licenses-and-permits/stream-permitting Date Accepted/ Initials Date Forwarded to DFWP	
This space is for all Department of Transportation and SPA 124 permits (government projects). Project Name	
Control Number Contract letting date MEPA/NEPA Compliance Yes No If yes, #14 of this application does not apply.	

JOINT APPLICATION FOR PROPOSED WORK IN MONTANA'S STREAMS, WETLANDS, FLOODPLAINS, AND OTHER WATER BODIES

Use this form to apply for one or all local, state, or federal permits listed below. The applicant is the responsible party for the project and the point of contact unless otherwise designated. "Information for Applicant" includes agency contacts and instructions for completing this application. To avoid delays, submit all required information, including a project site map and drawings. Incomplete applications will result in the delay of the application process. Other laws may apply.

The applicant is responsible for obtaining all necessary permits and landowner permission before beginning work.

✓	<u>PERMIT</u>	AGENCY	<u>FEE</u>
	310 Permit	Local Conservation District	No fee
✓	SPA 124 Permit	Department of Fish, Wildlife and Parks	No fee
	Floodplain Permit	Local Floodplain Administrator	Varies by city/county (\$25 - \$500+)
✓	Section 404 Permit, Section 10 Permit	U. S. Army Corps of Engineers	Varies (\$0 - \$100)
	318 Authorization 401 Certification	Department of Environmental Quality	\$250 (318); \$400 - \$20,000 (401)
	Navigable Rivers Land Use License, Lease, or Easement	Department of Natural Resources and Conservation, Trust Lands Management Division	\$50, plus additional fee

A. APPLICANT INFORMATION

NAME OF APPLICAN T	(person res	sponsible for	project):	Bureau o	f Land Management
---------------------------	-------------	---------------	-----------	----------	-------------------

Has the landowner consented to this project? \square No

Mailing Address: 111 Garryowen Rd, Miles City, MT 59301 Physical Address: 111 Garryowen Rd, Miles City, MT 59301

Day Phone: 406-233-2815 Evening Phone: Click here to enter. E-Mail: cstuart@blm.gov

NAME OF LANDOWNER (if different from applicant): Bureau of Land Management

Mailing Address: see above APPLICANT

Physical Address: Click here to enter physical address or N/A.

Day Phone: Click here to enter or N/A. Evening Phone: Click here to enter or N/A. E-Mail: Click here to enter

or N/A.

NAME OF **CONTRACTOR/AGENT**): N/A

Mailing Address: <u>Click here to enter name or N/A.</u> Physical Address: <u>Click here to enter name or N/A.</u>

Day Phone: Click here to enter name or N/A. Evening Phone: Click here to enter name or N/A. E-Mail: Click

here to enter name or N/A.

B. PROJECT SITE INFORMATION

NAME OF **STREAM** or **WATER BODY** at project location <u>Pumpkin Creek</u> Nearest Town <u>Miles City, MT</u> Address/Location: <u>BLM administered public land in Custer County</u> Geocode (if available): 14-1452-07-1-01-01-0000

Choose. 1/4 Choose. 1/4 Choose. 1/4, Section 7, Township 5N, Range 49E County Custer

Choose. 1/4 Choose. 1/4, Section 17, Township 5N, Range 49E County Custer

Upstream Longitude -105.612824° Latitude 46.183776°

Downstream Longitude -105.675058° Latitude 46.216083°

The state owns the beds of certain state	navigable waterways. Is this a state navigable waterway? No.
place, roads, tributaries, landmarks; 2) a c	SKETCH that includes: 1) the water body where the project will take circled "X" representing the exact project location. IF NOT CLEARL OVIDE WRITTEN DIRECTIONS TO THE SITE.
Directions to site: From Billings take I-94E 1 Project site is NE of MT-59 and accessible fr	44 mi to Miles City, MT. From Miles City take MT-59 south 15 miles. om dirt roads on BLM land.
See maps in Appendix XX	
	C. PROJECT INFORMATION
1. TYPE OF PROJECT (check all that app Bridge/Culvert/Ford Construction Bridge/Culvert/Ford Removal Road Construction/Maintenance Bank Stabilization/Alteration Flood Protection Channel Alteration Irrigation Structure Water Well/Cistern Excavation/Pit 2. PLAN OR DRAWING of the proposed processed of the project from about the dimensions of the project (height, width, design of the project of the project of the dimensions of the project (height, width, design of the project	 ☑ Fish Habitat ☐ Recreation (docks, marinas, etc.) ☐ Dredging ☐ New Residential Structure ☐ Manufactured Home ☐ Improvement to Existing Structure ☐ Commercial Structure ☐ Utilities ☒ Wetland Alteration ☐ Pond ☐ Temporary Construction Access ☐ Debris Removal ☒ Other Placement of natural materials in channel for restoration Project MUST be attached. This plan or drawing must include: Pove) • a cross section or profile view
 See Attached restoration plan for restorati Beaver Dam Analogue Structures Post-Assisted Log Structures 	on maps and structure specific specifications:
3. IS THIS APPLICATION FOR an annua	al maintenance permit? ☐ Yes ☒ No
4. PROPOSED CONSTRUCTION DATE Finish date <u>11/15/2024</u> Is any portion of t	. Include a project timeline. Start date $\frac{8/9/2022}{\text{No}}$ he work already completed? \square Yes \square No
create and maintain a healthy, resilient riv	sed project? in Creek is to promote natural, self-sustaining fluvial processes that verscape. Doing so will increase habitat quality for the native fish lepend on riparian habitats. Some specific goals associated with this

o Increase the proportion of active valley bottom

pilot project that are necessary to achieve the broader goal here are:

- o Increase lateral connectivity
- o Expand riparian cover along the channel and within active floodplain
- Increase channel/habitat complexity

Later in the planning process here these objectives are revisited within the context of indicators that can be used to evaluate restoration effectiveness at addressing these goals.

Indicators of restoration success are described in the attached restoration design report.

6. PROVIDE A BRIEF DESCRIPTION of the proposed project.

Low-tech process-based restoration (LTPBR) techniques are essential to achieving the scale of impacts needed to restore watershed-level processes, on which wildlife and aquatic resources in the region depend. Primary restoration techniques discussed throughout this application are the Beaver Dam Analog (BDA) and the Post-assisted log structure (PALS). BDAs are channel-spanning structures that mimic natural beaver dams. They are temporary features on the landscape with functions that change in response to the effect of flowing water, sediment, and beaver activity. BDAs are constructed with wood posts and with material similar to what beaver use to build their dams, including branches and stems of deciduous trees and shrubs. PALS are built with woody materials of various sizes held together with untreated wooden posts to mimic natural wood accumulations. Bank-attached PALS are used to increase flows against the opposite bank to encourage channel widening and sinuosity in incised systems. Channel-spanning PALS are porous alternatives to BDAs requiring less labor time and fill than a traditional BDA. Channel-spanning PALS slow water to encourage sediment trapping and floodplain subirrigation, and generally encourage incised channels to gain more meander length as a first step in restoration.

The attached restoration plan (Appendix xx) identifies the site-specific approaches that restoration practitioners will employ to improve degraded aquatic and riparian habitat. A backhoe or excavator will assist with soil movement when building BDAs where needed and where soil is suitable for use. Portions of this site do not support emergent sod suitable for use in BDAs; upland sod or facultative grasses will also be sourced for BDAs as feasible to minimize excavation of wetland sod.

7. WHAT IS THE CURRENT CONDITION of the proposed project site? Describe the existing bank condition, bank slope, height, nearby structures, and wetlands.

Throughout the project area, Pumpkin Creek is deeply incised, though the areas in moderate condition have begun widening and have developed some inset floodplains. The banks are generally steep and erodible, with little vegetation cover. Overall, there is very little riparian shrub cover. The channel substrate consists mostly of fine material derived from the highly erodible shales, siltstones and sandstones of the basin. Occasional pockets of gravel are primarily deposited on bar surfaces. The lack of woody riparian vegetation leaves the channel structurally starved; within the project area there are no large wood accumulations in the channel. Wetlands are limited to narrow bands, sometimes less than one foot wide, along low banks of the stream. No structures are present near the project extent.

8. **PROJECT DIMENSIONS**. How many linear feet of bank will be impacted? How far will the proposed project encroach into and extend away from the water body?

Maximum bank impact (materials touching bank; no excavation, potential scour on one bank) is 426 linear feet, equivalent to 213 structures averaging 2 ft in length upstream-downstream. In reality, many structures will have no bank impact and will stabilize banks upstream and downstream, while some structures will encourage lateral channel migration to restore scour and deposition processes in incised channels and may create more than two feet of scour at some site. The project, once complete, is expected to result in a gain in bank stability and improved bank stabilization from riparian vegetation and lower height of exposed bank.

All construction is within the natural (pre-incision) bankfull level of the stream. Each phase is constructed primarily within the current bankfull level. Minor pooling will occur outside bankfull where the channel is less than two feet incised, but the pooling is shallow and generally does not persist after the first year, except where side channel reactivation has been achieved.

9. **VEGETATION.** Describe the vegetation present on site. How much vegetation will be disturbed or covered with fill material during project installation? (Agencies require that only vegetation necessary to do the work be removed.) Describe the revegetation plan for all disturbed areas of the project site in detail.

Wetland vegetation is dominated by spikerush (*Eleocharis palustris*), three-square bulrush (*Schoenoplectus pungens*), prairie cordgrass (*Spartina pectinata*), Baltic rush (*Juncus baltica*), foxtail barley (*Hordeum jubatum*) and limited patches of sandbar willow (*Salix exigua*) and Plains cottonwood (*Populus deltoides*) seedlings. The upper terrace of the inset floodplain transitions into western wheatgrass (*Pascopyrum smithii*), smooth brome (*Bromus inermis*), wild rose (*Rosa sp.*), western snowberry (*Symphoricarpos occidentalis*), goldenrod (Solidago missouriensis), and sunflowers (*Helianthus maximiliani and H. nuttali*). Mature and decadent Plains cottonwood are present on the abandoned high terrace, outside the current inset floodplain, along part of the project reach.

Riparian vegetation along the channel and on inset floodplains is predominantly herbaceous. Sparse remnant cottonwoods are found in some areas on the inactive floodplain surface. As flooding of these inactive surfaces is very rare, these trees are rarely watered by overbank flows, and fresh sediment deposits for recruitment of new trees are essentially nonexistent. Additionally, the distance to groundwater has increased due to channel incision. Because of this, the existing trees/stands are senescent. For the processes that LTPBR seeks to jump start to become self-sustaining, natural sources of wood are necessary. Therefore, one of the primary objectives of the first phases of restoration is to increase the area of inset floodplains and to expand the extent of woody riparian vegetation within these floodplains. The inactive floodplain is covered in grasses and sage brush typically characteristic of uplands.

The intent of the in-stream efforts is restoration of the physical processes that lead to riparian health. In order to address the scope of degradation within the Pumpkin Creek drainage, the BLM's ultimate goal is to let the system do positive and beneficial work. Beaver dams are structural elements that influence physical, chemical, and biological processes essential for ecological function along and adjacent to the flowpath. The physical heterogeneity and hydraulic and geomorphic diversity will increase by connecting water flow within segments of the stream to its historic floodplain, which is now dominated by upland vegetation.

Heavy equipment will not be operated during periods when the soil is too wet to adequately support equipment/vehicles. If equipment/vehicles create ruts in excess of 3 inches deep, heavy equipment utilization will cease, as the soil will be deemed too wet to adequately support equipment/vehicles.

Off-road travel will be kept to a minimum to avoid creating new trails that may increase off-road vehicle travel by the public.

disturbed upland areas will be reseeded with the native seed mix of adapted plant species listed below, in the amounts specified in pounds of pure live seed (PLS)/acre. Only certified weed free seed would be used. The seeding will be repeated until a satisfactory stand is established. Erosion of the disturbance area shall be equal to or less than similar adjacent undisturbed areas. Within 1 growing seasons of the initial construction, vegetative cover shall be at least 30% or more of desirable species. Desirable species are those species specified in the seed mix. Within 3 to 5 years vegetative cover shall be at least 70% of that on similar adjacent undisturbed areas. If these standards are not met, additional reclamation measure such as re-seeding, applying soil amendments and/or additional erosion/sediment control BMPs, etc. shall be implemented.

Seed Mixture	Species of Seed Variety	Pounds/acre PLS	% Species Composition
Western wheatgrass	Pascopyrum smithii	8 PLS lbs/acre	53
Green Needlegrass	Stipa viridula	4 PLS lbs/acre	27
Purple Prairie Clover	Dalea purpurea	3 PLS lbs/acre	20

Erosion control and sediment containment practices will aid in stabilization and capture of sediment until vegetation reestablishes to effectively control erosion and sediment. Waterbars or erosion control blankets may be installed on the slopes adjacent to streams, and straw wattles will be available for installation at the bottom of the erosion control blankets so that sediment can be captured before it goes into the stream. Certified weed-free straw waddles are also available for erosion control and access-discouragement along temporary construction access footpaths and equipment routes.

10. MATERIALS. Describe the materials proposed to be used. Note: This may be modified during the permitting process. It is recommended you do not purchase material until all permits are issued.

Cubic yards/Linear feet 66 yd ³	Size and Type natural wooden posts (3-6 inches diameter)	Source [[??]]]
358 yd ³	mixed branches (ponderosa pine, western juniper, sandbar willow)	[[[??]]]
87 yd^3	soil and/or sod	excavated on-site

Quantities are for Phase 1 of construction, as reported in the attached restoration plan. An additional 15% of the listed volumes are anticipated to be placed in Phases 2 and 3. Length of all structures will total approximately 5410 linear feet. See attached restoration plan for additional details.

11. **EQUIPMENT**. List all equipment that will be used for construction of the project. How will the equipment be used on the bank and/or in the water? Note: Make sure equipment is clean and free of weeds, weed seeds, and excess grease before using it in the water waterway. To prevent the spread of aquatic invasive species, to the extent practical, remove mud and aquatic plants from heavy machinery and other equipment before moving between waters and work sites, especially in waters known to be infested with aquatic invasive species. Drain water from machinery and let dry before moving to another location.

Hydraulic Post Pounder with Ecofriendly Hydraulic Fluid operated from the floodplain. This will be used for installing the BDA posts.

Excavator operating within the floodplain and from the dry portion of the riparian zone. This will assist with moving brush materials and soil when building the structures.

- 12. **DESCRIBE PLANNED EFFORTS TO MINIMIZE PROJECT IMPACTS**. Consider the impacts of the proposed project, even if temporary. What efforts will be taken to:
 - Minimize erosion, sedimentation, or turbidity?

Turbidity will be minimized by conducting instream work within Rose Creek when instream flows are absent (ie this portion of Rose Creek is intermittent)

• Minimize stream channel alterations?

The intent of the project is to induce stream channel alterations by improving natural processes. Much of the channel is currently incised with a limited floodplain. This project will reduce the overall flush of sediment downstream, over time, by inducing sediment retention through aggradation. It is anticipated that there will be increased pool formation behind the BDA structures, but this will be mostly a rise in pool levels and duration with minimal increase in actual new pool acres. The loss of wetland vegetation to the ponding is expected to be minimal and will be offset by increased floodplain creation and sub-irrigated areas that will slowly convert to wetland conditions again. It is anticipated that approximately 0.08 acres could be impacted by increased ponding, based on an assumption of an average of 1 ft on each bank for a length of 8 ft at 223 structures could be inundated enough to impact wetland vegetation, but over [[[[]]] acres of wetland habitat would be created, based on expansion of the low floodplain as the channel widens and regains elevation, and based on eventual subirrigation of the abandoned terrace and floodplain after all phases of restoration are complete.

• Minimize effects to stream flow or water quality caused by materials used or removal of ground cover?

Proposed techniques include the installation of simple structures; constructed of natural materials like logs and live vegetation; strategically designed to slow and disperse water, dissipate energy, capture sediment, and increase soil moisture; thereby restoring a dynamic equilibrium to the natural processes which support improved water quality.

Ground cover around the project area will be restored according to the reclamation, erosion control and sediment containment plans presented within our response to **Item 9**, **Vegetation** (above).

• Minimize effects on fish and aquatic habitat?

There are no fish populations within the project reach.

In general, BDAs and PALs are leakier than beaver dams. Beavers are far more effective at plugging and maintaining dams than humans who install low-tech, low-cost structures. In general, amphibians and other aquatic vertebrae have coevolved with beavers and can migrate upstream and downstream of beaver dams during certain times of the year or during certain flow conditions.

Aquatic habitat is expected to drastically improve with reduction of stream channel scour and bed material displacement. The duration and extent of saturation is also expected to increase in response to this proposed habitat restoration effort.

To mitigate potential spread of Aquatic Nuisance Species all project construction participants will use a combination of proper sanitation and chemical decontamination to prevent survival and subsequent transfer of invasive species on tools, equipment, boots, and wading gear.

• Minimize risks of flooding or erosion problems upstream and downstream?

The project is intended to decrease erosion. The process-based-restoration approach should serve to aid in the attenuation of flood flows by creating channel roughness and promoting the development of floodplains.

• Minimize vegetation disturbance, protect existing vegetation, and control weeds?

All equipment and vehicles used in the construction process should be washed prior to entering public lands to help prevent the introduction of invasive species seed.

Only certified weed free seed would be used.

See Additional mitigation listed under Item 9, Vegetation (above).

13. WHAT ARE THE NATURAL RESOURCE BENEFITS of the proposed project?

The intent of the project is to improve the conditions of riparian-wetland and aquatic ecosystems on BLM managed lands in Custer County, Montana. In addition, this project will be used as a training opportunity for restoration personnel at other BLM field offices. Improving floodplain connectivity and natural water storage is likely to make Pumpkin Creek more resilient to drought, also benefiting waterbodies downstream of Pumpkin Creek.

The project is within general sage-grouse habitat. When in close proximity to sagebrush communities, riparian, wetland, and other forb-rich communities are commonly considered suitable summer and/or late brood-rearing habitat for Greater sage-grouse. The functional condition and health of riparian-wetland and mesic areas can impact the likelihood that cover and food resources are provided annually to Greater sage-grouse. Suitable cover and food may be available from July through September in riparian and wet meadow areas when the majority of areas are functioning properly. Currently, the riparian corridors within the project do not exhibit properly functioning riparian conditions. Greater sage-grouse brood rearing habitat will be preserved when the

recovery of historically negatively impacted riparian-wetland systems is accelerated through process-based restoration.

[[Fish? Other resources of note?]]

14. LIST ALTERNATIVES to the proposed project. Why was the proposed alternative selected?

A no-action alternative was proposed and analyzed under the National Environmental Policy Act (NEPA) process. It was determined that this alternative would not meet the intent of improving aquatic and riparian habitat in a timely manner and the site would continue to not meet the Riparian Standard for Rangeland Health (Standards for Rangeland Health and Guidelines for Livestock Grazing Management, 1997).

There were no other viable alternatives that met the need to improve the aquatic and riparian habitat while meeting the multiple-use mandate for public lands managed by the BLM using cost-effective methods.

The proposed project was selected due to ongoing demonstrations where low-tech stream restoration techniques have benefitted cattle, downstream water users, and stream and riparian condition on actively managed grazing lands. Over the last decade, a renewed recognition of the role of the once widespread beaver has revealed insights about how this ecosystem engineer greatly impacts riparian function and accelerates recovery of degraded systems. BDAs and PALs are becoming increasingly popular bioengineering techniques to employ where there is a high potential for active beaver to serve as stream conservation and restoration agents; early results from numerous projects show promise for rapid achievement of a variety of riparian goals. Protection and restoration of mesic habitats, such as riparian and wet meadow areas, can benefit sage-grouse. While a variety of mesic conservation strategies exist, relatively simple and low-cost alternatives could enable restoration at scales relevant to sage-grouse.

D. ADDITIONAL INFORMATION FOR SECTION 404, SECTION 10, AND FLOODPLAIN PERMITS ONLY. If applying for a Section 404 or Section 10 permit, fill out questions 1-3. If applying for a floodplain permit, fill out questions 3-6. (Additional information is required for floodplain permits – See "Information for Applicant.")

1. Will the project involve placement of dredged (excavated) and/or fill material below the ordinary high water mark, in a wetland, or other waters of the US? If yes, what is the surface area to be filled? How many cubic yards of fill material will be used? Note: Wetland delineations are required if wetlands are affected.

Structure type and quantity	Impact surface area/length	Estimated fill/dredge volume (total)	Material
BDAs (how many)	xx ac/xx LF	xx yd³	
PALs (how many)	xx ac /xx LF	xx <mark>yd³</mark>	

Values represent maximum impact. Non-wetland sod will be used where feasible.

See wetland delineation information in Appendix xx.

2. Description of avoidance, mitigation, and compensation (see Information for Applicant). Attach additional sheets if necessary.

See Appendix D for project Design Features.

3. List the names and address of landowners adjacent to the project site. This includes properties adjacent to and across from the project site. (Some floodplain communities require certified adjoining landowner lists).

MILES CITY, MT 59301-8826;
State of Montana (immediately upstream);
Philip Leidholdt, Inc., 4587 HIGHWAY 59 S MILES CITY, MT 59301-8834
Downstream of the project site: JCM ENTERPRISES INC 34671 PUERTO PL DANA POINT, CA 92629-5900 4. List all applicable local, state, and federal permits and indicate whether they were issued, waived, denied, or pending. Note: All required local, state, and federal permits, or proof of waiver must be issued prior to the
issuance of a floodplain permit.
404 – NWP 27: The Army Corps of Engineers was notified of the project on [[[[], 2022. A field site review of the site was held [[[[[[[[]], Project Number: [[[[[[[]], Stream Protection Act (SPA 124 Permit):
The SPA 124 Permit Application will be delivered to Montana Fish, Wildlife and Parks (MTFWP) on June xx, 2022.
Please see: Appendix B – Montana Natural Heritage Program Wetland Information, and USDA Natural Resources Conservation Service Web Soil Survey Appendix E – Methods and results of the aquatic resources delineation, Wetland Delineation
6. Does this project comply with local planning or zoning regulations? ⊠ Yes □ No
E. SIGNATURES/AUTHORIZATIONS Each agency must have original signatures signed in blue ink.
After completing the form, make the required number of copies and then sign each copy. Send the copies with original signatures and additional information required directly to each applicable agency.
The statements contained in this application are true and correct. The applicant possess' the authority to undertake the work described herein or is acting as the duly authorized agent of the landowner. The applicant understands that the granting of a permit does not include landowner permission to access land or construct a project. Inspections of the project site after notice by inspection authorities are hereby authorized.
APPLICANT (Person responsible for project): Print Name: Click here to enter name. LANDOWNER: Print Name: Bureau of Land Management
Signature of Applicant Date Signature of Landowner Date
*CONTD A CTOD / A CENT.

*CONTRACTOR/AGENT:
Print Name: Click here to enter name.

Signature of Contractor/Agent

Date

Draft Copy (Not Final) Only For Education Example

^{*}Contact agency to determine if contractor signature is required.

Aquatic Resources Delineation for Pumpkin Creek Restoration Project, Bureau of Land Management, Miles City

Prepared for: U.S. Army Corps of Engineers

100 Neill Avenue Helena, MT 59601

Prepared by: Chadwick Consulting

Livingston, Montana

Date: May 12, 2022

INTRODUCTION

Chadwick Consulting conducted an aquatic resources (AR) delineation on July 6 through July 10, 2021, and [[[date TBD]]] to support a Bureau of Land Management (BLM) stream restoration project on Pumpkin Creek. This memo identifies the aquatic resources occurring at the project site and has been completed in support of environmental permitting. The project is located approximately 15 mi southeast of Miles City, Custer County, Montana, in Section 1, Range 48 East, Township 5 North, Sections 6, 7, and 17, Range 49 East, Township 5 North. The project site is mapped in **Figure 1** and on the aquatic resource delineation maps in **Appendix A**. Additional information about the project site is described in the project design report included with the joint permit application.

The project area lies within grass- and sage-dominated rangeland along Pumpkin Creek in undeveloped land. Plains cottonwood (*Populus deltoides*) is present close to the stream but with patchy cover, mostly as large decadent trees on the upper terrace and small groups of seedlings of multiple ages along the low terraces and new deposits. The delineation assessment area extends along both banks of approximately 8.4 miles of Pumpkin Creek (see AR delineation maps, **Appendix A**). The soil composition within the wetlands is primarily sandy clay loam and sandy clay.

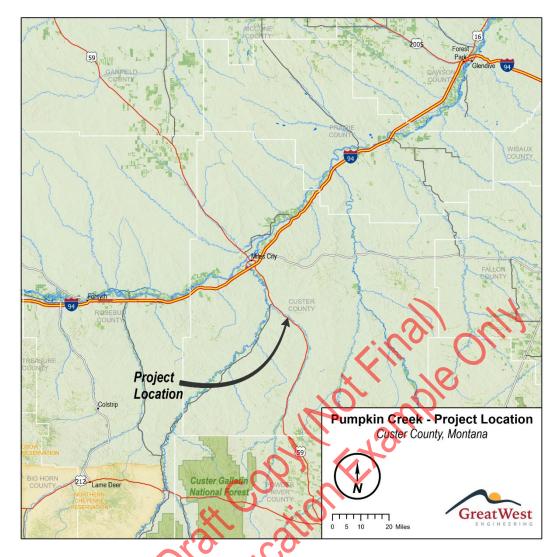


Figure 1. Project Location

METHODS

Off-Site Review

A preliminary off-site review was completed to identify potential wetland areas and waterways from a variety of source documents. Investigators reviewed aerial photos, USGS topographical maps, MTNHP updated wetland inventory mapping data (MTNHP 2022; **Appendix D**) and NRCS soils maps (NRCS 2021; **Appendix D**) prior to conducting the on-site wetland delineation.

On-Site Review

This review focused on determining the presence of wetlands or waterways present within Project area. Amy Chadwick of Chadwick Consulting delineated aquatic resources at the project site, using the 2010 Regional Supplement to the Corps of Engineers (COE) Wetland Delineation Manual: Great Plains Region (Version 2.0; COE 2010). The Great Plains Regional Plant List of the 2020 National Wetland Plant List was used to determine vegetation indicator status rating (COE 2020). Vegetation species were identified using Lesica (2012). Plant nomenclature generally follows the Great Plains Regional Plant List to maintain continuity with wetland determination forms.

Paired data points (DP) were established within the wetland (WL) and adjacent upland/nonwetland area (UPL) for each wetland. At each data point wetland indicator data were collected and analyzed using COE wetland determination data forms for the Great Plains Regional Supplement (COE 2010; **Appendix C**). In general, an area qualifies as a wetland if a site exhibits positive wetland indicators for three parameters: vegetation, soils, and hydrology. If all three parameters at a sample point exhibited positive wetland indicators, a positive wetland determination was made for the area represented by the sample point. If any one of the three parameters at a sample point failed to exhibit positive wetland indicators, the area was determined to be non-wetland unless difficult wetland situations exist, as specified in the Great Plains Regional Supplement (COE 2010).

Areas determined to be wetlands were documented, surveyed, and mapped. Wetlands were labeled with a number and the prefix "WL" (e.g., "WL1"). Wetlands associated with the same source of hydrology were given the same wetland number designation; however, wetlands separated by non-wetland waterway were given a different alphanumeric identifier (e.g., "WL-1a. WL-1b"). Sample points where wetland criteria and associated upland criteria at the wetland/upland boundary were evaluated and labeled with a number and a prefix that corresponded with location of each point in relation to the sampled wetland or upland area (e.g., "WL-1a/UPL-1a"). Wetland determination data were collected at multiple paired plots in each subarea of WL-1(i. e., WL-1a and Wl-1b) due to the length of the assessment area. DPs were only established in areas where wetland width was greater than one meter to make sure boundaries were outside the upper limit of the precision of the submeter GPS. These DPs are labeled alphanumerically for each subarea (i.e., WL-1a.1, WL-1a.2). Much of the wetland is a band narrower than one meter along the low bank. Wetland average width was estimated for these narrow areas. The Aquatic resource delineation maps (Appendix A) only show the wider mapped wetland areas, but the area calculation takes into account the average width of narrower stretches of wetland. The primary wetland at the project site (WL-1), with subareas -1a and -1b, totals over five acres, but the wetland is narrow and linear. The delineator walked this entire wetland on two sides, effectively walking two long transects and covering the entire wetland, rather than collecting data on multiple perpendicular transects.

Non-wetland waterways (NWW) were determined following the COE Regulatory Guidance Letter, No. 05-05: Ordinary High Water Mark Identification (OHW; COE 2005). Investigators surveyed wetland boundaries using a Trimble R1 Global Navigation Satellite System (GNSS) receiver and ESRI Collector software on cell phone to collect sub-meter GPS data. Great West Engineering post-processed and mapped aquatic resources survey data over recent aerials to verify accuracy of wetland boundary locations and to calculate acreage of aquatic resources on-site. All aquatic resources and data plots were documented with digital photos, included in the photo pages in **Appendix B**. The Natural Resources Conservation Service soil map (NRCS 2021) and a map of the MTNHP updated National Wetland Inventory wetlands data for the project site (MTNHP 2022) are included in **Appendix D**.

RESULTS

The aquatic resources delineation was performed on July 6 through July 10, 2021 and [[[date]]]. Aquatic resources delineated at the project site consist of two wetlands (WL) and two streams, delineated as NWW. All wetland areas directly adjacent to Pumpkin Creek are considered part of the same wetland (WL-1) because all have the same source of hydrology and similar vegetation and landform settings.

The streams include Pumpkin Creek, the primary waterbody in the project area, and Johnson Creek, a small tributary to Pumpkin Creek. Only the confluence of Johnson Creek, within the high water influence of Pumpkin Creek, is within the project area. Aquatic resources are described below and summarized in Tables 1 and 2.

Description of Delineated Aquatic Resources

Wetland WL-1

Wetland WL-1, including WL-1a and WL-1b, is a palustrine emergent (PEM) wetland confined to the lower banks of Pumpkin Creek, mostly within 1.5 ft elevation of the OHW scour of the incised active channel. Much of the wetland is only one to two feet wide, or narrower, forming a narrow strip between OWH and bankfull but WL-1 also contains multiple wider areas on new inset terraces and vegetated bars on both sides of Pumpkin Creek. Vegetation is dominated by native emergent species such as Juncus balticus, Schoenoplectus pungens, Hordeum jubatum, and Spartina pectinata, with Helianthus maximiliani at upper margins and some patches of seedling to small sapling Populus deltoides (Plains cottonwood), primarily on large depositional bars toward the downstream end of the assessment area. Some mature to decadent Plains cottonwood are present on the high terrace, which is now upland, and well outside the active channel and wetland extent. Soils in WL-1 were classified as hydric primarily based on the Loamy Gleyed Matrix (F2), Depleted Matrix (F3) and Redox Dark Surface (F6) hydric soil indicators. Additional hydric soil indicator information is included in Table 1 and on the COE wetland determination forms in Appendix C. Pumpkin Creek is the primary source of hydrology for WL-1, although some groundwater inputs from the base of high banks and the abandoned terrace is also possible. Water availability to WL-1 fluctuates with stream flow of Pumpkin Creek, which is an intermittent Prairie stream.

Wetland WL-2

Wetland WL-2 is an emergent wetland perched on a high abandoned terrace of Pumpkin Creek but within the project limits is a narrow vegetated path draining from the upper wetland area down to the active channel of Pumpkin Creek. WL-2 is dominated by native emergent wetland species, including *Eleocharis palustris*, *Schoenoplectus pungens*, and *Hordeum jubatum*. Soil at Wl-2 was classified as hydric based on the Depleted Matrix (F3) and Redox Dark Surface (F6) hydric soil indicators. The source of hydrology for WL-2 is likely groundwater from down-valley flow from historic channels of Pumpkin Creek and/or an ephemeral tributary, but also may receive groundwater upwelling at the base of hillslopes north of the wetland.

NWW-1 (Pumpkin Creek)

Pumpkin Creek (NWW-1) is an intermittent prairie stream that drains approximately 702 square miles in total, and 640.7 square miles upstream of the project area (USGS 2022). Pumpkin Creek drains to the Tongue River, entering just downstream of the Twelve Mile dam south of Miles City. The active channel width generally ranges between 15 and 25 feet within the project area but gets as narrow as seven feet and as wide as 65 feet. The stream bed and banks are composed primarily of clay soil. The channel consists of a series of pools and glides, many of which go dry during summer months, with small rises, sometimes with gravel substrate, between pools. Streamflow on Pumpkin Creek is partly (approximately 18%) controlled by small impoundments on tributaries and a small check dam near the headwaters of Pumpkin Creek.

Flows in Pumpkin Creek are highly variable and can change dramatically after a rainstorm. Streamflow was variable during the delineation site visit, with the channel mostly dry at the beginning of the visit, but water rising rapidly in response to a rainstorm in the headwaters, and filling to the low terrace level by the next day. Figures B-25 through B-30 (Appendix B) illustrate the variable flow conditions during the delineation site visit.

NWW-2 (Johnson Creek)

Johnson Creek (NWW-2) is a small intermittent tributary to Pumpkin Creek, draining from the north. The base of Johnson Creek, within 20 feet of the confluence, and within the high water influence of Pumpkin Creek was delineated. Wetlands occurring outside OHW of Johnson Creek were included in WL-1 because Pumpkin Creek appeared to be the primary source of hydrology for wetlands at the confluence.

SUMMARY

A total of 6.52 acres of wetland was identified within the project area boundary (see delineation maps, **Appendix. A**). **Table 1** lists wetland feature name, acreage, Cowardin type, hydric soil indicators, source of hydrology, and dominant vegetation for the delineated wetlands. Photos of aquatic resources and data points are included in **Appendix B**. Wetland determination data forms are attached in **Appendix C**.

Table 1. Wetlands Summary

Wetland (WL)	Acreage	Wetland Data Point(s)	Cowardin Type ¹	Likely JD Status ²	Hydric Soil Indicators ³	Hydrology Source	Dominant Vegetation Species⁴
WL-1a	<mark>3.01</mark>	WL- 01a.1 through WL 01a.5	PEM (PSS <5%)		F3, F6, F2	Pumpkin Creek	Spartina pectinata, Helianthus maximiliani, Juncus balticus, Schoenoplectus pungens, Hordeum jubatum, and limited, patchy cover Populus deltoides saplings
WL-1b	<mark>3.49</mark>	01b.1 through WL- 01b.5	PEM (PSS <5%)	Y	F3; Other- combination F3 and F6; Other- problematic riparian soils	Pumpkin Creek	Spartina pectinata, Schoenoplectus pungens, Hordeum jubatum and limited, patchy cover of Populus deltoides saplings, and Salix amygdaloides
WL-2	0.02	WL-02	PEM	Y	F3, F6	Wetland on high terrace- return flow seep	Eleocharis palustris, Schoenoplectus pungens, Hordeum jubatum

¹ PSS-Palustrine Scrub-Shrub; PEM- Palustrine Emergent (Cowardin et al. 1979)

² USACE makes the final jurisdictional (JD) determination.

³ F2- Loamy gleyed matrix; F3- Depleted matrix; F6- Redox below dark surface

⁴ See COE data forms for additional species (**Appendix C**)

Table 2 lists characteristics of streams at the project area. Total delineated length of Johnson Creek is 950 feet but only a 20-foot stretch at the confluence, which also is affected by backwater from Pumpkin Creek at high flow, is within the project boundary.

Table 2. Other Waterbodies Summary

Non-wetland waterway (NWW) ID	Length (ft) within project area	Description	Hydrologic connectivity
NWW-1	34,584 (6.55 mi)	Pumpkin Creek, an intermittent tributary to the Tongue River (Yellowstone River system)	Surface and groundwater connectivity to WL-1; drains to Tongue River
NWW-2	20	Johnson Creek, an intermittent tributary to Pumpkin Creek	Drains to Pumpkin Creek; not in project boundary, other than at confluence

REFERENCES

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- Montana Natural Heritage Program (MTNHP). 2022, MTNHP wetland data, downloaded from https://gisservicemt.gov/arcgis/rest/services/MSDI Framework/WetlandsRiparian/MapServer
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- U.S. Army Corps of Engineers (COE) 2020. National Wetland Plant List, version 3.5 and Great Plains Regional Plant List:

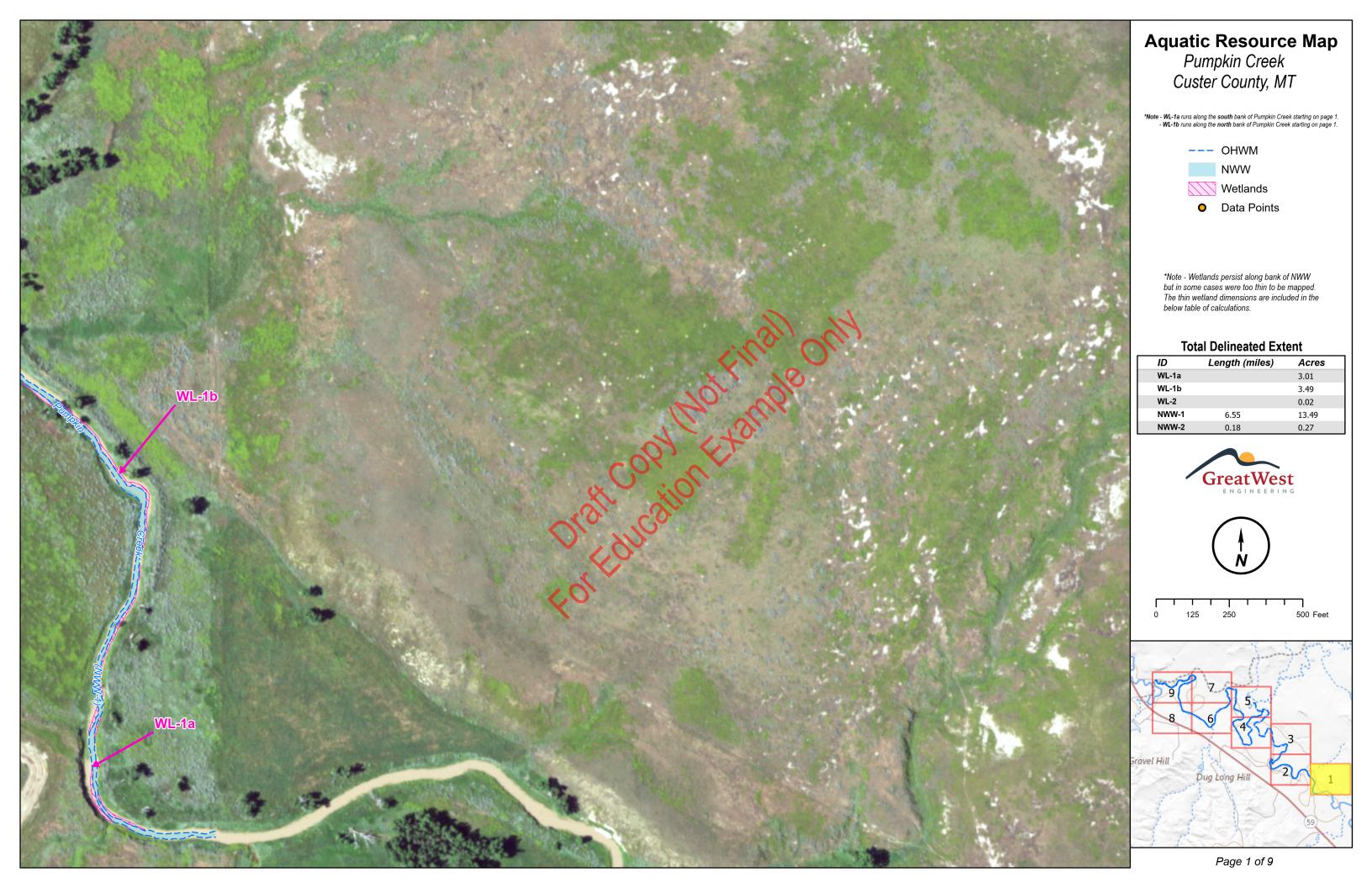
 http://wetland-plants.usace.army.mil/
- U.S. Geological Survey (USGS). 2022. StreamStats web-based GIS application. Accessed in April 2022 at: https://streamstats.usgs.gov/ss/.

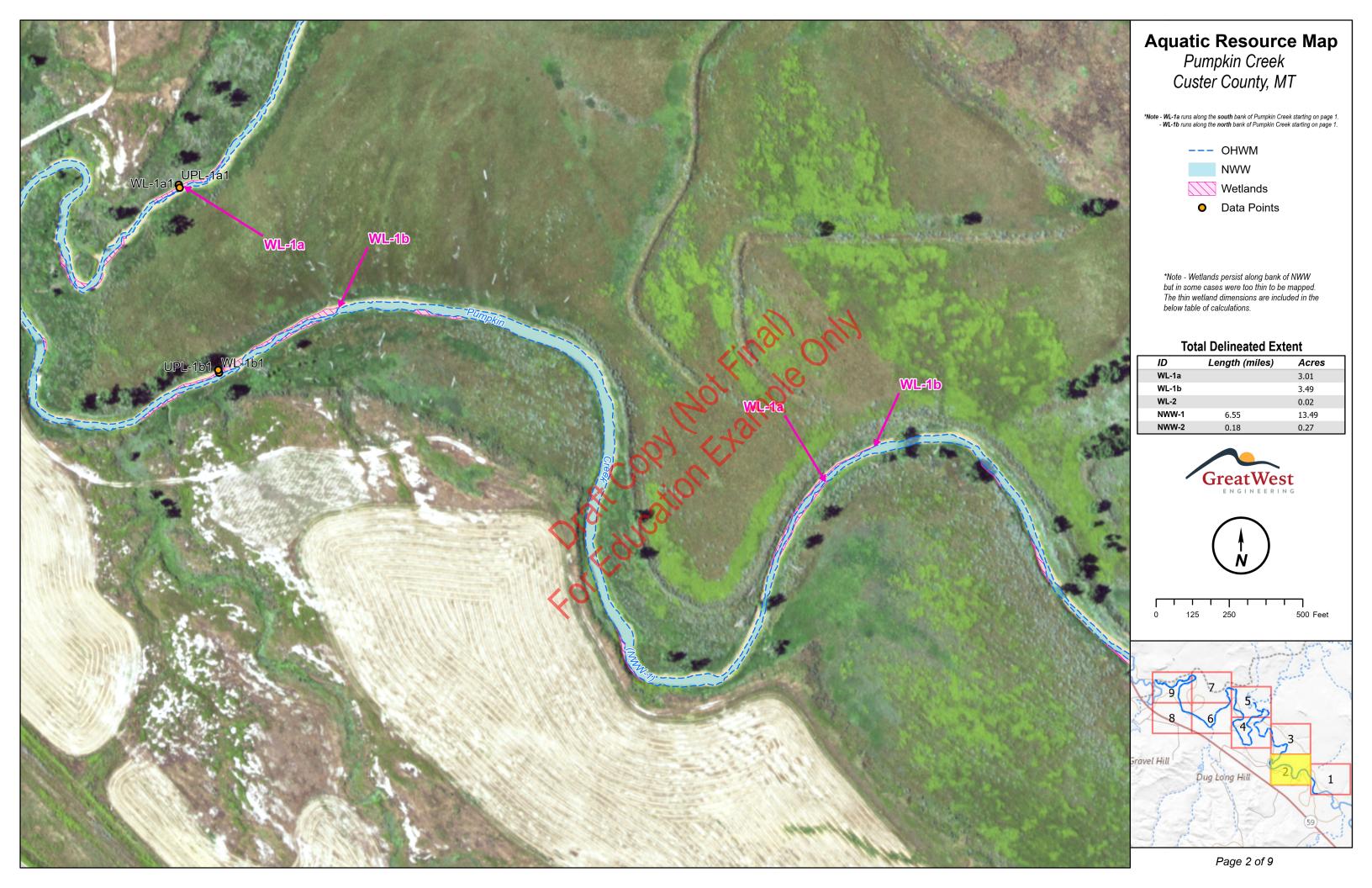
Δ	P	P	F	N	D	IX	Δ

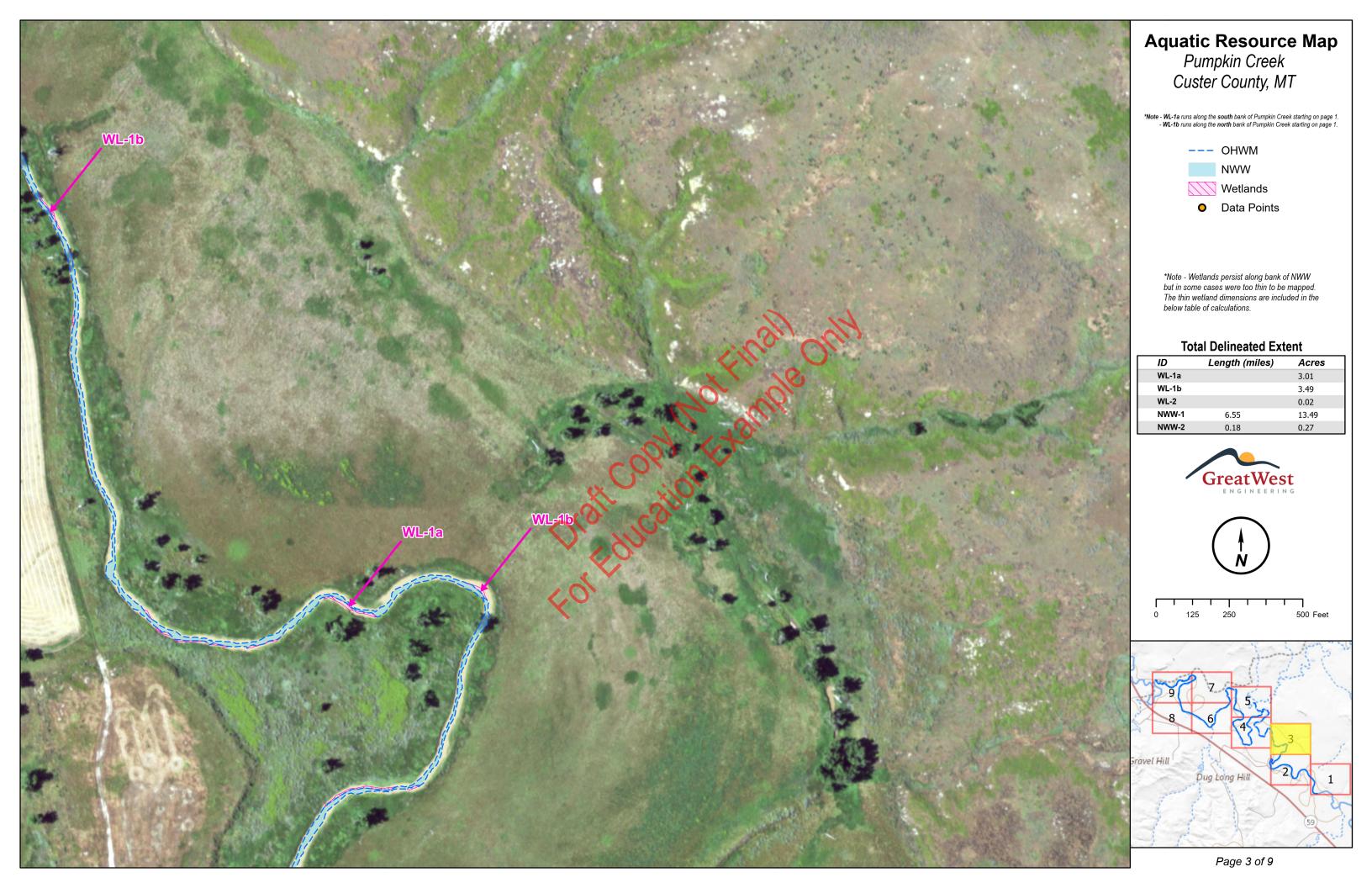
Draft Copy Example

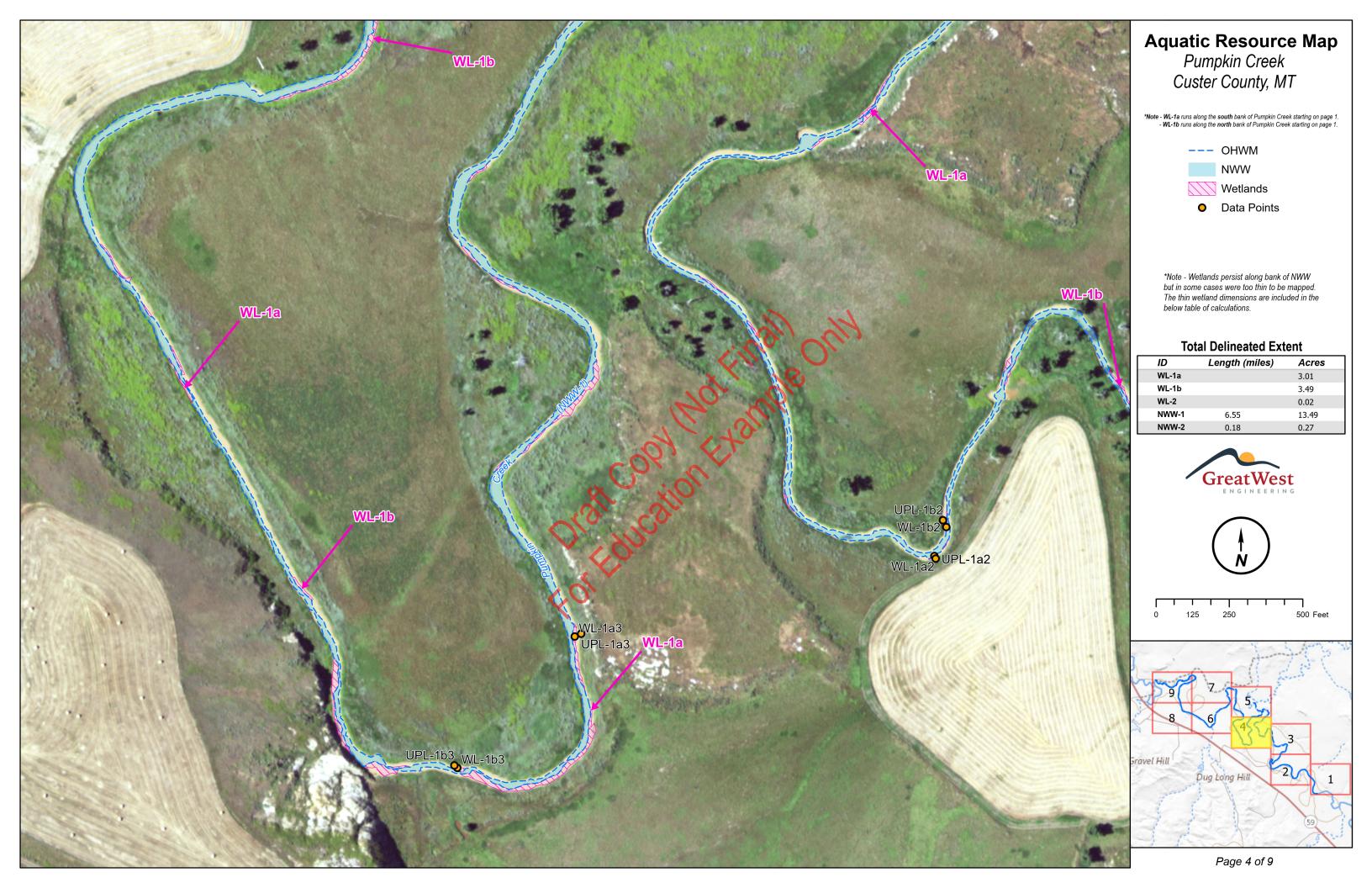
Pratt Copy Example

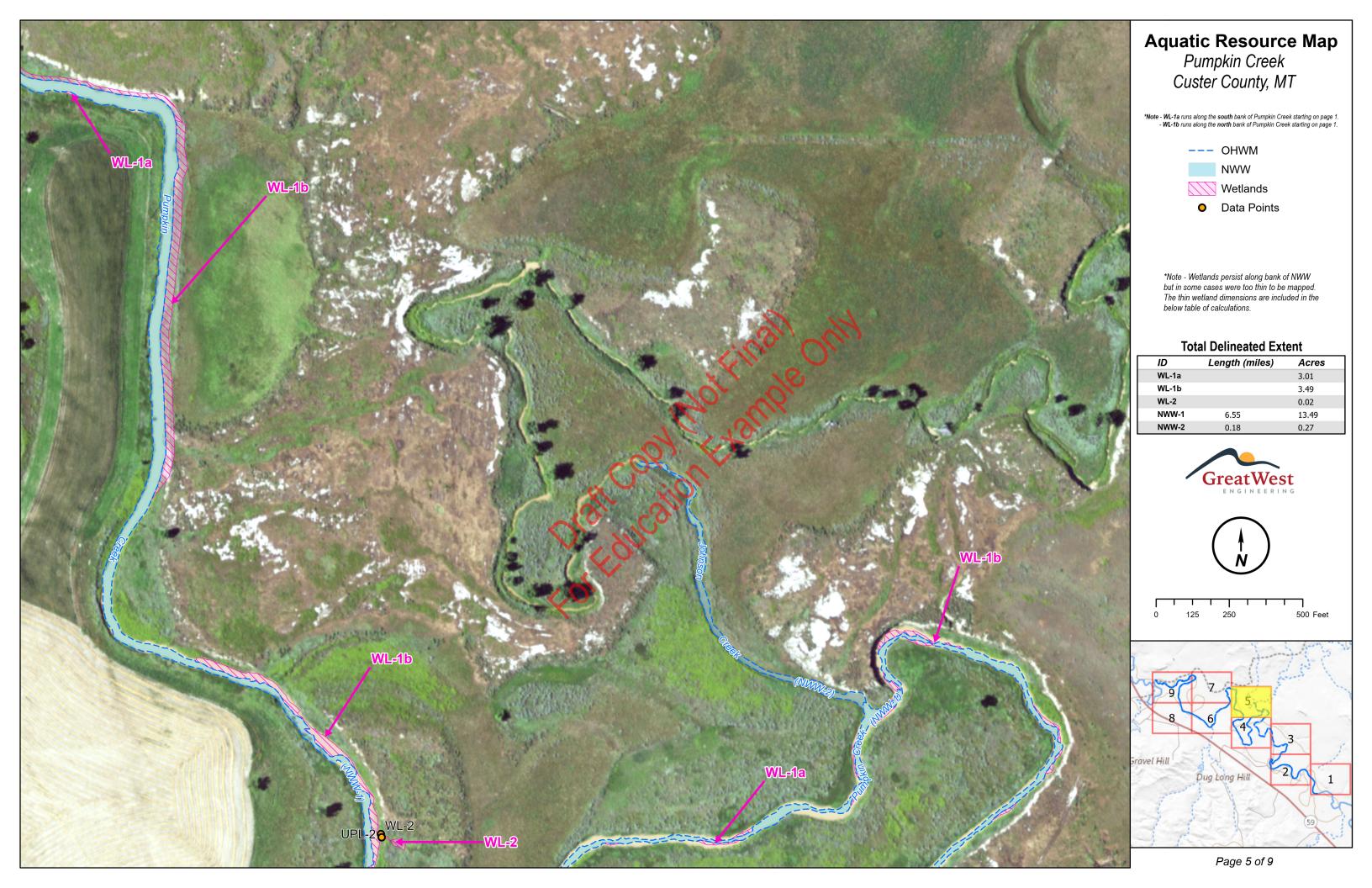
For Education AQUATIC RESOURCES DELINEATION MAP

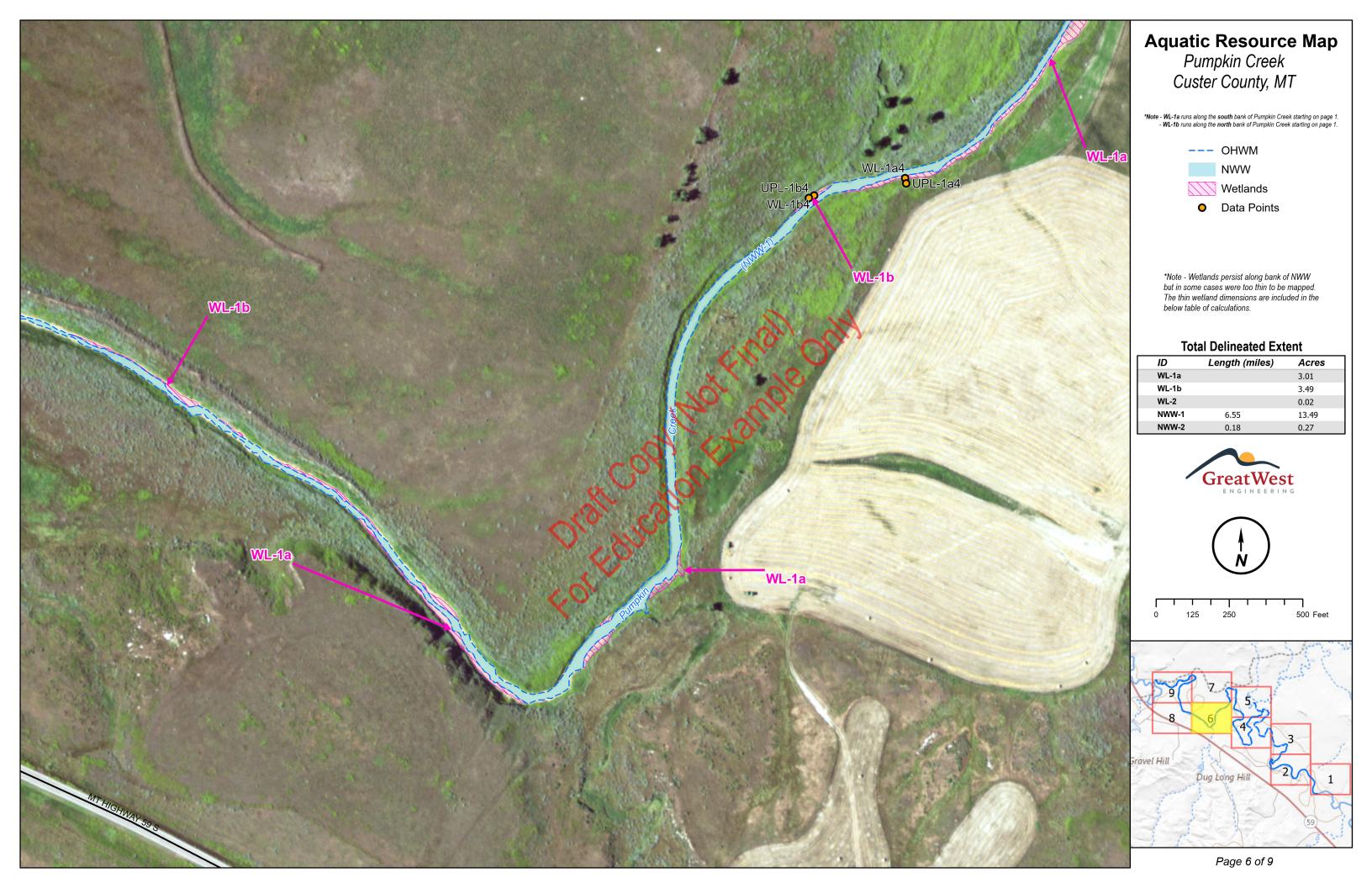


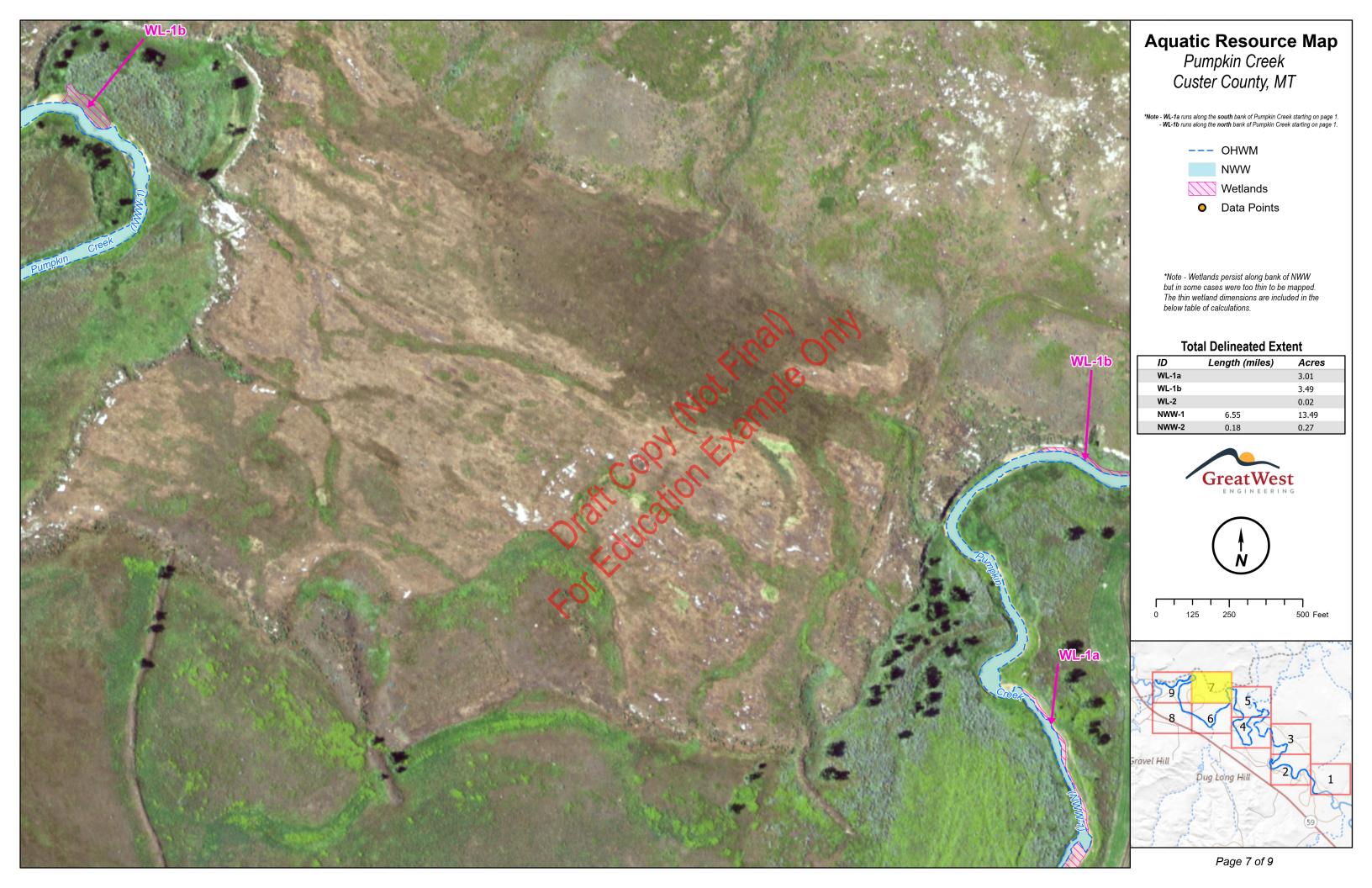




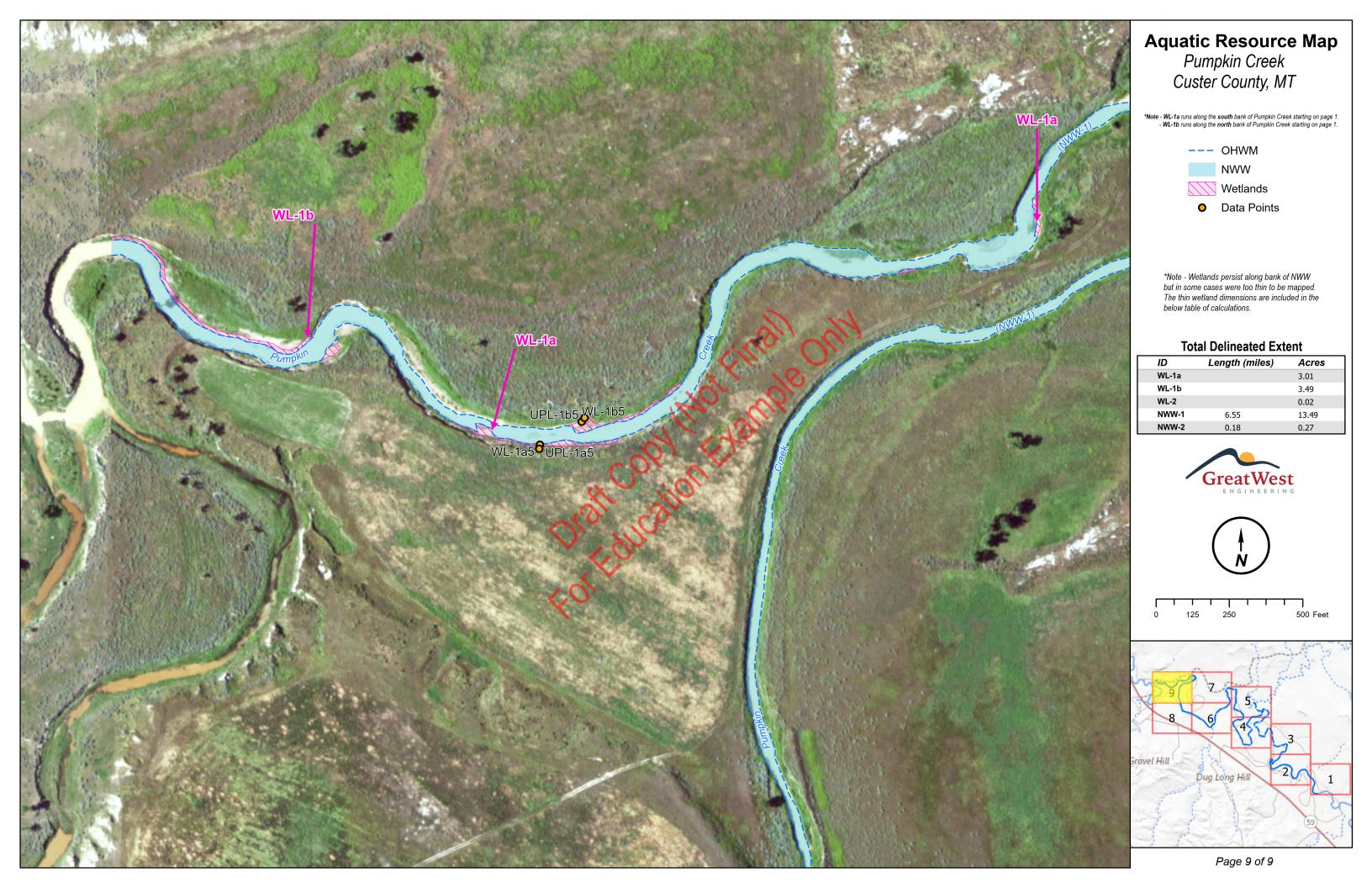












APPENDIX B

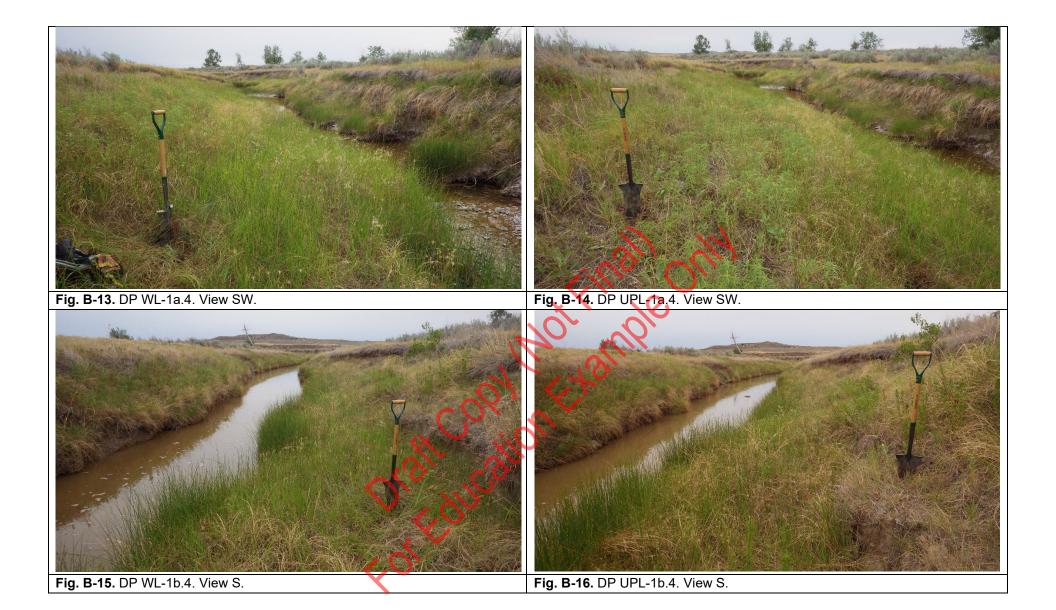
Draft Copy Example Only For Education Example **DELINEATION PHOTOGRAPHS**

Delineation Photos: BLM Pumpkin Creek Restoration











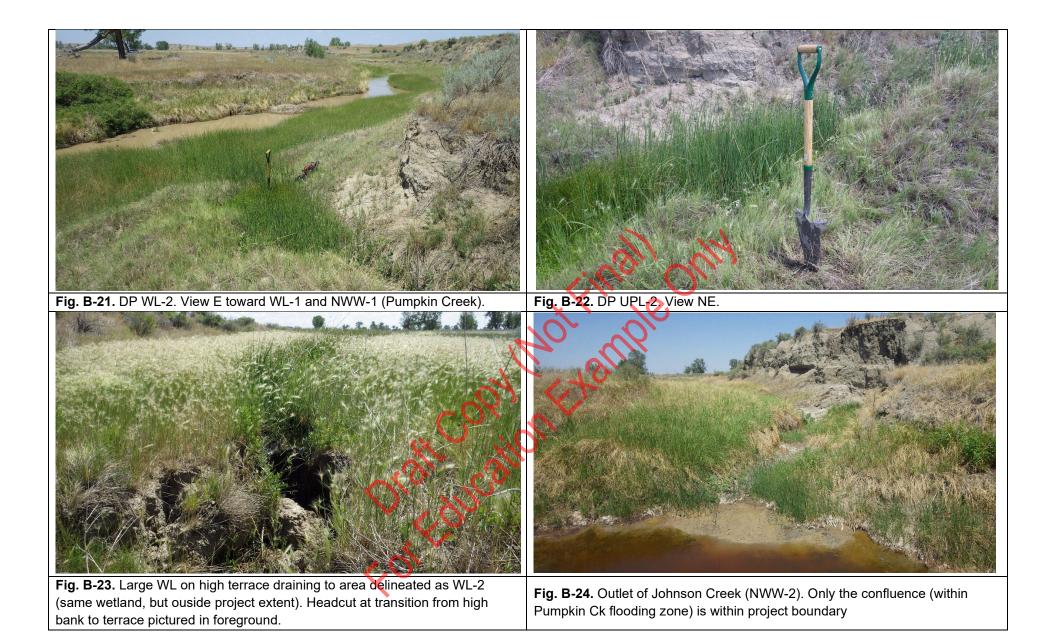




Fig. B-27. Relict beaver dam has maintained higher channel elevation; similar to projected outcome of Phase 1 of low-tech restoration

Fig. B-28. Long pool in low water conditions



Fig. B-29. Pumpkin Creek after large storm surge, with water filling up lowest scour channel. Wetlands generally occur within 1 to 1.5 ft elevation above storm surge level.



Fig. B-30. Pumpkin Creek after large storm surge, in section with very little wetland at low bank and low terrace now supporting upland vegetation.

S puellen in the control of the cont

APPENDIX C

USACE WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM Pumpkin Creek	City/County: Miles 0	City/Custer	Sampling Date:	7/6/21
Applicant/Owner: Bureau of Land Management		State: MT	Sampling Point:	UPL-1a.1
Investigator(s): A. Chadwick	Section, Township, R	ange: Sec. 7, T5 N, R49	Ε	
Landform (hillside, terrace, etc.): streambank	Local relief (concave, con	vex, none): convex	Slop	e (%): 5
Subregion (LRR): LRR G Lat: 46.204894	 Long: -	105.644240	 Datum:	NAD 83
Soil Map Unit Name: Glendive-Havre complex, 0 to 2 percer			cation: none	
Are climatic / hydrologic conditions on the site typical for this			•	
Are Vegetation , Soil , or Hydrology signific		 '	•	•
Are Vegetation , Soil , or Hydrology natura		xplain any answers in Ren	' <u></u>	
			,	
SUMMARY OF FINDINGS – Attach site map si	nowing sampling point i	ocations, transects,	important feat	tures, etc.
Hydrophytic Vegetation Present? Yes No X	Is the Sampled	Area		
Hydric Soil Present? Yes No X			No X	
Wetland Hydrology Present? Yes No X	_		<u></u>	
Remarks:				
Mid-bank upslope of WL-1a. UPL DP for WL-1a.1.		10 11		
		WI WILL		
		10. 01.		
VEGETATION – Use scientific names of plant	s.			
Tree Stratum (Plot size: 30 ft) % 0	Cover Species? Status	Dominance Test worl	ksheet:	
1		Number of Dominant S	Species That	
2.		Are OBL, FACW, or FA	•	1 (A)
3		Total Number of Domii	nant Species	
4	4	Across All Strata:		2 (B)
Condition/Objects Objects (Distriction 45.6)	=Total Cover	Percent of Dominant S	•	.00/ (A/D)
Sapling/Shrub Stratum (Plot size: 15 ft)		Are OBL, FACW, or FA	AC: 50	.0% (A/B)
1.		Prevalence Index wo	rksheet:	
3.		Total % Cover of:	Multiply by:	
4.	10	OBL species 1		1
5.		FACW species 55	x 2 = 1	10
	=Total Cover	FAC species 0		0
Herb Stratum (Plot size: 5 ft)		FACU species 5		20
	55 Yes FACW	UPL species 39		95 (B)
	15 No UPL 20 Yes UPL	Column Totals: 10 Prevalence Index = B/	`` /	26 (B)
4. Helianthus maximiliani	5 No FACU	Frevalence index - b/	A - 3.20	
5. Asclepias viridiflora	3 No UPL	Hydrophytic Vegetati	on Indicators:	
6. Ratibida columnifera	1 No UPL		Hydrophytic Vegeta	ation
7. Schoenoplectus pungens	1 No OBL	2 - Dominance Tes	st is >50%	
8.		3 - Prevalence Ind	ex is ≤3.0 ¹	
9			Adaptations ¹ (Provi	
10			s or on a separate s	,
	00 =Total Cover	1 	phytic Vegetation ¹	` ' '
Woody Vine Stratum (Plot size:)		¹ Indicators of hydric so be present, unless dist		
1		·	urbed or problemat	.10.
 	=Total Cover	Hydrophytic Vegetation		
% Bare Ground in Herb Stratum 0		Present? Yes	No X	
Remarks:		-		_
Herbaceous vegetation on sloping bank				
US Army Corps of Engineers			Great Plains	s – Version 2.

SOIL Sampling Point: UPL-1a.1

Depth	ription: (Describe Matrix	to the depti		ox Featur		01 0	ommin tile (U	a.cators.)			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Textu	ıre		Remarks		
0-12	2.5Y 4/2	100					Loamy/C	Clayey				
12-15	2.5Y 5/2	100					Loamy/0	Clayey				
		· —— —										
		· — —					-					
							-					
		. —— —										
		. —— —										
¹ Type: C=Cor	ncentration, D=Dep	letion, RM=F	Reduced Matrix,	CS=Cove	ered or C	oated Sa	and Grains.	² Loca	ion: PL=Pore	e Lining, M=I	Matrix.	
Hydric Soil In	ndicators: (Applica	able to all LF	RRs, unless oth	nerwise n	oted.)			Indica	tors for Pro	blematic Hy	dric Soi	ls³:
Histosol (A1)			_	-	latrix (S4))	1	cm Muck (A9) (LRR I, J)		
Histic Epi	pedon (A2)			_Sandy F	Redox (S	5)		c	oast Prairie R	tedox (A16)	LRR F,	G, H
Black Hist	` '			Stripped	l Matrix (S6)		D	ark Surface (S7) (LRR G)		
	Sulfide (A4)			_		ineral (F1		H	igh Plains De			
	Layers (A5) (LRR F	•		_	-	latrix (F2)	\		side of MLF	RA 72 &	73)
	ck (A9) (LRR F, G, I		_	Depleted		· · · · · · · · · · · · · · · · · · ·	10		educed Vertic	,		
	Below Dark Surface	e (A11)		Redox D		*			ed Parent Ma	, ,		
	k Surface (A12)		_			urface (F	(1)		ery Shallow D		` '	
	ucky Mineral (S1)	CO) // DD C		Redox D			(E40)	-	ther (Explain	,		
	ucky Peat or Peat (, .		_		ressions 73 of LR			ators of hydro etland hydrol			
S CITI MUC	cky Peat or Peat (S	5) (LKK F)		(IVIL	AVZ	3 OI LK	к п)		nless disturbe			
Restrictive La	ayer (if observed):			_1		• ~	0 ,	ui	iless disturbe	d of problem	ialic.	
Type:	 (0.00.100,1			0	\							
Depth (inc	ches):		_	OK	•		Hydric So	il Present?	•	Yes	No	Χ
Remarks:	<u> </u>			<u> </u>	$\overline{\mathcal{A}}$						_	
No hydric soil	indicators		CK		<i>(</i> O,							
-												
		_	10	C°								
HYDROLOG	GY			3 -								
Wetland Hydi	rology Indicators:		7.0	•								
Primary Indica	ators (minimum of o	ne is require	d; check all tha	t apply)				Secondary	/ Indicators (r	ninimum of t	wo requi	ired)
Surface V	Vater (A1)	A	Salt Crus						e Soil Crack			
High Wate	er Table (A2)			nvertebra	•	•			ely Vegetated		urface (E	38)
Saturation	· ,			n Sulfide (•	•			age Patterns	. ,		
Water Ma		·		on Water	•	,			ed Rhizosphe	eres on Livin	g Roots	(C3)
	Deposits (B2)			Rhizosph		Living Ro	oots (C3)	•	ere tilled)			
Drift Depo			•	not tilled	•	(0.1)			sh Burrows (0	-	(00	
	or Crust (B4)			of Reduc		(C4)			ation Visible o		gery (C9	9)
Iron Depo				k Surface					orphic Position	, ,		
	n Visible on Aerial I	magery (B7)	Other (E	oplain in F	kemarks,)			Neutral Test (,	DD E/	
	ained Leaves (B9)						1	FIOSI-	Heave Humm	IOCKS (D7) (L	-KK F)	
Field Observa		_	N- V	Danth (
Surface Water Water Table F			No X No X	Depth (i	· · ·							
Saturation Pre		es	No X	Depth (i Depth (i			Wotland	Hydrolog	y Present?	Voc	No	Y
(includes capi			NO	րգի <u>լյ</u> (յ	11011 0 8).		vveuanu	riyarolog	y rieseill!	Yes	NO_	^
	orded Data (stream	gauge, mon	itoring well aeri	al photos	. previou	s inspect	tions). if avai	lable:				
2000110011001	202 Data (0110dill	J		p110100	, _F . 5 115 u	opool	,, avai					
Remarks:												
No hydrologic	indicators											
IIC A	s of Engineers									Great Plains	. \/:	0

Project/Site: BLM LTPBR workshop/Pumpkin Creek	c	city/County: Miles	City/Custer	Sampling Date:	7/6/21
Applicant/Owner: Bureau of Land Management			State: MT	Sampling Point:	WL-1a.1
Investigator(s): A. Chadwick	Se	ection, Township, R	ange: Sec. 7, T5 N, R4	9 E	
Landform (hillside, terrace, etc.): low terrace	Local	relief (concave, cor	nvex, none): convex	Slop	pe (%): 2
Subregion (LRR): LRR G Lat: 46.2048	376	Long:	-105.644232	Datum:	NAD 83
Soil Map Unit Name: Glendive-Havre complex, 0 to 2 po				fication: none	
Are climatic / hydrologic conditions on the site typical fo			No (If no, ex		
Are Vegetation , Soil , or Hydrology s)
Are Vegetation , Soil , or Hydrology n					
SUMMARY OF FINDINGS – Attach site ma					tures, etc.
Hydrophytic Vegetation Present? Yes X No		Is the Sampled	Area		
Hydric Soil Present? Yes X No		within a Wetlan	d? Yes X	No	
Wetland Hydrology Present? Yes X No					
Remarks:					
linear wetland along low bank of Pumpkin Creek, river mapping. Multiple plots established along wider areas				nd outside precision	of GPS for
VEGETATION – Use scientific names of p	lants.		W. O.		
<u>Tree Stratum</u> (Plot size: 30 ft)	% Cover Spe	cies? Status	Dominance Test wo	rksheet:	
1		70.	Number of Dominant	Species That	
2			Are OBL, FACW, or F	AC:	1 (A)
3.			Total Number of Dom	inant Species	
4	$-\alpha$		Across All Strata:		2 (B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft)	= Jotal	Cover	Percent of Dominant Are OBL, FACW, or F	•	0.0% (A/B)
1.			Ale OBL, I ACVV, OI I	AC. <u>30</u>).076 (A/B)
2.	T X	Θ —	Prevalence Index we	orksheet:	
3.	·		Total % Cover of:	Multiply by	:
4.			OBL species	0 x 1 =	0
5			FACW species 6	80 x 2 =	120
	=Total	Cover			15
Herb Stratum (Plot size: 5 ft)	V		· —		80
Spartina pectinata Holianthus maximiliani		res FACW	· -		75 200 (B)
Helianthus maximiliani Asclepias viridiflora		Yes FACU No UPL	Column Totals: 1 Prevalence Index = E	`` /	290 (B)
4. Lactuca serriola		No FAC	Trevalence index = L	2.90	,
5.			Hydrophytic Vegetat	tion Indicators:	
6.				Hydrophytic Vegeta	ation
7.			2 - Dominance Te	est is >50%	
8.			X 3 - Prevalence In	dex is ≤3.0 ¹	
9			· — · · · ·	Adaptations ¹ (Provi	
10				ks or on a separate	,
	100 =Total	Cover	 	ophytic Vegetation ¹	
Woody Vine Stratum (Plot size:)			¹ Indicators of hydric s		
1 2.			be present, unless dis	sturbed or problema	uc.
% Bare Ground in Herb Stratum 0	=Total	Cover	Hydrophytic Vegetation Present? Yes	X No	
Remarks:			1		_
Remarks.					
US Army Corps of Engineers				Great Plain	s – Version 2.

SOIL Sampling Point: WL-1a.1

Depth	ription: (Describe to Matrix	o աթ ս բ բա		dox Featur		ALOI OI CC	Jimmi die absence	or mulcators.
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-7	2.5Y 4/2	70	` /				Loamy/Clayey	
	2.5Y 5/2	30					<u> </u>	
7-15	2.5Y 6/2	70	10YR 4/6	3			Loamy/Clayey	Prominent redox concentrations
1-10			10111 4/0			IVI	Loanly/Olayey	
	2.5Y 4/2							ox rhiz
	ncentration, D=Deple					oated Sa	nd Grains. ² Loc	ation: PL=Pore Lining, M=Matrix.
-	ndicators: (Applicat	ole to all LR	Rs, unless ot					cators for Problematic Hydric Soils ³ :
Histosol (-	atrix (S4)		1 cm Muck (A9) (LRR I, J)
	ipedon (A2)		_	_	Redox (S	•		Coast Prairie Redox (A16) (LRR F, G, F
Black His	,		_		Matrix (,		Dark Surface (S7) (LRR G) High P lains Depressions (F16)
	n Sulfide (A4) Layers (A5) (LRR F)		_		-	ineral (F1 latrix (F2)	′ \ 	(LRR H outside of MLRA 72 & 73)
	ck (A9) (LRR F, G, H		<u> </u>	Loaniy (Depleted	-			Reduced Vertic (F18)
	Below Dark Surface				ark Surf	` , \		Red Parent Material (F21)
	rk Surface (A12)	` '				urface (F		Very Shallow Dark Surface (F22)
	ucky Mineral (S1)			_	epressio	A .	· • (/	Other (Explain in Remarks)
2.5 cm M	ucky Peat or Peat (S	2) (LRR G,	H)	_		ressions (cators of hydrophytic vegetation and
5 cm Mud	cky Peat or Peat (S3)	(LRR F)		(MLF	RA 72 &	73 of LRF		wetland hydrology must be present,
Description :				•	1,)	unless disturbed or problematic.
	ayer (if observed):			~~		1		
Type:	chos):		_	2	,		Hydric Soil Presen	t2 Vac V Na
Depth (in			- 	\mathcal{V}_{i}	-		riyuric Son Presen	t? Yes X No
Remarks:			Ck C	<i>J</i> 3.	0,	•		
				X				
			('0')	٥,٠	-			
HYDROLO	GY		, 71	2				
Wetland Hyd	rology Indicators:		0.1					
_	ators (minimum of or	ne is require	d; check all tha	at apply)			Seconda	ary Indicators (minimum of two required)
Surface \	Vater (A1)		Salt Cru	st (B11)			Surf	ace Soil Cracks (B6)
High Wat	er Table (A2)		Aquatic	Invertebra	tes (B13))	Spa	rsely Vegetated Concave Surface (B8)
Saturatio	` '	X		n Sulfide (•	,		nage Patterns (B10)
X Water Ma		•		son Water	•	,		lized Rhizospheres on Living Roots (C3)
	t Deposits (B2)		X Oxidized			Living Ro		where tilled)
	osits (B3)		•	e not tilled	•	(C4)		/fish Burrows (C8)
Algal Mat	t or Crust (B4)			e of Reduc		(C4)		ration Visible on Aerial Imagery (C9) morphic Position (D2)
	วรเเร (เชอ) n Visible on Aerial In	nagery (R7)		ck Surface xplain in F				morphic Position (D2) :-Neutral Test (D5)
	ained Leaves (B9)	iagery (D7)		.Αριαιίί ΙΙΙ Γ	ciliains)	1		st-Heave Hummocks (D7) (LRR F)
Field Observ	· ,						<u></u>	
Surface Water		S	No X	Depth (i	nches):			
Water Table I			No X	Depth (i	_			
Saturation Pr	esent? Yes	<u> </u>	No X	Depth (i	_	 -	Wetland Hydrolo	gy Present? Yes X No
(includes cap								
	orded Data (stream	gauge, moni	toring well, ae	rial photos	, previou	s inspecti	ons), if available:	
Remarks:	umana aftersta ()		-f			(D:	din Ch)	
on new low te	errace of incised char	nnei; source	ot hydrology is	intermitte	nt strean	n (Pumpk	(in Ck)	
JS Army Corp	s of Engineers							Great Plains – Version 2

Project/Site: BLM LTPBR workshop/Pumpkin Creek	(City/County: Miles C	City/Custer	Sampling Date:	7/9/21
Applicant/Owner: Bureau of Land Management			State: MT	Sampling Point:	UPL-1a.2
Investigator(s): A. Chadwick	S	ection, Township, Ra	ange: Sec. 7, T5 N, R4	- !9 E	
Landform (hillside, terrace, etc.): streambank	Local	relief (concave, con	vex, none): convex	Slo	pe (%): 2
Subregion (LRR): LRR G Lat: 46.2089	979	Long: -	105.647160	Datum:	NAD 83
Soil Map Unit Name: Glendive loam, 0 to 2 percent slop	oes, rarely flooded		NWI classi	fication: none	
Are climatic / hydrologic conditions on the site typical fo					
Are Vegetation, Soil, or Hydrologys	_		·	,	0
Are Vegetation, Soil, or Hydrologyn			xplain any answers in Re	<u> </u>	
SUMMARY OF FINDINGS – Attach site ma				·	itures, etc.
Hydrophytic Vegetation Present? Yes No	Х	Is the Sampled A	Area		
		within a Wetland		No X	
Wetland Hydrology Present? Yes No	X				
Remarks:					
UPL plot for WL-1a.2, on steep higher bank of Pumpki	n Creek		1/2- (1/2)	}	
NECETATION . Has a significant suppose of a	la méa		<u>/n O/.</u>		
VEGETATION – Use scientific names of p		polog? Status	Dominance Test wo	wka ba a tu	
Tree Stratum (Plot size:30 it)	% Cover Spe	ecies? Status			
2.		May 1	Number of Dominant Are OBL, FACW, or F		1 (A)
3.			Total Number of Dom	·	` ` `
4.			Across All Strata:	'	3 (B)
	=Tota	Cover	Percent of Dominant	•	
Sapling/Shrub Stratum (Plot size: 15 ft)		FACIL	Are OBL, FACW, or F	AC: <u>3</u>	3.3% (A/B)
1. Artemisia cana 2.		No FACU	Prevalence Index we	orkshoot:	
3.			Total % Cover of:	Multiply by	/:
4.			-	0 x 1 =	0
5.	ZUZ		· · · · · · · · · · · · · · · · · · ·	30 x 2 =	60
	3 =Tota	l Cover	FAC species	0 x 3 =	0
Herb Stratum (Plot size: 5 ft)			· —	23 x 4 =	92
Spartina pectinata		res FACW	· · · · · · · · · · · · · · · · · · ·		250
Solidago missouriensis Bromus inermis		No UPL	·	`` /	402 (B)
Bromus inermis Pascopyrum smithii		Yes UPL FACU	Prevalence Index = E	B/A = 3.9	<u> </u>
5. Agropyron cristatum		No UPL	Hydrophytic Vegeta	tion Indicators:	
6.				r Hydrophytic Veget	ation
7.			2 - Dominance Te	est is >50%	
8.			3 - Prevalence In	dex is ≤3.0 ¹	
9				l Adaptations ¹ (Prov	
10		I Cover		ks or on a separate	-
Woody Vine Stratum (Plot size:)	100=Tota	I Cover		ophytic Vegetation	
1.			¹ Indicators of hydric s be present, unless dis		
2.			Hydrophytic	•	
% Bare Ground in Herb Stratum 0	=Tota	l Cover	Vegetation	No X	_
Remarks:			•		
Primarily upland community at upper edge of Spartina	, on steep upper l	oank.			
US Army Corps of Engineers				Great Plair	s – Version 2.

SOIL Sampling Point: UPL-1a.2

Depth	Matrix		Re	dox Featur	es			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-7	2.5Y 4/2	80	10YR 3/6	5	С	M	Loamy/Clayey	cla lo
	2.5Y 5/2	15						
7-14	2.5Y 4/2	70					Loamy/Clayey	sa cla lo
	2.5Y 5/2	30						
	2.01 0/2							
	-					-	-	· -
-	-							·
		· —— –						.
	oncentration, D=Dep					oated Sa		cation: PL=Pore Lining, M=Matrix.
-	Indicators: (Applica	ible to all L	RRs, unless of			Intrins (C.4)		icators for Problematic Hydric Soi
Histosol	oipedon (A2)		_		sieyed ivi Redox (S:	latrix (S4) 5)		1 cm Muck (A9) (LRR I, J) Coast Prairie Redox (A16) (LRR F,
	istic (A3)				Matrix (-		Dark Surface (S7) (LRR G)
	en Sulfide (A4)		_	_ ''	`	ineral (F1		High Plains Depressions (F16)
	d Layers (A5) (LRR F	-)	_			latrix (F2)	·	(LRR H outside of MLRA 72 &
	ıck (A9) (LRR F, G, I			C Deplete	-		~'\0'\ \	Reduced Vertic (F18)
Deplete	d Below Dark Surface	e (A11)		Redox D	Dark Surf	face (F 6)		Red Parent Material (F21)
Thick Da	ark Surface (A12)					urface (F	7)	Very Shallow Dark Surface (F22)
	lucky Mineral (S1)		_	_	Depression			Other (Explain in Remarks)
	Mucky Peat or Peat (, .	i, H)	_		ressions (licators of hydrophytic vegetation an
5 cm Mu	icky Peat or Peat (S	3) (LRR F)		(MLF	RA 72 &	73 of LRI	R H)	wetland hydrology must be present
Postrictivo	Layer (if observed):			- 1		\),	unless disturbed or problematic.
Type:	Layer (ii observed).				\			
Depth (i	nches):		_	7	•		Hydric Soil Presei	nt? Yes X No
Remarks:	,			1 .	~			
rtomants.			CK		$^{\prime}O$.			
			10.	Co				
HYDROLC	GY		ノ゛、メ	7				
Wetland Hy	drology Indicators:							
Primary Indi	cators (minimum of c	ne is requir	ed; check all the	at apply)			Second	ary Indicators (minimum of two requ
	Water (A1)			ıst (B11)		_		face Soil Cracks (B6)
	ater Table (A2)			Invertebra	•	•		arsely Vegetated Concave Surface (I
Saturation	` '			en Sulfide (-		inage Patterns (B10)
	larks (B1) nt Deposits (B2)			ison Water d Rhizosph	,	,		dized Rhizospheres on Living Roots vhere tilled)
	posits (B3)			e not tille		Living 110		yfish Burrows (C8)
	at or Crust (B4)		•	e not time	,	(C4)		uration Visible on Aerial Imagery (CS
	posits (B5)			ck Surface		(0.)		omorphic Position (D2)
	on Visible on Aerial I	magery (B7		xplain in F)	FAC	C-Neutral Test (D5)
	tained Leaves (B9)	3 , (, <u> </u>		,			st-Heave Hummocks (D7) (LRR F)
Field Obser	vations:							
Surface Wat	er Present? Ye	es	No X	Depth (i	nches):			
Water Table	Present? Ye	es	No X	Depth (i	nches):			
Saturation P		es	No X	Depth (i	nches):		Wetland Hydrolo	ogy Present? Yes No _
	pillary fringe)							
Describe Re	corded Data (stream	gauge, mo	nitoring well, ae	rial photos	, previou	s inspecti	ions), if available:	
Domortica								
Remarks: No hydrolog	v indicators							
	,							

Project/Site: BLM LTPBR workshop/Pumpkin Creek	City/County: Miles City/Custer Sampling Date:					
Applicant/Owner: Bureau of Land Management		State: MT	Sampling Point: WL-1a.2			
Investigator(s): A. Chadwick	Section, Township, Ra	nge: Sec. 7, T5 N, R49) E			
Landform (hillside, terrace, etc.): low terrace	Local relief (concave, conv	ex, none): convex	Slope (%): 2			
Subregion (LRR): LRR G Lat: 46.208995	Long: <u>-1</u>	05.647172	Datum: NAD 83			
Soil Map Unit Name: Glendive loam, 0 to 2 percent slopes, rarely	/ flooded	NWI classifi	cation: none			
Are climatic / hydrologic conditions on the site typical for this time	e of year? Yes X	No (If no, exp	lain in Remarks.)			
Are Vegetation, Soil, or Hydrology significantl	y disturbed? Are "Normal C	circumstances" present?	Yes X No			
Are Vegetation , Soil , or Hydrology naturally pr	roblematic? (If needed, ex	plain any answers in Ren	narks.)			
SUMMARY OF FINDINGS – Attach site map show	ving sampling point lo	cations, transects,	important features, etc.			
Hydrophytic Vegetation Present? Yes X No Hydric Soil Present? Yes X No Wetland Hydrology Present? Yes X No	Is the Sampled A within a Wetland		No			
Remarks: Linear PEM wetland along new inset low terrace on incised char	nnel of Pumpkin Creek, river	left side.	\			
VEGETATION – Use scientific names of plants.						
Tree Stratum (Plot size: 30 ft) % Cover	r Species? Status	Dominance Test work	ksheet:			
1	190	Number of Dominant S	•			
2		Are OBL, FACW, or FA				
4.	4	Total Number of Domin Across All Strata:	nant Species 1 (B)			
	=Total Cover	Percent of Dominant S				
Sapling/Shrub Stratum (Plot size: 15 ft)	, 0	Are OBL, FACW, or FA	•			
1.	- (0); -					
2.		Prevalence Index wo Total % Cover of:	rksneet: Multiply by:			
3. 4.		OBL species 0				
5.		FACW species 99	9 x 2 = 198			
	=Total Cover	FAC species 0	x 3 = 0			
Herb Stratum (Plot size: 5 ft)		FACU species 0				
1. Spartina pectinata 99	Yes FACW	UPL species 1				
2. Solidago missouriensis 1 3.	No UPL	Column Totals: 10 Prevalence Index = B/				
4.		Trevalence mack - bi	A - 2.00			
5.		Hydrophytic Vegetati	on Indicators:			
6.		1 - Rapid Test for	Hydrophytic Vegetation			
7		X 2 - Dominance Te				
8		X 3 - Prevalence Ind				
9.			Adaptations ¹ (Provide supporting s or on a separate sheet)			
10	=Total Cover		ophytic Vegetation ¹ (Explain)			
Woody Vine Stratum (Plot size:)		¹ Indicators of hydric so	oil and wetland hydrology must			
1		be present, unless dist	urbed or problematic.			
2 9. Bare Ground in Herb Stratum 0	=Total Cover	Hydrophytic Vegetation Present? Yes	X No			
Remarks:						
Spartina community on low terrace of Pumpkin Creek.						
US Army Corps of Engineers			Great Plains – Version 2.0			

SOIL Sampling Point: WL-1a.2

(inches)	Color (moist)	%	Color (moist)	ox Featur %	Type ¹	Loc ²	Texture	Remarks
0-6	2.5Y 3/2	70	Oolor (moist)	70	1700		Loamy/Clayey	cla lo
0-0	2.5Y 4/2						Loanly/Clayey	Cia io
0.44		30	40\/D 0/0					an also
6-14	2.5Y 3/2	80	10YR 3/6	10	<u>C</u>	PL/M	Loamy/Clayey	sa clay
	2.5Y 5/3	10		<u> </u>	<u> </u>	<u> </u>		sand- incorporated, not sep layer
Hydric Soil I Histosol Histic Ep Black Hii Hydroge Stratified 1 cm Mu Depleted Thick Da Sandy M 2.5 cm Mu 5 cm Mu	pipedon (A2) stic (A3) on Sulfide (A4) d Layers (A5) (LRR F ock (A9) (LRR F, G, F d Below Dark Surface ark Surface (A12) flucky Mineral (S1) flucky Peat or Peat (S3 cky Peat or Peat (S3 Layer (if observed):	ble to all LR) (A) (A11) (S2) (LRR G,	Rs, unless oth	Sandy G Sandy R Stripped Loamy M Loamy G Depleted Redox D Depleted Redox D High Pla	oted.) Gleyed Macedox (SS) Matrix (SMucky Mid Gleyed Matrix (SMucky Mid Dark Surfad Dark So Depression Depression	atrix (S4) 5) S6) neral (F1) atrix (F2) (F3) acce (F6) urface (F7) ons (F8) essions (I	Indic — (— (— (— (— (— (— (— (ation: PL=Pore Lining, M=Matrix. cators for Problematic Hydric Soils ³ I cm Muck (A9) (LRR I, J) Coast Prairie Redox (A16) (LRR F, G, Dark Surface (S7) (LRR G) High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73) Reduced Vertic (F18) Red Parent Material (F21) Very Shallow Dark Surface (F22) Other (Explain in Remarks) Cators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
YDROLO	nev	~	(Sil.	S				
			' 	<u> </u>				
_	drology Indicators:		d b - V - 114b - 4				Casanda	
	cators (minimum of o Water (A1)	ne is required	Salt Crust					ry Indicators (minimum of two required ace Soil Cracks (B6)
	iter Table (A2)		Aquatic Ir	. ,	tos (R13)			ace Soil Clacks (DO)
migii vva	iter rable (AZ)							caly Vagatatad Canagya Surface (DO)
	(42)							sely Vegetated Concave Surface (B8)
Saturation	` '	X	Hydrogen	Sulfide (Odor (C1)	X Drair	nage Patterns (B10)
Saturation X Water M	larks (B1)	X	Hydrogen Dry-Sease	Sulfide (on Water	Odor (C1 Table (C) (2)	X Drair Oxid	nage Patterns (B10) ized Rhizospheres on Living Roots (C
Saturation X Water M Sedimer	larks (B1) nt Deposits (B2)	X	Hydrogen Dry-Sease Oxidized	Sulfide (on Water Rhizosph	Odor (C1 Table (C eres on I) (2)	X Drain Oxidi Oxidi	nage Patterns (B10) ized Rhizospheres on Living Roots (Chere tilled)
Saturation X Water M Sedimen Drift Dep	larks (B1) nt Deposits (B2) posits (B3)	X	Hydrogen Dry-Sease Oxidized (where	Sulfide (on Water Rhizosph not tille (Odor (C1 Table (C eres on I) 22) Living Roo	X Drair 	nage Patterns (B10) ized Rhizospheres on Living Roots (Chere tilled) fish Burrows (C8)
Saturation X Water M Sedimer Drift Dep Algal Ma	larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	X	Hydrogen Dry-Sease Oxidized (where Presence	Sulfide (on Water Rhizosph not tilled of Reduc	Odor (C1 Table (Ceres on I d) ced Iron () 22) Living Roo	X Drain Oxide	nage Patterns (B10) ized Rhizospheres on Living Roots (C here tilled) fish Burrows (C8) ration Visible on Aerial Imagery (C9)
Saturation X Water M Sedimer Drift Dep Algal Ma Iron Dep	larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	X	Hydrogen Dry-Seas Oxidized (where Presence Thin Mucl	Sulfide (on Water Rhizosph not tilled of Reduce Surface	Odor (C1 Table (Coeres on I d) ced Iron (ce (C7)) C2) Living Roo (C4)	X Drain Oxidi Oxidi	nage Patterns (B10) ized Rhizospheres on Living Roots (C here tilled) fish Burrows (C8) ration Visible on Aerial Imagery (C9) morphic Position (D2)
Saturation X Water M Sedimer Drift Dep Algal Ma Iron Dep X Inundation	larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aerial In	magery (B7)	Hydrogen Dry-Sease Oxidized (where Presence	Sulfide (on Water Rhizosph not tilled of Reduce Surface	Odor (C1 Table (Coeres on I d) ced Iron (ce (C7)) C2) Living Roo (C4)	X Drair Oxidi ots (C3) (w) Cray Satu X Geor FAC:	nage Patterns (B10) ized Rhizospheres on Living Roots (C here tilled) fish Burrows (C8) ration Visible on Aerial Imagery (C9) morphic Position (D2) -Neutral Test (D5)
Saturation X Water M Sedimer Drift Dep Algal Ma Iron Dep X Inundation	larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	magery (B7)	Hydrogen Dry-Seas Oxidized (where Presence Thin Mucl	Sulfide (on Water Rhizosph not tilled of Reduce Surface	Odor (C1 Table (Coeres on I d) ced Iron (ce (C7)) C2) Living Roo (C4)	X Drair Oxidi ots (C3) (w) Cray Satu X Geor FAC:	nage Patterns (B10) ized Rhizospheres on Living Roots (C here tilled) fish Burrows (C8) ration Visible on Aerial Imagery (C9) morphic Position (D2)
Saturation X Water M Sedimer Drift Dep Algal Ma Iron Dep X Inundation Water-S	larks (B1) Int Deposits (B2) Int Deposits (B2) Int Or Crust (B4) Int Or Crust (B4) Int Or Crust (B5) Int Or Visible on Aerial Intained Leaves (B9)	magery (B7)	Hydrogen Dry-Seas Oxidized (where Presence Thin Mucl	Sulfide (on Water Rhizosph not tilled of Reduce Surface	Odor (C1 Table (Coeres on I d) ced Iron (ce (C7)) C2) Living Roo (C4)	X Drair Oxidi ots (C3) (w) Cray Satu X Geor FAC:	nage Patterns (B10) ized Rhizospheres on Living Roots (C here tilled) fish Burrows (C8) ration Visible on Aerial Imagery (C9) morphic Position (D2) -Neutral Test (D5)
Saturation X Water M Sedimer Drift Dep Algal Ma Iron Dep X Inundation Water-S	larks (B1) Int Deposits (B2) Int Deposits (B2) Int or Crust (B4) Int or Crust (B4) Int or Crust (B5) Int or Visible on Aerial Int Itained Leaves (B9) Invations:		Hydrogen Dry-Seas Oxidized (where Presence Thin Mucl	Sulfide (on Water Rhizosph not tilled of Reduce Surface	Odor (C1 Table (C eres on I i) ced Iron (e (C7) Remarks)) C2) Living Roo (C4)	X Drair Oxidi ots (C3) (w) Cray Satu X Geor FAC:	nage Patterns (B10) ized Rhizospheres on Living Roots (C here tilled) fish Burrows (C8) ration Visible on Aerial Imagery (C9) morphic Position (D2) -Neutral Test (D5)
Saturation X Water M Sedimer Drift Dep Algal Ma Iron Dep X Inundation Water-S Field Obsert Surface Water	larks (B1) Int Deposits (B2) Posits (B3) Int or Crust (B4) Posits (B5) Int or Visible on Aerial Intained Leaves (B9) Interval of the visible on Aerial Intained Leaves (B9) Interval of the visible on Aerial Intained Leaves (B9) Interval of the visible on Aerial Intained Leaves (B9) Interval of the visible on Aerial Intained Leaves (B9) Interval of the visible on Aerial Intained Leaves (B9) Interval of the visible on Aerial Intained Leaves (B9) Interval of the visible on Aerial Interval of the visible of the visible of the visible on Aerial Interval of the visible	s	Hydrogen Dry-Seas Oxidized (where Presence Thin Mucl Other (Ex	Sulfide (on Water Rhizosph not tillec of Reduc & Surface plain in R	Odor (C1 Table (C eres on I I) ced Iron (e (C7) Remarks)) C2) Living Roo (C4)	X Drair Oxidi ots (C3) (w) Cray Satu X Geor FAC:	nage Patterns (B10) ized Rhizospheres on Living Roots (C here tilled) fish Burrows (C8) ration Visible on Aerial Imagery (C9) morphic Position (D2) -Neutral Test (D5)
Saturation X Water M Sedimer Drift Dep Algal Ma Iron Dep X Inundation Water-S Field Obser Surface Water Water Table	larks (B1) Int Deposits (B2) Int Deposits (B3) Int or Crust (B4) Int or Crust (B4) Int or Crust (B5) Int or Visible on Aerial Intained Leaves (B9) Interval of the control	s s	Hydrogen Dry-Sease Oxidized (where Presence Thin Mucl Other (Ex	Sulfide (on Water Rhizosph not tilled of Reduc & Surface plain in R Depth (i Depth (i	Odor (C1 Table (Coeres on Interpretation (C1) Table (Coeres on Interpretation (C2) Table (C7)) C2) Living Roo (C4)	X Drair Oxidi Oxidi Cray Satu X Geor FAC	nage Patterns (B10) ized Rhizospheres on Living Roots (C here tilled) fish Burrows (C8) ration Visible on Aerial Imagery (C9) morphic Position (D2) -Neutral Test (D5) t-Heave Hummocks (D7) (LRR F)
Saturation X Water M Sedimer Drift Dep Algal Ma Iron Dep X Inundation Water-S Field Obser Surface Water Water Table Saturation Prince Saturation Prince Surface Mater Surface Mater Surface Mater Table	larks (B1) Int Deposits (B2) Int Deposits (B3) Int or Crust (B4) Int or Crust (B4) Int or Crust (B4) Int or Crust (B5) Int or Crust (B5) Int or Crust (B4) I	s s	Hydrogen Dry-Sease Oxidized (where Presence Thin Mucl Other (Ex	Sulfide (on Water Rhizosph not tilled of Reduct Surface plain in R	Odor (C1 Table (Coeres on Interpretation (C1) Table (Coeres on Interpretation (C2) Table (C7)) C2) Living Roo (C4)	X Drair Oxidi ots (C3) (w) Cray Satu X Geor FAC:	nage Patterns (B10) ized Rhizospheres on Living Roots (C here tilled) fish Burrows (C8) ration Visible on Aerial Imagery (C9) morphic Position (D2) -Neutral Test (D5) t-Heave Hummocks (D7) (LRR F)
Saturation X Water M Sedimer Drift Dep Algal Ma Iron Dep X Inundation Water-S Field Obser Surface Wate Water Table Saturation Polyincludes cap	larks (B1) Int Deposits (B2) Int Deposits (B3) Int or Crust (B4) I	ss ss	Hydrogen Dry-Sease Oxidized (where Presence Thin Mucl Other (Ex No X No X No X	Sulfide (con Water Rhizosph not tilled of Reduce Surface plain in Rule Depth (in Depth	Odor (C1 Table (Coeres on lat) Coed Iron (C7) Remarks) Inches): Inches): Inches): Inches):) C2) Living Roo (C4)	ots (C3) X Drair Oxidi (w) Cray Satu X Geor FAC Frost	nage Patterns (B10) ized Rhizospheres on Living Roots (Cohere tilled) fish Burrows (C8) ration Visible on Aerial Imagery (C9) morphic Position (D2) -Neutral Test (D5) t-Heave Hummocks (D7) (LRR F)
Saturation X Water M Sedimer Drift Dep Algal Ma Iron Dep X Inundation Water-S Field Obser Surface Wate Water Table Saturation Pro (includes cap	larks (B1) Int Deposits (B2) Int Deposits (B3) Int or Crust (B4) Int or Crust (B4) Int or Crust (B4) Int or Crust (B5) Int or Crust (B5) Int or Crust (B4) I	ss ss	Hydrogen Dry-Sease Oxidized (where Presence Thin Mucl Other (Ex No X No X No X	Sulfide (con Water Rhizosph not tilled of Reduce Surface plain in Rule Depth (in Depth	Odor (C1 Table (Coeres on lat) Coed Iron (C7) Remarks) Inches): Inches): Inches): Inches):) C2) Living Roo (C4)	ots (C3) X Drair Oxidi (w) Cray Satu X Geor FAC Frost	nage Patterns (B10) ized Rhizospheres on Living Roots (C here tilled) fish Burrows (C8) ration Visible on Aerial Imagery (C9) morphic Position (D2) -Neutral Test (D5) t-Heave Hummocks (D7) (LRR F)
Saturation X Water M Sedimer Drift Dep Algal Ma Iron Dep X Inundation Water-S Field Obser Surface Water Water Table Saturation Profits (includes cape) Describe Receiver	larks (B1) Int Deposits (B2) Int Deposits (B3) Int or Crust (B4) I	ss ss	Hydrogen Dry-Sease Oxidized (where Presence Thin Mucl Other (Ex No X No X No X	Sulfide (con Water Rhizosph not tilled of Reduce Surface plain in Rule Depth (in Depth	Odor (C1 Table (Coeres on lat) Coed Iron (C7) Remarks) Inches): Inches): Inches): Inches):) C2) Living Roo (C4)	ots (C3) X Drair Oxidi (w) Cray Satu X Geor FAC Frost	nage Patterns (B10) ized Rhizospheres on Living Roots (C here tilled) fish Burrows (C8) ration Visible on Aerial Imagery (C9) morphic Position (D2) -Neutral Test (D5) t-Heave Hummocks (D7) (LRR F)
Saturation X Water M Sedimer Drift Dep Algal Ma Iron Dep X Inundation Water-S Field Obser Surface Water Vater Table Saturation Profincludes cap Describe Remarks:	larks (B1) Int Deposits (B2) Int Deposits (B3) Int or Crust (B4) Int or Crust (B4) Int or Crust (B5) Int or Crust (B5) Int or Visible on Aerial Int Itained Leaves (B9) Interval of the control of the co	ss s gauge, moni	Hydrogen Dry-Sease Oxidized (where Presence Thin Mucl Other (Ex	Sulfide (con Water Rhizosph not tilled of Reduce Surface plain in Rule Depth (i Depth (i Depth (i Dal photos	Odor (C1 Table (Coeres on lat) Coed Iron (C7) Remarks) Inches): Inches): Inches): Inches):) C2) Living Roo (C4)	ots (C3) X Drair Oxidi (w) Cray Satu X Geor FAC Frost	nage Patterns (B10) ized Rhizospheres on Living Roots (Cohere tilled) fish Burrows (C8) ration Visible on Aerial Imagery (C9) morphic Position (D2) -Neutral Test (D5) t-Heave Hummocks (D7) (LRR F)
Saturation X Water M Sedimer Drift Dep Algal Ma Iron Dep X Inundation Water-S Field Obser Surface Water Vater Table Saturation Princludes cap Describe Rec	larks (B1) Int Deposits (B2) Int Deposits (B3) Int or Crust (B4) I	ss s gauge, moni	Hydrogen Dry-Sease Oxidized (where Presence Thin Mucl Other (Ex	Sulfide (con Water Rhizosph not tilled of Reduce Surface plain in Rule Depth (i Depth (i Depth (i Dal photos	Odor (C1 Table (Coeres on lat) Coed Iron (C7) Remarks) Inches): Inches): Inches): Inches):) C2) Living Roo (C4)	ots (C3) X Drair Oxidi (w) Cray Satu X Geor FAC Frost	nage Patterns (B10) ized Rhizospheres on Living Roots (Chere tilled) fish Burrows (C8) ration Visible on Aerial Imagery (C9) morphic Position (D2) -Neutral Test (D5) t-Heave Hummocks (D7) (LRR F)

Project/Site: BLM LTPBR workshop/Pumpkin Creek	C	ity/County: Miles	City/Custer	Sampling Date:	7/9/21
Applicant/Owner: Bureau of Land Management	_		State: MT	Sampling Point:	UPL-1a.3
Investigator(s): A. Chadwick	Se	ction, Township, R	ange: Sec. 7, T5 N, R	- 49 E	
Landform (hillside, terrace, etc.): high bank	Local	elief (concave, cor	nvex, none): convex	Slo	pe (%): 5
Subregion (LRR): LRR G Lat: 46.20849	, , , , , , , , , , , , , , , , , , ,		-105.650468		NAD 83
Soil Map Unit Name: Sonnett loam, 2 to 8 percent slopes			NWI classi	ification: none	
Are climatic / hydrologic conditions on the site typical for		2 Vos V			
	-				lo.
Are Vegetation, Soil, or Hydrologysig					<u> </u>
Are Vegetation, Soil, or Hydrologynat					
SUMMARY OF FINDINGS – Attach site map	snowing sa	mpling point i	ocations, transects	s, important fea	itures, etc.
Hydrophytic Vegetation Present? Yes X No		Is the Sampled	Area		
Hydric Soil Present? Yes No	X	within a Wetland		No X	
Wetland Hydrology Present? Yes No	X				
Remarks:					
UPL plot for WL-1a.3, on steep upper bank at newly-forn	med higher terra	ce level (due to cha	annel incision).		
			$\alpha / \alpha / \alpha / \alpha$	3	
			10. 11.		
VEGETATION – Use scientific names of pla	ints.		,		
·		cies? Status	Dominance Test wo		
1.	70 осто. <u>-срс</u>	No.	Number of Dominant		
2.			Are OBL, FACW, or I		2 (A)
3.			Total Number of Dom	ninant Species	
4.	ν_{\sim}		Across All Strata:	·	3 (B)
<u>_</u>	=Total	Cover	Percent of Dominant	•	
Sapling/Shrub Stratum (Plot size: 15 ft)	C^{\prime}		Are OBL, FACW, or I	FAC: <u>6</u>	6.7% (A/B)
1.		0, —	Daniel and a decision		
2.			Prevalence Index w Total % Cover of:	Multiply by	ı:
3	<u> </u>		-	0 x 1 =	0
5.	7/)				138
	=Total	Cover		0 x 3 =	0
Herb Stratum (Plot size: 5 ft)				11 x 4 =	44
Distichlis spicata	45 Y	es FACW	UPL species	20 x 5 =	100
Spartina pectinata	20 Y	es FACW	Column Totals: 1	00 (A)	282 (B)
3. Agropyron cristatum	20 Y	es UPL	Prevalence Index = I	B/A = 2.8	2
4. Pascopyrum smithii		lo FACU			
5. Helianthus nuttallii		lo FACW	Hydrophytic Vegeta		
6. Chenopodium album	1 <u></u>	lo FACU		r Hydrophytic Vege	ation
7			X 2 - Dominance T 3 - Prevalence In		
8. 9.				ldex is ≤3.0 Il Adaptations¹ (Prov	ido oupporting
10.			· —	ks or on a separate	
10	100 =Total	Cover		rophytic Vegetation	-
Woody Vine Stratum (Plot size:)	100 10141	00101	¹ Indicators of hydric s		
1.			be present, unless di		
2.			Hydrophytic	·	
	=Total	Cover	Vegetation		
% Bare Ground in Herb Stratum 0			_	<u> </u>	_
Remarks:			1	-	
Mixed mesic and upland grass on high terraced bank wi	thin incised char	nnel of Pumpkin Cr	eek		
US Army Corps of Engineers				Great Plair	ns – Version 2.

SOIL Sampling Point: UPL-1a.3

Depth	cription: (Describe Matrix	5 aop t		ox Featur				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-4	2.5Y 4/2	100					Loamy/Clayey	cla lo
4-7	2.5Y 4/3	70	10YR 4/6	5	С	PL/M	Loamy/Clayey	sa cla lo
_	2.5Y 4/2	25						
7-15	2.5Y 4/2	80					Loamy/Clayey	clay
	2.5Y 5/2	20						
	2.01 0/2	· <u></u>						_
								_
	-	. —— -					<u> </u>	- , -
1		lation DM	Deduced Metric				21	and the District Manager Manager
•	oncentration, D=Dep Indicators: (Applica					oated Sa		ocation: PL=Pore Lining, M=Matrix. dicators for Problematic Hydric Soils
Histosol		ibie to all L	itito, umess oui			atrix (S4)		1 cm Muck (A9) (LRR I, J)
	oipedon (A2)			Sandy R	-			Coast Prairie Redox (A16) (LRR F, G,
	stic (A3)			Stripped				Dark Surface (S7) (LRR G)
Hydroge	n Sulfide (A4)			Loamy N	Ииску Мі	ineral (F1	_	High Plains Depressions (F16)
Stratified	d Layers (A5) (LRR F	")	_	_	-	1atrix (F2)		(LRR H outside of MLRA 72 & 73
	ıck (A9) (LRR F, G, I			Depleted		Total State of the Control of the Co	7.0° C	Reduced Vertic (F18)
	d Below Dark Surface	e (A11)		_Redox D		S	11. T	Red Parent Material (F21)
	ark Surface (A12)					urface (F	7)*	Very Shallow Dark Surface (F22)
	Mucky Mineral (S1)	C2) // DD C	<u> </u>	Redox D			(E16) 3 ₁	Other (Explain in Remarks)
	Mucky Peat or Peat (ucky Peat or Peat (S	, .	·, n)			res <mark>s</mark> ions (73 of LR I		ndicators of hydrophytic vegetation and wetland hydrology must be present,
	ony i caroni car (or	·/ (=!XIX I /		(1411	1120	, v vi Liki		unless disturbed or problematic.
Restrictive	Layer (if observed):			1		1	0.	'
Type:			<u></u>	0) <			
Depth (ii	nches):			07			Hydric Soil Prese	ent? Yes No_X
Remarks:					9			
Does not qui	ite meet hydric indica	ators but dis	plays redox conc	entrations	for thre	e inches	of profiile and depl	eted matrix color at depth
			40,	60				
HYDROLO	OGY			/				
	drology Indicators:		' 	•				
-	cators (minimum of c	ne is requir	ed: check all that	apply)			Secon	dary Indicators (minimum of two require
-	Water (A1)		Salt Crus					urface Soil Cracks (B6)
High Wa	ater Table (A2)		Aquatic Ir	-	tes (B13))		parsely Vegetated Concave Surface (B8)
Saturation	• ,	X	Hydrogen	Sulfide (Odor (C1)	Dr	rainage Patterns (B10)
Water M	larks (B1)		Dry-Seas	on Water	Table (C	C2)	O	xidized Rhizospheres on Living Roots (C
	nt Deposits (B2)		Oxidized			Living Ro		(where tilled)
	posits (B3)		•	not tilled	,	(O.1)		rayfish Burrows (C8)
	at or Crust (B4)		Presence			(C4)		aturation Visible on Aerial Imagery (C9)
	oosits (B5)	maga:/D7	Thin Muc					eomorphic Position (D2)
	on Visible on Aerial I tained Leaves (B9)	magery (B7	Other (Ex	kpiain in R	kemarks))		AC-Neutral Test (D5) ost-Heave Hummocks (D7) (LRR F)
							<u>— </u>	OSC-1 ICAVE FIGHTHIOCKS (DI) (LIKK F)
Field Obser Surface Wat		es	No X	Depth (i	nchee).			
Water Table		es	No X	Depth (i	· -			
Saturation P			No X	Depth (i	_		Wetland Hydro	ology Present? Yes No X
(includes cap					′ -			
	corded Data (stream	gauge, mo	nitoring well, aeri	al photos,	, previou	s inspecti	ions), if available:	
Remarks:	v indicators							
No hydrology	y muicators							
								_
US Army Corr	os of Engineers							Great Plains – Vers

Project/Site: BLM LTPBR workshop/Pumpkin Creek	(City/County: Miles C	City/Custer	Sampling Date:	7/9/21
Applicant/Owner: Bureau of Land Management	<u> </u>		State: MT	Sampling Point:	WL-1a.3
Investigator(s): A. Chadwick	S	ection, Township, R	ange: Sec. 7, T5 N, R4	9 E	
Landform (hillside, terrace, etc.): low terrace	Local	relief (concave, con	vex, none): convex	Slop	pe (%): 1
Subregion (LRR): LRR G Lat: 46.2084	476	Long: -	105.650528	Datum:	NAD 83
Soil Map Unit Name: Sonnett loam, 2 to 8 percent slope			NWI classit	fication: none	
Are climatic / hydrologic conditions on the site typical fo		? Yes X		•	
Are Vegetation , Soil , or Hydrology s	-)
Are Vegetation , Soil , or Hydrology n					
SUMMARY OF FINDINGS – Attach site ma					tures, etc.
Hydrophytic Vegetation Present? Yes X No		Is the Sampled	Area		
Hydric Soil Present? Yes X No		within a Wetland	d? Yes X	No	
Wetland Hydrology Present? Yes X No	·				
Remarks: Linear PEM wetland along new inset low terrace on inc	cised channel of F	Pumpkin Creek rive	r left side		
Linear Liv wettand diong new most low tendes of the	nood onamior or r	umpum oreek, me			
			10, 0//		
VEGETATION – Use scientific names of p	lants.				
<u>Tree Stratum</u> (Plot size: 30 ft)	% Cover Spe	ecies? Status	Dominance Test wor	rksheet:	
1		70	Number of Dominant	Species That	
2			Are OBL, FACW, or F	AC:	3 (A)
3.		<u> </u>	Total Number of Dom	inant Species	
4	-03		Across All Strata:		3 (B)
Sapling/Shrub Stratum (Plot size: 15 ft)	= lota	Cover	Percent of Dominant : Are OBL, FACW, or F	•	0.0% (A/B)
			Ale OBL, FACW, OFF	AC. <u>10</u>	0.0% (A/B)
2.	<u> </u>	Θ	Prevalence Index wo	orksheet:	
3.	·		Total % Cover of:	Multiply by	· ·
4.			OBL species	5 x 1 =	5
5.	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		· · · · ·	5 x 2 =	190
	=Tota	l Cover		x 3 =	0
Herb Stratum (Plot size: 5 ft)	_			x 4 =	0
Spartina pectinata Juncus balticus		res FACW FACW		$\frac{0}{00}$ x 5 =	0 195 (B)
Junicus batticus Hordeum jubatum		res FACW FACW	Prevalence Index = E	`	``
Schoenoplectus pungens		No OBL	Trevalence mack	1.00	<u>′</u>
5.			Hydrophytic Vegetat	ion Indicators:	
6.				Hydrophytic Vegeta	ation
7.			X 2 - Dominance Te	est is >50%	
8.			X 3 - Prevalence Inc		
9			1 	Adaptations ¹ (Provi	
10				s or on a separate	,
Manda Vina Chahan	100=Tota	I Cover		ophytic Vegetation ¹	
Woody Vine Stratum (Plot size:) 1.			¹ Indicators of hydric s be present, unless dis		
1 2.			·	narboa or problema	
<u>-</u>	=Tota	l Cover	Hydrophytic Vegetation		
% Bare Ground in Herb Stratum0			_	XNo	
Remarks:					
Spartina community on low terrace of Pumpkin Creek.					
US Army Corps of Engineers				Great Plain	s – Version 2.

SOIL Sampling Point: WL-1a.3

	•	-				ator or co	onfirm the absence	of indicators.)
Depth (inches)	Matri Color (moist)		Color (moist)	dox Feature	es Type ¹	Loc ²	Texture	Remarks
			Coloi (IIIOISI)		турс			
0-3	2.5Y 3/2	80					Loamy/Clayey	cla lo
	2.5Y 4/2	20						
3-15	2.5Y 3/2	60	10YR 4/6	20	С	PL/M	Loamy/Clayey	jumbled clay and sand
	2.5Y 4/2	20						
¹Type: C=Co	oncentration, D=D	epletion, RM	Reduced Matrix	, CS=Cove	red or C	oated Sa	nd Grains. ² Loc	ation: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (App	licable to all l	LRRs, unless of	therwise n	oted.)		Indi	cators for Problematic Hydric Soils ³
Histosol					-	atrix (S4)		1 cm Muck (A9) (LRR I, J)
	pipedon (A2)			Sandy R		-		Coast Prairie Redox (A16) (LRR F, G,
Black Hi	` '		_	Stripped	,	,		Dark Surface (S7) (LRR G)
	n Sulfide (A4)				-	ineral (F1		High Plains Depressions (F16)
	Layers (A5) (LR	•	_		-	fatrix (F2)		(LRR H outside of MLRA 72 & 73)
	ck (A9) (LRR F, (Depleted		` '		Reduced Vertic (F18)
	Below Dark Surf			X Redox D		*	—	Red Parent Material (F21)
	ark Surface (A12)			Depleted Redox D		urface (F		Very Shallow Dark Surface (F22)
	lucky Mineral (S1 ⁄lucky Peat or Pea	•	- H/			ons (F8) ressions (Other (Explain in Remarks) icators of hydrophytic vegetation and
	cky Peat or Peat		<u> </u>			73 of LRF		wetland hydrology must be present,
	cky real of real	(33) (LKK F)		(IVILI)	AVZ	73 OI EKI		unless disturbed or problematic.
Restrictive I	_ayer (if observe	d):		- 1		16.	0.	arriode dictaribut of problematic.
Type:	• (•		0	\			
Depth (ir	nches):			UK.	· _		Hydric Soil Presen	t? Yes X No
Remarks:)				
	sits, now well-ve	getated, with r	edox 🗘		\mathcal{O}			
			1.0	. C'O	•			
HYDROLO	GY		J' 'Z'	7				
Wetland Hyd	drology Indicato	rs:	7,0	•				
Primary Indic	cators (minimum	of one is requi	red; check all the	at apply)			Seconda	ary Indicators (minimum of two required
Surface	Water (A1)		Salt Cru	ıst (B11)			Surf	ace Soil Cracks (B6)
High Wa	ter Table (A2)		Aquatic	Invertebrat	tes (B13))		rsely Vegetated Concave Surface (B8)
Saturatio	` '	X	<u> </u>	en Sulfide (•	•		nage Patterns (B10)
	arks (B1)			ason Water	•	•		dized Rhizospheres on Living Roots (C
	nt Deposits (B2)			d Rhizosph		Living Ro		here tilled)
	oosits (B3)		•	e not tilled	•			fish Burrows (C8)
	t or Crust (B4)			ce of Reduc		(C4)		uration Visible on Aerial Imagery (C9)
	osits (B5)			ıck Surface				morphic Position (D2)
	on Visible on Aeri		7)Other (E	Explain in R	(emarks)		C-Neutral Test (D5)
	tained Leaves (B	ط)					Fros	st-Heave Hummocks (D7) (LRR F)
Field Obser				_				
Surface Wat		Yes	No X	Depth (ii	· -			
Water Table		Yes	No X	Depth (i	_		M-41	
Saturation Pr		Yes	No X	Depth (ii	ncnes): _		Wetland Hydrolo	gy Present? Yes X No
(includes cap		om douge 55	onitoring well as	rial photos	proviou	e ineneet	ons), if available:	
Describe Re	corded Data (stre	am gauge, mo	onitoring well, ae	riai pnotos,	, previou	s inspecii	ons), ii avallable:	
Remarks:								
Remarks:	e of Pumpkin Cre	ek. occasiona	ally flooding at th	is level: inu	ındation	visible on	recent past aerial n	hoto
	e of Pumpkin Cre	eek, occasiona	ally flooding at th	is level; inu	ındation	visible on	recent past aerial p	hoto

Project/Site: BLM LTPBR workshop/Pumpkin Creek	C	ity/County: Miles C	City/Custer	Sampling Date	: 7/9/21
Applicant/Owner: Bureau of Land Management			State: MT	Sampling Point	: UPL-1a.4
Investigator(s): A. Chadwick	Se	ection, Township, Ra	ange: Sec. 1, T5 N, R	<u>-</u> 18 E	
Landform (hillside, terrace, etc.): terrace	<u> </u>		vex, none): convex		ope (%): 1
Subregion (LRR): LRR G Lat: 46.2139			105.657468		: NAD 83
Soil Map Unit Name: Havre loam, 0 to 2 percent slopes,			NWI classi	,	14712 00
			-	·	
Are climatic / hydrologic conditions on the site typical for	-		No (If no, ex		
Are Vegetation, Soil, or Hydrologysi					40 <u> </u>
Are Vegetation, Soil, or Hydrologyna			xplain any answers in Re	•	
SUMMARY OF FINDINGS – Attach site ma	p showing sa	impling point lo	ocations, transects	s, important fe	atures, etc.
Hydrophytic Vegetation Present? Yes No	Х	Is the Sampled A	\rea		
	X	within a Wetland		No_X_	
	Х			<u> </u>	
Remarks:					
UPL DP for WL-1a.4 mid-high terrace of Pumpkin Cree	ek, river left side.				
				4	
			(0, U)		
VEGETATION – Use scientific names of pl	ants.				
<u> </u>		cies? Status	Dominance Test wo	rkehoot:	
1	70 Cover Spe	cies! Status			
2.		Mary Contract of the Contract	Number of Dominant Are OBL, FACW, or I	•	2 (A)
3.			Total Number of Dom		`` /
4.		7.7	Across All Strata:		4 (B)
	=Total	Cover	Percent of Dominant	Species That	
Sapling/Shrub Stratum (Plot size: 15 ft)	C_{ij}	~ ()	Are OBL, FACW, or I	FAC:	50.0% (A/B)
1.		0 , —			
2.			Prevalence Index w		
3.	<u> </u>		Total % Cover of: OBL species	Multiply b x 1 =	7y. 15
5.	7/)			25 x 2 =	50
	=Total	Cover		5 x 3 =	15
Herb Stratum (Plot size: 5 ft)			·	40 x 4 =	160
Helianthus nuttallii	15 Y	es FACW	UPL species	5 x 5 =	25
2. Pascopyrum smithii	20 Y	es FACU	Column Totals:	90 (A)	265 (B)
3. Symphyotrichum falcatum		es FACU	Prevalence Index = I	B/A = 2.9	94
4. Schoenoplectus pungens		es OBL			
5. Spartina pectinata		No FACW	Hydrophytic Vegeta		4-4:
Asclepias speciosa Ratibida columnifera		No FAC UPL	2 - Dominance T	r Hydrophytic Vege	Ration
8.	<u> </u>	NO OFL	3 - Prevalence In		
			l ——	I Adaptations ¹ (Pro	vide supporting
10.				ks or on a separate	
	90 =Total	Cover	Problematic Hyd	rophytic Vegetatior	า ¹ (Explain)
Woody Vine Stratum (Plot size:)			¹ Indicators of hydric s		
1			be present, unless di		
2.			Hydrophytic		
% Bare Ground in Herb Stratum 10	=Total	Cover	Vegetation Present? Yes	s No >	<
Remarks:			1		<u> </u>
Transition zone between wetland and upland vegetation	n				
The state of the s					
US Army Corps of Engineers				Crost Pla	ins – Version 2.0
OC CHIEF COIDS OF FRUITEELS				Great Pla	— v CI SIUII Z.U

SOIL Sampling Point: UPL-1a.4

Depth	ription: (Describe to Matrix			ox Featur				-
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-10	2.5Y 5/3	80	10YR 4/6	10	С	PL/M	Loamy/Clayey	sandy clay
	2.5Y 3/2	10						
10-15	10YR 4/3	90	7.5YR 3/4	10		M	Sandy	-
10-15	10111 4/3	90	7.51K 3/4	10	<u>C</u>	IVI	Sanuy	
								·
								· -
						· <u></u>		
¹ Type: C=Co	ncentration, D=Deple	tion. RM=R	Reduced Matrix.	CS=Cove	red or C	oated Sa	nd Grains. ² Loo	cation: PL=Pore Lining, M=Matrix.
	ndicators: (Applicab							icators for Problematic Hydric Soils ³
Histosol (,			latrix (S4)		1 cm Muck (A9) (LRR I, J)
	ipedon (A2)			Sandy R	-			Coast Prairie Redox (A16) (LRR F, G,
Black His				Stripped				Dark Surface (S7) (LRR G)
— Hydroger	Sulfide (A4)			Loamy N	⁄lucky М	ineral (F1		High Plains Depressions (F16)
	Layers (A5) (LRR F)			Loamy C	Sleyed M	1atrix (F2)		(LRR H outside of MLRA 72 & 73)
	ck (A9) (LRR F, G, H)			Depleted	-		~,0,, ~	Reduced Vertic (F18)
Depleted	Below Dark Surface	(A11)		Redox D	ark Surf	face (F 6)		Red Parent Material (F21)
Thick Da	rk Surface (A12)					urface (F	7)	Very Shallow Dark Surface (F22)
Sandy Mu	ucky Mineral (S1)			Redox D				Other (Explain in Remarks)
2.5 cm M	ucky Peat or Peat (S	2) (LRR G ,	H)	_		ressions (icators of hydrophytic vegetation and
5 cm Mud	cky Peat or Peat (S3)	(LRR F)		(MLF	RA 72 &	73 of LRI	R H)	wetland hydrology must be present,
								unless disturbed or problematic.
Restrictive L	ayer (if observed):			N		1.4	O	
Type:			_	C_{\sim}	,			
Depth (in	ches):			01			Hydric Soil Preser	nt? Yes No X
Some redox p	oresent but too light fo	or wetland s	coil. Redox com	mon in cla	y soils r	not in wetl	ands in this setting.	
HYDROLO	GY		11					
	rology Indicators:			•				
-	ators (minimum of on	e is require	d: check all that	annly)			Second	ary Indicators (minimum of two required
-	Vater (A1)	io io roquiro	Salt Crus					face Soil Cracks (B6)
	er Table (A2)		Aquatic I	, ,	tes (B13)		rsely Vegetated Concave Surface (B8)
Saturatio		V		Sulfide (•	•		inage Patterns (B10)
Water Ma	` '			on Water	,	•		dized Rhizospheres on Living Roots (C
	t Deposits (B2)			Rhizosph	•	,		vhere tilled)
	osits (B3)			not tilled		Ü		yfish Burrows (C8)
Algal Mat	or Crust (B4)		Presence	of Reduc	ed Iron	(C4)		uration Visible on Aerial Imagery (C9)
Iron Depo	osits (B5)		Thin Muc	k Surface	(C7)	` ,		omorphic Position (D2)
Inundatio	n Visible on Aerial Im	nagery (B7)	Other (Ex	plain in R	(emarks)	FAC	C-Neutral Test (D5)
Water-St	ained Leaves (B9)						Fro	st-Heave Hummocks (D7) (LRR F)
Field Observ	rations:							
Surface Water	er Present? Yes		No X	Depth (ii	nches):			
Water Table I	Present? Yes		No X	Depth (ii	· -			
Saturation Pro	esent? Yes		No X	Depth (ii	nches):		Wetland Hydrold	ogy Present? Yes No _X
(includes cap	illary fringe)							
Describe Rec	orded Data (stream g	gauge, mon	itoring well, aeri	al photos,	previou	s inspecti	ions), if available:	
Remarks:	O compliant			.		D	Maria and a second	tt floor from Dom 11 C
No Hydrology	r. Scour line downslop	oe is likely n	new storm runof	r ievel (ch	annel is	ıncısed).	ıvıay get occasional	runoff flow from Pumpkin Creek.
JS Army Corps	s of Engineers							Great Plains - Version

Project/Site: BLM LTPBR workshop/Pumpkin Creek	City/County: Miles City	y/Custer	Sampling Date: 7/9/21	
Applicant/Owner: Bureau of Land Management		State: MT	Sampling Point: WL-1	1a.4
Investigator(s): A. Chadwick	Section, Township, Ran	ge: Sec. 1, T5 N, R48	 3 E	
Landform (hillside, terrace, etc.): low bank	Local relief (concave, conve	ex, none): convex	Slope (%):	3
Subregion (LRR): LRR G Lat: 46.213987	 Long: -10	05.657478	Datum: NAD 8	33
Soil Map Unit Name: Havre loam, 0 to 2 percent slopes, oc		NWI classifi	cation: none	
Are climatic / hydrologic conditions on the site typical for th				
Are Vegetation , Soil , or Hydrology signi			·	
Are Vegetation , Soil , or Hydrology natur				
SUMMARY OF FINDINGS – Attach site map s				etc.
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Ar	ea		
Hydric Soil Present? Yes X No	within a Wetland?	Yes X	No	
Wetland Hydrology Present? Yes X No				
Remarks:				
Linear PEM wetland along low bank of incised channel of	Pumpkin Creek, river left side.	VID (In	\	
		0,0/1		
VEGETATION – Use scientific names of plan		\Q .		
Tree Stratum (Plot size: 30 ft) %	Cover Species? Status	Dominance Test work		
1.		Number of Dominant S Are OBL, FACW, or F		(A)
3.		Total Number of Domi		(//)
4.	7	Across All Strata:	•	(B)
	=Total Cover	Percent of Dominant S	Species That	
Sapling/Shrub Stratum (Plot size: 15 ft)	.0, ,	Are OBL, FACW, or FA	•	(A/B)
1.	<u> </u>			
2.		Prevalence Index wo		
3.		Total % Cover of:	Multiply by:	
4.		OBL species 65 FACW species 35		
·	=Total Cover	FAC species 0		
Herb Stratum (Plot size: 5 ft)		FACU species 0		
Schoenoplectus pungens	65 Yes OBL	UPL species 0	x 5 = 0	
2. Spartina pectinata	25 Yes FACW	Column Totals: 10	0 (A) 135 ((B)
3. Hordeum jubatum	10 No FACW	Prevalence Index = B	/A = 1.35	
4		Herdman bestic Managati	an Indiantana	
5		Hydrophytic Vegetati	Hydrophytic Vegetation	
7		X 2 - Dominance Te	• • •	
8.		X 3 - Prevalence Ind		
9.	<u> </u>		Adaptations ¹ (Provide suppo	orting
10.		data in Remark	s or on a separate sheet)	Ĭ
	100 =Total Cover	Problematic Hydro	pphytic Vegetation ¹ (Explain	1)
Woody Vine Stratum (Plot size:)			oil and wetland hydrology m	ıust
1		be present, unless dist	urbed or problematic.	
2	-Tatal Carrier	Hydrophytic		
% Bare Ground in Herb Stratum0	=Total Cover	Vegetation Present? Yes	<u> </u>	
Remarks:				
Bulrush and prairie cordgrass community on low terrace o	f Pumpkin Creek.			
US Army Corps of Engineers			Great Plains – Versi	ion 2.

SOIL Sampling Point: WL-1a.4

Depth	ription: (Describe to Matrix	o tne dep		cument tr ox Feature		ator or co	onfirm the absence	or indicators.)
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-10	2.5Y 4/2	60	2.5Y 2.5/1	10	C	М	Loamy/Clayey	-
	2.5Y 4/1	15	7.5YR 3/4	15	<u> </u>	M	Louiny/Olayoy	-
10.14	N 2.5/	80					L comy/Clayey	
10-14			7.5YR 3/4	10	С	M	Loamy/Clayey	
	2.5Y 4/1	10						
¹ Type: C=Co	oncentration, D=Depl	etion, RM=	Reduced Matrix,	CS=Cove	red or C	oated Sa	nd Grains. ² Loc	cation: PL=Pore Lining, M=Matrix.
Hydric Soil I	ndicators: (Applica	ble to all L	RRs, unless oth	erwise n	oted.)		Indi	cators for Problematic Hydric Soils ³ :
Histosol				_ ´	•	atrix (S4)		1 cm Muck (A9) (LRR I, J)
	ipedon (A2)			Sandy R	-	-		Coast Prairie Redox (A16) (LRR F, G,
Black His	` '			Stripped		-		Dark Surface (S7) (LRR G)
	n Sulfide (A4)			_	-	ineral (F1	_	High Plains Depressions (F16)
	Layers (A5) (LRR F			Loamy C	-			(LRR H outside of MLRA 72 & 73)
	ck (A9) (LRR F, G, F		<u>X</u>	_Depleted		· · · · · · · · · · · · · · · · · · ·		Reduced Vertic (F18)
	Below Dark Surface	(A11)		_Redox D				Red Parent Material (F21)
	rk Surface (A12)			- '		urface (F		Very Shallow Dark Surface (F22)
	ucky Mineral (S1)			Redox D				Other (Explain in Remarks)
	flucky Peat or Peat (\$		S, H)	_		ressions (icators of hydrophytic vegetation and
5 cm Mu	cky Peat or Peat (S3) (LRR F)		(MLF	A 72 &	73 of LR		wetland hydrology must be present,
Dantuintius I	(if abaamaal).				<u> </u>		}	unless disturbed or problematic.
	ayer (if observed):					1.7		
Type: Depth (in	achoo):		(1	•	Y /	Hydric Soil Presen	t? Yes X No
				<u> </u>	\sim		Tryunc 3011 Fresen	163 <u>\</u> 100
Remarks:						•		
Redox indica	tors throughout profi	е		X				
			40%	~ (V)				
HYDROLO	GY			/				
	drology Indicators:			•				
-	ators (minimum of o	no io roqui	rad: aback all that	· annlu)			Sacanda	on Indicators (minimum of two required
		ne is requi						ary Indicators (minimum of two required
	Water (A1)		Salt Crus Aquatic Ir	` '	oo (D12	١		ace Soil Cracks (B6)
	ter Table (A2)							rsely Vegetated Concave Surface (B8)
X Saturatio	,		<u> </u>	Sulfide C	,	•		nage Patterns (B10)
Water Ma			Dry-Seas					dized Rhizospheres on Living Roots (C3
	t Deposits (B2)		Oxidized			Living Ro		/here tilled)
	osits (B3)		•	not tilled	•	(O.1)		yfish Burrows (C8)
	t or Crust (B4)			of Reduc		(C4)		uration Visible on Aerial Imagery (C9)
	osits (B5)	(5.		k Surface				morphic Position (D2)
	on Visible on Aerial Ir	nagery (B7	')Other (Ex	cplain in R	(emarks)		C-Neutral Test (D5)
Water-St	tained Leaves (B9)						Fros	st-Heave Hummocks (D7) (LRR F)
Field Observ								
Surface Water			No X	Depth (ii	· -			
Water Table			No X	Depth (ii				
Saturation Pr		s <u>X</u>	No	Depth (ii	nches):	5	Wetland Hydrolo	gy Present? Yes X No
(includes cap								
Describe Rec	corded Data (stream	gauge, mo	nitoring well, aeri	al photos,	previou	s inspecti	ions), if available:	
D								
Remarks:	with a atumotic a manager	atimaciili:	north due to eme	ındıt-	drair	from bi-	hartaraaa butti - L	onk likaly agas fraguest is sedation to
	with saturation prese or nearly so from Po			ınawater (urainage	rom nig	ner terace, but the ba	ank likely sees frequent inundation to
	•	anipitiii Ole	on.					
JS Army Corp	s of Engineers							Great Plains – Version

Project/Site: BLM LTPBR workshop/Pumpkin Creek	City/County: Miles C	ity/Custer	Sampling Date:	7/9/21			
Applicant/Owner: Bureau of Land Management		State: MT Sampling Point:					
Investigator(s): A. Chadwick	Section, Township, Ra	ange: Sec. 1, T5 N, R4	8 E				
Landform (hillside, terrace, etc.): Streambank	Local relief (concave, conv	<u> </u>		pe (%): 5			
Subregion (LRR): LRR G Lat: 46.217608		105.670932		NAD 83			
Soil Map Unit Name: Havre loam, 0 to 2 percent slopes, oc		NWI classif	ication: none				
Are climatic / hydrologic conditions on the site typical for thi	•						
Are Vegetation , Soil , or Hydrology signif				0			
Are Vegetation , Soil , or Hydrology natur		rplain any answers in Rei					
SUMMARY OF FINDINGS – Attach site map s		•	•	tures, etc.			
Hydrophytic Vegetation Present? Yes No X	Is the Sampled A	ırea					
Hydric Soil Present? Yes No		? Yes	No X				
Wetland Hydrology Present? Yes No _X			· · · · · · · · · · · · · · · · · · ·				
Remarks: UPL DP for WL-1a.5. On terrace of Pumpkin Creek, river I	· · · · · · · · · · · · · · · · · · ·	all only	}				
VEGETATION – Use scientific names of plan							
Tree Stratum (Plot size: 30 ft) %	Cover Species? Status	Dominance Test wor	ksheet:				
1		Number of Dominant	•	0 (4)			
3.		Are OBL, FACW, or F		2 (A)			
4	-4-140	Total Number of Domi Across All Strata:	inant Species	4 (B)			
	=Total Cover	Percent of Dominant S	Species That	(_)			
Sapling/Shrub Stratum (Plot size: 15 ft)	·\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\	Are OBL, FACW, or F	•	0.0% (A/B)			
Populus deltoides	15 Yes FAC			_			
2.		Prevalence Index wo					
3.		Total % Cover of:	Multiply by				
5.			0 x1= 0 x2=	<u>0</u> 60			
°.	15 =Total Cover		5 x3=	45			
Herb Stratum (Plot size: 5 ft)	10.01.00101	· · · · · · · · · · · · · · · · · · ·	0 x 4 =	80			
1. Spartina pectinata	30 Yes FACW		0 x 5 =	150			
2. Agropyron cristatum	20 Yes UPL	Column Totals: 9	5 (A)	335 (B)			
Symphyotrichum falcatum	20 Yes FACU	Prevalence Index = B	3.53	3			
4. Solidago missouriensis	10 No UPL						
5		Hydrophytic Vegetat		-4:			
6		2 - Dominance Te	Hydrophytic Veget	ation			
		3 - Prevalence Inc					
9.			Adaptations ¹ (Prov	ide supportina			
10.			s or on a separate				
	80 =Total Cover	Problematic Hydro	ophytic Vegetation ¹	(Explain)			
Woody Vine Stratum (Plot size:)		¹ Indicators of hydric so	oil and wetland hyd	rology must			
1		be present, unless dis	turbed or problema	itic.			
2	=Total Cover	Hydrophytic Vegetation Present? Yes	No X				
Remarks:		100	<u>X</u>	_			
At base of upper bank; mix of wetland and upland species US Army Corps of Engineers			Great Plain	s – Version 2.0			

SOIL Sampling Point: UPL-1a.5

Depth	ription: (Describe Matrix	.s are dept		ox Featur						•	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Text	ure		Remarks	
0-10	2.5Y 4/2	100					Loamy/	Clayey		sa cla lo	
10-15	10YR 4/3	70					Loamy/	Clayey		sa cla lo	
	10YR 5/3	30									
	·										
¹Type: C=Co	ncentration, D=Dep	letion. RM=l	Reduced Matrix.	CS=Cove	ered or C	oated Sa	and Grains.	² Loca	ation: PL=Por	e Linina. M=N	Matrix.
• •	ndicators: (Applica								ators for Pro		
Histosol						latrix (S4))		cm Muck (A9	-	
Histic Ep	ipedon (A2)			Sandy F	Redox (S	5)			Coast Prairie F	Redox (A16) (LRR F, G,
Black His	` '			- ''	l Matrix (,			oark Surface (,	
	n Sulfide (A4)			_		ineral (F1			ligh Plains De		
	Layers (A5) (LRR F			_	-	/fatrix (F2		1 _ 4		side of MLR	A 72 & 73)
	ck (A9) (LRR F, G, I Below Dark Surface			_	d Matrix	(F3) face (F 6)	Vo.		Reduced Vertice Red Parent Ma	. ,	
	rk Surface (A12)	5 (A11)				urface (F	7)		eu Faleili wa /ery Shallow [` ,	(F22)
	ucky Mineral (S1)			_ :		ons (F8)	'		Other (Explain		()
	lucky Peat or Peat (S2) (LRR G	, H)	_		ressions	(F16)		ators of hydro		ation and
5 cm Mu	cky Peat or Peat (S	3) (LRR F)		(MLF	RA 72 &	73 of LR	R H)	V	vetland hydrol	ogy must be	present,
							<u> 77, </u>	U	nless disturbe	ed or problem	atic.
	.ayer (if observed):					1.4	O.				
Type:	-1		_	S) ,		Usadala Os	!! D	•	V	N- V
Depth (in				0,	0		Hyaric Sc	il Present	<i>?</i>	Yes	No X
Remarks: No Hydric inc	licators		Ck C		\mathcal{O}_{I}	•					
NO HYUHC IIIC	licators			- X							
			('O'	(,0							
HYDROLO	GY), 71	7							
Wetland Hyd	Irology Indicators:		0.5								
Primary Indic	ators (minimum of c	ne is requir	ed; check all tha	t apply)				Secondar	y Indicators (r	minimum of to	wo required
	Water (A1)		Salt Crus	-					ce Soil Crack		
	ter Table (A2)			nvertebra	•	•			sely Vegetated		urface (B8)
Saturatio	` '			n Sulfide (,	•			age Patterns	,	D t - (O
Water Ma				on Water	•	,	acta (C2)		zed Rhizosph	eres on Livin	g Roots (C
	t Deposits (B2) osits (B3)			Rhizosph not tilled		LIVING RC	oois (C3)	•	n ere tilled) iish Burrows ((28)	
	t or Crust (B4)		•	of Redu	•	(C4)			ation Visible o	•	aerv (C9)
	osits (B5)			k Surface		(- ')			norphic Position		9-17 (7
	on Visible on Aerial I	magery (B7		kplain in F	, ,)			Neutral Test (
Water-St	ained Leaves (B9)							Frost	-Heave Humn	nocks (D7) (L	.RR F)
Field Observ	ations:										
Surface Water	er Present? Ye	es	No X	Depth (i	nches):						
Water Table		es	No X	Depth (i					_		
Saturation Pr		es	No X	Depth (i	nches):		Wetland	d Hydrolog	y Present?	Yes	No X
(includes cap	ollary fringe) corded Data (stream	dalide moi	nitoring well gor	al photos	nreviou	e inenact	tions) if our	ailahle.			
Describe Ke(orucu Data (Streath	gauge, 11101	morning well, aer	ai piiulus	, previou	o mopect	110113 <i>)</i> , 11 dVč	ilianie.			
Remarks:											
No Hydrology	<i>1</i> .										
US Army Corn	s of Engineers									Great Plains	– Version

Project/Site: BLM LTPBR workshop/Pumpkin Creek	City/County: Miles C	ity/Custer	Sampling Date:	7/10/21
Applicant/Owner: Bureau of Land Management		State: MT	Sampling Point:	WL-1a.5
Investigator(s): A. Chadwick	Section, Township, Ra	ange: Sec. 1, T5 N, R48	3 E	
Landform (hillside, terrace, etc.): low bank	Local relief (concave, conv	/ex, none): convex	Slope	e (%): 3
Subregion (LRR): LRR G Lat: 46.21763	 5	105.670925	Datum:	NAD 83
Soil Map Unit Name: Harlake silty clay, 0 to 2 percent slop		NWI classif	ication: none	
Are climatic / hydrologic conditions on the site typical for t		•		
Are Vegetation, Soil, or Hydrologysign				
Are Vegetation , Soil , or Hydrology nati				
SUMMARY OF FINDINGS – Attach site map				ures, etc.
Hydrophytic Vegetation Present? Yes X No Hydric Soil Present? Yes X No	Is the Sampled A		No	
Wetland Hydrology Present? Yes X No				
Remarks: PSS wetland patch within larger linear WL along left ban VEGETATION – Use scientific names of pla		iall only	<u> </u>	
·	6 Cover Species? Status	Dominance Test wor	kshoot:	
1.	Opecies: Status	Number of Dominant S		
2.		Are OBL, FACW, or F.		3 (A)
3.		Total Number of Domi	nant Species	
4	4) /L	Across All Strata:		3 (B)
Sapling/Shrub Stratum (Plot size: 15 ft) 1. Populus deltoides	=Total Cover	Percent of Dominant S Are OBL, FACW, or F.	•	.0% (A/B)
Salix amygdaloides	2 No FACW	Prevalence Index wo	rksheet:	
3.		Total % Cover of:	Multiply by:	
4.		OBL species 30		0
5.	7.110	· —		24
Herb Stratum (Plot size: 5 ft)	27 =Total Cover	FAC species 29 FACU species 10		0
Schoenoplectus pungens	30 Yes OBL	UPL species 0)
Spartina pectinata	60 Yes FACW	Column Totals: 12		69 (B)
3. Glycyrrhiza lepidota	7 No FACU	Prevalence Index = B		、 /
4. Symphyotrichum falcatum	3 No FACU		•	
5		Hydrophytic Vegetati		
6		· — ·	Hydrophytic Vegeta	tion
7		X 2 - Dominance Te		
8		X 3 - Prevalence Inc	ıex is ≤3.0° Adaptations¹ (Provid	o cupporting
10.			s or on a separate s	
10	100 =Total Cover		ophytic Vegetation ¹ (:
Woody Vine Stratum (Plot size:) 1.		¹ Indicators of hydric so be present, unless dis	oil and wetland hydro	ology must
1. 2.		·		
% Bare Ground in Herb Stratum 0	=Total Cover	Hydrophytic Vegetation Present? Yes	X_ No	
Remarks: Dominated by seedling/sapling cottonwood over emerged US Army Corps of Engineers	nt wetland community. All cottonwo	od and willow <3" DBH.	Great Plains	– Version 2.0

SOIL Sampling Point: WL-1a.5

Depth	Matrix			ox Featur			onfirm the absence	,
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-3	2.5Y 4/2	100					Sandy	fine sand
3-10	2.5Y 4/2	15	10YR 4/6	5	С	M	Loamy/Clayey	sandy clay
	2.5Y 4/1	80						
10-15	2.5Y 4/2	60	10YR 3/6	20	С	PL/M	Loamy/Clayey	ox rhiz
	2.5Y 4/1	20						
					<u> </u>			
¹Type: C=Co	oncentration, D=Depl	etion, RM=F	Reduced Matrix,	CS=Cove	ered or C	oated Sa	nd Grains. ² Loc	ation: PL=Pore Lining, M=Matrix.
-	Indicators: (Applica							cators for Problematic Hydric Soils ³ :
Histosol	(A1)			Sandy G	Sleyed Ma	atrix (S4)	·	1 cm Muck (A9) (LRR I, J)
Histic Ep	pipedon (A2)			Sandy R	Redox (S	5)	(Coast Prairie Redox (A16) (LRR F, G, H)
Black His	` '			_	Matrix (Dark Surface (S7) (LRR G)
	n Sulfide (A4)			_	-	ineral (F1	_	High Plains Depressions (F16)
	Layers (A5) (LRR F			_	-	latrix (F2)		(LRR H outside of MLRA 72 & 73)
	ck (A9) (LRR F, G, F		<u> </u>	_ Depleted		(F3) ace (F 6)		Reduced Vertic (F18) Red Parent Material (F21)
	l Below Dark Surface ark Surface (A12)	(A11)		_		urface (F		Very Shallow Dark Surface (F22)
	lucky Mineral (S1)		-	_	epressiç			Other (Explain in Remarks)
	/lucky Peat or Peat (32) (LRR G	. H)	_		ressions (cators of hydrophytic vegetation and
	cky Peat or Peat (S3					73 of LR		wetland hydrology must be present,
								unless disturbed or problematic.
Restrictive L	_ayer (if observed):			~7		14	O.	
Type:			_	O_{\sim}) <			
Depth (ir	nches):			01	\triangle		Hydric Soil Present	t? Yes X No
Remarks:				, ,				
Redox in dep	oleted matrix			X				
			40%	60				
HYDROLO	GY		11	(
	drology Indicators:			<u> </u>				
-	cators (minimum of o	ne is require	ed: check all that	annly)			Seconda	ry Indicators (minimum of two required)
	Water (A1)	ie is require	Salt Crus					ace Soil Cracks (B6)
	ter Table (A2)		Aquatic Ir		tes (B13))		sely Vegetated Concave Surface (B8)
Saturation		X	Hydrogen					nage Patterns (B10)
Water M	arks (B1)		Dry-Seas	on Water	Table (C	C2)	Oxid	ized Rhizospheres on Living Roots (C3)
Sedimen	nt Deposits (B2)		X Oxidized	Rhizosph	eres on I	Living Ro	oots (C3) (w	here tilled)
	oosits (B3)			not tilled				fish Burrows (C8)
	t or Crust (B4)		Presence			(C4)		ration Visible on Aerial Imagery (C9)
	osits (B5)	(D.7)	Thin Muc					morphic Position (D2)
	on Visible on Aerial Ir tained Leaves (B9)	nagery (B7)	Other (Ex	cpiain in R	(emarks			-Neutral Test (D5) t-Heave Hummocks (D7) (LRR F)
								rileave Huminocks (D7) (EKK F)
Field Observ Surface Water			No. Y	Depth (i	nchee).			
Water Table			No X No X	Depth (i	· -			
Saturation Pr			No X	Depth (i	_		Wetland Hydrolo	gy Present? Yes X No
(includes cap				. `				
Describe Red	corded Data (stream	gauge, mor	nitoring well, aeri	al photos	, previous	s inspect	ions), if available:	
Remarks:	requent inundation for	m Dumpki	n Crook					
LINEIN SEES II	requent inundation fro	nii Fullipkii	I OICCK					
	o of Engineers							Creet Plaine Version 2

Project/Site: BLM LTPBR workshop/Pumpkin Creek	c	City/County: Miles C	City/Custer	Sampling Date:	7/7/21
Applicant/Owner: Bureau of Land Management	_		State: MT	Sampling Point:	UPL-1b.1
Investigator(s): A. Chadwick	Se	ection, Township, Ra	ange: Sec. 7, T5 N, R4	9 E	
Landform (hillside, terrace, etc.): low terrace	·		vex, none): convex		pe (%): 1
Subregion (LRR): LRR G Lat: 46.203		•	105.643872		NAD 83
Soil Map Unit Name: Glendive-Havre complex, 0 to 2 p					
Are climatic / hydrologic conditions on the site typical for			No (If no, ex		
• •	•				_
Are Vegetation, Soil, or Hydrologys					' —
Are Vegetation, Soil, or Hydrologyn					turas ata
SUMMARY OF FINDINGS – Attach site ma	ap snowing sa	ampling point ic		, important rea	tures, etc.
Hydrophytic Vegetation Present? Yes No	X	Is the Sampled A	Area		
	X	within a Wetland	l? Yes	No X	
Wetland Hydrology Present? Yes No	<u>X</u>				
Remarks:					
UPL plot upslope of WL-1b.1, on low terrace at higher	level. Clow to upp	per wetland boundar	y. Receives occasional f	ooding ut shorter du	uration/less
frequent than at wetlands.				4	
			(0, U),	•	
VEGETATION – Use scientific names of p	lants.				
Tree Stratum (Plot size: 30 ft)		cies? Status	Dominance Test wo	rksheet:	
1	70 Cover Spe	otatus -			
2.		7	Number of Dominant Are OBL, FACW, or F		1 (A)
3.			Total Number of Dom		(-1)
4.	<u> </u>	1.40	Across All Strata:	illiant opecies	2 (B)
	=Tota	Cover	Percent of Dominant	Species That	
Sapling/Shrub Stratum (Plot size: 15 ft)	70,		Are OBL, FACW, or F	•	0.0% (A/B)
1.		<i>O</i> '			
2.	<u> </u>		Prevalence Index wo	orksheet:	
3.			Total % Cover of:	Multiply by	
4.				0 x 1 =	0
5.			'		40
Herb Stratum (Plot size: 5 ft)	=Tota	l Cover		0 x 3 = 39 x 4 = 2	<u>0</u> 276
1. Pascopyrum smithii	50 \	'es FACU	·		55
Spartina pectinata		es FACW	·		371 (B)
3. Bromus inermis		No UPL	Prevalence Index = E		``
4. Poa pratensis	10	No FACU		_	
5. Helianthus maximiliani	9	No FACU	Hydrophytic Vegetat	tion Indicators:	
6. Asclepias viridiflora	1	No UPL	1 - Rapid Test for	Hydrophytic Vegeta	ation
7.			2 - Dominance Te	est is >50%	
8			3 - Prevalence In	dex is ≤3.0 ¹	
9			· —	Adaptations ¹ (Provi	
10				ks or on a separate	,
	100 =Tota	l Cover		ophytic Vegetation ¹	
Woody Vine Stratum (Plot size:)			¹ Indicators of hydric s		
1			be present, unless dis	sturbed or problema	tic.
2	-Tota	l Cover	Hydrophytic		
% Bare Ground in Herb Stratum 20		Cover	Vegetation Present? Yes	NoX	
			1000111. 100	<u> </u>	_
Remarks: Herbaceous community, primarily upland (UPL and FA	ACU) grasses				
The second community, printerny appared (or L and 17	0, 5.40000				
US Army Corps of Engineers				Crost Disi-	c Version 2
OO AHIIV COIDS OF EHUITERIS				Great Piain	s – Version 2.

SOIL Sampling Point: UPL-1b.1

Depth (inches) 0-11 11-14	Matrix Color (moist) 2.5Y 4/2 2.5Y 5/2 2.5Y 6/2	90	Color (moist)	edox Featur	Type ¹	Loc ²	Texture		Remarks
0-11	2.5Y 4/2 2.5Y 5/2	90							
	2.5Y 5/2						Loamy/Cla	vev	
11-14		10					Loamyrola		
11-14		100					L comy/Clo		
	2.01 0/2	100					Loamy/Cla	<u></u>	
							-		
•							1		
¹ Type: C=Cor	ncentration, D=D	epletion, RM	Reduced Matrix	k, CS=Cove	ered or C	oated Sa	ind Grains.		e Lining, M=Matrix.
-	ndicators: (Appli	cable to all	LRRs, unless o						blematic Hydric Soils ³ :
Histosol (•		_	´	•	atrix (S4))	1 cm Muck (A	
	pedon (A2)		_		Redox (S	-			Redox (A16) (LRR F, G, F
Black Hist	` '		_		l Matrix (,		Dark Surface	, , ,
	Sulfide (A4)		_		-	ineral (F1			epressions (F16)
	Layers (A5) (LRF	•	_		-	latrix (F2)			tside of MLRA 72 & 73)
	ck (A9) (LRR F, G		_		d Matrix	` ′ 🄷	VO.	Reduced Verti	, ,
	Below Dark Surfa	ice (ATT)	_		Dark Surf	ace (F6) urface (F	71	Red Parent M	ateriai (F21) Dark Surface (F22)
	k Surface (A12) ucky Mineral (S1)		_		o Dark S Depressio		′′	Other (Explain	
	ucky Peat or Pea		- H)		_	ressions ((F16)		ophytic vegetation and
	cky Peat or Peat (_			73 of LR			logy must be present,
	,			(1.1				ed or problematic.
Restrictive La	ayer (if observed	l):		- 1		1	0		,
Type:				-0) <				
Depth (inc	ches):			OX			Hydric Soil F	Present?	Yes No X
Remarks:) .					
Not hydric			CX >	×	\mathcal{O} .				
			10.	100					
HYDROLOG			<u> </u>	<u> </u>					
-	rology Indicator			,					
	ators (minimum o	f one is requi					<u>S</u> e	-	minimum of two required)
	Vater (A1)			ust (B11)	(5.40)		_	_Surface Soil Crack	` '
	er Table (A2)			Invertebra	, ,			_	d Concave Surface (B8)
Saturation	` '		_ · ·	en Sulfide (,	,		_ Drainage Patterns	(B10) eres on Living Roots (C3
Water Ma	Deposits (B2)			ason Water d Rhizosph	•	,		(where tilled)	leres on Living Roots (Co
Drift Depo				re not tille		Living ixo	iots (C3)	Crayfish Burrows (C8)
	or Crust (B4)		•	ce of Redu	,	(C4)		_	on Aerial Imagery (C9)
Iron Depo				ick Surface		(04)		Geomorphic Positi	• • • •
	n Visible on Aeria	I Imagery (B		Explain in F	, ,	1	_	FAC-Neutral Test	
	ained Leaves (B9	0 , (zxpiaiii iii i	torriarito,		_		nocks (D7) (LRR F)
Field Observa	ations:	,						_	
Surface Water		Yes	No X	Depth (i	nches):				
Water Table F		Yes	No X		nches):				
Saturation Pre	esent?	Yes	No X	Depth (i	_		Wetland H	ydrology Present?	Yes No X
(includes capi	llary fringe)			<u> </u>					
Describe Reco	orded Data (strea	m gauge, mo	onitoring well, a	erial photos	, previou	s inspect	ions), if availat	ole:	
Damad									
Hamarks.									
Remarks: No hvdro									
Remarks: No hydro									

Project/Site: BLM LTPBR workshop/Pumpkin Creek	Cit	y/County: Miles Ci	ty/Custer	Sampling Date:	7/7/21
Applicant/Owner: Bureau of Land Management			State: MT	Sampling Point:	WL-1b.1
Investigator(s): A. Chadwick	Sec	tion, Township, Rai	nge: Sec. 7, T5 N, R49	E	
Landform (hillside, terrace, etc.): low terrace	Local re	lief (concave, conv	ex, none): convex	Slop	oe (%):1
Subregion (LRR): LRR G Lat: 46.20368	32	Long: <u>-1</u>	05.643872	Datum:	NAD 83
Soil Map Unit Name: Glendive-Havre complex, 0 to 2 per	cent slopes, occa	sionally flooded	NWI classific	cation: none	
Are climatic / hydrologic conditions on the site typical for	this time of year?	Yes_X_	No (If no, expl	ain in Remarks.)	_
Are Vegetation, Soil, or Hydrologysig	nificantly disturbe	d? Are "Normal C	Circumstances" present?	Yes X No	<u> </u>
Are Vegetation, Soil, or Hydrologyna	turally problemation	:? (If needed, exp	plain any answers in Rem	narks.)	
SUMMARY OF FINDINGS – Attach site map	showing sar	npling point lo	cations, transects,	important fea	tures, etc.
Hydrophytic Vegetation Present? Yes X No Hydric Soil Present? Yes X No Wetland Hydrology Present? Yes X No		Is the Sampled Ai		No	
Remarks: Linear wetland along low bank of Pumpkin Creek, river is scour but within inundation zone in stormwater or seaso sometimes narrows to less than two feet, and is outside document wetland conditions.	nal runoff. Bare gr precision of GPS	round due to sedim	ent deposits during large	runoff events. We	tland
VEGETATION – Use scientific names of pla	ants.				
Tree Stratum (Plot size: 30 ft)	% Cover Spec	es? Status	Dominance Test work	sheet:	
1			Number of Dominant S		4 (4)
2			Are OBL, FACW, or FA		1 (A)
4.	to	140	Total Number of Domir Across All Strata:	iant Species	1 (B)
	=Total (Cover	Percent of Dominant S	pecies That	` '
Sapling/Shrub Stratum (Plot size: 15 ft)	$C_{i,j}$	0	Are OBL, FACW, or FA	AC: 10	0.0% (A/B)
1.	 ÷(<u>), — </u>			
2.			Prevalence Index wor Total % Cover of:	Ksneet: Multiply by	
3. 4.	<u> </u>		OBL species 0		0
5.	XV.		FACW species 80	x 2 =	160
	=Total 0	Cover	FAC species 0	x 3 =	0
Herb Stratum (Plot size: 5 ft)		= 1 0 1 1	FACU species 0	x 4 =	0
Spartina pectinata Hordeum jubatum	75 Ye 3 No		UPL species 0 Column Totals: 80	x 5 =	0 160 (B)
3. Helianthus nuttallii	2 No		Prevalence Index = B/	` ′	()
4.			- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1		
5.			Hydrophytic Vegetation	on Indicators:	
6.			1 - Rapid Test for I	Hydrophytic Vegeta	ation
7			X 2 - Dominance Tes		
8			X 3 - Prevalence Inde		4 "
9.			4 - Morphological A	Adaptations ' (Provi s or on a separate	
10	80 =Total (Cover	Problematic Hydro	•	′
Woody Vine Stratum (Plot size:)			¹ Indicators of hydric so		
1			be present, unless dist		
2.			Hydrophytic		
% Bare Ground in Herb Stratum20	=Total (Cover	Vegetation Present? Yes _	X No	_
Remarks: Spartina community on low bank of Pumpkin Creek, ground the community on low bank of Pumpkin Creek, ground the community on low bank of Pumpkin Creek, ground the community of Engineers	wing through rece	ent riparian deposits	S	Great Plain	s – Version 2.0

SOIL Sampling Point: WL-1b.1

Depth	ription: (Describe t Matrix	- •		x Featur				,
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-9	2.5Y 4/2	80					Loamy/Clayey	
	2.5Y 5/2	20						
9-15	2.5Y 4/2	80	10YR 3/6	3		PL/M	Loamy/Clayey	clay with small gravel
<u> </u>			10111 3/0			1 12/101	Loamy/Olaycy	ciay with small graver
	2.5Y 5/2	<u> 17</u>						
¹ Type: C=Co	oncentration, D=Depl	etion, RM=R	educed Matrix,	CS=Cove	ered or C	oated Sa	nd Grains. ² Loc	cation: PL=Pore Lining, M=Matrix.
Hydric Soil	ndicators: (Applical	ble to all LR	Rs, unless oth	erwise n	oted.)		Indi	cators for Problematic Hydric Soil
Histosol	(A1)				-	atrix (S4)		1 cm Muck (A9) (LRR I, J)
Histic Ep	ipedon (A2)			Sandy F	Redox (S	5)		Coast Prairie Redox (A16) (LRR F, C
Black Hi	` '				l Matrix (,		Dark Surface (S7) (LRR G)
	n Sulfide (A4)				-	ineral (F1		High Plains Depressions (F16)
	Layers (A5) (LRR F)				-	latrix (F2)		LRR H outside of MLRA 72 & 7
	ck (A9) (LRR F, G, H		<u> X</u>	Deplete		· · · · · · · · · · · · · · · · · · ·		Reduced Vertic (F18)
	Below Dark Surface	(A11)			Oark Surf	C	71) , <i>F</i>	Red Parent Material (F21)
	rk Surface (A12)					urface (F		Very Shallow Dark Surface (F22)
	ucky Mineral (S1))() (I DD (Depression			Other (Explain in Remarks)
	flucky Peat or Peat (S		н)	_		ressions(73 of LR I		icators of hydrophytic vegetation and
5 CITI IVIU	cky Peat or Peat (S3) (LKK F)		(IVIL	AVZa	73 OI LKI	K, II)	wetland hydrology must be present, unless disturbed or problematic.
Restrictive I	ayer (if observed):			-1			0.	diffess disturbed of problematic.
Type:	ayo. (ii oboo.roa).			0	\			
Depth (ir	nches):		(16	•		Hydric Soil Preser	t? Yes X No
Remarks:				<u> </u>			•	
	an deposits present f	rom regular	overflow but are	a is well-	establish	ned wetla	nd and redox feature	s are present
	a aspesite present .				1			- a p
			(' O')	C',O				
HYDROLO	GY		11					
Wetland Hyd	drology Indicators:		0.0					
-	ators (minimum of or	ne is require	d; check all that	apply)			Seconda	ary Indicators (minimum of two requir
-	Water (A1)	•	Salt Crust					ace Soil Cracks (B6)
High Wa	ter Table (A2)		Aquatic Ir	vertebra	tes (B13))		rsely Vegetated Concave Surface (B
Saturation	on (A3)	X	Hydrogen	Sulfide (Odor (C1)	Drai	nage Patterns (B10)
X Water M	arks (B1)		Dry-Sease	on Water	Table (0	C2)	Oxio	dized Rhizospheres on Living Roots (
X Sedimer	t Deposits (B2)		Oxidized I	Rhizosph	eres on	Living Ro	oots (C3) (w	here tilled)
Drift Dep	osits (B3)		(where	not tilled	d)		Cra	yfish Burrows (C8)
Algal Ma	t or Crust (B4)		Presence	of Reduc	ced Iron	(C4)	Satu	uration Visible on Aerial Imagery (C9)
Iron Dep	osits (B5)		Thin Mucl	s Surface	e (C7)		X Geo	morphic Position (D2)
Inundation	on Visible on Aerial In	nagery (B7)	Other (Ex	plain in F	Remarks))	<u>X</u> FAC	C-Neutral Test (D5)
X Water-S	tained Leaves (B9)						Fros	st-Heave Hummocks (D7) (LRR F)
Field Obser	vations:							
Surface Wat	er Present? Yes	s	No X	Depth (i	· -			
Water Table	Present? Yes	s	No X	Depth (i				
Saturation P		s	No X	Depth (i	nches):		Wetland Hydrolo	ogy Present? Yes X No
(includes cap	<u> </u>		, , ,					
Describe Re	corded Data (stream	gauge, mon	itoring well, aeria	al photos	, previou	s inspect	ions), if available:	
Domarka:								
Remarks:	e of incised intermitte	ent channel						
Sirion tondo	o o, moiood monimu	Gridinioi						
10.4								
	s of Engineers							Great Plains – V

Project/Site: BLM LTPBR workshop/Pumpkin Creek	C	ty/County: Miles City	Sampling Date:	7/9/21	
Applicant/Owner: Bureau of Land Management			State: MT	Sampling Point:	UPL-1b.2
Investigator(s): A. Chadwick	Se	ction, Township, Rang	ge: Sec. 7, T5 N, R49) E	
Landform (hillside, terrace, etc.): streambank	Local r	elief (concave, convex	k, none): convex	Slo	pe (%): 10
Subregion (LRR): LRR G Lat: 46.20922	26	Long: -10	5.647092	Datum:	NAD 83
Soil Map Unit Name: Glendive loam, 0 to 2 percent slope			NWI classifi	cation: none	
Are climatic / hydrologic conditions on the site typical for	-		No (If no, exp		
Are Vegetation , Soil , or Hydrology sig	-			-	0
Are Vegetation , Soil , or Hydrology nat			ain any answers in Rer	· <u></u>	<u> </u>
SUMMARY OF FINDINGS – Attach site map			-	·	itures, etc.
	· ·				
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes X No		Is the Sampled Are within a Wetland?	a Yes	No X	
Wetland Hydrology Present? Yes No		within a wettand:	163	NOX	
Remarks:					
UPL plot for WL-1b.2. On high bank of incised channel.					
			V., V(),	•	
VECETATION Line ecientific names of pla	nto		. O,		
VEGETATION – Use scientific names of pla			-\0,		
 ' -	% Cover Spec	cies? Status	Dominance Test wor		
1			Number of Dominant S Are OBL, FACW, or FA	•	1 (A)
3.	_		Total Number of Domi	·	<u> </u>
4.	<u>_</u>	740	Across All Strata:	nant Species	2 (B)
	=Total	Cover	Percent of Dominant S	 Species That	` ` `
Sapling/Shrub Stratum (Plot size: 15 ft)	CO_{I}		Are OBL, FACW, or Fa	•	0.0% (A/B)
1.	<u>U</u>				
2.	<u>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</u>		Prevalence Index wo		
3.			Total % Cover of:	Multiply by	
4.			OBL species 0		<u>0</u> 116
J	=Total		FAC species 2		6
Herb Stratum (Plot size: 5 ft)			FACU species 10		40
Spartina pectinata	48 Y		UPL species 30		150
2. Solidago missouriensis	20 Y	es UPL	Column Totals: 10	0 (A)	312 (B)
3. Bromus inermis	10 N	lo UPL	Prevalence Index = B	/A = 3.1	2
4. Poa palustris		lo FACW			
Pascopyrum smithii Equisetum laevigatum			Hydrophytic Vegetati		ection
6. <u>Equisetum laevigatum</u> 7.		lo FAC .	2 - Dominance Te	Hydrophytic Veget	auon
8.		—— —— ·	3 - Prevalence Ind		
9.			4 - Morphological		ide supporting
10.				s or on a separate	
	100 =Total	Cover	Problematic Hydro	ophytic Vegetation	(Explain)
Woody Vine Stratum (Plot size:)			1 Indicators of hydric so	oil and wetland hyd	rology must
1			be present, unless dist	turbed or problema	itic.
2		_	Hydrophytic		
0/ Para Cround in Harb Stratum	=Total		Vegetation	Na V	
% Bare Ground in Herb Stratum 0			Present? Yes	No_X	_
Remarks: Mixed UPL and WL vegetation on streambank mid-level	terrace				
winds of Early WE vegetation on Streambalk mile-level	ionao c				
LIC America Company of English and				0 151 :	\/!
US Army Corps of Engineers				Great Plair	s – Version 2.

SOIL Sampling Point: UPL-1b.2

(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-6	2.5Y 4/2	80					Loamy/Clayey	cla lo
	2.5Y 5/2	20						
6-12	10YR 4/2	50	10YR 4/6	10	С	PL/M	Loamy/Clayey	cla lo
	2.5Y 4/2	30						
	10YR 3/3	20						
12-15	2.5Y 5/1	80	2.5Y 6/1	25		M	L comy/Clayov	alay
12-10	2.51 5/1	- 60					Loamy/Clayey	clay
			2.5Y 5/6	5	<u>C</u>	M		Prominent redox concentrations
1- 00			- · · · · · · · · · · · · · · · · · · ·					
-	oncentration, D=De					coated Sa		ation: PL=Pore Lining, M=Matrix.
Histosol	Indicators: (Applic	cable to all L	RRS, uniess oth			latrix (S4)		cators for Problematic Hydric Soils ³ : 1 cm Muck (A9) (LRR I, J)
	pipedon (A2)			_	Redox (S			Coast Prairie Redox (A16) (LRR F, G, I
	stic (A3)			_	l Matrix (Dark Surface (S7) (LRR G)
	n Sulfide (A4)			- ''	`	ineral (F1		High Plains Depressions (F16)
	d Layers (A5) (LRR	(F)		_	-	//atrix (F2)		(LRR H outside of MLRA 72 & 73)
	ick (A9) (LRR F, G			_	d Matrix			Reduced Vertic (F18)
	d Below Dark Surfa			_		face (F6)		Red Parent Material (F21)
	ark Surface (A12)	, ,		Deplete	d Dark S	urface (F		Very Shallow Dark Surface (F22)
Sandy M	lucky Mineral (S1)			Redox [Depression	ons (F8)		Other (Explain in Remarks)
2.5 cm N	Mucky Peat or Peat	(S2) (LRR G	 5, H)	High Pla	ains Dep	ressions (F16) ³ Indi	cators of hydrophytic vegetation and
5 cm Mu	icky Peat or Peat (S3) (LRR F)		(MLF	RA 72 &	73 of LRI	R,H)	wetland hydrology must be present,
								unless disturbed or problematic.
Restrictive I	Layer (if observed):				14	O'	
Type:			<u> </u>	O_{\sim}) (
Depth (ir	nches).						Hydric Soil Presen	t? Yes X No
Doptii (ii				O			riyuric Son Fresen	100 <u>X</u> 100
Remarks:			 C		7		Tryunc 3011 Fresen	103 <u>X</u> 110
Remarks:	oth; not hydric		- X	Ů Ý	O		Tryunc 3011 Fresen	165 <u>X</u> 116
Remarks:) , , ,	log		Tryunc 30n Fresen	165 <u>X</u> 116
Remarks:			Najt.	S	ior		Tryunc 30m Flesen	133 <u>-X</u> 110 <u></u>
Remarks:	oth; not hydric	<u> </u>	NOW C	7.00 V.	joh		Tiyunc 30ii Fleseii	199 <u>-X</u> NO
Remarks: Redox at dep	oth; not hydric	S:	Yall C	CŞ	Joh		Tiyunc 30ii Fleseii	100 <u>-X</u> 110
Remarks: Redox at dep HYDROLO Wetland Hyd	oth; not hydric		red; check all that	t apply)				ary Indicators (minimum of two required)
Remarks: Redox at dep IYDROLO Wetland Hyder Primary India	oth; not hydric GY drology Indicators		Salt Crus	t (B11)			Seconda	ary Indicators (minimum of two required) ace Soil Cracks (B6)
Remarks: Redox at dep IYDROLO Wetland Hyu Primary India Surface High Wa	oth; not hydric OGY drology Indicators cators (minimum of Water (A1) ater Table (A2)			t (B11)	tes (B13))	Seconda	ary Indicators (minimum of two required)
Remarks: Redox at dep HYDROLO Wetland Hyden Primary Indice Surface	oth; not hydric OGY drology Indicators cators (minimum of Water (A1) ater Table (A2)		Salt Crus	it (B11) nvertebra			<u>Seconda</u> Surf Spar Drai	ary Indicators (minimum of two required) ace Soil Cracks (B6) rsely Vegetated Concave Surface (B8) nage Patterns (B10)
Remarks: Redox at dep IYDROLO Wetland Hyde Primary India Surface High Wa Saturation	oth; not hydric OGY drology Indicators cators (minimum of Water (A1) ater Table (A2)		Salt Crus Aquatic I	it (B11) nvertebra n Sulfide (Odor (C1	1)	<u>Seconda</u> Surf Spar Drai	ary Indicators (minimum of two required) ace Soil Cracks (B6) rsely Vegetated Concave Surface (B8) nage Patterns (B10)
Remarks: Redox at dep IYDROLO Wetland Hyde Primary India Surface High Wa Saturation Water M Sedimer	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2)		Salt Crus Aquatic Ii Hydroger Dry-Seas	it (B11) nvertebra n Sulfide (son Water	Odor (C1 Table (0	1)	Surf Spai Drai Oxici	ary Indicators (minimum of two required) ace Soil Cracks (B6) rsely Vegetated Concave Surface (B8) nage Patterns (B10)
Remarks: Redox at department of the control of the	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) posits (B3)		Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where	it (B11) invertebra in Sulfide (ion Water Rhizosph inot tilled	Odor (C1 Table (C eres on) C2) Living Ro	Seconda Surf Spar Drai Oxio Ots (C3) (w Cray	ary Indicators (minimum of two required) face Soil Cracks (B6) rsely Vegetated Concave Surface (B8) nage Patterns (B10) flized Rhizospheres on Living Roots (C3 there tilled) fish Burrows (C8)
Remarks: Redox at dep HYDROLO Wetland Hyde Primary Indice Surface High Water Mater Ma	oth; not hydric OGY drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) oosits (B3) at or Crust (B4)		Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where	et (B11) envertebra en Sulfide (econ Water entries (B) entries (B	Odor (C1 Table (Control Table (Contr) C2) Living Ro	Seconda Surf Spai Drai Oxic Oxic Oxic Cray Satu	ary Indicators (minimum of two required) ace Soil Cracks (B6) rsely Vegetated Concave Surface (B8) nage Patterns (B10) lized Rhizospheres on Living Roots (C3 rhere tilled) rfish Burrows (C8) uration Visible on Aerial Imagery (C9)
Remarks: Redox at dep HYDROLO Wetland Hyde Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep	oth; not hydric OGY drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	one is requii	Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where Presence Thin Muc	ot (B11) Invertebra In Sulfide (Ison Water Rhizosph Inot tilled It of Reducts It Surface	Odor (C1 Table (Caleres on Caleres) Ced Iron (C7)	(C4)	Seconda Surf Spai Oxic Oxic ots (C3)	ary Indicators (minimum of two required) ace Soil Cracks (B6) rsely Vegetated Concave Surface (B8) nage Patterns (B10) lized Rhizospheres on Living Roots (C3 rhere tilled) rfish Burrows (C8) uration Visible on Aerial Imagery (C9) morphic Position (D2)
Remarks: Redox at dep HYDROLO Wetland Hyde Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep	oth; not hydric OGY drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) on Visible on Aerial	one is requii	Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where Presence Thin Muc	ot (B11) Invertebra In Sulfide (Ison Water Rhizosph Inot tilled It of Reducts It Surface	Odor (C1 Table (Caleres on Caleres) Ced Iron (C7)	(C2) Living Ro	Seconda Surf Spar Drai Oxic Oxic Oxic Cray Satu Geo FAC	ary Indicators (minimum of two required) ace Soil Cracks (B6) rsely Vegetated Concave Surface (B8) nage Patterns (B10) dized Rhizospheres on Living Roots (C3 there tilled) fish Burrows (C8) uration Visible on Aerial Imagery (C9) morphic Position (D2) c-Neutral Test (D5)
Remarks: Redox at dep HYDROLO Wetland Hyde Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep	oth; not hydric OGY drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	one is requii	Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where Presence Thin Muc	ot (B11) Invertebra In Sulfide (Ison Water Rhizosph Inot tilled It of Reducts It Surface	Odor (C1 Table (Caleres on Caleres) Ced Iron (C7)	(C2) Living Ro	Seconda Surf Spar Drai Oxic Oxic Oxic Cray Satu Geo FAC	ary Indicators (minimum of two required) ace Soil Cracks (B6) rsely Vegetated Concave Surface (B8) nage Patterns (B10) lized Rhizospheres on Living Roots (C3 rhere tilled) rfish Burrows (C8) uration Visible on Aerial Imagery (C9) morphic Position (D2)
Remarks: Redox at dep HYDROLO Wetland Hyde Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep	oth; not hydric OGY drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) on Visible on Aerial tained Leaves (B9)	one is requii	Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where Presence Thin Muc	ot (B11) Invertebra In Sulfide (Ison Water Rhizosph Inot tilled It of Reducts It Surface	Odor (C1 Table (Caleres on Caleres) Ced Iron (C7)	(C2) Living Ro	Seconda Surf Spar Drai Oxic Oxic Oxic Cray Satu Geo FAC	ary Indicators (minimum of two required) ace Soil Cracks (B6) rsely Vegetated Concave Surface (B8) nage Patterns (B10) dized Rhizospheres on Living Roots (C3 there tilled) fish Burrows (C8) uration Visible on Aerial Imagery (C9) morphic Position (D2) c-Neutral Test (D5)
Remarks: Redox at dep HYDROLO Wetland Hyde Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatio Water-S Field Obser	oth; not hydric OGY drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) on Visible on Aerial tained Leaves (B9) vations:	one is requii	Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where Presence Thin Muc 7) Other (Ex	at (B11) Invertebra In Sulfide (Ison Water Rhizosph Inot tilled It of Reduct Rhizosph	Odor (C1 Table (Caleres on A) Caleres on A(C1) Caleres on A(C2) Caleres on	(C2) Living Ro	Seconda Surf Spar Drai Oxic Oxic Oxic Cray Satu Geo FAC	ary Indicators (minimum of two required) ace Soil Cracks (B6) rsely Vegetated Concave Surface (B8) nage Patterns (B10) dized Rhizospheres on Living Roots (C3 there tilled) offish Burrows (C8) uration Visible on Aerial Imagery (C9) morphic Position (D2)
Remarks: Redox at dep HYDROLO Wetland Hyde Primary India Surface High Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatia Water-S Field Obser Surface Water Table	oth; not hydric OGY drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) on Visible on Aerial tained Leaves (B9) vations: er Present?	I Imagery (B7	Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where Presence Thin Muc Other (Ex	et (B11) envertebra en Sulfide (eon Water Rhizosph enot tiller e of Reduct k Surface coplain in F	Odor (C1 Table (Caleres on C1) Code Iron Code (C7) Commarks) Commarks) Commarks)	(C2) Living Ro	Seconda Surf Spai Oxic ots (C3)	ary Indicators (minimum of two required) ace Soil Cracks (B6) rsely Vegetated Concave Surface (B8) nage Patterns (B10) dized Rhizospheres on Living Roots (C3 there tilled) offish Burrows (C8) uration Visible on Aerial Imagery (C9) morphic Position (D2) c-Neutral Test (D5) st-Heave Hummocks (D7) (LRR F)
Remarks: Redox at dep IYDROLO Wetland Hyde Surface High Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatio Water-S Field Obser Surface Water Table Saturation P	oth; not hydric OGY drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) on Visible on Aerial tained Leaves (B9) vations: er Present? Present?	I Imagery (B7	Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where Presence Thin Muc 7) Other (Ex	at (B11) Invertebra In Sulfide (Ison Water Rhizosph Inot tilled It of Reduct Rhizosph	Odor (C1 Table (Caleres on C1) Code Iron Code (C7) Commarks) Commarks) Commarks)	(C2) Living Ro	Seconda Surf Spar Drai Oxic Oxic Oxic Cray Satu Geo FAC	ary Indicators (minimum of two required) ace Soil Cracks (B6) rsely Vegetated Concave Surface (B8) nage Patterns (B10) dized Rhizospheres on Living Roots (C3 there tilled) offish Burrows (C8) uration Visible on Aerial Imagery (C9) morphic Position (D2) c-Neutral Test (D5) st-Heave Hummocks (D7) (LRR F)
Remarks: Redox at dep IYDROLO Wetland Hyde Surface High Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatio Water-S Field Obser Surface Water Table Saturation Pe (includes cap	oth; not hydric OGY drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) on Visible on Aerial tained Leaves (B9) vations: er Present? Present?	I Imagery (B7	Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where Presence Thin Muc Other (Ex	et (B11) nvertebra n Sulfide (con Water Rhizosph not tilled e of Reduck k Surface kplain in F Depth (i Depth (i	Odor (C1 Table (Cares on care) Code (C7) Code	C2) Living Ro (C4)	Seconda Surf Spai Oxio Oxio Ots (C3) (w Cray Satu Geo FAC Fros	ary Indicators (minimum of two required) ace Soil Cracks (B6) rsely Vegetated Concave Surface (B8) nage Patterns (B10) dized Rhizospheres on Living Roots (C3) rhere tilled) offish Burrows (C8) uration Visible on Aerial Imagery (C9) morphic Position (D2) E-Neutral Test (D5) st-Heave Hummocks (D7) (LRR F)
Remarks: Redox at dep IYDROLO Wetland Hyde Surface High Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatio Water-S Field Obser Surface Water Table Saturation Pe (includes cap	oth; not hydric OGY drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) on Visible on Aerial tained Leaves (B9) vations: er Present? Present?	I Imagery (B7	Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where Presence Thin Muc Other (Ex	et (B11) nvertebra n Sulfide (con Water Rhizosph not tilled e of Reduck k Surface kplain in F Depth (i Depth (i	Odor (C1 Table (Cares on care) Code (C7) Code	C2) Living Ro (C4)	Seconda Surf Spai Oxio Oxio Ots (C3) (w Cray Satu Geo FAC Fros	ary Indicators (minimum of two required) ace Soil Cracks (B6) rsely Vegetated Concave Surface (B8) nage Patterns (B10) dized Rhizospheres on Living Roots (C3) rhere tilled) offish Burrows (C8) uration Visible on Aerial Imagery (C9) morphic Position (D2) E-Neutral Test (D5) st-Heave Hummocks (D7) (LRR F)
Remarks: Redox at dep IYDROLO Wetland Hyde Primary India Surface High Water Mater Mater Mater Drift Dep Algal Mater Sedimer Undation Dep Inundation Water-S Field Obser Surface Water Table Saturation Proposition	oth; not hydric OGY drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) on Visible on Aerial tained Leaves (B9) vations: er Present? Present?	I Imagery (B7	Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where Presence Thin Muc Other (Ex	at (B11) Invertebra In Sulfide (Invertebra In Sulfide (Invertebra In Sulfide (Invertebra Invertebra	Odor (C1 Table (Cares on care) Code (C7) Code	C2) Living Ro (C4)	Seconda Surf Spai Oxio Oxio Ots (C3) (w Cray Satu Geo FAC Fros	ary Indicators (minimum of two required) ace Soil Cracks (B6) rsely Vegetated Concave Surface (B8) nage Patterns (B10) dized Rhizospheres on Living Roots (C3) rhere tilled) offish Burrows (C8) uration Visible on Aerial Imagery (C9) morphic Position (D2) E-Neutral Test (D5) st-Heave Hummocks (D7) (LRR F)
Remarks: Redox at dep IYDROLO Wetland Hyde Surface High Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatio Water-S Field Obser Surface Water Table Saturation Pe (includes cap	oth; not hydric OGY drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) on Visible on Aerial tained Leaves (B9) vations: er Present? Present? pillary fringe) corded Data (streat	I Imagery (B7	Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where Presence Thin Muc Other (Ex	at (B11) Invertebra In Sulfide (Invertebra In Sulfide (Invertebra In Sulfide (Invertebra Invertebra	Odor (C1 Table (Cares on care) Code (C7) Code	C2) Living Ro (C4)	Seconda Surf Spai Oxio Oxio Ots (C3) (w Cray Satu Geo FAC Fros	ary Indicators (minimum of two required ace Soil Cracks (B6) rsely Vegetated Concave Surface (B8) nage Patterns (B10) dized Rhizospheres on Living Roots (C3 there tilled) offish Burrows (C8) uration Visible on Aerial Imagery (C9) morphic Position (D2) c-Neutral Test (D5) st-Heave Hummocks (D7) (LRR F)

Project/Site: BLM LTPBR workshop/Pumpkin Creek	City/Cou	nty: Miles City/C	uster	Sampling Date:	7/9/21
Applicant/Owner: Bureau of Land Management			State: MT	Sampling Point:	WL-1b.2
Investigator(s): A. Chadwick	Section, 7	Γownship, Range:	Sec. 7, T5 N, R49) E	
Landform (hillside, terrace, etc.): low terrace	Local relief (c	oncave, convex, ı	none): convex	Slop	oe (%): <u>10</u>
Subregion (LRR): LRR G Lat: 46.209182		Long: -105.6	647061	Datum:	NAD 83
Soil Map Unit Name: Glendive loam, 0 to 2 percent slopes,	rarely flooded		NWI classifi	cation: none	
Are climatic / hydrologic conditions on the site typical for thi	s time of year?	Yes X N	lo (If no, exp	lain in Remarks.)	
Are Vegetation, Soil, or Hydrologysignif	ficantly disturbed?	Are "Normal Circu	mstances" present?	Yes X N	o
Are Vegetation , Soil , or Hydrology nature	ally problematic? (If needed, explair	n any answers in Ren	narks.)	
SUMMARY OF FINDINGS – Attach site map s		ng point locat	ions, transects,	important fea	tures, etc.
Hydrophytic Vegetation Present? Yes X No Hydric Soil Present? Yes X No Wetland Hydrology Present? Yes X No		e Sampled Area in a Wetland?	Yes <u>X</u>	No	
Remarks: Linear PEM wetland along new inset low terrace on incised		n Creek, river righ	side. DP is near ups	slope boundary of \	WL.
VEGETATION – Use scientific names of plant	ts.				
Tree Stratum (Plot size: 30 ft) %	Cover Species?	Status D	ominance Test wor	ksheet:	
1	— —		umber of Dominant S	•	4 (A)
2			re OBL, FACW, or FA		1 (A)
4.			otal Number of Domi cross All Strata:	nant Species	1 (B)
Sapling/Shrub Stratum (Plot size: 15 ft)	=Total Cover	A	ercent of Dominant S re OBL, FACW, or F	AC: 10	0.0% (A/B)
2.			revalence Index wo		
3.	(' O		otal % Cover of: BL species 12	$\frac{\text{Multiply by}}{\text{x 1 =}}$	12
5.			ACW species 65		130
	=Total Cover	F	AC species 0	x 3 =	0
Herb Stratum (Plot size: 5 ft)			ACU species 3		12
1. Spartina pectinata	65 Yes		PL species 0		0
Schoenoplectus pungens Symphyotrichum falcatum	10 No No		olumn Totals: <u>80</u> revalence Index = B/		154 (B)
Schoenoplectus pungens	2 No	OBL	revalence index = b/	A - 1.30	,
5.			ydrophytic Vegetati	on Indicators:	
6.			1 - Rapid Test for		ation
7.			2 - Dominance Te	st is >50%	
8		_>	3 - Prevalence Ind		
9			4 - Morphological		•
10	80 =Total Cover		Problematic Hydro	s or on a separate	,
Woody Vine Stratum (Plot size:)	= Total Cover	1.	_		` ' '
1			ndicators of hydric so e present, unless dist		
2.	=Total Cover		ydrophytic egetation	'	
% Bare Ground in Herb Stratum20		P	resent? Yes	<u>X</u> No	_
Remarks: Spartina community on low bank of Pumpkin Creek. US Army Corps of Engineers				Great Plain	s – Version 2.0

SOIL Sampling Point: WL-1b.2

Profile Des	Matrix		Red	ox Featur	es			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-3	2.5Y 3/2	100						cla lo
3-12	2.5Y 4/2	50	10YR 4/6	15	С	M	Loamy/Clayey	Prominent redox concentrations
	2.5Y 3/2	35						
12-15	2.5Y 3/2	70	2.5Y 4/1	25		M	Loamy/Clayey	clay
12 10	2.5Y 3/3	5	2.01 4/1				Louiny/Olayey	
	2.31 3/3							
	· 							
	oncentration, D=Depl					oated Sa		ation: PL=Pore Lining, M=Matrix.
-	Indicators: (Applica	ble to all L	RRs, unless oth			(0.1)		ators for Problematic Hydric Soils
— Histosol	` '			Sandy C Sandy R	-	atrix (S4)		l cm Muck (A9) (LRR I, J) Coast Prairie Redox (A16) (LRR F, G,
	pipedon (A2) istic (A3)			Stripped	•	•		Dark Surface (S7) (LRR G)
	en Sulfide (A4)			- ''	,	ineral (F1		High Plains Depressions (F16)
	d Layers (A5) (LRR F)		_	-	latrix (F2)	′ \ 	(LRR H outside of MLRA 72 & 73
	uck (A9) (LRR F, G, F			Depleted	•	, ,		Reduced Vertic (F18)
	d Below Dark Surface			_ ' Redox D		` '		Red Parent Material (F21)
	ark Surface (A12)	,		_ Depleted	d Dark S	urface (F		/ery Shallow Dark Surface (F22)
Sandy N	Mucky Mineral (S1)			Redox D	epressio	ons (F8)	$\overline{\mathbf{x}}$	Other (Explain in Remarks)
2.5 cm l	Mucky Peat or Peat (S2) (LRR G	S, H)	High Pla	ins Depr	ressions ((F16) 3India	cators of hydrophytic vegetation and
5 cm M	ucky Peat or Peat (S3) (LRR F)		(MLF	A 72 &	73 of LRI	R.H) v	vetland hydrology must be present,
							L.	ınless disturbed or problematic.
Restrictive	Layer (if observed):			S		14	O'	
Type:			<u> </u>	C_{λ}	,			
Depth (i	nches):			07	.0		Hydric Soil Present	? Yes <u>X</u> No
Remarks:								
				natrix but	not really	y typical o	of either. Has promine	ent redox through most of upper 12" -
combination	of F3 and F6, fitting i	neither exa	ctly.					
			110	(C)				
HYDROLO			\checkmark	<u> </u>				
-	drology Indicators:							
-	cators (minimum of o	ne is requi						ry Indicators (minimum of two require
	Water (A1)		Salt Crus	,				ace Soil Cracks (B6)
	ater Table (A2)			nvertebrat	, ,	,		sely Vegetated Concave Surface (B8)
Saturati	` '			Sulfide (nage Patterns (B10)
	Marks (B1)			on Water	`	,		zed Rhizospheres on Living Roots (C
	nt Deposits (B2)			Rhizosph		Living Ro		nere tilled)
	posits (B3)		•	not tilled	,	(C4)		fish Burrows (C8)
	at or Crust (B4)			of Reduc		(04)		ration Visible on Aerial Imagery (C9)
	posits (B5) ion Visible on Aerial Ir	magony (P3		k Surface plain in R				norphic Position (D2) Neutral Test (D5)
	Stained Leaves (B9)	nagery (b <i>i</i>	Other (E)	KPIAIII III K	emarks)	1		:-Heave Hummocks (D7) (LRR F)
							11031	-ricave ridifficons (Br) (ERRT)
Field Obser		•	No. V	Donth (i	noboo):			
Surface War Water Table			No X No X	Depth (in Depth (in	· -			
Saturation F			No X	Depth (ii			Wetland Hydrolog	gy Present? Yes X No
	pillary fringe)		140 <u> </u>	թգելը (ը			**************************************	55.1636III: 163 <u>A</u> 140
•	ecorded Data (stream	gauge mo	nitoring well aeri	al photos	previou	s inspecti	ions), if available:	
2000/100 / (0	Data (ottodili	34490, IIIC		p.1000,	PICTION	- mopooti	,, ii araliabio.	
Remarks:								
	ce of incised intermitt	ent channe	el.					

Project/Site: BLM LTPBR/Pumpkin Creek	City/County: Miles City/Custer Sampling Date: 7/9/21
Applicant/Owner: Bureau of Land Management	State: MT Sampling Point: WL-1b.
Investigator(s): A. Chadwick	Section, Township, Range: Sec. 7, T5 N, R49 E
Landform (hillside, terrace, etc.): low terrace	Local relief (concave, convex, none): none Slope (%): <
Subregion (LRR): LRR G Lat: 46.207643	Long: -105.651650 Datum: NAD 83
Soil Map Unit Name: Glendive-Havre complex, 0 to 2 percer	t slopes, nonflooded NWI classification: none
Are climatic / hydrologic conditions on the site typical for this	
•	cantly disturbed? Are "Normal Circumstances" present? Yes X No
	lly problematic? (If needed, explain any answers in Remarks.)
<u> </u>	nowing sampling point locations, transects, important features, et
Hydrophytic Vegetation Present? Yes No X	Is the Sampled Area
Hydric Soil Present? Yes No X	within a Wetland? Yes No X
Wetland Hydrology Present? Yes X No	_
Remarks: UPL DP for WL-1b.3. On steep bank in incised stream chaunknown. VEGETATION – Use scientific names of plant	nnel of Pumpkin Creek. Wetland hydrology indicator present but duration of inundation
	<u> </u>
Tree Stratum (Plot size: 30 ft) % (— · · · · · · · · · · · · · · · · · · ·
2.	Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
3.	Total Number of Dominant Species
4.	Across All Strata: 2 (B)
Sapling/Shrub Stratum (Plot size: 15 ft)	Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/
1.	Prevalence Index worksheet:
3.	Total % Cover of: Multiply by:
4.	OBL species 0 x 1 = 0
5.	FACW species 40 x 2 = 80
	=Total Cover FAC species 0 x 3 = 0
Herb Stratum (Plot size: 5 ft)	FACU species 0 x 4 = 0
	10 Yes FACW UPL species 50 x 5 = 250
	10 Yes UPL Column Totals: 90 (A) 330 (B)
Solidago missouriensis Secale cereale	5 No UPL Prevalence Index = B/A = 3.67 No UPL
5.	Hydrophytic Vegetation Indicators:
6.	1 - Rapid Test for Hydrophytic Vegetation
7.	2 - Dominance Test is >50%
8.	3 - Prevalence Index is ≤3.0 ¹
9.	4 - Morphological Adaptations ¹ (Provide support
10	data in Remarks or on a separate sheet)
	Problematic Hydrophytic Vegetation ¹ (Explain)
Woody Vine Stratum (Plot size:) 1	¹ Indicators of hydric soil and wetland hydrology musibe present, unless disturbed or problematic.
2	=Total Cover
Remarks: Mixed mesic and upland vegetation on upper bank of Pump US Army Corps of Engineers	

SOIL Sampling Point: WL-1b.3

Depth	Matrix		Red	ox Featur	es			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-10	2.5Y 4/2	100					Loamy/Clayey	sa cla lo
10-14	2.5Y 4/2	90	10YR 5/6	10	С	М	Loamy/Clayey	sa clay
¹ Type: C=Cor	ncentration, D=Depl	etion. RM=	Reduced Matrix.	CS=Cove	red or C	oated Sa	nd Grains. ² l	 Location: PL=Pore Lining, M=Matrix.
•	ndicators: (Applica							ndicators for Problematic Hydric Soils ³ :
Histosol (·			atrix (S4)	<u> </u>	1 cm Muck (A9) (LRR I, J)
Histic Epi	pedon (A2)			Sandy R	dedox (S	5)	_	Coast Prairie Redox (A16) (LRR F, G, F
Black His	` '			Stripped	Matrix (S6)	_	Dark Surface (S7) (LRR G)
<u> </u>	Sulfide (A4)			-		ineral (F1		High Plains Depressions (F16)
	Layers (A5) (LRR F			-	-	latrix (F2)		(LRR H outside of MLRA 72 & 73)
	ck (A9) (LRR F, G, F			_Depleted		` ′ •	10° E	Reduced Vertic (F18)
	Below Dark Surface k Surface (A12)	(A11)		Redox D		urface (F	7)	Red Parent Material (F21) Very Shallow Dark Surface (F22)
	ucky Mineral (S1)			Redox D		A .	′′ 😯	Other (Explain in Remarks)
	ucky Peat or Peat (S2) (LRR G				ressions ((F16).	Indicators of hydrophytic vegetation and
	cky Peat or Peat (S3	, .	·	_		73 of LR		wetland hydrology must be present,
				_				unless disturbed or problematic.
Restrictive La	ayer (if observed):			~7		14	0	
Type:			<u> </u>	C_{\sim}) <			
Depth (inc	ches):			70			Hydric Soil Pres	sent? Yes No X
Remarks:				•				
Not hydric				X				
			10	60				
HYDROLO	GY) 11	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\				
Wetland Hyd	rology Indicators:		1.0					
Primary Indica	ators (minimum of o	ne is requi	ed; check all that	apply)			Seco	ndary Indicators (minimum of two required)
Surface V	Vater (A1)		Salt Crus	t (B11)			s	Surface Soil Cracks (B6)
High Wat	er Table (A2)		Aquatic I	nvertebrat	es (B13))		Sparsely Vegetated Concave Surface (B8)
Saturation	` '	X	Hydroger		•	•		Prainage Patterns (B10)
Water Ma			Dry-Seas		•	,		Oxidized Rhizospheres on Living Roots (C3
	Deposits (B2)		Oxidized			Living Ro		(where tilled)
Drift Depo	, ,		•	not tilled	,	(04)		Crayfish Burrows (C8)
Iron Depo	or Crust (B4)		Presence Thin Muc			(C4)		Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2)
	n Visible on Aerial II	magery (B7				١		AC-Neutral Test (D5)
	ained Leaves (B9)	nagery (Dr)Outlot (E)	piairi iir r	omano)	,		rost-Heave Hummocks (D7) (LRR F)
Field Observ	· ,							· · · · · · · · · · · · · · · · · · ·
Surface Wate		s	No X	Depth (ii	nches):			
Water Table F			No X	Depth (ii	· -			
Saturation Pre	esent? Ye	s	No X	Depth (ii	nches):		Wetland Hydro	ology Present? Yes X No
(includes capi		_ _						
Describe Rec	orded Data (stream	gauge, mo	nitoring well, aeri	al photos,	previou	s inspect	ions), if available:	
Remarks:								
	sible on one aerial; d	uration of i	nundation unknov	wn				

Project/Site: BLM LTPBR workshop/Pumpkin Creek	City/County: Miles C	ity/Custer	Sampling Date: 7/9/21
Applicant/Owner: Bureau of Land Management		State: MT	Sampling Point: WL-1b.3
Investigator(s): A. Chadwick	Section, Township, Ra	nge: Sec. 7, T5 N, R49) E
Landform (hillside, terrace, etc.): low terrace	Local relief (concave, conv	vex, none): none	Slope (%): <1
Subregion (LRR): LRR G Lat: 46.207628	Long: <u>-</u>	105.651622	Datum: NAD 83
Soil Map Unit Name: Glendive-Havre complex, 0 to 2 percent sl	lopes, nonflooded	NWI classifi	cation: none
Are climatic / hydrologic conditions on the site typical for this tim	ne of year? Yes X	No (If no, exp	lain in Remarks.)
Are Vegetation, Soil, or Hydrology significan	itly disturbed? Are "Normal (Circumstances" present?	Yes X No
Are Vegetation , Soil , or Hydrology naturally	problematic? (If needed, ex	plain any answers in Ren	narks.)
SUMMARY OF FINDINGS – Attach site map sho	wing sampling point lo	cations, transects,	important features, etc.
Hydrophytic Vegetation Present? Yes X No Hydric Soil Present? Yes X No Wetland Hydrology Present? Yes X No	Is the Sampled A within a Wetland		No
Remarks: Linear PEM wetland along new inset low terrace on incised cha	annel of Pumpkin Creek, river	right side.	\
VEGETATION – Use scientific names of plants.			
Tree Stratum (Plot size: 30 ft) % Cov	er Species? Status	Dominance Test wor	ksheet:
1		Number of Dominant S	•
2		Are OBL, FACW, or FA	
4.	740	Total Number of Domi Across All Strata:	nant Species 1 (B)
	=Total Cover	Percent of Dominant S	
Sapling/Shrub Stratum (Plot size: 15 ft)	2, '\'	Are OBL, FACW, or Fa	•
1.	- (O) -		
2.		Prevalence Index wo Total % Cover of:	
4	() —	OBL species 10	$\frac{\text{Multiply by:}}{\text{x 1} = 10}$
5.		FACW species 90	
	=Total Cover	FAC species 0	x 3 = 0
Herb Stratum (Plot size: 5 ft)		FACU species 0	x 4 = 0
1. Spartina pectinata 90	Yes FACW	UPL species 0	
2. Juncus balticus 10	No OBL	Column Totals: 10 Prevalence Index = B	
3. 4.	<u> </u>	Prevalence Index = B	/A = <u>1.90</u>
5.		Hydrophytic Vegetati	on Indicators:
6.			Hydrophytic Vegetation
7.		X 2 - Dominance Te	st is >50%
8.		X 3 - Prevalence Ind	ex is ≤3.0 ¹
9			Adaptations ¹ (Provide supporting
10	Tatal Occurs		s or on a separate sheet)
Woody Vine Stratum (Plot size:)	=Total Cover		ophytic Vegetation ¹ (Explain)
` <u> </u>		'Indicators of hydric so be present, unless dist	oil and wetland hydrology must
1		Hydrophytic	
% Bare Ground in Herb Stratum 0	=Total Cover	Vegetation Present? Yes	X No
Remarks: Spartina-dominated community on low terrace of Pumpkin Cre	ek.		
US Army Corps of Engineers			Great Plains – Version 2

SOIL Sampling Point: WL-1b.3

Depth	cription: (Describe t Matrix			ox Feature				•
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-5	2.5Y 4/2	60	10YR 3/6	20	С	PL/M	Loamy/Clayey	sa cla lo
	2.5Y 4/1	10	2.5Y 5/1	10	D	М		
5-15	2.5Y 4/2	70	10YR 3/6	20	С	M	Loamy/Clayey	sa cla
	2.5Y 4/1	10	10111070	<u> </u>	<u> </u>			
	2.51 4/1	10						
	oncentration, D=Depl					oated Sa		ation: PL=Pore Lining, M=Matrix.
-	Indicators: (Applica	ble to all L	RRs, unless oth					cators for Problematic Hydric Soils ³ :
Histosol	` '			-	-	atrix (S4)		1 cm Muck (A9) (LRR I, J)
	oipedon (A2) stic (A3)			Sandy R Stripped		•		Coast Prairie Redox (A16) (LRR F, G, Dark Surface (S7) (LRR G)
	en Sulfide (A4)			- ''	,	ວດ) ineral (F1		High Plains Depressions (F16)
	d Layers (A5) (LRR F	١		-		latrix (F2)	· • • —	(LRR H outside of MLRA 72 & 73)
	uck (A9) (LRR F, G, F		X	Depleted				Reduced Vertic (F18)
	d Below Dark Surface			Redox D		· · · · · · · · ·		Red Parent Material (F21)
	ark Surface (A12)	(, , , ,		-		urface (F	\	Very Shallow Dark Surface (F22)
	lucky Mineral (S1)			Redox D		A .		Other (Explain in Remarks)
2.5 cm N	Mucky Peat or Peat (S2) (LRR G	, H)	- High Pla	ins Depr	ressions (cators of hydrophytic vegetation and
5 cm Mu	ucky Peat or Peat (S3) (LRR F)				73 of LR		wetland hydrology must be present,
								unless disturbed or problematic.
Restrictive	Layer (if observed):			-7		1	0	
Type:			_	$(O_{-}$) <			
Depth (ii	nches):		_ ~ (77			Hydric Soil Presen	t? Yes X No
Remarks:				•				
depleted ma	trix with redox		88	X				
				-0				
	201		// · · · · · · · · · · · · · · · · · · 	Co				
HYDROLC			/ //	<u> </u>				
-	drology Indicators:			•				
-	cators (minimum of o	ne is requir						ary Indicators (minimum of two required
	Water (A1)		Salt Crus	` '	(D.10)			ace Soil Cracks (B6)
	ater Table (A2)		Aquatic Ir		, ,			rsely Vegetated Concave Surface (B8)
Saturation	` '		Hydrogen		•	•		nage Patterns (B10)
	larks (B1)		Dry-Seas		•	,		lized Rhizospheres on Living Roots (C3
	nt Deposits (B2)		Oxidized			Living Ro		there tilled)
	posits (B3)		(wnere Presence	not tilled	•	(C4)		fish Burrows (C8) Iration Visible on Aerial Imagery (C9)
	at or Crust (B4) posits (B5)		Thin Muc			(04)		morphic Position (D2)
	on Visible on Aerial Ir	nagery (R7				1		:-Neutral Test (D5)
	itained Leaves (B9)	nagory (D7	,Ouler (EX	.p.u 111 IX	.omanto)	,		st-Heave Hummocks (D7) (LRR F)
Field Obser							<u> </u>	
Surface Wat		s	No X	Depth (in	nchee).			
Water Table			No X	Depth (ii	· -			
Saturation P			No X	Depth (ii	-		Wetland Hydrolo	gy Present? Yes X No
	pillary fringe)			12 *** (11				<u></u>
•	corded Data (stream	gauge, mo	nitoring well, aeri	al photos,	previou	s inspect	ions), if available:	
	`		<i>J</i> ,	. ,		•	•	
Remarks:								
on low terrac	ce of Pumpkin Creek,	occasiona	ly flooding at this	level; inu	ndation	visible or	n recent past aerial pl	noto

Project/Site: BLM LTPBR workshop/Pumpkin Creek	c	City/County: Miles 0	City/Custer	Sampling Date:	7/9/21
Applicant/Owner: Bureau of Land Management	_		State: MT	Sampling Point:	UPL-1b.4
Investigator(s): A. Chadwick	Se	ection, Township, R	ange: Sec. 1, T5 N, R4	8 E	
Landform (hillside, terrace, etc.): streambank	Local	relief (concave, con	ivex, none): convex	Slop	pe (%): 2
Subregion (LRR): LRR G Lat: 46.213	859	Long: -	-105.658375		NAD 83
Soil Map Unit Name: Havre loam, 0 to 2 percent slopes			NWI classi	fication: none	
Are climatic / hydrologic conditions on the site typical for					
Are Vegetation , Soil , or Hydrology s	•			•	0
Are Vegetation, Soil, or Hydrologyn					´——
SUMMARY OF FINDINGS – Attach site ma					tures, etc.
Hydrophytic Vegetation Present? Yes No	X	Is the Sampled	Area	· •	
	X	within a Wetland		No X	
Wetland Hydrology Present? Yes No	X				
Remarks:					
UPL DP for WL-1b.4 on high bank of Pumpkin Creek,	river right side.		11 11		
			31,001	7	
VEGETATION – Use scientific names of p	lants.		,, ^ O, 		
Tree Stratum (Plot size: 30 ft)		ecies? Status	Dominance Test wo	rksheet:	
1.	<u>жесте.</u> <u>сре</u>	7/0	Number of Dominant		
2.			Are OBL, FACW, or F		1 (A)
3.			Total Number of Dom	inant Species	
4	ν_{\sim}		Across All Strata:		2 (B)
	=Tota	Cover	Percent of Dominant	•	
Sapling/Shrub Stratum (Plot size: 15 ft)			Are OBL, FACW, or F	AC: <u>50</u>	0.0% (A/B)
1.	 ;;	Θ	Prevalence Index wo	arkehoot:	
3			Total % Cover of:	Multiply by	, .
4.				0 x 1 =	0
5.	XV		· · · · · · · · · · · · · · · · · · ·	25 x 2 =	50
	=Tota	l Cover	FAC species	5 x 3 =	15
Herb Stratum (Plot size: 5 ft)			· -	15 x 4 =	180
Helianthus nuttallii		No FACW			25
2. Pascopyrum smithii		res FACU		`` /	270 (B)
3. Symphyotrichum falcatum		No FACU UPL	Prevalence Index = E	3.38	3
Solidago missouriensis Spartina pectinata		No UPL /es FACW	Hydrophytic Vegetat	ion Indicators:	
6. Asclepias speciosa		No FAC		· Hydrophytic Veget	ation
7.			2 - Dominance Te		
8.			3 - Prevalence In	dex is ≤3.0 ¹	
9.			4 - Morphological	Adaptations ¹ (Provi	ide supporting
10			data in Remark	s or on a separate	sheet)
	80 =Tota	l Cover	Problematic Hydr	ophytic Vegetation ¹	(Explain)
Woody Vine Stratum (Plot size:)			¹ Indicators of hydric s	oil and wetland hyd	rology must
1			be present, unless dis	sturbed or problema	tic.
2		10	Hydrophytic		
% Bare Ground in Herb Stratum 20	=lota	l Cover	Vegetation Present? Yes	NoX	_
Remarks:			•		
One cottonwood sapling, not in plot. Emergent wetland	d with occasional	trees at historic high	n terrace level in UPL.		
US Army Corps of Engineers				Great Plain	s – Version 2.

SOIL Sampling Point: UPL-1b.4

Depth	Matrix		Redd	x Featur				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-6	2.5Y 5/3	100	10YR 4/6	10	С	PL/M	Sandy	silty fine sand
6-15	2.5Y 6/3	90					Loamy/Clayey	si cla lo
	2.5Y 5/2	10						
¹Type: C=Co	ncentration, D=Depl	etion RM=F	Reduced Matrix (CS=Cove	ered or C	oated Sa	nd Grains ² l oc	ation: PL=Pore Lining, M=Matrix.
	ndicators: (Applica					outou ou		cators for Problematic Hydric Soils
Histosol			,			atrix (S4)		1 cm Muck (A9) (LRR I, J)
	ipedon (A2)			Sandy R	-			Coast Prairie Redox (A16) (LRR F, G
Black His				Stripped		-		Dark Surface (S7) (LRR G)
Hydroger	n Sulfide (A4)			Loamy N	иску M	ineral (F1	_	High Plains Depressions (F16)
Stratified	Layers (A5) (LRR F)		Loamy (Gleyed M	1atrix (F2)		(LRR H outside of MLRA 72 & 73
1 cm Mu	ck (A9) (LRR F, G, H	I)		Depleted	d Matrix	(F3)	~,0,, ~	Reduced Vertic (F18)
Depleted	Below Dark Surface	(A11)		Redox D	ark Surf	ace (F 6)		Red Parent Material (F21)
Thick Da	rk Surface (A12)			Depleted	d Dark S	urface (F	7)	Very Shallow Dark Surface (F22)
Sandy M	ucky Mineral (S1)					ons (F8)		Other (Explain in Remarks)
2.5 cm M	lucky Peat or Peat (S	62) (LRR G	, H)	_		ressions (cators of hydrophytic vegetation and
5 cm Mu	cky Peat or Peat (S3) (LRR F)		(MLF	RA 72 &	73 of LRI	R H)	wetland hydrology must be present,
				_	11			unless disturbed or problematic.
_	ayer (if observed):			~~		15	Ç	
Type:			_ ,	30	,			
Depth (in	ches):			<u> </u>	_		Hydric Soil Presen	t? Yes No X
Remarks:								
Not hydric				X				
			10	~ D				
HYDROLO	GY		11	6				
_	Irology Indicators: ators (minimum of o	no is roquir	ad: chack all that	apply)			Socondo	ary Indicators (minimum of two require
	Nater (A1)	ne is require	Salt Crust					ace Soil Cracks (B6)
	ter Table (A2)		Aquatic Ir	,	tes (B13)		rsely Vegetated Concave Surface (B8
Saturatio			Hydrogen		•	•		nage Patterns (B10)
Water Ma	` '		Dry-Seas		•	•		lized Rhizospheres on Living Roots (C
	t Deposits (B2)		Oxidized I		•	•		here tilled)
	osits (B3)			not tilled		3		rfish Burrows (C8)
	t or Crust (B4)		Presence		•	(C4)		ration Visible on Aerial Imagery (C9)
	osits (B5)		Thin Mucl			,		morphic Position (D2)
	n Visible on Aerial Ir	magery (B7)	Other (Ex	plain in R	(Remarks)		-Neutral Test (D5)
Water-St	ained Leaves (B9)						Fros	t-Heave Hummocks (D7) (LRR F)
Field Observ	vations:						<u> </u>	
Surface Water		s	No X	Depth (i	nches):			
Water Table			No X	Depth (i	· -			
Saturation Pr	esent? Ye	s	No X	Depth (i			Wetland Hydrolo	gy Present? Yes No X
(includes cap	illary fringe)			<u> </u>	<u> </u>			
Describe Rec	corded Data (stream	gauge, mor	nitoring well, aeria	al photos,	, previou	s inspecti	ions), if available:	
Remarks:	. Doop of comment	nolone ie III	جاداجا بدوم براه	off lovel (ahar:!	la incles	1)	
NO Hydrology	. Base of scour dow	nsiope is lik	eiy new high run	DIT IEVEI (cnannel	is incised	1).	
JS Army Corp	s of Engineers							Great Plains – Versior

Project/Site: BLM LTPBR workshop/Pumpkin Creek	City/County: Miles C	ity/Custer	Sampling Date:	7/9/21
Applicant/Owner: Bureau of Land Management		State: MT	Sampling Point:	WL-1b.4
Investigator(s): A. Chadwick	Section, Township, Ra	ange: Sec. 1, T5 N, R48	8 E	
Landform (hillside, terrace, etc.): terrace	Local relief (concave, conv	vex, none): none	Slop	e (%): <1
Subregion (LRR): LRR G Lat: 46.213875	Long: -	105.658326	 Datum:	NAD 83
Soil Map Unit Name: Havre loam, 0 to 2 percent slopes, occa	asionally flooded	NWI classif	ication: none	
Are climatic / hydrologic conditions on the site typical for this				
Are Vegetation , Soil , or Hydrology signific)
Are Vegetation, SoilX_, or Hydrologynatural				
SUMMARY OF FINDINGS – Attach site map sh				tures, etc.
Hydrophytic Vegetation Present? Yes X No	Is the Sampled A	Area		
Hydric Soil Present? Yes X No	within a Wetland	? Yes X	No	
Wetland Hydrology Present? Yes X No	_			
Remarks: Linear PEM wetland along low bank of incised channel of Perproblematic riparian soil.	umpkin Creek, river right side. S	Sand deposits common a	nd sand lenses in so	oil; narturally
VEGETATION – Use scientific names of plants		0		
•		200	landa a sta	
Tree Stratum (Plot size: 30 ft) % C	Cover Species? Status	Dominance Test wor		
2.		Number of Dominant S Are OBL, FACW, or F		3 (A)
3.		Total Number of Domi		(/ 1)
4.	74	Across All Strata:	пап ореско	3 (B)
	=Total Cover	Percent of Dominant S	Species That	
Sapling/Shrub Stratum (Plot size: 15 ft)	0, 0.	Are OBL, FACW, or F	AC: 100	0.0% (A/B)
1.	- '0' -			
2.		Prevalence Index wo Total % Cover of:		
3	.(') —	OBL species 2	0 x 1 = 2	20
5.		FACW species 8		60
	=Total Cover	FAC species 0		0
Herb Stratum (Plot size: 5 ft)		FACU species 0) x 4 =	0
Schoenoplectus pungens Schoenoplectus pungens	20 Yes OBL	UPL species	x 5 =	0
	60 Yes FACW	Column Totals: 10	`	80 (B)
	20 Yes FACW	Prevalence Index = B	/A = 1.80	
4		Hydrophytic Vegetati	ion Indicators:	
6.			Hydrophytic Vegeta	ation
7.		X 2 - Dominance Te		
8.		X 3 - Prevalence Inc		
9.		4 - Morphological	Adaptations ¹ (Provi	de supporting
10		data in Remark	s or on a separate s	sheet)
1	00 =Total Cover	Problematic Hydro	ophytic Vegetation ¹	(Explain)
Woody Vine Stratum (Plot size:) 1.		¹ Indicators of hydric so be present, unless dis		
2.		Hydrophytic		
% Bare Ground in Herb Stratum 0	=Total Cover	Vegetation	<u> </u>	_
Remarks: Bulrush and prairie cordgrass community on low terrace of I	Pumpkin Creek.			
US Army Corps of Engineers			Great Plains	s – Version 2.0

SOIL Sampling Point: WL-1b.4

Depth (inches)	Color (moist)	%	Color (moist)	ox Featur %	Type ¹	Loc ²	Texture	Remarks
0-5	2.5Y 3/2	100	, ,				Loamy/Clayey	sandy clay with sand deposits
	0.577.570		40VD 4/0					
5-15	2.5Y 5/3	70	10YR 4/6	10	<u>C</u>	<u>M</u>	Loamy/Clayey	sa cla lo
	2.5Y 5/1	20		- <u></u>		<u>-</u>		
	ncentration, D=Depl ndicators: (Applica			erwise n			In	ocation: PL=Pore Lining, M=Matrix. dicators for Problematic Hydric Soils ³ : 1 cm Muck (A9) (LRR I, J)
Histic Ep Black His	ipedon (A2) stic (A3)			Sandy F	Redox (St	5)		Coast Prairie Redox (A16) (LRR F, G, F Dark Surface (S7) (LRR G)
Stratified	n Sulfide (A4) Layers (A5) (LRR F ck (A9) (LRR F, G, F		_	Loamy	Mucky Mi Gleyed M d Matrix (atrix (F2		High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73) Reduced Vertic (F18)
Depleted Thick Da Sandy M 2.5 cm N	Below Dark Surface rk Surface (A12) ucky Mineral (S1) lucky Peat or Peat (S	(A11) (S2) (LRR (Redox [Deplete Redox [High Pla	Dark Surf d Dark S Depression ains Depr	ace (F6) urface (F ons (F8) ressions	(F16)	Red Parent Material (F21) Very Shallow Dark Surface (F22) Other (Explain in Remarks) Idicators of hydrophytic vegetation and
	cky Peat or Peat (S3) (LRR F)		(MLI	RA 72 &	73 of LR	R H)	wetland hydrology must be present, unless disturbed or problematic.
Type: _ Depth (ir	ches):			36		()	Hydric Soil Prese	ent? Yes <u>X</u> No
Remarks: Obviously hy	dric but with higher o	hroma, pa	rtly due to recent	sand dep	osits inco	orporated	l in soil; in riparian	soil with sand deposits common
HYDROLO	GY)' \	7				
-	Irology Indicators:							
	ators (minimum of o	ne is requi						dary Indicators (minimum of two required)
	Nater (A1) ter Table (A2)		Salt Crus Aquatic Ir		too (D12)			urface Soil Cracks (B6) parsely Vegetated Concave Surface (B8)
Saturatio	, ,		Hydrogen					rainage Patterns (B10)
Water M	` '		Dry-Seas		•	•		kidized Rhizospheres on Living Roots (C3
	t Deposits (B2)		Oxidized		`	,		(where tilled)
	osits (B3)			not tille				rayfish Burrows (C8)
	t or Crust (B4)		Presence		•	(C4)		aturation Visible on Aerial Imagery (C9)
	osits (B5)		Thin Muc			(-)		eomorphic Position (D2)
X Inundation	on Visible on Aerial II ained Leaves (B9)	magery (B			, ,		XFA	AC-Neutral Test (D5) ost-Heave Hummocks (D7) (LRR F)
Field Observ								, , ,
Surface Water Water Table Saturation Pr	er Present? Ye Present? Ye esent? Ye	s	No X No X No X		inches): _ inches): _ inches): _		Wetland Hydro	logy Present? Yes X No
(includes cap Describe Red	orded Data (stream	gauge, mo	onitoring well, aeria	al photos	, previou	s inspect	I ions), if available:	
Domorto								
Remarks:	ek is source of hydro	nlogy						
	or all the or my die							
	o of Engineers							Creat Plaine Version

Section Township Range Section Sectio	Project/Site: BLM LTPBR workshop/Pumpkin Creek	(City/County: Miles C	City/Custer	Sampling Date:	7/9/21
Landform (hillside, terrace, etc.): Streambank	Applicant/Owner: Bureau of Land Management	<u>-</u>		State: MT	Sampling Point:	UPL-1b.5
Landform (nillside, terrace, etc.): Streambank	Investigator(s): A. Chadwick	Se	ection, Township, Ra	ange: Sec. 1, T5 N, R4	- -8 E	
Soil Map Link Name Have loam, 0 to 2 percent slopes, occasionally flooded New loads	Landform (hillside, terrace, etc.): Streambank					pe (%): 5
Soil Map Unit Name: Havre loam: 0 to 2 percent slopes, occasionally flooded Net climatic / hydrologic conditions on the site bytical for this time of year? Yes X No (If no, explain in Remarks.) Net Vegetation Soil of Hydrology significantly disturbed? Are "Nomal Cromastances" present? Yes X No Note Vegetation Soil or Hydrology anaturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc. Hydrophydic Vegetation Present? Yes X No X within a Wetland? Yes No X Wetland Hydrology Present? Yes No X within a Wetland? Yes No X Wetland Hydrology Present? Yes No X Within a Wetland? Yes No X Wetland Hydrology Present? Yes No X Within a Wetland? Yes No X Wetland Hydrology Present? Yes No X Within a Wetland? Yes No X Wetland Hydrology Present? Yes No X Within a Wetland? Yes No X Wetland Hydrology Present? Yes No X Within a Wetland? Yes No X Yes No X Within a Wetland? Yes X No Y Within a Wetl	· · · · · · · · · · · · · · · · · · ·		•	· ·		
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (iff no, explain in Remarks.) Are Vegetation — Soil —, or Hydrology — naturally problematic? (iff needed, explain any answers in Remarks.) **SUMMARY OF FINDINOS — Attach site map showing sampling point locations, transects, important features, etc.** Hydrophytic Vegetation Present? Yes X No X Is the Sampled Area within a Wotland? Yes						
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes X No X within a Wetland? Yes No X Wetland Hydrology Present? Yes X No X Wetland Hydrology Myes Yes Yes X No X Wetland Hydrology Myes Yes Yes X No X Yes X No Yes X No Xes X No Xes X No Xes						
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes X No X Is the Sampled Area within a Wedland? Yes No X Wedland Hydrogly Present? Yes No X Remarks: UPL DP for WL-1b.5. On Ibank of Pumpkin Creek, river right side. VEGETATION – Use scientific names of plants. Tree Siratum (Plot size: 30 ft) % Cover Species? Status Aro Belt, PaCW, or FAC: 3 (A) Total Number of Dominant Species That Aro Belt, FACW, or FAC: 3 (A) Total Number of Dominant Species That Aro Belt, FACW, or FAC: 75.0% (A/B) Sapiling/Shrub Stratum (Plot size: 15 ft) 15 = Total Cover FACW and the status of the	, ,	•			•	•
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present?						<u> </u>
Hydrophylic Vegelation Present? Yes X No X within a Wetland? Yes No X Wetland Hydroic Soil Present? Yes No X within a Wetland? Yes No X Wetland Hydroicy Present? Yes No X within a Wetland? Yes No X Wetland Hydroicy Present? Yes No X No X Wetland Hydroicy Present? Yes No X No	<u> </u>					
Hydric Soil Present? Yes No X within a Wetland? Yes No X Wetland Hydrology Present? Yes No X Wetland Pydrology Present? Yes No X Wetland Hydrology Present? Yes X No Yes No Yes Present? Yes X No Yes Present? Yes X No Yes No Yes Present? Yes X No Yes No Yes Present? Yes X No Yes N	SUMMARY OF FINDINGS – Attach site ma	p showing sa	ampling point le	ocations, transects	, important fea	tures, etc.
Hydric Soil Present? Yes No X within a Wetland? Yes No X Wetland Hydrology Present? Yes No X Wetland Pydrology Present? Yes No X Wetland Hydrology Present? Yes X No Yes No Yes Present? Yes X No Yes Present? Yes X No Yes No Yes Present? Yes X No Yes No Yes Present? Yes X No Yes N	Hydrophytic Vegetation Present? Yes X No		Is the Sampled A	Area		
Vestand Hydrology Present? Yes			_		No X	
VEGETATION – Use scientific names of plants. Tree Stratum (Plot size: 30 ft) % Cover Species? Status Quantific Test worksheet: Number of Dominant Species That Are DBL, FACW, or FAC: 3 (A) Total Number of Dominant Species That Are DBL, FACW, or FAC: 3 (A) Total Number of Dominant Species That Are DBL, FACW, or FAC: 3 (A) Total Number of Dominant Species That Are DBL, FACW, or FAC: 3 (A) Total Number of Dominant Species That Are DBL, FACW, or FAC: 75.0% (A/B) Percent of Dominant Species That Are DBL, FACW, or FAC: 75.0% (A/B) Percent of Dominant Species That Are DBL, FACW, or FAC: 75.0% (A/B) Percent of Dominant Species That Are DBL, FACW, or FAC: 75.0% (A/B) Percent of Dominant Species That Are DBL, FACW, or FAC: 75.0% (A/B) Percent of Dominant Species That Are DBL, FACW, or FAC: 75.0% (A/B) Percent of Dominant Species That Are DBL, FACW, or FAC: 75.0% (A/B) Percent of Dominant Species That Are DBL, FACW, or FAC: 75.0% (A/B) Percent of Dominant Species That Are DBL, FACW, or FAC: 75.0% (A/B) Percent of Dominant Species That Are DBL, FACW, or FAC: 75.0% (A/B) Percent of Dominant Species That Are DBL, FACW, or FAC: 75.0% (A/B) Percent of Dominant Species That Are DBL, FACW, or FAC: 75.0% (A/B) Percent of Dominant Species That Are DBL, FACW, or FAC: 75.0% (A/B) Percent of Dominant Species That Are DBL, FACW, or FAC: 75.0% (A/B) Percent of Dominant Species That Are DBL, FACW, or FAC: 75.0% (A/B) Percent of Dominant Species That Are DBL, FACW species 5 x x 1 = 5 x 2 = 90						
VEGETATION - Use scientific names of plants.	Remarks:					
Tree Stratum	UPL DP for WL-1b.5. On Ibank of Pumpkin Creek, rive	er right side.		1		
Tree Stratum					4	
Tree Stratum				10, 11,		
Tree Stratum	VEGETATION - Use scientific names of pl	lants.				
1. 2. 3. 4. 4. 5. 5. 5. 1.5 1.5 1.5 1. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.	·		ocios? Status	Dominanco Tost wo	rkshoot:	
2	1 (Flot size)	% Cover Spe	scies? Status			
Total Number of Dominant Species Across All Strata: A (B)	2.					3 (A)
Across All Stratum	3.		\leftarrow	*		(* 1)
Sapling/Shrub Stratum	4.	~4	134		ппатт орсстсэ	4 (B)
Sapling/Shrub Stratum (Plot size: 15 ft) 1. Papulus deltoides Are OBL, FACW, or FAC: 75.0% (A/B) 1. Populus deltoides 15 Yes FAC Prevalence Index worksheet: Total % Cover of: Multiply by: Multiply by: Multiply by: OBL species 5 x 1 = 5 3		=Tota	Cover	Percent of Dominant	Species That	
2.	Sapling/Shrub Stratum (Plot size: 15 ft)	رن,			•	5.0% (A/B)
Total % Cover of:	Populus deltoides	15	es FAC			
4.	2.				orksheet:	
5.	3.	<u> </u>				
Herb Stratum	4.					_
Herb Stratum (Plot size: 5 ft) 1. Glycyrnhiza lepidota 30 Yes FACU UPL species 40 x 4 = 160 2. Distichlis spicata 20 Yes FACW Column Totals: 115 (A) 350 (B) 3. Spartina pectinata 20 Yes FACW Prevalence Index = B/A = 3.04 3.04 Prevalence Index = B/A = 3.04 3.04 <td>5.</td> <td>45 -T-4-</td> <td>1.00</td> <td></td> <td></td> <td></td>	5.	45 -T-4-	1.00			
1. Glycyrrhiza lepidota 30 Yes FACU UPL species 10 x 5 = 50 Column Totals: 115 (A) 350 (B) 350 (B) 3. Spartina pectinata 20 Yes FACW Artemisia ludoviciana 10 No UPL 5. Ambrosia psilostachya 10 No FACU 6. Schoenoplectus pungens 5 No OBL 7. Helianthus nuttallii 5 No FACW 8. Schoenoplectus pungens 5 No FACW 8. Schoenoplectus pungens 5 No FACW 8. Schoenoplectus pungens 5 No FACW 7. Helianthus nuttallii 5 No FACW 8. Schoenoplectus pungens 6. Schoenoplectus pungens 7. Helianthus nuttallii 7. Provident in Remarks or on a separate sheet) 10. Schoenoplectus pungens 7. Helianthus nuttallii 8 Total Cover 10. Schoenoplectus pungens 10. Schoenople	Herb Stratum (Plot size: 5 ft)	15 = 10ta	Cover			
2. Distichlis spicata 2. Q Yes FACW 3. Spartina pectinata 2. Q Yes FACW 4. Artemisia ludoviciana 4. Artemisia ludoviciana 5. Ambrosia psilostachya 6. Schoenoplectus pungens 7. Helianthus nuttallii 8. Q Yes FACW 8. Q Yes FACW 9. T- Rapid Test for Hydrophytic Vegetation 1. Remarks: 1. Rapid Test for Hydrophytic Vegetation 1. Representation (Provide supporting data in Remarks or on a separate sheet) 1. Q Problematic Hydrophytic Vegetation 1. Hydrophytic Vegetation 1. Q Problematic Hy		30 \	/es FACII			-
3. Spartina pectinata 4. Artemisia ludoviciana 5. Ambrosia psilostachya 6. Schoenoplectus pungens 7. Helianthus nuttallii 8. 9. 100 =Total Cover Woody Vine Stratum 1. 100 Stratum 1. 2.				· · · · · · · · · · · · · · · · · · ·		-
5. Ambrosia psilostachya 6. Schoenoplectus pungens 7. Helianthus nuttallii 8. Solution						
6. Schoenoplectus pungens 7. Helianthus nuttallii 8. Solution S	4. Artemisia ludoviciana	10	No UPL			
7. Helianthus nuttallii 5 No FACW X 2 - Dominance Test is >50% 8. 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) ——————————————————————————————————	5. Ambrosia psilostachya	10	No FACU	Hydrophytic Vegetat	tion Indicators:	
8	6. Schoenoplectus pungens	5	No OBL	1 - Rapid Test for	Hydrophytic Veget	ation
9	7. Helianthus nuttallii	5	No FACW	X 2 - Dominance Te	est is >50%	
data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) 100 =Total Cover Problematic Hydrophytic Vegetation¹ (Explain) 1 Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Fresent? Yes X No Remarks: At base of bank; mix of wetland and upland species	8					
Moody Vine Stratum (Plot size:) 1						
Moody Vine Stratum (Plot size:) 1. 2. 2. 2. 2. 2. 2. 3. 4. 4. 5. 5. 5. 5. 5. 5	10				•	,
1	N 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	100=Tota	l Cover			
2						
# Total Cover Separation Se				·	sturbed or problema	uc.
% Bare Ground in Herb Stratum 0 Present? Yes X No Remarks: At base of bank; mix of wetland and upland species	<u></u>		l Cover			
Remarks: At base of bank; mix of wetland and upland species	% Bare Ground in Herb Stratum 0	10ta	. 00001	_	X No	
At base of bank; mix of wetland and upland species				163		=
IS Army Corps of Engineers	,					
	US Army Corps of Engineers				Great Plain	s _ Varsion 2

SOIL Sampling Point: UPL-1b.5

Profile Desc	cription: (Describe	to the dep	th needed to do	cument t	he indica	ator or co	onfirm the absenc	e of indicators.)
Depth	Matrix		Red	lox Featur	es			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-6	2.5Y 4/2	100		_			Loamy/Clayey	cla lo
6-14	2.5Y 5/3	80					Loamy/Clayey	sa cla lo
	2.5Y 5/2	20						
				_				
	• 1			_				_
-								_
¹ Typo: C=C	oncentration, D=Dep	lotion PM-	-Poducod Matrix		orod or C	oatod Sa	nd Grains ² I o	ocation: PL=Pore Lining, M=Matrix.
	Indicators: (Applica					oaleu Sa		dicators for Problematic Hydric Soils
Histosol		able to all i	Litito, umess ou		Sleyed M	atrix (S4)		1 cm Muck (A9) (LRR I, J)
	pipedon (A2)			_	Redox (St			Coast Prairie Redox (A16) (LRR F, G
	istic (A3)				Matrix (•		Dark Surface (S7) (LRR G)
	en Sulfide (A4)		_	_ ` ` `	Mucky Mi	,	_	High Plains Depressions (F16)
	d Layers (A5) (LRR F	=)		_	Gleyed M	-		(LRR H outside of MLRA 72 & 73
	uck (A9) (LRR F, G, I			_	d Matrix (· W) /	Reduced Vertic (F18)
	d Below Dark Surface			_	Dark Surf	` ′ 🔷		Red Parent Material (F21)
	ark Surface (A12)	e (ATT)		_	d Dark S		7)	Very Shallow Dark Surface (F22)
	Mucky Mineral (S1)			_	Depression		′′ 🕠 —	Other (Explain in Remarks)
	Mucky Peat or Peat (S2) (I PP (- H/		ains Depr		(E16) 3In	dicators of hydrophytic vegetation and
	ucky Peat or Peat (S		<u> </u>	_ ~	RA 72 &			wetland hydrology must be present,
	ucky real or real (o.	5) (LIXIX I)		(1411	17/20	J OI LIK		unless disturbed or problematic.
Restrictive	Layer (if observed):	<u> </u>		- 1		1	0.	direct dictariate of providing
Type:				0	\			
Depth (i	nches):			UK.	•		Hydric Soil Prese	ent? Yes No
Remarks:				1				
No Hydric in	dicators		cx		O			
i i i i i i i i i i i i i i i i i i i	diodioio							
			4,0,	c'.0				
HYDROLO	OGY		11	$\overline{\psi}$				
	drology Indicators:		Y O	O *				
	cators (minimum of c		red: check all tha	t annly)			Secon	dary Indicators (minimum of two require
-	Water (A1)	one is requi	Salt Crus					urface Soil Cracks (B6)
	ater Table (A2)			nvertebra	tos (B13)			parsely Vegetated Concave Surface (B8
Saturation	, ,			n Sulfide (
	` '		<u> </u>		-			ainage Patterns (B10)
	Marks (B1)			son Water	,	•		kidized Rhizospheres on Living Roots (C
	nt Deposits (B2)			Rhizosph		LIVING RO		(where tilled)
	posits (B3)		•	not tille	•	(C4)		ayfish Burrows (C8)
	at or Crust (B4)			e of Redu		(C4)		aturation Visible on Aerial Imagery (C9)
	posits (B5)	(D		ck Surface				eomorphic Position (D2)
	ion Visible on Aerial I	magery (B	7)Other (E	xplain in F	(emarks			AC-Neutral Test (D5)
	Stained Leaves (B9)						Fr	ost-Heave Hummocks (D7) (LRR F)
Field Obser		20	No. V	Danth (nobos\:			
Surface Wat			No X	Depth (i	_		1	
Water Table			No X	Depth (i	_		Modlend Hed	lamy Draggard 2 Vac N 1
Saturation P			No X	Depth (i	ncnes):_		Wetland Hydro	logy Present? Yes No
	pillary fringe) ecorded Data (stream	n dalide mo	onitoring well ser	ial photos	previous	s inspect	ions) if available.	
Pendine IVe	oordod Data (stredili	. gaage, me	Amoning won, aci	iai piiolos	, provious	o mopeou	io.io _j , ii availabie.	
Remarks:								
No Hydrolog	Jy.							

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR workshop/Pumpkin Creek	City/County: Miles Ci	ty/Custer	Sampling Date:	7/10/21
Applicant/Owner: Bureau of Land Management		State: MT	Sampling Point:	WL-1b.5
Investigator(s): A. Chadwick	Section, Township, Ra	nge: Sec. 1, T5 N, R48	E	
Landform (hillside, terrace, etc.): low bank	Local relief (concave, conv	ex, none): concave	Slop	oe (%): 1
Subregion (LRR): LRR G Lat: 46.217783	Long: <u>-1</u>	05.670536	Datum:	NAD 83
Soil Map Unit Name: Harlake silty clay, 0 to 2 percent slopes, occ	casionally flooded	NWI classific	ation: none	
Are climatic / hydrologic conditions on the site typical for this time	e of year? Yes X	No (If no, expl	ain in Remarks.)	
Are Vegetation, Soil, or Hydrologysignificantly	y disturbed? Are "Normal C	Circumstances" present?	Yes X No	0
Are Vegetation, SoilX_, or Hydrologynaturally pr	roblematic? (If needed, ex	plain any answers in Rem	arks.)	
SUMMARY OF FINDINGS – Attach site map show	ring sampling point lo	cations, transects,	important fea	tures, etc.
Hydrophytic Vegetation Present? Yes X No	Is the Sampled A	rea		
Hydric Soil Present? Yes X No	within a Wetland		No	
Wetland Hydrology Present? Yes X No				
Remarks:				
PSS wetland patch (some large trees, but not predom forested s SS WL in area. WL is in lower overflow area of a tall, partially-ve				
layers sand deposits with minimal soil). This site is likely within b			matic ripariari 30i	i (maitipic
	.,,(<u> </u>		
VEGETATION – Use scientific names of plants.				
<u>Tree Stratum</u> (Plot size: 30 ft) % Cover	Species? Status	Dominance Test work	sheet:	
1. Populus deltoides 10	Yes FAC	Number of Dominant S	pecies That	
2	- 44-	Are OBL, FACW, or FA	.C:	4 (A)
3	4 .40	Total Number of Domir	ant Species	4 (D)
10	=Total Cover	Across All Strata:		4 (B)
Sapling/Shrub Stratum (Plot size: 15 ft)	-Total Covel	Percent of Dominant S Are OBL, FACW, or FA	!	0.0% (A/B)
1. Populus deltoides	Yes FAC	022,		(, 12)
2. Salix amygdaloides 10	Yes FACW	Prevalence Index wor	ksheet:	
3.	<u>-0</u>	Total % Cover of:	Multiply by	r:
4		OBL species 50	x 1 =	50
5.		FACW species 12		24
	_ =Total Cover	FAC species 20		60
Herb Stratum (Plot size: 5 ft) 1. Schoenoplectus pungens 50	Yes OBL	FACU species 8 UPL species 1	x 4 = x 5 =	32 5
2.	Tes OBL	Column Totals: 91		171 (B)
3. Glycyrrhiza lepidota 8	No FACU	Prevalence Index = B/A		
4. Helianthus nuttallii 2	No FACW		-	-
5. Calamovilfa longifolia 1	No UPL	Hydrophytic Vegetation	n Indicators:	
6		1 - Rapid Test for I		ation
7		X 2 - Dominance Tes		
8		X 3 - Prevalence Inde		
9		4 - Morphological A	daptations (Provi	
10	=Total Cover	Problematic Hydro	•	,
Woody Vine Stratum (Plot size:)		¹ Indicators of hydric so	_	
1.		be present, unless dist		
2.		Hydrophytic		
	=Total Cover	Vegetation		
% Bare Ground in Herb Stratum 39		Present? Yes _	X No	_
Remarks: Cottonwood and willow over emergent wetland community in over	orflow scour channel Late of	willow and cottonwood a	odlinge primarily	within OUW
scour below WL or in UPL on higher portions of gravel bar.	omow soour onamie. Lots of	WINDW AND COLLONWOOD SE	,ouings- pililiailly	WIGHT OTTV

US Army Corps of Engineers

Great Plains – Version 2.0

SOIL Sampling Point: WL-1b.5

Depth	cription: (Describe t Matrix		Rec	lox Featur	es				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	
0-5	2.5Y 3/2	50					Loamy/Clayey	very sandy clay	
	2.5Y 4/2	50							
5-9	2.5Y 3/2	10					Sandy	90%multi-colored fine san	ıd
9-12	10YR 3/2	10					Sandy	80% multi-colored fine sand	dep.
	2.5Y 3/2	10							
12-15	2.5Y 4/1	70	10YR 4/6	10			Sandy	Prominent redox concentrati	ions
12-10	2.5Y 4/2	20	10111 4/0		<u> </u>	101	Carray	1 Tominent redox concentrati	0113
	2.51 4/2								
1	- D D D		North and Markets				21 - 21 - 21	-ti Di Dani Linia M Matria	
•	oncentration, D=Deple Indicators: (Applical					oated Sar		ation: PL=Pore Lining, M=Matrix cators for Problematic Hydric S	
Histosol		ole to all Li	XXS, uniess ou			atrix (S4)		cators for Problematic Hydric 3	,0115 .
	oipedon (A2)			Sandy R	-			Coast Prairie Redox (A16) (LRR	F, G, I
	stic (A3)			_ Stripped	•	•		Dark Surface (S7) (LRR G)	, ,
Hydroge	n Sulfide (A4)			Loamy N	/lucky Mi	ineral (F1)		High Plains Depressions (F16)	
Stratified	d Layers (A5) (LRR F))	_	Loamy 0	Sleyed M	latrix (F2)		(LRR H outside of MLRA 72	& 73)
1 cm Mu	ıck (A9) (LRR F, G, H)	X	Depleted		· · · · · · · · · · · · · · · · · · ·	4 /	Reduced Vertic (F18)	
	d Below Dark Surface	(A11)		_Redox D			\	Red Parent Material (F21)	
	ark Surface (A12)					urface (F7	· • (//	/ery Shallow Dark Surface (F22)	
	flucky Mineral (S1)			_Redox D				Other (Explain in Remarks)	
	Mucky Peat or Peat (S	, ,	н)	_		ressions (cators of hydrophytic vegetation	
5 cm ivit	icky Peat or Peat (S3) (LKK F)		(IVIL	AVZa	73 of LRF		vetland hydrology must be prese unless disturbed or problematic.	nι,
Restrictive	Layer (if observed):			-1		- 4	0 -	diffees disturbed of problematic.	
Type:				0	\				
Depth (ii	nches):		_	UK.	•		Hydric Soil Present	? Yes X No)
Remarks:					4				
	nultiple layers of sand	and soil de	posits within ov	erflow châ	nnel sco	ur on larg	e gravel bar. Problen	natic riparian soil.	
			(0.	CO	,				
HYDROLO	GY)' \	7					
Wetland Hy	drology Indicators:		7,0						
Primary India	cators (minimum of or	ne is require	ed; check all tha	t apply)			<u>Seconda</u>	ry Indicators (minimum of two red	quired
	Water (A1)		Salt Crus	, ,				ace Soil Cracks (B6)	
	ater Table (A2)			Invertebrat	, ,	•		sely Vegetated Concave Surface	; (B8)
Saturation	` '			n Sulfide (•	•		nage Patterns (B10)	
	larks (B1)			son Water	•	,		ized Rhizospheres on Living Roo	its (C3
	nt Deposits (B2)			Rhizosph		Living Roo	. ,	here tilled)	
	posits (B3)		•	not tilled	,	(04)		fish Burrows (C8)	(00)
	at or Crust (B4)			e of Reduc		(C4)		ration Visible on Aerial Imagery (C9)
	oosits (B5)	nogon/(D7)		ck Surface				morphic Position (D2)	
	on Visible on Aerial In tained Leaves (B9)	nagery (B7)	Other (E.	xplain in R	emarks)			-Neutral Test (D5) t-Heave Hummocks (D7) (LRR F	:\
								-Heave Hullillocks (DT) (LKK F	<u>'</u>
Field Obser		_	No. V	Donth (i	noboo):				
Surface Wat Water Table			No X No X	Depth (i Depth (i	· -				
Saturation P			No X	Depth (i	-		Wetland Hydrolog	gy Present? Yes X No	,
(includes cap		<i></i>	NO /	Doptii (I			Tredaila Hydrolog	yy i 1636iit: 163 <u>∧</u> 140	
	corded Data (stream	gauge, mon	itoring well. aer	ial photos	previou	s inspecti	ons), if available:		
	(552111)	J -,	J 2, 2.01	,5.00,	,	-1-000	,,		
Remarks:									
Likely sees f	requent inundation fro	om Pumpkir	n Creek (inunda	ted in one	set of a	erials but i	not most recent).		

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR workshop/Pumpkin Creek	Ci	ty/County: Miles (City/Custer	Sampling Date:	7/10/21
Applicant/Owner: Bureau of Land Management			State: MT	Sampling Point:	UPL-2
Investigator(s): A. Chadwick	Se	ction, Township, R	ange: Sec. 6, T5 N, R	<u> </u>	
Landform (hillside, terrace, etc.): hillslope	<u> </u>		nvex, none): convex		pe (%): 4
Subregion (LRR): LRR G Lat: 46.212548			-105.652332		NAD 83
Soil Map Unit Name: Harlake silty clay, 0 to 2 percent slop			NWI class		
Are climatic / hydrologic conditions on the site typical for the			No (If no, e.		
Are Vegetation , Soil , or Hydrology sign	-				
Are Vegetation, Soil, or Hydrology natu					
SUMMARY OF FINDINGS – Attach site map					atures, etc.
Hydrophytic Vegetation Present? Yes X No		Is the Sampled	Δrea		
Hydric Soil Present? Yes 0 No	X	within a Wetland		NoX	
Wetland Hydrology Present? Yes No					
Remarks: UPL plot for WL-2. On slope up to high terrace.		<i>.</i> (all on		
VEGETATION – Use scientific names of plan	nts.				
Tree Stratum (Plot size: 30 ft) %	6 Cover Spec	cies? Status	Dominance Test we	orksheet:	
1		70	Number of Dominan	t Species That	
2.			Are OBL, FACW, or	•	2 (A)
3	 +	_ _ _ _	Total Number of Dor Across All Strata:	minant Species	2 (B)
<u> </u>	=Total	Cover			2 (B)
Sapling/Shrub Stratum (Plot size: 15 ft)	~ O Potal	Cover	Percent of Dominant Are OBL, FACW, or	•	00.0% (A/B)
1.			, , ,		(' /
2.	X		Prevalence Index w	orksheet:	
3.	~~	<u> </u>	Total % Cover of:	Multiply by	y:
4.			OBL species	0 x 1 =	0
5.	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			70 x 2 =	140
Herb Stratum (Plot size: 5 ft)	=Total	Cover	FAC species FACU species	0 x 3 =	40
1. Hordeum jubatum	20 Y	es FACW	· · · · · · · · · · · · · · · · · · ·	20 x 5 =	100
Distichlis spicata		es FACW	· · · · · · · · · · · · · · · · · · ·		280 (B)
3. Agropyron cristatum		lo UPL	Prevalence Index =	`` /	`` ′
4. Pascopyrum smithii	10 N	lo FACU			
5. Ratibida columnifera	5 N	lo UPL	Hydrophytic Vegeta	ation Indicators:	
6. Solidago missouriensis	5 N	lo UPL	X 1 - Rapid Test fo		tation
7			X 2 - Dominance		
8			3 - Prevalence I	ndex is ≤3.01 al Adaptations¹ (Prov	
9. 10.				rks or on a separate	
10	100 =Total	Cover		drophytic Vegetation	•
Woody Vine Stratum (Plot size:)	100	00101	¹ Indicators of hydric		
1			be present, unless d		
2.			Hydrophytic	-	
% Bare Ground in Herb Stratum 0	=Total	Cover	Vegetation	s_X_ No	
Remarks:			_1		
US Army Corps of Engineers				Great Plair	ns – Version 2.0

SOIL Sampling Point: UPL-2

Depth	tion: (Describe t Matrix	o tne aepth		u ment tr x Featur		ator or Co	OUTIFM THE ADS	ence of indicators.)
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-12	2.5Y 4/2	100	·				Loamy/Clay	rey
12-15	2.5Y 5/3	100					Loamy/Clay	
							-	
								
· · · · · · · · · · · · · · · · · · ·	entration, D=Depl					coated Sa	ind Grains.	² Location: PL=Pore Lining, M=Matrix.
=	icators: (Applica	ble to all LR	RRs, unless other			L-4-1 (0.0		Indicators for Problematic Hydric Soils ³ :
Histosol (A1	,			-	-	latrix (S4))	1 cm Muck (A9) (LRR I, J)
Histic Epipe Black Histic	` '		_	Sandy R Stripped		-		Coast Prairie Redox (A16) (LRR F, G, Dark Surface (S7) (LRR G)
Hydrogen S	` '				`	ໄດ້ ineral (F1	1)	High Plains Depressions (F16)
	yers (A5) (LRR F)		-	-	//atrix (F2)		(LRR H outside of MLRA 72 & 73)
	(A9) (LRR F, G, F			Depleted	-		~0,,	Reduced Vertic (F18)
l 	low Dark Surface			•		face (F6)	11/1	Red Parent Material (F21)
	Surface (A12)			Depleted	d Dark S	urface (F	7)	Very Shallow Dark Surface (F22)
l —	ky Mineral (S1)			Redox D				Other (Explain in Remarks)
l 	ky Peat or Peat (H)	_		ressions		³ Indicators of hydrophytic vegetation and
5 cm Mucky	Peat or Peat (S3) (LRR F)		(MLF	RA 72 &	73 of LR	R H)	wetland hydrology must be present,
Postrictive Lor	or (if observed):			. 1	1.	1	9 ,	unless disturbed or problematic.
Type:	er (if observed):			2	\	ナン		
Depth (inche	es):		(1	•		Hydric Soil P	resent? Yes No X
Remarks:	, <u> </u>		- ()	<u> </u>	~	,	,	
No hydric indicat	tors		CK		O'			
				(1)				
		_	10	Co	•			
HYDROLOGY	<u> </u>		1 1)				
_	logy Indicators:		1,0					
	ors (minimum of o	ne is require					<u>Se</u>	condary Indicators (minimum of two required
Surface Wa	` '		Salt Crust	-	/= .c.	`		_Surface Soil Cracks (B6)
High Water			Aquatic In		•	•		_ Sparsely Vegetated Concave Surface (B8)
Saturation (A Water Marks	,		Hydrogen Dry-Seaso		,	•		_ Drainage Patterns (B10)
Sediment De			Oxidized F		,	,	oots (C3)	Oxidized Rhizospheres on Living Roots (C3 (where tilled)
Drift Deposit				not tillec		Living IN	.5.0 (50)	Crayfish Burrows (C8)
Algal Mat or			Presence		•	(C4)		Saturation Visible on Aerial Imagery (C9)
Iron Deposit	, ,		Thin Muck			. ,		Geomorphic Position (D2)
l 	/isible on Aerial Ir	magery (B7)	Other (Exp)	X	FAC-Neutral Test (D5)
Water-Stain	ed Leaves (B9)							Frost-Heave Hummocks (D7) (LRR F)
Field Observati	ons:							
Surface Water F	Present? Ye	s	No X	Depth (ii	nches):			
Water Table Pre		s X	No	Depth (ii	-	0		
Saturation Prese		s <u>X</u>	No	Depth (ii	nches):	0	Wetland Hy	drology Present? Yes No _X
(includes capilla		aa	itaring	l nk-*-	m ==!	n ln = = 1	iona) if accelled	lo
Describe Record	ded Data (stream	gauge, mon	itoring well, aeria	ıı pnotos,	previou	is inspect	ions), it availab	ie:
Remarks:								
No Hydrology								
	f Engineers							Great Plains – Version

WETLAND DETERMINATION DATA FORM – Great Plains Region

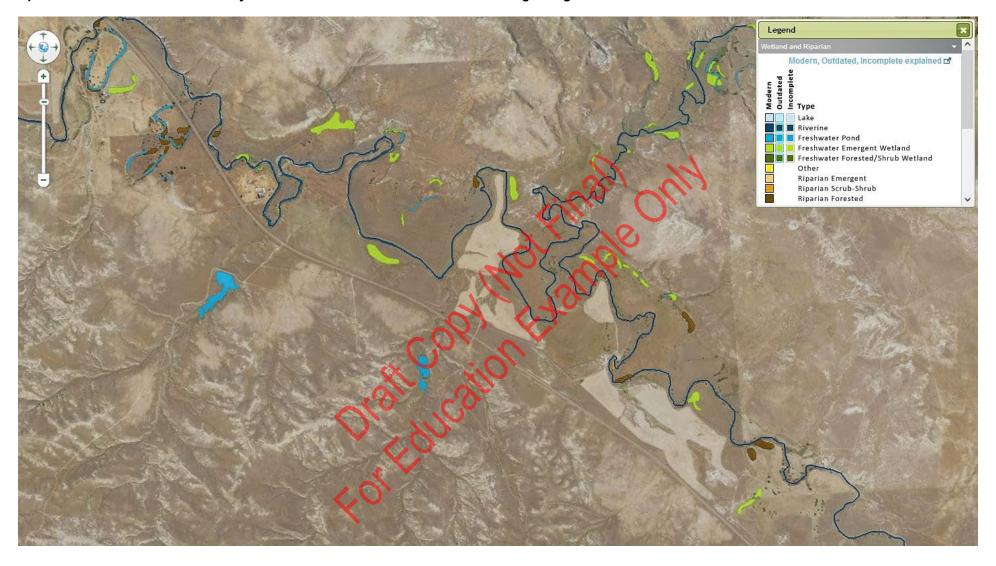
Project/Site: BLM LTPBR workshop/Pumpkin Creek	City/County: Miles City/Custer Sampling Date: 7/10					
Applicant/Owner: Bureau of Land Management		State: MT	Sampling Point:	WL-2		
Investigator(s): A. Chadwick	Section, Township, Range:	Sec. 6, T5 N, R49	E			
Landform (hillside, terrace, etc.): small vegetated drainway	Local relief (concave, convex, no	ne): convex	Slop	oe (%): 2		
Subregion (LRR): LRR G Lat: 46.212570	Long: -105.652	2340	Datum:	NAD 83		
Soil Map Unit Name: Harlake silty clay, 0 to 2 percent slopes, of	occasionally flooded	NWI classific	cation: none			
Are climatic / hydrologic conditions on the site typical for this til	me of year? Yes X No	(If no, expl	ain in Remarks.)			
Are Vegetation, Soil, or Hydrology significal	ntly disturbed? Are "Normal Circums	stances" present?	Yes X No	o		
Are Vegetation, Soil, or Hydrologynaturally	problematic? (If needed, explain a	ny answers in Rem	narks.)			
SUMMARY OF FINDINGS – Attach site map sho	wing sampling point locatio	ns, transects,	important fea	tures, etc.		
Hydrophytic Vegetation Present? Yes X No Hydric Soil Present? Yes X No Wetland Hydrology Present? Yes X No	Is the Sampled Area within a Wetland?	Yes X	No			
Remarks: Small linear PEM wetland in drainage return at base of wetlan	d perched on high terrace. Drains to	WL-1 and Pumpkin	Creek.			
VEGETATION – Use scientific names of plants.	<u> </u>	0.				
Tree Stratum (Plot size:30 ft) % Cov. 1	Num	ninance Test work ober of Dominant S OBL, FACW, or FA	pecies That	3 (A)		
3. 4.	Tota	al Number of Domir		3 (B)		
Sapling/Shrub Stratum (Plot size: 15 ft) 1.		cent of Dominant S OBL, FACW, or FA	•	0.0% (A/B)		
2.		valence Index wor				
3.	<i>F</i> — — —	al % Cover of:	Multiply by			
4.		species 80 W species 20		80 40		
· · · · · · · · · · · · · · · · · · ·		species 0		0		
Herb Stratum (Plot size: 5 ft)		U species 0		0		
1. Eleocharis palustris 60		species 0	x 5 =	0		
2. Schoenoplectus pungens 20		ımn Totals: 100	` ′	120 (B)		
3. Hordeum jubatum 20	Yes FACW Prev	/alence Index = B/	A = 1.20)		
5. 6		rophytic Vegetation 1 - Rapid Test for Home Test 2 - Dominance Test 3 - Prevalence Indet 4 - Morphological A	Hydrophytic Veget st is >50% ex is ≤3.0 ¹			
10.			or on a separate	*		
100	- -	Problematic Hydro		` ' '		
Woody Vine Stratum (Plot size:) 1		cators of hydric so resent, unless dist				
2 % Bare Ground in Herb Stratum0	=Total Cover Veg	rophytic etation sent? Yes _	X No	_		
Remarks: Native wetland emergent vegetation in small return from perch US Army Corps of Engineers	ned wetland		Great Plain	s – Version 2.0		

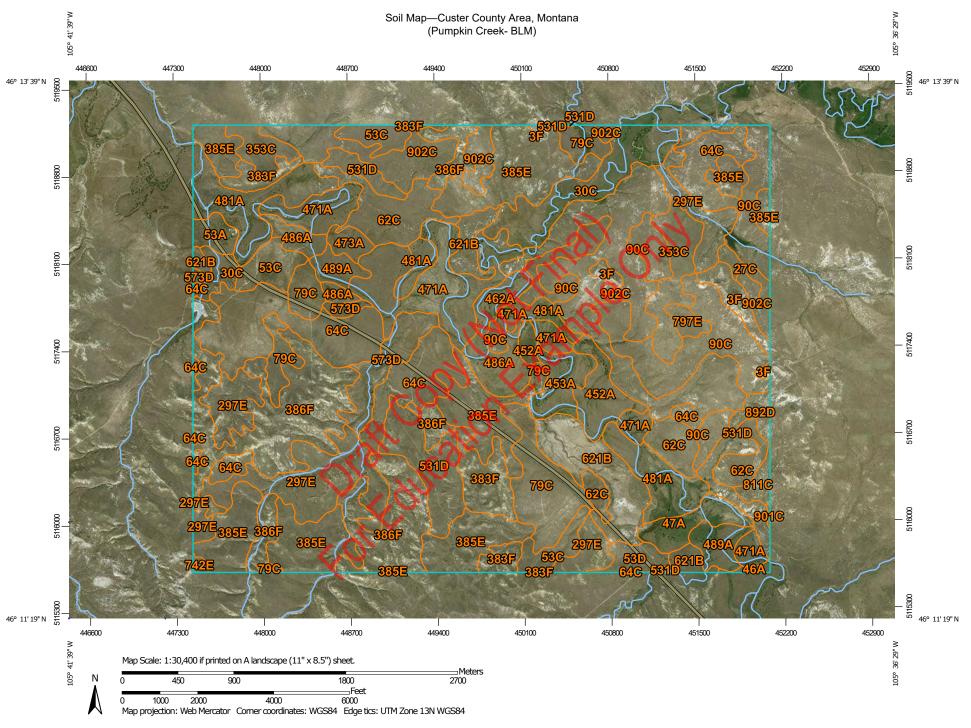
SOIL Sampling Point: WL-2

Profile Desc	ription: (Describ	e to the dept	h needed to do	cument tl	he indica	ator or c	onfirm the absence	of indicators.)
Depth	Matrix		Red	dox Featur	es			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-1	N 2.5/	90					Loamy/Clayey	sa clay
	2.5Y 3/1	10						
1-9	2.5Y 3/1	70	10YR 4/6	5	С	M	Loamy/Clayey	Prominent redox concentrations
	2.5Y 3/2	20	2.5Y 2.5/1	_ <u></u> 5	С	M		
9-15	2.5Y 4/2	60	10YR 4/4	_ 5	<u> </u>	M	Loamy/Clayey	Distinct redox concentrations
9-13			10111 4/4			IVI	Loaniy/Clayey	Distilict redox concentrations
l ———	2.5Y 4/3	35						
¹ Type: C=Co	oncentration, D=De	epletion, RM=	Reduced Matrix	, CS=Cove	ered or C	oated Sa	and Grains. ² Loc	ation: PL=Pore Lining, M=Matrix.
Hydric Soil I	ndicators: (Appli	cable to all L	RRs, unless ot	herwise n	oted.)		Indi	cators for Problematic Hydric Soils ³ :
Histosol	` '			_	-	atrix (S4)		1 cm Muck (A9) (LRR I, J)
Histic Ep	oipedon (A2)			Sandy F	Redox (S	5)		Coast Prairie Redox (A16) (LRR F, G,
Black His	` '			_ ''	l Matrix (,		Dark Surface (S7) (LRR G)
	n Sulfide (A4)			_	-	ineral (F1		High Plains Depressions (F16)
	Layers (A5) (LRR	•			-	latrix (F2)		(LRR H outside of MLRA 72 & 73)
	ck (A9) (LRR F, G			Deplete		` ′ 🦠		Reduced Vertic (F18)
	Below Dark Surfa	ace (A11)	<u> </u>	Redox E		- C A		Red Parent Material (F21)
	rk Surface (A12)			_		urface (F		Very Shallow Dark Surface (F22)
	lucky Mineral (S1) lucky Peat or Pea			_	Depression	ressions		Other (Explain in Remarks) icators of hydrophytic vegetation and
	cky Peat or Peat (. , .	<u> </u>			73 of LR		wetland hydrology must be present,
	cky reacorreat (00) (LIXIX I)		(IVILI	17/20	J OI LIK		unless disturbed or problematic.
Restrictive L	_ayer (if observed	I):				4 4	0 ,	unios distarbed of problematio.
Type:	, (-,-		0	\			
Depth (ir	nches):		_	UK.	•		Hydric Soil Presen	t? Yes X No
Remarks:	<u> </u>			1				
	on throughout pro	file	ck		O,			
	0 1							
			4.O.	C',O				
HYDROLO	GY		1, 11	7				
r	drology Indicators	2.		<u> </u>				
	cators (minimum of		ed: check all the	t annly)			Seconda	ary Indicators (minimum of two required
-	Water (A1)	i one is requir	Salt Cru					ace Soil Cracks (B6)
	ter Table (A2)			Invertebra	tes (B13))		rsely Vegetated Concave Surface (B8)
X Saturation	` '			n Sulfide (nage Patterns (B10)
	arks (B1)			son Water	,	•		lized Rhizospheres on Living Roots (C3
	it Deposits (B2)			l Rhizosph	`	,		vhere tilled)
	oosits (B3)			e not tilled		Ü		/fish Burrows (C8)
· ·	t or Crust (B4)		•	e of Redu	,	(C4)		uration Visible on Aerial Imagery (C9)
	osits (B5)			ck Surface		-		morphic Position (D2)
	on Visible on Aeria	l Imagery (B7	Other (E	xplain in F	Remarks)	1		C-Neutral Test (D5)
Water-St	tained Leaves (B9))					Fros	st-Heave Hummocks (D7) (LRR F)
Field Observ	vations:							
Surface Wate	er Present?	Yes	No X	Depth (i	nches):			
Water Table	Present?	Yes X	No	Depth (i	nches):	0		
Saturation Pr	resent?	Yes X	No	Depth (i	nches):	0	Wetland Hydrolo	gy Present? Yes X No
(includes cap	oillary fringe)							
Describe Red	corded Data (strea	m gauge, mo	nitoring well, aer	rial photos	, previou	s inspect	ions), if available:	
Remarks:					,			
Large PEM v	vetland perched or	n high terrace	seeps through	wetland ve	egetation	down to	WL-1 and Pumpkin (Ck.
US Army Corp	s of Engineers							Great Plains – Version

Orafi Copy (Not Finall Only)
For Education Example NRCS SOIL REPORT AND MTNHP/NWI MAP

Updated National Wetland Inventory wetlands data from Montana Natural Heritage Program





MAP LEGEND MAP INFORMATION The soil surveys that comprise your AOI were mapped at Area of Interest (AOI) Spoil Area 1:24.000. Area of Interest (AOI) â Stony Spot Please rely on the bar scale on each map sheet for map Soils Very Stony Spot measurements. Soil Map Unit Polygons Wet Spot Source of Map: Natural Resources Conservation Service Soil Map Unit Lines Web Soil Survey URL: Other Δ Soil Map Unit Points Coordinate System Web Mercator (EPSG:3857) Special Line Features Maps from the Web Soil Survey are based on the Web Mercator **Special Point Features Water Features** projection, which preserves direction and shape but distorts Blowout \odot distance and area. A projection that preserves area, such as the Streams and Canals \boxtimes Borrow Pit Albers equal-area conic projection, should be used if more Transportation accurate calculations of distance or area are required. * Clay Spot Rails ---This product is generated from the USDA-NRCS certified data as Closed Depression Interstate Highways of the version date(s) listed below. Gravel Pit **US Routes** Soil Survey Area: Custer County Area, Montana **Gravelly Spot** Survey Area Data: Version 20, Jun 4, 2020 Major Roads Landfill Soil map units are labeled (as space allows) for map scales Local Roads 0 1:50.000 or larger. Lava Flow Background , Photogra_h Date(s) aerial images were photographed: Sep 4, 2011—Feb 2, Marsh or swamp 2017 Mine or Quarry The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background Miscellaneous Water imagery displayed on these maps. As a result, some minor Perennial Water shifting of map unit boundaries may be evident. Rock Outcrop Saline Spot Sandy Spot Severely Eroded Spot Sinkhole Slide or Slip Sodic Spot

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3F	Cabbart-Rock outcrop-Yawdim complex, warm, 15 to 70 percent slopes	41.6	1.0%
27C	Busby fine sandy loam, warm, 2 to 8 percent slopes	15.1	0.4%
30C	Yamacall-Havre, occasionally flooded, loams, 0 to 8 percent slopes	130.4	3.1%
46A	Hanly loamy fine sand, 0 to 2 percent slopes, rarely flooded	4.4	0.1%
47A	Harlake silty clay, 0 to 2 percent slopes, rarely flooded	45.0	1.1%
53A	Kobase silty clay loam, 0 to 2 percent slopes	21.7	0.5%
53C	Kobase silty clay loam, warm, 2 to 8 percent slopes	88.7	2.1%
53D	Kobase silty clay loam, 8 to 15 percent slopes	25.0	0.6%
62C	Marvan silty clay, warm, 2 to 8 percent slopes	150.9	3.6%
64C	Pinehill loam, 2 to 8 percent slopes	311.3	7.5%
79C	Yamacall loam, warm, 2 to 8 percent slopes	176.9	4.3%
90C	Sonnett loam, 2 to 8 percent slopes	289.3	7.0%
297E	Cambeth-Cabbart-Yawdim complex, 15 to 25 percent slopes	262.7	6.3%
353C	Chinook-Kremlin complex, 2 to 6 percent slopes	100.2	2.4%
383F	Delpoint-Cabbart-Yawdim complex, 25 to 70 percent slopes	92.1	2.2%
385E	Delpoint-Yamacall-Cabbart loams, 8 to 25 percent slopes	446.3	10.8%
386F	Cabbart-Rock outcrop-Delpoint complex, 15 to 50 percent slopes	390.3	9.4%
452A	Glendive loam, 0 to 2 percent slopes, rarely flooded	62.9	1.5%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
453A	Glendive-Havre complex, 0 to 2 percent slopes, occasionally flooded	47.3	1.1%
462A	Hanly-Glendive complex, 0 to 2 percent slopes, nonflooded	26.9	0.7%
471A	Harlake silty clay, 0 to 2 percent slopes, occasionally flooded	251.2	6.1%
473A	Lallie silty clay, 0 to 2 percent slopes	17.6	0.4%
481A	Havre loam, 0 to 2 percent slopes, occasionally flooded	194.7	4.7%
486A	Glendive-Havre complex, 0 to 2 percent slopes, nonflooded	79.4	1.9%
489A	Spinekop silty clay loam, 0 to 2 percent slopes	53.5	1.3%
531D	Kobase silty clay loam, 2 to 15 percent slopes, gullied	154.1	3.7%
573D	Lonna, Cambeth, and Yamacall soils, gullied, 8 to 15 percent slopes	70.0	1.7%
621B	Marvan-Vanda silty clays, 0 to 4 percent slopes	148.2	3.6%
742E	Neldore-Abor silty clays, 4 to 25 percent slopes	3.3	0.1%
797E	Yamacall-Busby-Blacksheep complex, 8 to 25 percent slopes	14.3	0.3%
811C	Creed-Pinehill loams, 2 to 8 percent slopes	15.2	0.4%
892D	Yamacall-Delpoint-Cabbart loams, 4 to 15 percent slopes	13.4	0.3%
901C	Sonnett-Sonnett, thin surface, complex, 2 to 8 percent slopes	1.0	0.0%
902C	Sonnett, thin surface- Slickspots complex, 0 to 8 percent slopes	394.4	9.5%
Totals for Area of Interest		4,139.5	100.0%