FUTURE FISHERIES IMPROVEMENT PROGRAM GRANT APPLICATION

All sections must be addressed, or the application will be considered invalid

I. APPLICANT INFORMATION

A. Applicant Name: Ryan Kreiner- FWP Native Species Biologist

Mailing Address: 730 ½ Montana Street

City: Dillon State: MT Zip: 59725

Telephone: 406-531-5861 E-mail: rkreiner@mt.gov

B. Contact Person (if different than applicant): Same as applicant

Address:

City: State: Zip:

Telephone: E-mail:

C. Landowner and/or Lessee Name (if different than applicant): Mike Bryant: Red Rock Lakes National Wildlife Refuge

Mailing Address: 27650 B South Valley Road

City: Lima State: MT Zip: 59739

Telephone: 406-276-3536 E-mail: Michael J_Bryant@fws.gov

II. PROJECT INFORMATION

A. Project Name: Elk Springs Creek Restoration Phase II

River, stream, or lake: Elk Springs Creek, Centennial Valley

Location: Township: 14S Range: 1E Section: 6

Latitude: 44.64799 Longitude: 111.6525 *within project (decimal degrees)*

County: Beaverhead

B. Purpose of Project:

The project will finalize efforts (Phase II) to restore the upper reaches of Elk Springs Creek through the lower end of the MacDonald Pond historic footprint (Figure 1). The instream pond was constructed in the 1950s and removed in 2009 (Figure 2 and 3). The exposed channel was over-widened, shallow, and silty. In 2016, 1,500 lineal feet of the uppermost creek was restored by narrowing and deepening the channel, increasing the sinuosity, pool / riffle bed form, and re-establishing viable spawning habitat (Figure 4). Research conducted pre and post-restoration detected dramatic increases in salmonid abundances within the restored reaches two years after restoration occurred. Other documented effects of the Phase I restoration were decreased water temperature, increased and stabilized dissolved oxygen, increased movement of Arctic grayling, brook trout, and white suckers, and broadened size structure of Arctic grayling and brook trout (Marsh *in Prep.*).

The lower portion of the creek through the former MacDonald pond (this project) remains over-widened, shallow and choked with fine-grained silt and lake bed sediments. These conditions promote the growth of dense macrophytes which further limits salmonid habitat. The degraded channel holds less resident fish and physically impedes grayling from migrating upstream because of poor cover-habitat, thermal warming, and no imprinting of their historic spawning grounds. By continuing to deepen and narrow the channel geometry and improve sediment transport, this project will increase the carrying capacity of the stream for salmonids and re-establish the migration corridor for grayling from Upper Red Rock Lake. This project will connect the restored upper reaches of Elk Springs Creek with the lower creek. This will be the final phase of restoration on Elk Springs Creek.

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

Elk Springs Creek in the Centennial Valley historically supported one of Montana's most prolific Arctic grayling spawning populations. Between 1898 and 1908 millions of grayling eggs were taken by the U.S. Fish Commission to establish new fisheries and fuel the first Montana Arctic grayling conservation effort. However, the spawning habitat that supported this population was subsequently fragmented and degraded. In the 1950s, the refuge constructed an on-channel pond (MacDonald Pond) in Elk Springs Creek to increase waterfowl habitat. The natural spring channel was inundated for the next six decades and sedimentation occurred. The pond buried all remnants of salmonid spawning gravels and headwater spring creek habitat. In 2009, initial reclamation efforts began by draining MacDonald Pond. In 2016, 1,500 linear feet of the formerly inundated stream was restored. This project will continue those efforts by re-constructing the final 1,750 linear feet of formerly inundated channel. This section remains over widened, shallow, and unable to transport the large volumes of lake bed and alluvial deposits that remain. It also lacks sufficient depth to allow migratory grayling from accessing quality spawning habitat.

This project will restore appropriate channel geometry, hydraulics, and alignment to Elk Springs Creek. It will re-establish a narrow (10- ft wide) self-maintaining channel which matches the existing discharge of 8 -10 cfs. Construction efforts will emphasize sufficient flow velocities and depth to discourage major macrophyte growth and sedimentation without compromising necessary refuge and cover. This will allow adfluvial grayling to safely migrate throughout the drainage and utilize this stream for spawning and rearing.

The grayling population in Elk Springs Creek is a priority for the species' recovery in the Centennial Valley, as defined in the Adaptive Management Plan between FWP and the USFWS. On the upper end of the Centennial Valley, FWP and its partners have committed to maintain viable grayling populations in at least two tributaries to Upper Red Rock Lake. Currently, Red Rock Creek and Elk Springs Creek are the only two tributaries with detectable populations of grayling.

D. Length of stream or size of lake that will be treated (project extent): 1,725 linear feet

Length/size of impact, if larger than project extent (e.g. stream miles opened): Once connected, 7 miles of migratory stream will be open

E. Project Budget:

Grant Request (Dollars):	**$**	**29,550**
Matching Dollars:	**$**	**35,000**
Matching In-Kind Services:*	**$**	

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

Other Contributions (not part of this app)	**$**	
Total Project Cost:	**$**	**64,550**

F. **Attach** itemized (line item) budget – *see budget template*

G. **Insert** or **attach** a project location map showing the project area in relation to a major landmark or town. Please indicate if the project location is on public or private property.

See Attachments. Project is on public land (USFWS National Wildlife Refuge).

H. **Attach** specific project plans (e.g. detailed sketches, plan views [showing location and type of channel modifications], example photographs), current condition photographs, and maps. **If project involves water leasing or water salvage complete and attach a supplemental questionnaire (fwp.mt.gov/habitat/futurefisheries/supplement2.doc).*

I. **Attach** letters or statements of support. This includes landowner consent, community or public support, and fish biologist support.

J The project agreement includes a 20-year maintenance commitment. Please indicate (yes or no) that you will ensure project protection for 20 years. Discuss your ability to meet this commitment.

Yes [x] No [ ]

Elk Springs Creek is located within the Red Rock Lakes National Wildlife Refuge managed by the US Fish and Wildlife Service. The USFWS is committed to restoring and maintaining Elk Springs Creek in as close to its natural state as possible. Maintenance will occur long past the 20-year mark.

K. **Describe** or **attach** land management & maintenance plans, including changing to grazing regimes, that will ensure protection of the restored area.

No change in land management is necessary. MacDonald Pond was the root cause of degradation and is no longer present.

III. PROJECT BENEFITS (attach additional information to end of application):

A. What species of fish will benefit from this project?

The project is specifically designed to meet critical habitat needs for Arctic Grayling. It will improve spawning habitat, water temperatures, and dissolved oxygen to within a grayling's range of tolerance. Completion of Phase I showed that restoration will benefit grayling, by improving physical stream conditions, increasing grayling movement ability (migration), and broadening the size structure. These metrics were quantified during a Master's research project currently underway at Montana State University (Marsh *In prep.*).

Elk Springs Creek is also home to brook trout, white suckers, sculpin, and burbot which will also benefit. This restoration project is part of a series of management actions designed to improve grayling populations in the Centennial Valley. Specifically, FWP and its partners are working to improve overwinter habitat in Upper Red Rock Lake and spawning/rearing habitat in is tributaries. At the same time, we are researching potential brood sources for grayling reintroductions in the Centennial Valley. Once lake and tributary habitat are restored and an appropriate brood source is identified, FWP will utilize Remote Site Incubators in Elk Springs Creek to boost grayling numbers. This action will likely occur simultaneously with a mechanical removal of brook trout.

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

Elk Springs Creek was altered in the 1950s with the creation of MacDonald Pond. When the pond was removed in 2009 the remaining stream was over-widened, shallow, silty, and lacked cover (Figure 4). Because it is a spring creek, Elk Springs lacks the ability to flush sediment and re-structure its channel. This project proposes to restore appropriate channel geometry, hydraulics, and alignment to the creek. It will establish a narrow (10- ft wide) self-maintaining channel appropriately sized to match the existing spring flow rate of 8-10 cfs.

C. Will the project improve fish populations and/or fishing? To what extent?

Based on the previous (2016) restoration project in Elk Springs Creek, Phase II will increase movement ability of Arctic grayling, brook trout, and white suckers, broaden the size structure of Arctic grayling and brook trout, improve spawning, rearing and migration habitat for salmonids, decrease water temperature, and increase dissolved oxygen. Fish abundance increased significantly after Phase I (Marsh *In prep.*).

D. Will the project increase public fishing opportunity for wild fish and, if so, how?

Elk Springs Creek is open to public fishing. This project will increase opportunity by improving habitat and increasing the number of fish in the stream.

E. What was the cause of habitat degradation in the area of this project and how will the project correct the cause?

The cause of degradation was the construction of MacDonald Pond in the 1950s. The pond was removed in 2009, but the flow regime of a spring creek does not have the capability to reshape the stream. The cause has been corrected but the stream needs repair.

F. What public benefits will be realized from this project?

This project will benefit the public fishery by improving habitat and fish numbers in a publicly accessible stream. The long-term benefits will be a more robust and secure grayling population within the Centennial Valley. Arctic grayling are highly valued by the public as an important recreational and conservation species.

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

No. This project is within a national wildlife refuge and will not have negative impacts on water quality or quantity.

H. Will the project result in the development of commercial recreational use on the site? (explain):

No. It is within a designated national wildlife refuge. No development will occur.

I. 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.

IV. 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: _____ Date: 11/25/2020

Sponsor (if applicable): _____

Submittal: **Applications must be *signed and received before* December 1 and June 1 of each year to be considered for the subsequent funding period**. Late or incomplete applications will be rejected.

Mail to:	FWP Future Fisheries Fish Management Bureau PO Box 200701 Helena, MT 59620-0701	Email:	Future Fisheries Coordinator FFIPFWP@mt.gov (electronic submissions must be signed) For files over 10MB, use https://transfer.mt.gov

Applications may be rejected if this form is modified.

Elk Springs Creek restoration phase 2

003-2021

BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS

Both tables must be completed or the application will be returned

PROJECT COSTS					CONTRIBUTIONS			
WORK ITEMS (Itemize by Category)	**NUMBER OF UNITS**	**UNIT DESCRIPTION***	**COST/UNIT**	**TOTAL COST**	**FUTURE FISHERIES REQUEST**	**MATCH (Cash or Services)****	**OTHER (Not part of this application)**	**TOTAL**
Personnel***								
Survey	20	hrs	$100.00	$ 2,000.00		2,000.00		$ 2,000.00
Design	30	hrs;	$100.00	$ 3,000.00		3,000.00		$ 3,000.00
Engineering				$ -		3,000.00		$ 3,000.00
Permitting	4.5	hrs; provided by FWP	$0.00	$ -				$ -
Oversight	80	hrs; Point Bar Resources	$100.00	$ 8,000.00	-	8,000.00		$ 8,000.00
				$ -				$ -
			Sub-Total	$ 13,000.00	$ -	$ 16,000.00	$ -	$ 16,000.00
Travel								
Mileage	1000	miles	$0.58	575.00		300.00		$ 300.00
Per diem	9	day;	$50.00	450.00		700.00		$ 700.00
			Sub-Total	1025.00	$ -	$ 1,000.00	$ -	$ 1,000.00
Construction Materials****								
Upland Grass Seed	50	lbs	$8.00	$ 400.00				$ -
Wetland Grass Seed	10	lbs	$45.00	$ 450.00				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
			Sub-Total	$ 850.00	$ -	$ -	$ -	$ -
Equipment, Labor, and Mobilization								
Tracked Excavators (three)	160	hrs;	$175.00	$ 28,000.00	28,000.00			$ 28,000.00
Tracked Dump Truck (one)	80	hrs;	$190.00	$ 15,200.00		15,200.00		$ 15,200.00
Mob/Demob	30	hrs;	$145.00	$ 4,350.00	1,550.00	2,800.00		$ 4,350.00
Contractor Per Diem	10	day;	$57.00	$ 570.00				$ -
Contractor Mileage	1000	miles	$0.58	$ 580.00				$ -
Lodging	10	day;	$100.00	$ 1,000.00				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -

(Revised 11/30/2020)

BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS

				$ -				$ -
				$ -				$ -
			Sub-Total	$ 49,700.00	$ 29,550.00	$ 18,000.00	$ -	$ 47,550.00
			TOTALS	$ 64,575.00	$ 29,550.00	$ 35,000.00	$ -	$ 64,550.00

OTHER REQUIREMENTS:

All of the columns in the budget table and the matching contribution table MUST be completed appropriately or the application will be invalid. Please see the example budget sheet for additional clarification.

*Units = feet, hours, inches, etc. Do not use lump sum unless there is no other way to describe the costs.

**Can include in-kind materials. Justification for in-kind labor (e.g. hourly rates used). Do not use government salaries as match. Describe here or in text.

***The Review Panel suggests that design and oversight costs associated with a proposed project not exceed 15% of the total project budget. If design and oversight costs are in excess of 15%, applications must include a justification or minimum of two competitive bids for the cost of undertaking the project.

****The Review Panel recommends a maximum fencing cost of $1.50 per foot. Additional costs may be the responsibility of the applicant and/or partners.

Additional details:

APPLICATION MATCHING CONTRIBUTIONS

(do not include requested funds or contributions not associated with the application)

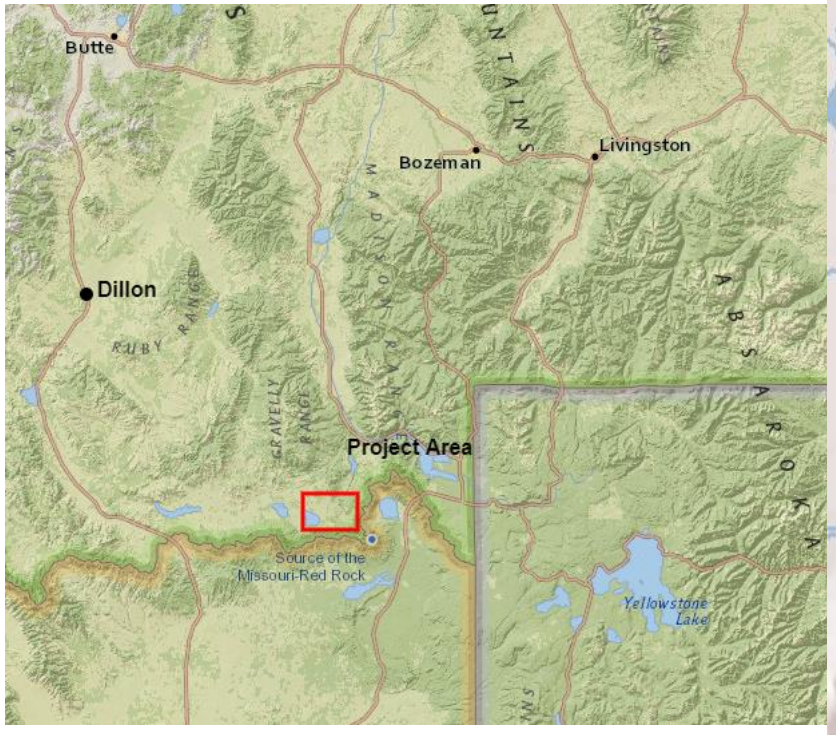
CONTRIBUTOR	IN-KIND	CASH	TOTAL	Secured? (Y/N)
Statewide Fish and Wildlife Grant (SWG)	$ -	$ 10,000.00	$ 10,000.00	Y
USFWS	$ -	$ 5,000.00	$ 5,000.00	Y
USFWS (Red Rock Lakes National Wildlife Refuge)	$ -	$ 10,000.00	$ 10,000.00	Y
Montana Trout Foundation	$ -	$5,000	$ 5,000.00	N
Trout Unlimited mini-grant	$ -	$5,000	$ 5,000.00	N
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
TOTALS	$ -	$ 35,000.00	$ 35,000.00	

OTHER CONTRIBUTIONS

(contributions not associated with the application)

CONTRIBUTOR	IN-KIND	CASH	TOTAL	Secured? (Y/N)
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
TOTALS	$ -	$ -	$ -	

Figure 1- Map of the Upper Centennial Valley with proposed restoration project on Elk Springs Creek.



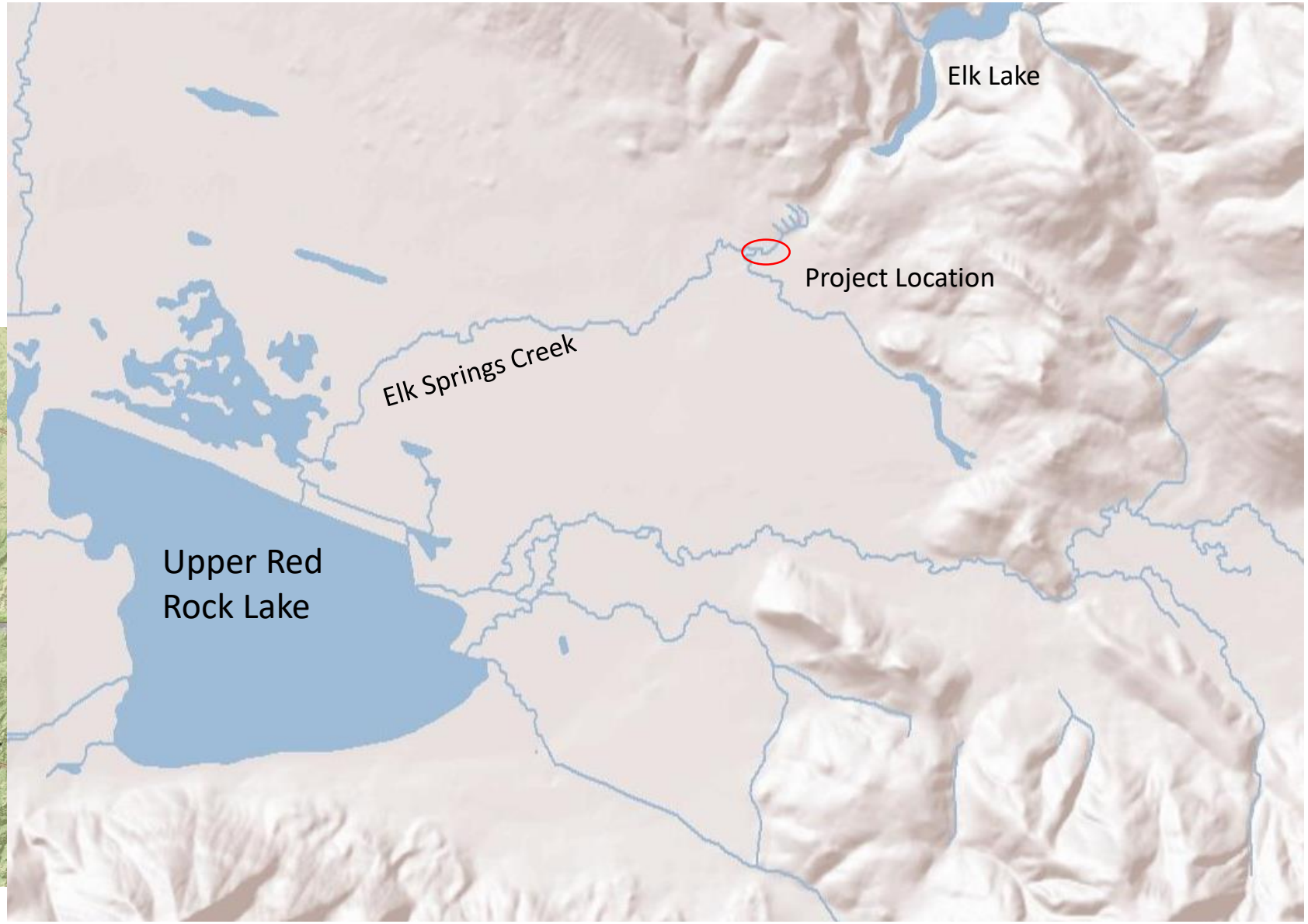


Figure 2. MacDonald Pond on Elk Springs Creek prior to its removal in 2009

Figure 3. Elk Springs Creek following the removal of MacDonald Pond

Figure 2. Before and after photos of Elk Springs Restoration Phase I.

Phase I of Elk Springs Creek in fall, 2015 (pre-restoration). Note the over-widened, shallow channel, and dense algae growth.

Phase I of Elk Springs Creek in 2020 (post-restoration). Channel is narrow and deep, the banks are stable, and fish are more abundant. Angler is enjoying a beautiful stream on public land.

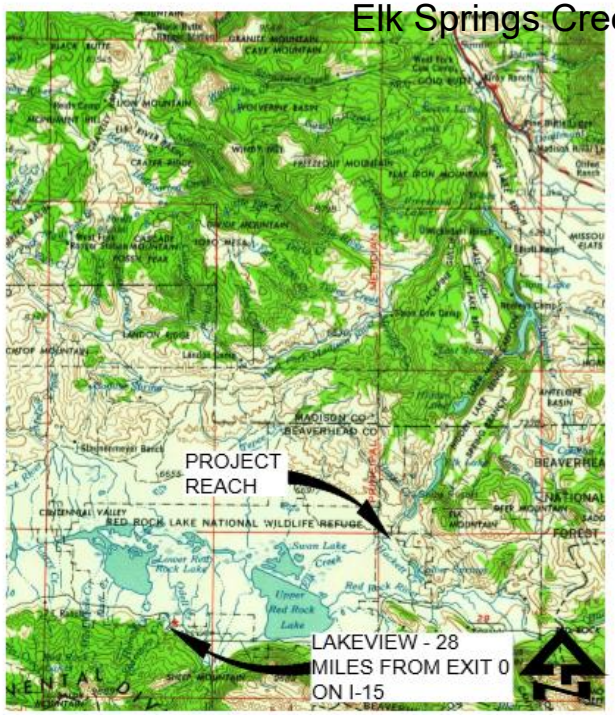
Attachment G- Project Plans (1 of 6)

ELK SPRINGS CREEK RESTORATION PHASE II

RED ROCK LAKES NATIONAL WILDLIFE REFUGE

LOCATED IN NE NW & E½ NW NW SECTION 6, TOWNSHIP 14S, RANGE 1E
LATITUDE = 44° 38' 55.4" NORTH; LONGITUDE = 111° 39' 16.25" WEST
BEAVERHEAD COUNTY, MONTANA

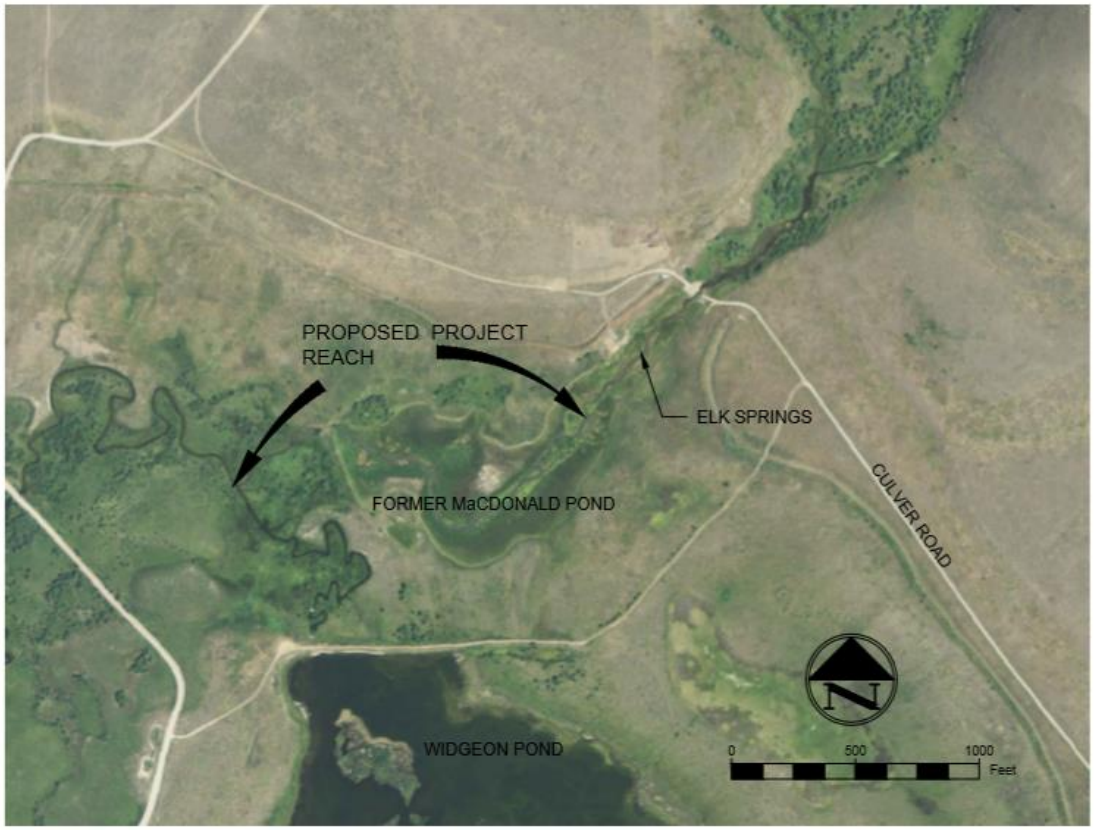
SEPTEMBER 9, 2020



1 VICINITY MAP
SCALE: 1" = 24,000'

TRAVEL DIRECTIONS FROM DILLON MT:

From Dillon, MT travel south on I-15 for 62 miles. Take exit 0 (toward Monida) to South Valley Road (unpaved) and proceed 28 miles past Lakeview, the USFWS headquarters. Continue for another 10 miles east on South Valley Road to Elk Lake Road junction (USFS Rd. 8384), and continue for 2.5 miles North to project reach, immediately North of Widgeon Pond.



2 PROJECT SITE LOCATION
SCALE: 1" = 500'

SHEET 1

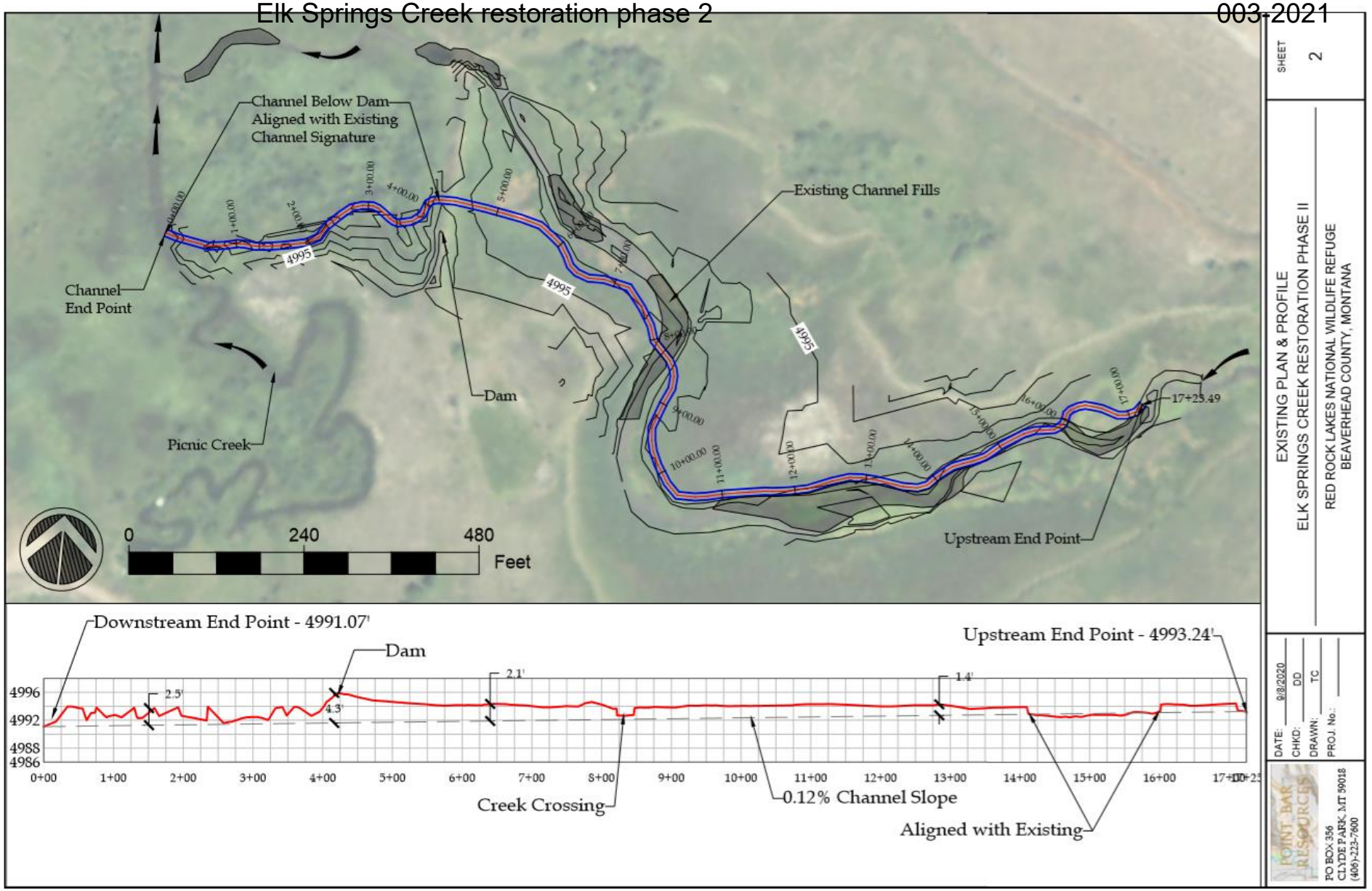
VICINITY AND SITE LOCATION MAP
ELK SPRINGS CREEK RESTORATION PHASE II
RED ROCK LAKES NATIONAL WILDLIFE REFUGE
BEAVERHEAD COUNTY, MONTANA

DATE: 9/8/2020
CHKD: DD
DRAWN: TC
PROJ. No.:

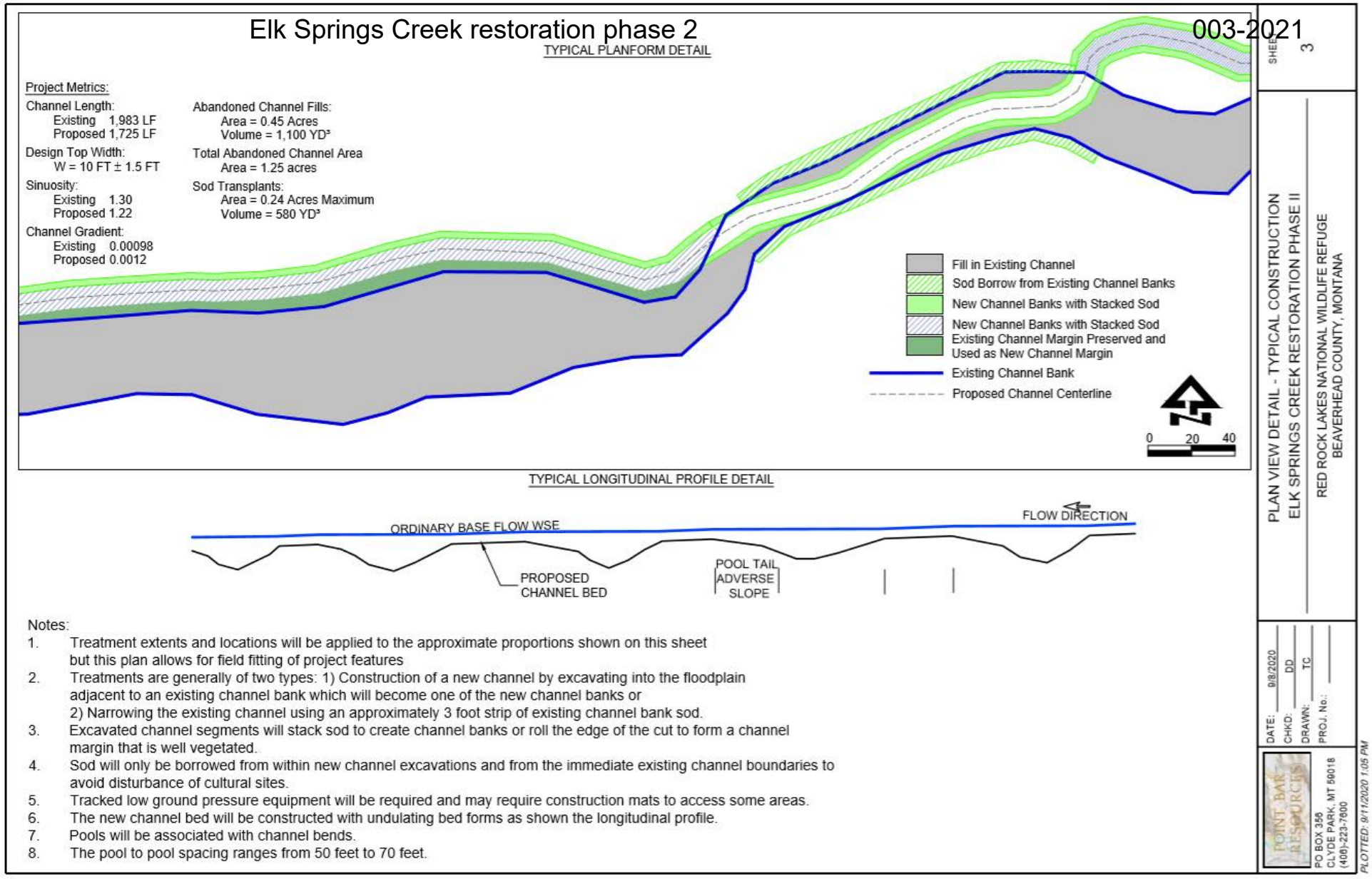
POINT BAR RESOURCES
PO BOX 356
CLYDE PARK, MT 59018
(406)-223-7600

PLOTTED: 9/11/2020 10:30 AM

Attachment G- Project Plans (2 of 6)

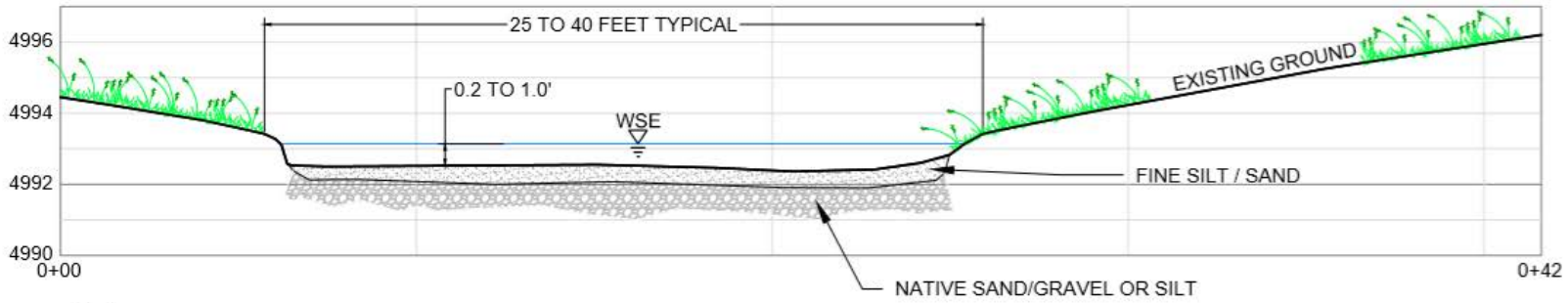


Attachment G- Project Plans (3 of 6)



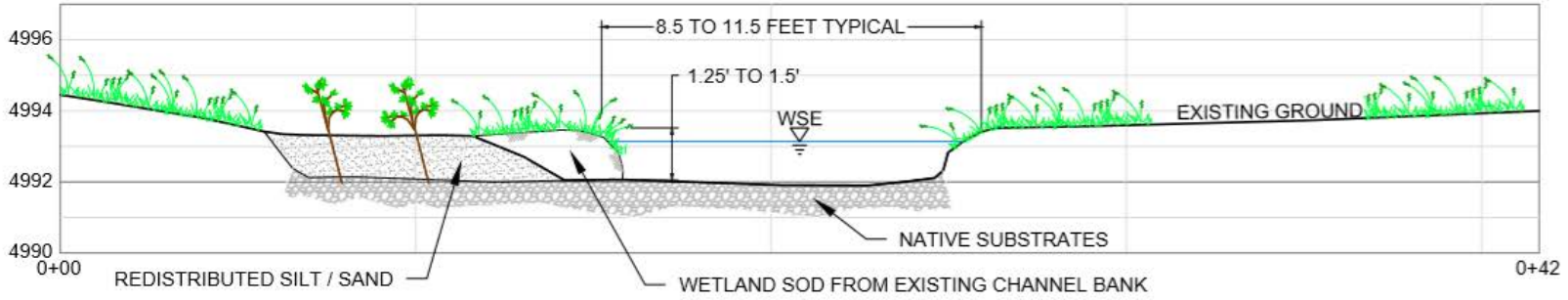
Attachment G- Project Plans (4 of 6)

TYPICAL EXISTING SECTION



Notes:
1. Substrates consist of fine sand and silt with limited to no gravel.
2. Silt depths range from 0 to 3.0 feet in the existing channel.
3. Fine channel substrates and former MacDonald Pond lake bed deposits generally fills and levels habitat features in the over-widened channel.

TYPICAL RIFFLE TYPE I TREATMENT



Notes:
1. Treatment applies to riffle and run type habitats
2. Wetland sod will be placed as shown to create a new channel margin.
3. The sod will be rolled to ensure that bank face is fully vegetated adjacent to flowing water
4. In channel silt/fine sand will be redistributed to channel fill areas behind the placed sod bank margins and seeded with native wetland seed mix.

SHEET 4

RIFFLE CROSS SECTION TREATMENT TYPE I
ELK SPRINGS CREEK RESTORATION PHASE II

RED ROCK LAKES NATIONAL WILDLIFE REFUGE
BEAVERHEAD COUNTY, MONTANA

DATE: 9/8/2020
CHKD: DD
DRAWN: TC
PROJ. No.:

POINT BAR RESOURCES
PO BOX 355
CLYDE PARK, MT 59018
(406)-223-7600

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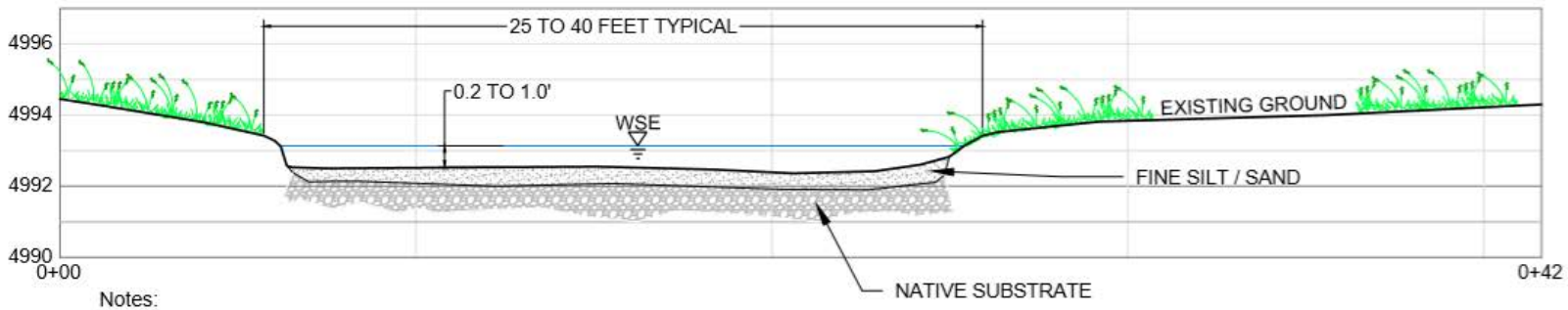
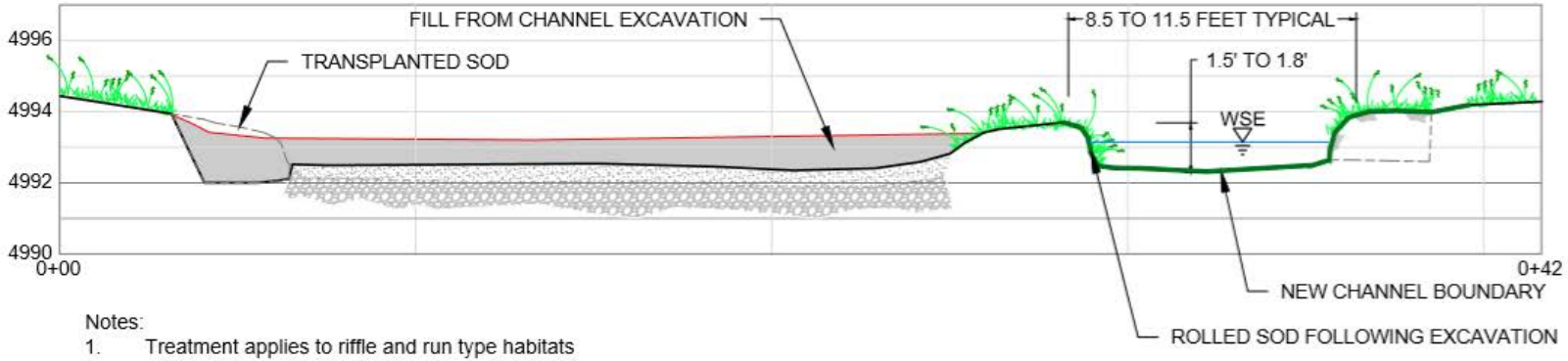
Attachment G- Project Plans (5 of 6)

TYPICAL EXISTING SECTION



Notes:
1. Substrates consist of fine sand and silt with limited to no gravel.
2. Silt depths range from 0 to 3.0 feet in the existing channel.
3. Fine channel substrates and former MacDonald Pond lake bed deposits generally fills and levels habitat features in the over-widened channel.

TYPICAL RIFFLE TYPE II TREATMENT



Notes:
1. Treatment applies to riffle and run type habitats
2. A new channel will be excavated into the floodplain.
3. Wetland sod will be placed or rolled in the excavation as shown to create a new channel margin.
4. The sod will be rolled to ensure that bank face is fully vegetated adjacent to flowing water
5. Excavated soil/silt/fine sand will be placed in the existing channel and seeded with a native wetland seed mix.

SHEET 5

RIFFLE CROSS SECTION TREATMENT TYPE II
ELK SPRINGS CREEK RESTORATION PHASE II

RED ROCK LAKES NATIONAL WILDLIFE REFUGE
BEAVERHEAD COUNTY, MONTANA

DATE: 9/8/2020
CHKD: DD
DRAWN: TC
PROJ. No.:

POINT BAR RESOURCES
PO BOX 356
CLYDE PARK, MT 59018
(406)-223-7600

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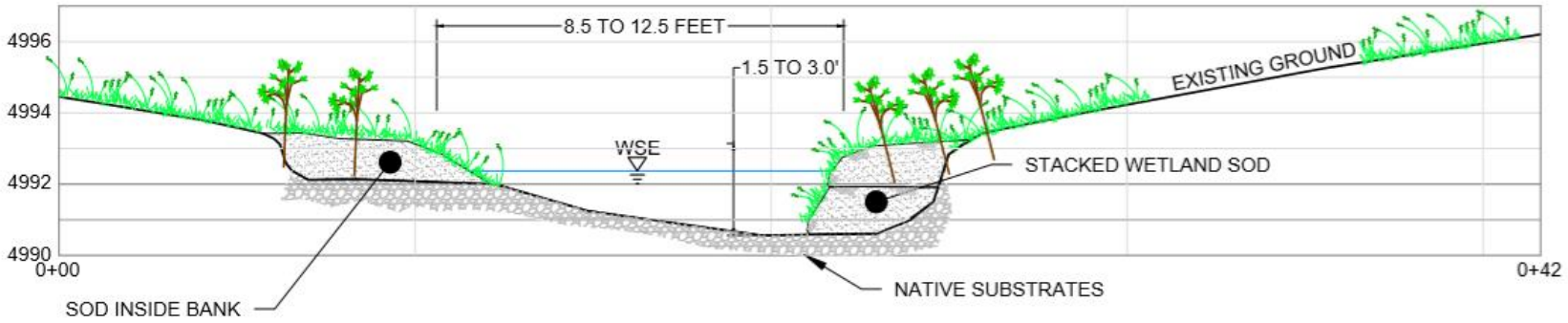
Attachment G- Project Plans (6 of 6)

TYPICAL STACKED SOD BANK POOL TREATMENT



Notes:
1. Treatment applies to pool habitats.
2. The bank toe adjacent to the deepest part of the pool (Outside bank) will be constructed in lifts using sod.
3. Upper banks will be constructed by placing sod on the prepared bank toe.

SHEET 6

POOL CROSS SECTION TREATMENT
ELK SPRINGS CREEK RESTORATION PHASE II
RED ROCK LAKES NATIONAL WILDLIFE REFUGE
BEAVERHEAD COUNTY, MONTANA

DATE: 9/8/2020
CHKD: DD
DRAWN: TC
PROJ. No.:

POINT BAR RESOURCES
PO BOX 358
CLYDE PARK, MT 59018
(406)-223-7600

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Red Rock Lakes National Wildlife Refuge
27650B South Valley Road
Lima, Montana 59739

In Reply Refer to:
FWS/IR05/IR07

November 24, 2020

Montana Fish, Wildlife & Parks
Fisheries Division - Future Fisheries Improvement Program
1420 E. Sixth Ave.
PO Box 200701
Helena, MT 59620-0701

Employees of Montana Fish, Wildlife and Parks and the Fish and Wildlife Service are working together to restore habitat that will benefit Arctic grayling and other species of wild, native fish and invertebrates. This project focuses on restoration of a section of Elk Springs Creek that provides access to important spawning habitat. Part of this reach was under the formerly impounded waters of MacDonald Pond, a wetland created for trumpeter swans and other waterbirds many years ago. Our staff is excited to restore this stream so that once again Arctic grayling can safely travel to spawning beds upstream. This relict population of endemic grayling have been hanging on at a low level for the past five years. The project will help them with one important aspect of their lifecycle, and hopefully provide a boost. Please know that this project is a high priority for the Refuge, and we fully support efforts to acquire funds necessary to complete it. Do not hesitate to contact me if I can answer any questions. Thank you for your consideration!

Mike Bryant
Wildlife Refuge Manager
406 276-3536 x103
406 596-1853 (c)