



2026 On-the-Ground Project Application Form

General Information

Project Name

Applicant Name

Is your organization registered with the Montana Secretary of State?

Explanation: Each applicant must be registered with the Montana Secretary of State to do business in the state of Montana. Registration with the Secretary of State may be completed via the following website: <https://sosmt.gov/business/>

Is your organization registered with the federal System for Award Management (SAM)?

Explanation: Each applicant is required to register with SAM. To register or check your organization’s status, go to <https://sam.gov/content/home>. If you get an “Unsupported Browser” error, copy, and paste the link into a Google Chrome browser window.

Primary Contact Title

Address City State Zip Code

Phone Number Email

Signature Digitally signed by Jared Trilling
Date: 2026.03.06 16:12:39 -07'00'

Explanation: This is the person who DEQ would routinely contact to discuss project progress, billing, etc.

Signatory Title

Address City State Zip Code

Phone Number Email

Signature

Explanation: This is the person who can legally sign contracts and other binding documents on behalf of the applicant (e.g., a board chair)

Note: The primary contact, signatory and landowner must sign the application. Signatures must be either signed electronically, or wet-signed, scanned and sent electronically.

Landowner Name

Landowner Signature Digitally signed by David Zeff
DN: cn=David Zeff, o=Montana
Real Estate Partners, ou,
email=david@repartners.com, c=US
Date: 2026.03.09 15:05:01
+0000

Landowner Name

Landowner Signature

Landowner Name

Landowner Signature

Explanation: Landowner signatures are required. **Signing the application does not obligate the landowner to implement a project.** Instead, it is an indication that the landowner has read the application and agrees, in principle, with the project concept and goals.

Your organization's Unique Entity Identifier number (UEI #)

C954WMZMC4M7

Explanation: Each applicant is required to have a current UEI number. The UEI number replaces the old DUNS number. If your organization had a DUNS number, you should have received a notification from the federal government indicating that your DUNS number has been changed to a UEI number. If you did not receive this notification, or if you never had a DUNS number, you will need to go to the federal government's System for Award Management (SAM - <https://sam.gov/content/home>) to obtain your UEI number. DEQ recommends starting this process early as it is very time-consuming, requires providing documentation-sometimes with follow-up requests for additional information, and can take up to 2 months to complete. If you need assistance, you may contact the federal help desk at 866-606-8220 Monday-Friday 8:00 a.m. through 8:00 p.m. EST.

Does your organization have adequate liability insurance for the risks associated with your project?

Y

Explanation: Each applicant must have or obtain liability insurance coverage meeting the requirements stated in the Draft Sample Contract and/or requirements negotiated based on the appropriate level of risk associated with the project.

Describe the technical and administrative skills your organization will use to effectively and efficiently complete your proposed project(s).

Technical and administrative support for this project will be provided by the Gallatin Watershed Council (GWC) and Confluence Consulting (Confluence). GWC Project Manager Jared Trilling holds a Master's degree in Restoration Ecology and will serve as the overall project manager and assist with volunteer engagement and grant administration. GWC Executive Director, Holly Hill has over 15 years of experience in nonprofit administration and will provide grant administration. Lilly Deford received her Master's degree in water resource engineering and will provide technical support and partner collaboration. GWC Community Engagement Manager, Sarah Washko, received her Master's in Civil Engineering and will manage volunteer contributions to the project.

Confluence specializes in restoring streams and rivers through process-based design techniques. Additionally, Confluence has in-depth expertise in wetland restoration, including feasibility assessments, delineations, permitting, and monitoring. Confluence has already completed the designs for this project under a previous contract (223006). Confluence will provide construction engineering services, including bid document preparation, contractor procurement, and construction oversight.

Budget Form

Please fill out the On-the-Ground Project Budget Template (Excel file). Cells highlighted in yellow may be edited to fit the needs of your particular project. DEQ uses a template to construct nonpoint source grant contracts. The Budget Template contains tasks and typical deliverables that match up with the grant contract template. Please see the Example Contract and Scope of Work Template for a more detailed look at typical task requirements and deliverables.

Project Form

A separate Project Form (including providing separate attachments) must be submitted for each project included in your application. Use the following examples to help determine when to lump and when to split projects.

Splitting Examples (fill out multiple Project Forms)

- Stream restoration work occurring on two separate streams..
- Two projects with significantly different sets of project partners.
- Two projects that address substantially different pollution sources (e.g., one project move a corral off of a streambank, and another removes mine tailings, with both projects being on the same property).

Lumping Examples

- Contiguous stream restoration work spanning multiple land parcels.
- Three projects that address similar sources of pollution on a single land parcel (e.g., moving a corral off a stream, implementing a grazing management plan, and relocating a manure storage facility out of the floodplain, all on the same ranch)

Project Form

A separate Project Form (including providing separate attachments) must be submitted for each project included in your application

Project Name:

Upper East Gallatin Floodplain and Wetland Restoration – Implementation

Required Attachments in Addition to This Form

- Letter of support from the organization that created or sponsored the creation of the DEQ-accepted Watershed Restoration Plan or the Tribe that created the EPA-approved Tribal Nonpoint Source Management Plan (if applicable).
- Letter of support from EACH landowner associated with the proposed project area (if applicable).
- Budget Table (see Microsoft Excel Template).
- Detailed Project site map(s)** Attach a map or set of maps showing the location and size of proposed activity if a site has been predetermined. The map scale must be between 1:1,000 and 1:12,500. The map(s) must have an aerial photo background (e.g., USDA NAIP photography, Google Earth imagery, etc.). The map(s) must show the latitude, longitude, site name, and landowner for the activity site. The map(s) should also identify waterbodies affected by the pollution that the activity is designed to address. *(This is in addition to adding points of the project location to the website on page 4).*

Optional Attachments

Attach additional items and information that could help reviewers better understand your project. Information could describe public health risks, opportunities to leverage other funding sources, etc. However, application reviewers may have limited time available, and excessively long, optional attachments might not get reviewed. Do not attach copies of TMDL documents, TMDL implementation evaluations, Watershed Restoration Plans, Tribal Nonpoint Source Plans, or large comprehensive studies. The following attachments may be included. Please no more than 20 pages.

- Project Design Plans/Drawings
- Preliminary Engineering Reports / Site Evaluations
- Landowner Agreements / Construction Permits / Floodplain Permits
- Site photos
- Additional Letters of Support

Other:

Other:

Other:

Project Area

Please provide as detailed a description of the project area as possible.

List the counties in which the project will be located.

Gallatin

List the 12-digit Hydrologic Unit Codes (HUCs), sometimes referred to as Sixth Code HUCS, in which the project will take place. Use the following link to help assist you in determining the HUCs: <https://apps.nationalmap.gov/viewer/>

100200080905

Project Location Map

In addition to providing your own project site map, please go to the following website and follow the instructions to add your project location to the map.

<https://gis.mtdeq.us/portal/apps/storymaps/stories/42f4a668285c4ef6aa94b1623f10df57>

Connection to a Previous or Ongoing Project

Is this project tied to a previous or ongoing project? If so, please describe the connection.

This project has received two previous DEQ 319 grants. Phase 1, grant 223006, "Upper East Gallatin Restoration Permitting and Design" (\$36,500 in DEQ funding), supported the development of engineering designs and permits for this project. This contract is completed and closed out. It is important to note that the landowner, David Zeff, contributed \$19,220.74 in cash match for this phase of the project. Without his contributions, the designs would not have been completed, and it would not have been possible to move to the implementation phase.

Phase 2, DEQ grant 223039, "Upper East Gallatin Floodplain and Wetland Restoration Project," is currently active and has been allocated \$268,950 to implement the designs developed in phase 1. Construction was originally scheduled for fall 2024. However, Mr. Zeff initially agreed to contribute approximately 40% of the project costs, but his financial situation has changed, and he is now unable to provide those funds. However, he remains enthusiastic about implementing this project on his property.

After exploring numerous alternative funding sources and consulting with DEQ, all parties agree that applying for additional DEQ 319 funding to fill the funding gap is the best way forward. We believe this project is worth the additional expense because of the work already completed and its connection to other projects. This project is linked to a restoration project completed in 2018 at the Gallatin Valley Botanical property just upstream. That project converted a field used for visitor parking into a series of wetlands and a beaver dam complex, and built a ford in the road between the properties to allow high flows to spill over onto Mr. Zeff's land. The current project would capture those flows and pass them through the wetland cells. Downstream on Montana State University property, another potential future restoration project aims to reactivate a relict channel and create more wetlands. Collectively, these three projects span over 1.3 miles along the East Gallatin. Lastly, significant work, including completed designs and permits, procurement of root wads and footer logs (valued at over \$14,000), has already been done, making this project ready for implementation.

Project Purpose

Select the watershed restoration plan or tribal nonpoint source plan that your project will help implement (please type in if missing from list) (Not required for HAB reduction projects)

Lower Gallatin - Greater Gallatin Watershed Council

Letter of support from author, or if the author was contracted, the author sponsor, attached? (If no, explain why below.)

GWC is the author of the Lower Gallatin Watershed Restoration Plan and this application has the full support of our staff and Board of Directors.

IMPAIRMENT LISTINGS: Projects that address water quality impairments on Montana’s 2020 List of Impaired Waters are preferred though not a requirement. Funding may be used for projects that protect waterbodies that are demonstrated to be healthy.

Waterbody name from the 2020 List of Impaired Waters

East Gallatin River, confluence of Rocky and Bear Creeks to MT HWY No. 411

Probable causes of impairment to be addressed

Total Nitrogen, Total Phosphorus

Waterbody name from the 2020 List of Impaired Waters

Probable causes of impairment to be addressed

HEALTHY WATERSHEDS: While project funding is prioritized to addressing known impairments, funding can be used to protect healthy waters from becoming impaired.

Name of healthy waterbody to be protected

Description of identified threat

Name of healthy waterbody to be protected

Description of identified threat

Project Partners

Identify each of the project partners and describe their contribution to the project. Include landowners, land managers, project designers, funders, and your own organization. Indicate whether each partner, other than your organization, has provided a letter of support. *(Note: each landowner must provide a letter of support if project site(s) have been predetermined.)*

Landowner	Contributions to Project	Letter of Support Attached?
David Zeff	David has contributed \$19,220.74 in cash for the designs for this project under phase 1.	<input checked="" type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>

Project Partner	Contributions to Project	Letter of Support Attached?
Gallatin Watershed Council	Project sponsor, partner coordination, community outreach, develop and administer 319 grant.	<input type="checkbox"/>
Confluence Consulting Inc	Obtain permits, provide construction contractor selection bid support, construction oversight, construction closeout.	<input type="checkbox"/>
Sacajawea Audubon Society	Avian point count monitoring, community outreach	<input checked="" type="checkbox"/>
Trout Unlimited	General project support and guidance	<input checked="" type="checkbox"/>
City of Bozeman	General project support and guidance	<input checked="" type="checkbox"/>

Project Coordination and Planning Task

This task would include completion of all applicable planning tasks from the list below, as well as coordination and oversight of the efforts of all project partners.

Identify the status of the following project planning tasks, where applicable.

	Completed?	Copy Attached?	To Be Completed Pre-Contract (Oct 2026)?	To Be Completed as Contract Deliverable?
*Draft Project Designs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*Final Project Designs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Consultation With Potential Regulators	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Necessary Permits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Cultural Resources Inventory <i>(if relevant)</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

****See Call for Applications Section 5.1 for minimum design standards.**

Describe any additional project planning that will have been completed prior to execution of a contract (October 2026).

Final engineering designs and permits were prepared under phase one of the project (contract 223006). Permits have been prepared but have not been submitted due to the delay in the project.

Describe any additional project planning and coordination that will need to be completed after the execution of a contract (October 2026).

Minor adjustments to the Section 404 Nationwide Permit 27 may be needed due to revisions to the permit requirements that will take effect in March 2026. Permits will then be submitted, and any questions or project changes requested by the permitting agencies will be addressed. Additionally, construction bid documents will need to be prepared, and the construction contractor will subsequently be selected and contracted through a competitive process.

Landowner Agreement Task

DEQ includes the following language in every nonpoint source contract involving on-the-ground activities:

Contractor shall submit signed landowner agreement(s) verifying that Contractor and DEQ staff may access the project site, at reasonable times and with prior notification, for the purposes of project planning, implementation, and post-implementation monitoring. The agreement(s) must ensure appropriate operation and maintenance of all structures, vegetation, and management measures for the life of the project (typically 10 years). If grazing will be allowed within the project area, the agreement(s) must include a sustainable management plan for livestock grazing, designed to protect and enhance riparian function. If a signed landowner agreement does not meet the above-stated minimum requirements, Contractor shall negotiate an amended agreement with the landowner that ensures appropriate operation and maintenance of all structures, vegetation, management measures, and includes a sustainable management plan for any livestock grazing for the life of the project (typically 10 years).

Identify the status of the following landowner agreement tasks, where applicable.

	Completed?	Copy Attached?	To Be Completed Pre-Contract (Oct 2026)?	To Be Completed as Contract Deliverable?
Draft Landowner Agreement(s)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Final Landowner Agreement(s)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grazing Management Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Project Effectiveness Monitoring Task

If you will be conducting any on-the-ground implementation work, you will be required to complete the monitoring activities described in the task language below, as applicable. Describe below how you plan to determine the effectiveness of your project. Project effectiveness success criteria should be time-bound and assess each project objective quantitatively. Success criteria should clearly define adaptive management thresholds. Examples may include: a minimum 25% decrease in sediment/nitrogen/phosphorus load within 2 years; a 70% survival rate of containerized plantings after one year.

If you are applying for nonpoint source grant funding for project design only, and not for project implementation, you may either skip this task, or describe below which parts of this task you intend to complete:

Project effectiveness monitoring criteria has been approved under phase 2 of this project and outlined in Attachment A of contract 223039. No additional funds are requested for this task in this funding request. However a description of the approved monitoring is provided below.

Example Task Language

Contractor shall, in consultation with the DEQ Project Manager, develop a reasonable method or set of methods for evaluating and reporting on the effectiveness of the project in addressing water quality issues. Contractor shall complete a monitoring plan to guide monitoring activities. Contractor shall complete the following monitoring activities:

- *Estimate the sediment load reductions (tons/year) achieved through implementation of the proposed restoration activities and management practices.*
- *Estimate the nitrogen load reductions (pounds/year) achieved through implementation of the proposed restoration activities and management practices.*
- *Estimate the phosphorus load reductions (pounds/year) achieved through implementation of the proposed restoration activities and management practices.*
- *For projects designed to address pollution from pollutants other than nitrogen, phosphorus and sediment, evaluate and report on the effectiveness of the project in addressing water quality issues.*
- *Contractor shall collect data, as directed by the DEQ Project Manager, to be used in estimating sediment, nitrogen, and phosphorus load reductions (and for harmful algal bloom reduction projects, carbon sequestration/emissions reductions) achieved through implementation of restoration activities and management practices designed to address these pollutants.*
- *Use the following measures to evaluate the sustainability of restoration activities and management practices:*
 - *[Vegetation mortality rate.]*
 - *Pre- and post-construction photo point monitoring consistent with the “Oregon Watershed Enhancement Board Guide to Photo Monitoring” methodologies, or a similar published photo point monitoring method accepted by DEQ. The U.S. Forest Service provides additional photo point monitoring guidance in the “United States Forest Service Photo Point Monitoring Handbook”.*
 - *[Riparian survey.]*
 - *[Other.]*

Please describe any additional monitoring you intend to do as part of the project.

- Estimate the vegetation mortality rate.
- Post-construction photo point monitoring consistent with the “Oregon Watershed Enhancement Board Guide to Photo Monitoring” methodologies, or a similar published photo point monitoring method accepted by DEQ. The U.S. Forest Service provides additional photo point monitoring guidance in the “United States Forest Service Photo Point Monitoring Handbook.”
- Post-construction avian point count with the Indreland Audubon Wetland Preserve Busy Beavers.
- Coordinate land access and laboratory analysis for sampling under the DEQ Wetland Effectiveness SAP. This effort was allocated \$20,000 in contract 223039, however, DEQ has indicated they will now pay for this task with other funds.
- In consultation with the DEQ Project Manager, estimate the nitrogen load reductions (pounds/year) achieved through implementation of the proposed restoration activities and management practices.
- In consultation with the DEQ Project Manager, estimate the phosphorus load reductions (pounds/year) achieved through implementation of the proposed restoration activities and management practices.
- Use the following measures to estimate or document the success of outreach and education efforts:
 - The number of volunteer participants in construction/installation event(s).
 - The number of times the project is featured in combined media outreach.
 - Public engagement with web content (i.e. number of clicks, page views).
 - The number of attendees on site tours and field trips.

Project Implementation Task

Provide a **detailed description of the solution you are proposing** to implement to address a nonpoint source pollution problem.

- Describe the practices you intend to design and/or implement to solve the problem (what, where, when, how much or how many).
- Describe the anticipated maintenance needs (what, where, who, how long).
- Refer to the minimum design standards in the Call for Applications.
 - *Please fill out this section to the best of your ability, even if you are only seeking funding for project design.*

Project implementation criteria has been approved under phase 2 of this project and outlined in Attachment A of contract 223039 and the final designs. All of the additional funding requested in this application is allocated to this task. The project scope has not been substantially altered from its original design. GWC considered removing the bank stabilization component, but ultimately decided against it because it helps protect the other project components from being undermined by the East Gallatin migrating into them, and because we have already secured the rootwads and footer logs for the bank. GWC did, however, decrease revegetation costs by reducing the number of containerized plants and increasing the quantity of willow stakes, which volunteers will harvest and plant. Should DEQ want to reduce the scope of this project, GWC and the Landowner would be happy to discuss alternatives. Additionally, GWC considered the following grants to fill the funding gap: FWP Future Fisheries, Gallatin County Open Space, and FWP Migratory Bird Wetland Program. However, none of these were viable due to the lack of public access to the site.

A summary of the implementation description is provided below.

The project aims to build off-channel wetlands and stabilize a 200-foot eroding bank. The wetland will utilize existing channel scars in the floodplain to create natural oxbow-like features. Ground elevation will be re-contoured to develop a diverse emergent wetland ecosystem with varied plant communities, habitat structures, and hydrology. Water from the East Gallatin will flow through a headgate at the original diversion point, linked to two existing water rights. The eroding bank will have a wood and cobble toe treatment with a 10-foot bankfull-bench, ascending to the existing ground elevation. This will be revegetated with native grasses and willows from on-site. Confluence Consulting will oversee construction, surveys, and develop weed and grazing plans. GWC will coordinate partners, ensure grant compliance, manage volunteers, and conduct outreach. GWC will deploy volunteers to assist in cutting and planting willows, planting trees, and installing browse protection. GWC will continue to work with the Sacajawea Audubon Society to conduct bird counts.

Design features align with landowner goals, site conditions, and ecological benefits. Mr. Zeff aims to enhance migratory bird habitat and trout fisheries while maintaining grazing and hay production. The design maximizes agricultural land, wetlands, and riparian buffers, with a headgate to control water flow, supporting livestock forage, property water rights, and water treatment. Features are placed to leverage existing conditions, including upstream restoration and water inputs from the shared driveway ford. Lidar and aerial imagery informed the design, which was adjusted based on groundwater monitoring.

The restoration will boost habitat diversity. Currently, the western upland is degraded and weed-filled, while the eastern half is mostly reed canary grass. The design creates a mosaic of wetlands with native sedges, rushes, and willow clusters for structural diversity. It promotes water treatment, flood capacity, and natural storage, returning cooler flows to the East Gallatin. Primarily supported by natural hydrology, the headgate allows for supplemental water during summer. The project aims to restore some natural flow capacity, reducing TN, TP, and sediment loads and addressing upstream restrictions.

Maintenance includes a weed and grazing plan, with ongoing efforts to protect vegetation and combat weeds. GWC and volunteers will assist with general maintenance, including maintaining browse protection and light weed control. Thereafter, Mr. Zeff's property manager will oversee weed and grazing management tasks.

Education, Outreach and Training Task

To get good projects on the ground, trained staff and board members and educated, enthusiastic landowners are required. To promote the development of future projects, DEQ encourages project sponsors to use up to \$5,000 per project of funding to support training and conduct education and outreach. Example training topics might include: project management, public procurement, technical writing, GIS, water quality monitoring, web design, public speaking, human resource management, photo journalism, UAV (drone) piloting, financial management, and restoration techniques. Education and outreach activities might include targeted landowner outreach, conducting project site tours for local landowners, tabling at community events, holding a watershed festival, providing stipends and travel reimbursements for speakers and participants to attend a nonpoint source pollution prevention workshop, or generating articles for social media. The primary requirement for training and outreach is clearly explaining how the activity generates behavior change to address nonpoint source pollution. Funding may not be used to pay for food and beverages, or for honorariums and gifts.

Describe the education and outreach activities or training you will complete to promote behaviors or facilitate future efforts to reduce nonpoint source pollution. Additionally, identify the goals of the training/education and outreach activities.

Project education, outreach and training criteria has been approved under phase 2 of this project and outlined in Attachment A of contract 223039. No additional funds are requested for this task in this funding request. However a summary of these approved tasks are provided below.

- Feature project in GWC's newsletter, press releases, and social media posts.
- Site tours and field trips.
- Direct outreach such as phone calls, coffee meetings, interviews and presentations at City and County Commission meetings.

Identify the specific target audience and method of delivery. Additionally, describe how the proposed training and/or education and outreach will increase local capacity and interest for addressing/promoting behavior change to reduce nonpoint source pollution.

- Feature project in GWC's newsletter, press releases, and social media posts.
The target audience includes the general public, GWC contact list, and GWC social media followers. This activity aims to raise awareness of impairments in the East Gallatin River, highlight floodplain and wetland ecosystem services, and share best practices for restoring and protecting river systems. It also encourages landowner stewardship and future projects..
- Site tours and field trips.
This activity targets landowners along the East Gallatin River, MSU students/science departments, and the general public. It aims to promote landowner stewardship, inspire students to include water resource management in their careers, and showcase the advantages of natural flood and pollution control in a developing watershed.
- Direct outreach such as phone calls, coffee meetings, interviews and presentations at City and County Commission meetings.
The target audience for this activity is the City of Bozeman and Gallatin County staff and public officials. It will demonstrate to City and County staff and public officials the benefits of natural flood and pollution attenuation in a rapidly developing watershed.

Describe how you will evaluate the effectiveness of the proposed activities.

Effectiveness will be evaluated based on the number of times the project is used in combined media outreach, public engagement with content (i.e.number of clicks, page views on virtual content), the number of site tours and field trips, number of attendees, and Number of public officials engaged.

Project Administration Task

Please use the task description below as a guide when calculating your budget for project administration. DEQ typically includes these requirements in every nonpoint source grant contract, with only minor variation. Funding applied to the Project Administration Task on each project must not exceed 10% of the total amount of funding requested, or \$12,000, whichever is lower.

Example Task Language

Contractor shall oversee and be accountable for the completion of all tasks. Contractor shall maintain regular contact with the DEQ project manager. Contractor shall prepare and submit Status Reports, Final Reports and Attachment B Billing Statements according to the format and schedule described below.

Report Format

- *Contractor shall submit each Attachment B Billing Statement, Status Report and Final Report using the most current reporting guidance and templates provided by the DEQ project manager.*
- *Contractor shall ensure each Status Report and Final Report contains adequate documentation to justify accompanying reimbursement requests and match reporting, to the satisfaction of the DEQ project manager.*
- *Contractor shall ensure that the Final Report is a standalone document describing all contract activities and containing copies of all contract deliverables (even if the deliverables were previously submitted).*

Reporting Schedule

- *Status Reports: Due June 15th and December 15th of each year the Contract is in effect, and each time an Attachment B Billing Statement is submitted.*
- *Draft Final Report: Contractor shall submit a complete draft Final Report for DEQ review and comment at least 15 days prior to the contract expiration date.*
- *Final Report: Contractor shall submit a Final Report, addressing DEQ comments on the draft Final Report, on or before the Contract expiration date.*
- *Attachment B Billing Statements: Contractor shall submit an Attachment B Billing Statement with each Status Report, or Final Report submitted to DEQ while the Contract is in effect. To maintain cash flow, Contractor may submit interim Attachment B Billing Statements as frequently as monthly during the term of the Contract. However, each interim Attachment B Billing Statement must be accompanied by an Interim Report.*

Project Timeline

	4Q 2026	1Q 2027	2Q 2027	3Q 2027	4Q 2027	1Q 2028	2Q 2028	3Q 2028	4Q 2028	1Q 2029	2Q 2029	3Q 2029
Project Coordination and Planning Task	✓	✓										
Landowner Agreement Task												
Project Effectiveness Monitoring Task	✓		✓	✓								
Project Implementation Task		✓	✓									
Education, Outreach and Training Task				✓	✓							
Project Administration Task	✓	✓	✓	✓	✓							

Co-Benefit Considerations

DEQ is committed to carrying out nonpoint source pollution reduction projects within engaged communities where the impact stretches beyond improving water quality. DEQ will award additional points in the scoring form where co-benefits extend beyond the project. Below are a few examples of how projects might exemplify co-benefits.

- Project will reduce economic hardship such as from livestock mortalities, cost and energy needs to treat municipal drinking and wastewater treatment, or loss of income from recreation
- Project will benefit underserved markets
- Project will improve or create equitable access to a clean and healthy environment
- Project planning included consultation with Tribal Nations
- Project will improve flood and drought resilience of the landscape
- Project impacts will benefit a downstream community and other natural systems (e.g., drinking water sources, human health, wildlife habitat, etc)




Please use this section to highlight co-benefits your project may have.

This project significantly improves local flood and drought resilience. By capturing high flows from the East Gallatin, it reduces flooding by directing water through newly created wetland cells, encouraging natural storage and flood capacity. The restored wetland complex will naturally treat water, reducing nitrogen, phosphorus, and sediment loads while returning cooler flows to the East Gallatin River, greatly benefiting downstream users. Transforming degraded uplands into native wetlands will also create crucial ecosystem services, enhancing migratory bird and trout habitats.

Furthermore, the project strongly emphasizes community engagement. Volunteers will gain hands-on experience planting willows and trees, while the Sacajawea Audubon Society conducts avian monitoring. The site will act as an educational resource through field trips designed to inspire university students, promote landowner stewardship, and demonstrate the value of natural flood attenuation to local officials managing a rapidly developing watershed.

Audit trail

Details	
FILE NAME	2026 UEG DEQ 319 Aplication Signed - 3/10/26, 11:05 AM.pdf
STATUS	● Signed
STATUS TIMESTAMP	2026/03/10 17:07:30 UTC

Activity		
 SENT	jared@ gallatinwatershedcouncil.org sent a signature request to: <ul style="list-style-type: none">Holly Hill (holly@gallatinwatershedcouncil.org)	2026/03/10 17:06:10 UTC
 SIGNED	Signed by Holly Hill (holly@gallatinwatershedcouncil.org)	2026/03/10 17:07:30 UTC
 COMPLETED	This document has been signed by all signers and is complete	2026/03/10 17:07:30 UTC

The email address indicated above for each signer may be associated with a Google account, and may either be the primary email address or secondary email address associated with that account.

BUDGET

2026 Nonpoint Source Pollution Reduction Application - On-the-Ground Project Budget Template

Project Title	Tasks and Potential Deliverables	Funding Request*	Non-Federal Match**	Other Funding***	Match Source	Match Secured? (Y/N)	Total Project Cost	Additional Information****
This task includes completion of all planning tasks and coordination and oversight of the efforts of all project partners. Provide a detailed budget and add a row if needed.	Project Planning							
	Preliminary site investigation data and site maps	\$ -					\$ -	
	Required Permits	\$ -					\$ -	
	Draft Project Designs	\$ -					\$ -	
	Final Project Designs	\$ -					\$ -	
	Funding allocated under contract 223039			\$ 12,900.00			\$ 12,900.00	The task is allocated \$21,800 under 223039, but because the permit documents and bank stabilization designs were completed ahead of schedule under Phase 1 (Contract 223006), fewer funds are now needed for this task.
Total	\$ -	\$ -	\$ 12,900.00			\$ 12,900.00		
This task includes costs for developing and managing landowner agreements and developing grazing management plans as applicable. Provide a detailed budget and add a row if needed.	Landowner Agreements							
	Draft Landowner Agreement	\$ -					\$ -	
	Final Landowner Agreement	\$ -					\$ -	
	Grazing Management Plan	\$ -					\$ 1,100.00	Task is completed under contract 223039.
	Funding allocated under contract 223039			\$ 1,100.00			\$ 1,100.00	
	Total	\$ -	\$ -	\$ 1,100.00			\$ 1,100.00	
This task includes costs for developing and implementing a monitoring plan to evaluate effectiveness to reduce nonpoint source pollution. See example contract template or application instructions for required monitoring activities. Provide a detailed budget and add a row if needed.	Effectiveness Monitoring							
	Draft Monitoring Plan	\$ -					\$ -	
	Final Monitoring Plan	\$ -					\$ -	
	Written Summary of all Monitoring Activities	\$ -					\$ -	
	Funding allocated under contract 223039			\$ 4,936.00			\$ 4,936.00	This task is allocated \$28,550 under contract 223039. This included \$20,000 for laboratory analysis, which DEQ has indicated will now be paid for by other DEQ funds. This task also included a post-construction wetland delineation, which is no longer required under the updated Nationwide Permit 27.
	Total	\$ -	\$ -	\$ 4,936.00			\$ 4,936.00	
This task includes all costs for implementation of the plans developed in the Project Planning task. If you are requesting funding for design only, leave this task blank. Provide a detailed budget and add a row if needed.	Project Implementation							
	Materials	\$ 18,000.00	\$ 1,320.00		GWC unrestricted funds	Y	\$ 19,320.00	Coir fabric, siltbarr, headgate, sloop step wood, plant materials
	Labor	\$ 40,500.00	\$ 7,100.00		GWC unrestricted funds	Y	\$ 47,600.00	Equipment operators
	Equipment costs	\$ 50,000.00	\$ 4,000.00		GWC unrestricted funds	Y	\$ 54,000.00	Heavy equipment operation - fuel, rental costs, transportation
	Construction oversight	\$ 1,700.00					\$ 1,700.00	Confluence personnel
	As-built surveys	\$ 1,500.00					\$ 1,500.00	Confluence personnel
	Funding allocated under contract 223039			\$ 208,213.00			\$ 208,213.00	This task is allocated \$201,550 under contract 223039. Pending DEQ approval, \$6,663 in savings from Tasks 1 and 3 will be redirected into the implementation task.
							\$ -	
							\$ -	
							\$ -	
	Total	\$ 111,700.00	\$ 12,420.00	\$ 208,213.00			\$ 332,413.00	
This task includes costs to develop and improve organizational capacity and to incorporate education and outreach into each on-the-ground projects. Provide a detailed budget and add a row if needed.	Education and Outreach							
	Volunteer Coordination	\$ -					\$ -	
	Event/Tour Planning	\$ -					\$ -	
	Outreach/Publication materials	\$ -					\$ -	
	Funding allocated under contract 223039			\$ 4,450.00			\$ 4,450.00	Funding unchanged from contract 223039.
	Total	\$ -	\$ -	\$ 4,450.00			\$ 4,450.00	
Funding applied to Project Administration task must not exceed 10% of the total amount of funding requested per project, or \$12,000, whichever is lower. Project admin includes normal business expenses and reporting requirements.	Administration							
	Mid/Annual/Interim Reports and Billing Statements	\$ -					\$ -	
	Draft/Final Report and Billing Statement	\$ -					\$ -	
	Communication with DEQ	\$ -					\$ -	
	Funding allocated under contract 223039			\$ 12,000.00			\$ 12,000.00	Funding unchanged from contract 223039.
	Total	\$ -	\$ -	\$ 12,000.00			\$ 12,000.00	
Grand Totals		\$ 111,700.00	\$ 12,420.00	\$ 243,599.00			\$ 367,799.00	Other Funding Notes: Total 319 funds allocated under contract 223039 is \$268,950. However, because of cost savings in Tasks 1 and 3, the total project cost is now lower. After discussions with DEQ staff, we decided to maintain the 319 contribution at 60% of the updated total project cost, and adjust the contracted award accordingly.

*Funding Request - Must not exceed \$300,000 and must be at least \$125,000 for harmful algal bloom reduction projects

**Non-Federal Match - Can include in-kind materials.

***Other Funding - Include federal match here, or, for example, other funding that is supporting the project but cannot be reported as match on this grant because it is matching another funding source.

****Additional Information - Use to specify non-federal match and other funding sources, or use to justify cost if needed (e.g., hourly rates, rental costs, etc.)

**LETTERS
OF
SUPPORT**

Watershed Protection Section

Montana Department of Environmental Quality
1520 E. Sixth Avenue
Helena, MT 59620

January 22, 2026

Dear DEQ 319 Review Committee,

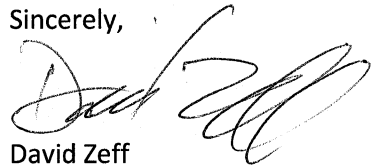
I am writing to express my support for additional implementation funding from DEQ for the Upper East Gallatin Floodplain and Wetland Restoration Project on my property. As you know, I originally committed to matching approximately 40% of the implementation project cost. However, my financial situation has changed, and I am unable to meet that commitment, but I am still highly invested in this project and would like to see it carried out. During the design phase, I contributed almost \$20,000 to this project and had 29 tree root fans delivered and stored on the my property to help reduce the project costs..

I'm really looking forward to seeing my property reach its full potential. Right now, a lot of the property has quite a few weeds, and it has good wildlife habitat, but I know it has the potential to be even better. I've always wanted to do right by the river, and creating these wetland cells and stabilizing the eroding bank on the river will do a lot to reduce pollution and improve fish and wildlife habitat on my property and upstream and downstream.

This project is especially beneficial because of its connection to other projects. Immediately upstream, Rocky Creek Farm completed a wetland restoration project, which actually overflows through a ford over the road at high water onto my property. And just downstream, the MSU Farm is likely to also do a stream and wetland restoration project. I hope my initial cash support for this project, combined with its wide-ranging environmental benefits, will warrant continued support from the 319 program.

Thank you for your consideration.

Sincerely,



David Zeff
6311 E. Vista Drive
Paradise Valley, AZ 85253
415-317-2620
davezeff@gmail.com

October 7, 2022


Montana DEQ - Watershed Protection Section
Attn: Mr. Mark Ockey
1520 E. Sixth Ave.
Helena, MT 59620

RE: Letter of Support for GWC 319 Grant Proposal

Dear Mark:

In my capacity as senior water resources engineer for the City of Bozeman, I write in support of the Gallatin Watershed Council's 319 Grant application for restoration of a section of the upper East Gallatin River. The project as proposed should serve to reduce non-point source nutrient and sediment pollutant loads to the river – a positive incremental step towards eventual removal of the upper river assessment unit from the state's 303d impairment list. The proposed project could demonstrate nutrient trading under DEQ Circular 13, a nascent, yet underutilized tool to support water quality standards attainment. I encourage the grant review committee support and fund this 319 project request.

Sincerely,



Brian Heaston, PE
Senior Engineer



Sacajawea Audubon Society

PO Box 1711 • Bozeman, Montana 59771-1711

SacajaweaAudubon.org

October 6, 2022

Mr. Mark Ockey
Watershed Protection Section
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. Ockey,

On behalf of Sacajawea Audubon Society, I am delighted to submit this letter of support for the Gallatin Watershed Council (GWC) grant request to secure funding for the Upper East Gallatin Floodplain and Wetland Restoration Project.

Sacajawea Audubon Society (SAS) has partnered with GWC as we create the exciting new Indreland Audubon Wetland Preserve (IAWP). The IAWP was set aside by Sacajawea Audubon Society (SAS) to conserve and enhance a wetland community in an urban setting. The site will serve as an environmental study area offering education about wetland ecology accessible to all ages. SAS aims to document the effect of human influence on wetland communities and inspire the conservation, restoration, and enhancement of wetlands.

The Upper East Gallatin Floodplain and Wetland Restoration Project helps us accomplish the IAWP vision and goals. Design elements considered for this project have the potential to not only improve water quality but also improve fish and other wildlife habitat. The fishery will benefit from natural storage features that increase late season flows. Riparian and wetland habitat will provide critical habitat for birds and other diverse wildlife species that depend on these vital areas.

This project provides an opportunity for the IAWP Busy Beavers, our community outreach group, to participate and learn about hydrology, ecology, history, and the need for clean and cool water flows into the East Gallatin River. We look forward to assisting with pre-project monitoring such as bird counts and other wetland assessments.

SAS, approaching 1000 local members, and affiliate of the National Audubon Society, has been serving the Northern Greater Yellowstone Ecosystem of Montana since 1967. SAS provides community-based programming to promote the conservation of our natural environment through enjoyment, education and action.

This project will help protect Montana's wetlands, and support the efforts of SAS to protect wetlands in Bozeman and the Gallatin Valley. Approval of this grant will enhance the capacity, efficiency and quality of local natural resources that are under threat with the current growth of Bozeman/Gallatin Valley. We ask that you give positive consideration to further funding of the Upper East Gallatin Floodplain and Wetland Restoration Project.

Submitted on behalf of the Sacajawea Audubon Society Board of Directors.

Sincerely,

Chris Nixon
President, Sacajawea Audubon Society
406-544-4901
pres@sacajaweaAudubon.org



Connor Parrish, Project Manager, Gallatin Home River Initiative

Mr. Mark Oakey
Watershed Protection Section
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. Oakey,

I am contacting you to provide Trout Unlimited's support for the Gallatin Watershed Council's (GWC) application to Department of Environmental Quality's (DEQ) 319 non-point source grant opportunity. The Gallatin watershed faces numerous water quality impairments that jeopardize the health of its fish, wildlife, and growing community. GWC's Upper East Gallatin Floodplain and Wetland Restoration project would improve water quality and restore natural process that enhance fish and wildlife habitat. The project aims to restore floodplain connectivity and wetland conditions adjacent to the East Gallatin River. Surface and groundwater will pass through a series of oxbow like wetland features in order to attenuate nitrogen, phosphorus, and sediment from East Gallatin River as it flows through the project site. Other benefits will include increased wetland habitat and improved natural water storage that will augment late season in-stream flow and reduce flooding risk. Improving water quality above the Bozeman Water Reclamation Facility outfall also helps the East Gallatin River handle this point source loading of nitrogen and phosphorus. The slough and wetland complex will be excavated from historic channel scars and designed to reflect natural, site-appropriate physical and biological conditions.

Trout Unlimited is intimately involved in ongoing conservation efforts in the Gallatin watershed and I believe the Gallatin Watershed Council has the professional capabilities and local contacts that position them well for the project they are proposing. Trout Unlimited is dedicated to protecting and restoring the Gallatin's coldwater fishery and thus very supportive of the Gallatin Watershed Council's grant proposal.

Connor Parrish
Project Manager, Gallatin Home River Initiative

GALLATIN WATERSHED COUNCIL
LANDOWNER AGREEMENT

Parties. This agreement is made and entered into by and between the Gallatin Watershed Council (GWC) and David Zeff (Landowner).

Purpose. GWC has been awarded \$268,950 in funding by the Montana Department of Environmental Quality (DEQ) and is seeking additional funding to secure the full amount required for the construction of the Upper East Gallatin Restoration Project.

Term. This Agreement is effective on the date of its execution. The Agreement will terminate on December 31, 2035, unless terminated earlier pursuant to the “Termination” Section. This Agreement may be extended if mutually agreed in writing prior to the termination date of this Agreement.

Project Site. The restoration project is located at: 11272 Kelly Canyon Rd, Bozeman, MT 59715.

Liaison. All communications by Landowner to GWC concerning this Agreement shall be addressed to: Holly Hill, Gallatin Watershed Council, PO Box 751, Bozeman, MT 59771, (406) 560-4425. All communications by GWC to Landowner shall be addressed to: 6311 E. Vista Drive, Paradise Valley, AZ 85253.

Scope of Work. Work performed under this agreement will be completed as described in the attached Scope of Work (Attachment A).

Operations and Maintenance. This restoration project aims to enhance stream and riparian improvements, which are designed to be enduring. Therefore, the Landowners agree to protect and maintain the investment in restoration for a minimum of 10 years following project completion. Proposed changes to the property management, such as introducing grazing or commercial activities, will be coordinated with GWC to preserve the integrity of the project.

Source of Funds. Landowner acknowledges that funding provided by GWC is dependent upon grant availability from federal and non-federal entities. GWC shall not be liable for failure to provide funds for the project for reasons beyond the control of GWC. Landowner and GWC agree that the loss of available funds which have been committed to the project shall not obligate GWC to Landowner. If the GWC is unable to provide funding committed to this project, Landowner is released from any obligation to complete the project.

Site Access. Landowner agrees to allow GWC to access the project site in order to complete the project scope of work. Additionally, Landowner agrees to allow DEQ to access the project site for monitoring activities. If DEQ wishes to access the project site, DEQ will contact the Project Sponsor, who will then contact the Landowner. Any access to the project site shall be secured with 24-hour minimum notice to Landowner and the property manager by email or phone and through consultation with Landowner to determine a mutually agreeable date and time for access. Landowner shall coordinate site access with landowners, property managers, tenants, lessees, renters, and other potentially affected individuals and entities (if different from the Landowners). Both GWC and Landowner agree to respond to inquiries and

requests in a timely manner.

Media Release. Landowner gives full consent to GWC to produce, copyright or publish all written, video, and photographic materials in which the project site may feature or appear. Landowner understands that GWC is a highly visible organization within the community and media eye, and hereby give consent for release of all print, video and photographic materials and waive any right to inspect or approve of the finished product.

Legal Requirements. Landowners and GWC shall perform required activities in accordance with all federal, state, and local laws and statutes. The parties agree that any action at law, suit in equity, or judicial proceeding for the enforcement of this Agreement or any provision thereof shall be instituted only in the courts of the state of Montana, and it is mutually agreed that this Agreement shall be governed by the laws of the state of Montana, both as to interpretation and performance.

Change in Property Ownership. Landowners shall notify GWC prior to any change in ownership of the property where the project occurred. Should the property change ownership during the life span of the practice, Landowner will work with GWC to ensure that an Agreement Transferring Responsibility for Best Management Practice form is completed.

Indemnity and Liability. Landowner shall indemnify and hold harmless GWC and DEQ from and against any and all claims, demands, or actions for damages to property or injury or death to persons or other damages to persons or entities arising out of or resulting from the performance of this Agreement, or the results of this Agreement except that Landowner shall have no obligation to indemnify GWC or DEQ for any claims to the extent they arise from the negligence, willful misconduct, or violation of law by GWC, DEQ, or their employees/contractors.

Severability. It is understood and agreed by the parties hereto that if any term or provision of this Agreement is by the courts held to be illegal or in conflict with any Montana law or Federal statute, the validity of the remaining terms and provisions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if this Agreement did not contain the particular term or provision held to be invalid.

Modification. This Agreement may be modified at any time by mutual, written consent.

Termination. Either party may terminate this contract by submitting written notice to the other party at least fourteen days prior to the date of intended termination. Such notice shall stipulate the reasons for termination, and stipulate a plan for transitioning work in progress. In the event of a termination, Landowner is entitled to payment only for those services Landowner actually rendered on or before the receipt of the Notice of Termination.

Signatories. All parties agree with the terms of this Agreement and acknowledge having read this Agreement in whole and agree to its terms as designated by the approval signatures below.

David Zeff

Landowner Name, Title (Printed)

David Zeff

Landowner Signature

2026-01-20

Date

Holly Hill

Project Sponsor Name, Title (Printed)

Holly Hill

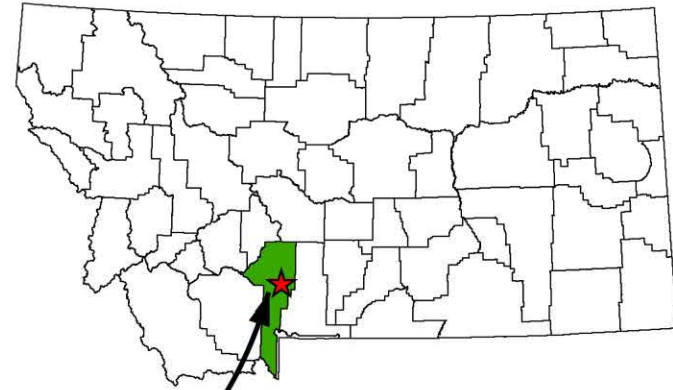
Project Sponsor Signature

2026-01-20

Date

**MAPS/
DESIGNS**

MONTANA



PROJECT LOCATION

SHEET INDEX

1. COVER SHEET / PROJECT LOCATION
2. GENERAL AND TECHNICAL SPECIFICATIONS
3. OVERALL SITE PLAN
4. WETLAND PLAN AND PROFILE
5. WETLAND DETAILS
6. HEADWALL DETAILS
7. OUTLET AND BOARDWALK DETAILS
8. BANK STABILIZATION PLAN
9. BANK STABILIZATION SECTIONS
10. BANK STABILIZATION DETAILS
11. QUANTITIES

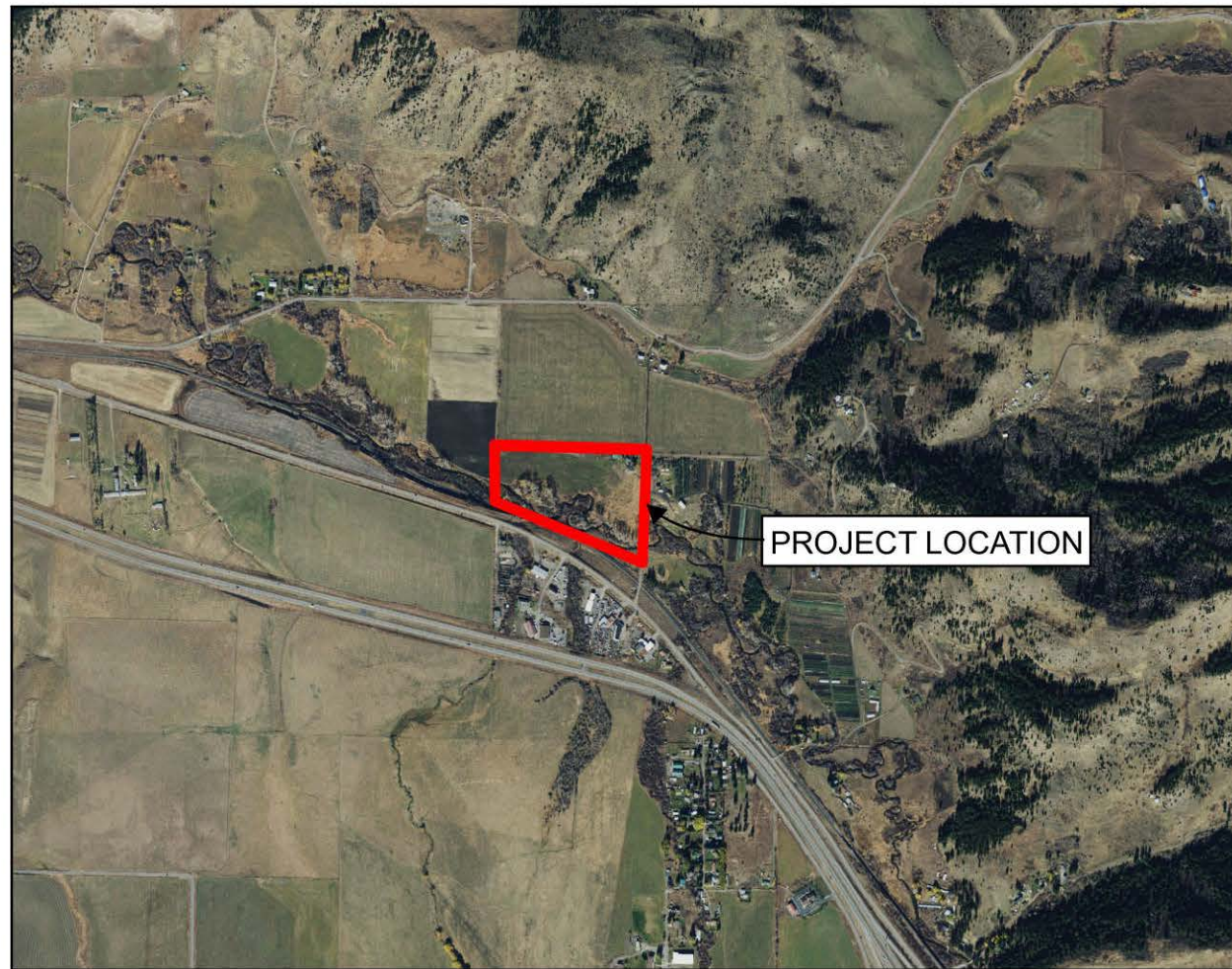
ZEFF RANCH WETLAND ENHANCEMENT



CONFLUENCE
CONSULTING

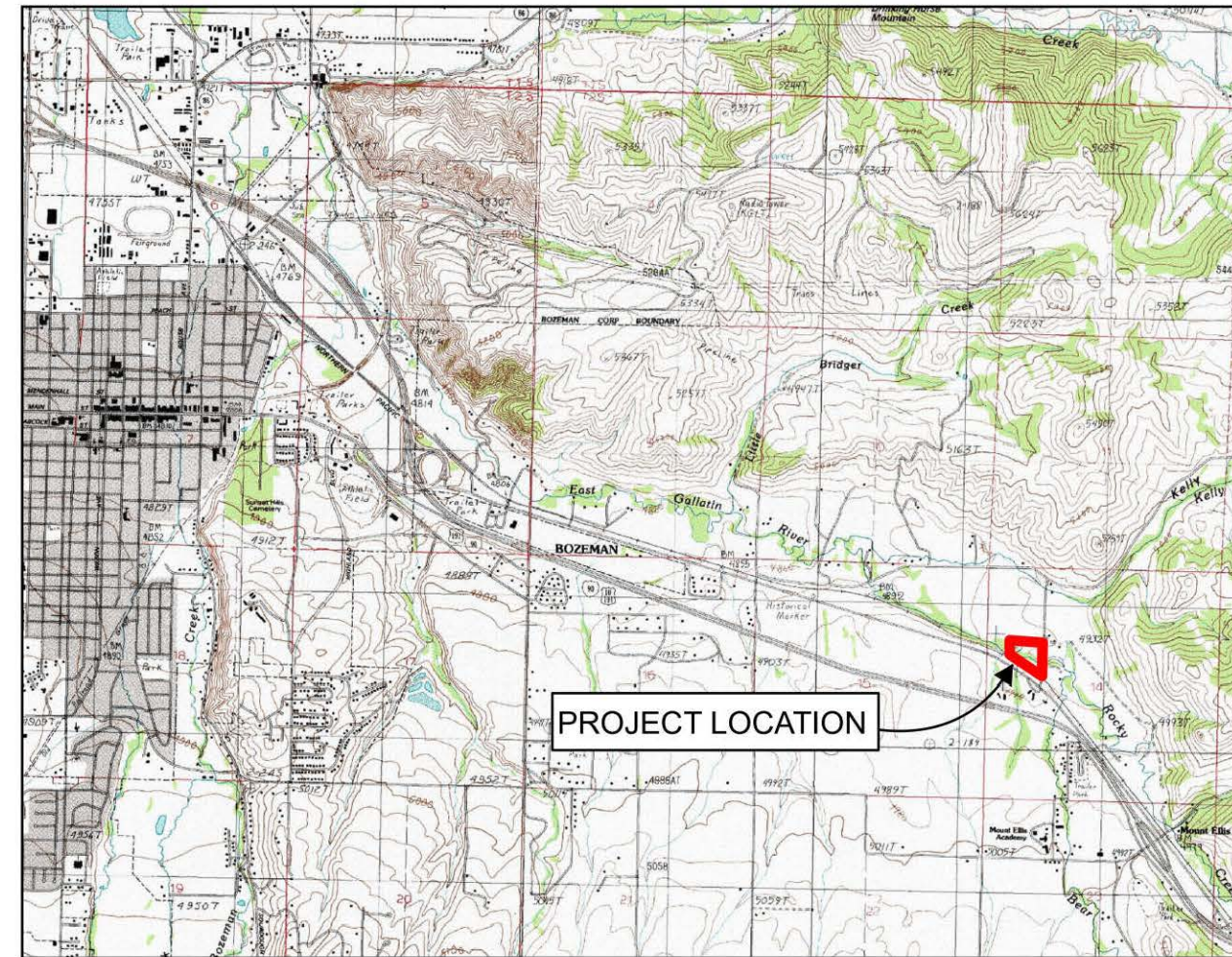
PREPARED BY:

CONFLUENCE CONSULTING, INC
1289 STONERIDGE DRIVE
BOZEMAN, MT 59718



PROJECT LOCATION

PROJECT VICINITY AERIAL PHOTO



PROJECT LOCATION

PROJECT VICINITY TOPOGRAPHIC MAP
S18, T01 S, R01 E

COVER SHEET
PROJECT
LOCATION

SHEET: **1**

A. ACCESS

1. Mobilization includes preparatory work and operations performed by the contractor, including, but not limited to, those necessary for transportation and movement of personnel, equipment, supplies, and incidentals to and from the project site; for necessary permits; for the establishment of all facilities necessary for work on the project; for premium on contract bonds; for insurance for the contract; and for other work and operations that must be performed or costs incurred before beginning work on the various items on the project site and after the work is completed.
2. Demobilization shall consist of work and operations necessary to disband all mobilized items and restore the site to the pre-construction conditions outside of the work area. The removal of all temporary access ways, signs, temporary fencing, and temporary facilities or works and the restoration of surfaces to an equal or better than existing condition shall also be included as part of demobilization
3. The contractor shall access the site using established roads and routes designated by the landowner.
4. Utilities
 - a. The contractor shall be solely responsible for having utilities located prior to construction activities.
 - b. The contractor shall immediately contact the affected utility service to report any damaged or destroyed utilities. The contractor will provide equipment or labor to aid the affected utility service in repairing damaged or destroyed utilities at no cost to the owner.

B. MACHINERY AND EQUIPMENT CLEANING REQUIREMENTS

1. The CONTRACTOR will wash all earthwork equipment to remove seeds, roots, and rhizomes from the equipment prior to initial transport to the site in order to prevent the spread of noxious weeds to the site. (This is not meant to apply to service or employee vehicles that will stay on the roadway traveling frequently in and out of the Project area.) All earthwork equipment shall be pressure cleaned and be completely free of soil, seeds, vegetative matter, or other debris that could contain or hold seeds prior to the initial arrival to the construction site.
2. All CONTRACTOR equipment will arrive at the work site clean and weed-free. The CONTRACTOR will periodically inspect and verify that equipment is arriving free of soil and debris capable of transporting noxious weed seeds, roots, or rhizomes.
3. Equipment will not be sprayed with herbicide chemicals as a preventative measure. Many herbicides target a wide range of vegetation and using herbicides in this way may harm desirable vegetation.
4. The CONTRACTOR will also thoroughly clean and inspect seeding equipment prior to conducting seeding activities.

C. DEWATERING AND DIVERSION CONSIDERATIONS

1. Dewatering may be needed to prevent surface water and subsurface or groundwater from flowing into excavations and from flooding project site and surrounding area. Dewatering shall be adequate to allow proper compaction of subgrade materials.
2. If dewatering is needed, the Contractor is responsible for obtaining the appropriate DEQ dewatering permits and for providing dewatering equipment and methods as necessary for this project. Work will be performed during low water in the East Gallatin. All costs of dewatering, including permit acquisition, measures to handle the discharge and all related work of cleanup, restoration, etc. shall be incidental to the work.
3. Contractor is responsible for constructing and maintaining a diversion suitable to divert water around the construction site. The diversion shall be installed to minimize impact to the water way. The diversion shall be removed and channel restored to pre-disturbance conditions and elevations upon completion.

D. EXCAVATION

1. Excavation shall be made to the grade, dimensions and cross sections as shown on the drawings. Care shall be taken to insure that no excavation is made below grade or beyond the dimensions of the planned excavations. In the event that excavation is made beyond the above limits, the Contractor shall replace the excavated materials and compact the replaced material.
2. Salvaged trees shall be large wood pieces removed from within the project footprint that is deemed acceptable for reuse in project construction by the Engineer.
3. Topsoil shall be salvaged and stockpiled separately from the underlying materials.
4. Excavation above the waterline shall proceed such that excavation spoils are carried away from the water, or otherwise collected and contained before being allowed to contact surface waters.
5. Groundwater table will be highest during spring runoff and lowest during late fall and winter months. On site monitoring wells are available for use if needed.

E. GENERAL FILL

1. Fill and backfill shall be an aggregate of native alluvium consisting of sorted gravels, sand, and cobbles native to the site. Backfill shall be well-graded suitable native material free of frozen lumps, concrete, and other debris.
2. Select fill shall be general excavation from within the project footprint that is deemed acceptable for reuse in project construction, including fill within the project limits, and for bank reconstruction. Select fill shall generally be free of chemical contaminants, stumps, and other deleterious materials or organic material greater than 2 inches in diameter. When identified, select fill shall be stockpiled for eventual use by the contractor.
3. Type and amount of material used for backfill, and the manner of placing material shall be subject to approval by the Engineer. The Contractor shall ensure that native soils excavated on site are approved by the Engineer before being used as backfill. The Engineer reserves the right to reject materials that, in the opinion of the Engineer, are determined to be substandard for any reason.
4. Do not place backfill material when either the material or the surfaces on which it is to be placed are frozen.

F. IMPORTED RIPRAP

1. Stone shall be naturally rounded in shape and will have a naturally smooth surface, such as rock that has as its source a former stream, river, or glacial deposit.
2. Stone shall meet the gradation requirements specified in the design drawings. However, the

ENGINEER will coordinate with the CONTRACTOR to review rock sources and mixtures and adjust gradations to achieve a desired overall gradation.

3. Angular stone will not be accepted, but pre-approved semi-angular stone may be used.
4. Stone salvaged from the riverbed during construction may be used as approved by Engineer.
5. Stone shall be free of cracks and fractures.
6. Riprap shall be placed by equipment on the surface and to the depth specified.

G. LARGE WOOD BANK TREATMENT

1. Rootwad and Footer logs not already supplied by the Owner shall be Cottonwood, Douglas fir, Ponderosa Pine, or other species with prior approval by the Engineer.
2. Logs and rootwads shall be at least 15 feet in length measured from base to top and the diameter at breast height shall be a minimum of 10 inches. Any deviation in size, species or quality must be pre-approved by the Engineer. Logs and rootwads should be cleaned of secondary branches and include only the main trunk and any associated forks. Large woody material should be recently harvested or in a 100% rot free condition, free of fungus, disease, or pests that could contaminate site or infect existing or planted live trees.
3. The total number of logs and rootwads to be installed is estimated to 29 Rootwad logs and 10 Footer logs.
4. The Rootwad mass shall have a diameter equal to or greater than three (3) times the log diameter measured at breast height, or otherwise approved by the Engineer. The Rootwad mass shall have a length equal to or greater than two (2) times the log diameter measured at breast height, or otherwise approved by the Engineer.
5. Small woody material or slash consists of cut limbs, small trees, and tops with branches that are generally long, slender, and branched. Material shall range in diameter between 1 inch and 12 inches. Material shall range in length from 2 feet to 12 feet.
6. Installation of Large Wood shall require placing logs on streambanks or partially burying logs using a "fit in the field" approach as directed by the Engineer. Logs will be installed individually or in groups. Buried logs shall be buried into the streambank and aligned so that part of the log protrudes from the bank into the stream. Burial shall be through excavating trenches, over excavating streambank, or pushing the woody material directly into the soil. Disturbed ground shall be seeded and mulched.
7. To facilitate efficient movement of logs, the contractor shall provide a track excavator with a hydraulic thumb attachment.
8. Excavate as necessary to place large wood while minimizing disturbance to existing grade. Shape, trim, and finish existing grade to allow for placement of large wood as shown on these drawings.

H. FABRIC TREATMENT

1. Outer (Woven) Fabric shall be a high strength 700 weight (100% coconut fiber), continuously woven mat. The fabric shall be in 100% rot-free condition. Outer fabric shall be DeKoWe 700 or approved equivalent.
2. Inner (Non-Woven) Fabric of dual layered and single layered fabric bank installation shall be North American Green C125BN or approved equivalent. Inner fabric shall be in good condition and free of rot, weak spots or mold
3. Wood stakes shall be used to anchor all fabric. Stakes shall be wooded stakes solid and free of knots or defects. Stake dimensions shall be wedge shaped with a minimum equivalent diameter equal to 1.5 inches at the top and should come to a point at the bottom and shall be 18 inches in length. Stakes shall be constructed by cutting a standard grade 2"x4" lumber lengthwise along the diagonal to create wedge shaped stakes.
4. Wood staples used shall be 12 inches in length, untreated wooden staples solid and free of knots or defects. Staples shall be North American Green 12- inch Eco-Stakes or approved equivalent.
5. Coir fabrics shall consist of 100% biodegradable mats. Nylon fiber material in any of the coir fabrics is not acceptable. Only those coir fabrics specified will be accepted unless otherwise approved by the owner's representative.
6. Each roll of coir fabric shall be packaged individually in a suitable sheet, wrapper, or container to protect the fabric from damage to ultraviolet light, moisture, and mud during normal storage and handling.
7. Store all coir fabrics elevated off the ground and ensure that they are adequately covered to protect the material from damage. Protect coir fabrics from sharp objects which may damage the fabric. Coir fabrics damaged during transport, storage or placement shall be replaced at the contractors expense.
8. Perform all shaping of the subgrade to the elevations, lines and grades, as shown. Shape, trim, and finish slopes of channels to conform to the subgrade lines, grades, and cross sections as shown. The subgrade shall be graded to a smooth condition free from depressions and protruding rocks, sticks, and other debris which may prevent a smooth application or that may damage the fabric. Care shall be taken to remove all objects that would interfere with application or damage the coir fabrics. The finished subgrade will be approved by the Engineer prior to placement of any new material
9. Unroll woven coir fabric along the stream bank and place fabric against the subgrade and form with embedment lengths as shown on the plans.
10. Unroll inner fabric along the stream bank and place on top of the woven coir fabric to achieve the embedment length shown on the plans.
11. Place 1 foot of backfill material with a minimum of 6" being native topsoil.
12. Apply seed mix according to revegetation, to the filled surface prior to wrapping with fabric.
13. Pull coir fabrics back over seeded soil. Pull coir fabrics tight and stake according to the plans.
14. Staple fabrics tightly to the ground using wooden staples. Staples shall be installed 18 inches on center in staggered rows and in any areas where the fabric is loose and can easily be pulled away from the surface. Finished fabric installation should be tight and not easily moved by hand.
15. Wood stakes shall be placed through both layers of coir fabrics. It is not required to anchor the nonwoven and woven fabrics individually. Wood stakes shall be placed between the fibers of the woven coir fabric. Cutting of the coir fabrics to facilitate wooden stake placement will not be allowed.

16. Damaged coir fabric shall be repaired or replaced. If damaged coir fabric has a tear of 6 inches or less, scrap fabric may be placed beneath damaged woven coir fabric such that it extends 24 inches beyond the damaged area in all directions. Stake around the tear with 4 wooden stakes on 12-inch centers. Coir fabrics with tears greater than 6 inches shall be replaced at the contractor's expense.
17. Seed placed in fabric encapsulated soil lifts shall be watered by contractor

I. REVEGETATION

1. Seed shall be sown at the rate specified in the seed table on all disturbed areas using broadcast methods. The drill seed rate is half the broadcast application rate. Seeding by hand or mechanical broadcasting will be permitted on areas inaccessible to drills or impractical to seed by other prescribed methods as approved by the engineer. Seed shall be lightly tilled by rake or other means into first inch of topsoil depth.
2. Native wetland seed will be used on the bankfull benches. Native upland seed will be used on the slopes from the bankfull bench to the existing ground.
3. Seeding outside of fabric treatment area will occur after spring runoff.
4. Willow, dogwood and rose plantings shall be selected from nursery stock and shall be transported and planted directly into a site prepared for the planting. Repetitive handling, loading, unloading, and transport of the stock that damages the integrity of the root-soil mass or reduces the viability of the plants shall not be permitted.
5. Plantings shall be thoroughly wetted immediately after placement.
6. Root balls must be placed at a depth that reaches the low water table elevation.
7. Backfill will be placed around nursery plantings to ensure proper root contact with soils. Suitable backfill materials include natural channel gravels.

J. HAUL ROADS / RECLAMATION

1. The Contractor shall be responsible for maintenance of all haul roads during construction, including snow removal as necessary. The Contractor shall also be responsible for removal and cleanup of all spillage of excavated materials on all haul routes. Haul roads and all other disturbed areas shall be reclaimed immediately after construction. Restoration shall consist of grading disturbed areas to match surrounding ground elevation. Disturbed areas shall be seeded as specified.

K. CLEANUP AND DISPOSAL

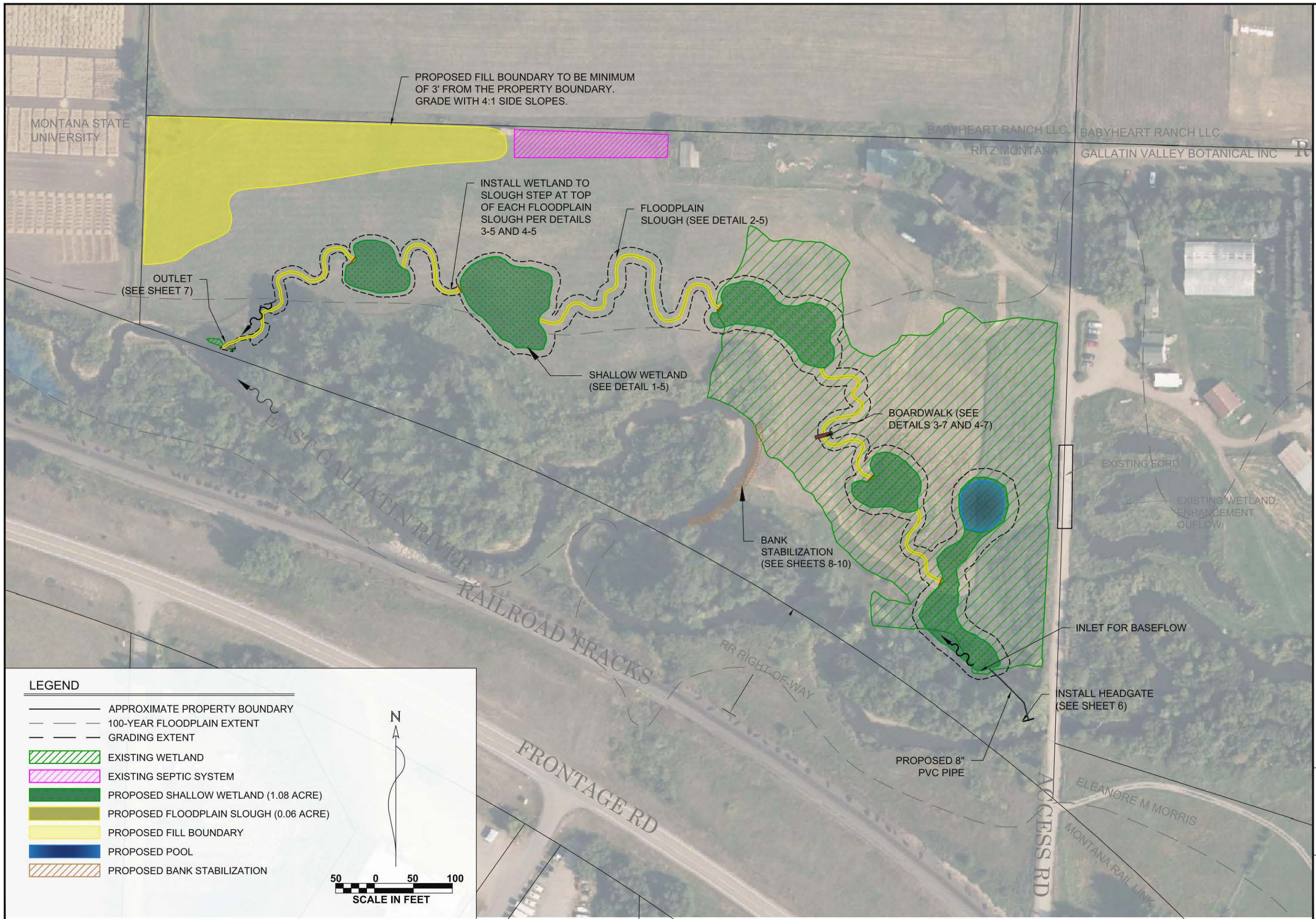
1. Excess material shall be hauled off site. Excess material will not be permitted to be accumulated and shall be removed concurrently with the finishing operation. All access building materials will be removed from stock piles and transported to a location determined by the project engineers. Care will be taken to prevent the entrance of the material into waterways during the construction period.

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**ZEFF RANCH
 WETLAND ENHANCEMENT
 BOZEMAN, MONTANA**

**GENERAL AND
 TECHNICAL
 SPECIFICATIONS**



PROPOSED FILL BOUNDARY TO BE MINIMUM OF 3' FROM THE PROPERTY BOUNDARY. GRADE WITH 4:1 SIDE SLOPES.

INSTALL WETLAND TO SLOUGH STEP AT TOP OF EACH FLOODPLAIN SLOUGH PER DETAILS 3-5 AND 4-5

FLOODPLAIN SLOUGH (SEE DETAIL 2-5)

OUTLET (SEE SHEET 7)

SHALLOW WETLAND (SEE DETAIL 1-5)

BOARDWALK (SEE DETAILS 3-7 AND 4-7)

BANK STABILIZATION (SEE SHEETS 8-10)

EXISTING FORD

EXISTING WETLAND ENHANCEMENT OUTFLOW

INLET FOR BASEFLOW

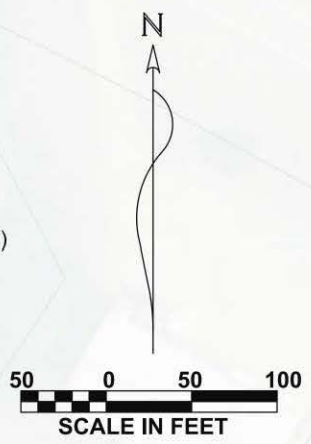
INSTALL HEADGATE (SEE SHEET 6)

PROPOSED 8" PVC PIPE

ELEANORE M MORRIS
MONTANA RAIL LINK

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- - - 100-YEAR FLOODPLAIN EXTENT
- - - GRADING EXTENT
- EXISTING WETLAND
- EXISTING SEPTIC SYSTEM
- PROPOSED SHALLOW WETLAND (1.08 ACRE)
- PROPOSED FLOODPLAIN SLOUGH (0.06 ACRE)
- PROPOSED FILL BOUNDARY
- PROPOSED POOL
- PROPOSED BANK STABILIZATION



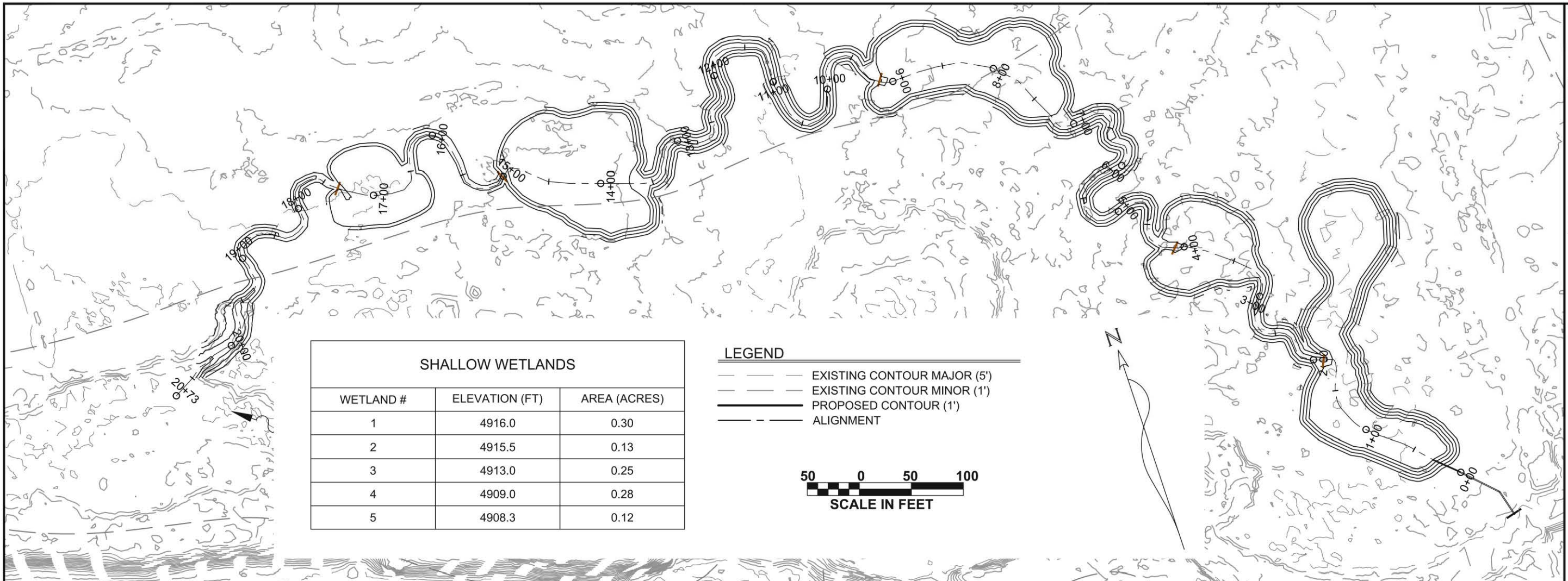
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**ZEFF RANCH
WETLAND ENHANCEMENT
BOZEMAN, MONTANA**

OVERALL SITE PLAN

SHEET: **3**

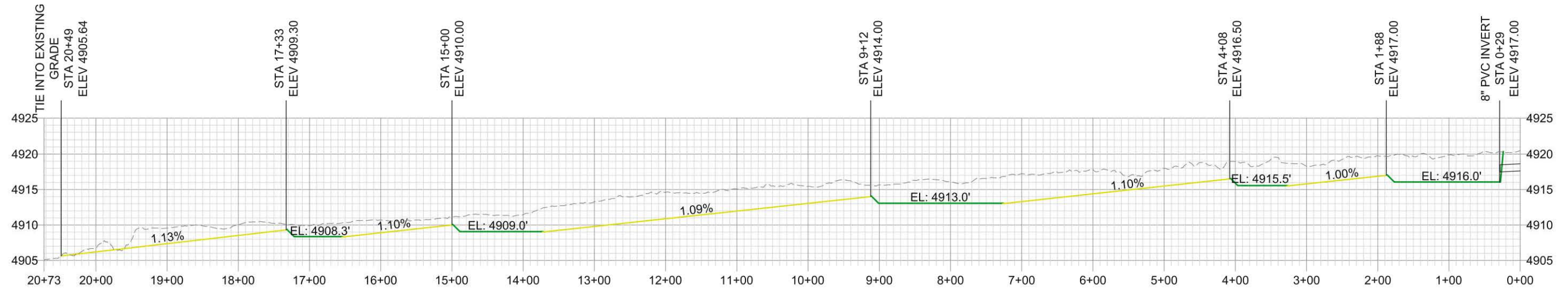


SHALLOW WETLANDS		
WETLAND #	ELEVATION (FT)	AREA (ACRES)
1	4916.0	0.30
2	4915.5	0.13
3	4913.0	0.25
4	4909.0	0.28
5	4908.3	0.12

- LEGEND**
- EXISTING CONTOUR MAJOR (5')
 - - - EXISTING CONTOUR MINOR (1')
 - PROPOSED CONTOUR (1')
 - - - ALIGNMENT



- LEGEND**
- EXISTING GROUND
 - PROPOSED FLOODPLAIN SLOUGH
 - PROPOSED SHALLOW WETLAND CHANNEL



1 WETLAND PROFILE
 4 HORIZONTAL SCALE: 1" = 150'
 VERTICAL SCALE: 1" = 15'

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 WETLAND ENHANCEMENT
 BOZEMAN, MONTANA**

WETLAND
 PLAN AND
 PROFILE

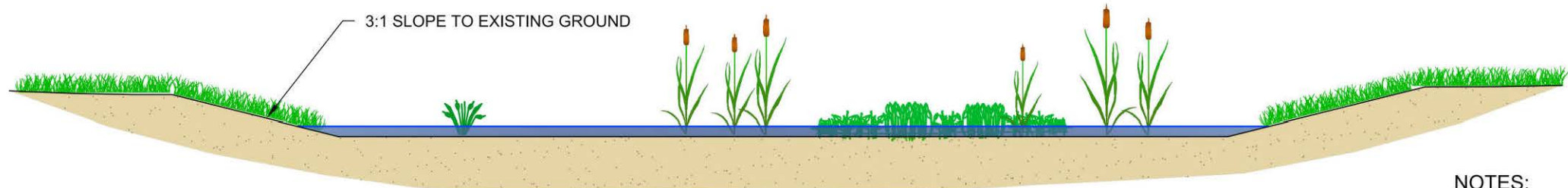
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BOZEMAN, MONTANA

WETLAND DETAILS

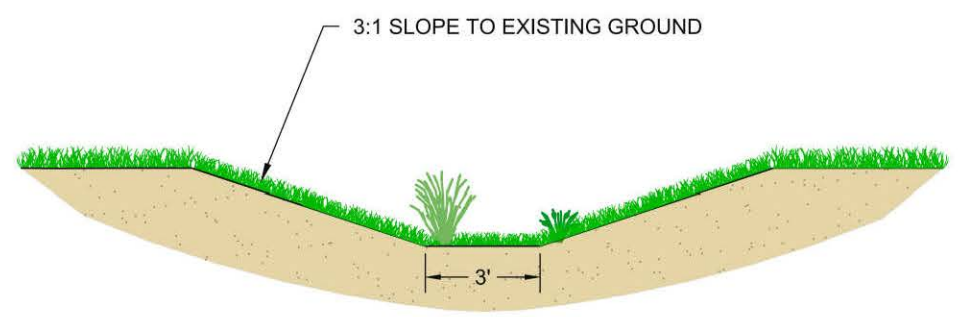
SHEET: **5**



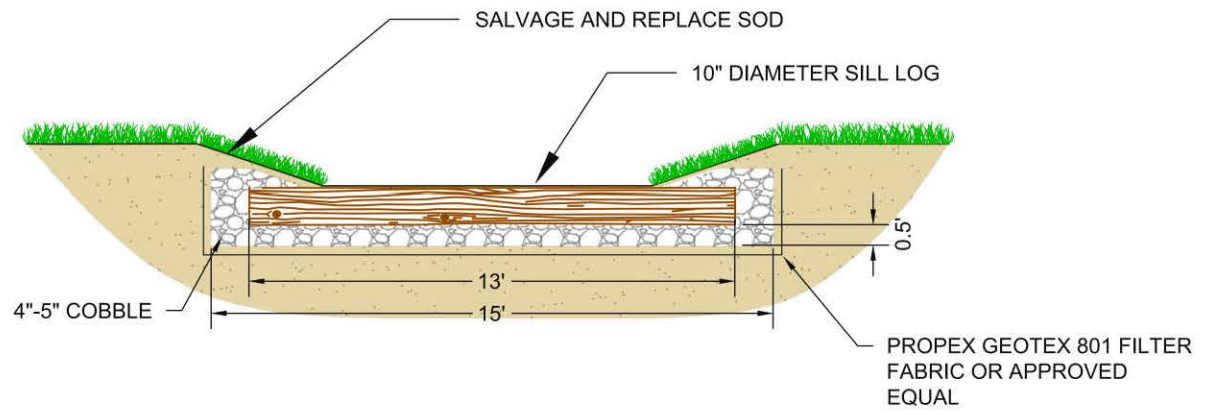
1
5 TYPICAL SHALLOW WETLAND
SCALE: 1"=5'

NOTES:

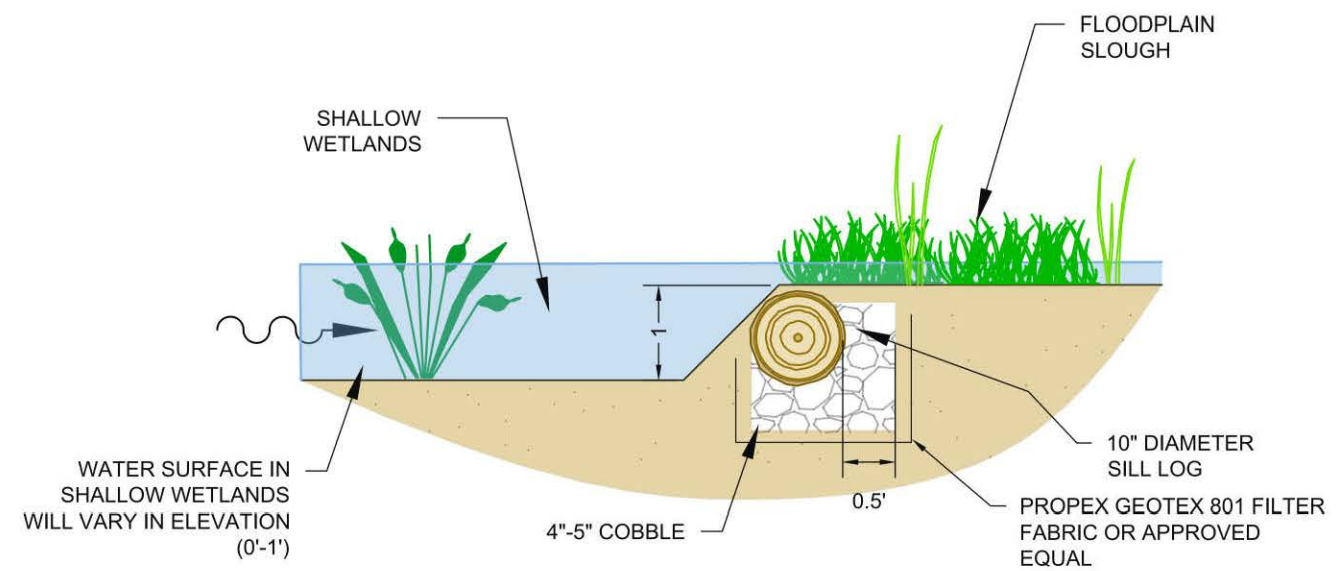
1. FLOODPLAIN SLOUGH BED TO BE CONSTRUCTED IN A ROUGHENED, UNEVEN CONDITION. ± 6" OF FINISH GRADE.
2. COBBLE TO BE PLACED AROUND LOG STEP TO PREVENT EROSION
3. WATER DEPTH IN FLOODPLAIN SLOUGH AND SHALLOW WETLAND CHANNELS WILL VARY SEASONALLY



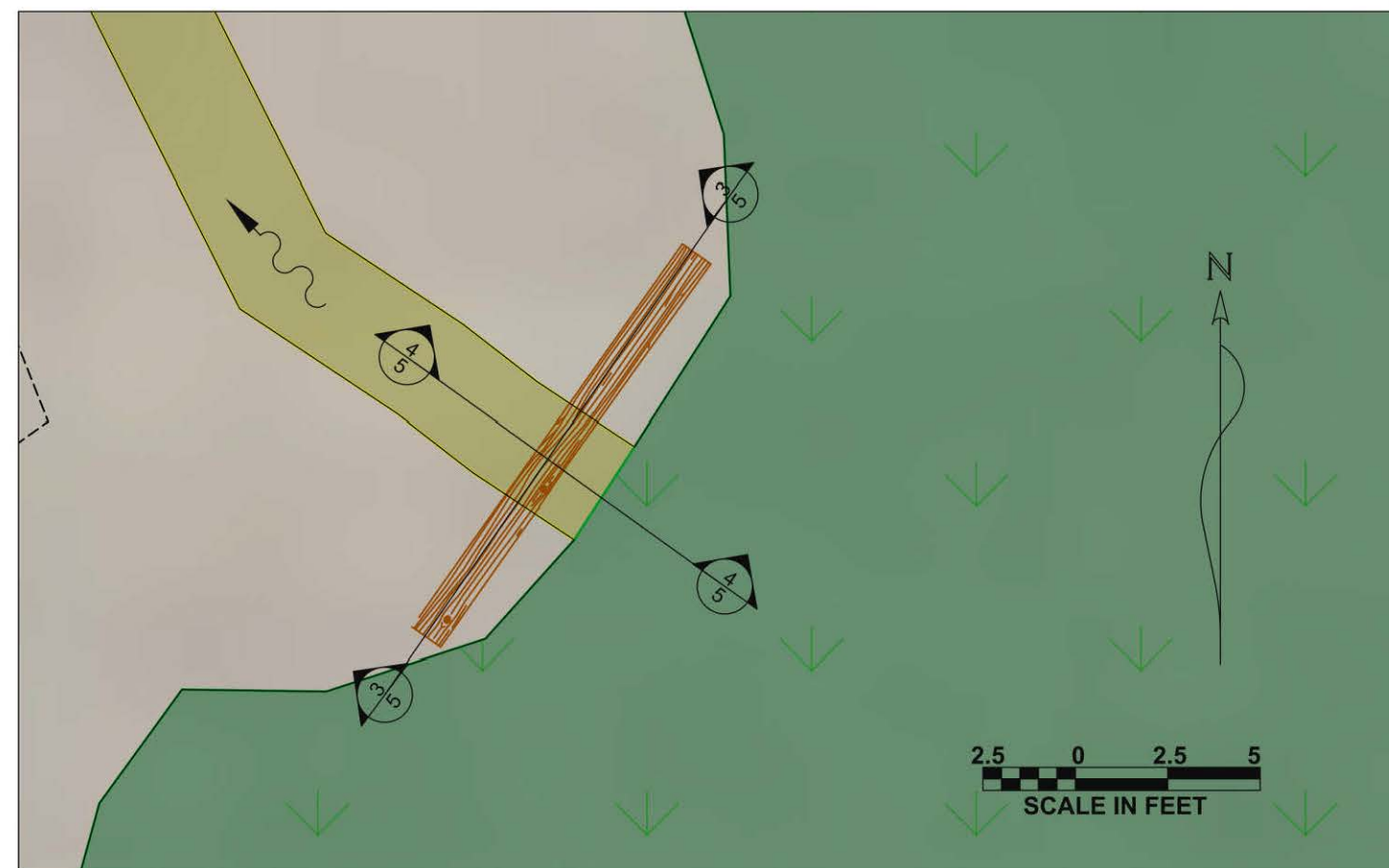
2
5 TYPICAL FLOODPLAIN SLOUGH
SCALE: 1"=5'



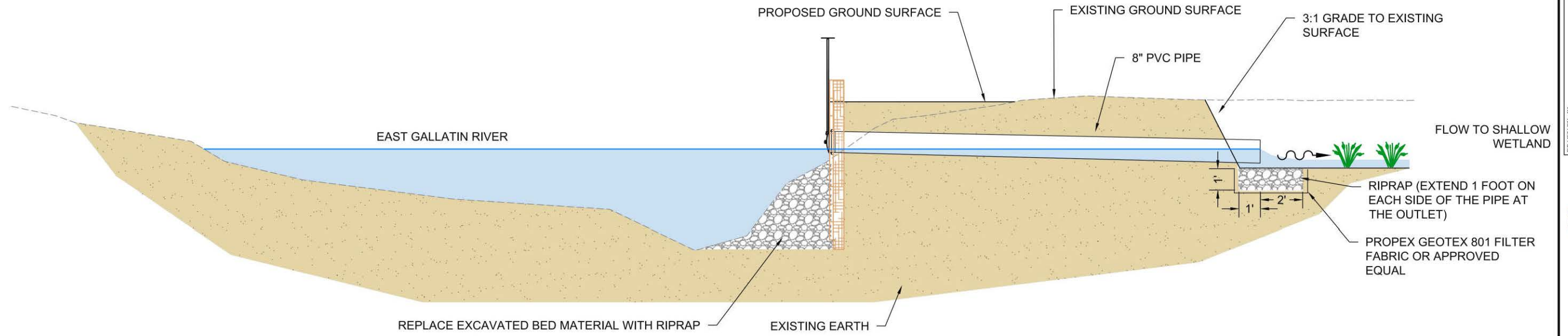
3
5 TYPICAL WETLAND TO SLOUGH STEP CROSS SECTION
SCALE: 1"=5'



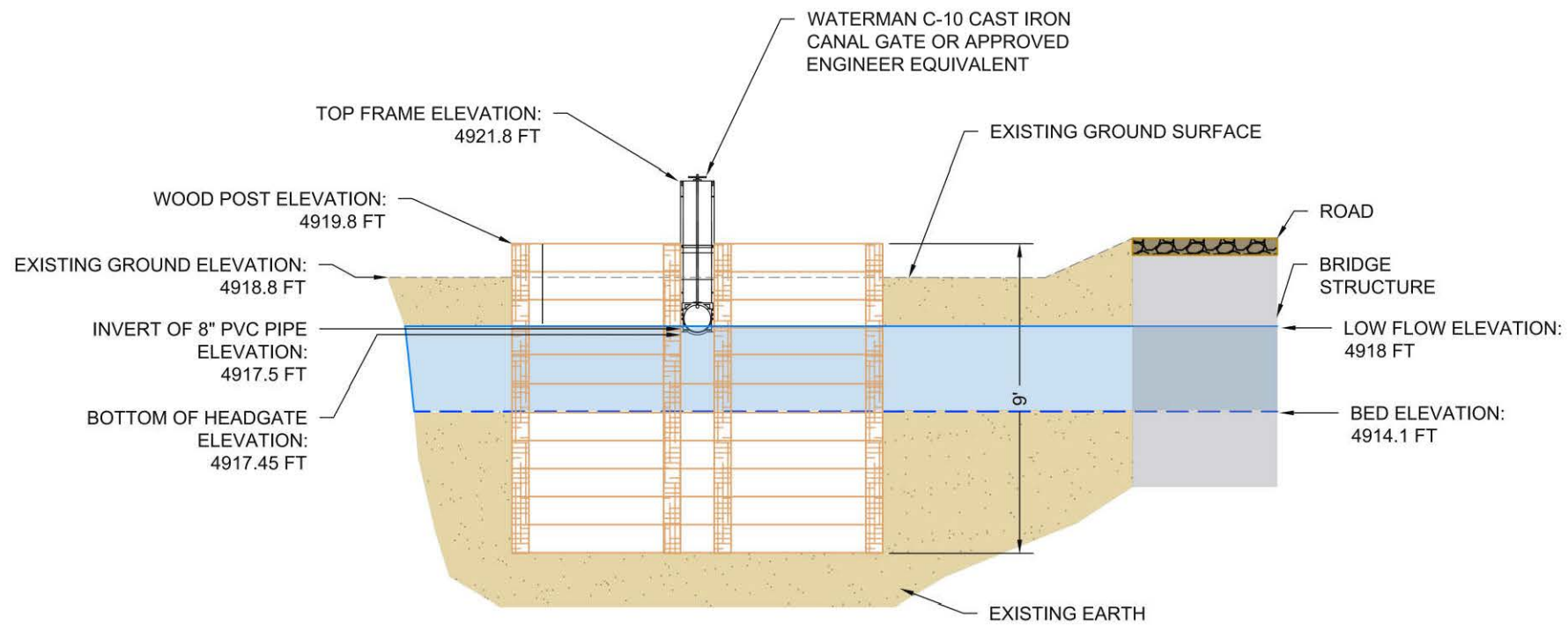
4
5 TYPICAL WETLAND TO SLOUGH STEP PROFILE
SCALE: 1"=2'



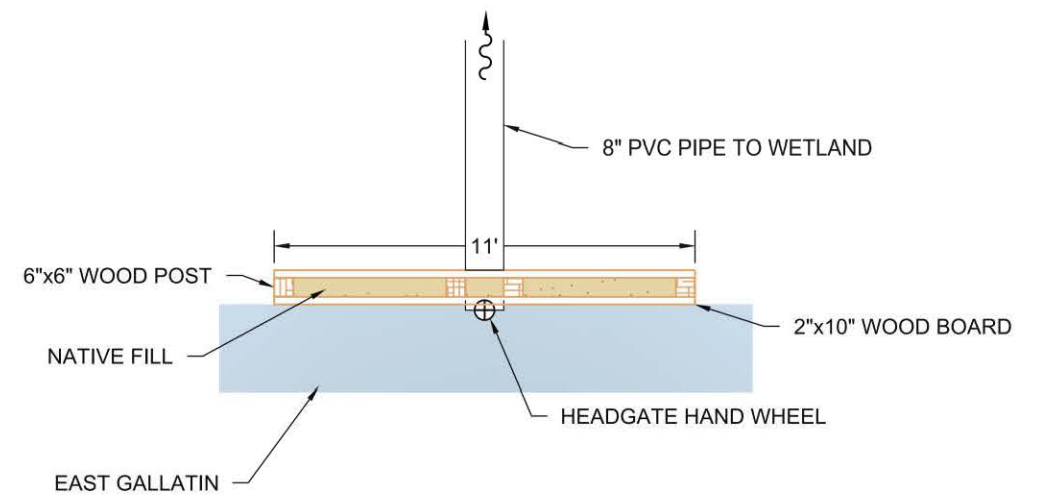
2.5 0 2.5 5
SCALE IN FEET



1 HEADWORKS PROFILE
6 SCALE: 1"=5'



2 HEADWORKS ELEVATION
6 SCALE: 1"=5'



3 HEADWALL PLAN VIEW
6 SCALE: 1"=5'

NOTES:

1. ALL LUMBER USED IN THE HEADWALL SHOULD BE PRESSURE TREATED LUMBER

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BOZEMAN, MONTANA

HEADWALL
DETAILS

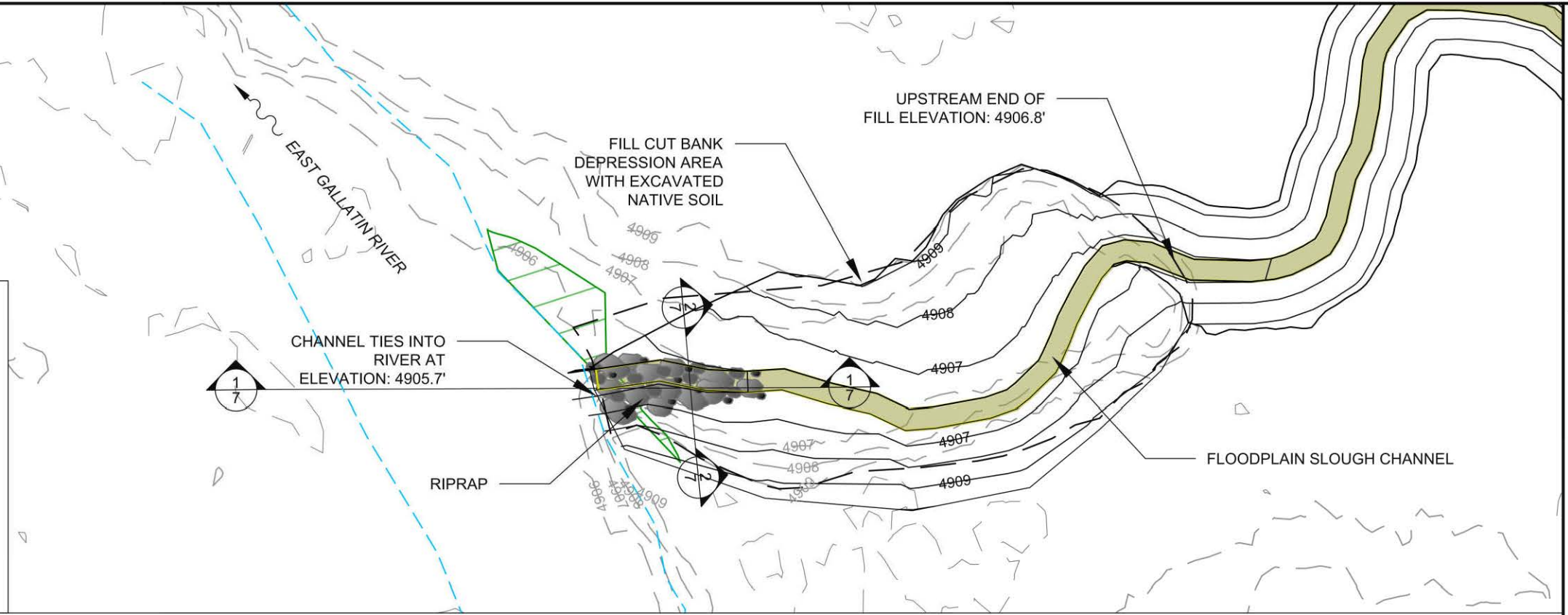
SHEET: 6



- LEGEND**
- EXISTING CONTOUR MAJOR (5')
 - EXISTING CONTOUR MINOR (1')
 - PROPOSED CONTOUR (1')
 - EXISTING TOP OF BANK
 - FILL GRADING EXTENT
 - ▨ EXISTING WETLAND

NOTES:

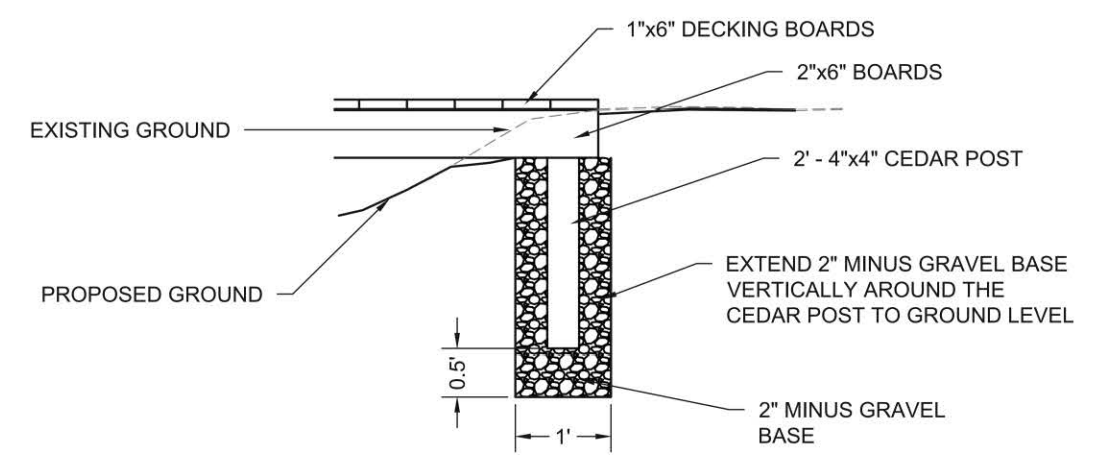
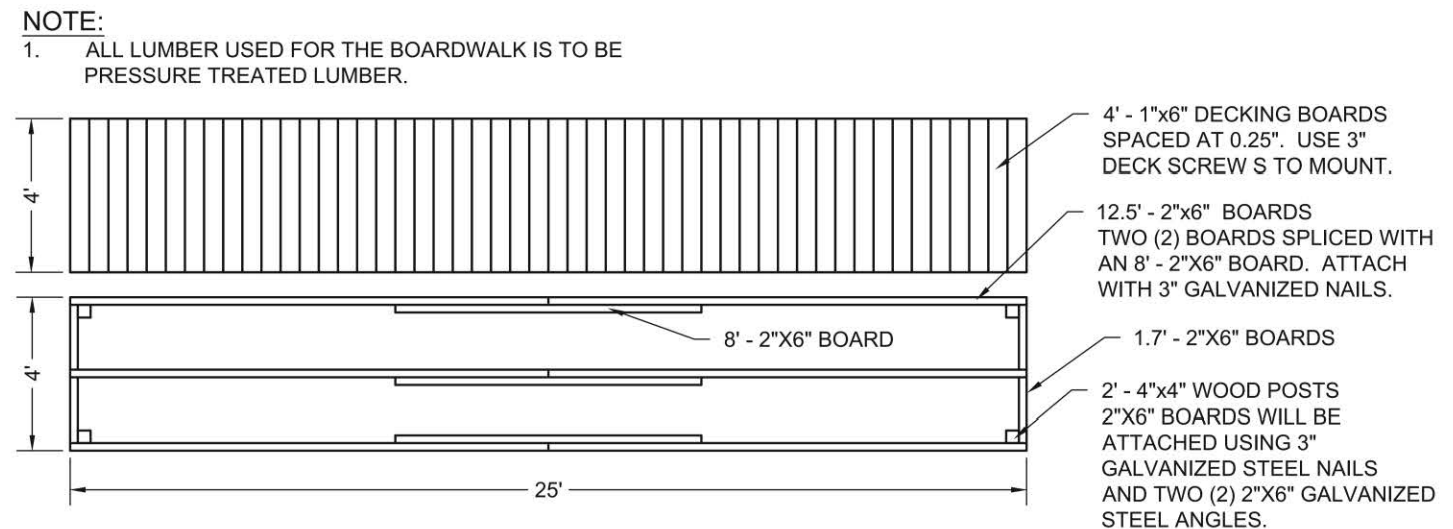
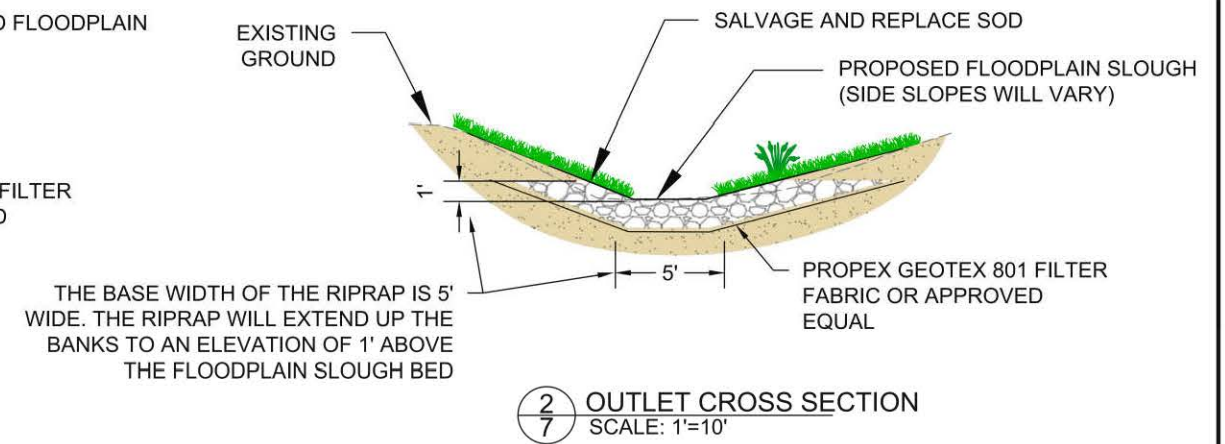
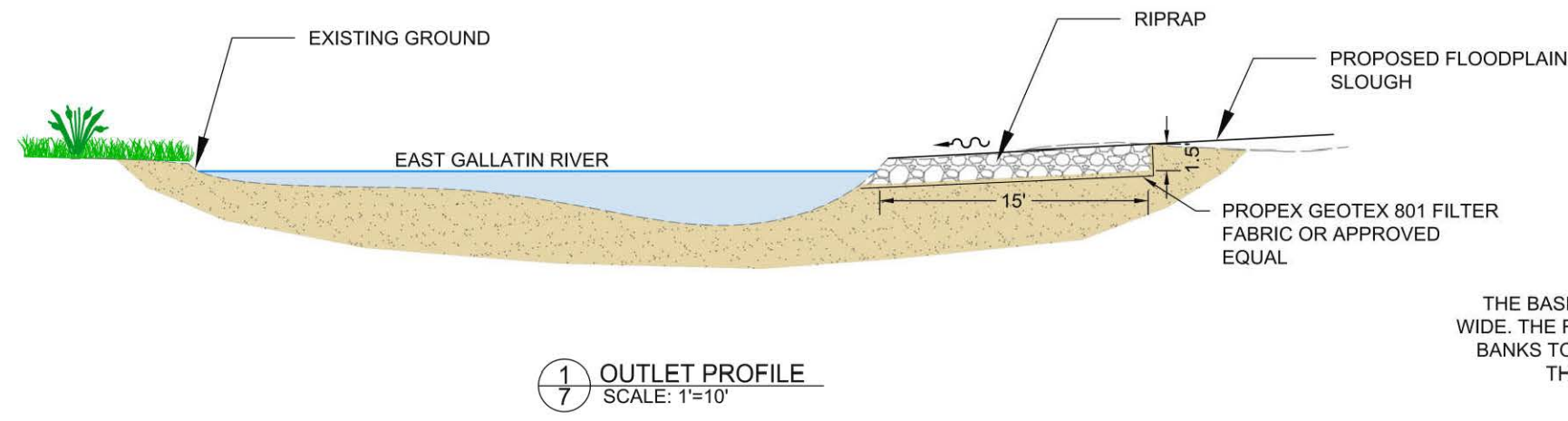
- FILL EXISTING INCISED CHANNEL WITH EXCAVATED NATIVE MATERIAL. FILL MATERIAL TO PROPOSED CHANNEL ELEVATION AND GRADE FROM EDGE OF PROPOSED CHANNEL TO TOP OF EXISTING INCISED CHANNEL.



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BOZEMAN, MONTANA



OUTLET AND BOARDWALK DETAILS

OTHER ATTACHMENTS

ATTACHMENT A

**SCOPE OF WORK FOR
UPPER EAST GALLATIN RESTORATION CONSTRUCTION**

Sponsor
Gallatin Watershed Council
Jared Trilling
Project Manager
406-218-1580
Jared@gallatinwatershedcouncil.org
PO BOX 751
Bozeman, MT 59715

Landowner
David Zeff
415-317-2620
davezeff@gmail.com
6311 E. Vista Drive
Paradise Valley, AZ 85253

PROJECT PURPOSE: To build an off-channel slough and wetland complex that can reduce nitrogen and phosphorus (nonpoint source pollution) from East Gallatin River water as it passes through the project site. Originally scheduled for 2025, this project has been delayed due to funding shortages. As a result, GWC is seeking additional financing to fully fund the project. Engineering designs for this project were finished in Phase 1.

Task 1 – Project Planning and Administration

- GWC will apply for additional funding through DEQ to secure the full project cost.
- Continue coordinating with Confluence Consulting Inc. on permitting, budgeting, and reporting.
- Generate and submit mid-year reports, interim reports, and annual reports to DEQ.

Task 2 – Project Effectiveness Monitoring

- GWC will develop a monitoring plan and a Grazing and weed management plan.
- Monitoring methods may include sediment and nutrient load analysis, photo points, and vegetation survivability surveys.
- DEQ will conduct water quality sampling and testing with the groundwater wells existing onsite.

Task 3 – Project Implementation

- GWC and its subcontractors will implement the project according to the project designs.
- GWC or its contractors will produce an as-built drawings/report for submittal to DEQ.
- The landowner will assist in writing a summary of the project's success and provide recommendations for other landowners who may undertake similar work with DEQ.

Task 4 – Education and Outreach

- GWC will host at least one project site tour targeting local landowners along the East Gallatin River.
- Promote the water quality benefits of the projects and the larger East Gallatin restoration effort through postings on the GWC website, social media, a press release, and the GWC newsletter.

- GWC will conduct outreach to the City of Bozeman and Gallatin County staff to discuss the benefits of and opportunities for reducing nonpoint source pollution.
- GWC will teach volunteers about how the project addresses nonpoint source pollution issues during installation days.

ASSUMPTIONS:

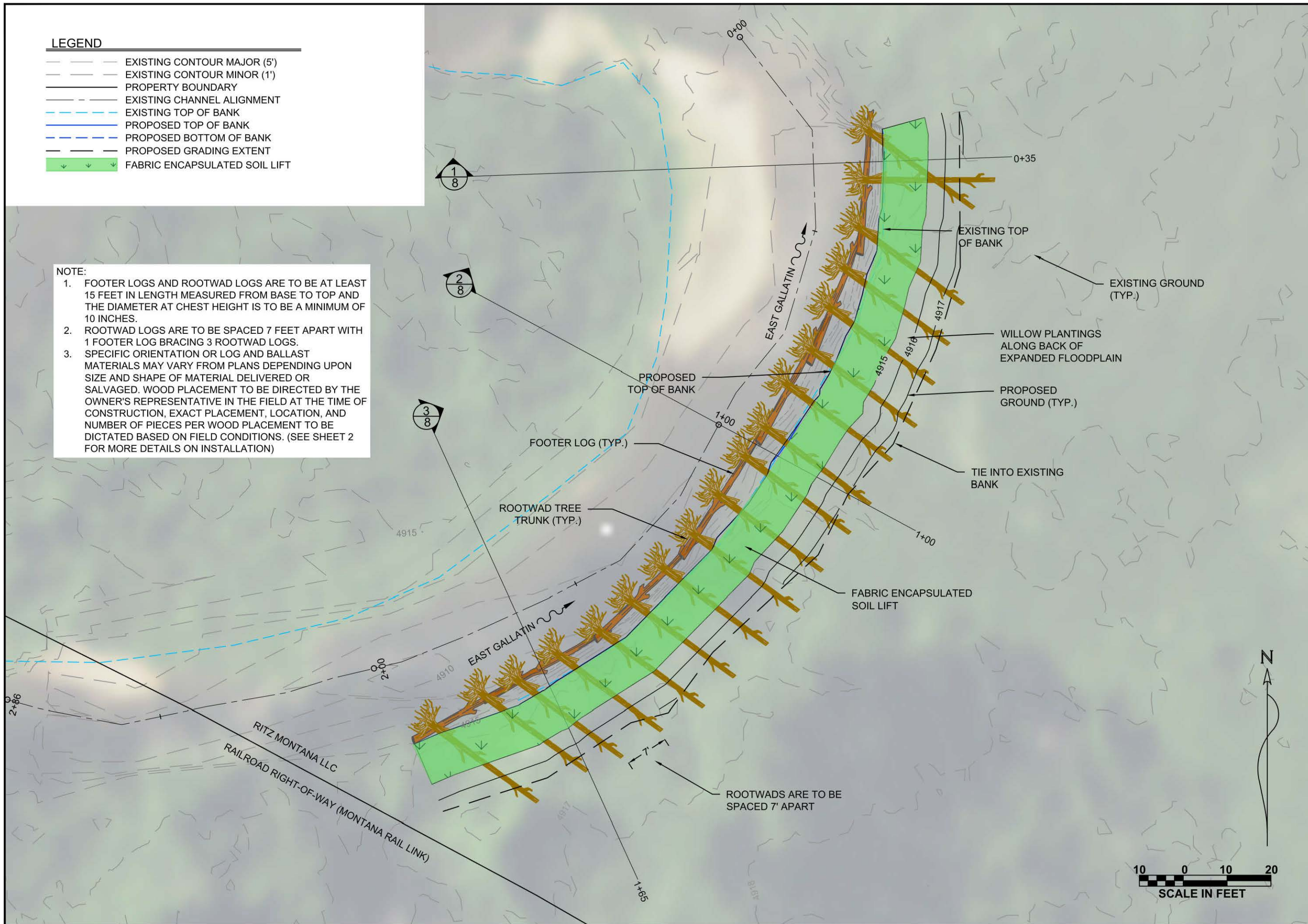
Completing this project and the tasks described above is entirely dependent on GWC securing additional grant funding to complete this project.

LEGEND

- — — — — EXISTING CONTOUR MAJOR (5')
- — — — — EXISTING CONTOUR MINOR (1')
- — — — — PROPERTY BOUNDARY
- - - - - EXISTING CHANNEL ALIGNMENT
- - - - - EXISTING TOP OF BANK
- — — — — PROPOSED TOP OF BANK
- - - - - PROPOSED BOTTOM OF BANK
- - - - - PROPOSED GRADING EXTENT
- ▾ ▾ ▾ FABRIC ENCAPSULATED SOIL LIFT

NOTE:

1. FOOTER LOGS AND ROOTWAD LOGS ARE TO BE AT LEAST 15 FEET IN LENGTH MEASURED FROM BASE TO TOP AND THE DIAMETER AT CHEST HEIGHT IS TO BE A MINIMUM OF 10 INCHES.
2. ROOTWAD LOGS ARE TO BE SPACED 7 FEET APART WITH 1 FOOTER LOG BRACING 3 ROOTWAD LOGS.
3. SPECIFIC ORIENTATION OR LOG AND BALLAST MATERIALS MAY VARY FROM PLANS DEPENDING UPON SIZE AND SHAPE OF MATERIAL DELIVERED OR SALVAGED. WOOD PLACEMENT TO BE DIRECTED BY THE OWNER'S REPRESENTATIVE IN THE FIELD AT THE TIME OF CONSTRUCTION, EXACT PLACEMENT, LOCATION, AND NUMBER OF PIECES PER WOOD PLACEMENT TO BE DICTATED BASED ON FIELD CONDITIONS. (SEE SHEET 2 FOR MORE DETAILS ON INSTALLATION)



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**ZEFF RANCH
WETLAND ENHANCEMENT
BOZEMAN, MONTANA**

**BANK
STABILIZATION
PLAN**

SHEET: 8

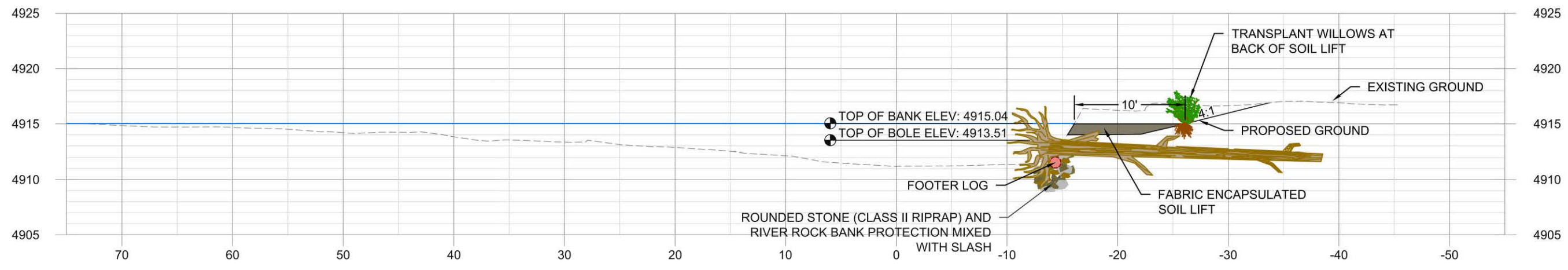
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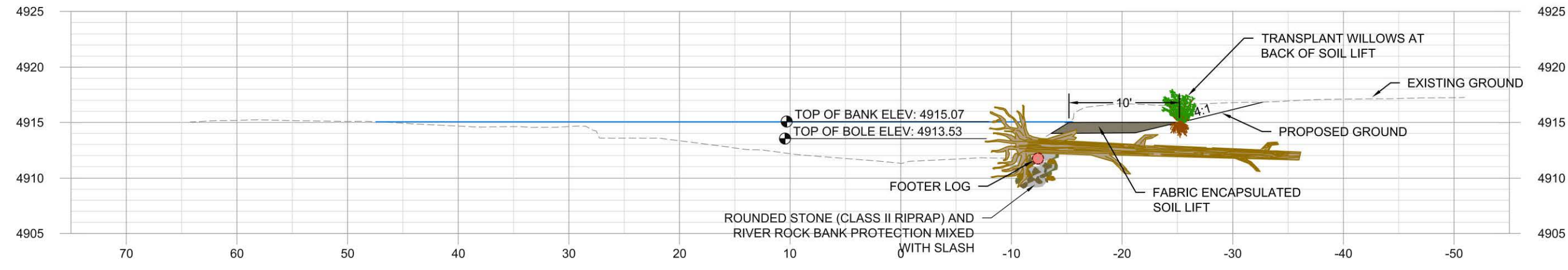
ZEFF RANCH
WETLAND ENHANCEMENT
BOZEMAN, MONTANA

BANK STABILIZATION SECTIONS

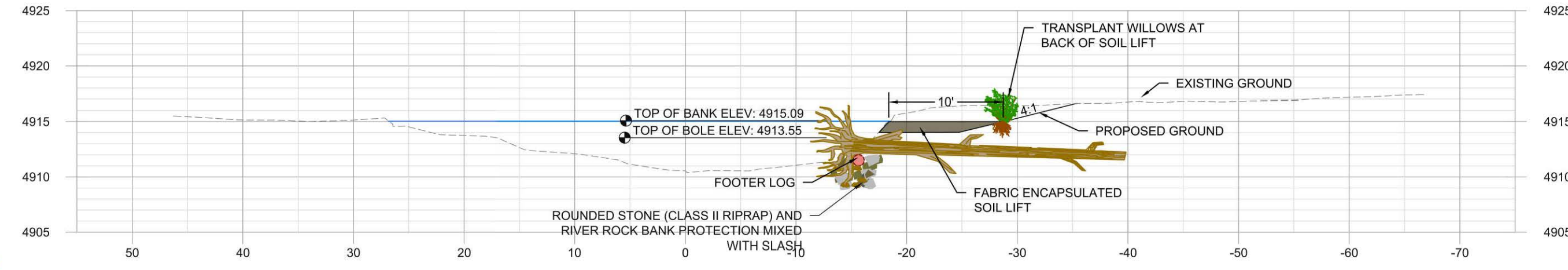
SHEET: 9



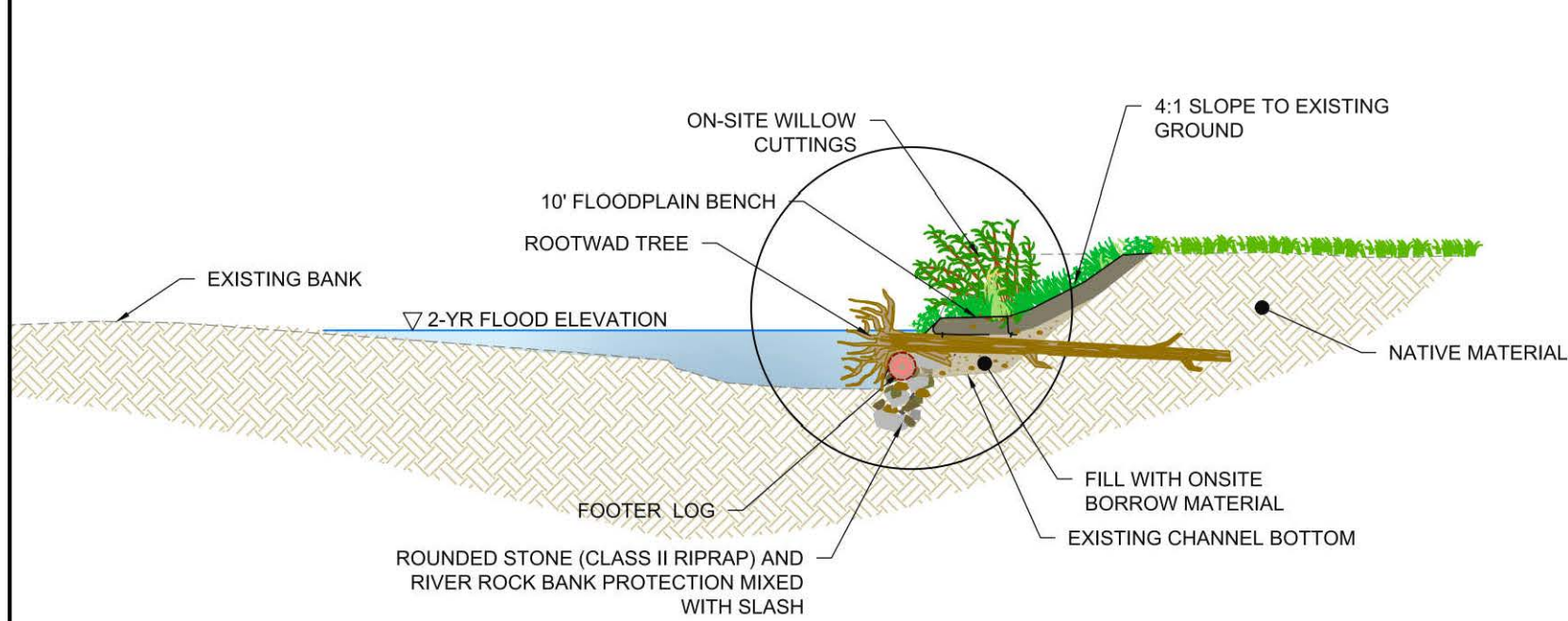
1
9 STA 0+35 SECTION
 HORIZONTAL SCALE: 1" = 10'
 VERTICAL SCALE: 1" = 10'



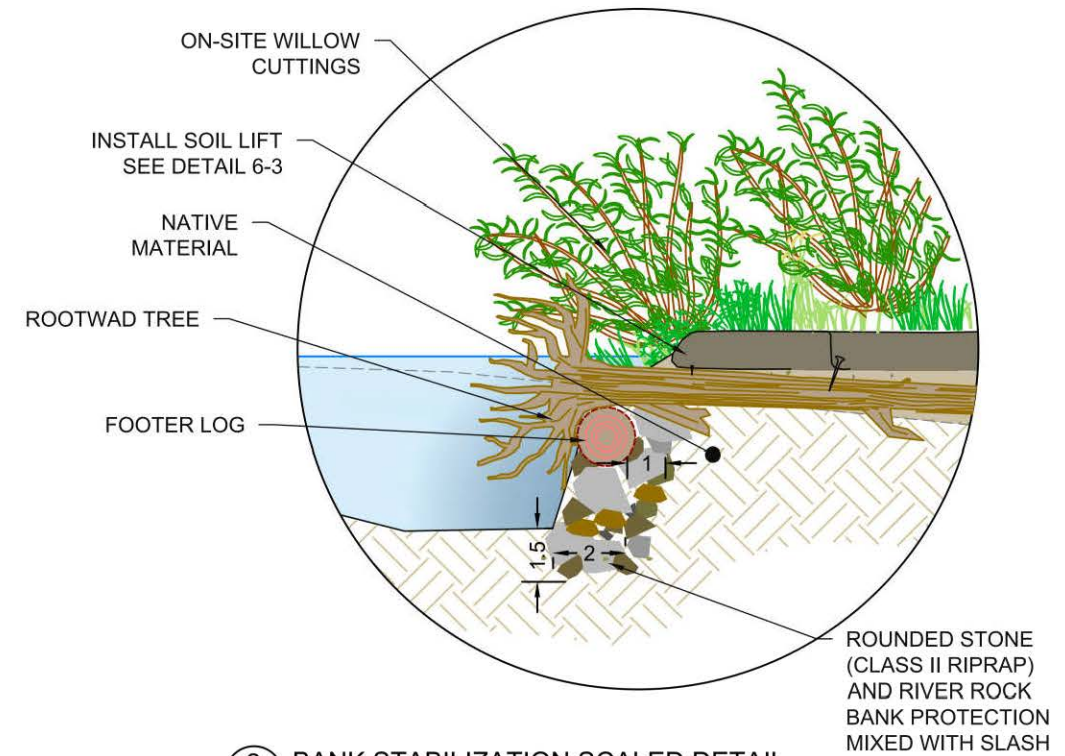
2
9 STA 1+00 SECTION
 HORIZONTAL SCALE: 1" = 10'
 VERTICAL SCALE: 1" = 10'



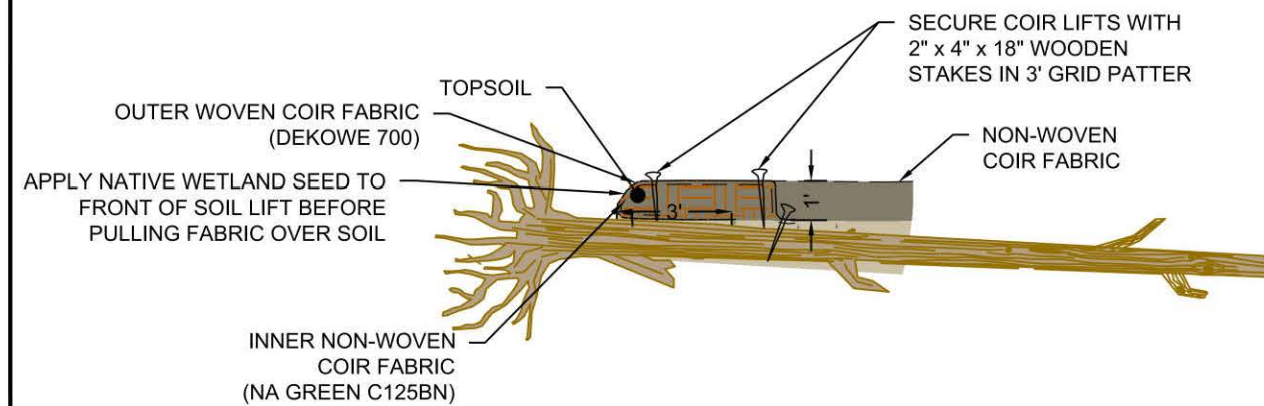
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9 STA 1+85 SECTION
 HORIZONTAL SCALE: 1" = 10'
 VERTICAL SCALE: 1" = 10'



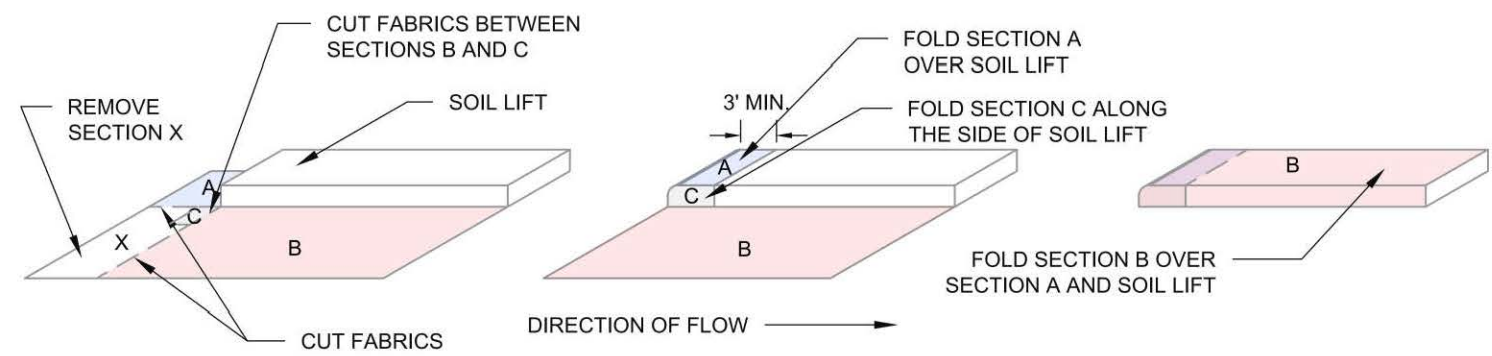
1
10 BANK STABILIZATION DETAIL
SCALE: 1"=10'



2
10 BANK STABILIZATION SCALED DETAIL
SCALE: 1"=5'



3
10 COIR LIFT DETAIL
SCALE: 1"=5'



STEP 1

1. CUT BOTH FABRICS SO THAT SECTION X MAY BE REMOVED.
2. REMOVE AND DISCARD SECTION X
3. MAKE CUT BETWEEN SECTIONS B AND C SO THAT SECTION C IS STILL CONNECTED TO SECTION A

STEP 2

1. FOLD SECTION A OVER SOIL LIFT. SECTION A SHOULD OVER LAP THE SOIL LIFT BY A MINIMUM OF 3 FEET
2. FOLD SECTION SECTION C ALONG SIDE OF SOIL LIFT
3. SECURE SECTION A AND C TEMPORARILY

STEP 3

1. FOLD SECTION B OVER SOIL LIFT AS WELL AS SECTION A AND C ENCAPSULATING THE SOIL LIFT.
2. SECURE SECTION B ACCORDING TO FES STAKING SCHEDULE. INSTALL STAKES ALONG TERMINATING EDGE TO SECURE BOTH SECTIONS A AND B

4
10 COIR FABRIC DETAIL
SCALE: 1"=10'

NOTE:

1. TOP SOIL IS TO BE BORROWED FROM EXCAVATION AREAS ON SIGHT.

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			2



**ZEFF RANCH
WETLAND ENHANCEMENT
BOZEMAN, MONTANA**

**BANK
STABILIZATION
DETAILS**

SHEET: 10

Wetland Seed Mix					
	Common Name	Species	% of Mix	# Seeds/lb	PLS lbs/acre
1	Amerian sloughgrass	<i>Beckmannia syzigachne</i>	5%	1,150,000	0.227
2	Nebraska sedge	<i>Carex nebrascensis</i>	10%	534,100	0.979
3	Slender wheatgrass (var. Primar)	<i>Elymus trachycaulus</i>	32%	159,000	10.520
4	American mannagrass	<i>Glyceria grandis</i>	20%	1,280,000	0.817
5	Baltic rush	<i>Juncus balticus</i>	10%	8,000,000	0.065
6	Fowl bluegrass	<i>Poa palustris</i>	20%	3,156,000	0.331
7	Blue vervain	<i>Verbena hastata</i>	3%	1,792,800	0.087

Upland Seed Mix					
	Common Name	Species	% of Mix	# Seeds/lb	PLS lbs/acre
1	Thickspike wheatgrass (var. Chief)	<i>Thinopyrum intermedium</i>	10%	88,000	4.950
2	Slender wheatgrass (var. Primar)	<i>Elymus trachycaulus</i>	20%	159,000	5.479
3	Western wheatgrass (var. Rosana)	<i>Pascopyrum smithii</i>	20%	110,000	7.920
4	Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	20%	450,000	10.000
5	Green needle grass	<i>Nassella viridula</i>	15%	181,000	5.000
6	Quickguard	<i>Triticum aestivum x Secale</i>	10%	13,000	10.000
7	Rocky mountain beeplant	<i>Cleome serulata</i>	5%	65,900	3.305

NOTES:

- SEEDING AND PLANTING LOCATIONS ARE TO BE DETERMINED BY WETLAND SCIENTISTS.
- WILLOW PLANTINGS FROM NURSERY WILL BE SUPPLEMENTED WITH ON SITE TRANSPLANTED WILLOWS.

Wetland Plug Plantings (10 cu in)		
Common name	Species	Totals
Nebraska sedge	<i>Carex nebrascensis</i>	525
Baltic rush	<i>Juncus balticus</i>	525
Wooley sedge	<i>Carex pellita</i>	525
Beaked sedge	<i>Carex utriculata</i>	2,003
Common spikerush	<i>Eleocharis palustris</i>	2,003
Panicled bulrush	<i>Scirpus microcarpus</i>	827
Softstem bulrush	<i>Schoenoplectus acutus</i>	827
	Total	7,235

Shrub Plantings (1-5 gal)		
Common name	Species	Totals
Peachlef willow	<i>Salix amygdaloides</i>	115
Bebb's willow	<i>Salix bebbiana</i>	115
	Total	230

Estimated Wetland Creation Quantities		
Material	Quantity	Unit
Total Cut Material	7700	CY
Steps		
13' - 10" Diameter Sill Logs	5	EA
4"-5" Cobble	3.5	CY
Propoex Geotex 801	8	SQ YD
Outfall		
Riprap	13	CY
Propoex Geotex 801	42	SQ YD
Headgate Wall		
8" PVC pipe	96	LF
30° PVC elbow	1	EA
9' - 6"x6" Wood Post	4	EA
11' - 2"x10" Wood Board	22	EA
Riprap	5	CY
Propoex Geotex 801	2	SQ YD
Boardwalk		
4' - 1"x6" Decking Boards	50	EA
25' - 2"x6" Boards	3	EA
1.7' - 2"x6" Boards	6	EA
2' - 4"x4" Cedar Posts	4	EA
2" Minus Gravel	0.5	CY
2"x6" Joist Hangers	4	EA
2"x6" Steel Angles	4	EA

Riprap Sizing			
D15 =	0.5	ft	5.8 Inches
D30 =	0.8	ft	9.3 Inches
D50 =	1.0	ft	11.6 Inches
D85 =	1.3	ft	15.1 Inches
D100 =	1.5	ft	18.6 Inches

Estimated Bank Stabilization Quantities		
Material	Quantity	Unit
Total Excavation	1652	CY
Biodegradable Woven Coir Fabric	150	SQ YD
Biodegradable Non-Woven Coir Fabric	270	SQ YD
Willow Plantings	23	EA
Dogwood and Rose Plantings	12	EA
Rootwad Logs	29	EA
Footer Logs	10	EA
Backfill	160	CY
Imported Stone	40	CY
Top Soil	72	CY
Seed Mix	3	LB

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QUANTITIES