with an approximate BF discharge of 350 cfs. Horse Creek also enters upstream of the Huston Access which is about two times the size of Beaver Creek. Summing these, we estimate BF discharge at the project to be ~3300-3700 cfs, but will use a design discharge of **3500 cfs.**

These estimates appear to align favorably with regional curves, but do tend toward the upper ends of these curves. Channel morphology suggests slightly lower BF discharges based on morphology and slope. Bankfull discharge estimates derived from hydraulic relationships from cross sections consistently were 1500-2300 cfs, but this has typically been observed in other river surveys in the watershed (e.g, New Fork Gas Wells, Daniel Access Area).

Drainage Area = ~900 mi^2

BF discharge = 3700 cfs

BF Area = 470 ft^2

BF Width = 202 ft

BF mean depth = 2.3

BF Max depth = 4.0

BF mean velocity = 3.5

Channel Slope = 0.25%

Sediment

D_{16} = 45

D_{35} = 65

D_{50} = 79

D_{65} = 95

D_{84} = 110

D_{95} = 130

Mean = 70.4 mm, Max = 150 mm

Measured data from survey

BF Area = 481, 428, 502

BF Width = 176, 212, 217

BF depth = 2.7, 2.0, 2.3

BF max = 4.3, 4, 3.7,

BF velocity = 3.9, 3.1, 3.4

Sediment transport metrics

Manning's N (roughness) = 0.035

Manning's N (stream type) = 0.025

	Velocity	Discharge
Friction Factor/Relative Roughness	3.10	1457
Manning's n from Friction Factor/Relative	3.68	1730
Manning's n from stream type	5.15	2422

Sediment Competence

BF depth to move particle = 7.14 ft

Surface Slope to " " = 0.00776

BF Shear Stress = 0.359 lbs/ft^2

	Shields	CO
Largest Particle moved at BF shear stress	27	72
Shear stress to move D_{max}	1.87	0.982
Mean depth to initiate movement	12.01	6.29
Slope to initiate movement	0.013	0.0068

Local Control Points

Todd View Bend
42.82167° -109.97459°
Local Elev = 100.0’



Side Channel Exit
42.82263° -109.97429°
Local Elev = 100.0’



Grindstone Bar
42.80701° -109.97991°
Local Elev = 100.0’

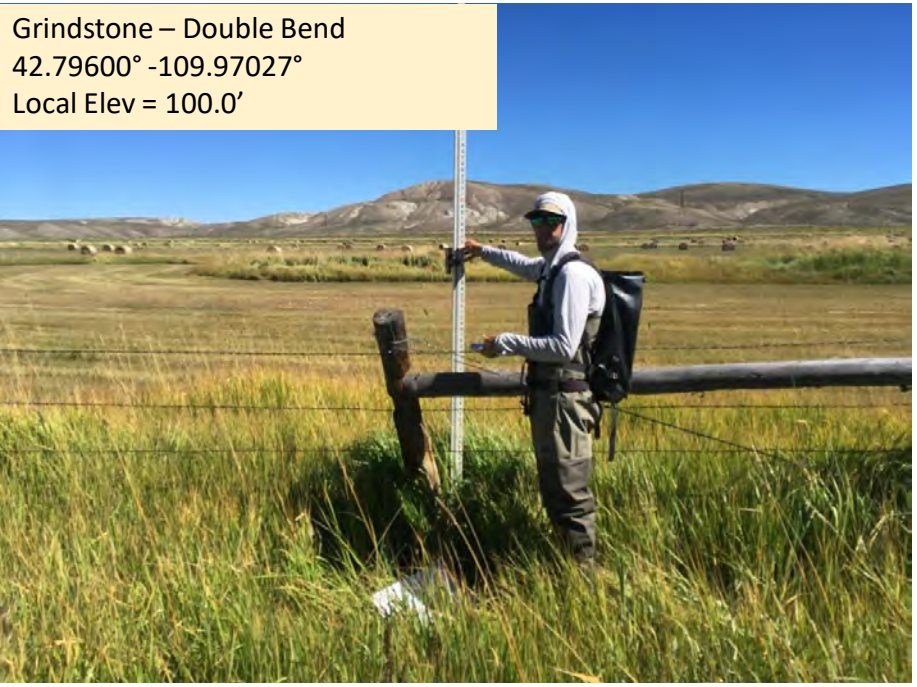


Local Control Points

Grindstone – Side Channel Confluence
42.80945° -109.97240°
Local Elev = 100.0’



Grindstone – Double Bend
42.79600° -109.97027°
Local Elev = 100.0’



Grindstone – Double Bend
42.79481° -109.97250°
Elev = 99.08’

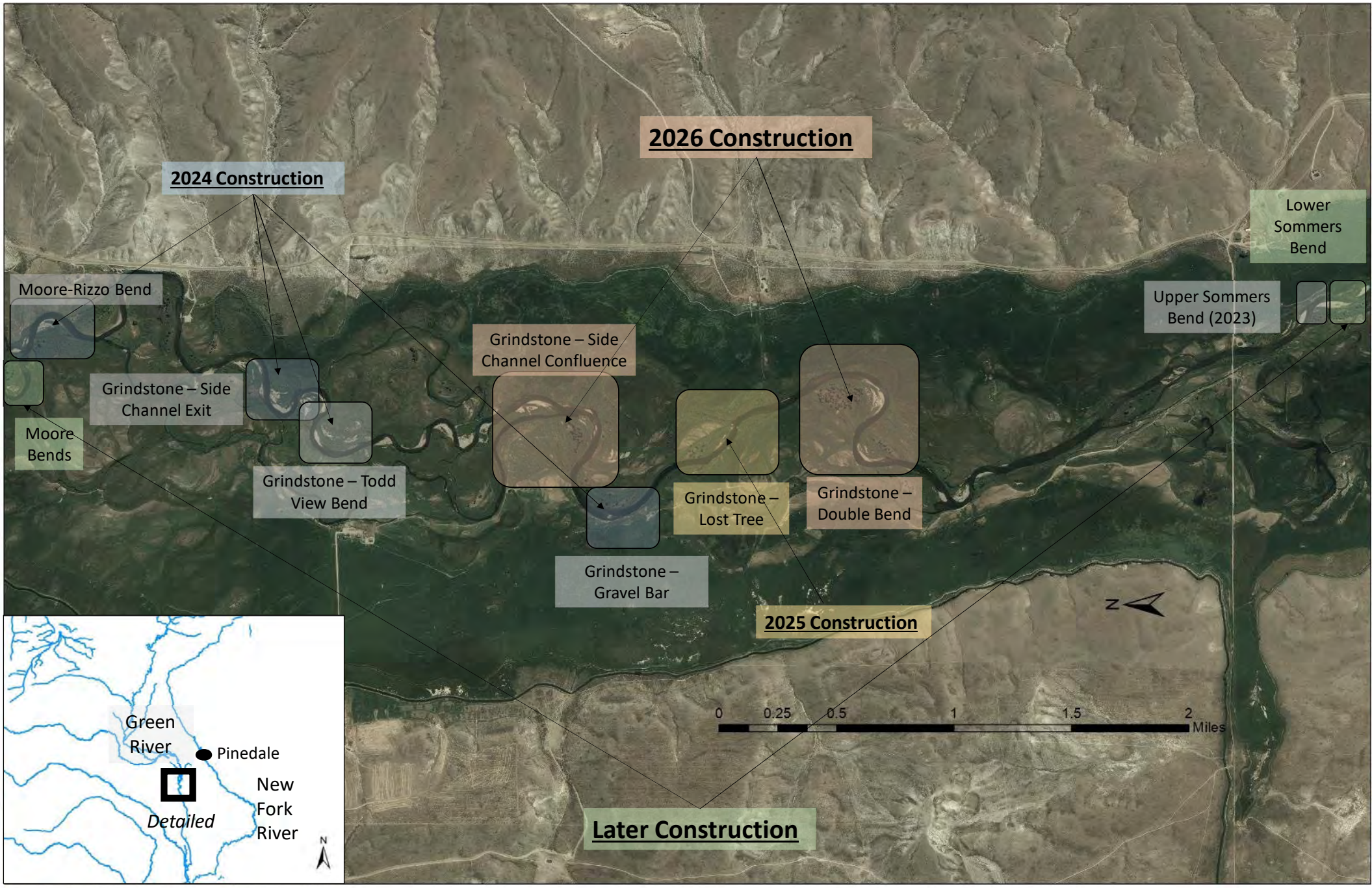


Moore-Rizzo Bend
42.83106° -109.96905°
Local Elev = 99.31’



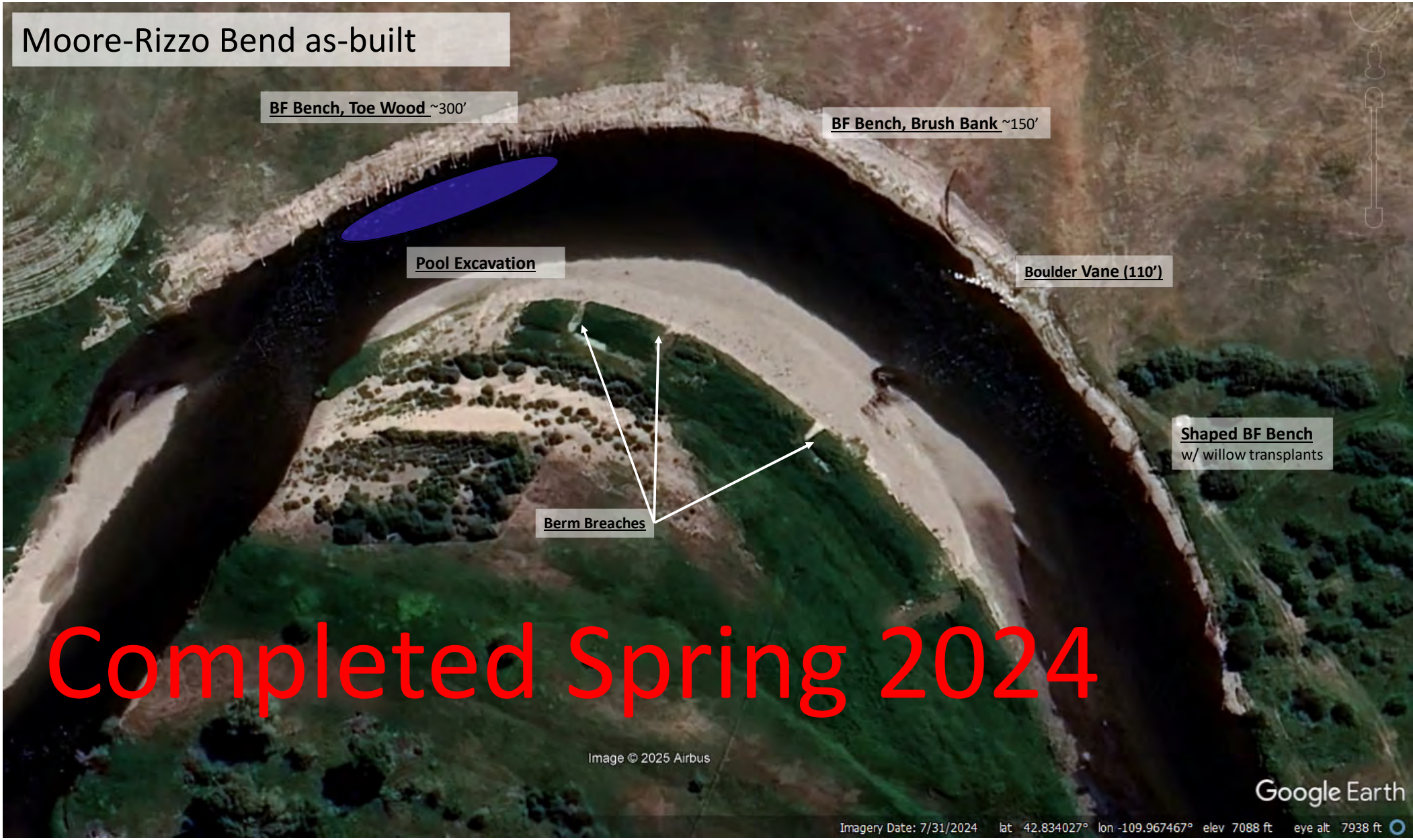
Grindstone – Side Channel Re-enters
42.80945° -109.97240°
Local Elev = 100.0’




2026 Construction
2024 Construction
Lower Sommers Bend
Moore-Rizzo Bend
Upper Sommers Bend (2023)
Grindstone – Side Channel Confluence
Grindstone – Side Channel Exit
Moore Bends
Grindstone – Todd View Bend
Grindstone – Lost Tree
Grindstone – Double Bend
Grindstone – Gravel Bar
2025 Construction
N
0 0.25 0.5 1 1.5 2 Miles
Green River
Pinedale
New Fork River
Detailed
N
Later Construction

Work Area 1: Rizzo and Moore Bend



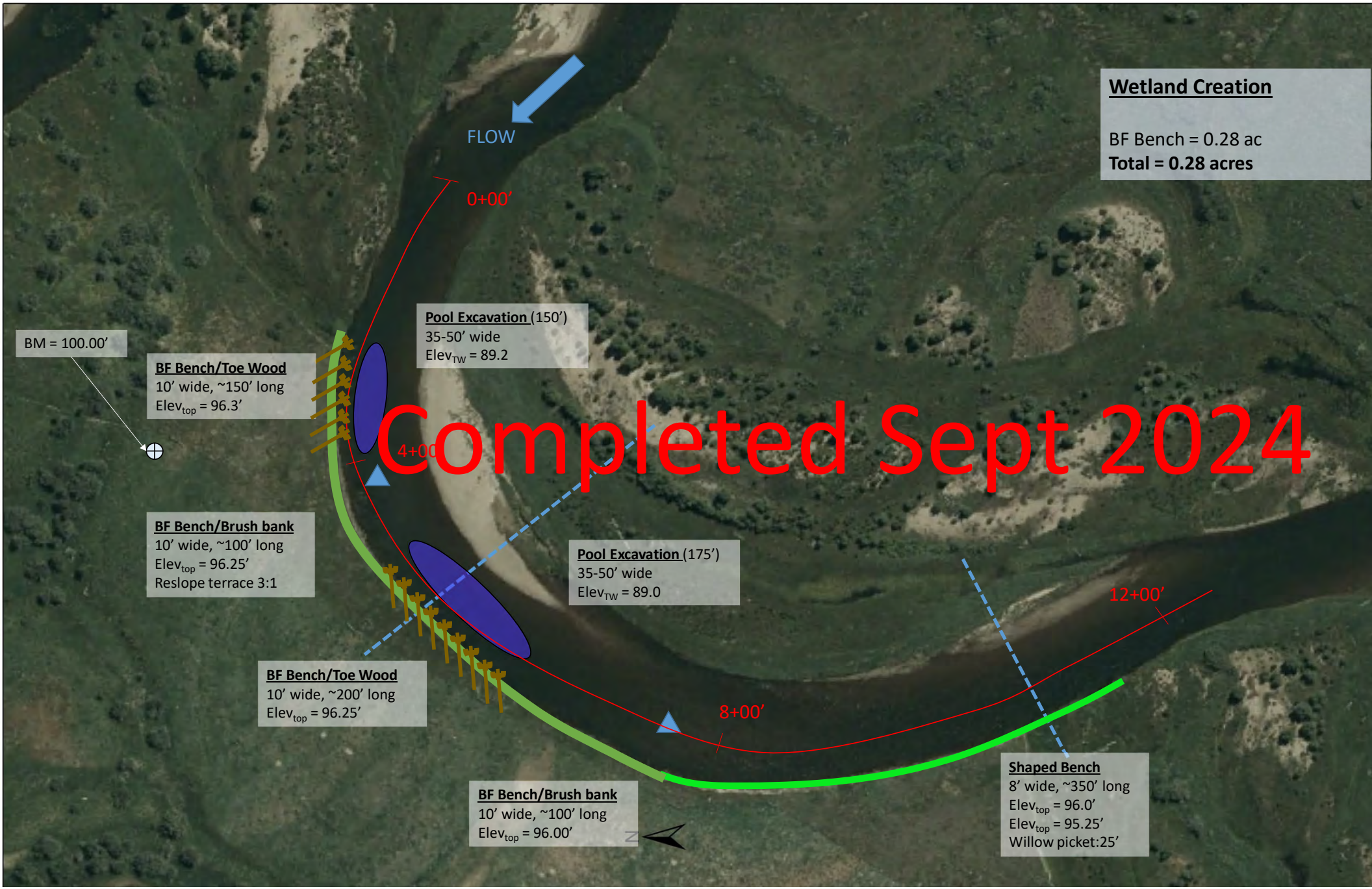

Moore-Rizzo Bend as-built
BF Bench, Toe Wood ~300'
BF Bench, Brush Bank ~150'
Pool Excavation
Boulder Vane (110')
Shaped BF Bench
w/ willow transplants
Berm Breaches
Completed Spring 2024
Image © 2025 Airbus
Google Earth
Imagery Date: 7/31/2024 lat 42.834027° lon -109.967467° elev 7088 ft eye alt 7938 ft

Work Area 2: Side Channel Exit




Alcove Development
15,000 ft² area identified
10+00'
0+00'
Shaped Bench
8' wide, ~100' long
Elev$_{top}$ = 98.0'
Pool XS
Pool Excavation (150')
25' wide, 65' long
Elev$_{TW}$ = 89.5
BF Bench/Toe Wood
10' wide, ~100' long
Elev$_{top}$ = 98.25'
5+00'
BF Bench/Brush Bank
10' wide, ~200' long
Elev$_{top}$ = 98.25'
Bank-Attached Woody Jam
@ DS side of side channel
Protrusion of 5-7' into channel
Live willow clump downstream
Match existing BF elevation
Wetland Creation
BF Bench = 0.09 ac
Alcove Development = 0.06 ac
Total = 0.15 acres
Completed Sept 2024

Work Area 3: Todd View Bend

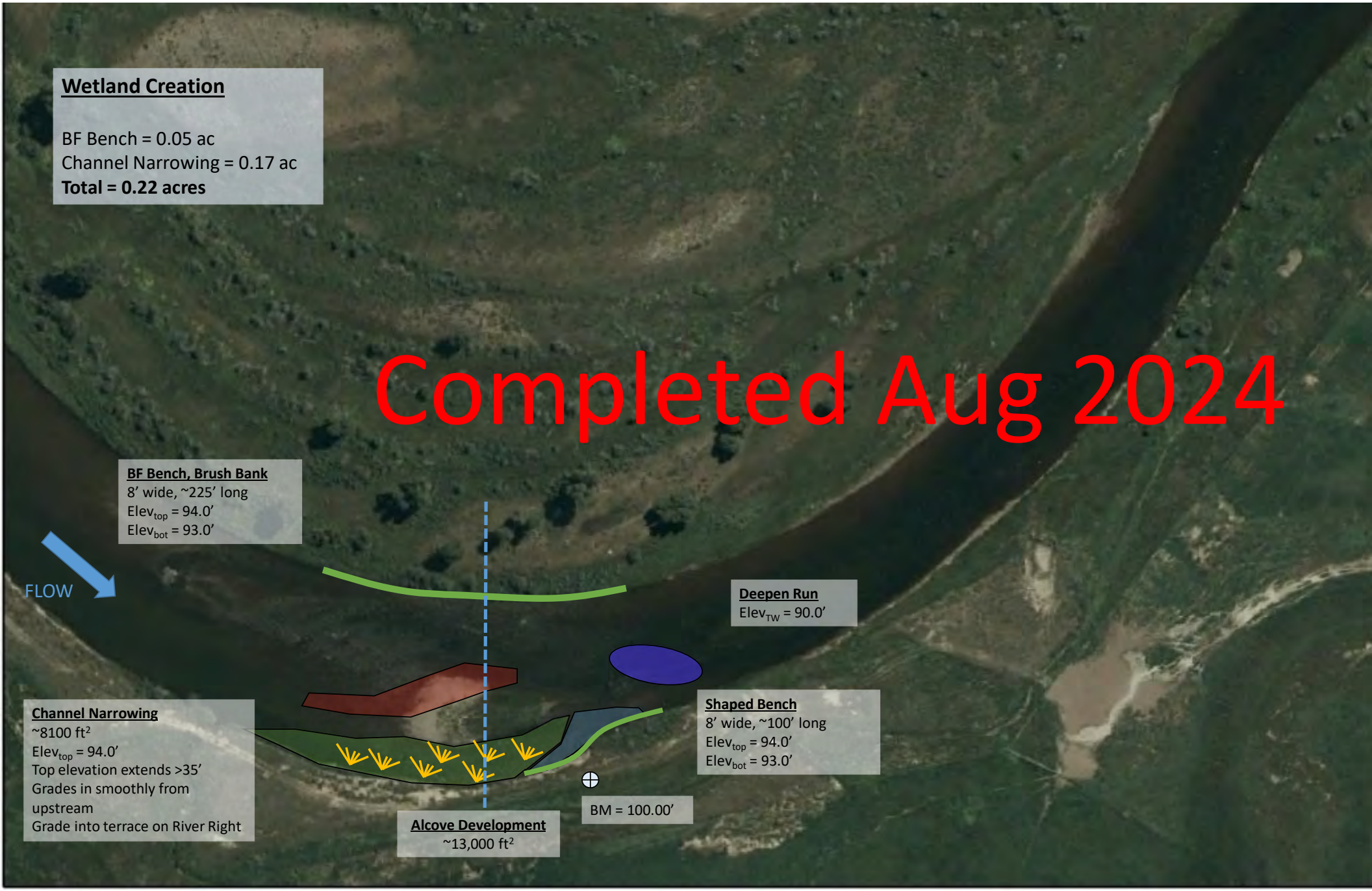

FLOW
0+00'
Wetland Creation
BF Bench = 0.28 ac
Total = 0.28 acres
Pool Excavation (150')
35-50' wide
Elev$_{TW}$ = 89.2
BM = 100.00'
BF Bench/Toe Wood
10' wide, ~150' long
Elev$_{top}$ = 96.3'
Completed Sept 2024
4+00
BF Bench/Brush bank
10' wide, ~100' long
Elev$_{top}$ = 96.25'
Reslope terrace 3:1
Pool Excavation (175')
35-50' wide
Elev$_{TW}$ = 89.0
12+00'
BF Bench/Toe Wood
10' wide, ~200' long
Elev$_{top}$ = 96.25'
8+00'
Shaped Bench
8' wide, ~350' long
Elev$_{top}$ = 96.0'
Elev$_{top}$ = 95.25'
Willow picket:25'
BF Bench/Brush bank
10' wide, ~100' long
Elev$_{top}$ = 96.00'
N

Work Area 4: Side Channel Confluence

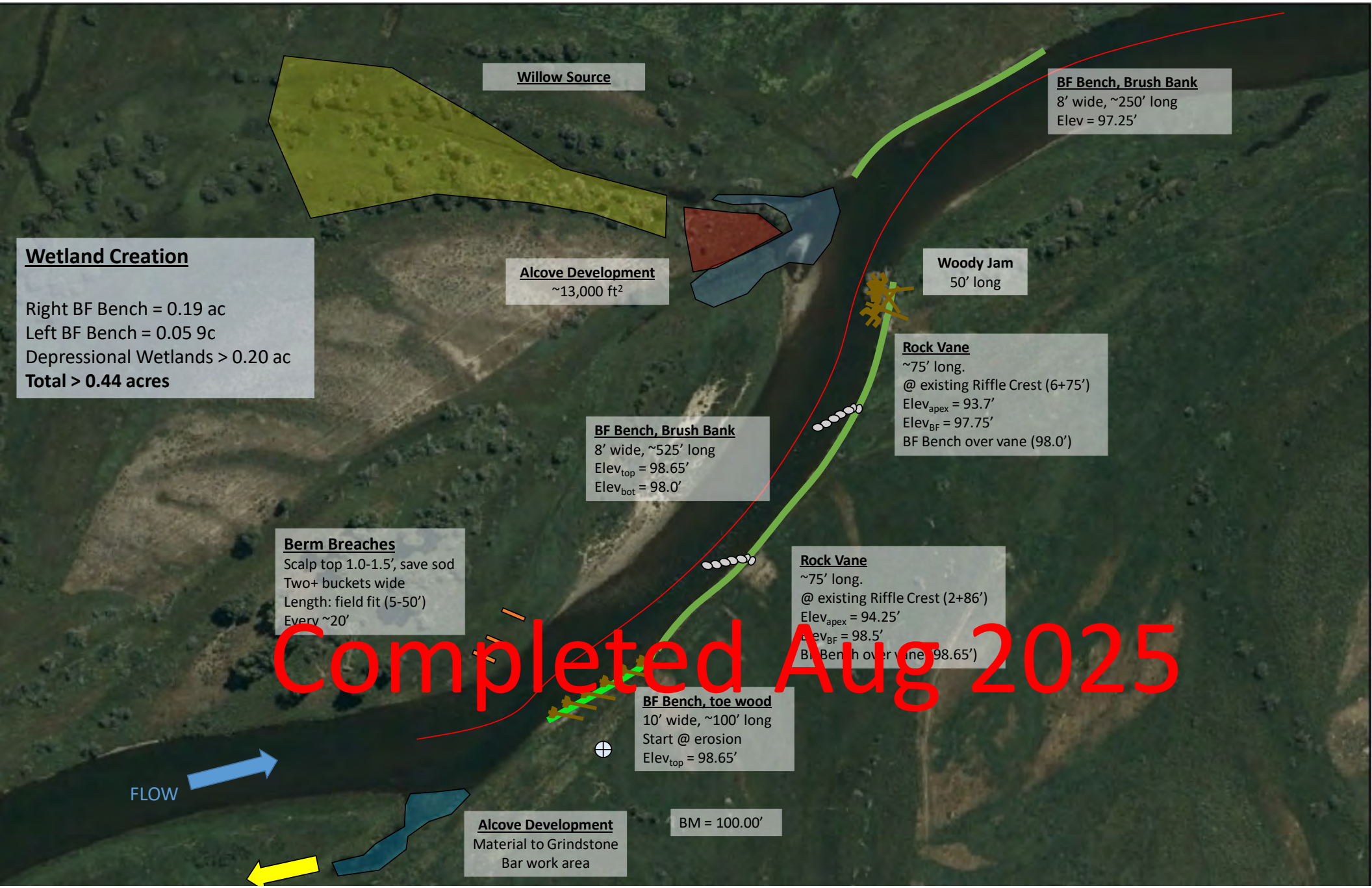

BM = 100.00’
Fill small channel
Developed Alcove
BF Bench, Toe Wood
10’ wide, ~200’ long
Shaped Bench
8’ wide, ~150’ long
BF Bench, Brush Bank
8’ wide, ~400’ long
10+00’
Pool Excavation
5+00’
Developed Alcove
15+00’
BF Bench, Brush Bank
10’ wide, ~200’ long
0+00’
Shaped Bench
10’ wide, ~500’ long
Completed Aug 2026
FLOW
20+00’
Wetland Creation
Upper BF Bench = 0.24 ac
Lower BF Bench = 0.54
Depressional Wetlands > 0.15 ac
Total > 0.93 acres

Work Area 5: Grindstone Bar




Wetland Creation
BF Bench = 0.05 ac
Channel Narrowing = 0.17 ac
Total = 0.22 acres
Completed Aug 2024
BF Bench, Brush Bank
8' wide, ~225' long
Elev$_{top}$ = 94.0'
Elev$_{bot}$ = 93.0'
FLOW
Deepen Run
Elev$_{TW}$ = 90.0'
Channel Narrowing
~8100 ft^2
Elev$_{top}$ = 94.0'
Top elevation extends >35'
Grades in smoothly from upstream
Grade into terrace on River Right
Shaped Bench
8' wide, ~100' long
Elev$_{top}$ = 94.0'
Elev$_{bot}$ = 93.0'
BM = 100.00'
Alcove Development
~13,000 ft^2

Work Area 6: Lost Tree


Willow Source
BF Bench, Brush Bank
8’ wide, ~250’ long
Elev = 97.25’
Wetland Creation
Right BF Bench = 0.19 ac
Left BF Bench = 0.05 9c
Depressional Wetlands > 0.20 ac
Total > 0.44 acres
Alcove Development
~13,000 ft2
Woody Jam
50’ long
Rock Vane
~75’ long.
@ existing Riffle Crest (6+75’)
Elevapex = 93.7’
ElevBF = 97.75’
BF Bench over vane (98.0’)
BF Bench, Brush Bank
8’ wide, ~525’ long
Elevtop = 98.65’
Elevbot = 98.0’
Berm Breaches
Scalp top 1.0-1.5’, save sod
Two+ buckets wide
Length: field fit (5-50’)
Every ~20’
Rock Vane
~75’ long.
@ existing Riffle Crest (2+86’)
Elevapex = 94.25’
ElevBF = 98.5’
BF Bench over vane (98.65’)
Completed Aug 2025
BF Bench, toe wood
10’ wide, ~100’ long
Start @ erosion
Elevtop = 98.65’
FLOW
Alcove Development
Material to Grindstone
Bar work area
BM = 100.00’

Work Area 7: Grindstone Double Bend


BF Bench, Brush Bank
8’ wide, ~300’
BM = 100.00’
BF Bench, Toe Wood
12’ wide, ~250’
BF Bench, Brush Bank
8’ wide, ~300’
Pool Excavation
~175’
BF Bench, Toe Wood
12’ wide, ~350’
Pool Excavation
~300’
FLOW
BM = 99.08’
Completed Sept 2026
Alcove Development
Rock Vane
~115’ long
Shaped Bench
~400’ long
BF Bench, Toe Wood
12’ wide, ~175’
Pool Excavation
~200’
Wetland Creation
Upper BF Bench = 0.64 ac
Lower BF Bench = 0.17 ac
Alcove Development = >0.2 ac
Total > 1.01 acres
BF Bench, Brush Bank
8’ wide, ~100’
Shape Run
Pool Excavation
~200’
BF Bench, Toe Wood
12’ wide, ~250’
Shaped Bench
~200’ long
N

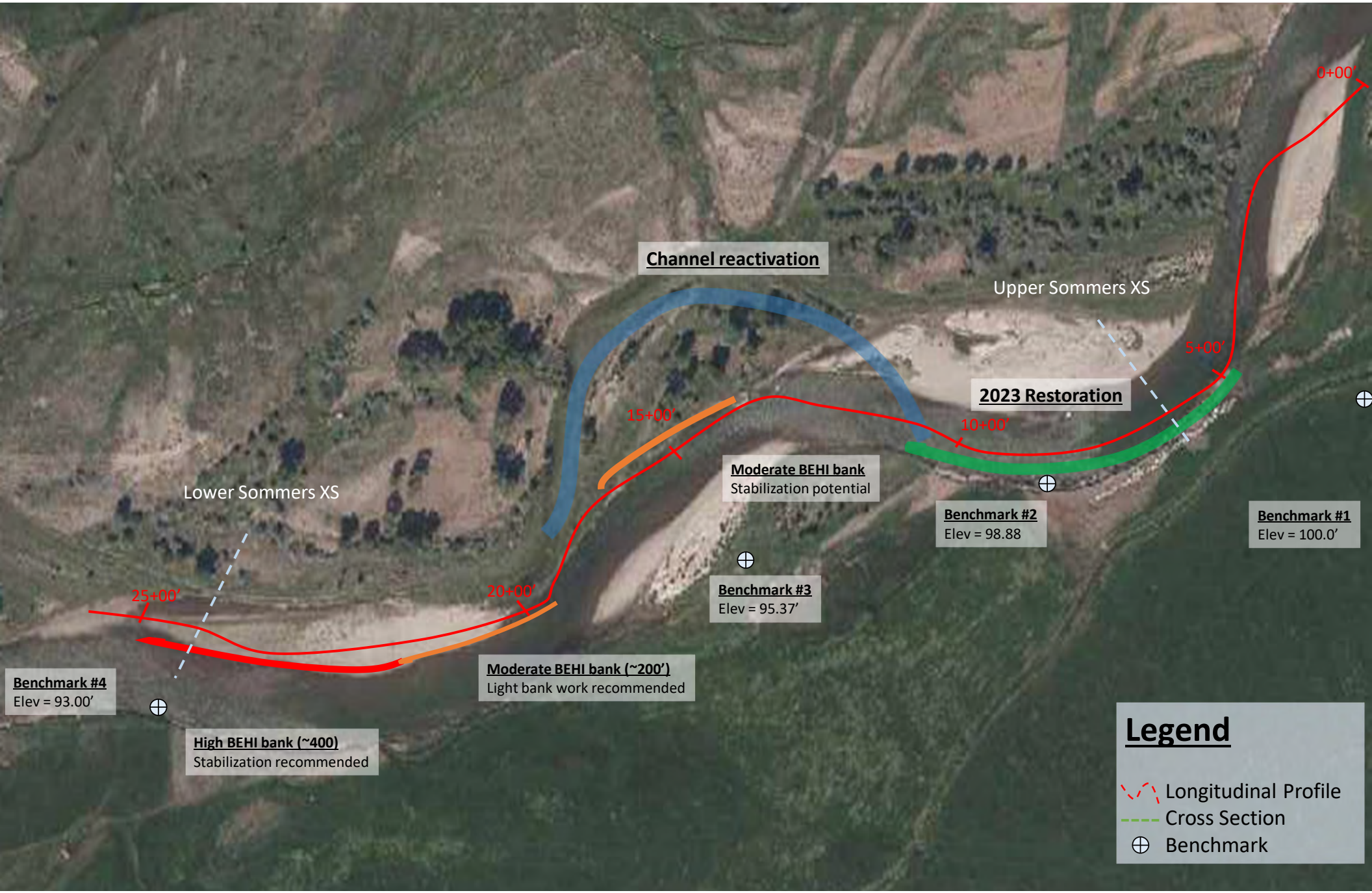
Work Area 8: Upper Sommers Bend

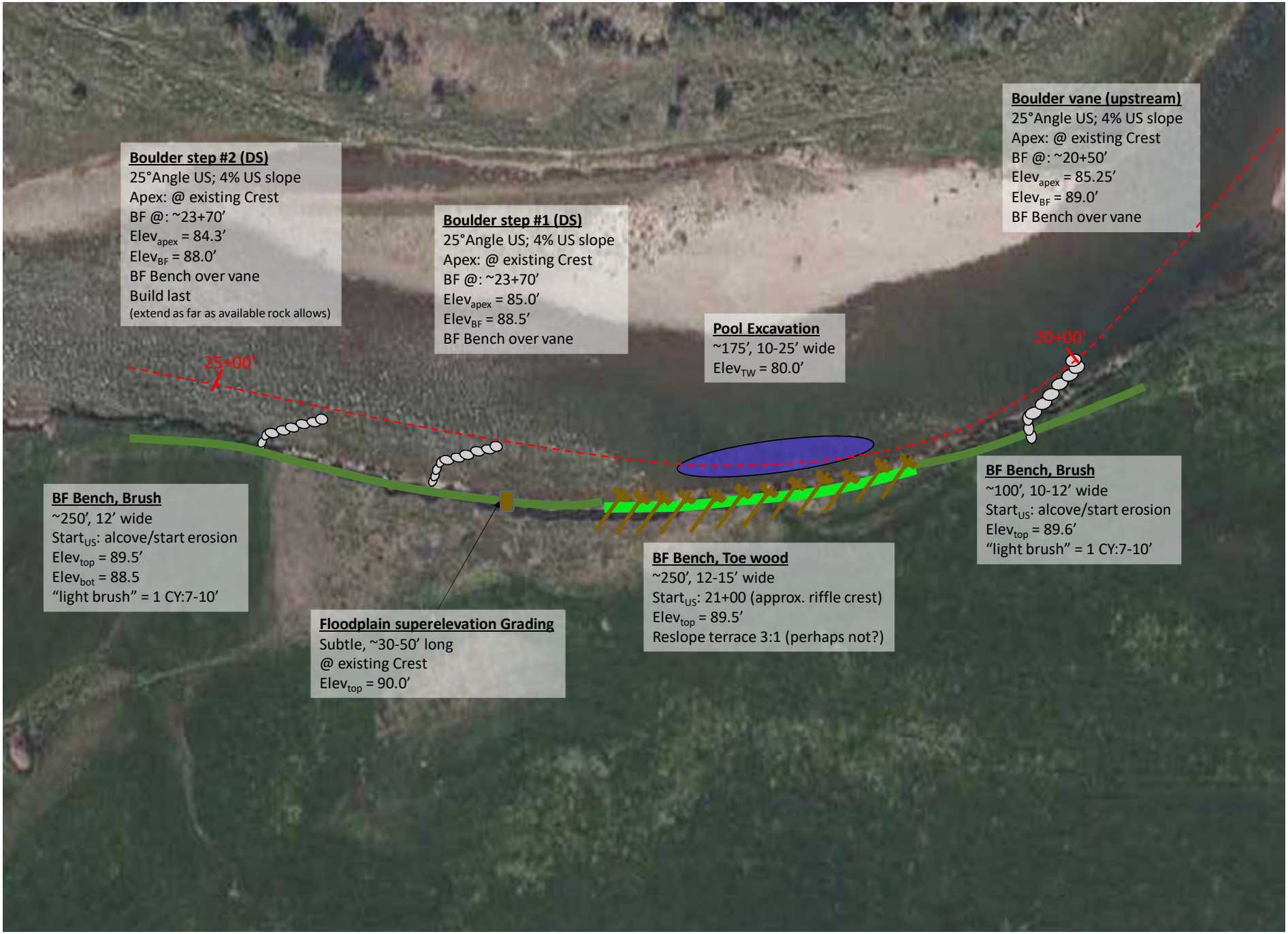



BM = 100.00’
BF Bench, Toe wood
~250’, 12-15’ wide
Start: @ alcove
Elev$_{top}$ = 92.8’
Reslope terrace 3:1
Floodplain Grading
Subtle, ~30-50’ long
@ existing Crest
Elev$_{top}$ = 93.25’
Boulder step #1 (110’)
25°Angle US; 4% US slope
Apex: @ existing Crest
BF @: ~9+70’
Elev$_{apex}$ = 90.2’
Elev$_{BF}$ = 92.5’
BF Bench over vane
Pool Excavation
~200’, 30-50’ wide
Elev$_{TW}$ = 85.0’
BF Bench, Brush Bank
~300’, 10-12’ wide
Start: 9+00’
Elev$_{top}$ = 92.4’
Elev$_{bot}$ = 91.0’
(match existing bench)
Point Bar Excavation
Boulder step #2 (110’)
25°Angle US; 4% US slope
Apex: @ existing Crest
BF @: ~11+50’
Elev$_{apex}$ = 89.0’
Elev$_{BF}$ = 91.5’
BF Bench over vane
Completed Aug 2023
N

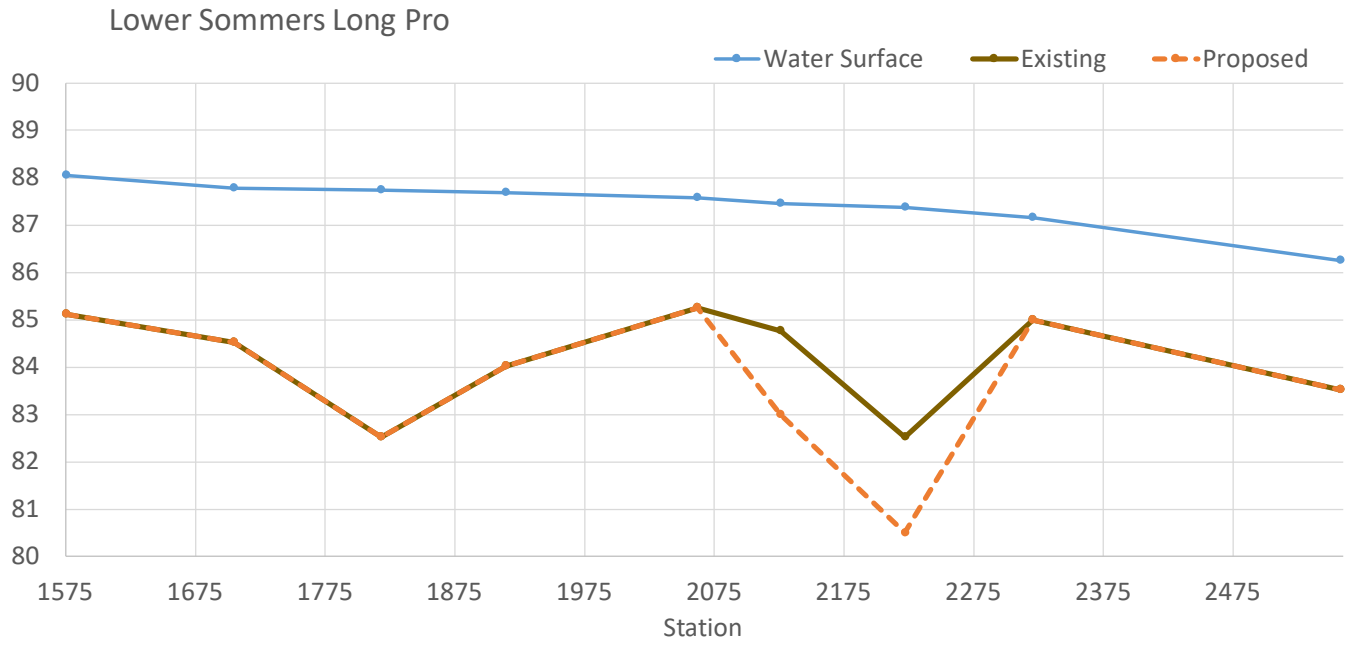
Work Area 9: Lower Sommers Bend

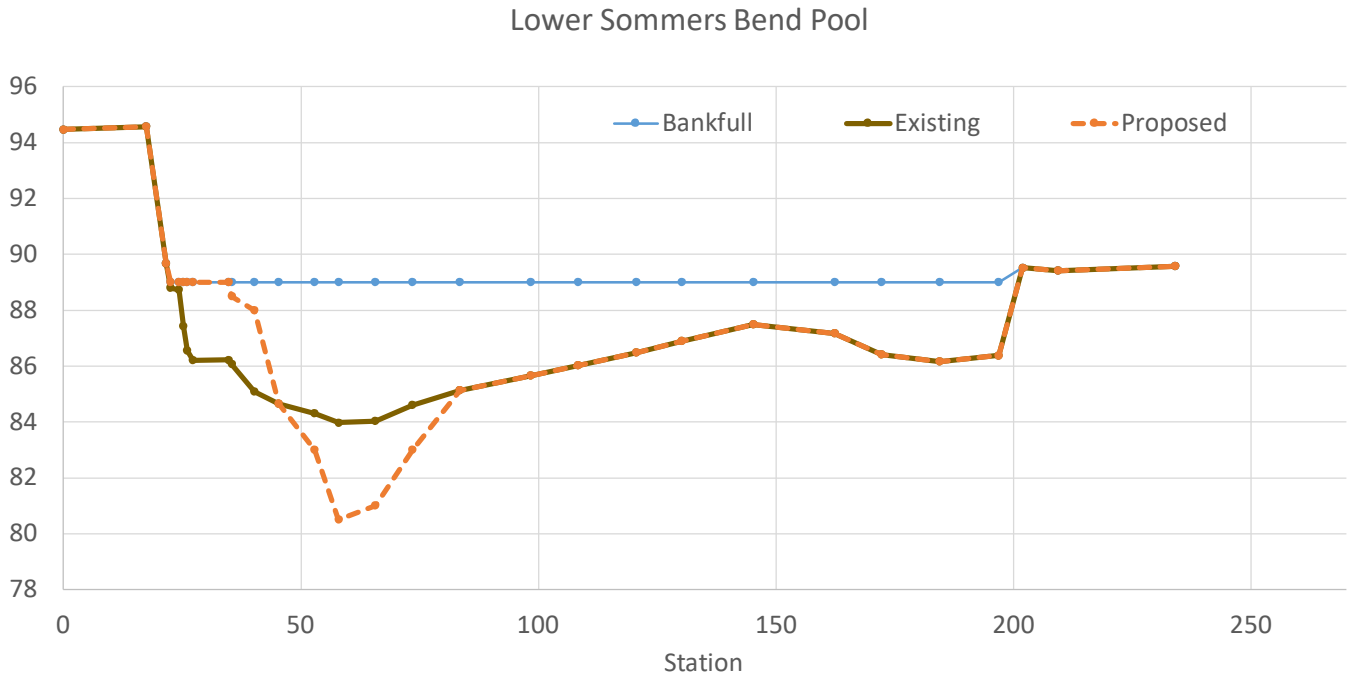



Channel reactivation
Upper Sommers XS
0+00'
5+00'
2023 Restoration
10+00'
15+00'
Moderate BEHI bank
Stabilization potential
Lower Sommers XS
Benchmark #2
Elev = 98.88
Benchmark #1
Elev = 100.0'
Benchmark #3
Elev = 95.37'
25+00'
20+00'
Moderate BEHI bank (~200')
Light bank work recommended
Benchmark #4
Elev = 93.00'
High BEHI bank (~400)
Stabilization recommended
Legend
Longitudinal Profile
Cross Section
Benchmark


Boulder step #2 (DS)
25°Angle US; 4% US slope
Apex: @ existing Crest
BF @: ~23+70'
Elev$_{apex}$ = 84.3'
Elev$_{BF}$ = 88.0'
BF Bench over vane
Build last
(extend as far as available rock allows)
Boulder step #1 (DS)
25°Angle US; 4% US slope
Apex: @ existing Crest
BF @: ~23+70'
Elev$_{apex}$ = 85.0'
Elev$_{BF}$ = 88.5'
BF Bench over vane
Boulder vane (upstream)
25°Angle US; 4% US slope
Apex: @ existing Crest
BF @: ~20+50'
Elev$_{apex}$ = 85.25'
Elev$_{BF}$ = 89.0'
BF Bench over vane
Pool Excavation
~175', 10-25' wide
Elev$_{TW}$ = 80.0'
25+00'
20+00'
BF Bench, Brush
~250', 12' wide
Start$_{US}$: alcove/start erosion
Elev$_{top}$ = 89.5'
Elev$_{bot}$ = 88.5
"light brush" = 1 CY:7-10'
Floodplain superelevation Grading
Subtle, ~30-50' long
@ existing Crest
Elev$_{top}$ = 90.0'
BF Bench, Toe wood
~250', 12-15' wide
Start$_{US}$: 21+00 (approx. riffle crest)
Elev$_{top}$ = 89.5'
Reslope terrace 3:1 (perhaps not?)
BF Bench, Brush
~100', 10-12' wide
Start$_{US}$: alcove/start erosion
Elev$_{top}$ = 89.6'
"light brush" = 1 CY:7-10'

Typicals


Lower Sommers Long Pro
Water Surface
Existing
Proposed
90
89
88
87
86
85
84
83
82
81
80
1575
1675
1775
1875
1975
2075
2175
2275
2375
2475
Station


Lower Sommers Bend Pool
Bankfull
Existing
Proposed
96
94
92
90
88
86
84
82
80
78
0
50
100
150
200
250
Station

Quantities (estimated) – Lower Sommers Bend

Woody Slash

Toe Wood

250’ x 2’ deep x 5’ wide within a matrix of soil and woody transplants ~35 CY

Brush Bank

400’ @ 1 CY:7-10’

~50 CY

Approx. **85 CY**

(6 side dump loads)

Live Willow

Project Banks

Install as available

Trees

All 20-40’ in length, DBH 8-15”

BF Bench - Toe Wood (250’)

40 trees with rootwads

40 footer logs (15-20’ long)

BF Bench - Brush Bank (total 300’)

10+ trees with rootwads

TOTAL = 50 trees w/ rootwads

(2-3 side Dump Loads)

Rock

Rock Vane - 110’ long

~40 CY

Rock step #1 - 110’ long

~40 CY

Rock step #2 - 80’ long

~40 CY

TOTAL = 100 CY (on site)

Excavation

Cut – Sommers Bend

Pool excavation – 175’ x 3’ deep x 25’ wide ~500 yards^3

Terrace reslope (pool and riffle) – 5’ high x 15’ wide x 400’ ~550 yards^3

(balance fill with this material, if suitable)

Total cut: 1050 CY (unbalanced), 1125 CY (balanced)*

Fill

Toe Wood/BF Bench – 250’ x 3.5’ fill x 15’ wide

~500 yards^3

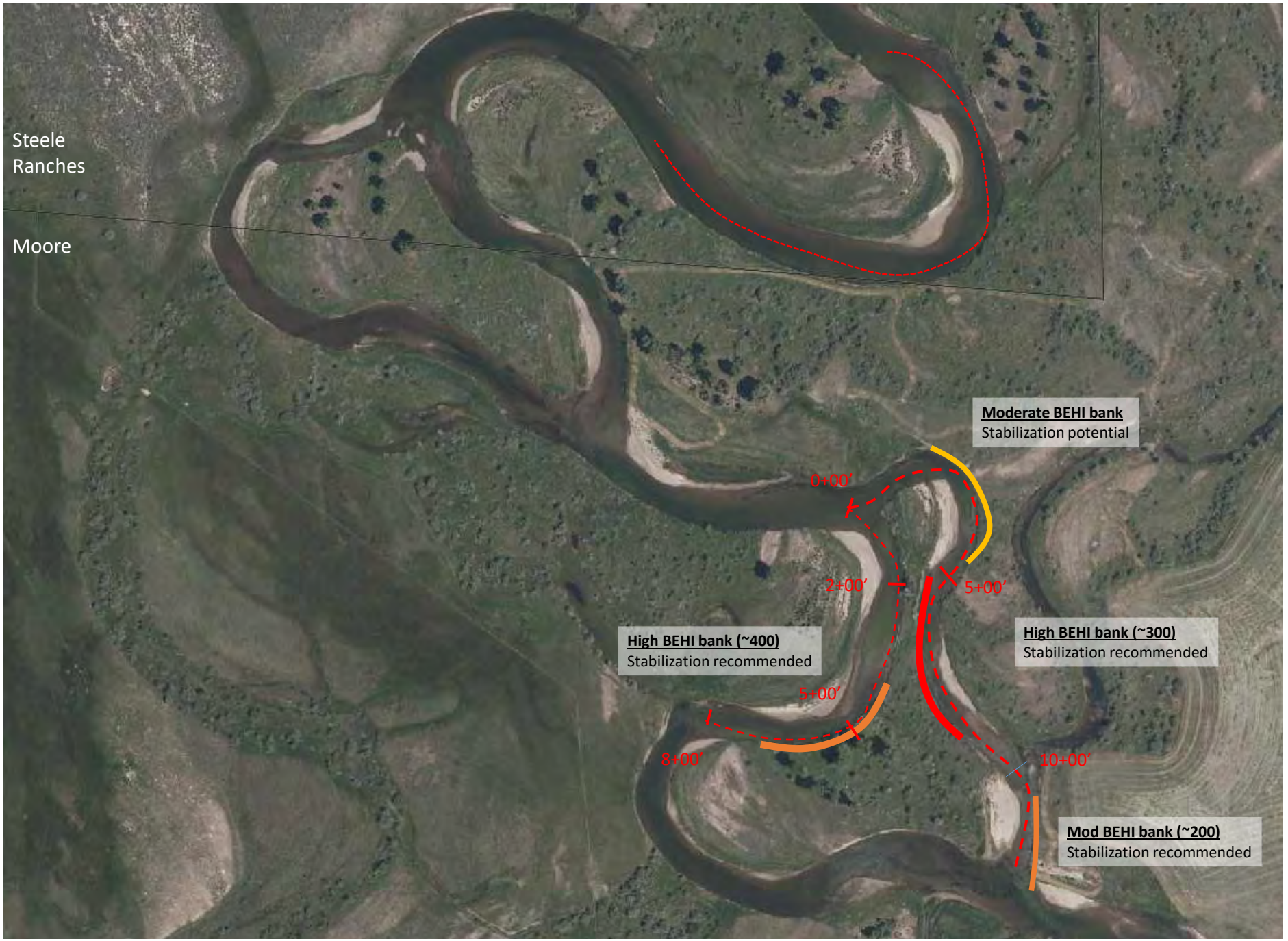
Brush Bank/ BF Bench – 400’ x 3’ fill x 12’ wide

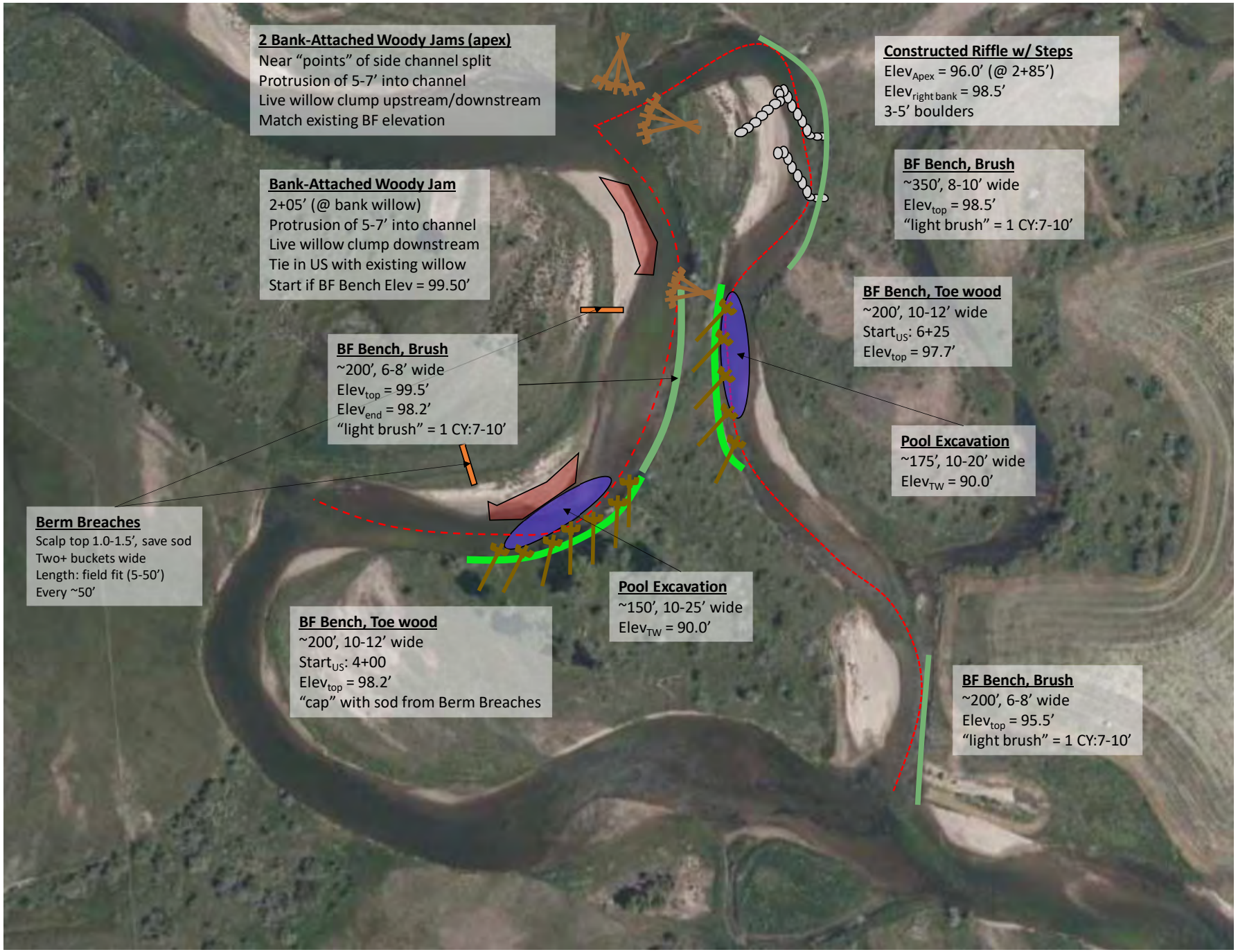
~525 yards^3

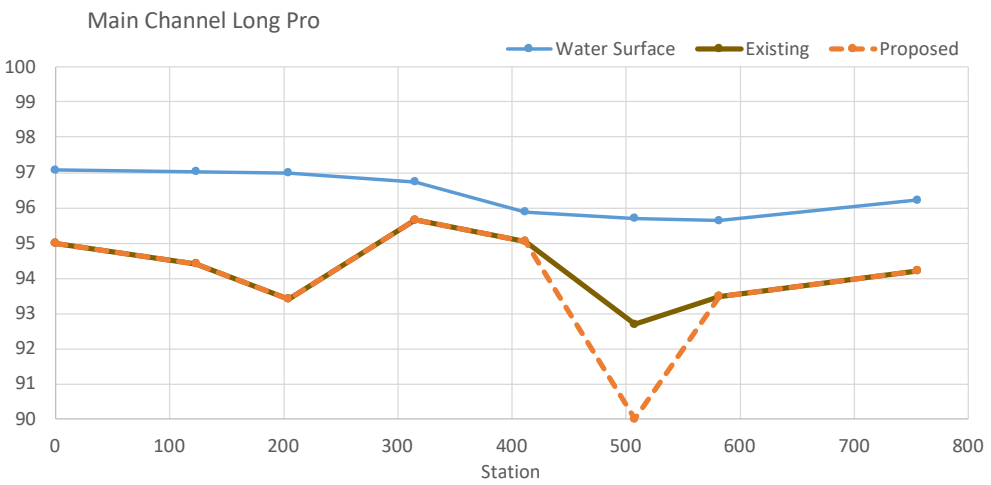
Rock structures (3) – 100 yards^3

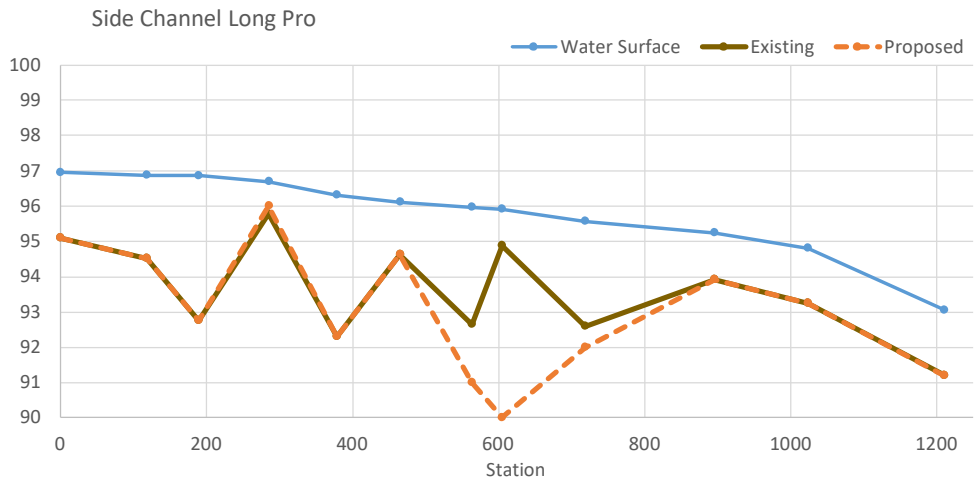
Total Fill (earth): 1025 CY, total 1125 CY

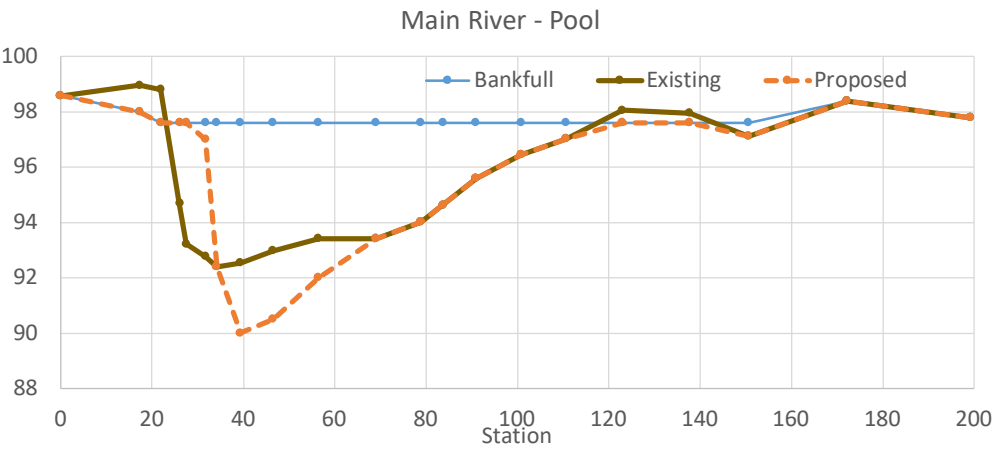
Work Area 10: Upper Side Channel Complex

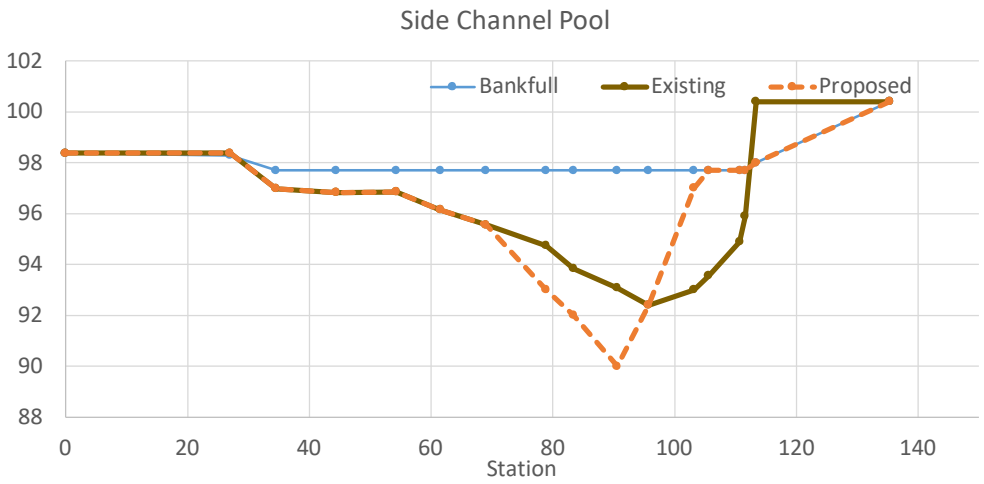

Steele
Ranches
Moore
Moderate BEHI bank
Stabilization potential
0+00'
2+00'
5+00'
High BEHI bank (~400)
Stabilization recommended
High BEHI bank (~300)
Stabilization recommended
5+00'
8+00'
10+00'
Mod BEHI bank (~200)
Stabilization recommended


2 Bank-Attached Woody Jams (apex)
Near "points" of side channel split
Protrusion of 5-7' into channel
Live willow clump upstream/downstream
Match existing BF elevation
Constructed Riffle w/ Steps
$Elev_{Apex}$ = 96.0' (@ 2+85')
$Elev_{right\ bank}$ = 98.5'
3-5' boulders
BF Bench, Brush
~350', 8-10' wide
$Elev_{top}$ = 98.5'
"light brush" = 1 CY:7-10'
Bank-Attached Woody Jam
2+05' (@ bank willow)
Protrusion of 5-7' into channel
Live willow clump downstream
Tie in US with existing willow
Start if BF Bench Elev = 99.50'
BF Bench, Toe wood
~200', 10-12' wide
$Start_{US}$: 6+25
$Elev_{top}$ = 97.7'
BF Bench, Brush
~200', 6-8' wide
$Elev_{top}$ = 99.5'
$Elev_{end}$ = 98.2'
"light brush" = 1 CY:7-10'
Pool Excavation
~175', 10-20' wide
$Elev_{TW}$ = 90.0'
Berm Breaches
Scalp top 1.0-1.5', save sod
Two+ buckets wide
Length: field fit (5-50')
Every ~50'
Pool Excavation
~150', 10-25' wide
$Elev_{TW}$ = 90.0'
BF Bench, Toe wood
~200', 10-12' wide
$Start_{US}$: 4+00
$Elev_{top}$ = 98.2'
"cap" with sod from Berm Breaches
BF Bench, Brush
~200', 6-8' wide
$Elev_{top}$ = 95.5'
"light brush" = 1 CY:7-10'


Main Channel Long Pro
Water Surface
Existing
Proposed
100
99
98
97
96
95
94
93
92
91
90
0
100
200
300
400
500
600
700
800
Station

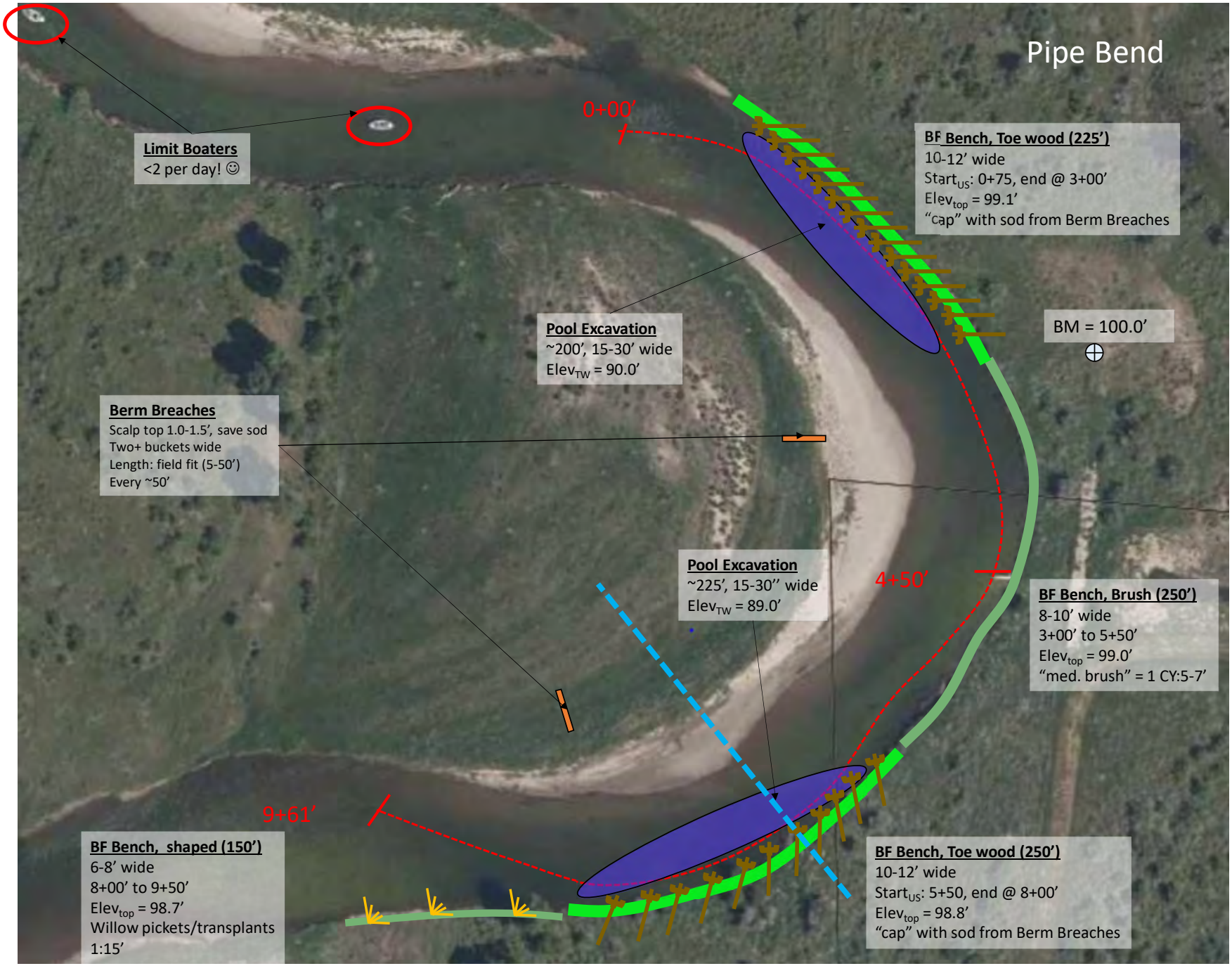

Side Channel Long Pro
Water Surface
Existing
Proposed
100
99
98
97
96
95
94
93
92
91
90
0
200
400
600
800
1000
1200
Station

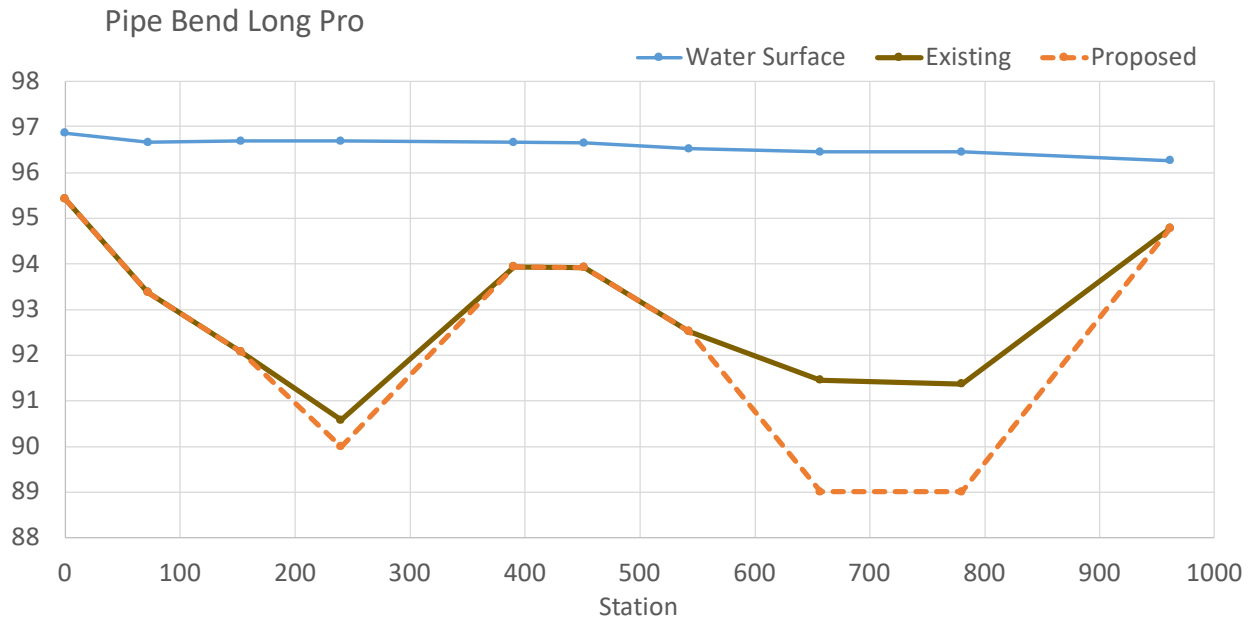

Main River - Pool
Bankfull
Existing
Proposed
100
98
96
94
92
90
88
0
20
40
60
80
100
120
140
160
180
200
Station

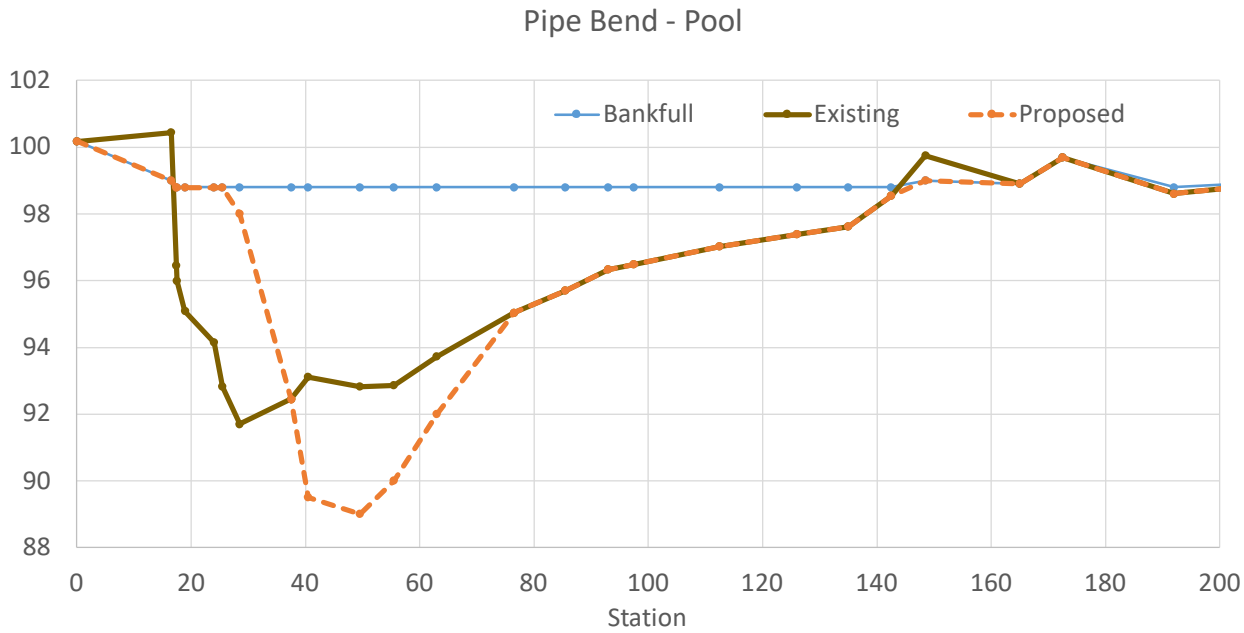

Side Channel Pool
Bankfull
Existing
Proposed
102
100
98
96
94
92
90
88
0
20
40
60
80
100
120
140
Station

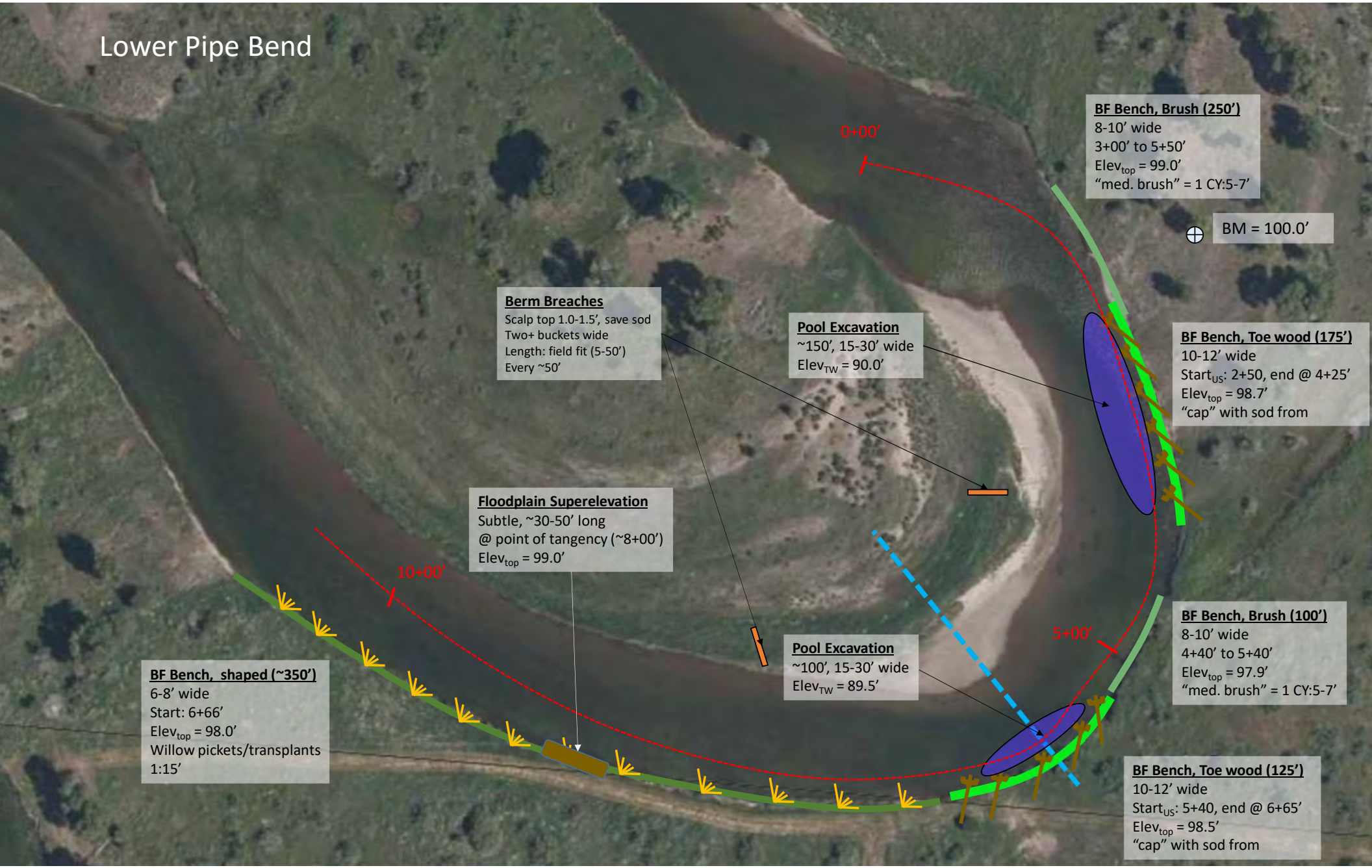
Work Area 11: “Pipe” Bends

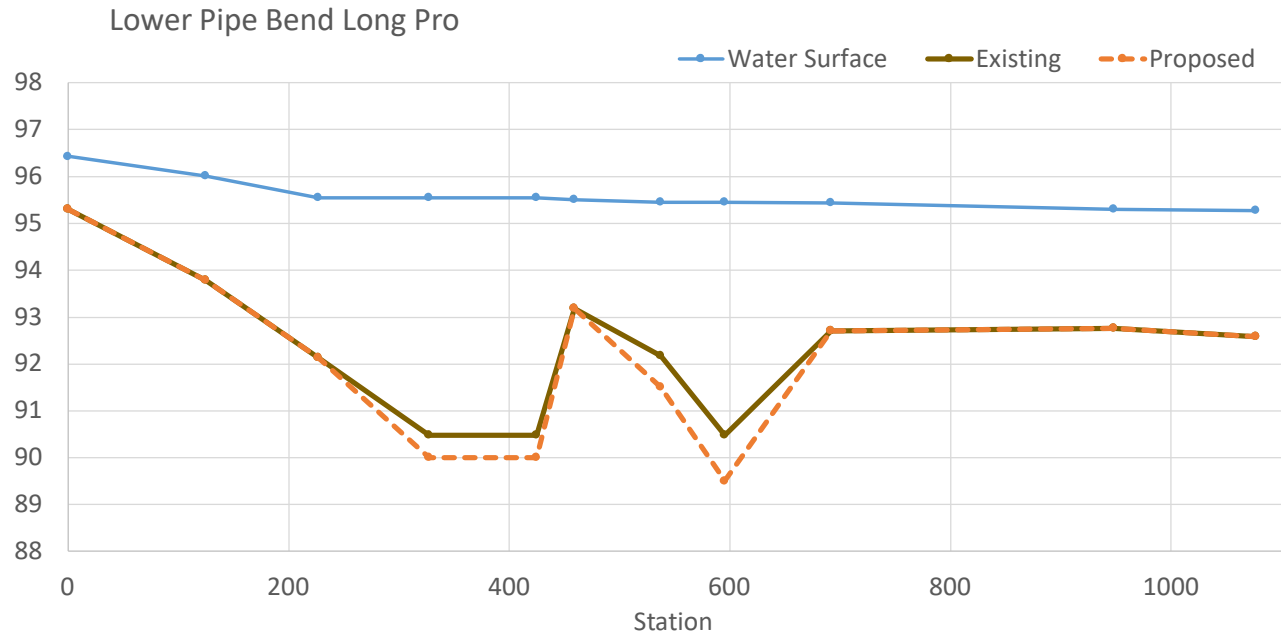


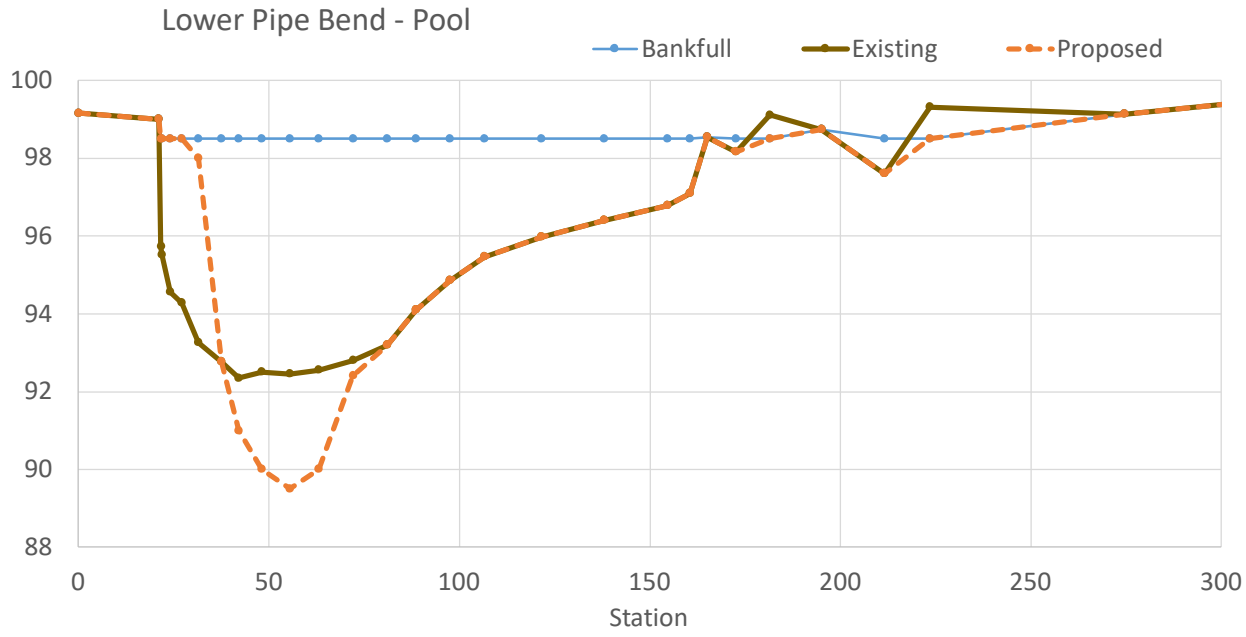

Pipe Bend
Limit Boaters
<2 per day! ☺
0+00'
BF Bench, Toe wood (225')
10-12' wide
Start$_{US}$: 0+75, end @ 3+00'
Elev$_{top}$ = 99.1'
"cap" with sod from Berm Breaches
Pool Excavation
~200', 15-30' wide
Elev$_{TW}$ = 90.0'
BM = 100.0'
Berm Breaches
Scalp top 1.0-1.5', save sod
Two+ buckets wide
Length: field fit (5-50')
Every ~50'
Pool Excavation
~225', 15-30'' wide
Elev$_{TW}$ = 89.0'
4+50'
BF Bench, Brush (250')
8-10' wide
3+00' to 5+50'
Elev$_{top}$ = 99.0'
"med. brush" = 1 CY:5-7'
9+61'
BF Bench, shaped (150')
6-8' wide
8+00' to 9+50'
Elev$_{top}$ = 98.7'
Willow pickets/transplants
1:15'
BF Bench, Toe wood (250')
10-12' wide
Start$_{US}$: 5+50, end @ 8+00'
Elev$_{top}$ = 98.8'
"cap" with sod from Berm Breaches


Pipe Bend Long Pro
Water Surface
Existing
Proposed
98
97
96
95
94
93
92
91
90
89
88
0
100
200
300
400
500
600
700
800
900
1000
Station


Pipe Bend - Pool
Bankfull
Existing
Proposed
102
100
98
96
94
92
90
88
0
20
40
60
80
100
120
140
160
180
200
Station


Lower Pipe Bend
0+00'
BF Bench, Brush (250')
8-10' wide
3+00' to 5+50'
Elev$_{top}$ = 99.0'
"med. brush" = 1 CY:5-7'
BM = 100.0'
Berm Breaches
Scalp top 1.0-1.5', save sod
Two+ buckets wide
Length: field fit (5-50')
Every ~50'
Pool Excavation
~150', 15-30' wide
Elev$_{TW}$ = 90.0'
BF Bench, Toe wood (175')
10-12' wide
Start$_{US}$: 2+50, end @ 4+25'
Elev$_{top}$ = 98.7'
"cap" with sod from
Floodplain Superelevation
Subtle, ~30-50' long
@ point of tangency (~8+00')
Elev$_{top}$ = 99.0'
10+00'
5+00'
Pool Excavation
~100', 15-30' wide
Elev$_{TW}$ = 89.5'
BF Bench, Brush (100')
8-10' wide
4+40' to 5+40'
Elev$_{top}$ = 97.9'
"med. brush" = 1 CY:5-7'
BF Bench, shaped (~350')
6-8' wide
Start: 6+66'
Elev$_{top}$ = 98.0'
Willow pickets/transplants
1:15'
BF Bench, Toe wood (125')
10-12' wide
Start$_{US}$: 5+40, end @ 6+65'
Elev$_{top}$ = 98.5'
"cap" with sod from


Lower Pipe Bend Long Pro
Water Surface
Existing
Proposed
98
97
96
95
94
93
92
91
90
89
88
0
200
400
600
800
1000
Station


Lower Pipe Bend - Pool
Bankfull
Existing
Proposed
100
98
96
94
92
90
88
0
50
100
150
200
250
300
Station

Construction details

Bankfull Bench, Toe Wood treatment

This treatment helps restore floodplain connectivity and function by re-creating a naturally-occurring feature. Woody structures help maintain short term stabilization for the bench while vigorous vegetation establishes; protruding root wads and other structure also provide cover for fish. Toe wood is generally used on relatively high stream banks located on outside meander bends.

Use material from pool excavation, bank resloping or imported fill to build out the bench; bench will be field fit but will likely extend about 15' out from existing bank line. Attain finished grade with materials from terrace resloping or other sources with topsoil; transplanted sod mats should be installed where available

Rootwads are placed atop footer logs (see details below). Footer logs should extend under approximately two root wads in a cross hatched fashion. Rootwads are placed at roughly 20° to bank line, and footers are roughly perpendicular to rootwad and at roughly similar frequency. Brush and other materials shall be placed between rootwads to increase roughness. Rootwad layer of the vertical bank shall be submerged during installation. Sequential "lifts" of approximately 1.0' of slash, fill, and willow transplants are used to bring bank to finished elevation using an approximately 2:1 slope (i.e., the bank is not completely vertical)

Transplanted willow cuttings/transplants ("willow pickets") should bisect the bankfull bench from WS to the toe slope to provide a contiguous line of roughness across the bench, as frequently as possible (target: every 35'). And are to be installed during construction if constructed in Spring. If constructed in Summer, willow pickets shall be installed after willow dormancy.

Robust toe wood = rootwad/5-7'; "lighter" toe wood = rootwad/6-9'

Bankfull Bench, Brush Bank treatment

This treatment is used to create a bankfull bench in areas where near bank stress is either slightly lower, or a shorter bank is necessary, typically along channel margins in riffles and other relatively straight bank lines.

Use material from excavating ditch entrance and pool excavation to build out the bench; bench will be field fit but will likely extend up to 15' out from existing bank line

Transplant willow clumps or wetland sod mats to bring elevation to finished grade.

Willow "pickets" and cuttings should be trenched in and bisect the bankfull bench from WS to the toe slope every 50-75'.

Brush bank treatments will be used to define the channel margin using woody slash, small root wads, and transplanted vegetation. Trenched in willow cuttings should overhang bank line above BF elevation

Shaped Bankfull Bench with trenched willow pickets

Intended to stabilize bank along channel margin and provide additional floodplain roughness and function. This is a low cost option for rebuilding the floodplain and channel margin along banks with relatively low risk of erosion.

Fill material will be generated from the river channel, resloping vertical banks, or imported from depressional wetlands to build bench.

Transplanted sod, willow clumps and/or willow cuttings and other woody debris shall be incorporated into the surface to increase shear stress along its margins. Trenched willow pickets and/or transplanted live willows will be placed perpendicular to the river's flow along the bench to interrupt flood flows across the bench and facilitate establishment of woody vegetation every 20-30' longitudinally along the bench.

Construction details

Depressional Wetlands

Excavate fill materials for BF Benches and/or Channel Narrowing construction. Excavation should help create a small depositional wetlands within existing side channels or other floodplain features. Finished elevation of depressions should not exceed 2’ deeper than existing ground surface, however, the presence of quality alluvial material will dictate the actual depth of excavation. In some instances, depressional wetlands will be below the yearlong water table and maintain standing water. If standing water wetlands are desired, excavation should extend 2-3’ below the ground water level. If feasible, a 3-10’ wide flow path that leads back to the main river channel should be created. These channels help create backwater and early life history habitat for fishes and amphibians.

Peel sod mats and vegetation 12’ back from existing surfaces and set aside. This will be replaced following excavation to help vegetation re-establish.

Pool Enhancement

A deepened pool will further reduce stream energies to provide short term bank stability, and toe wood helps maintained deepened pool. Toe wood and enhanced provide improved holding cover for adult trout.

A 8-20’ wide bankfull bench will be built on top of the toe wood and tie in with the bankfull bench upstream and downstream with brush bank treatments as needed to provide a contiguous floodplain surface on river left.

The pool shall be deepened to the thalweg elevation specified in plans (local datum) and widened laterally to specified dimensions to maintain or increase cross sectional area. Approximate cut dimensions are illustrated in the Typicals, however approximately an excavator’s reach from the bankfull bench into the channel, and an excavators reach from the point bar side of the pool is roughly appropriate to widen the pool “trough” to specified dimensions.

Floodplain grading subtleties

At the approximate riffle crest downstream of the pool, a subtle rise in grading of the floodplain (10:1 slope) serves to roll the flood flows back to to the opposite bank at the downstream end of the pool. The feature also slows velocity along the downstream end of the BF Bench to deposit fine sediments and reduce the need for heavy structure to hold the bench.

Elevation at the crest shall be to specified elevations (local elevation) and it should be topped with transplanted sod, willows, or willow cuttings.

Point Bar Berm Breaches

Reed Canary Grass is common throughout the river corridors of the Upper Green River Valley. While this non-native plant provides excellent bank stability, its thick rhizomatous roots can create artificial berms along the bankfull elevation (visible in some of the surveyed typicals). These berms reduce floodplain function and increase bank stress on outside bends. This technique will help increase floodplain connections while also generating valuable wetland sod.

Along the point bar, locate the vegetated berms and peel sod mats through the length of the berm perpendicular to the river flow. Breaches should be at least 2 buckets (6-10’) and excavate deep enough to remove the entire root mass. Spacing between breaches should be 25-50’. Attempts shall be made to keep sod mats intact, and sod mats shall be installed on the newly constructed bankfull benches on the outside bend.

Alcove Development

At the approximate riffle crest downstream of the pool, a subtle rise in grading of the floodplain (10:1 slope) shall be constructed to roll the flood flows back to river right at the downstream end of the pool. The feature also slows velocity along the downstream end of the BF Bench to deposit fine sediments and reduce the need for heavy structure to hold the bench

Elevation at the crest shall be 100.00’ (local elevation) and it should be topped with transplanted sod, willows, or willow cuttings.

Construction details

Rock Vanes

Intended to alleviate near bank stress and promote bank stability by moving the thalweg away from the bank. Secondarily, the structure provides holding cover for fishes by creating scour pockets at the tip of the structure and with the boulders that comprise the vane.

Constructed of 2-4' diameter boulders, and boulders should be keyed at least 8-12" into stream bed. Excavated materials from sequentially embedded boulders should be place upstream of the previous boulder. Use excavated material to chink" between vane boulders. Build in the "wet"

If specified, "hook" will consist of 7-10 boulders spaced ~0.5-1.0' apart

In vane is used to underpin an existing hydraulic control point, completely submerge boulders within streambed material to hold grade and minimize scour associated with water spilling over boulders.

Resloping terrace slopes

Resloping of vertical stream banks will help reduce bank shear and allow for wetland and upland plant establishment. Additional material from resloping cuts can be used as fill where appropriate.

Sod mats shall be saved for placement along bankfull benches as feasible

Woody Jam

Structure will primarily be used to provide overhead cover for fish but may also dissipate stream energy along the bank and rack additional floating material. It will dissipate energy to allow deposition behind the log jam and create seed establishment areas for cottonwood and willow plants.

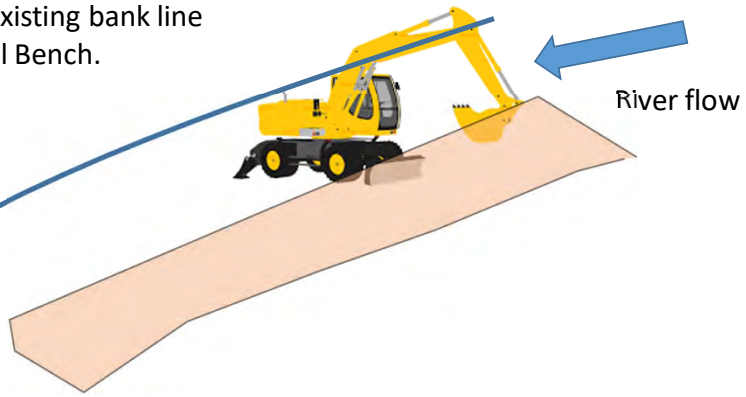
Artificial Log Jam should extend about 40-50' from the existing bank line into the channel, and include 3 to 7 fully embedded whole trees with root wads pinning down other whole trees. Long tree boles and/or root wads will be buried >1/2 total length into the streambank and backfilled over to secure the material near the existing water level. 3-7 trees will be crosshatched together to pin material into a single structure. A "stabbing" technique might be used to minimize bank disturbance. Trees might also be bolted together to enhance stability.

Whole willow and cottonwood transplants can be placed within gaps in this matrix and at higher flows the matrix should rack floating debris to further enhance the structure.

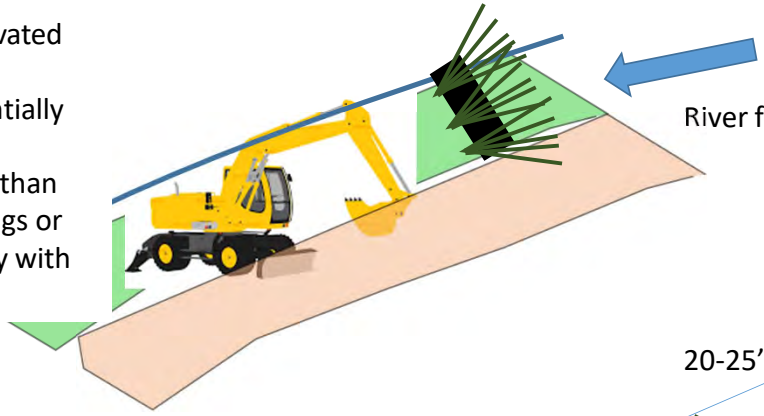
Bankfull Bench with trenched willow pickets

“Shaped Bench”

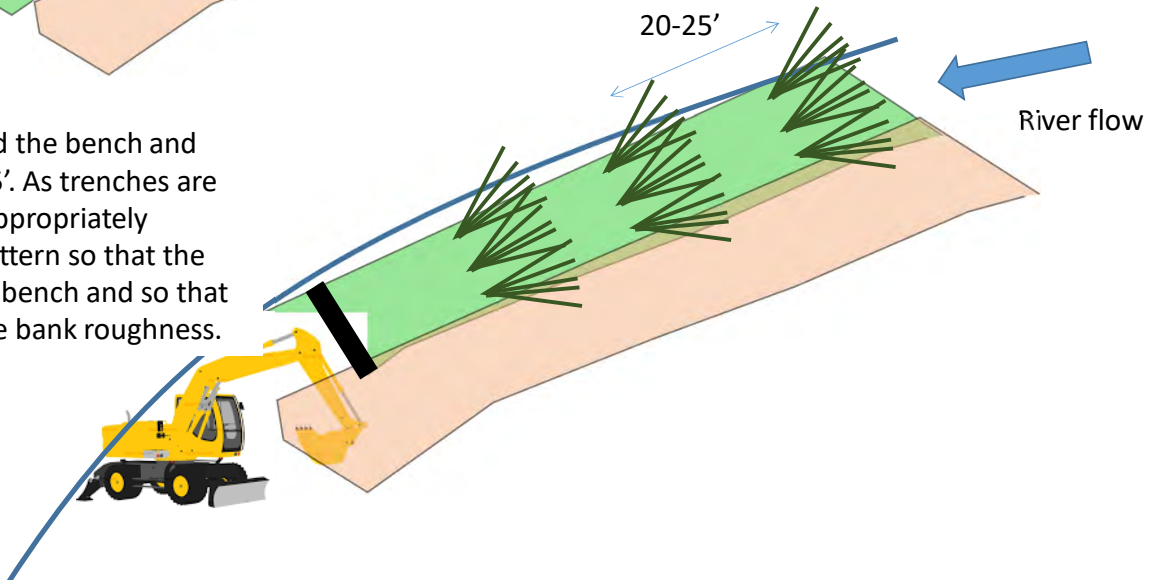
Excavate material 15-40’ away from the existing bank line to generate material to construct Bankfull Bench.



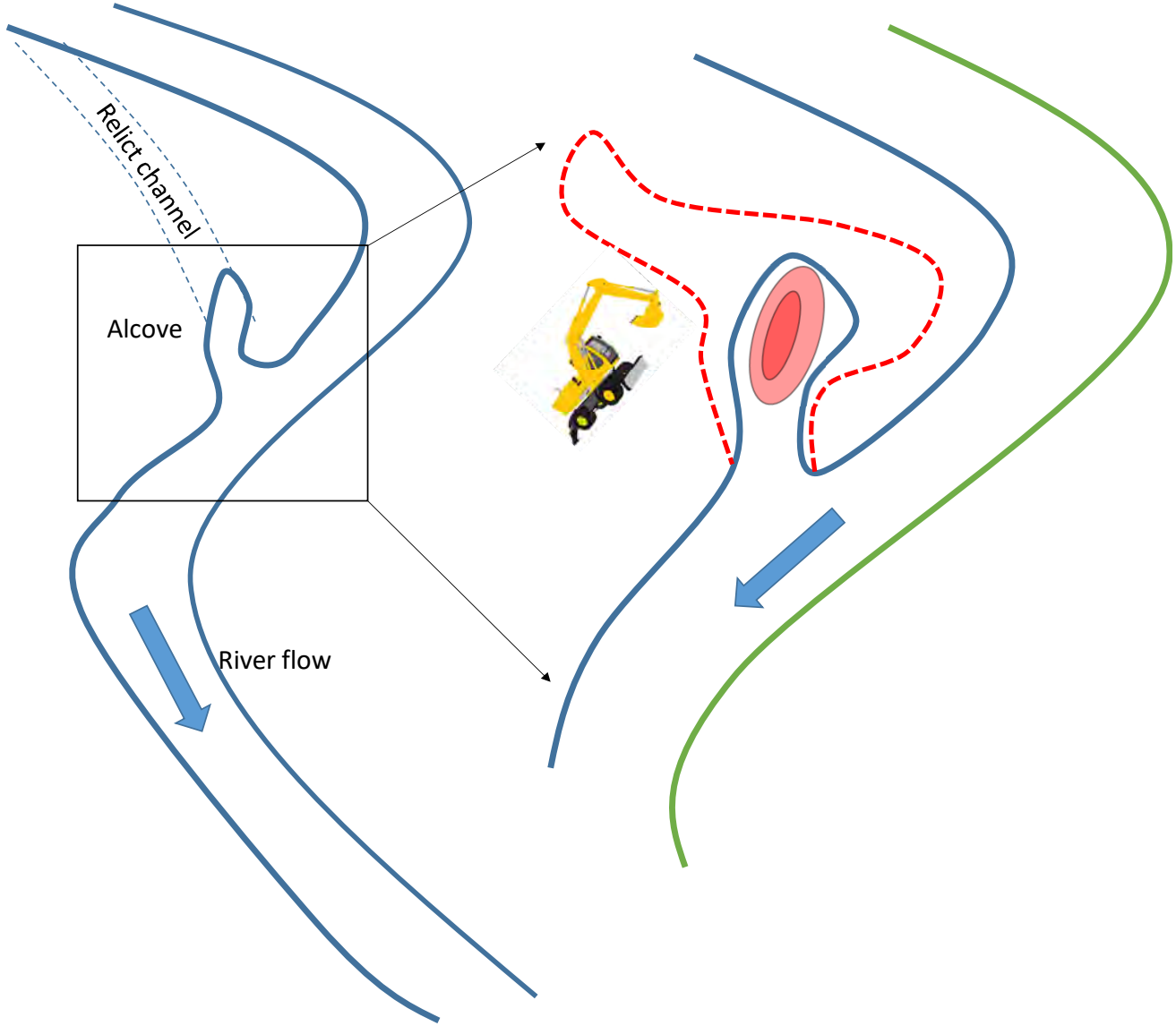
Construct Bankfull Bench with excavated material (10-20’ wide) and move downstream as the bench is sequentially built. Every 20-25’ along the bench, excavate a 1-3’ wide trench deeper than the water table. Insert willow cuttings or live transplants into trench and bury with 1-4’ of stem exposed.



Move downstream continuing to build the bench and placing a willowed trench every 20-25’. As trenches are completed, stems should be placed appropriately vertically oriented and in a fan-like pattern so that the willow interrupts flow both along the bench and so that stems jut out into the river to increase bank roughness.



Alcove, depressional wetland enhancement

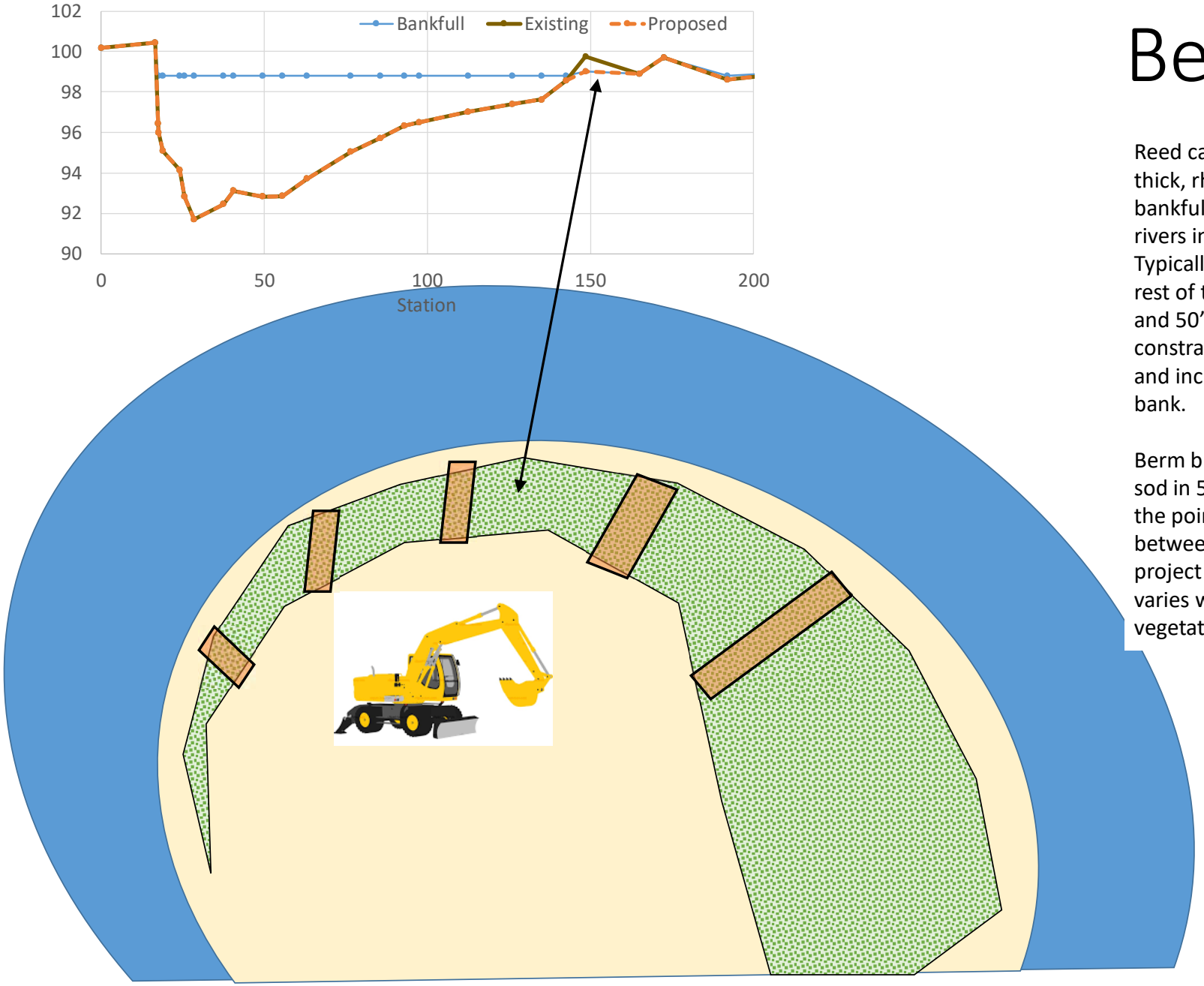


Alcoves are natural vestigial features of river valleys; typically they are former flow paths and oxbows and are inundated during higher flow events.

Alcove or depressional wetland development involves deepening or expanding existing alcoves to either increase their footprint or depth. Typically increasing the size of an alcove is done by excavating from non-wetland areas adjacent to the alcove and perpendicular to the fall of the valley. Excavated materials are hauled to other locations within the project that require fill material.

Specifics of alcove development will be directed by the project manager.

Berm Breach

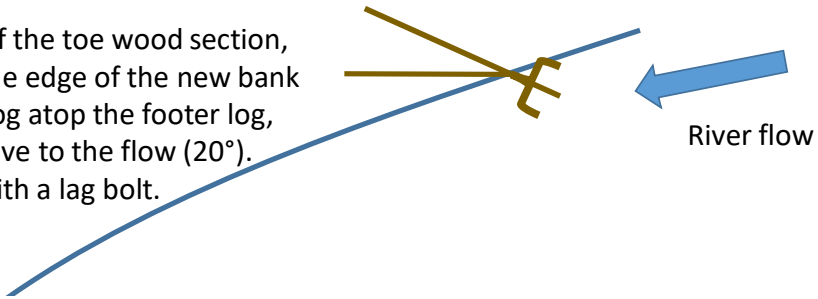


Reed canary grass can sometimes grow thick, rhizomatous mats at or near the bankfull elevation of point bars in larger rivers in the Upper Green River Valley. Typically, these are 0.5-1.0 higher than the rest of the floodplain and vary between 10’ and 50’ wide in planform. This feature can constrain floodplain access in higher flows and increase bank stress on the opposite bank.

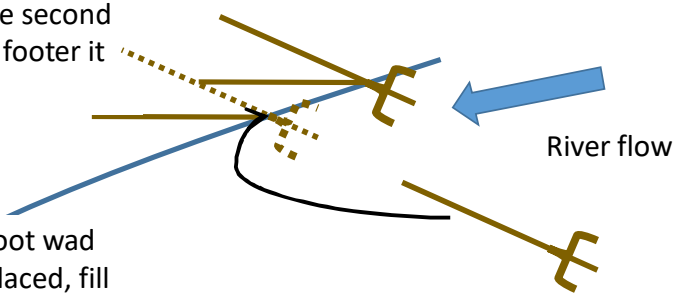
Berm breaches excavate (and salvage) this sod in 5-10’ wide strips periodically across the point bar. Frequency of breaches varies between every 25-50’, as directed by the project manager. Depth of excavation varies with the rooting depth of this vegetation but is typically 1-3.0’.

Toe-wood, BF Bench construction

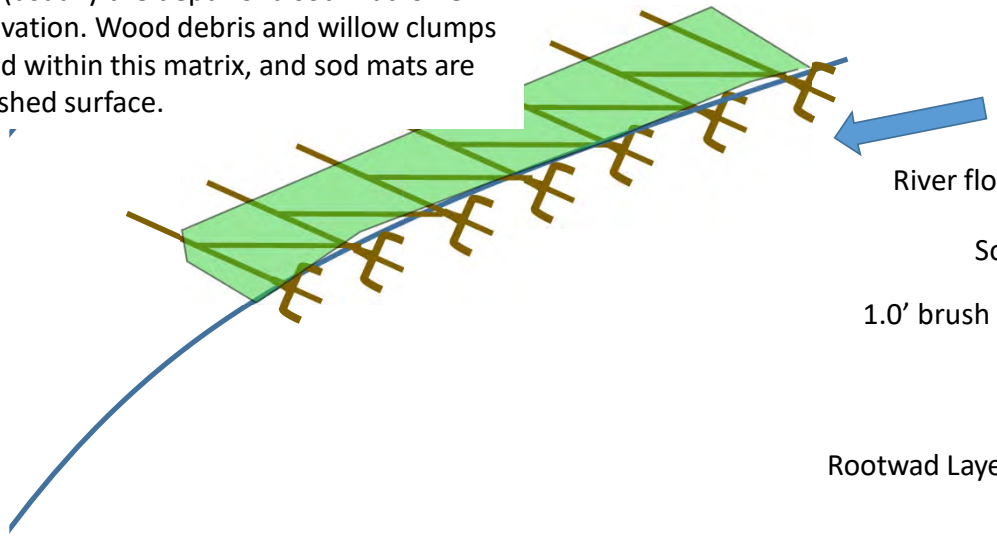
Starting on the upstream end of the toe wood section, place the 12-15’ footer log at the edge of the new bank surface. Next set the rootwad log atop the footer log, ensuring the proper angle relative to the flow (20°). Secure the two logs together with a lag bolt.



Next, place the next footer log 6-9’ downstream of the first root wad tree. Place the next root wad tree such that the root wad end in on top of the footer it rests on, but below the previous footer log. Lag screw the second root wad log to the first footer, and then to the footer it is on top of.



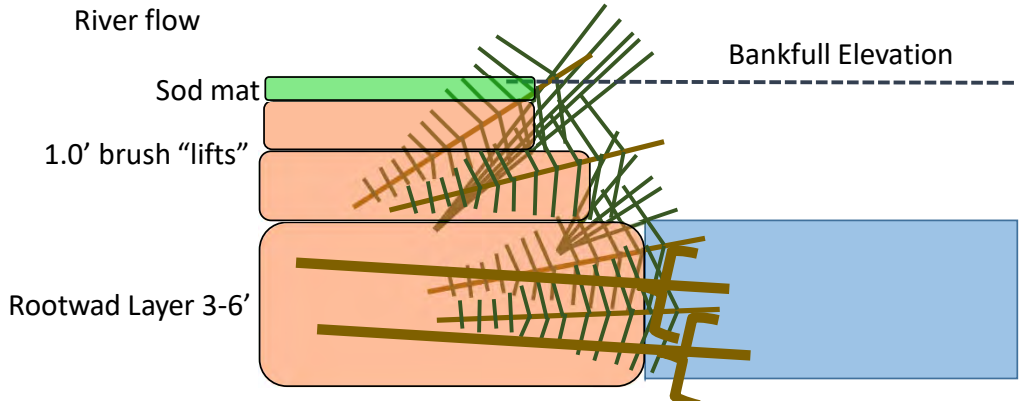
Continue sequentially placing footer logs and root wad logs down the bank. After 2 rootwad logs are placed, fill can be put over the top of the logs and graded to the proper elevation (usually the depth of a sod mat lower than the final elevation. Wood debris and willow clumps can also be buried within this matrix, and sod mats are laid atop this finished surface.

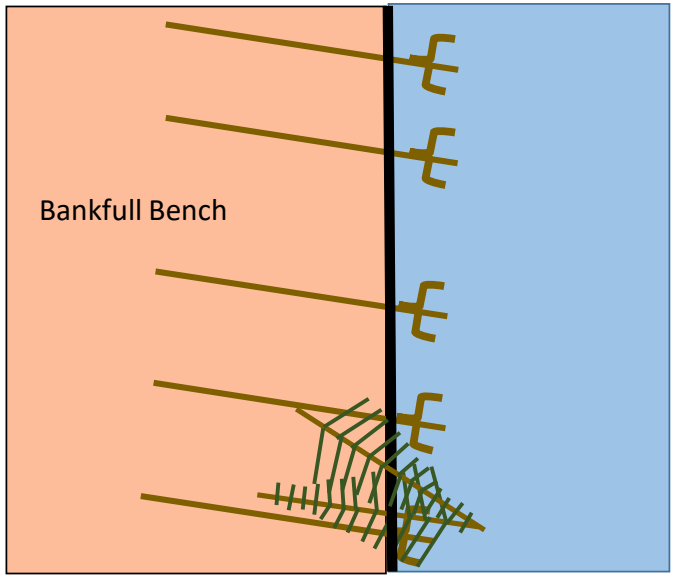


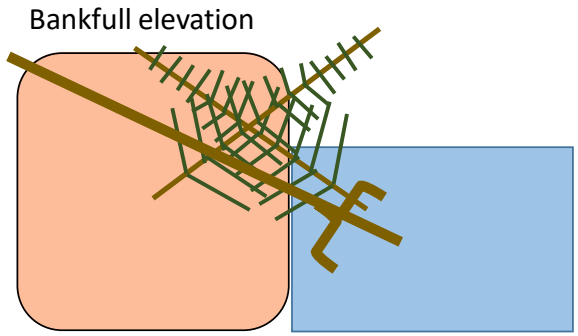
Cross Section

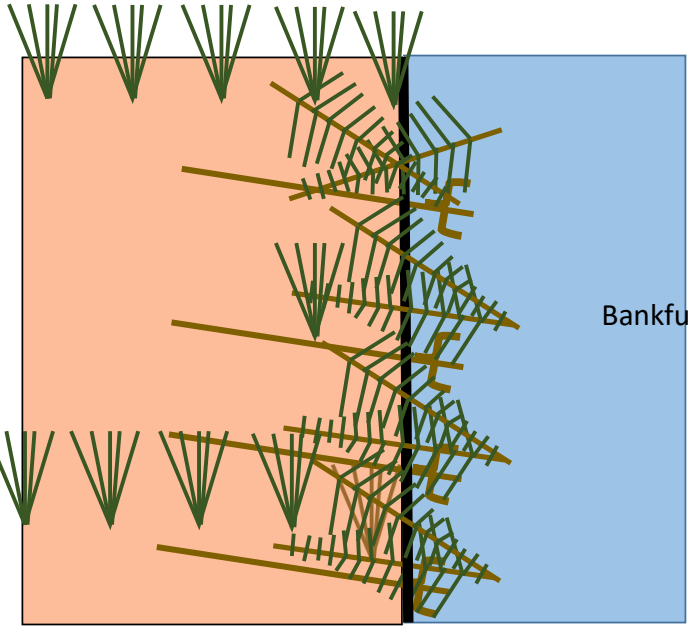
The toe wood layer of the vertical bank makes up ~3-6’ of elevation and should be completely submerged during construction. After the toe wood, root wads are placed, sequential 1.0’ tall lifts of brush matrix are placed; each lift is finished approximately 1 foot back from the water surface so that the bank is vertical at the toe wood, but sloped from the water surface to the bankfull elevation at approximately 1:1 to 1:2 ratio.

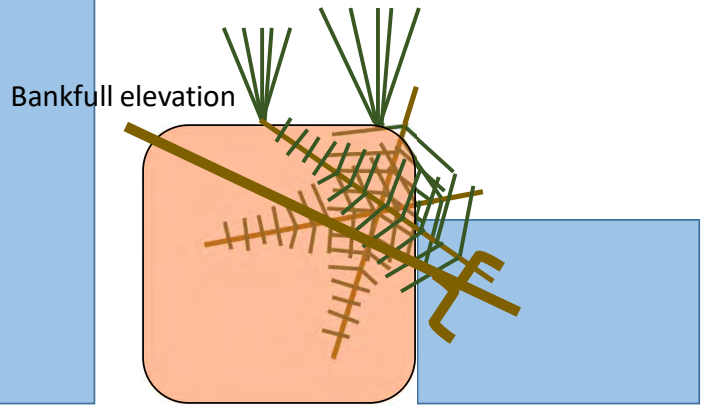
Benches are rough graded to ~0.5’ lower than finished grade with alluvium and other material mixed with brush and transplants. Finished grade is achieved by placing sod mats or topsoil on the bench to the final elevation. Tolerance for the bankfull bench elevation is +/- 0.5’, and the finished elevation should be “lumpy” to provide floodplain roughness across the surface.











Brush Bank

The transition between the active channel and the bankfull bench is stabilized with sequential layers of brush, rootwads, and woody slash/debris to help create high boundary roughness and dissipate stream energy

First anchor the rootwad logs by burying a whole or partial tree downstream of the bole so that the rootwad faces upstream (similar to toe wood construction).

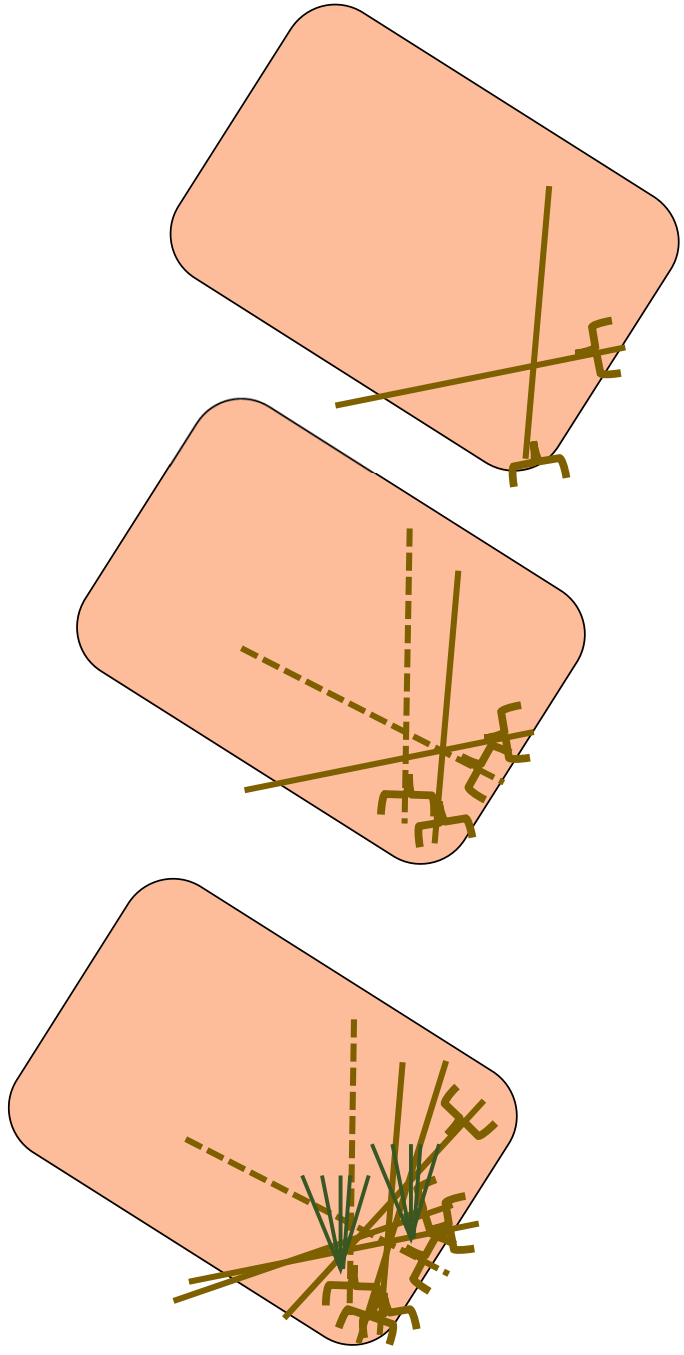
Next bury Xmas trees or other slash close to the rootwad with the goal of minimizing interstitial spaces between woody material. Sequential trees can be placed at 180° from each other such that the material is “cross-hatched”. Ideally, there would be one Xmas tree every 2-3’ and a rootwad every 8-15 feet.

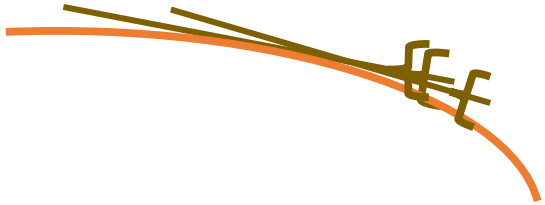
In “gaps” within the matrix, transplant woody vegetation clumps to further rack debris as high flows and enhance stability by enhancing boundary roughness.

Every 40-60 feet along the bankfull bench, plant a row of 7-12 transplanted willow/cottonwood clumps. This will help dissipate flood energy across the bankfull bench and deposit sediment for vegetation establishment.

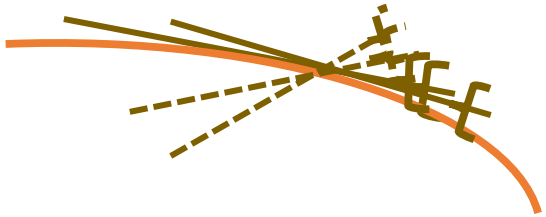
Lastly, grade the bankfull bench to the specified elevation and scatter coarse material along the bench. Reseed following

Artificial Log Jam

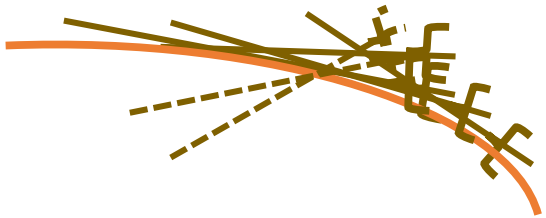




Start by placing two whole tree on the surface of the artificial point bar. Root wads should be placed in opposite directions. These will serve to rack other aquatic debris and large wood

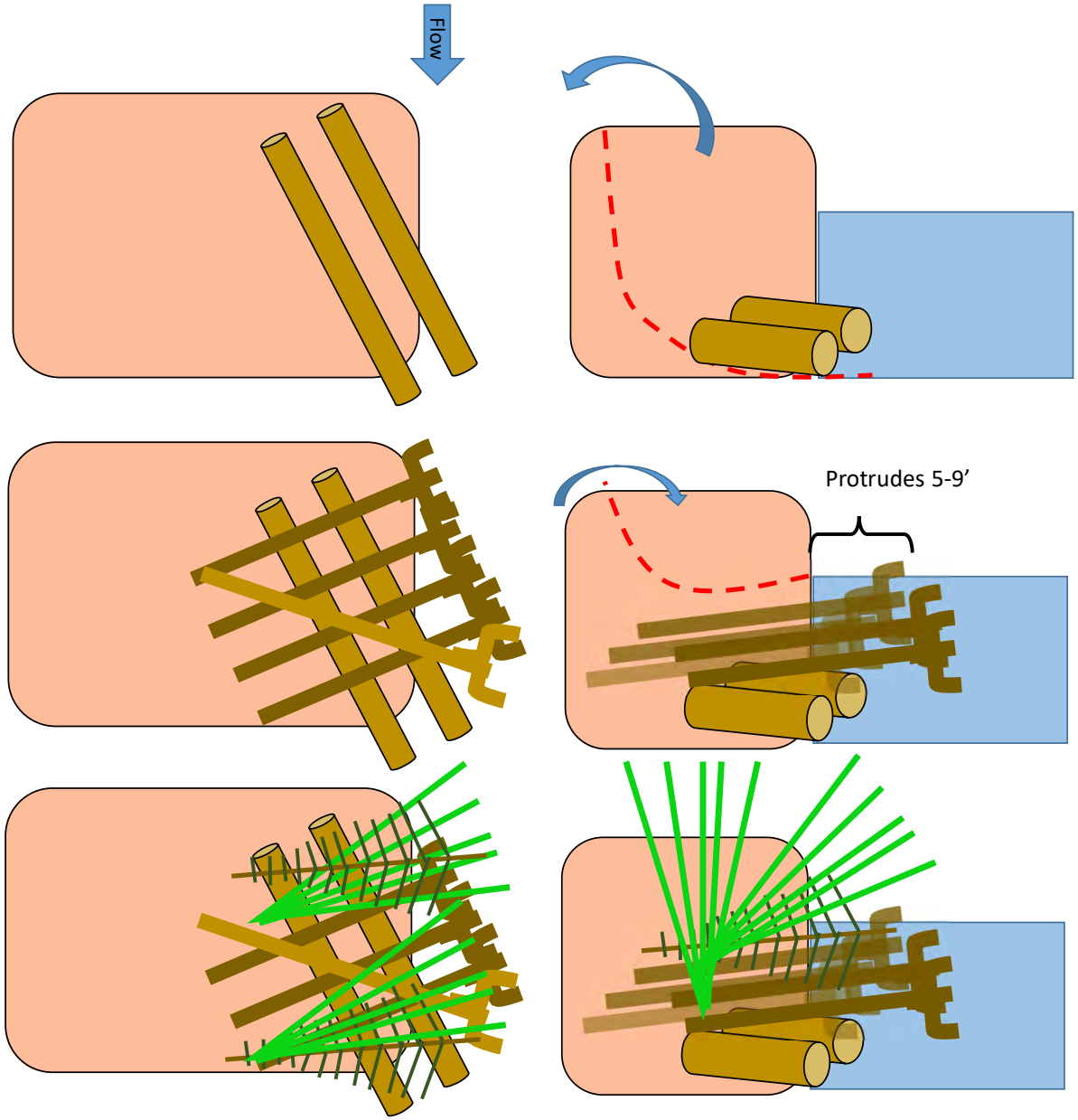


Next anchor the crossed logs by burying whole trees downstream of the bole so that the buried log pins the bole to the ground near the rootwad. If necessary, the logs can be lag bolted together to add stability



Lastly, weave logs between the existing logs where possible so that it forms a reasonably tight matrix of crossed logs. In “gaps” within the matrix, transplant wood vegetation clumps to further rack debris as high flows and enhance stability to the jam.

Bank-Attached Woody Jam



Start by excavating the streambank to subgrade elevation, not less than 4’ below BF Bench elevation. Place two footer logs in the streambank pointing downstream, placing two whole trees at the base the excavation. Both footers shall be angled to be backfilled at least 5’ in the bank and the upstream footer shall protrude 2-4’ on the downstream end. Footers are placed parallel to one another and 1-3’ apart.

Next, sequentially place 4-7 trees with rootwads over the footers with each successive root wad protruding 1-2’ farther into channel. Root fans should nearly overlap one another to create a continuous “fan” along the bank line. The longest tree should be placed over the others to further ballast the structure. Backfill as needed to hold structure in place

Lastly, slash and live willow transplants into and onto the structure to increase bank material protrusion and mixed with bank-excavated and alluvial backfill in 6-12” lifts, compacting and washing between successive lifts. Backfill until attaining finished grade elevation, or as specified by project manager. Sod or other topsoil-containing material may be used to attain top 6-12” to finished grade.

Material Specifications - Wood

Trees and rootwads – Toe Wood

1. Trees used for rootwads shall be between 15’ and 25’ in length (longer trees for wider BF Benches) and 8” to 15” DBH.
2. Root masses on root wad logs shall “crown” at least 24” or greater than 250% of the diameter of the log (e.g., a 10” diameter log shall have a root mass that is at least 25” wide); logs that fail to meet this specification shall be used as footer logs with the rootwad facing the in-stream side of the channel.
3. Footer logs shall be between 15’ and 25’ in length, and of roughly the same diameter and length as the root wad that they are supporting
4. Preference is for green cottonwood and other robustly-rooted species. However, green or dead pine, spruce or fir trees can be used if available, but spacing of rootwads must be reduced.
5. Longitudinal area coverage of root masses along a bank shall exceed 60% for “robust” toe wood, and exceed 40% for “less robust” or “light” toe wood.
6. Boles of all footer and rootwad logs shall be installed below the low water line to promote long term preservation of the wood; individual roots may stick above the low water line.
7. Each footer log shall support at least 2 rootwads; the stream-side end of the footer shall extend into the channel and the rootwad shall be placed atop the footer within 2’ of the end
8. Notching or lag-bolting the rootwad to the footer may be necessary to overcome buoyancy of dried logs, or in situations were more robust toe wood is desired.

Woody Slash – Toe wood

1. Woody slash for constructing bankfull benches shall consist of willow clumps, branches, small trees, large sagebrush and other woody material that is at least 5’ long and >1” in diameter. Willow clumps and other “branchy” materials are preferable.
2. Interstitial spaces between root wads shall be filled with whole willow clumps or larger woody slash that is 5-12’ long and has a diameter that exceeds 3”. Targeted applications roughly 1:3-5 woody slash to alluvium backfill. Woody slash shall be placed with the long axis within +/- 15° of perpendicular.
3. Atop the rootwads, 6-12” “lifts” of woody slash and alluvium shall be constructed to define bank elevation. Targeted applications are 1:4-6 woody slash to native alluvium backfill.
4. Coniferous trees that are 4’-15’ tall (e.g., Christmas trees) can be used, but note that foliar coverage decreases appreciably when needles are removed. Consider installing needleless conifers, or doubling expected density to achieve appropriate coverage.

Woody Slash – Brush Banks

1. Woody slash for brush bank applications shall meet the same sizing specifications as for toe wood.
2. Targeted installation is 1:4-6 woody slash to native alluvium backfill, in 6-12” lifts. Root wad spacing for brush banks shall be approximately 1 rootwad every 10-15’ of bank; rootwads shall jut out into the channel more than the rest of the matrix with a targeted longitudinal area coverage of about 20%.
3. Brush banks may also be installed longitudinally if constructed bank height does not exceed 3’. In this application, root wads or willow clumps would be installed jutting into the channel and 1-3’ of bank would be constructed moving downstream before installing the next woody slash.

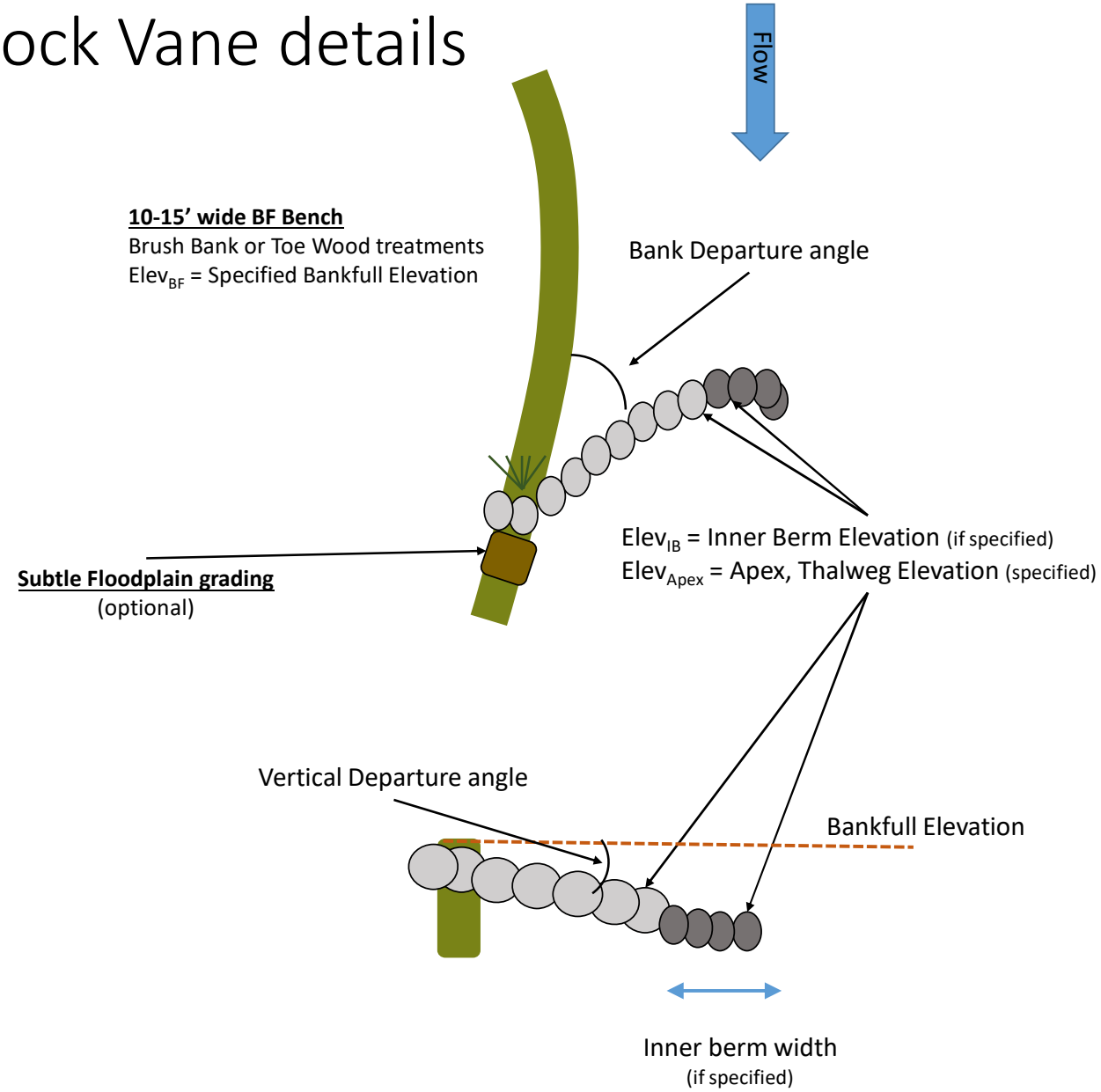
Willow cuttings

1. Cuttings from live bunch willows shall be used to fill trenches, as supplemental woody slash, and to create “pickets”; if rhizomatous willow are present at a site, they may also be used, but are much less preferable.
2. Cuttings shall consist of freshly cut (within 1 week), dormant live willows, but up to 20% of the trench may be filled with decadent stems. Cuttings do not need to be limbed as branches and other material increases coverage and increases boundary roughness.

For Willow “Pickets”

1. At least 75% of the stems shall be 4-7’ in length, and upon burial the pickets shall be 1-3’ in height above bench. Longer and/or shorter stems shall not exceed 25% of the total buried stems. If longer stems are installed, consider clipping stems and re-installing cuttings into the next trench

Rock Vane details



Notes and Specifications

1. Boulders used for vane construction shall be >2.0' in diameter (target: >3.0' diameter); smaller boulders can be used as splashpads behind main vane arms, as chinking between boulders, or as alluvial fill in other parts of the project.
2. Boulders shall be placed in the streambed such that >50% of the vertical surface of the boulder is beneath the existing alluvium; excavated material for placing boulder can be used as backfill upstream of the vane arm.
3. Any gaps or voids > 2" between vane boulders shall be hand chinked with cobble and gravel material on the upstream side.
4. Stream bed "drop" between upstream and downstream of vane boulders shall not exceed 0.5' (target: 0.25').
5. Native backfill over the vane arms has no specific gradation but must consist of onsite cobble and gravel alluvium. No more than 15% of backfill material may be <0.5" diameter; finer materials may be worked into the bank matrix.
6. Elevational tolerance for boulders shall be within 0.3' of specified grading. For boulders with uneven surfaces (most or all), the flattest surface shall be placed facing up and the elevation for grading should be taken from the median elevation of the boulder's surface.
7. Backfill upstream and over the vane arms shall be compacted with tracked equipment to ensure no future settling.
8. Place boulders within the bankfull bench perpendicular to the river flow.