



Michelle McGree
Montana Fish, Wildlife & Parks
Habitat Protection Bureau
PO Box 200701
Helena, MT 59620-0701

May 15, 2022

Dear Ms. McGree:

The Bighorn River Alliance (BHRA) is pleased to apply for a Future Fisheries Improvement Program Grant. We are requesting \$60,000 to provide about 35% of the funding required to reactivate 12 presently disconnected or low functioning side channels in the Bighorn River. The 12 sites total 6.06 miles of channel. The name of the project is the **Bighorn River Side Channel Reactivation Project**.

Yellowtail Dam was constructed in 1966 and as early as the mid 1980s Montana Fish, Wildlife & Parks (FWP) fisheries biologists became concerned that the dam was resulting in the loss of side channel habitat. This resulted in loss of critical spawning and juvenile rearing habitat while simultaneously aggravating erosion and incision issues in the main stem. The loss of connection was mostly due to sediment deposition and vegetative encroachment at the channel heads. A first attempt to proactively address this issue occurred in 2012 when the BHRA, FWP, the Great Plains Fish Habitat Partnership (GPFHP) and the US Bureau of Reclamation (USBR) among others collaborated to reconnect Cline's Channel. That proved successful and provided the precedent for thinking about a more comprehensive project.

In 2020, BHRA contracted with Karin Boyd of Applied Geomorphology to assess side channel restoration potential on the Bighorn. Her report is **Attachment C** to this application. She identified a total of 48 disconnected or low functioning side channels from the Afterbay Dam to the Yellowstone confluence. These were prioritized on benefit/cost criteria and ultimately two were selected as demonstration projects. Mike Sanctuary of Confluence Consulting did the engineering design and permitting and managed the successful reactivation construction in the fall of 2021. A summary of the location and plan sheets with before and after photography are in **Attachment D**.

The success of the 2021 projects led us to convene the project team and identify components of a larger project that is addressed in this application. The location of the 12 sites together with photography of their current condition, access and ownership maps, excavation plans and permission letters are in **Attachment A**.

The project has four components:

- I. Survey/Design/Permitting:** Currently underway with completion 12/31/2022 at cost of approximately \$45,000.
- II. Construction:** Scheduled for fall 2023 and financing is the object of this application. Total cost of this component is \$125,000. Budget spread sheet is in **Attachment B**.
- III. Monitoring:** Both on-the-ground and aerial photographic monitoring will occur at each site to assess connectivity as river flows fluctuate in the future.
- IV. Outreach and Education:** The BHRA will work actively with its agency partners to communicate project objectives, status and results with stakeholders and the public at large.



The Bighorn River Alliance appreciates the opportunity to submit this grant request. We are happy to answer questions or provide additional information if requested.

Sincerely,

A handwritten signature in blue ink that reads "Jim A. Chalmers, PhD".

Jim Chalmers
Bighorn River Alliance
Research Chair

A handwritten signature in black ink that reads "Anne Marie Emery".

Anne Marie Emery
Bighorn River Alliance
Executive Director

**FUTURE FISHERIES IMPROVEMENT PROGRAM GRANT APPLICATION***All sections must be addressed, or the application will be considered invalid***I. APPLICANT INFORMATION**A. Applicant Name: Bighorn River Alliance, Inc.Mailing Address: 5000 Southgate DriveCity: Billings State: MT Zip: 59101Telephone: (406) 534-2915 E-mail: Emery@bighornriveralliance.orgB. Contact Person (if different than applicant): James ChalmersAddress: 5000 Southgate DriveCity: Billings State: MT Zip: 59101Telephone: (406) 861-1642 E-mail: jameschalmers@vcn.comC. Landowner and/or Lessee Name (if different than applicant): Combination of State of Montana, Crow Tribal Trust and Private

Mailing Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ E-mail: _____

II. PROJECT INFORMATIONA. Project Name: Bighorn River Side Channel Reactivation ProjectRiver, stream, or lake: Bighorn RiverLocation: Township: T65 Range: R30E Section: 16Latitude: 45.3164 Longitude: -107.9210 *Within project (decimal degrees)*County: Big Horn

B. Purpose of Project:

The purposes of the project are to:

- Reconnect 12 side channels so that they function at flows as low as 2,000 cubic feet per second (cfs) which is the FWP preferred minimum fisheries flow. This will restore and improve ecological function for a total of 6.06 miles of channels benefiting non-native and native aquatic species alike.
- Improve habitat complexity in four of the restored side channels that exhibit over-simplified

bedform features.

- Increase angling opportunities on one of the most heavily used angling resources in Montana with great benefit to the angling community and the local economy of Big Horn County and Southeast Montana.

C. Brief Project Description (attach additional information to end of application):

The Project has four components.

1. Survey/Design/Permitting (currently underway and scheduled to be completed in 2022)

In early 2022, BHRA contracted with Confluence Consulting to conduct topographic surveys, prepare grading plans, identify areas of poor habitat complexity, and acquire regulatory permits. The survey tasks were completed in March 2022 and the grading plans and habitat restoration plans are in **Attachment A**. Acquisition of regulatory permits will take place in the second half of 2022. This work is all funded by BHRA and will be completed by the end of 2022 at an estimated cost of \$45,000.

2. Construction (to occur in 2023 and the subject of this application)

The target construction window for the reconnection of the 12 channels is fall 2023. It is anticipated that the work would take approximately five weeks. Mobilization, access in, construction and access out are assumed to average two days per site based on our experience with the Rattlesnake and Juniper projects (**Attachment D**). The fall window is being targeted because it is most likely to have the relatively low and stable flows necessary for most efficient construction. Contractors experienced in side channel restoration and habitat improvement designs will be retained. Full time construction oversight will be provided by the design engineer to ensure the work is constructed appropriately and in compliance with all regulatory permits. Work will involve excavating and placing gravel as needed to reconnect side channels with the main stem river while improving aquatic habitat complexity. The Bighorn River Alliance will coordinate access with landowners, provide river shuttles / ferries for contractors, host project tours, and document the project with ground and drone-based photos.

Based on experience, construction costs are expected to average \$10,400 per site for a total of \$125,000. The major cost components are excavation contractor and equipment 44%, equipment mobilization 13% (equipment would have to be moved every two days) and full time construction oversight 30%.

3. Monitoring

Cross sections spanning the head of each side channel will be monitored by installing rebar pins on both sides of the channel. Cross sections will be periodically re-surveyed to document aggradation or degradation of the channel bed at the entrance of each side channel. In addition, photo documentation of each side channel during target discharges (2,000 cfs) will document the project's ability to sustain side channel connectivity over time.

4. Outreach and Education (as appropriate)

The BHRA will work with agency partners to coordinate media and public outreach as well as perform the following actions:

- Create and place signage at each side channel entrance to identify location as a "restoration site" and to acknowledge funding sources.
- Inform public on project status and success using BHRA social media channels, website, and

- newsletters, as well as state-wide news sources.
- Use drone video to capture before and after footage of restoration work to share on public platforms.
- Present project results at relevant academic/community venues such as AFS, Wild Trout Symposium, Montana TU, USBR Bighorn Issues group, BHRA public meetings, etc.
- Work with the Crow Nation "Guardians of the Living Water" program to develop side channel monitoring curriculum that will engage local tribal youth in monitoring project success using methodology approved by BHRA, MFWP and Little Bighorn College.

D. What was the cause of habitat degradation and how will the project correct the cause?

The short answer is that the three dams in the watershed are the cause of the habitat degradation. The Bighorn River watershed is almost 20,000 square miles, largely in Wyoming. The river has been dramatically affected by the construction of three dams:

- Buffalo Bill Dam constructed around 1910 west of Cody, WY on the Shoshone River
- Boysen Dam constructed in 1952 just south of Thermopolis on the Wind River
- Yellowtail Dam constructed in 1966 just south of Fort Smith on the Bighorn River

Whereas peak flows in the range of 15,000 – 25,000 cfs were commonplace prior to 1952, between 1952 and 1966 they became much less common and in the 55 years since 1966, they have only occurred once. The ecology of the river has been affected in many ways by the reduction in peak flows -- some beneficial, some not. Relevant here, the lower peak flows have allowed gravels and sediments to accumulate at the heads of side channels providing the opportunity for vegetative encroachment with eventual disconnection of the side channel at low flows. BHRA contractors have identified 48 presently disconnected side channels from the Dam to the Yellowstone confluence with potential for reconnection (**Attachment C**).

This issue was well recognized by both the Bureau of Reclamation and FWP in the mid-1980's and research indicated that mechanical opening of the channel entrances was the best option to restore connectivity. That recommendation has subsequently proved to be accurate with two successful reactivation projects—Cline's channel in 2012 and Rattlesnake and Juniper Channels in 2021.

E. Length of stream or size of lake that will be treated (project extent): 6.06 miles of channel

Length/size of impact, if larger than project extent (e.g., stream miles opened): _____

Some impact contemplated on all 88 river miles from the Dam to the Yellowstone Confluence but greatest impact on upper 24 river miles which is the most heavily utilized portion of the cold water fishery.

F. Project Budget Summary:

Grant Request (Dollars): \$ 60,000

Matching Dollars: \$ 100,163

Matching In-Kind Services:* \$ 10,500

**salaries of government employees are not considered matching contributions*

Other Contributions (not part of this app) \$ _____

Total Project Cost: \$ 170,663

G. Attach itemized (line item) budget – see *budget template* See **Attachment B**

H. Attach project location map(s) that include: **See Attachment A**

- ☒ Extent of the project, including context (relation to major landmark or town)
- ☒ Indication of public and private property
- ☐ Riparian buffer locations and widths (if applicable) and grazing locations

I. Attach project plans:

- ☒ Detailed sketches or plan views with the location and proposed restoration
- ☒ Pre-project photographs (GPS location strongly recommended)
- ☐ **NA** If water leasing or water salvage is involved, attach a supplemental questionnaire (<https://myfwp.mt.gov/getRepositoryFile?objectID=36110>)

J. Attach letters or statements of support (e.g., landowner consent, community or public support, and fish biologist support). List any other project partners:

See Attachment E

III. MAINTENANCE AND MONITORING (attach additional information to end of application):

- A. A 20-year maintenance commitment is required*. Please confirm that you will ensure this protection and describe your approach. Attach any relevant maintenance plans. Yes ☒ No ☐
**If it is a water leasing project, describe the length of the agreement.*

Since the flow regime in any given year is highly variable and since its effect on any given channel may increase or decrease connectivity, maintenance requirements are impossible to predict. The hope would be that if subsequent maintenance required mechanical opening, it might be accomplished with smaller and less expensive equipment. In any event, The Bighorn River Alliance has been active since 1995 and it commits to pursue its stewardship mission into the indefinite future both to monitor the connectivity of these channels and to reintervene as necessary to keep them connected and functional.

- B. Will grazing be part of or adjacent to the project? If so, describe or attach land management plans, including short term and long term grazing regimes. If the landowner is not the applicant, please describe their involvement in the project. *If you want assistance with grazing plan development, note your need.*

There are both ranching and farming operations at various points along both sides of the river. For the most part, the adjacent pastures are unfenced and cattle water in the river. The adjacent pastures are large and stocking rates must be low as it is uncommon to see more than a handful at any given time. There are locations where tall cut banks have been degraded by cattle accessing the river but none of the 12 side channel sites are in these locations or show any evidence of livestock degradation. In particular, the heads of these channels are all relatively flat gravel/cobble riffles or runs which would not be adversely affected by the occasional presence of livestock.

- C. Will the project be monitored to determine if goals were met? If so, what are the short-term and long-term plans to assess benefits and lessons learned? Were pre-project data collected? Will monitoring information be shared with FWP?

As explained in the project description, rebar pins will be installed on both sides of the head of each channel so cross sections can be resurveyed on an annual basis. This will document aggradation or degradation of the channel bed at the entrance of each side channel. Photography during target discharges (2,000 cfs) will document the project's ability to sustain side channel connectivity over time. Preproject conditions are well documented as a point of comparison and all project related data will be shared with our agency partners.

An important result of this project will be the monitoring data which will help us understand much more about the dynamics of sediment transport in different flow regimes. This may indicate certain actions that benefit the function and connectivity of the side channels (e.g. flushing flows) or may indicate the need for periodic mechanical opening. Given that 12 channels will be reactivated at the same time and that their characteristics will vary in important ways, the project will also offer a valuable opportunity to learn about the conditions that influence reactivation success.

IV. PROJECT BENEFITS (attach additional information to end of application):**A. What species of fish will benefit from this project?**

A suite of fish species (e.g., Longnose and White Suckers, Mountain Whitefish, Longnose Dace, trout) could benefit from this project, but wild Brown and Rainbow trout are the targeted species that will likely benefit the most.

B. How will the project protect or enhance wild fish habitat?

This project will improve survival of wild Brown and Rainbow trout and native species by providing proximal food sources and access to potentially productive spawning and rearing habitat in the Bighorn River.

C. What is the expected improvement to fish populations, both short term and long term? How might the project translate to angler success?

Trout populations could increase in both the long-term and short-term. Short term success could be measured by more fish available for anglers to catch and harvest. A potential long-term effect could include not only more fish, but higher relative weights. In the past, when fish populations have been high in the Bighorn River, they have been skinny and in relatively poor condition. By providing additional habitat and food sources from side channels, fish in the Bighorn could be healthier at higher densities. Other fish, like Mountain Whitefish, could benefit too by increasing growth and recruitment. More side channels will also provide refugia to smaller fish during high flows. Sustained high flow events in 2017–2019 decimated the trout population by causing high mortality juvenile mortality which in turn created fewer adults in 2020 and 2021

D. Will the project increase public fishing opportunity for wild fish and, if so, how? Is public fishing allowed onsite? If not, describe how the public would access the project benefits.

This project will increase the public's opportunity to access a wild fishery. With projected drought conditions persisting throughout the state, it is likely that anglers will be displaced from other rivers (e.g., Gallatin, Madison, Yellowstone) to the cooler waters of the Bighorn. There is public access in several locations on the Bighorn River.

E. Aside from angling, what local or large-scale public benefits will be realized from this project?

Restoring side channels will have other benefits besides increasing fish available for angling. Side channels increase habitat complexity and heterogeneity which increases the health of river and species richness. For example, side channels tend to have higher densities of macroinvertebrates, zooplankton, and young fish. Studies have also demonstrated that main-channel habitats with connected side channels had higher densities of zooplankton and larval fish than main-channel habitats without connected side channels. An important result will be a stable and healthy riverine system that is more adaptable to climate change, droughts, and the changing needs for water management in the Bighorn River.

F. Will the project interfere with water or property rights of adjacent landowners? (explain):

There are three categories of potential effects on adjacent property owners—

- effects associated with access to the site,

- effects associated with excavation in the side channel, and
- long term effects of successful reactivation of the side channel.

Access: The maps in **Attachment A** show the routes we intend to use to access the excavation sites and the ownerships that would be crossed. There are three types of ownership including State of Montana, Tribal Trust and Private. Permission from the State of Montana is implicit in the 310 permit that will be secured by the end of this year. It should be noted that when we permitted the two channels reconnected in 2021, the permitting agencies encouraged us to come in with a package that combined all of the projects we anticipated in the near future—more efficient for us and more efficient for them. Permission to cross Tribal Trust properties will be secured with trespass permits. These are only valid for a maximum of 12 months so we will not secure those until the spring of 2023. We have routinely obtained these permits for previous work. Permission to cross private property has been obtained in face-to-face meetings and is documented in attached letters of permission. There are currently two exceptions. Permission to cross the Grapevine Ranch to access #4 Picture Channel is pending. Permission to cross the Nevels' property to access #9 Below Turtle Rock is on hold because the property is currently for sale. As we approach the 2023 fall construction window, we will determine ownership and seek permission at that time.

Excavation: Unlike access which frequently crosses Tribal or Private ownerships, excavation will take place primarily on State property. This is exclusively the case with respect to 6 of the side channels (numbers 1,2,3,6,7,9), 3 of the channels have a combination of State and Private (numbers 4,5,12) and 3 involve Tribal ownership (numbers 8,10,11).

Long Term Effects: It is hard to imagine any long term consequences of the reactivation that aren't positive for adjacent landowners. It will eliminate stagnant pools of back water under most conditions, it will provide quality stock water without livestock having to enter the main stem, it will enhance the fishery and it will offer new, interesting, and productive angling habitat. The overall effect will be positive in every respect.

- G. Will the project result in the development of commercial recreational use on the site (including paid access)? Explain:

Recreational use of the cold water Bighorn fishery has been world renowned since public access was established in 1982 and there is a well-developed commercial base that provides guiding, lodging and related services. The side channel reconnection project discussed here won't change the character of the existing commercial activity but it will help sustain that activity and mitigate congestion issues that continue to be a concern. Importantly, it will also significantly increase the diversity of options for the angler who wants to get out of the drift boat and wade fish in the smaller water.

- H. Is this project associated with the reclamation of past mining activity?

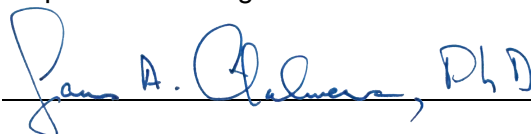
No.

Each approved project applicant must enter into a written agreement with Montana Fish, Wildlife & Parks specifying terms and duration of the project. The applicant must obtain all applicable permits prior to project construction. A competitive bid process must be followed when using State funds.

V. AUTHORIZING STATEMENT

I (we) hereby declare that the information and all statements to this application are true, complete, and accurate to the best of my (our) knowledge and that the project or activity complies with rules of the Future Fisheries Improvement Program.

Applicant Signature:

 Paul A. Galsman, PhD

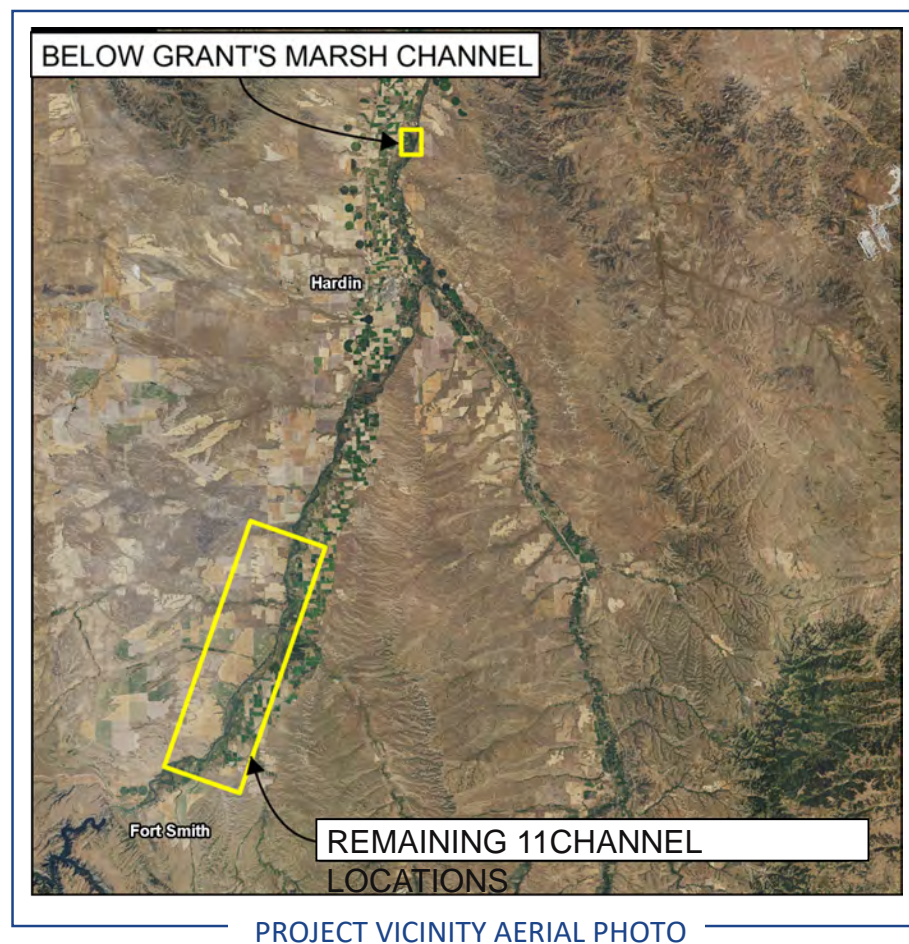
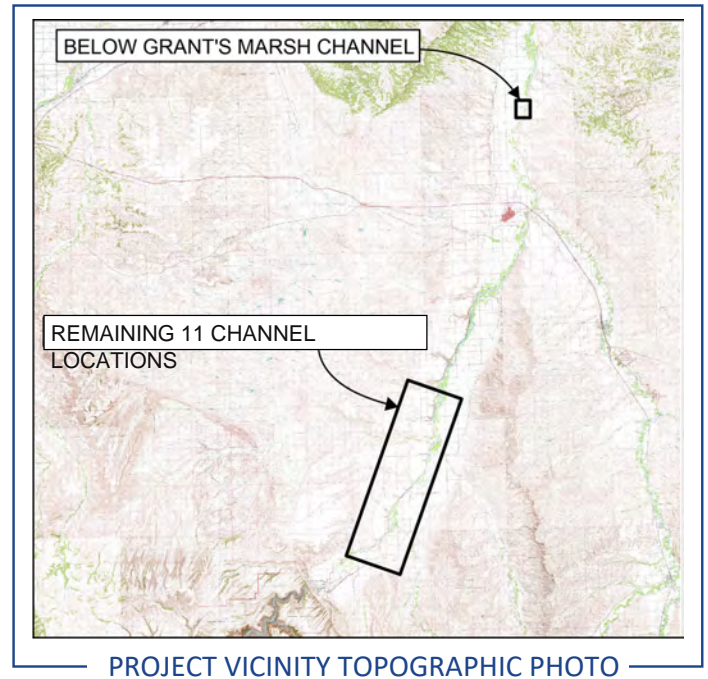
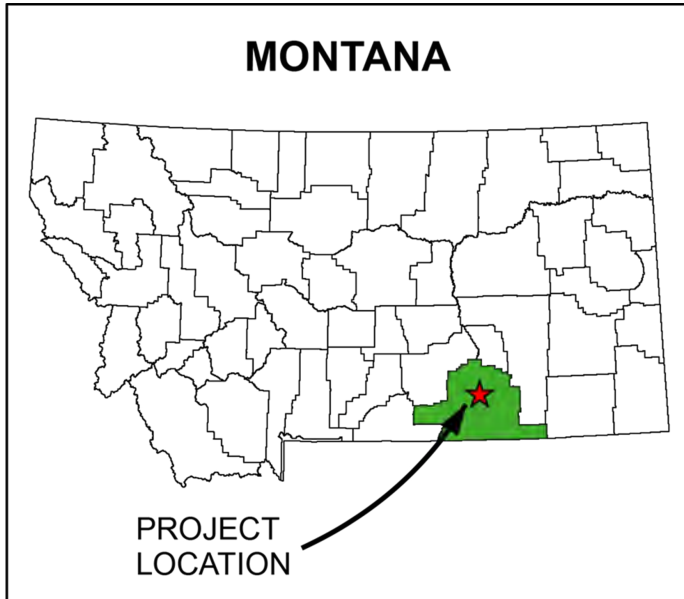
Date: 5/13/2022

Attachment A

Project Locations, Site Photographs, Access Maps, and Preliminary Design Plans

Project Locations	Pg. 8
Project Area Map & Channel Lengths	Pg. 9
#1 Unknown Channel	Pg. 10
#2 Below Rattlesnake Island	Pg. 14
# 3 Drive In	Pg. 18
#4 Picture Channel	Pg. 22
#5 Across from Schneider's Island	Pg. 26
#6 Schneider's Island	Pg. 30
#7 Cline's Channel	Pg. 34
#8 African Queen Channel	Pg. 37
#9 Below Turtle Rock	Pg. 40
#10 Saint Xavier Bridge	Pg. 43
#11 Mallards	Pg. 46
#12 Just Below Grant's Marsh	Pg. 50
Typical Side Channel Cross Section	Pg. 57
Typical Bar Apex Jam	Pg. 58

Project Locations



Project Area Map and Channel Lengths



Site map of proposed reactivation sites. Note the Grants Marsh Channel is located downstream of map boundaries.

TABLE OF LOCATIONS AND CHANNEL LENGTHS

#	NAME	RIVER MILE	LATITUDE	LONGITUDE	LENGTH IN FT	LENGTH IN MILES
1	Unknown Channel	79.5	45.3505	-107.8722	1,469	0.28
2	Below Rattlesnake Island	79	45.3519	-107.8670	800	0.15
3	Drive In	78.8	45.3529	-107.8637	1,850	0.35
4	Picture Channel	77.7	45.3546	-107.8460	3,581	0.68
5	Across from Schneider's Island	75.4	45.3740	-107.8127	825	0.16
6	Schneider's Island	75.3	45.3753	-107.8151	1200	0.23
7	Cline's Channel	74.5	45.3872	-107.8122	7,729	1.46
8	African Queen	73.3	45.3988	-107.8044	2,493	0.47
9	Below Turtle Rock	68.6	45.4506	-107.7518	1,135	0.21
10	Saint Xavier Bridge	67.9	45.4600	-107.7507	3,085	0.58
11	Mallards	63.3	45.5204	-107.7361	5,340	1.01
12	Grant's Marsh	30.8	45.8499	-107.5839	2,469	0.47
					31,976	6.06

#1 Unknown Channel

Bighorn River side channel reactivation

014-2022
Current Conditions



Picture Date: 9/11/2021 | River Release: 1900 cfs

See Video Here: <https://youtu.be/cSCifYjKNIE>

#1 Unknown Channel

Bighorn River side channel reactivation

Access and Land Ownership Map 014-2022



ACCESS:

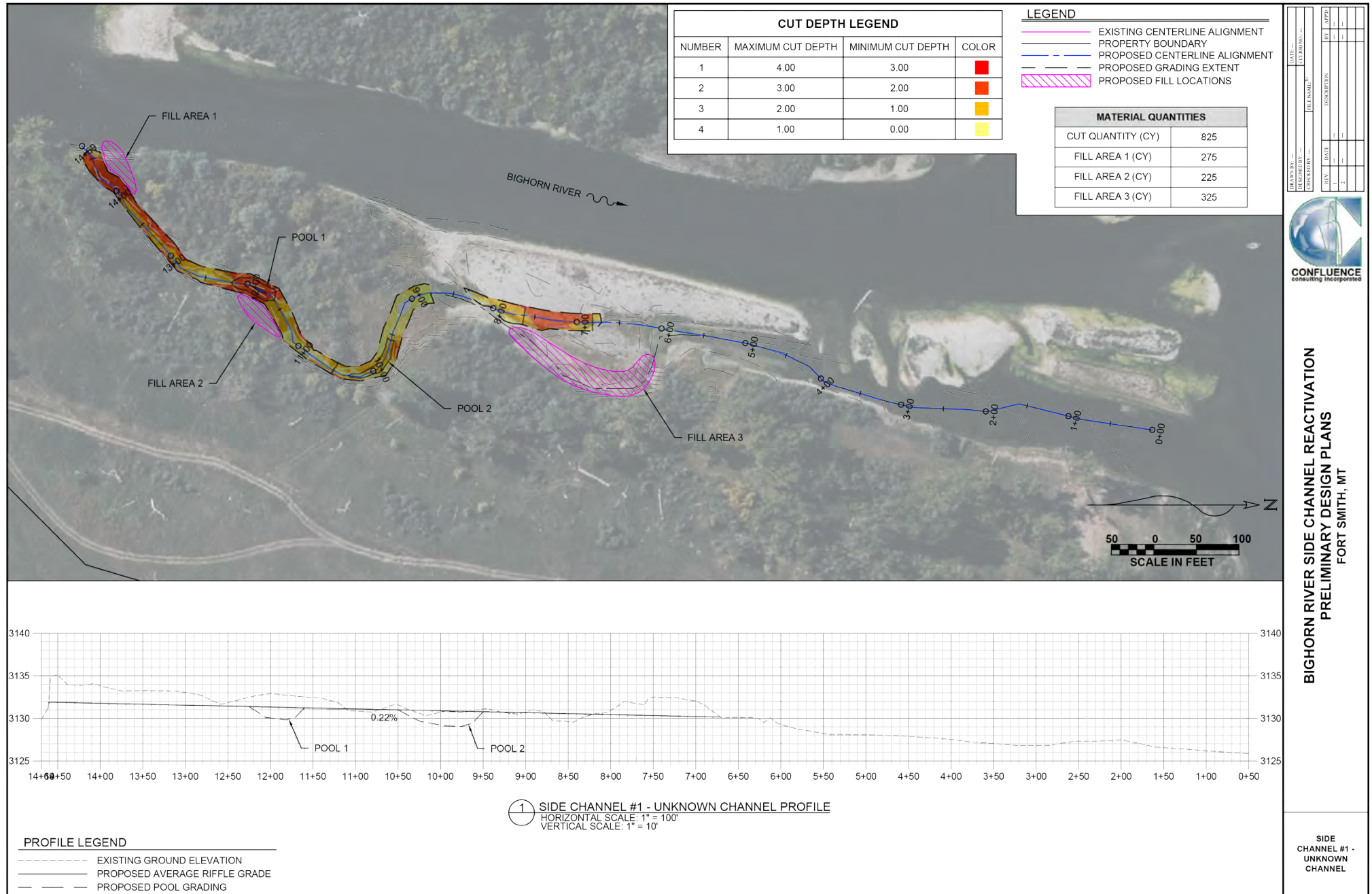
1. Kingfisher Easement (letter attached)
2. State of Montana



Access Path	
Side Channel	
Ownership Boundry	
Crow Tribal Trust	

#1 Unknown Channel

Preliminary Design Plan





Dear Lifestyle Montana Land LLC dba as The Kingfisher Lodge:

The Bighorn River Alliance (BHRA) intends to reconnect several side channels that have become disconnected from the river mainstem due to buildup of sediment, gravels and vegetation at their heads. The reconnection process involves surveying the side channels, developing an excavation plan, securing the necessary permits and finally accessing the site with a track hoe to perform the necessary cut and fill work. The first three steps are underway at present (2022) with actual construction planned for the fall of next year (2023). It is anticipated that the work on any given site would only take one day or possibly in one day, out the next. The benefits of the project are that it will restore valuable spawning and juvenile fish rearing habitat as well as create many miles of "spring creek" type environments that will be a benefit to landowners as well as to the fishery.

The attached aerial shows our preferred access route and the location of the side channel where excavation would take place. One of our project managers for the BHRA, Dennis Fischer, has discussed these plans in detail with you but the purpose of this letter is for you to confirm, for the benefit of third parties, that you understand the plan, that you support our efforts and that you grant permission to access the river and side channel in so far as it involves crossing your property.

Thanks very much.

A handwritten signature in black ink, appearing to read "Dennis Fischer".

Dennis Fischer

Bighorn River Alliance, Research Initiative Committee

Lifestyle Montana Land LLC dba as The Kingfisher Lodge, Land Owner, understand these plans, support the effort and grant permission for river and side channel access in so far as it crosses my property.

Signature

A handwritten signature in blue ink, appearing to read "Taylor Lang".

Date

4-28-22



#2 Below Rattlesnake Island

Bighorn River side channel reactivation

Current Conditions 014-2022



Picture Date: 9/11/2021 | River Release: 1900 cfs

See Video Here: <https://youtu.be/oC5FAK1ck2>

#2 Below Rattlesnake Island

Bighorn River side channel reactivation

Access and Land Ownership Map 014-2022



ACCESS:

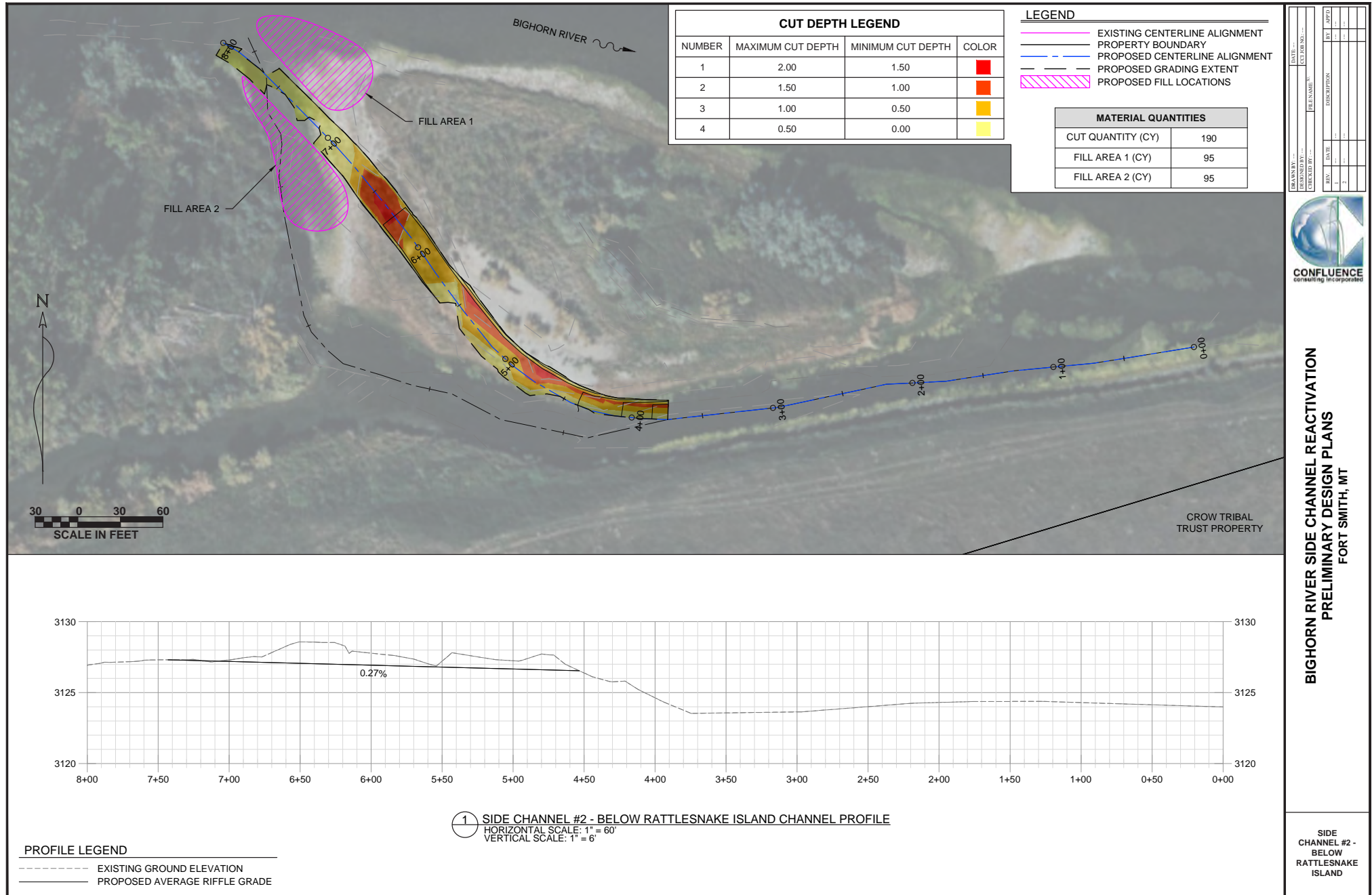
- Kingfisher Easement (letter attached)
- State of Montana



Access Path	
Side Channel	
Ownership Boundry	
Crow Tribal Trust	

#2 Below Rattlesnake Island

Preliminary Design Plan





Dear Lifestyle Montana Land LLC dba as The Kingfisher Lodge:

The Bighorn River Alliance (BHRA) intends to reconnect several side channels that have become disconnected from the river mainstem due to buildup of sediment, gravels and vegetation at their heads. The reconnection process involves surveying the side channels, developing an excavation plan, securing the necessary permits and finally accessing the site with a track hoe to perform the necessary cut and fill work. The first three steps are underway at present (2022) with actual construction planned for the fall of next year (2023). It is anticipated that the work on any given site would only take one day or possibly in one day, out the next. The benefits of the project are that it will restore valuable spawning and juvenile fish rearing habitat as well as create many miles of "spring creek" type environments that will be a benefit to landowners as well as to the fishery.

The attached aerial shows our preferred access route and the location of the side channel where excavation would take place. One of our project managers for the BHRA, Dennis Fischer, has discussed these plans in detail with you but the purpose of this letter is for you to confirm, for the benefit of third parties, that you understand the plan, that you support our efforts and that you grant permission to access the river and side channel in so far as it involves crossing your property.

Thanks very much.

A handwritten signature in black ink, appearing to read "Dennis Fischer".

Dennis Fischer

Bighorn River Alliance, Research Initiative Committee

Lifestyle Montana Land LLC dba as The Kingfisher Lodge, Land Owner, understand these plans, support the effort and grant permission for river and side channel access in so far as it crosses my property.

Signature

A handwritten signature in blue ink, appearing to read "Taylor Lang".

Date

4-28-22





Picture Date: 9/5/2021 | River Release: 1755 cfs

See Video Here: <https://youtu.be/QJe5koG962w>



ACCESS:

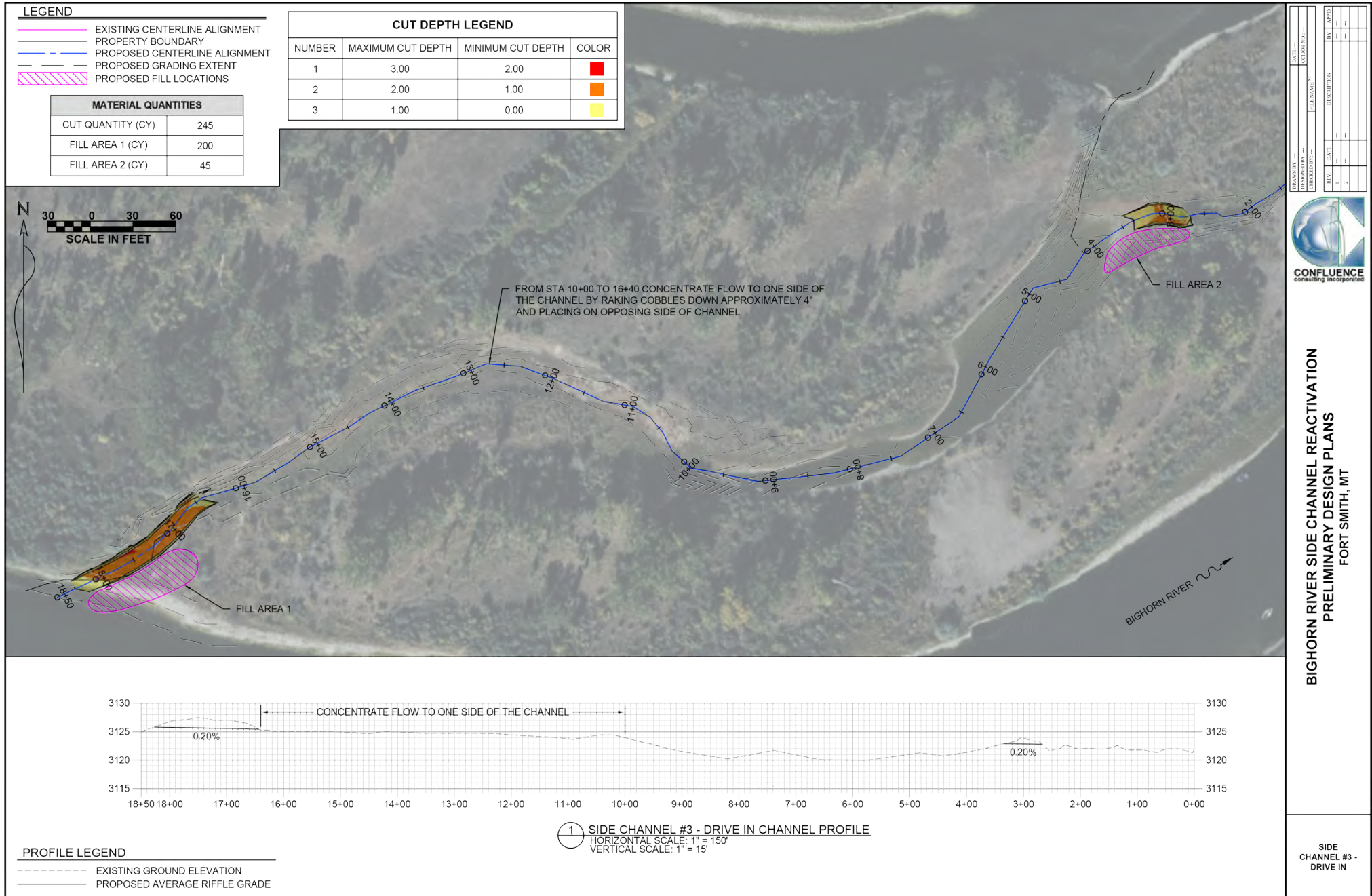
1. Kingfisher Easement (letter attached)
2. State of Montana



Access Path	
Side Channel	
Ownership Boundary	
Crow Tribal Trust	

#3 Drive In

Preliminary Design Plan





Dear Lifestyle Montana Land LLC dba as The Kingfisher Lodge:

The Bighorn River Alliance (BHRA) intends to reconnect several side channels that have become disconnected from the river mainstem due to buildup of sediment, gravels and vegetation at their heads. The reconnection process involves surveying the side channels, developing an excavation plan, securing the necessary permits and finally accessing the site with a track hoe to perform the necessary cut and fill work. The first three steps are underway at present (2022) with actual construction planned for the fall of next year (2023). It is anticipated that the work on any given site would only take one day or possibly in one day, out the next. The benefits of the project are that it will restore valuable spawning and juvenile fish rearing habitat as well as create many miles of "spring creek" type environments that will be a benefit to landowners as well as to the fishery.

The attached aerial shows our preferred access route and the location of the side channel where excavation would take place. One of our project managers for the BHRA, Dennis Fischer, has discussed these plans in detail with you but the purpose of this letter is for you to confirm, for the benefit of third parties, that you understand the plan, that you support our efforts and that you grant permission to access the river and side channel in so far as it involves crossing your property.

Thanks very much.

A handwritten signature in black ink, appearing to read "Dennis Fischer".

Dennis Fischer

Bighorn River Alliance, Research Initiative Committee

Lifestyle Montana Land LLC dba as The Kingfisher Lodge, Land Owner, understand these plans, support the effort and grant permission for river and side channel access in so far as it crosses my property.

Signature

A handwritten signature in blue ink, appearing to read "Taylor Lang".

Date

4-28-22





Picture Date: 9/11/2021 | River Release: 1900 cfs

See Video Here: https://youtu.be/r_pV4tedIdE

#4 Picture Channel

Bighorn River side channel reactivation

Access and Land Ownership Map 014-2022



ACCESS:

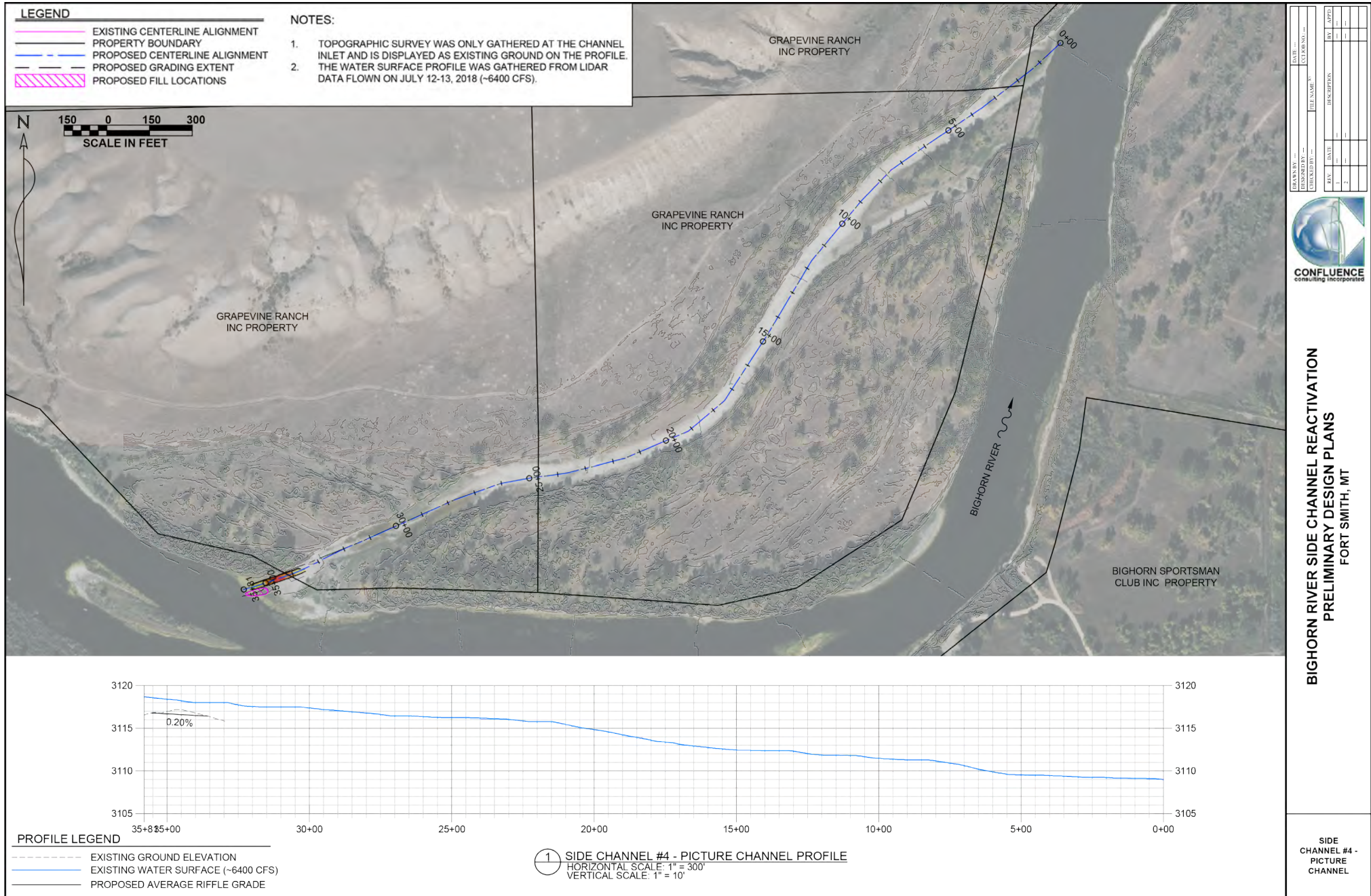
1. Grapevine Ranch (letter pending)
2. State of Montana



Access Path	
Side Channel	
Ownership Boundry	
Crow Tribal Trust	

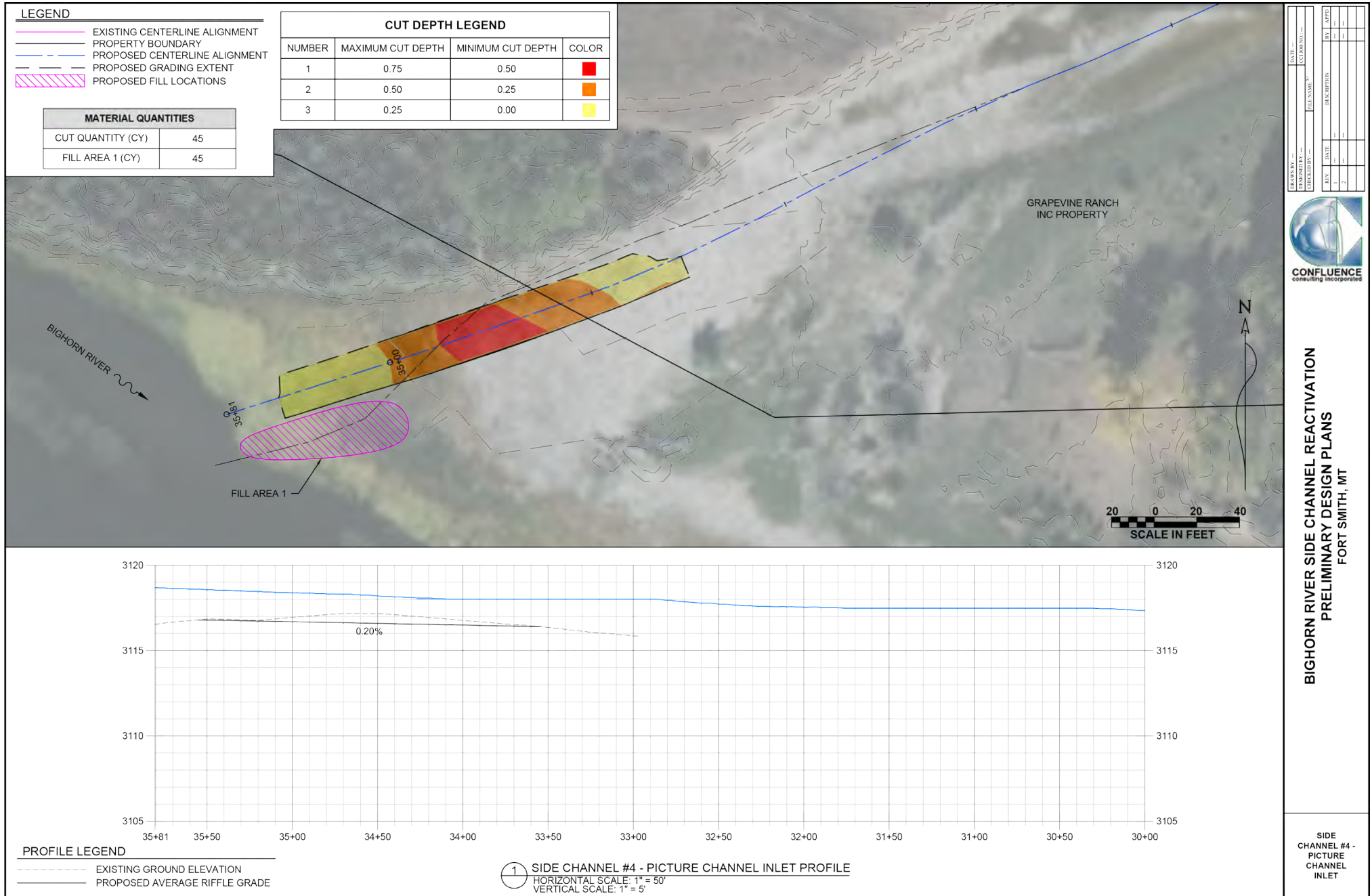
#4 Picture Channel

Preliminary Design Plan



#4 Picture Channel

Preliminary Design Plan



#5 Across From Schneider's Island

Bighorn River side channel reactivation

014-2022
Current Conditions



Picture Date: 9/11/2021 | River Release: 1900 cfs

See Video Here: <https://youtu.be/TP68qEEGIEQ>

#5 Across From Schneider's Island

Bighorn River side channel reactivation

Access and Land Ownership Map 014-2022



ACCESS:

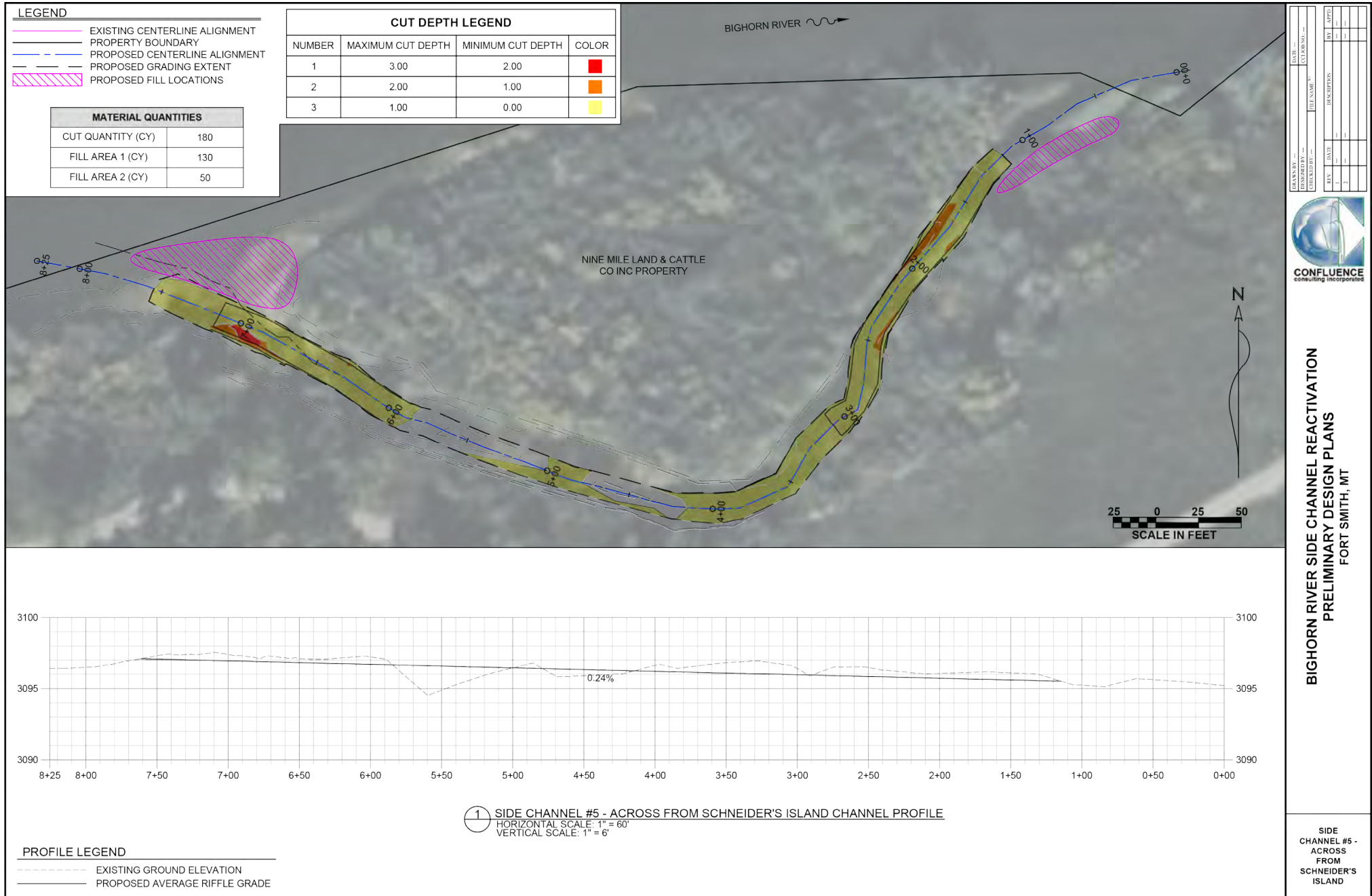
1. Nine Mile Land and Cattle (letter attached)
2. State of Montana



Access Path	
Side Channel	
Ownership Boundry	
Crow Tribal Trust	

#5 Across From Schneider's Island

Preliminary Design Plan





Dear Paul:

The Bighorn River Alliance (BHRA) intends to reconnect several side channels that have become disconnected from the river mainstem due to buildup of sediment, gravels and vegetation at their heads. The reconnection process involves surveying the side channels, developing an excavation plan, securing the necessary permits and finally accessing the site with a track hoe to perform the necessary cut and fill work. The first three steps are underway at present (2022) with actual construction planned for the fall of next year (2023). It is anticipated that the work on any given site would only take one day or possibly in one day, out the next. The benefits of the project are that it will restore valuable spawning and juvenile fish rearing habitat as well as create many miles of "spring creek" type environments that will be a benefit to landowners as well as to the fishery.

The attached aerial shows our preferred access route and the location of the side channel where excavation would take place. One of our project managers for the BHRA, Dennis Fischer, has discussed these plans in detail with you but the purpose of this letter is for you to confirm, for the benefit of third parties, that you understand the plan, that you support our efforts and that you grant permission to access the river and side channel in so far as it involves crossing your property.

Thanks very much.

A handwritten signature in black ink, appearing to read "Dennis Fischer".

Dennis Fischer

Bighorn River Alliance, Research Initiative Committee

I, Mr. Paul Fitzgerald for Nine Mile Cattle Company, Land Owner, understand these plans, support the effort and grant permission for river and side channel access in so far as it crosses my property.

Signature

A handwritten signature in black ink, appearing to read "Paul Fitzgerald".

Date

4-15-2022

#6 Schneider's Island

Bighorn River side channel reactivation

014-2023
Current Conditions



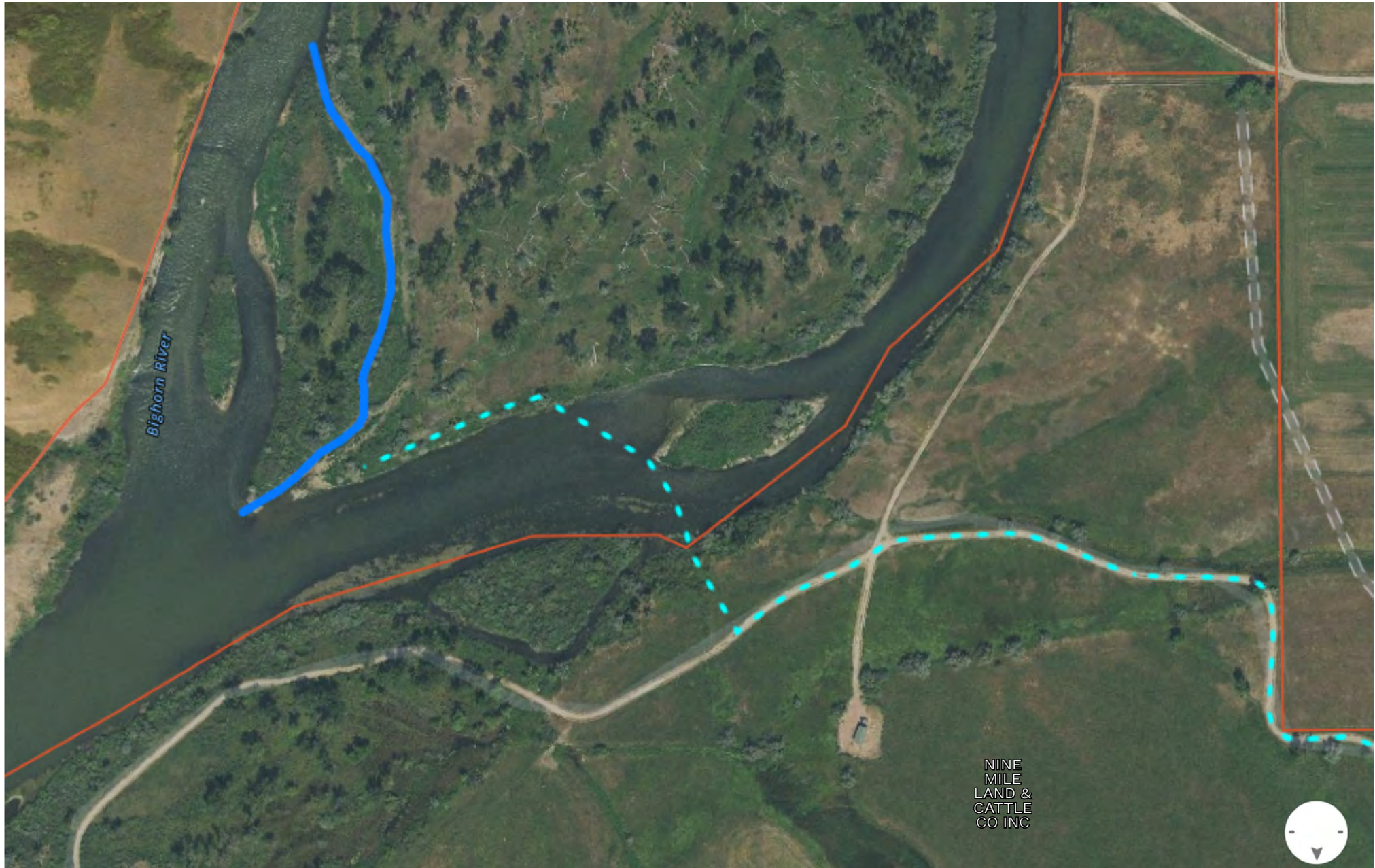
Picture Date: 9/11/2021 | River Release: 1900 cfs

See Video Here: <https://youtu.be/EmsCeK5uLZk>

#6 Schneider's Island

Bighorn River side channel reactivation

Access and Land Ownership Map 014-2022



ACCESS:

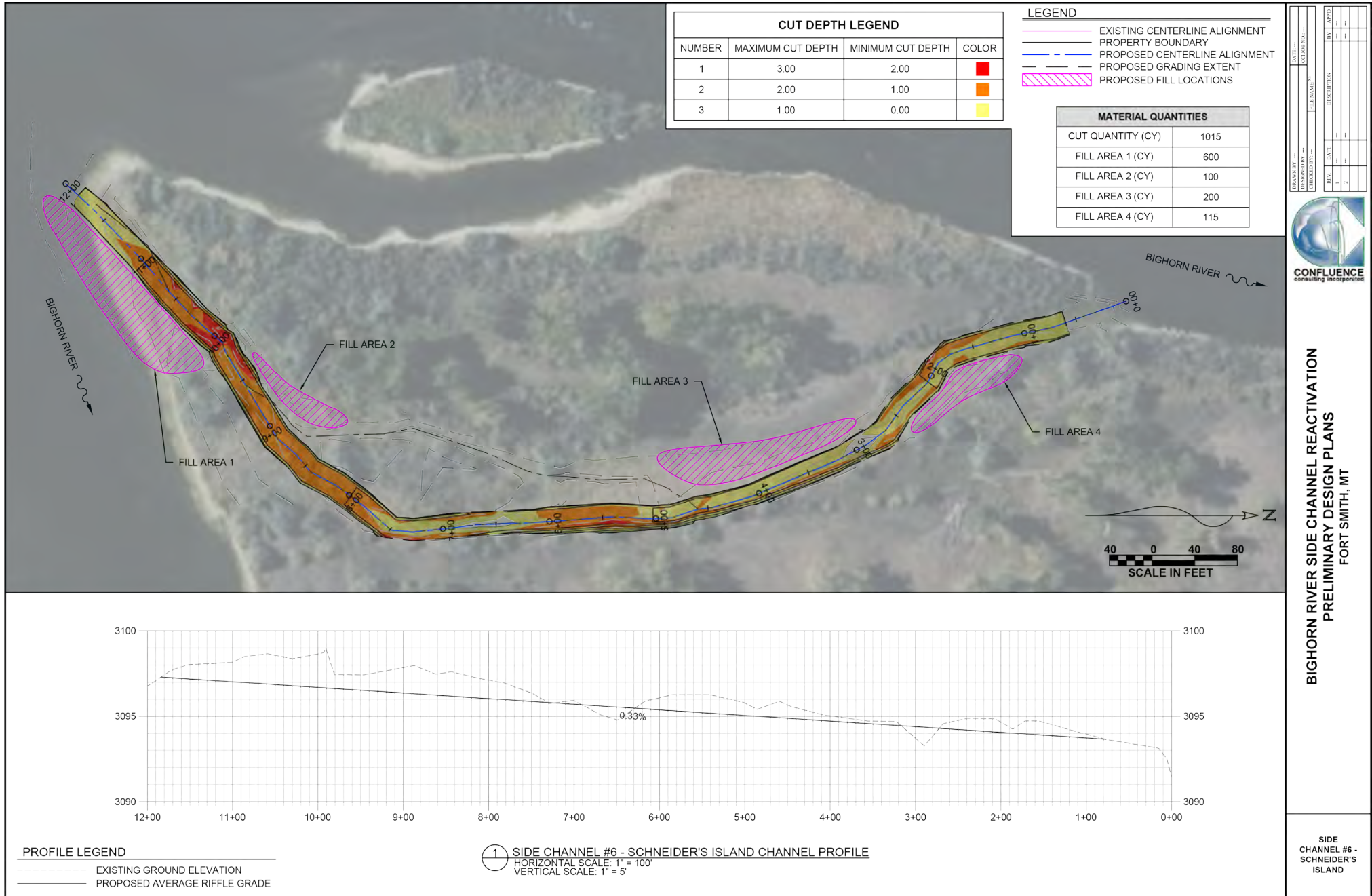
1. Nine Mile Land and Cattle (letter attached)
2. State of Montana



Access Path	
Side Channel	
Ownership Boundry	
Crow Tribal Trust	

#6 Schneider's Island

Preliminary Design Plan





Dear Paul:

The Bighorn River Alliance (BHRA) intends to reconnect several side channels that have become disconnected from the river mainstem due to buildup of sediment, gravels and vegetation at their heads. The reconnection process involves surveying the side channels, developing an excavation plan, securing the necessary permits and finally accessing the site with a track hoe to perform the necessary cut and fill work. The first three steps are underway at present (2022) with actual construction planned for the fall of next year (2023). It is anticipated that the work on any given site would only take one day or possibly in one day, out the next. The benefits of the project are that it will restore valuable spawning and juvenile fish rearing habitat as well as create many miles of "spring creek" type environments that will be a benefit to landowners as well as to the fishery.

The attached aerial shows our preferred access route and the location of the side channel where excavation would take place. One of our project managers for the BHRA, Dennis Fischer, has discussed these plans in detail with you but the purpose of this letter is for you to confirm, for the benefit of third parties, that you understand the plan, that you support our efforts and that you grant permission to access the river and side channel in so far as it involves crossing your property.

Thanks very much.

A handwritten signature in black ink, appearing to read "Dennis Fischer".

Dennis Fischer

Bighorn River Alliance, Research Initiative Committee

I, Mr. Paul Fitzgerald for Nine Mile Cattle Company, Land Owner, understand these plans, support the effort and grant permission for river and side channel access in so far as it crosses my property.

Signature

A handwritten signature in black ink, appearing to read "Paul Fitzgerald".

Date

4-15-2022