Water & Environmental
TECHNOLOGIES

April 30, 2024

Sage L Joyce
Chief, Montana Regulatory
U.S Army Corps of Engineers – Omaha
10 West 15th Street, Suite 2200
Helena, MT 59626

Keenan Storrar
401/318 Coordinator
Water Protection Bureau
1520 E. 6th Ave.
Helena, MT 59601

District Administrator
Lincoln Conservation District
66121 Hwy 37 / PO Box 2170
Eureka, MT 59917

Jesse Haag
Director – Lincoln County Planning
512 California Ave.
Libby, MT 59923

Re: Northern Lights, Inc. – Lake Creek Dam Dredge Operation

To Whom It May Concern,

Attached please find a *Joint Application for Proposed Work in Montana's Streams, Wetlands, Floodplains, and Other Water Bodies*. The applicant is proposing to conduct a clean dredge operation to remove accumulated sediment upstream of a hydroelectric dam, south of Troy, Montana. The applicant is requesting a *No Permit Required Letter* from the Corps, 310-permit from the Lincoln Conservation District, 318/401 Authorization from Montana Department of Environmental Quality (MTDEQ) and a floodplain development permit from Lincoln County.

Please contact Jay Slocum at jslocum@waterenvtech.com or (406) 723-1579 if you have any questions regarding the permit application. Thank you for your attention to this application.

Sincerely,

Jay L Slocum
Senior Wildlife Biologist

Attachments

-Attachment 1: Joint Application for Proposed Work in Montana's Streams, Wetlands, Floodplain & Other Water Bodies

-Attachment 2: Engineering Plan and Profile Drawings – Permit Plan Set

-Attachment 3: Turbidity Monitoring Plan

-Attachment 4: Corps Request for No Permit Required (Stand Along Document, contains same figures and drawings that are contained within the Joint Application Submittal)

Attachment 1

Joint Application for Proposed Work in Montana's Streams, Wetlands, Floodplains, and Other Water Bodies

Revised: 5/12/2021 310 Form 270 and Instructions may be downloaded from: http://dnrc.mt.gov/*licenses-and-permits/stream-permitting*	**CD/AGENCY USE ONLY** Application # Li-05-08-24. Date Received 05/02/24 Date Accepted Date Initials Initials Date FW: to FWP 05/02/24

This space is for all Department of Transportation and SPA 124 permits (government projects).

Project Name Click to enter text.

Control Number Click to enter text. Contract Letting Date Date

MEPA/NEPA Compliance ☐Yes ☐No If yes, #C5 of this application does not apply.

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

This is a standardized application to apply for one or all local, state, or federal permits listed below.

- Refer to instructions to determine which permits apply and submit a signed application to each applicable agency.
- Incomplete applications will result in the delay of the application process.
- The applicant is responsible for obtaining all necessary permits and landowner permission before beginning work.
- **Other laws may apply.**

	PERMIT	AGENCY	FILL OUT SECTIONS	FEE
X	310 Permit	Local Conservation District	A - E and G	Inquire locally
	SPA 124 Permit	Department of Fish, Wildlife and Parks	A - E and G	No fee
X	318 Authorization 401 Certification	Department of Environmental Quality	A - E and G	$250 (318); $400 - $20,000 (401)
	Navigable Rivers Land Use License, Lease, or Easement	Department of Natural Resources and Conservation, Trust Lands Management Division	A - E and G	$50, plus additional fee
	Section 404 Permit, Section 10 Permit	U. S. Army Corps of Engineers (USACE)	A - G F1-8	Varies ($0 - $100)
X	Floodplain Permit	Local Floodplain Administrator	A - G	Varies by city/county ($25 - $500+)

A. APPLICANT INFORMATION

APPLICANT NAME (person responsible for project)**:** Northern Lights, Inc
Has the landowner consented to this project? ☒ Yes ☐ No
Mailing Address: 421 Chevy St. P.O Box 269, Sagel, ID 83860
Physical Address: 421 Chevy St. P.O Box 269, Sagel, ID 83860
Cellphone:208.263.5141 Home Phone: 800.326.9594 E-Mail:Click here to enter or N/A.

LANDOWNER NAME (if different from applicant): Click here to enter name or N/A.
Mailing Address:
Physical Address: Click here to enter physical address or N/A.
Cellphone: Click here to enter or N/A. Home Phone:Click here to enter or N/A. E-Mail:Click here to enter or N/A.

CONTRACTOR/COMPANY NAME (if applicable): Water and Environmental Technologies
PRIMARY CONTACT NAME: Brad Bennett
Mailing Address: 102 Cooperative Way, Suite 100 Kalispell, MT 59901
Physical Address: Same
Cellphone:Click here to enter or N/A. Home Phone:406-756-2550 E-Mail:Bbennett@waterenvtech.com

B. PROJECT SITE INFORMATION

1. NAME OF **STREAM** or **WATER BODY** at project location
   Project Address/Location: Troy Dam Nearest Town Troy, MT
   County Lincoln Geocode: 56428119401200000
   N/A1/4 of the N/A 1/4 of, Section 19 Township 31 N, Range 33 W
   Latitude 48.4389 N Longitude-115.8709 W Refer to section B1 in the instructions.

2. Is the proposed activity within **SAGE GROUSE** areas designated as general, connected, or core habitat?
   Yes ☐ No ☒ Attach consultation letter if required. Refer to section B2 in the instructions.

3. Is this a **STATE NAVIGABLE WATERWAY**? The state owns beds of certain navigable waterways**.**
   Yes ☐ No☒ If yes, send a copy of this application to the appropriate DNRC land office. Refer to section B3 in the instructions.

4. **WHAT IS THE CURRENT CONDITION** of the proposed project site? Describe the existing bank condition, bank slope, height, nearby structures, and wetlands. What vegetation is present? Refer to section B4 in the instructions.

Northern Lights, Inc. (NLI) owns and operates the Lake Creek Dam, located south of Troy, MT., within Lincoln County as shown on **Figures 1a & 1b**. The forebay associated with the hydroelectric dam has accumulated excess sediment, recently overtopping the intake penstocks, causing damage to the turbine which has resulted in a temporary facility shutdown. The damaged equipment has been replaced but NLI is seeking to mitigate the sediment accumulation prior to resuming operation. A sediment dredging operation plan has been developed to remove the excess sediment deposits currently effecting dam operations. The existing vegetation, bank conditions, slope, and height are detailed in photo log contained within the *Corps Request for No Permit Required Memo* (**Attachment 4**). Wetlands along the reservoir fridge were delineated and perimeter controls will be installed prior to construction. The project location abuts the dam and associated structures, no other structures are nearby.

C. PROPOSED PROJECT OR ACTIVITY INFORMATION

1. **TYPE OF PROJECT** (check all that apply) Refer to section C1 in the instructions.

☐ **Agricultural and Irrigation Projects:** Diversions, Headgates, Flumes, Riparian fencing, Ditches, etc.

☐ **Buildings/Structures:** Accessory Structures, Manufactured Homes, Residential or Commercial Buildings, etc.

☒ **Channel/Bank Projects:** Stabilization, Restoration, Alteration, Dredging, Fish Habitat, Vegetation or Tree Removal, or any other work that modifies existing channels or banks.

☐ **Crossings/Roads:** Bridge, Culvert, Fords, Road Work, Temporary Access, or any project that crosses over or under a stream or channel.

☐ **Mining Projects:** All mining related activity, including; Placer Mining, Aggregate Mining, etc.

☐ **Recreation related Projects:** Boat Ramps, Docks, Marinas, etc.

☐ **Other Projects:** Cistern, Debris Removal, Excavation/Pit/Pond, Placement of Fill, drilling or directional boring, Utilities, Wetland Alteration. Other project type not listed here _____

_____

2. IS THIS APPLICATION FOR an annual maintenance permit? ☐ Yes ☒ No
(If yes attach annual plan of operation to this application) – Refer to section C2 in the instructions.

3. WHY IS THIS PROJECT NECESSARY? STATE THE PURPOSE OR GOAL of the proposed project. Refer to section C3 in the instructions.

The forebay associated with the hydroelectric dam has accumulated excess sediment, recently overtopping the intake penstocks, causing damage to the turbine which has resulted in a temporary facility shutdown. The damaged equipment has been replaced but NLI is seeking to mitigate the sediment accumulation prior to resuming operation. A sediment dredging operation plan has been developed to remove the excess sediment deposits currently effecting dam operations.

4. PROVIDE A BRIEF DESCRIPTION of the proposed project plan and how it will be accomplished. Refer to section C4 in the instructions.

The sediment dredging operation plan was developed to ensure that the project will not result in the discharge of dredged or fill material within Water of the United States (WOTUS), including adjacent wetlands. The plan does not include any discharge or placement of material that raises the bottom elevation of the WOTUS, even temporarily. A “clean dredge” construction method will be utilized during sediment removal activities, meaning the material will be excavated and directly

placed in a temporary storage location outside of jurisdictional boundaries. The material will not be scraped or pushed around within jurisdictional areas during dredging operations. A detailed project description including construction sequencing is provided below.

The sediment dredging operation plan contains two construction options for contractor consideration. Option 1 includes construction of a crane platform near the dam that will accommodate a large crane equipped with a 140-foot boom deploying a clamshell bucket. If site access constraints make Option 1 unfeasible, Option 2 includes construction of a ramp near the dam that will accommodate a small crane, positioned on a barge, with a 90-foot boom deploying a clamshell bucket. The barge will be positioned at two locations within the reservoir using large stakes called "spuds" to secure it in place. Both options will have a similar dredging footprint and material quantities, **Attachment 2** of this Joint Application details the plan and profile drawings for each option. Regardless of the option selected, the "clean dredge" and spoils disposal method will be the same for both options. Dredging operations will be conducted in 2-foot cuts, removing the entire cut within the boom's reach before proceeding deeper. Both options will utilize a temporary spoil location or "sump" which will consist of an excavated area surrounded by compacted earthen berms. Dredged material will be directly placed within the sump by the clamshell bucket then an excavator will transfer the material into 20 cubic yard (CY) side dump trailers for hauling and disposal. The final disposal site of the dredged material is the Troy Landfill, located approximately a half mile north of the project area. The landfill will contain the dredged material in excavated cells lined with compacted earthen berms until the material dries and can be used for other applications.

Option 1 will require the construction of a timber decked earthen platform. The toe slope of the earthen platform will remain approximately 2-feet above the wetland fridge associated with the reservoir. Option 2 will require the excavation and grading of an earthen ramp to launch the barge, this will include expanding and improving the existing boat ramp. The ramp disturbance will also remain outside the wetland fridge. A site-specific wetland assessment was conducted this spring and found the wetland boundary follows the edge of the reservoir as shown on **Figures 2a & 2b**.

A sediment turbidity monitoring plan has been developed to ensure the project does not cause significant water quality impacts during sediment removal activities. The monitoring plan has been provided as **Attachment 3**.

5. **WHAT OTHER ALTERNATIVES were considered to accomplish the stated purpose of the project?** Why was the proposed alternative selected? Refer to section C5 in the instructions.

No action alternative – A no action alternative was considered. This alternative was rejected, as leaving the sediment in place would continue to damage the turbine and associated infrastructure.

Alternative 1 – A suction dredge was considered but was deemed infeasible.

Preferred Alternative (Option 1): The preferred alternative was ultimately selected because it meets project goals and timelines, minimizes impacts to natural resources, and is feasible considering the access constraints.

Preferred Alternative (Option 2): The preferred alternative was ultimately selected because it meets project goals and timelines, minimizes impacts to natural resources, and is feasible considering the access constraints.

6. **NATURAL RESOURCE BENEFITS OR POTENTIAL IMPACTS. Please complete the information below to the best of your ability**.

* Explain any temporary or permanent changes in erosion, sedimentation, turbidity, or increases of potential contaminants. What will be done to minimize those impacts?

Prior to construction, structural erosion and sediment controls will be installed around disturbed sites to prevent sediment from entering adjacent surface waters and wetland habitats. A supply of erosion control measures will be kept on hand to respond to sediment emergencies. No long-term sediment loading issues are anticipated to occur and the upland impacted areas will be stabilized and revegetated.

Site clearing, staging/stockpile areas, and access routes will be located to minimize overall disturbance to existing vegetation and preclude erosion from entering adjacent surface waters. The staging area location will provide a sufficient buffer to surface waters and equipment fueling, maintenance, and staging areas will be located in non-wetland areas upgradient of the wetlands and contain a spill prevention kit. Equipment used near surface water will be cleaned of external oil, grease, dirt, mud, plant material and other debris, which may harbor invasive plants or animals. Equipment will be inspected before mobilization to the site, any leaks or accumulation of grease will be cleaned before interacting with surface waters.

Equipment will include over the road 20 CY side-dumps, excavators, cranes, and other equipment necessary for transporting and assembling large construction equipment necessary for this project.

An unavoidable short-term increase of sedimentation and turbidity is anticipated and will be minimized by construction timing and project duration. This project will adhere to FERC permitting, which requires preventative measures for increased sedimentation, including a sampling and response plan in the event of an increase in sedimentation and turbidity (**Attachment 3**).

- Will the project cause temporary or permanent impacts to fish and/or aquatic habitat? What will be done to protect the fisheries?

The nature of this project will result in permanent impacts to fish and/or aquatic habitat within the project area. The goal of this project, however, is to remove the sediment that has accumulated since the reservoir has been last dredged. Therefore, the project will restore the streambed to its original condition/elevation and increase the overall water capacity and flood control of the reservoir.

The project will be implemented in a timely manner, limiting the temporal loss of aquatic habitat. The work schedule is dependent on permit acquisition, with a goal of beginning in August. Work is anticipated to last 3-4 weeks. All equipment will be maintained and in good working order to prevent oil leaks. Construction will be limited to only the area necessary to complete the project and meet project goals. Sensitive habitats will be flagged and structural erosion and sediment controls will be installed near the water's edge to prevent erosion and sedimentation from upland disturbances. A sediment turbidity monitoring plan has been developed to ensure the project does not cause significant water quality impacts during sediment removal activities.

- What will be done to minimize temporary or permanent impacts to the floodplain, wetlands, or riparian habitat?

To minimize impacts to sensitive habitats, perimeter controls will be maintained to limit unnecessary vegetation disturbance and maintain vegetative buffers. Equipment fueling, maintenance, and staging areas will be in non-wetland/floodplain areas upgradient of the sensitive areas to provide a sufficient buffer to surface waters. No impacts to wetland or riparian habitats are anticipated. The conservation measures associated with stream permitting guidance were incorporated into the project plan. Conservation measures include adhering to permit conditions, project minimization standards, in-water work timing, work area isolation, erosion control measures, pollution and invasive species control measures, and site restoration standards. This project is anticipated to increase the flood capacity within the reservoir.

- What efforts will be made to decrease flooding potential upstream and downstream of project?

Flooding potential is anticipated to decrease as a result of this project as the floodplain capacity will increase as sediment is removed from the streambed.

To ensure floodplain regulatory compliance, material stockpiles and equipment will only be stored in the floodplain temporarily and only during the day. The material and/or equipment will be readily movable within the limited time available after a flood warning, and any stockpile will not consist of flammable, toxic, or explosive material, pursuant to Regulation 9.7. This and all other regulations listed in Lincoln County Floodplain Hazard Management Regulations will be adhered to in order to ensure that this project is completed in compliance with all applicable rules and regulations.

The sump is located along the Zone A floodplain fringe as shown on **Figure 3a & 3b**; however, this is considered a temporary stockpile staging area and will be cleaned out daily with no spoils staged for prolonged periods.

- Explain potential temporary or permanent changes to the water flow or to the bed and banks of the waterbody. What will be done to minimize those changes?

Minimal effects to water flow are anticipated. Following project implementation, the dam will resume standard operation. The reservoir bed will be lowered to ensure the lower flood controls gates currently nonoperational can be opened in case of an emergency high flow situation. The channel thalweg will be reestablished to promote natural channel geometry and flow conditions. The banks of the stream will not be impacted.

Impacts will be minimized by excavating to the design specifications, only sediment accumulation will be removed, and the native streambed will not be impacted.

- How will existing vegetation be protected and its removal minimized? Explain how the site will be revegetated. Include weed control plans.

Prior to construction, perimeter controls will be installed to limit the project's footprint. All upland disturbance areas (crane pad, excavator pad, sump, and berms) are within previously disturbed areas devoid of vegetation. Any inadvertent disturbances to vegetated areas will be reseeded with appropriate seed mixes. If disturbances to vegetated areas occur, restoration efforts will be conducted immediately following construction, with seeding and revegetation efforts conducted between September 15th and ground freeze. Native grass seed mix and salvaged on-site plants will be used in upland disturbance areas. Seed will be broadcast seeded at an application rate of 25 lbs. PLS per acre.

The Applicant will monitor seeded areas for seedling establishment and the presence of noxious weed species. Steep slopes and other areas with highly erosive soil will be monitored to ensure vegetation stabilization is achieved. Bare ground will be reseeded as necessary and erosive formations such as rills and gullies will be refilled and restabilized. Weed control will be limited to hand pulling and mechanical methods for the first growing season as widespread chemical control during the seedling establishment period can hinder overall revegetation success. Chemical control is also discouraged near adjacent surface waters. Monitoring and maintenance will be going.

D. CONSTRUCTION DETAILS

1. PROPOSED CONSTRUCTION DATES. Include a project timeline. Start date 8/1/2024
Finish date 9/1/2024 How long will it take to complete the project? Approximately 4 weeks from start date Is any portion of the work already completed? ☐ Yes ☒ No (If yes, describe previously completed work.)
Refer to section D1 in the instructions.
No construction or site preparation has occurred.

2. PROJECT DIMENSIONS. Describe length and width of the project. Refer to section D2 in the instructions.
Option 1: The project area is limited by the radius of the crane boom, which is 140 feet. The area proposed for dredging is 19,658 square feet or 0.451 acres. Additionally, the upland disturbances (crane pad, excavator pad, sump, and berms) encompass approximately 3,136 square feet or 0.072 acres. Further information is included in the *Engineering Plan and Profile Drawings* provided as **Attachment 2**.

Option 2: The project area is limited by the two barge locations and the radius of the crane boom, which is 90 feet. The area proposed for dredging is 19,852 square feet or 0.456 acres. Additionally, the upland disturbances (crane pad, excavator pad, sump, and berms) encompass approximately 958 square feet or 0.022 acres. Further information is included in the *Engineering Plan and Profile Drawings* provided as **Attachment 2**.

3. EQUIPMENT. List all equipment that will be used for this project. How will the equipment be used on the bank and/or in the water? Note: All equipment used in the water must be clean, drained and dry. Refer to section D3 in the instructions.

The equipment for this project includes:

- Crane with clamshell bucket (Option 1 - 140-foot boom / Option 2 - 90 foot boom).
    - Option 1 - The crane will be located on a raised, timber decked pad approximately 25 feet upgradient of the surface water.
    - Option 2 – The crane will be on a barge secured in two locations within the reservoir, with an improved ramp to launch the barge.
    - The cranes have a clamshell bucket, dredging operations will be conducted in 2-foot cuts, removing the entire cut within the boom's reach before proceeding deeper.
    - Both options will utilize a temporary spoil location or "sump" which will consist of an excavated area surrounded by compacted earthen berms.
    - Dredged material will be directly placed within the sump by the clamshell bucket then an excavator will transfer the material into 20 cubic yard (CY) side dump trailers for hauling and disposal.
- Excavator
    - The excavator will sit on an earthen pad approximately 50 feet upgradient of the surface water.
    - The excavator will remove sediment from the sump and place material into 20-CY side dump trailers.
- Dump Trucks
    - Two 20-CY side dump trailers will receive sediment from the excavator and haul it to the Troy Landfill.
- Barge (Option 2)
    - The barge is an 8-piece wood and steel unit assembled on-site.

- An anchoring unit known as a "spud" will extend from the bottom of the barge into the streambed to ensure the barge stays in place.

- Miscellaneous
  - Various pieces of smaller equipment and machinery will be on site to facilitate construction.

Will equipment from out of state be used? YES ☒ NO ☐ UNKNOWN ☐
Will the equipment cross west over the continental divide to the project site? YES ☐ NO ☐ UNKNOWN ☒
Will equipment enter the Flathead Basin? YES ☐ NO ☒ UNKNOWN ☐

4. MATERIALS. Provide the total quantity and source of materials proposed to be used or removed. Note: This may be modified during the permitting process therefore it is **recommended you do not purchase materials until all permits are issued.** List soil/fill type, cubic yards and source, culvert size, rip-rap size, any other materials to be used or removed on the project. Refer to section D4 in the instructions.

Cubic yards/Linear feet	Size and Type	Source
• 2,980 Cubic Yards Cut (Option 1)	Native Sediment	Lake Creek Streambed
• 3,000 Cubic Yards Cut (Option 2)	Native Sediment	Lake Creek Streambed
• 50 Cubic Yards Net Cut (Option 1)	Preparation Earthwork	On-site Upland Soil
• 23 Cubic Yard Net Cut (Option 2)	Preparation Earthwork	On-site Upland Soil
• Prefabricated Wooden Ramp	435 Square Feet	Imported
• Prefabricated Barge	900 Square Feet	Imported

E. REQUIRED ATTACHMENTS

1. **PLANS AND/OR DRAWINGS** of the proposed project. **Include**:
   - Plan/Aerial view
   - an elevation or cross section view
   - dimensions of the project (height, width, depth in feet)
   - location of storage or stockpile materials dimensions and location of fill or excavation sites
   - drainage facilities
   - location of existing/proposed structures, such as buildings, utilities, roads, or bridges
   - an arrow indicating north
   - Site photos

2. **ATTACH A VICINITY MAP OR A SKETCH** which includes: The water body where the project is located, roads, tributaries, other landmarks. Place an "X" on the project location. Provide written directions to the site. This is a plan view (looking at the project from above).

Refer to **Figures 1a, 1b, 2a, 2b, 3a, 3b** & **Attachment 2** of this joint application.

3. **ATTACH ANNUAL PLAN OF OPERATION if requesting a Maintenance 310 Permit.**

4. **ATTACH AQUATIC RESOURCE MAP.** Document the location and boundary of all waters of the U.S. in the project vicinity, including wetlands and other special aquatic sites. Show the location of the ordinary high-water mark of streams or waterbodies. **if requesting a Section 404 or Section 10 Permit.** Ordinary high-water mark delineation included on plan or drawings and/or a separate wetland delineation.

Refer to **Figure 2a, 2b, 3a, and 3b** of this joint application.

F. ADDITIONAL INFORMATION FOR U.S. ARMY CORPS OF ENGINEERS (USACE) SECTION 404, SECTION 10 AND FLOODPLAIN PERMITS.

Section F should only be filled out by those needing Section 404, Section 10, and/or Floodplain permits. Applicants applying for Section 404 and/or Section 10 permits complete F 1- 8. Applicants applying for Floodplain permits, complete all of Section F. Refer to section F in the instructions.

FOR QUESTIONS RELATING TO SECTION F, QUESTIONS 1-8 PLEASE CONTACT THE USACE BY TELEPHONE AT 406-441-1375 OR BY E-MAIL.

1. Identify the specific **Nationwide Permit(s)** that you want to use to authorize the proposed activity. Refer to section F1 in the instructions.

This is a clean dredge operation and no temporary fill material will be placed within WOTUS or adjacent wetlands, the applicant is requesting a letter of No Permit Required (**Attachment 4**).

2. Provide the **quantity of materials** proposed to be used in waters of the United States. What is the length and width (or square footage or acreage) of impacts that are occurring within waters of the United States? How many cubic yards of fill material will be placed below the ordinary high-water mark, in a wetland, stream, or other waters of the United States? Note: Delineations are required of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Refer to section F2 in the instructions.

The entirety of the disturbances associated with this project, regardless of the option that is chosen, will be confined to an area below the Ordinary High Water Mark of Lake Creek. Additionally, all disturbances within WOTUS will be dredged. There is no fill within WOTUS associated with this project.

(Option 1) The area proposed for dredging is 19,658 square feet or 0.451 acres and totals approximately 2,980 cubic yards of dredged material.

(Option 2) The area proposed for dredging is 19,852 square feet or 0.456 acres and totals approximately 3,000 cubic yards of dredged material.

3. How will the proposed project avoid or minimize **impacts to waters of the United States?** Attach additional sheets if necessary. Refer to section F3 in the instructions.

This dredge operation was designed to minimize impacts to WOTUS. A wetland assessment was conducted and perimeter controls will be installed to ensure project impacts avoid adjacent wetlands. There will be no fill within WOTUS. BMPs will be installed as necessary to minimize the impacts from sedimentation, and erosion, and site restoration will follow construction. The project will be implemented in a timely manner, limiting the temporal loss of aquatic habitat.

4. Will the project impact greater than 0.10-acre of wetland and/or more than 300 linear feet of stream or other waters? If yes, describe how the applicant is going to **compensate (mitigation bank, in-lieu fee program, or permittee responsible)** for these unavoidable impacts to waters of the United States. Refer to section F4 in the instructions.

Compensatory mitigation is not anticipated. No impacts to wetlands are anticipated and no fill will be added to WOTUS.

5. Is the activity proposed within any component of the **National Wild and Scenic River System**, or a river that has been officially designated by Congress as a **"study river"**? Refer to section F5 in the instructions.

☐ Yes ☒ No

6. Does this activity require permission from the USACE because it will alter or temporarily or permanently occupy or use a **USACE authorized civil works project? (Examples include USACE owned levees, Fort Peck Dam, and others)**? Refer to section F6 in the instructions.

☐ Yes ☒ No

7. List the **ENDANGERED AND THREATENED SPECIES** and **CRITICAL HABITAT(s)** that might be present in the project location. Refer to section F7 in the instructions.

According to the U.S. Fish and Wildlife Service IPaC website the following mammals, insects, and plant species may be potentially affected by the proposed project: Canada Lynx, Grizzly Bear, North American Wolverine, Yellow- Billed Cuckoo, Bull Trout, and Monarch Butterfly.

This is not Bull Trout Critical Habitat.

8. List any **HISTORIC PROPERTY(S)** that are listed, determined to be eligible or are potentially eligible (over 50 years old) for listing on the National Register of Historic Places." Refer to section F8 in the instructions.

The Lake Creek Dam is potentially eligible for listing on the National Register of Historic Places. This project is adjacent to the dam but will not interact with it or any potentially historic structures.

9. 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. Refer to section F9 in the instructions.

Anticipated environmental permits:
310 Permit – Pending,
318/401 Certification – Pending,
Section 404 Permit – No-Permit-Required Verification Letter, Pending, and
Local Floodplain Development Permit (FDP) – Pending.

10. List the **NAMES AND ADDRESSES 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).
    NAME OF **Adjacent Landowner** Stimson Lumber Company P.O Box 7400, Coeur D'Alene, ID 83816-1943
    NAME OF **Adjacent Landowner**: James J Kurtzenacker III - Snohomish, WA 98290-9068
    NAME OF **Adjacent Landowner**: Gary and Lana Managhan PO Box 652, Troy, MT 59935-0652
    NAME OF **Adjacent Landowner**: Louis and Rozanne Kurtz PO Box 652, Troy, MT 59935-0652

11. **Floodplain Map Number** 3001570595B Refer to section F11 in the instructions.

    Project area within a mapped Flood Zone A.

12. Does this project comply with **local planning or zoning regulations**? Refer to section F12 in the instructions.
    ☒ Yes ☐ No

G. SIGNATURES/AUTHORIZATIONS

Some agencies require original signatures. **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. Refer to section G in the instructions.

APPLICANT (Person responsible for project):
Print Name: Kristin Burge

5-1-2024
Signature of Applicant Date

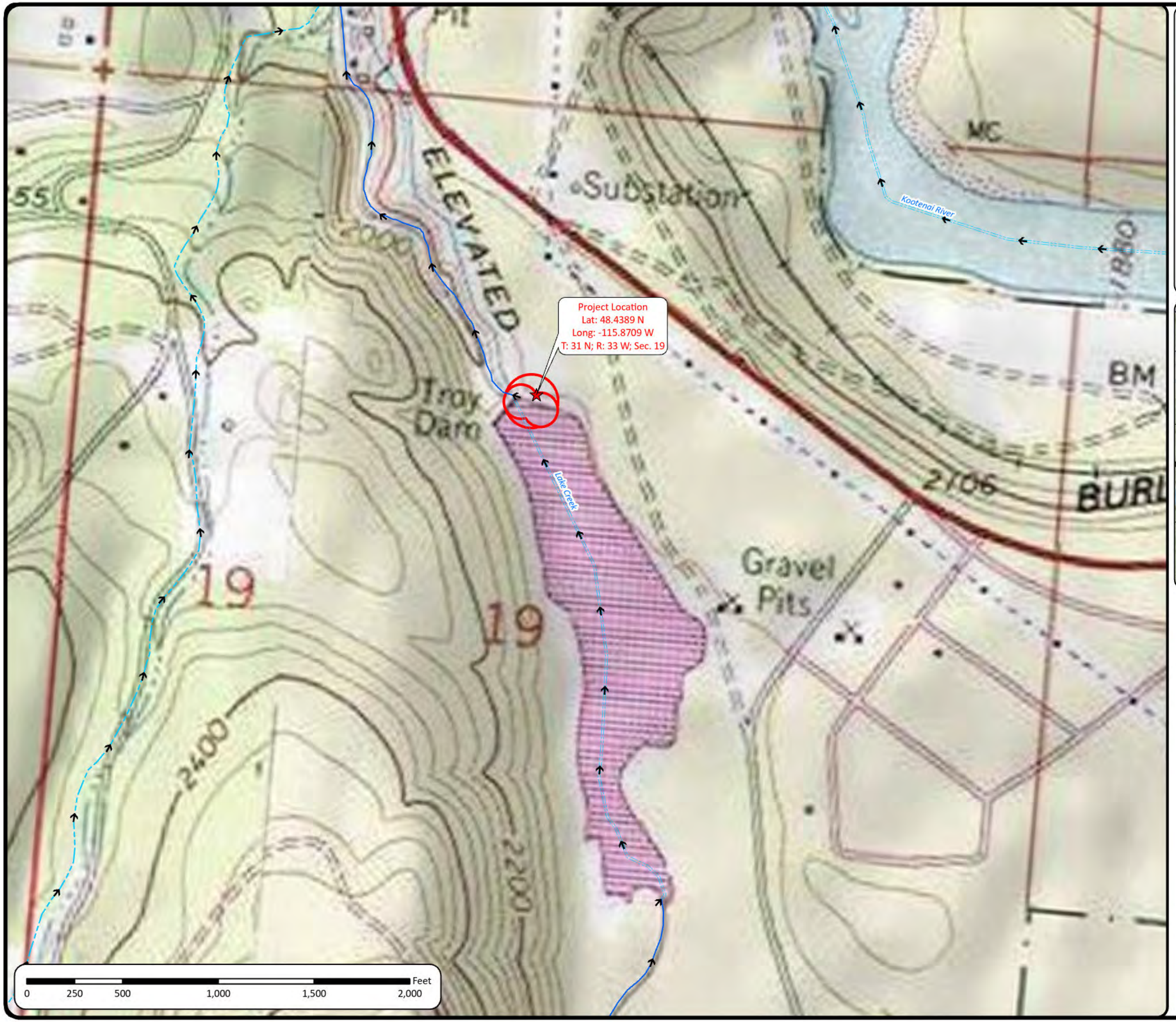
LANDOWNER:
Print Name: Northern Lights, Inc

Signature of Landowner Date

*CONTRACTOR'S PRIMARY CONTACT (if applicable):
Print Name: Brad Bennett (WET)

5-1-2024
Signature of Contractor/Agent Date
*Contact agency to determine if contractor signature is required.

Figures



Legend

- Towns
- Project Location
- Project Boundary
- County Boundary
- State Boundary

National Hydrography Dataset

- Perennial Stream/River
- Intermittent Stream/River
- Artificial Path
- Flow Direction

N
W E
S

NO.	DESCRIPTION	DATE	DRAFT	REVIEW
1	MAP CREATION			
2				
3				
4				
5				

NOTES

NORTHERN LIGHTS, INC. - DAM DREDGING

SITE LOCATION - TOPOGRAPHIC MAP - NHD

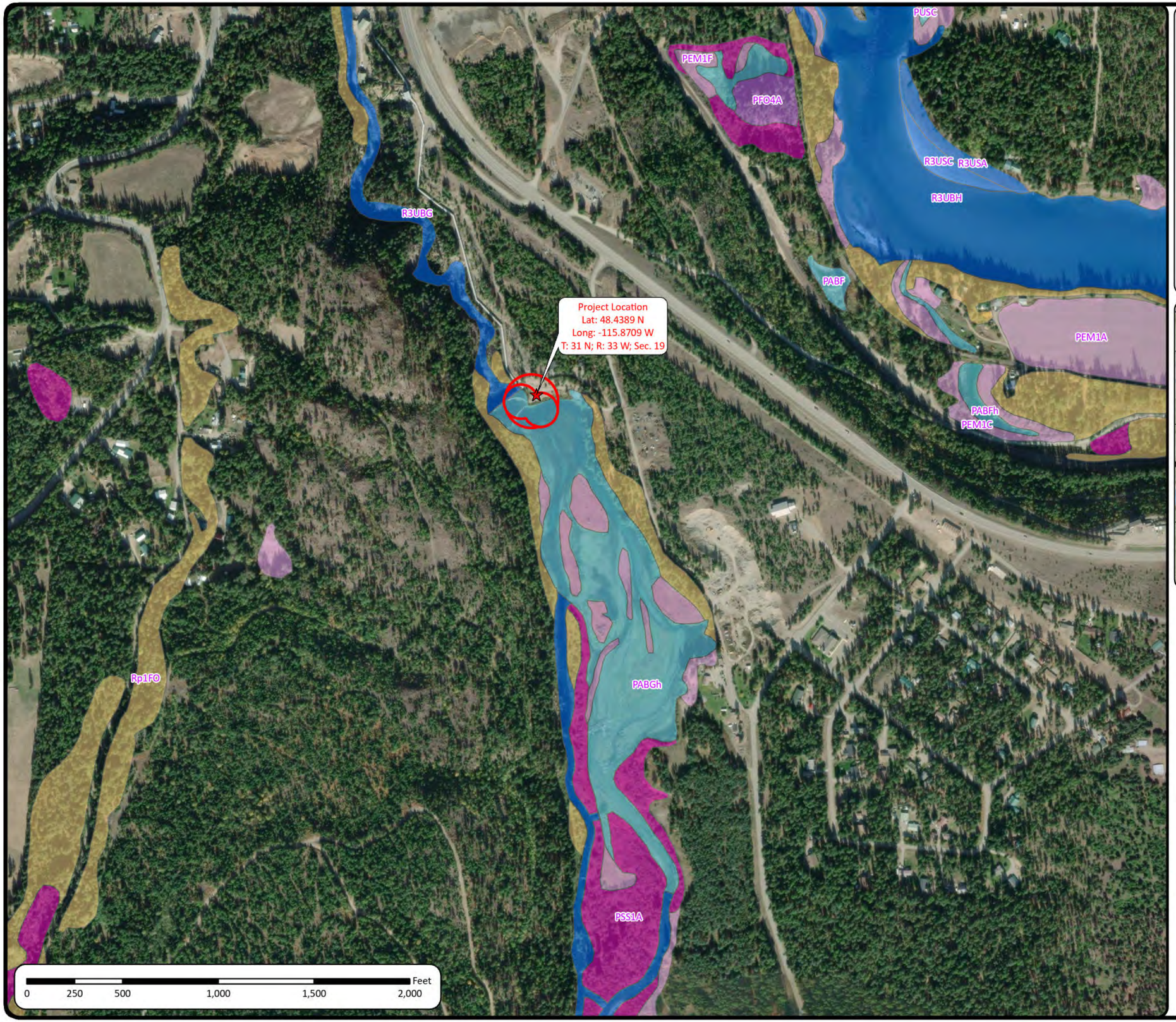
FIGURE 1a

JOB#: 1667-2023

DATE:4/29/2024

Path: M:\Troy_Dam\GIS\Working_map\Working_map.aprx, Author: cgabrielsen

Water & Environmental TECHNOLOGIES



Legend

- Towns
- Project Location
- Project Boundary
- County Boundary
- State Boundary

Montana Wetland Riparian Framework

- River
- Freshwater Pond
- Freshwater Emergent Wetland
- Freshwater Forested Wetland
- Freshwater Scrub-Shrub Wetland
- Riparian Forested

N
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NO.	DESCRIPTION	DATE	DRAFT	REVIEW
1	MAP CREATION			
2				
3				
4				
5				

NOTES

NORTHERN LIGHTS, INC. - DAM DREDGING

SITE LOCATION - AERIAL IMAGERY - MWRF

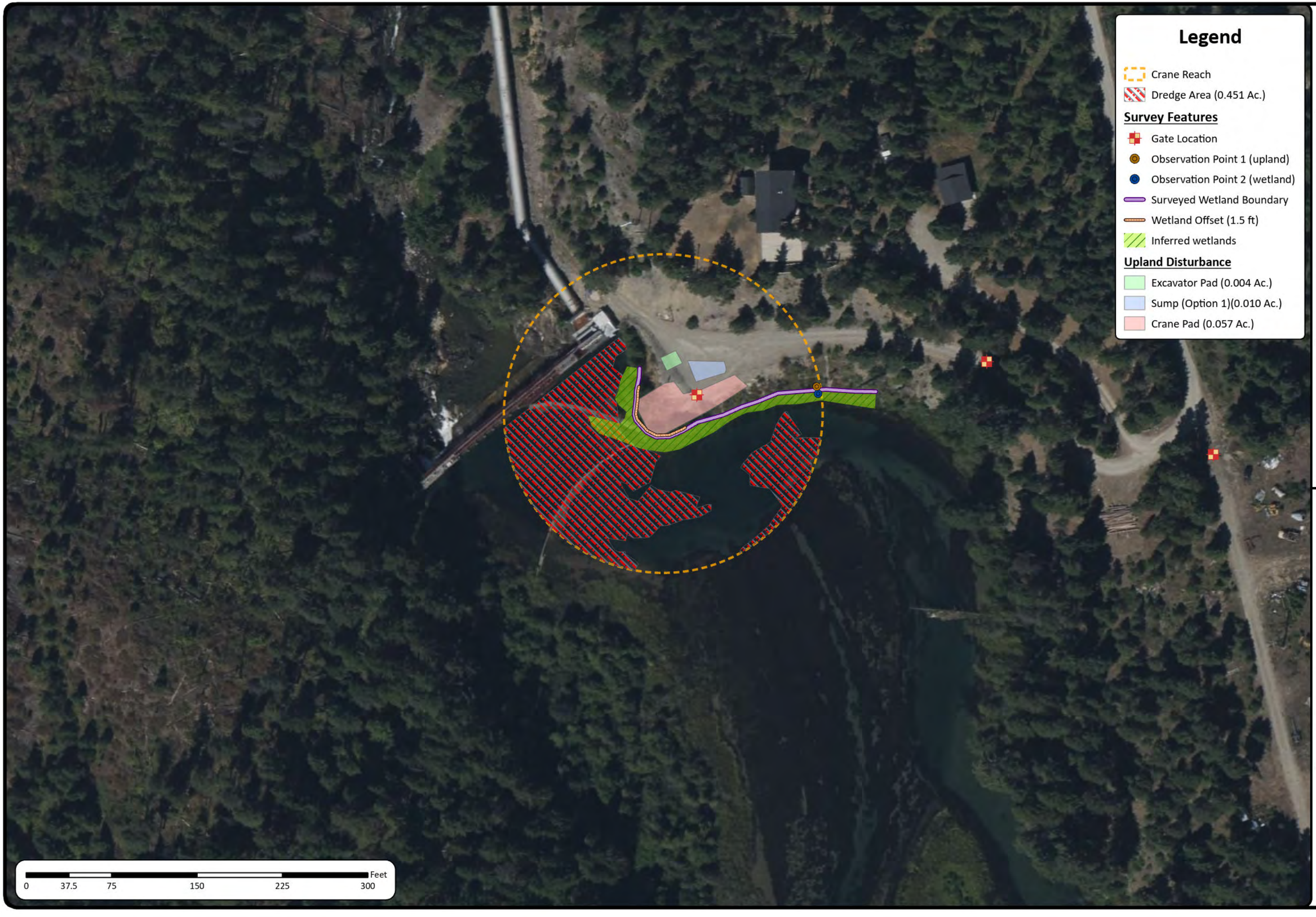
FIGURE 1b

JOB# 1667-2023

DATE 4/29/2024

Path: M:\Troy_Dam\GIS\Working_map\Working_map.aprx, Author: cgabrielsen

Water & Environmental TECHNOLOGIES



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NO.	DESCRIPTION	DATE	DRAFT	REVIEW
1	MAP CREATION			
2				
3				
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NOTES

NORTHERN LIGHTS, INC. - DAM DREDGING

OPTION 1 SITE DISTURBANCES

FIGURE 2a

JOB#: 1667.2023

DATE: 4/29/2024

Path: M:\Troy_Dam\gis\Working_map\Working_map.aprx, Author: cgabrielsen

Water & Environmental TECHNOLOGIES

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NO.	DESCRIPTION	DATE	DRAFT	REVIEW
1	MAP CREATION			
2				
3				
4				
5				

NOTES

NORTHERN LIGHTS, INC. - DAM DREDGING

OPTION 2 SITE DISTURBANCES

FIGURE 2b

JOB#: 1667.2023

DATE: 4/29/2024

Path: M:\Troy_Dam\GIS\Working_map\Working_map.aprx, Author: cgabrielsen

Water & Environmental TECHNOLOGIES

Legend

- Crane Radius
- Dredge Area (0.451 Ac.)

Site Features

- Excavator Pad (0.004 Ac.)
- Sump (Option 1)(0.010 Ac.)
- Crane Pad (0.057 Ac.)

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NO.	DESCRIPTION	DATE	DRAFT	REVIEW
1	MAP CREATION			
2				
3				
4				
5				

NOTES

NORTHERN LIGHTS, INC. - DAM DREDGING

OPTION 1 FLOODPLAIN INTERACTION

FIGURE 3a

JOB#: 1667.2023

DATE:4/29/2024

Path: M:\Troy_Dam\GIS\Working_map\Working_map.aprx, Author: cgabrielsen

Water & Environmental TECHNOLOGIES

FIRM
FLOOD INSURANCE RATE MAP

LINCOLN COUNTY, MONTANA

PANEL 595 OF 1150

COMMUNITY-PANEL NUMBER
300157 0595 B

EFFECTIVE DATE:
AUGUST 1, 1986

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

KOOTENAI NATIONAL FOREST

MUD LAKE

SCHW LAKE

Taylor Peak

FREEMAN

0 500 1,000 2,000 3,000 4,000 Feet

Legend

- Crane Reach
- Dredge Area (0.456 Ac.)

Site Features

- Excavator Pad (0.004 Ac.)
- Sump (Option 2) (0.009 Ac.)
- Barge Ramp (0.009 Ac.)

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W E
S

NO.	DESCRIPTION	DATE	DRAFT	REVIEW
1	MAP CREATION			
2				
3				
4				
5				

NOTES

NORTHERN LIGHTS, INC. - DAM DREDGING

OPTION 2 FLOODPLAIN INTERACTION

FIGURE 3b

JOB#: 1667.2023

DATE:4/29/2024

Path: M:\Troy_Dam\GIS\Working_map\Working_map.aprx, Author: cgabrielsen

Water & Environmental TECHNOLOGIES

FIRM
FLOOD INSURANCE RATE MAP

LINCOLN COUNTY, MONTANA

PANEL 595 OF 1150

COMMUNITY-PANEL NUMBER
300157 0595 B

EFFECTIVE DATE:
AUGUST 1, 1986

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

KOOTENAI NATIONAL FOREST

MUD LAKE

SCHW LAKE

Taylor Peak

0 500 1,000 2,000 3,000 4,000 Feet

Attachment 2

Engineering Plan and Profile Drawings – Permit Plan Set

Option 1 - Platform

Engineering Plan and Profile Drawings – Permit Plan Set

N

0 40 80 FEET

PRELIMINARY
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NO.	DESCRIPTION	DATE	DRN. BY

PERMIT SET

Water & Environmental TECHNOLOGIES
480 East Park Street
Butte, MT 59701
(406) 782-5220
waterenvtech.com

EXISTING CONDITIONS

PROJECT NAME: LAKE CREEK DAM SEDIMENT REMOVAL
LOCATION: TROY, MONTANA
FILE NO. MC-GP01-TROYDAM.dwg

JOB NO:	16667-23
DATE:	4/29/24
DRAFTER:	JB
CHECKED BY:	JS

SHEET
FIG1

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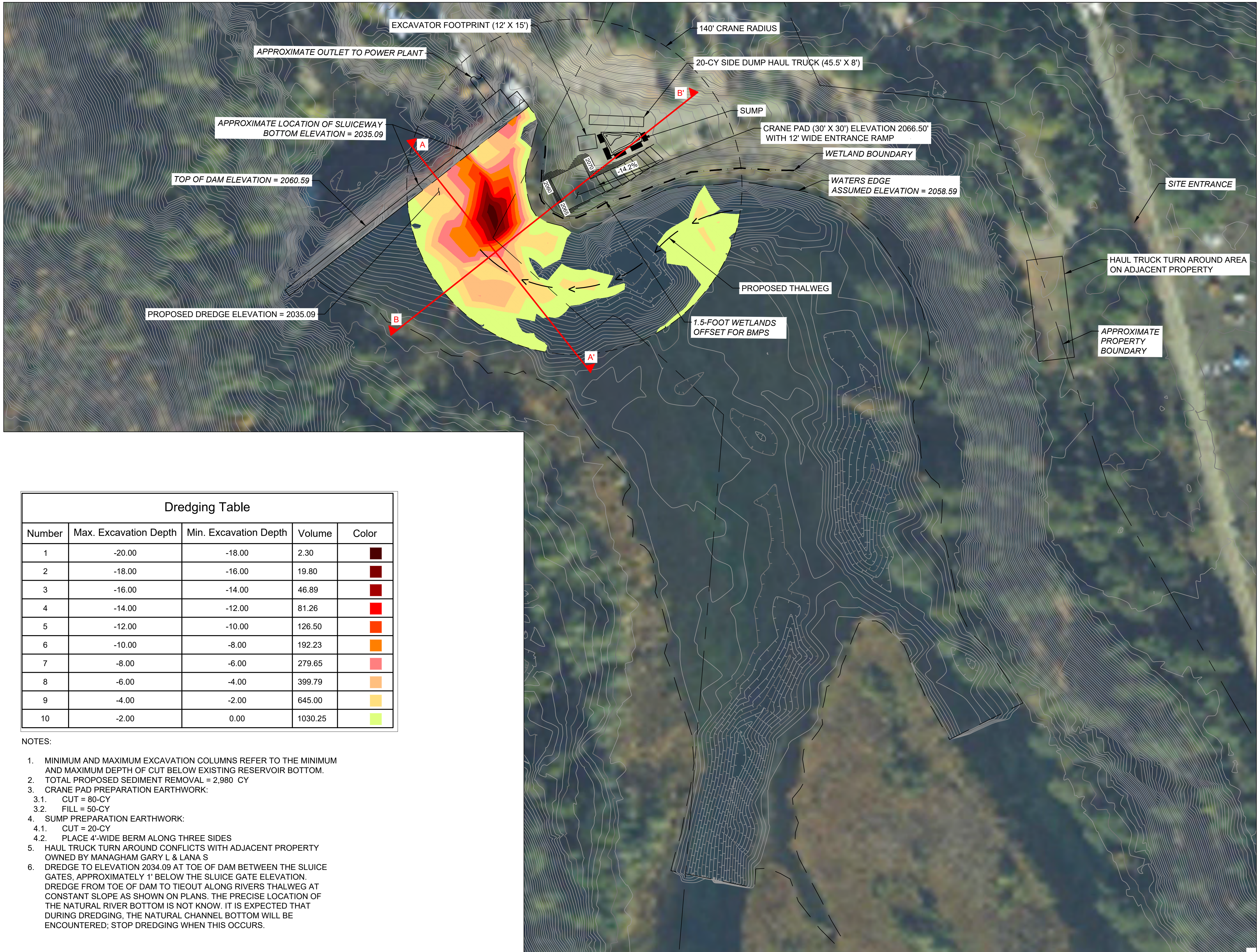

Dredging Table				
Number	Max. Excavation Depth	Min. Excavation Depth	Volume	Color
1	-20.00	-18.00	2.30	
2	-18.00	-16.00	19.80	
3	-16.00	-14.00	46.89	
4	-14.00	-12.00	81.26	
5	-12.00	-10.00	126.50	
6	-10.00	-8.00	192.23	
7	-8.00	-6.00	279.65	
8	-6.00	-4.00	399.79	
9	-4.00	-2.00	645.00	
10	-2.00	0.00	1030.25	

NOTES:

1. MINIMUM AND MAXIMUM EXCAVATION COLUMNS REFER TO THE MINIMUM AND MAXIMUM DEPTH OF CUT BELOW EXISTING RESERVOIR BOTTOM.
2. TOTAL PROPOSED SEDIMENT REMOVAL = 2,980 CY
3. CRANE PAD PREPARATION EARTHWORK:
   - 3.1. CUT = 80-CY
   - 3.2. FILL = 50-CY
4. SUMP PREPARATION EARTHWORK:
   - 4.1. CUT = 20-CY
   - 4.2. PLACE 4'-WIDE BERM ALONG THREE SIDES
5. HAUL TRUCK TURN AROUND CONFLICTS WITH ADJACENT PROPERTY OWNED BY MANAGHAM GARY L & LANA S
6. DREDGE TO ELEVATION 2034.09 AT TOE OF DAM BETWEEN THE SLUICE GATES, APPROXIMATELY 1' BELOW THE SLUICE GATE ELEVATION. DREDGE FROM TOE OF DAM TO TIEOUT ALONG RIVERS THALWEG AT CONSTANT SLOPE AS SHOWN ON PLANS. THE PRECISE LOCATION OF THE NATURAL RIVER BOTTOM IS NOT KNOW. IT IS EXPECTED THAT DURING DREDGING, THE NATURAL CHANNEL BOTTOM WILL BE ENCOUNTERED; STOP DREDGING WHEN THIS OCCURS.

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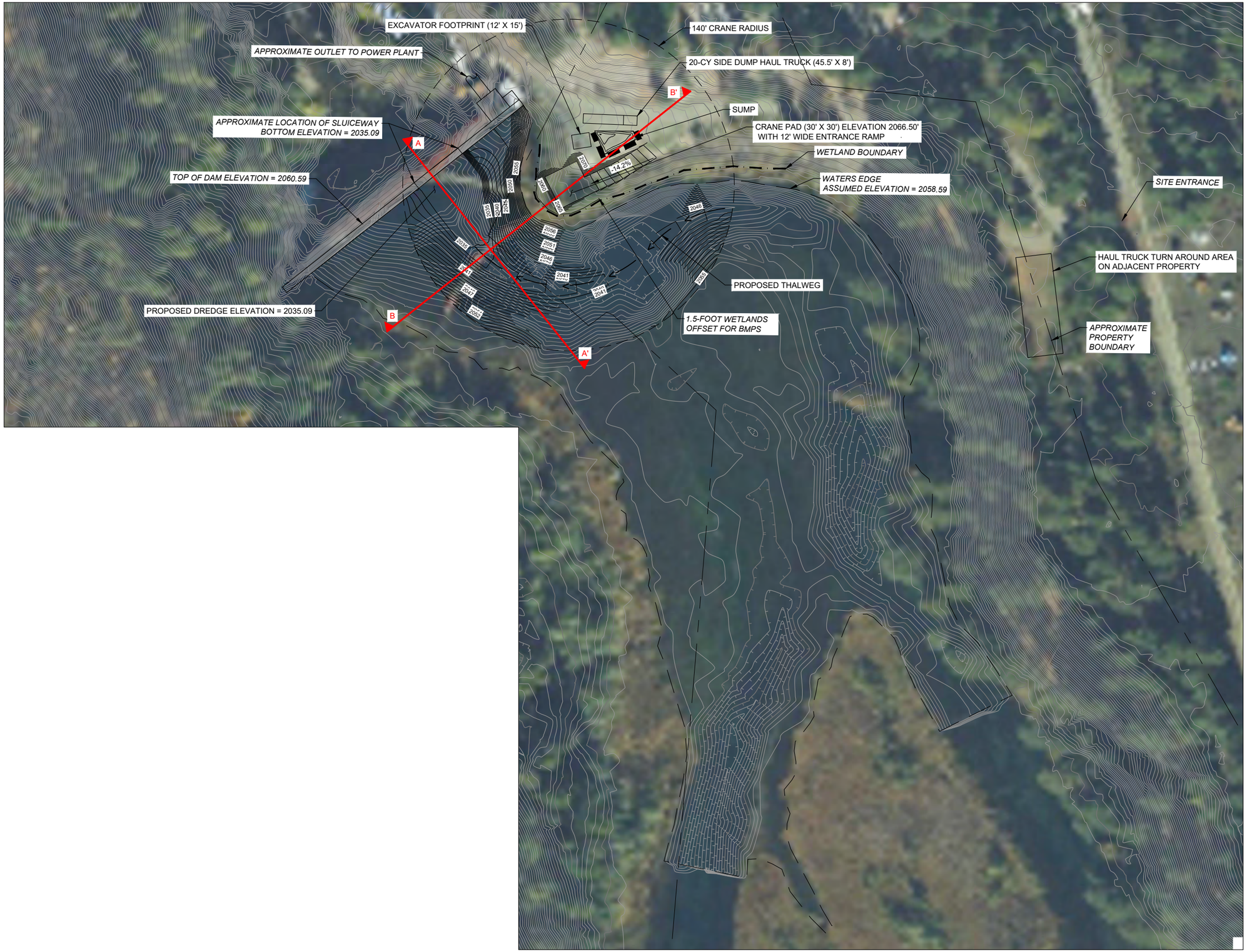
140-FOOT CRAIN RADIUS BASE BID-EXCAVATION

PROJECT NAME: LAKE CREEK DAM SEDIMENT REMOVAL
LOCATION: TROY, MONTANA
FILE NO. MC-GP01-TROYDAM.dwg

JOB NO:	16667-23
DATE:	4/29/24
DRAFTER:	JB
CHECKED BY:	JS

SHEET
FIG2A



N

0 40 80 FEET

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NO.	DESCRIPTION	DATE	DRN. BY

PERMIT SET

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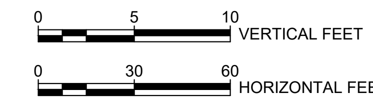
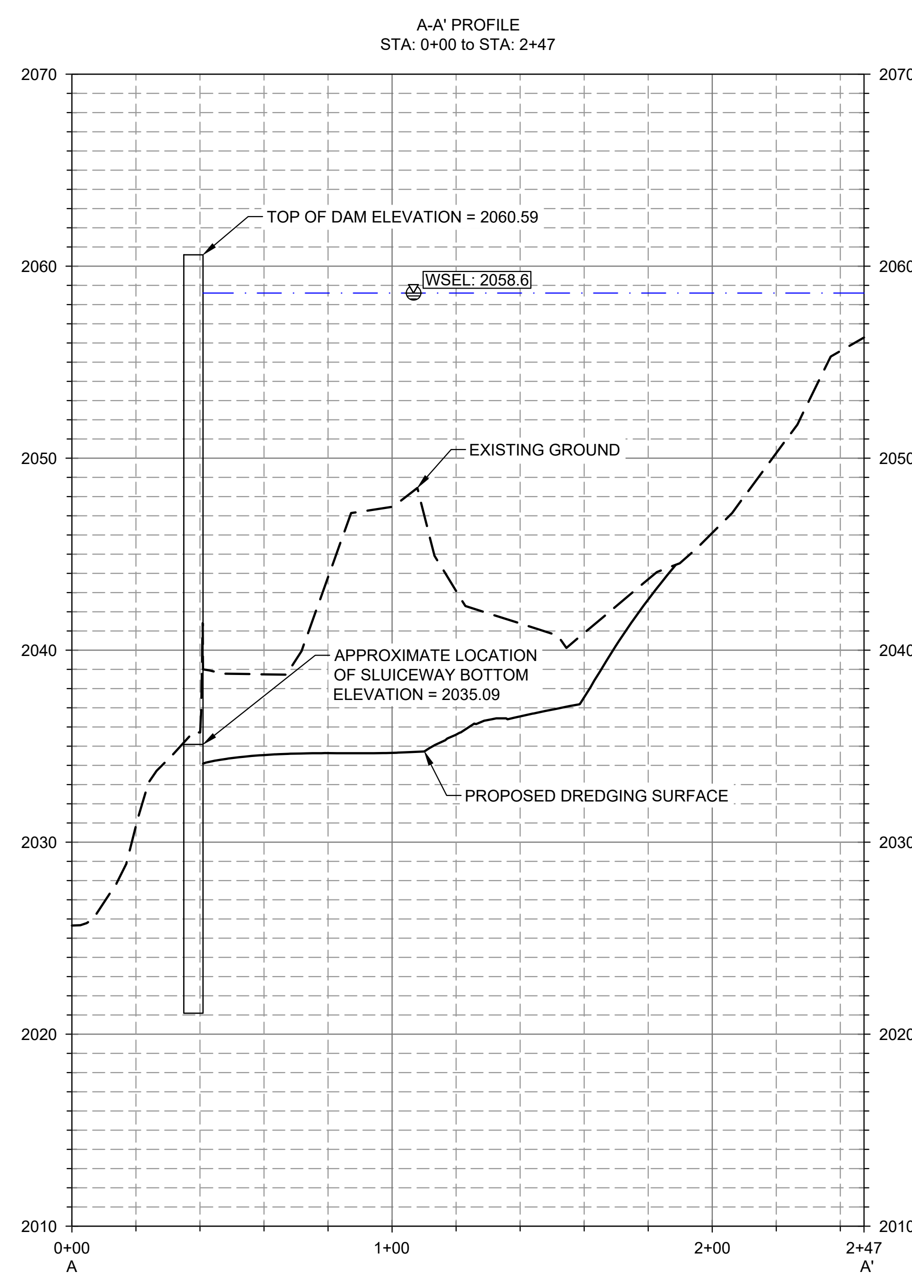
140-FOOT CRAIN RADIUS BASE BID-CONTOURS

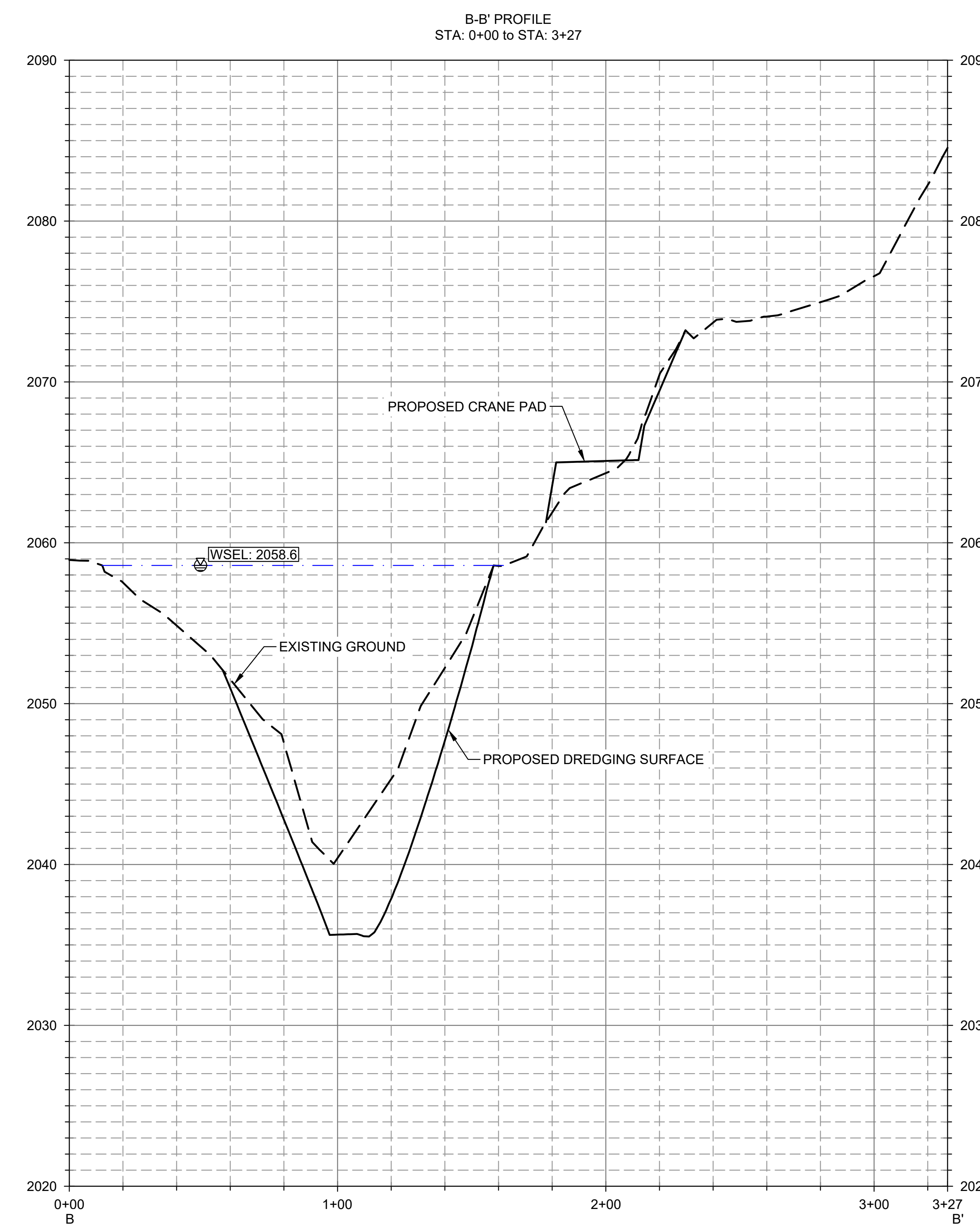
PROJECT NAME: LAKE CREEK DAM SEDIMENT REMOVAL
LOCATION: TROY, MONTANA
FILE NO. MC-GP01-TROYDAM.dwg

JOB NO:	16667-23
DATE:	4/29/24
DRAFTER:	JB
CHECKED BY:	JS

SHEET
FIG2B







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140-FOOT CRAIN RADIUS PROFILE VIEWS

PROJECT NAME: LAKE CREEK DAM SEDIMENT REMOVAL
LOCATION: TROY, MONTANA
FILE NO. MC-GP01-TROYDAM.dwg

JOB NO:	16667-23
DATE:	4/29/24
DRAFTER:	JB
CHECKED BY:	BB

SHEET
FIG2C

M:\Troy_Dam\CAD\CIVIL\MC-GP01-TROYDAM.dwg PLOT DATE 4/29/2024 11:12 AM USER: JBUNKER

PRELIMINARY
NOT FOR CONSTRUCTION

SHEET FIG3

JOB NO: 16667-23
DATE: 4/29/24
DRAFTER: JB
CHECKED BY: BB

DISPOSAL AREA

PROJECT NAME: LAKE CREEK DAM SEDIMENT REMOVAL
LOCATION: TROY, MONTANA
FILE NO. MC-GP01-TROYDAM.dwg

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PERMIT SET

NO.	DESCRIPTION	DATE	DRN. BY

Option 2 - Ramp

Engineering Plan and Profile Drawings – Permit Plan Set

N

0 40 80 FEET

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PERMIT SET

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waterenvtech.com

EXISTING CONDITIONS

PROJECT NAME: LAKE CREEK DAM SEDIMENT REMOVAL
LOCATION: TROY, MONTANA
FILE NO. MC-GP01-TROYDAM.dwg

JOB NO:	16667-23
DATE:	4/29/24
DRAFTER:	JB
CHECKED BY:	JS

SHEET
FIG1

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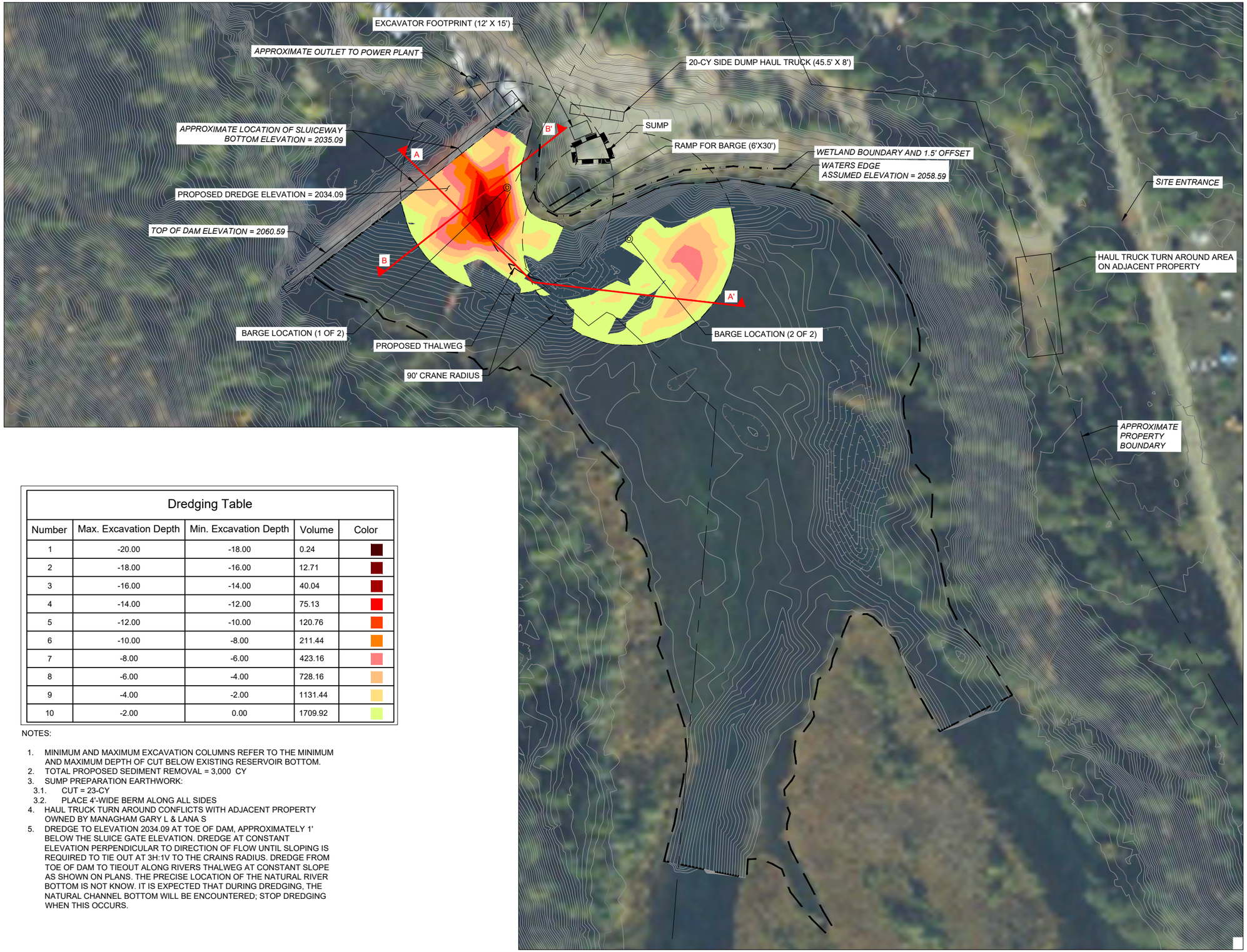

N

0 40 80 FEET

Dredging Table				
Number	Max. Excavation Depth	Min. Excavation Depth	Volume	Color
1	-20.00	-18.00	0.24	
2	-18.00	-16.00	12.71	
3	-16.00	-14.00	40.04	
4	-14.00	-12.00	75.13	
5	-12.00	-10.00	120.76	
6	-10.00	-8.00	211.44	
7	-8.00	-6.00	423.16	
8	-6.00	-4.00	728.16	
9	-4.00	-2.00	1131.44	
10	-2.00	0.00	1709.92	

NOTES:

1. MINIMUM AND MAXIMUM EXCAVATION COLUMNS REFER TO THE MINIMUM AND MAXIMUM DEPTH OF CUT BELOW EXISTING RESERVOIR BOTTOM.
2. TOTAL PROPOSED SEDIMENT REMOVAL = 3,000 CY
3. SUMP PREPARATION EARTHWORK:
   - 3.1. CUT = 23-CY
   - 3.2. PLACE 4'-WIDE BERM ALONG ALL SIDES
4. HAUL TRUCK TURN AROUND CONFLICTS WITH ADJACENT PROPERTY OWNED BY MANAGHAM GARY L & LANA S
5. DREDGE TO ELEVATION 2034.09 AT TOE OF DAM, APPROXIMATELY 1' BELOW THE SLUICE GATE ELEVATION. DREDGE AT CONSTANT ELEVATION PERPENDICULAR TO DIRECTION OF FLOW UNTIL SLOPING IS REQUIRED TO TIE OUT AT 3H:1V TO THE CRAINS RADIUS. DREDGE FROM TOE OF DAM TO TIEOUT ALONG RIVERS THALWEG AT CONSTANT SLOPE AS SHOWN ON PLANS. THE PRECISE LOCATION OF THE NATURAL RIVER BOTTOM IS NOT KNOW. IT IS EXPECTED THAT DURING DREDGING, THE NATURAL CHANNEL BOTTOM WILL BE ENCOUNTERED; STOP DREDGING WHEN THIS occurs.

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NO.	DESCRIPTION	DATE	DRN. BY

PERMIT SET

Water & Environmental TECHNOLOGIES
118 East 7th Street
Anaconda, MT 59711
(406) 563-7476
waterenvtech.com

90-FOOT CRAIN RADIUS
BASE BID-EXCAVATION

PROJECT NAME: LAKE CREEK DAM SEDIMENT REMOVAL
LOCATION: TROY, MONTANA
FILE NO. MC-GP04-TROYDAM.dwg

JOB NO:	16667-23
DATE:	4/29/24
DRAFTER:	JB
CHECKED BY:	BB

SHEET
FIG2A

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N

0 40 80 FEET

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	DRN. BY

PERMIT SET

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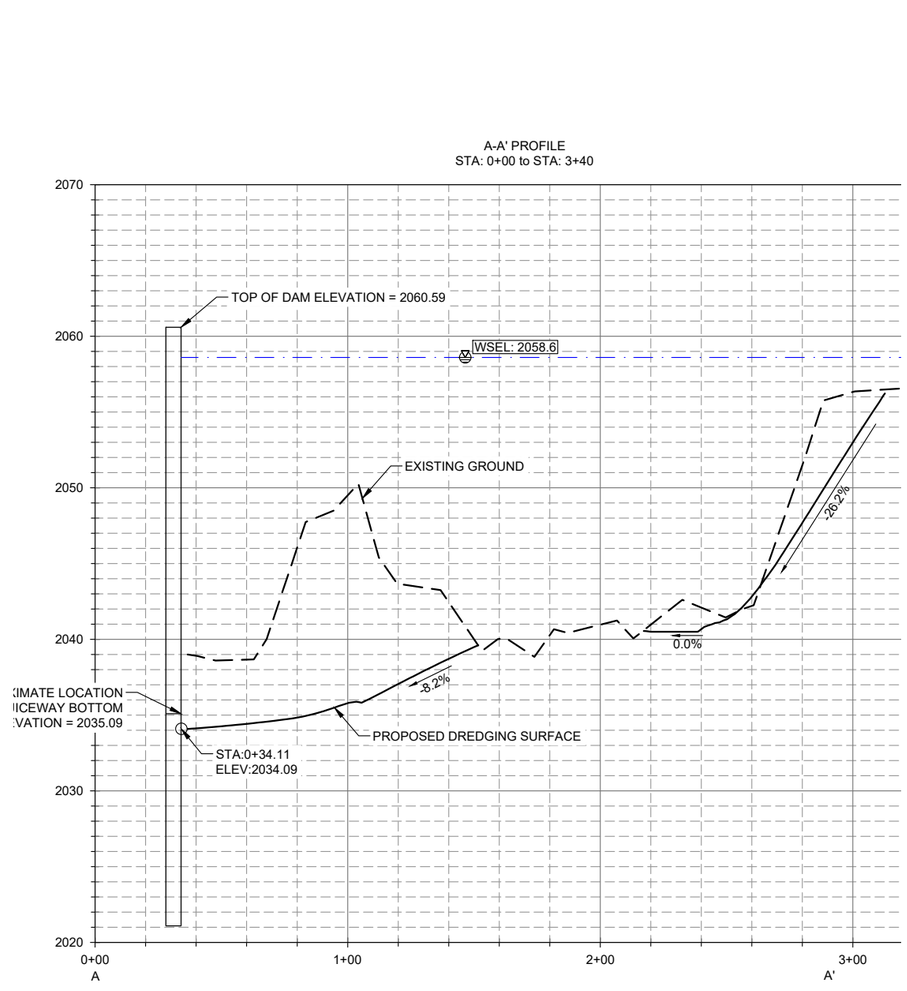
118 East 7th Street
Anaconda, MT 59711
(406) 563-7476
watenvtech.com

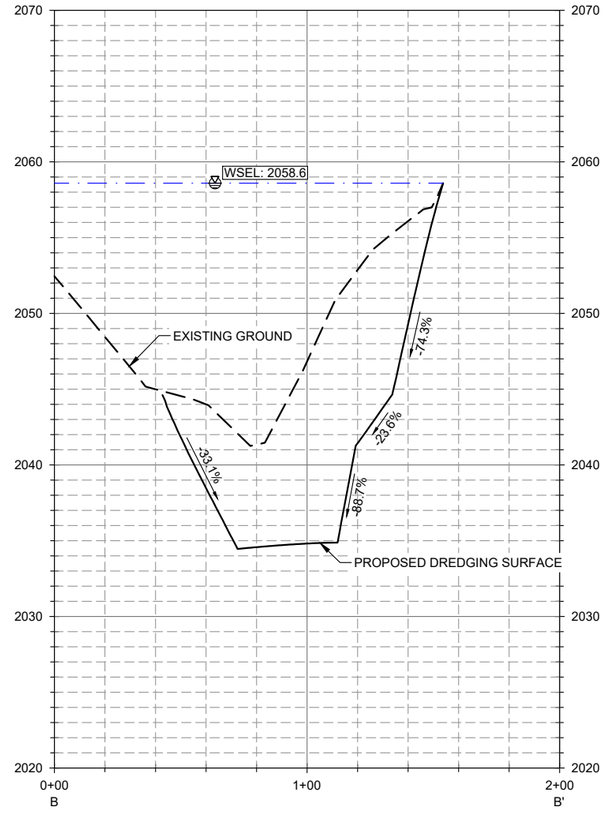
90-FOOT CRAIN RADIUS BASE BID-CONTOURS

PROJECT NAME: LAKE CREEK DAM SEDIMENT REMOVAL
LOCATION: TROY, MONTANA
FILE NO. MC-GP04-TROYDAM.dwg

JOB NO:	16667-23
DATE:	4/29/24
DRAFTER:	JB
CHECKED BY:	BB

SHEET
FIG2B





0 5 10 VERTICAL FEET

0 30 60 HORIZONTAL FEET

NO.	DESCRIPTION	DATE	DRN. BY

PERMIT SET

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90-FOOT CRAIN RADIUS PROFILE VIEWS

PROJECT NAME: LAKE CREEK DAM SEDIMENT REMOVAL
LOCATION: TROY, MONTANA
FILE NO. MC-GP04-TROYDAM.dwg

JOB NO:	16667-23
DATE:	4/29/24
DRAFTER:	JB
CHECKED BY:	BB

SHEET
FIG2C

PRELIMINARY
NOT FOR CONSTRUCTION

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PRELIMINARY
NOT FOR CONSTRUCTION

SHEET FIG3

JOB NO: 16667-23
DATE: 4/29/24
DRAFTER: JB
CHECKED BY: BB

DISPOSAL AREA

PROJECT NAME: LAKE CREEK DAM SEDIMENT REMOVAL
LOCATION: TROY, MONTANA
FILE NO. MC-GP01-TROYDAM.dwg

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waterenvtech.com

PERMIT SET

NO.	DESCRIPTION	DATE	DRN. BY

Attachment 3

Turbidity Monitoring Plan

Water & Environmental TECHNOLOGIES

(406) 782-5220
info@waterenvtech.com
waterenvtech.com

Northern Lights, Inc. Project no. 2594 Turbidity Monitoring Plan

Introduction

Lake Creek has been assessed by the Montana Department of Environmental Quality (MDEQ) and has been assigned a use category of Class B-1 and water quality Category 4A. Lake Creek is fully supporting for drinking water, and not fully supporting aquatic life due to sedimentation/siltation and nitrate/nitrate.

It is anticipated that the proposed sediment dredging will result in short-term increases in turbidity. Short-term increases in turbidity are a natural occurrence and happen during run-off and other high water events, and aquatic species have evolved to survive these events. Because the turbidity increases associated with this project are temporary in nature, it is anticipated that the effects on aquatic species will be negligible.

Suspended sediment is measured quantitatively as Total Suspended Sediment (TSS) in milligrams per liter (mg/L). This can then be indirectly measured as turbidity, an optical property of water resulting in a loss of light transmission. Turbidity is typically measured by Nephlometric Turbidity Units (NTUs). TSS loads and turbidity are known to affect fish physiology, behavior, and habitat, with the effects ranging from beneficial to detrimental. Elevated TSS/turbidity levels have been known to enhance cover conditions, increasing survival rates, but can cause physiological stress, reduce growth, and adversely affect survival.

Turbidity Monitoring and Environmental Controls

To avoid excess turbidity during project implementation, the following sampling plan has been developed.

1. Turbidity monitors will be installed upstream of the reservoir and at the Lake Creek Dam's point of discharge.
2. Turbidity monitoring will begin if a turbidity plume is observed interacting with the Lake Creek Dam's point of discharge during active dredging. All turbidity monitoring will take place when the dredge bucket is actively removing sediment.
3. Turbidity Monitoring Requirements:
    a. Background turbidity sample located a sufficient distance above the dam on Lake Creek to avoid water quality influence from the dredging activities.
    b. Turbidity plum sample located at the point of discharge from the dam.
    c. The turbidity, location, date, and time must be recorded for each sample.
4. Sample Frequency:

(406) 782-5220
info@waterenvtech.com
waterenvtech.com

   a. Three (3) turbidity readings will be taken in 1-hour intervals during the initial turbidity monitoring event.
5. If all three point of discharge turbidity readings surpass that of the background turbidity reading by 50 NTU or more, a turbidity curtain will be deployed around the dredge operation the next day to contain the area of turbidity and minimize the migration of sediment downstream. Once deployed, the turbidity curtain will be used for the duration of the dredging activity.
   a. If monitoring indicates that the turbidity curtain must be deployed, the curtain(s) will be properly installed and maintained to minimize the area of turbidity in the reservoir. Manufacturer specifications and deployment instructions will be followed. Curtains will not drag on the bottom but will be of sufficient length to minimize the area of the reservoir that becomes turbid.
6. If a sediment plume is observed following the deployment of the turbidity curtain, the background and point of discharge monitoring will be resampled following the same procedures outlined above (Numbers 3 & 4).
7. If subsequent monitoring efforts result in all three point of discharge turbidity readings surpassing that of the background turbidity reading by 50 NTU or more, dredging shall cease and BMPs will be reevaluated.
8. Each day during dredging activity at least one photograph will be taken of the reservoir showing the working dredge and the extent of the sediment turbidity plumes. The photograph will be taken after the dredge has operated at least one hour removing sediment. Two photographs will be taken of the silt disposal basin on two separate days of project operations.
9. Two videos will be taken that are of sufficient length to each depict two bucket grabs of sediment, loading of sediment into a dump truck, and the truck departure from the dredge site. The two videos shall document work completed on different days.
10. All turbidity readings, photographs, and videos will be compiled into a data summary report accompanied by a narrative detailing overall water quality effects and BMP mitigation measures.

Water Quality Standards:

If turbidity concentrations at the point of discharge associated with Lake Creek Dam exceed 50 NTU over background, dredging activities will cease and BMPs will be installed or initiated before dredging activities can resume. The dredging activity will be isolated from ambient river water with turbidity curtains installed in accordance with manufactures recommendations if turbidity levels exceed criteria at the dam's point of discharge and cannot be otherwise controlled. The contractor will be responsible for providing and implementing all turbidity control measures necessary to complete work without exceeding the water quality standards outlined in this plan along with reporting.

Attachment 4

Corps Request for No Permit Required

Water & Environmental TECHNOLOGIES

April 30, 2024

Sage L Joyce
Chief, Montana Regulatory Offices
U.S Army Corps of Engineers – Omaha District
10 West 15th Street, Suite 2200
Helena, MT 59626

Re: Request for Corps No Permit Required Letter – Northern Lights Inc. – Lake Creek Dam Sediment Removal Project.

To Whom It May Concern,

Northern Lights Inc. (NLI) owns and operates the Lake Creek Dam, constructed on Lake Creek south of Troy Montana. The project is located in Lincoln County within Township 31N, Range 33W, Section 19 as shown on **Figures 1a** & **1b**. The forebay associated with the hydroelectric dam has accumulated excess sediment, recently overtopping the intake penstocks, causing damage to the turbine which has resulted in a temporary facility shutdown. The damaged equipment has been replaced but NLI is seeking to mitigate the sediment accumulation prior to resuming operation. A sediment dredging operation plan has been developed to remove the excess sediment deposits currently effecting dam operations.

The sediment dredging operation plan was developed to ensure that the project will not result in the discharge of dredged or fill material within Water of the United States (WOTUS), including adjacent wetlands. The plan does not include any discharge or placement of material that raises the bottom elevation of the WOTUS, even temporarily. A “clean dredge” construction method will be utilized during sediment removal activities, meaning the material will be excavated and directly placed in a temporary storage location outside of jurisdictional boundaries. The material will not be scraped or pushed around within jurisdictional areas during dredging operations. A detailed project description including construction sequencing is provided below.

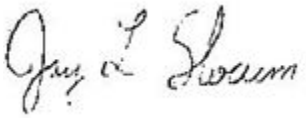
The sediment dredging operation plan contains two construction options for contractor consideration. Option 1 includes construction of a crane platform near the dam that will accommodate a large crane equipped with a 140-foot boom deploying a clamshell bucket. If site access constraints make Option 1 unfeasible, Option 2 includes construction of a ramp near the dam that will accommodate a small crane, positioned on a barge, with a 90-foot boom deploying a clamshell bucket. The barge will be positioned at two locations within the reservoir using large stakes called “spuds” to secure it in place. Both options will have a similar dredging footprint and material quantities, **Appendix 1** details the plan and profile drawings for each option. Regardless of the option selected, the “clean dredge” and spoils disposal method will be the same for both

options. Dredging operations will be conducted in 2-foot cuts, removing the entire cut within the boom's reach before proceeding deeper. Both options will utilize a temporary spoil location or "sump" which will consist of an excavated area surrounded by compacted earthen berms. Dredged material will be directly placed within the sump by the clamshell bucket then an excavator will transfer the material into 20 cubic yard (CY) side dump trailers for hauling and disposal. The final disposal site of the dredged material is the Troy Landfill, located approximately a half mile north of the project area. The landfill will contain the dredged material in excavated cells lined with compacted earthen berms until the material dries and can be used for other applications.

Option 1 will require the construction of a timber decked earthen platform. The toe slope of the earthen platform will remain approximately 2-feet above the wetland fridge associated with the reservoir. Option 2 will require the excavation and grading of an earthen ramp to launch the barge, this will include expanding and improving the existing boat ramp. The ramp disturbance will also remain outside the wetland fridge. A site-specific wetland assessment was conducted this spring and found the wetland boundary follows the edge of the reservoir as shown on **Figures 2a** & **2b**. Wetland determination forms were completed and are provided in **Appendix 2**. Photographs documenting the current site conditions of proposed platform / ramp area are provided in **Appendix 3**. Structural sediment and erosion controls will be installed upgradient of the wetland boundary, near the 2062-foot contour, and will serve as a perimeter control during the initial construction of the earthen platform (Option 1) or the ramp (Option 2). Both administrative and structural Best Management Practices (BMPs) will ensure no illicit fill material enters jurisdictional areas during construction.

To ensure environmental and permit compliance due diligence, please review the enclosed information and provide official comment. Please contact Jay Slocum at jslocum@waterenvtech.com or (406) 723-1579 if you have any questions regarding this request for a *no permit required letter*. Thank you for your attention to this project.

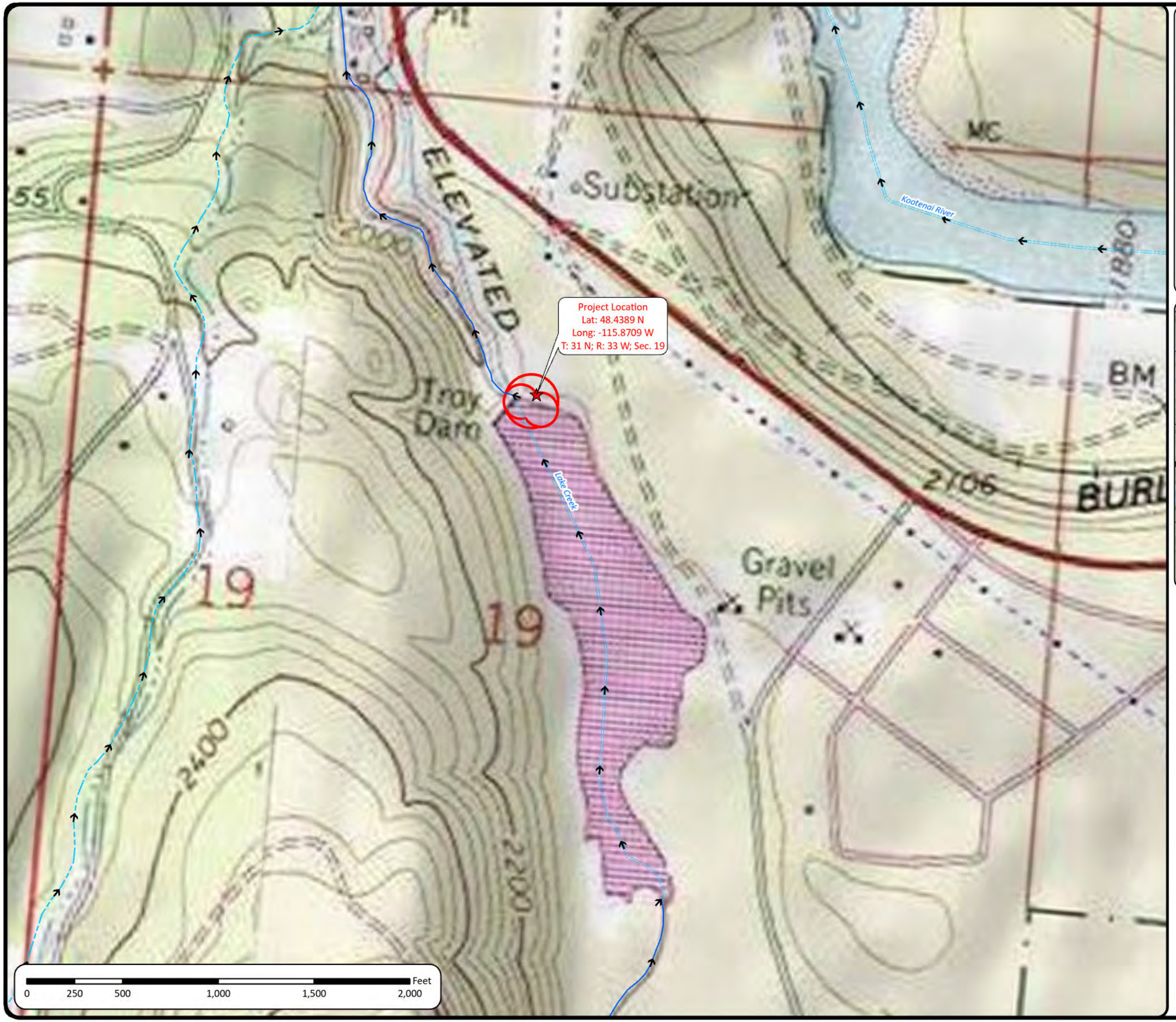
Sincerely,



Jay L Slocum
Senior Wildlife Biologist

Appendices
-Figures: Figures 1a, 1b, 2a, 2b (same within Joint Application)
-Appendix 1: Engineering Plan and Profile Drawings – Permit Plan Set (same within Joint Application)
-Appendix 2: Wetland Determination Forms
-Appendix 3: Photo Journal

Figures



Legend

- Towns
- Project Location
- Project Boundary
- County Boundary
- State Boundary

National Hydrography Dataset

- Perennial Stream/River
- Intermittent Stream/River
- Artificial Path
- Flow Direction

N
W E
S

NO.	DESCRIPTION	DATE	DRAFT	REVIEW
1	MAP CREATION			
2				
3				
4				
5				

NOTES

NORTHERN LIGHTS, INC. - DAM DREDGING

SITE LOCATION - TOPOGRAPHIC MAP - NHD

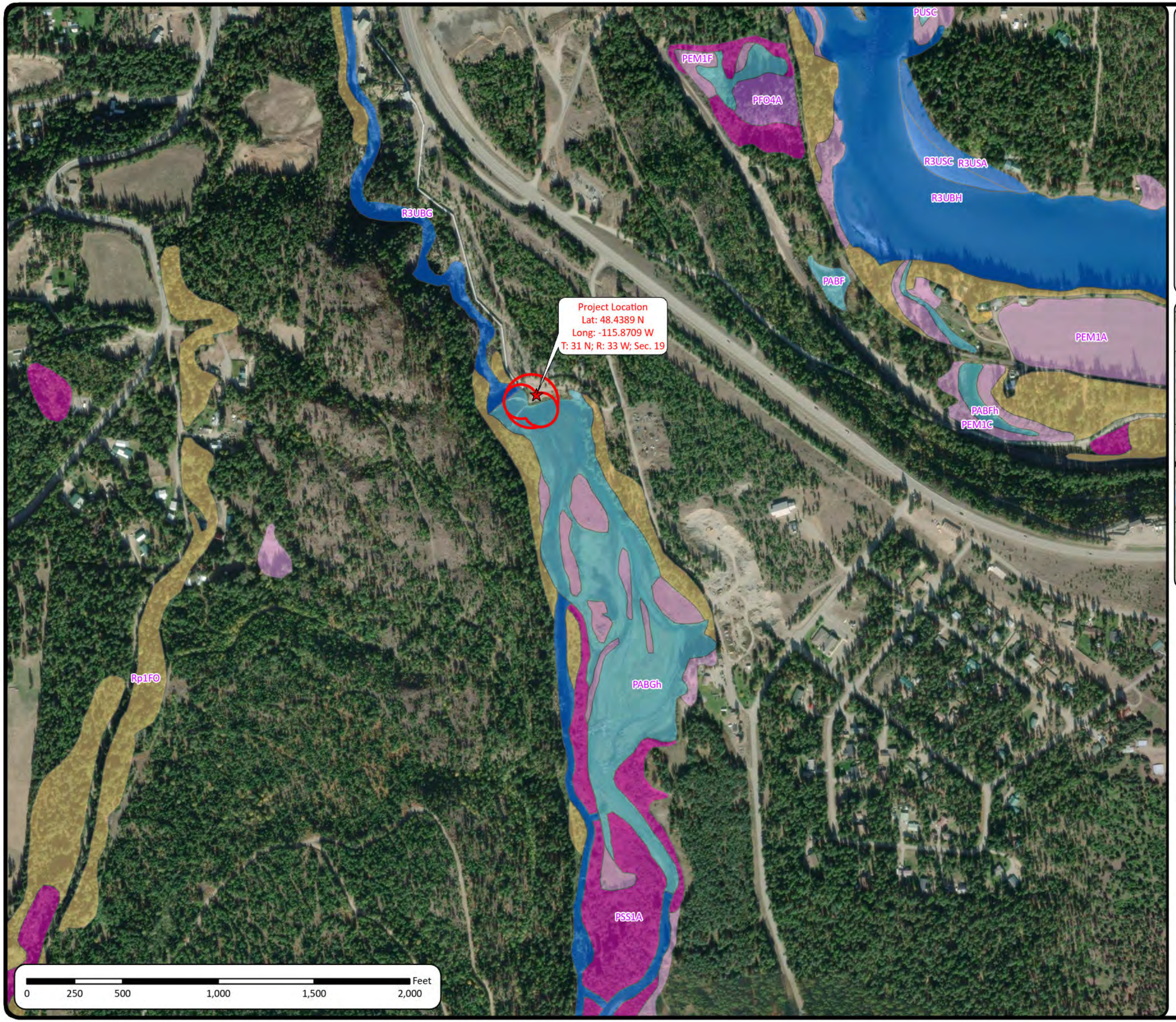
FIGURE 1a

JOB#: 1667-2023

DATE:4/29/2024

Path: M:\Troy_Dam\GIS\Working_map\Working_map.aprx, Author: cgabrielsen

Water & Environmental TECHNOLOGIES



Legend

- Towns
- Project Location
- Project Boundary
- County Boundary
- State Boundary

Montana Wetland Riparian Framework

- River
- Freshwater Pond
- Freshwater Emergent Wetland
- Freshwater Forested Wetland
- Freshwater Scrub-Shrub Wetland
- Riparian Forested

N
W E
S

NO.	DESCRIPTION	DATE	DRAFT	REVIEW
1	MAP CREATION			
2				
3				
4				
5				

NOTES

NORTHERN LIGHTS, INC. - DAM DREDGING

SITE LOCATION - AERIAL IMAGERY - MWRF

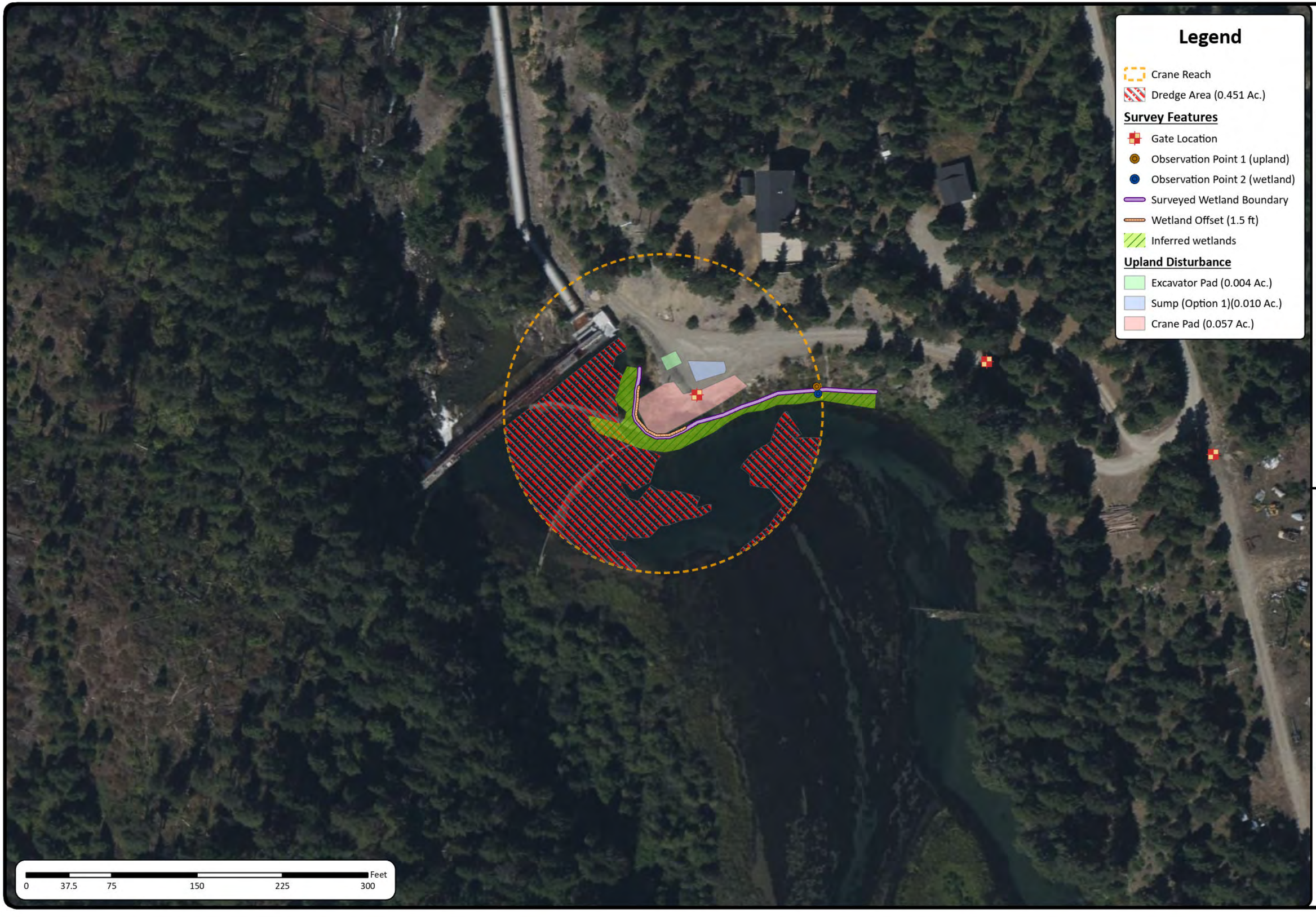
FIGURE 1b

JOB# 1667-2023

DATE 4/29/2024

Path: M:\Troy_Dam\GIS\Working_map\Working_map.aprx, Author: cgabrielsen

Water & Environmental TECHNOLOGIES



N
W
E
S

NO.	DESCRIPTION	DATE	DRAFT	REVIEW
1	MAP CREATION			
2				
3				
4				
5				

NOTES

NORTHERN LIGHTS, INC. - DAM DREDGING

OPTION 1 SITE DISTURBANCES

FIGURE 2a

JOB#: 1667.2023

DATE: 4/29/2024

Path: M:\Troy_Dam\gis\Working_map\Working_map.aprx, Author: cgabrielsen

Water & Environmental TECHNOLOGIES

N
W
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S

NO.	DESCRIPTION	DATE	DRAFT	REVIEW
1	MAP CREATION			
2				
3				
4				
5				

NOTES

NORTHERN LIGHTS, INC. - DAM DREDGING

OPTION 2 SITE DISTURBANCES

FIGURE 2b

JOB#: 1667.2023

DATE: 4/29/2024

Path: M:\Troy_Dam\GIS\Working_map\Working_map.aprx, Author: cgabrielsen

Water & Environmental TECHNOLOGIES

Appendix 1

Engineering Plan and Profile Drawings – Permit Plan Set

Option 1 - Platform

Engineering Plan and Profile Drawings – Permit Plan Set

N

0 40 80 FEET

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	DRN. BY

PERMIT SET

Water & Environmental TECHNOLOGIES
480 East Park Street
Butte, MT 59701
(406) 782-5220
waterenvtech.com

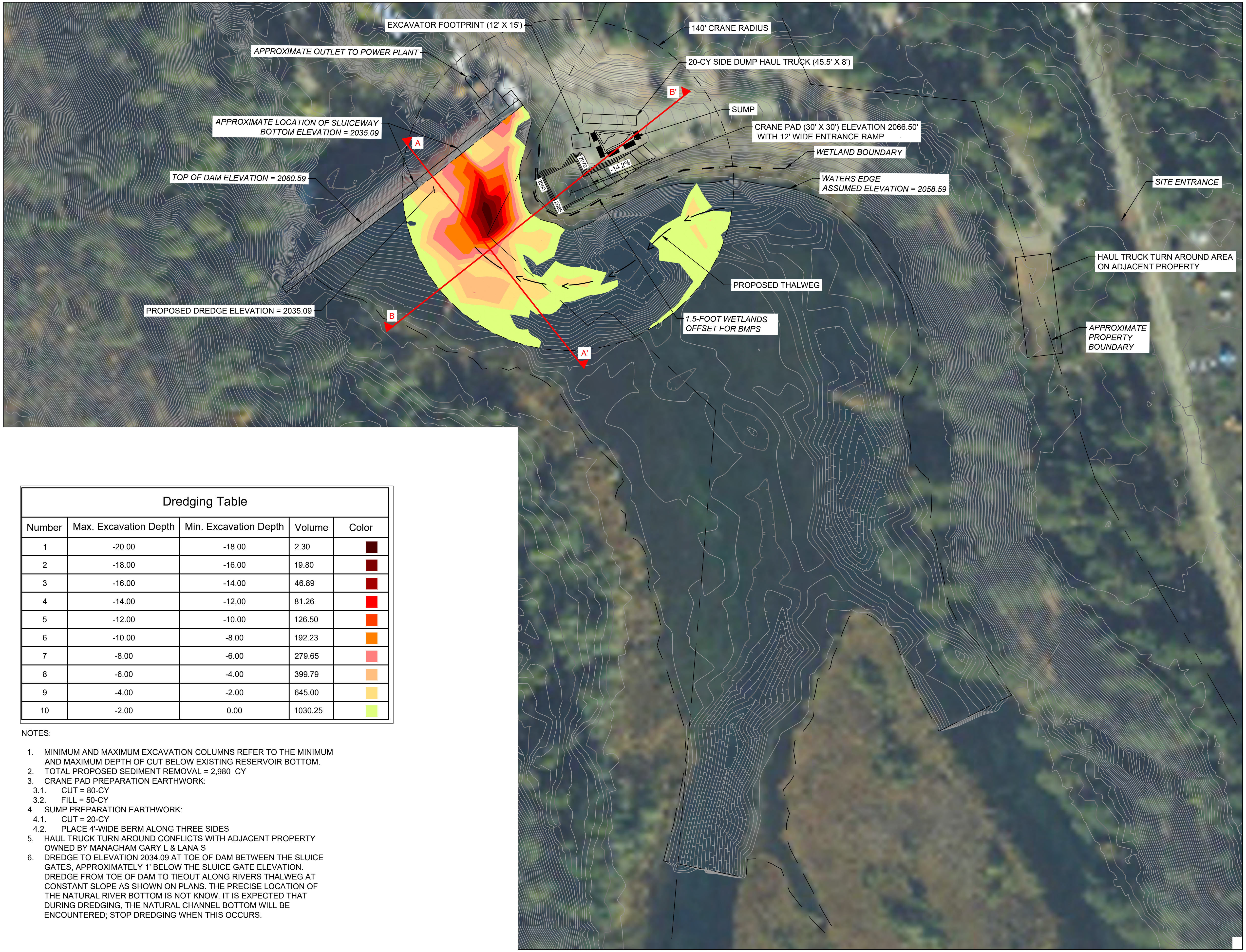
EXISTING CONDITIONS

PROJECT NAME: LAKE CREEK DAM SEDIMENT REMOVAL
LOCATION: TROY, MONTANA
FILE NO. MC-GP01-TROYDAM.dwg

JOB NO:	16667-23
DATE:	4/29/24
DRAFTER:	JB
CHECKED BY:	JS

SHEET
FIG1

M:\Troy_Dam\CAD\CIVIL\MC-GP01-TROYDAM.dwg PLOT DATE 4/29/2024 11:11 AM USER: JBUNKER



Dredging Table

Number	Max. Excavation Depth	Min. Excavation Depth	Volume	Color
1	-20.00	-18.00	2.30	
2	-18.00	-16.00	19.80	
3	-16.00	-14.00	46.89	
4	-14.00	-12.00	81.26	
5	-12.00	-10.00	126.50	
6	-10.00	-8.00	192.23	
7	-8.00	-6.00	279.65	
8	-6.00	-4.00	399.79	
9	-4.00	-2.00	645.00	
10	-2.00	0.00	1030.25	

NOTES:

1. MINIMUM AND MAXIMUM EXCAVATION COLUMNS REFER TO THE MINIMUM AND MAXIMUM DEPTH OF CUT BELOW EXISTING RESERVOIR BOTTOM.
2. TOTAL PROPOSED SEDIMENT REMOVAL = 2,980 CY
3. CRANE PAD PREPARATION EARTHWORK:
   - 3.1. CUT = 80-CY
   - 3.2. FILL = 50-CY
4. SUMP PREPARATION EARTHWORK:
   - 4.1. CUT = 20-CY
   - 4.2. PLACE 4'-WIDE BERM ALONG THREE SIDES
5. HAUL TRUCK TURN AROUND CONFLICTS WITH ADJACENT PROPERTY OWNED BY MANAGHAM GARY L & LANA S
6. DREDGE TO ELEVATION 2034.09 AT TOE OF DAM BETWEEN THE SLUICE GATES, APPROXIMATELY 1' BELOW THE SLUICE GATE ELEVATION. DREDGE FROM TOE OF DAM TO TIEOUT ALONG RIVERS THALWEG AT CONSTANT SLOPE AS SHOWN ON PLANS. THE PRECISE LOCATION OF THE NATURAL RIVER BOTTOM IS NOT KNOW. IT IS EXPECTED THAT DURING DREDGING, THE NATURAL CHANNEL BOTTOM WILL BE ENCOUNTERED; STOP DREDGING WHEN THIS OCCURS.

M:\Troy_Dam\CAD\CIVIL\MC-GP01-TROYDAM.dwg PLOT DATE 4/29/2024 11:12 AM USER: JBUNKER

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	DRN. BY

PERMIT SET

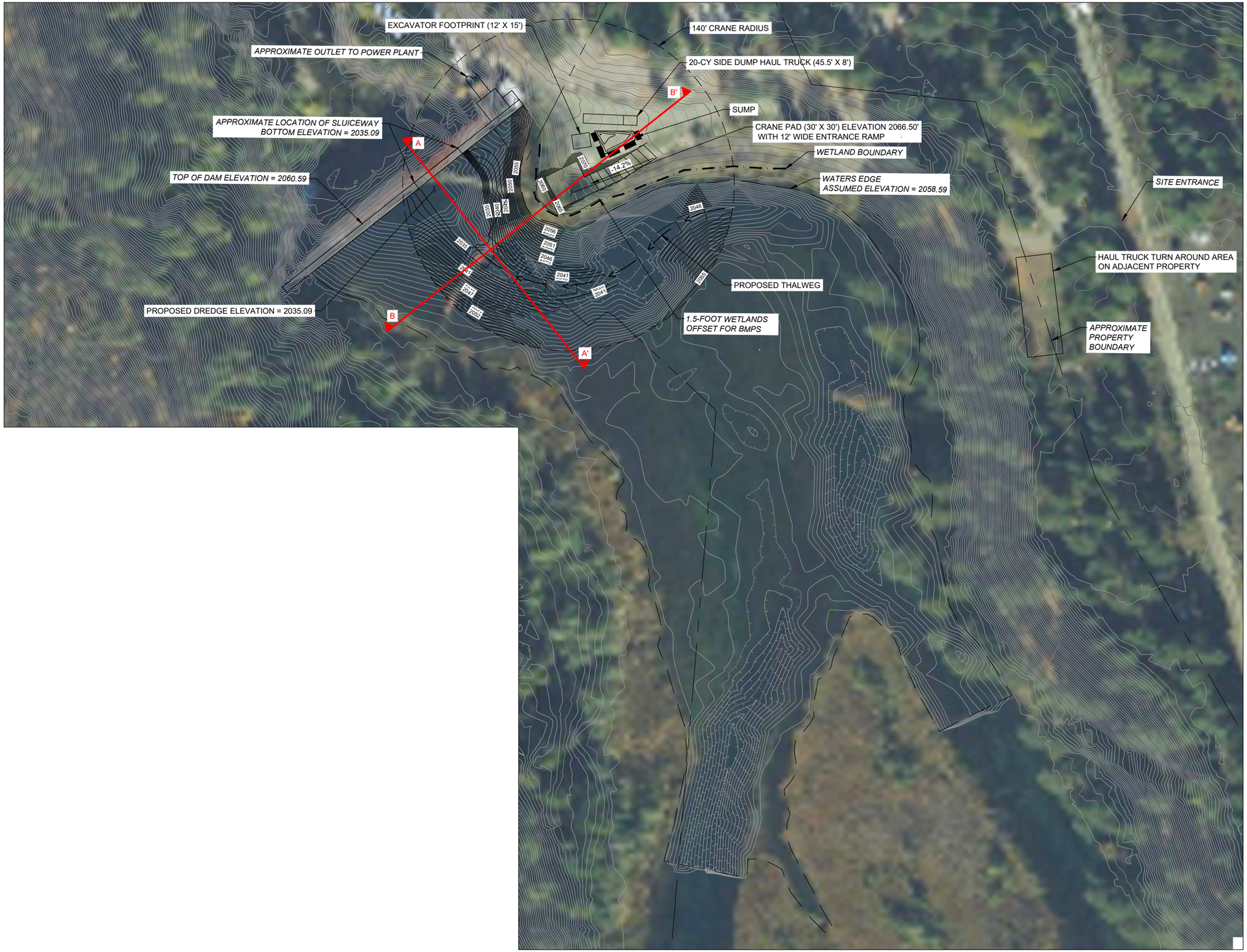
Water & Environmental
TECHNOLOGIES
480 East Park Street
Butte, MT 59701
(406) 782-5220
waterenvtech.com

140-FOOT CRAIN RADIUS BASE BID-EXCAVATION

PROJECT NAME: LAKE CREEK DAM SEDIMENT REMOVAL
LOCATION: TROY, MONTANA
FILE NO. MC-GP01-TROYDAM.dwg

JOB NO: 16667-23
DATE: 4/29/24
DRAFTER: JB
CHECKED BY: JS

SHEET
FIG2A



N

0 40 80 FEET

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	DRN. BY

PERMIT SET

Water & Environmental TECHNOLOGIES
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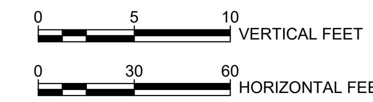
140-FOOT CRAIN RADIUS BASE BID-CONTOURS

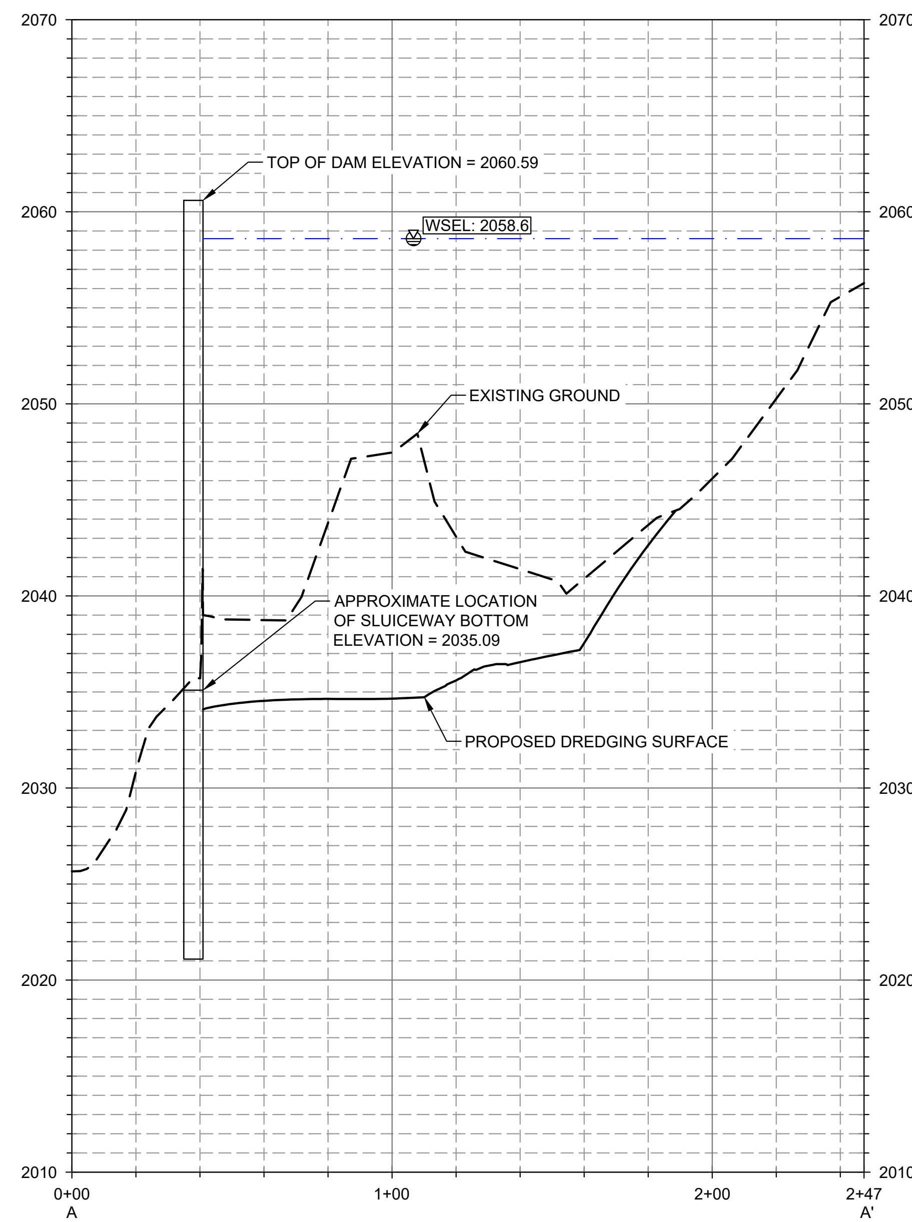
PROJECT NAME: LAKE CREEK DAM SEDIMENT REMOVAL
LOCATION: TROY, MONTANA
FILE NO. MC-GP01-TROYDAM.dwg

JOB NO:	16667-23
DATE:	4/29/24
DRAFTER:	JB
CHECKED BY:	JS

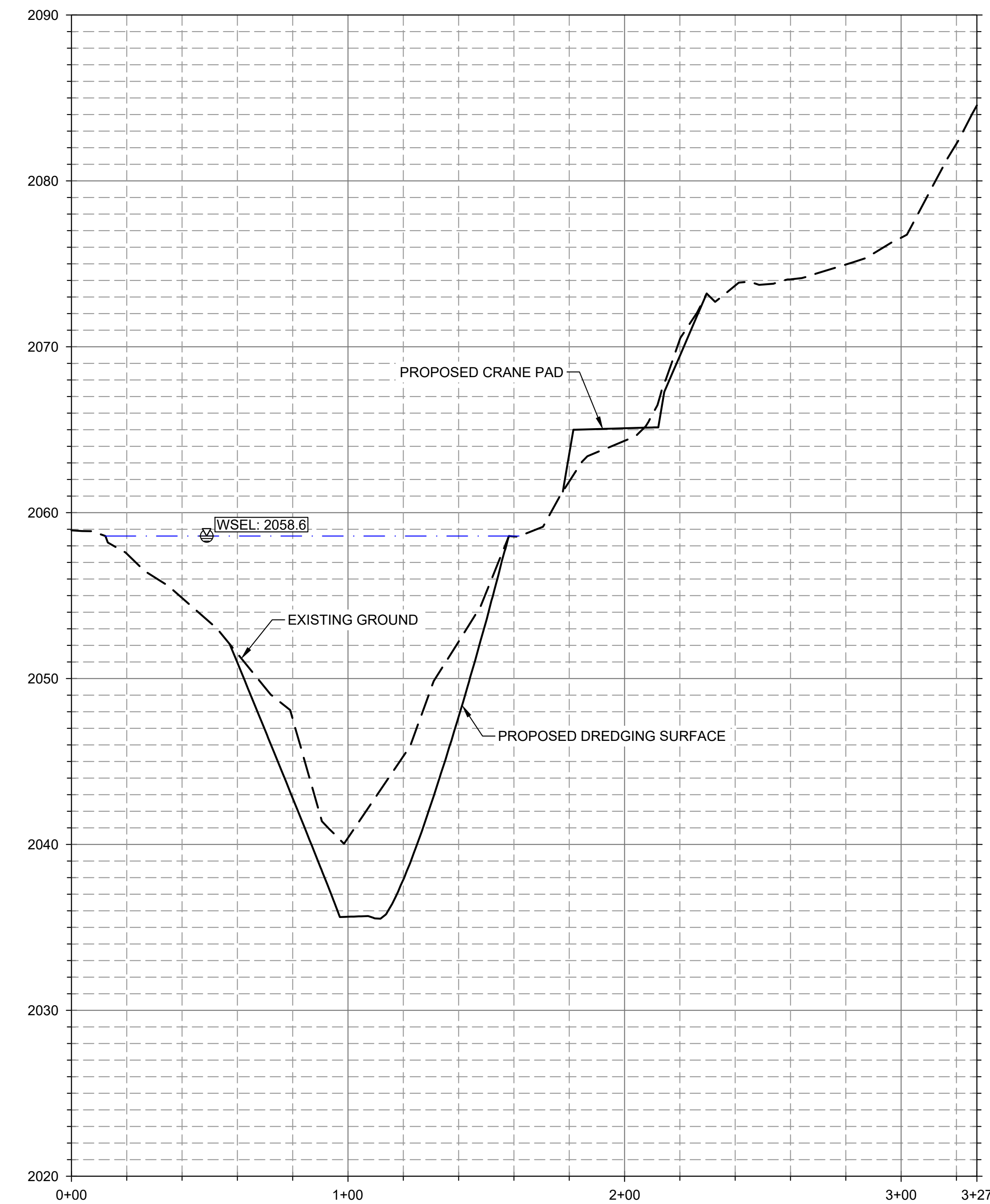
SHEET
FIG2B



A-A' PROFILE
STA: 0+00 to STA: 2+47



B-B' PROFILE
STA: 0+00 to STA: 3+27



NO.	DESCRIPTION	DATE	DRN. BY

PERMIT SET

Water & Environmental TECHNOLOGIES
480 East Park Street
Butte, MT 59701
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140-FOOT CRAIN RADIUS PROFILE VIEWS

PROJECT NAME: LAKE CREEK DAM SEDIMENT REMOVAL
LOCATION: TROY, MONTANA
FILE NO. MC-GP01-TROYDAM.dwg

JOB NO: 16667-23
DATE: 4/29/24
DRAFTER: JB
CHECKED BY: BB

SHEET
FIG2C

PRELIMINARY
NOT FOR CONSTRUCTION

M:\Troy_Dam\CAD\CIVIL\MC-GP01-TROYDAM.dwg PLOT DATE 4/29/2024 11:12 AM USER: JBUNKER

PRELIMINARY
NOT FOR CONSTRUCTION

SHEET FIG3

JOB NO: 16667-23
DATE: 4/29/24
DRAFTER: JB
CHECKED BY: BB

DISPOSAL AREA

PROJECT NAME: LAKE CREEK DAM SEDIMENT REMOVAL
LOCATION: TROY, MONTANA
FILE NO. MC-GP01-TROYDAM.dwg

Water & Environmental TECHNOLOGIES
480 East Park Street
Butte, MT 59701
(406) 782-5220
waterenvtech.com

PERMIT SET

NO.	DESCRIPTION	DATE	DRN. BY

Option 2 - Ramp

Engineering Plan and Profile Drawings – Permit Plan Set

N

0 40 80 FEET

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	DRN. BY

PERMIT SET

Water & Environmental TECHNOLOGIES
480 East Park Street
Butte, MT 59701
(406) 782-5220
waterenvtech.com

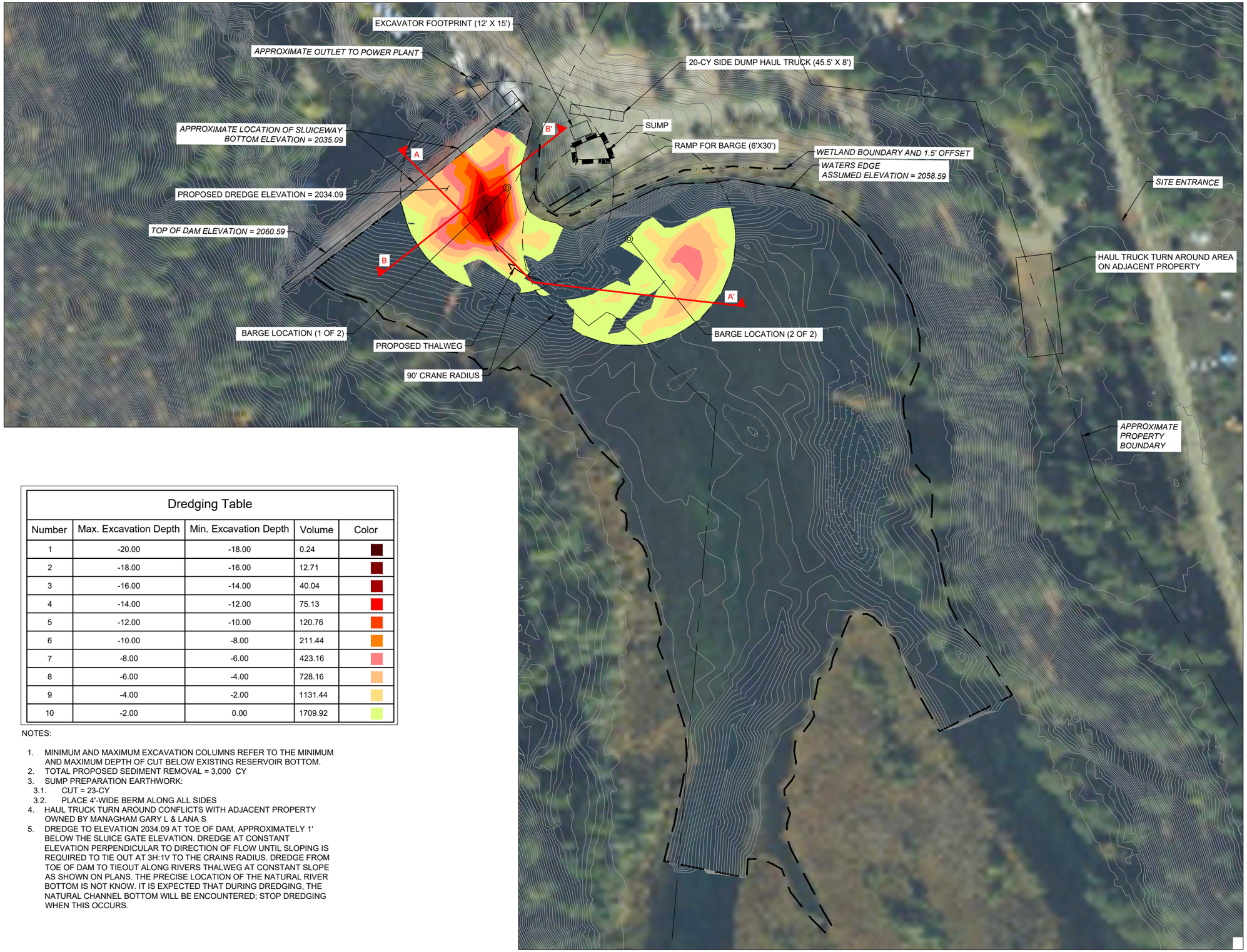
EXISTING CONDITIONS

PROJECT NAME: LAKE CREEK DAM SEDIMENT REMOVAL
LOCATION: TROY, MONTANA
FILE NO. MC-GP01-TROYDAM.dwg

JOB NO:	16667-23
DATE:	4/29/24
DRAFTER:	JB
CHECKED BY:	JS

SHEET
FIG1

M:\Troy_Dam\CAD\CIVIL\MC-GP01-TROYDAM.dwg PLOT DATE 4/29/2024 11:12 AM USER: JBUNKER



N

0 40 80 FEET

Dredging Table				
Number	Max. Excavation Depth	Min. Excavation Depth	Volume	Color
1	-20.00	-18.00	0.24	
2	-18.00	-16.00	12.71	
3	-16.00	-14.00	40.04	
4	-14.00	-12.00	75.13	
5	-12.00	-10.00	120.76	
6	-10.00	-8.00	211.44	
7	-8.00	-6.00	423.16	
8	-6.00	-4.00	728.16	
9	-4.00	-2.00	1131.44	
10	-2.00	0.00	1709.92	

NOTES:

1. MINIMUM AND MAXIMUM EXCAVATION COLUMNS REFER TO THE MINIMUM AND MAXIMUM DEPTH OF CUT BELOW EXISTING RESERVOIR BOTTOM.
2. TOTAL PROPOSED SEDIMENT REMOVAL = 3,000 CY
3. SUMP PREPARATION EARTHWORK:
   - 3.1. CUT = 23-CY
   - 3.2. PLACE 4'-WIDE BERM ALONG ALL SIDES
4. HAUL TRUCK TURN AROUND CONFLICTS WITH ADJACENT PROPERTY OWNED BY MANAGHAM GARY L & LANA S
5. DREDGE TO ELEVATION 2034.09 AT TOE OF DAM, APPROXIMATELY 1' BELOW THE SLUICE GATE ELEVATION. DREDGE AT CONSTANT ELEVATION PERPENDICULAR TO DIRECTION OF FLOW UNTIL SLOPING IS REQUIRED TO TIE OUT AT 3H:1V TO THE CRAINS RADIUS. DREDGE FROM TOE OF DAM TO TIEOUT ALONG RIVERS THALWEG AT CONSTANT SLOPE AS SHOWN ON PLANS. THE PRECISE LOCATION OF THE NATURAL RIVER BOTTOM IS NOT KNOW. IT IS EXPECTED THAT DURING DREDGING, THE NATURAL CHANNEL BOTTOM WILL BE ENCOUNTERED; STOP DREDGING WHEN THIS occurs.

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	DRN. BY

PERMIT SET

Water & Environmental TECHNOLOGIES
118 East 7th Street
Anaconda, MT 59711
(406) 563-7476
waterenvtech.com

90-FOOT CRAIN RADIUS
BASE BID-EXCAVATION

PROJECT NAME: LAKE CREEK DAM SEDIMENT REMOVAL
LOCATION: TROY, MONTANA
FILE NO. MC-GP04-TROYDAM.dwg

JOB NO:	16667-23
DATE:	4/29/24
DRAFTER:	JB
CHECKED BY:	BB

SHEET
FIG2A

M:\Troy_Dam\CADICIVIL\MC-GP04-TROYDAM.dwg PLOT DATE 4/29/2024 11:12 AM USER: JBUNKER

N

0 40 80 FEET

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	DRN. BY

PERMIT SET

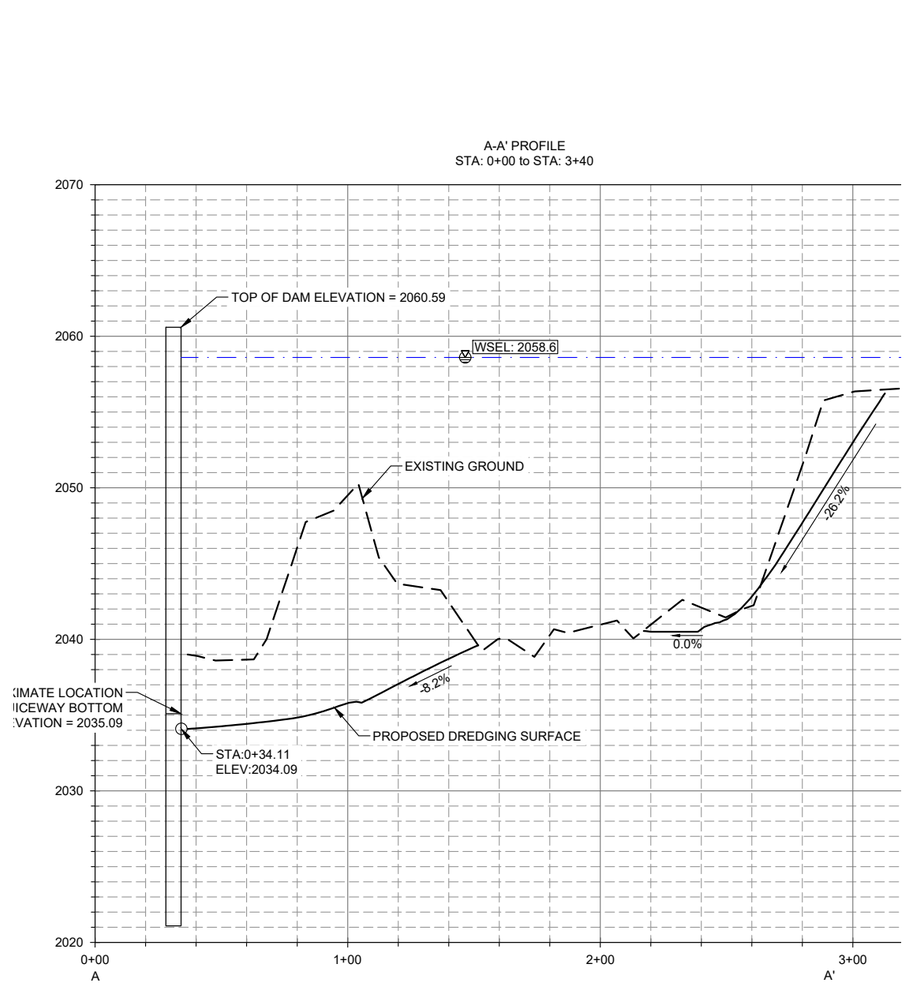
Water & Environmental TECHNOLOGIES
118 East 7th Street
Anaconda, MT 59711
(406) 563-7476
watenvtech.com

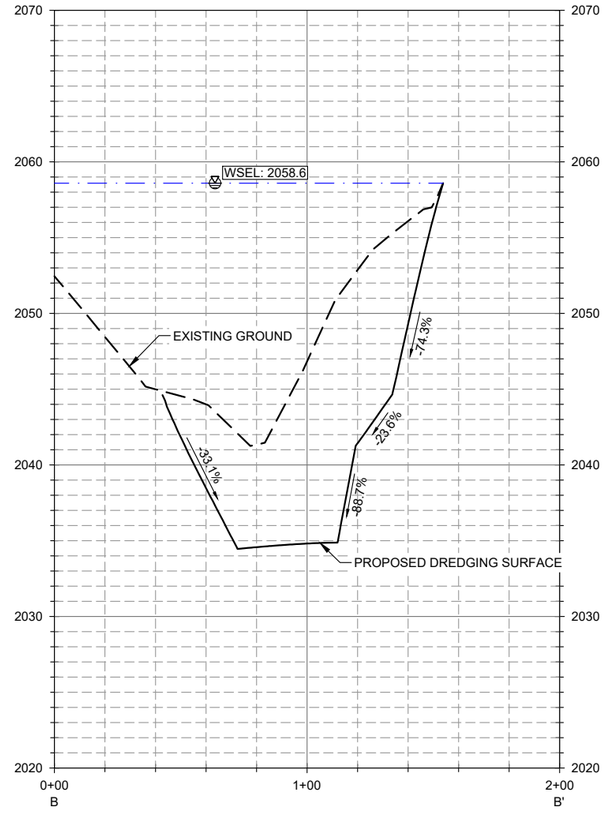
90-FOOT CRAIN RADIUS BASE BID-CONTOURS

PROJECT NAME: LAKE CREEK DAM SEDIMENT REMOVAL
LOCATION: TROY, MONTANA
FILE NO. MC-GP04-TROYDAM.dwg

JOB NO:	16667-23
DATE:	4/29/24
DRAFTER:	JB
CHECKED BY:	BB

SHEET
FIG2B





0 5 10 VERTICAL FEET

0 30 60 HORIZONTAL FEET

NO.	DESCRIPTION	DATE	DRN. BY

PERMIT SET

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118 East 7th Street
Anaconda, MT 59711
(406) 563-7476
waterenvtech.com

90-FOOT CRAIN RADIUS PROFILE VIEWS

PROJECT NAME: LAKE CREEK DAM SEDIMENT REMOVAL
LOCATION: TROY, MONTANA
FILE NO. MC-GP04-TROYDAM.dwg

JOB NO:	16667-23
DATE:	4/29/24
DRAFTER:	JB
CHECKED BY:	BB

SHEET
FIG2C

PRELIMINARY
NOT FOR CONSTRUCTION

M:\Troy_Dam\CAD\CIVIL\MC-GP04-TROYDAM.dwg PLOT DATE 4/29/2024 11:12 AM USER: JBUNKER

PRELIMINARY
NOT FOR CONSTRUCTION

SHEET FIG3

JOB NO: 16667-23
DATE: 4/29/24
DRAFTER: JB
CHECKED BY: BB

DISPOSAL AREA

PROJECT NAME: LAKE CREEK DAM SEDIMENT REMOVAL
LOCATION: TROY, MONTANA
FILE NO. MC-GP01-TROYDAM.dwg

Water & Environmental TECHNOLOGIES
480 East Park Street
Butte, MT 59701
(406) 782-5220
waterenvtech.com

PERMIT SET

NO.	DESCRIPTION	DATE	DRN. BY

Appendix 2

Wetland Determination Forms

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Troy Dam Sediment Removal City/County: Lincoln County Sampling Date: 2024-04-17

Applicant/Owner: Northern Lights, Inc. State: Montana Sampling Point: Observation Point 1

Investigator(s): Brad Bennett Section, Township, Range: S19 T31N R33W

Landform (hillslope, terrace, etc.): Sideslope Local relief (concave, convex, none): Convex Slope (%): 5

Subregion (LRR): E 44A Lat: 48.43885 Long: -115.870453 Datum: NAD83_2011

Soil Map Unit Name: 2109F - Badmedicine-Felixcreek-Tevis complex, 20 to 60 percent slopes NWI classification: Unclassified

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 ✔	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

This observation point is located on a sideslope between an upland terrace and a wetland fringe associated with Lake Creek. It contains hydrophytic vegetation but lacks hydric soils and wetland hydrology indicators.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 25 m r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus incana	10	✔	FACW
2. Pseudotsuga menziesii	5	✔	FACU
3.			
4.			
	15	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 m r)			
1. Symphoricarpos occidentalis	40	✔	FAC
2. Cornus alba	20	✔	FACW
3. Salix interior	15	✔	FACW
4.			
5.			
	75	= Total Cover	
Herb Stratum (Plot size: 5 m r)			
1. Phalaris arundinacea	30	✔	FACW
2. Athyrium cyclosorum	15	✔	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	45	= Total Cover	
Woody Vine Stratum (Plot size: 15 m r)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 55

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 85.71 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	75	x 2 =	150
FAC species	55	x 3 =	165
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	135 (A)		335 (B)

Prevalence Index = B/A = 2.48

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Observation Point 1 is on a sideslope between an upland terrace and a wetland fringe. The vegetation plots capture aspects of both habitats. This area is dominated by facultative and facultative wetland shrubs and grass. This observation point passes both the dominance test and prevalence index for hydrophytic vegetation.

SOIL

Sampling Point: Observation Point 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 9	10YR 2/2	100					Silt Loam	Abundant with roots
9 - 12	10YR 2/2	100					Silt Loam	Alluvial layer, excavation refusal
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ **No** ✔

Remarks:

The test pit of observation point 1 displayed no observable hydric soil indicators. A root layer extended to 9 inches below ground surface followed by a gravel/cobble matrix before excavation was refused. Soil color was consistent throughout and was a very dark brown.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ___ **No** ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial photos were reviewed and it was determined that the observation point location is not saturated or inundated in aerial imagery.

Remarks:

This observation point is located on a sideslope upgradient on the adjacent wetland fringe. The topography of the area does not allow for prolonged periods of saturation or inundation. The criteria of one secondary hydrology indicator, FAC-neutral test, was met. Wetland hydrology is not present.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Troy Dam Sediment Removal City/County: Lincoln County Sampling Date: 2024-04-17

Applicant/Owner: Northern Lights, Inc. State: Montana Sampling Point: Observation Point 2

Investigator(s): Brad Bennett Section, Township, Range: S19 T31N R33W

Landform (hillslope, terrace, etc.): Fringe Local relief (concave, convex, none): Linear Slope (%): 0

Subregion (LRR): E 44A Lat: 48.43883334 Long: -115.87044563 Datum: NAD83_2011

Soil Map Unit Name: 2109F - Badmedicine-Felixcreek-Tevis complex, 20 to 60 percent slopes NWI classification: PABGh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ 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 ✔	No ____	**Is the Sampled Area within a Wetland?** Yes ✔ No ____
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	

Remarks:

Observation point 2 is located within the wetland fringe associated with Lake Creek and is frequently flooded during seasonal high water and occasionally flooded due to dam operations. This Observation Point displays all three wetland indicators.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 25 m r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus incana	10	✔	FACW
2. Pseudotsuga menziesii	5	✔	FACU
3.			
4.			
	15	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 m r)			
1. Symphoricarpos occidentalis	35	✔	FAC
2. Cornus alba	15	✔	FACW
3. Salix interior	10		FACW
4.			
5.			
	60	= Total Cover	
Herb Stratum (Plot size: 5 m r)			
1. Phalaris arundinacea	30	✔	FACW
2. Athyrium cyclosorum	10	✔	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40	= Total Cover	
Woody Vine Stratum (Plot size: 15 m r)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 60

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	65	x 2 =	130
FAC species	45	x 3 =	135
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	115 (A)		285 (B)

Prevalence Index = B/A = 2.47

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

Hydrophytic vegetation is present at observation point 2, dominated primarily by FAC and FACW shrubs and grass. The high prevalence of bare ground is a result of nearby surface water.

SOIL

Sampling Point: Observation Point 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 5	10YR 3/2	100					Silt Loam	abundant organic material, roots throughout, muck present
5 - 11	10YR 4/1	90	10YR 4/4	10	C	M	Silt Loam	Redox concentration
11 - 18	10YR 4/1	90	10YR 4/4	10	C	M	Silt Loam	Cobbles present at this depth
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ✔ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

The soils associated with at observation point 2 consist of a silt loam with redox concentrations present in the matrix at 10% in the B and C horizons. Soils meet the definition of F3, depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✔ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ✔ Saturation Visible on Aerial Imagery (C9)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ✔ No ___ Depth (inches): 0

Water Table Present? Yes ✔ No ___ Depth (inches): 14

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

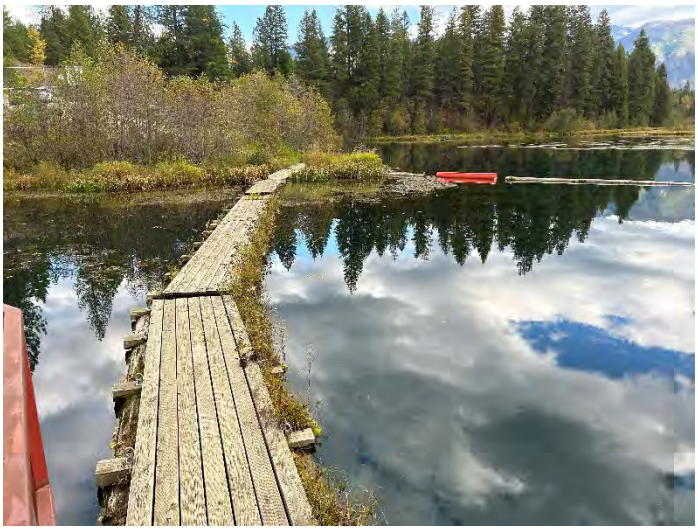
Aerial photos reviewed and determined to have both surface water and saturation visible in aerial imagery.

Remarks:

Observation point 2 includes a wetland fringe habitat adjacent to Lake Creek that is frequently inundated during seasonal high water and intermittent dam operations. The test pit soils are saturated throughout, and a water table is present 14 inches below ground surface.

Appendix 3

Photo Journal



PHOTOGRAPH NUMBER:

P-01

PHOTOGRAPHER:

Jay Slocum

PHOTO DATE:

October 5, 2023

PHOTO LOCATION:

Lincoln County, Montana

PHOTO DESCRIPTION:

Proposed platform (Option 1) / ramp (Option 2) area.

PHOTOGRAPH NUMBER:

P-02

PHOTOGRAPHER:

Jay Slocum

PHOTO DATE:

October 5, 2023

PHOTO LOCATION:

Lincoln County, Montana

PHOTO DESCRIPTION:

Proposed platform (Option 1) / ramp (Option 2) area.

PHOTOGRAPH NUMBER:

P-03

PHOTOGRAPHER:

Jay Slocum

PHOTO DATE:

October 5, 2023

PHOTO LOCATION:

Lincoln County, Montana

PHOTO DESCRIPTION:

Typical wetland fringe near the proposed platform / ramp area.

PHOTOGRAPH NUMBER:

P-04

PHOTOGRAPHER:

Jay Slocum

PHOTO DATE:

October 5, 2023

PHOTO LOCATION:

Lincoln County, Montana

PHOTO DESCRIPTION:

Sediment accumulation in the reservoir.

PHOTOGRAPH NUMBER:

P-05

PHOTOGRAPHER:

Jay Slocum

PHOTO DATE:

October 5, 2023

PHOTO LOCATION:

Lincoln County, Montana

PHOTO DESCRIPTION:

Sediment accumulation in the reservoir.

PHOTOGRAPH NUMBER:

P-06

PHOTOGRAPHER:

Jay Slocum

PHOTO DATE:

October 5, 2023

PHOTO LOCATION:

Lincoln County, Montana

PHOTO DESCRIPTION:

Sediment accumulation in the reservoir.

PHOTOGRAPH NUMBER:

P-07

PHOTOGRAPHER:

Jay Slocum

PHOTO DATE:

October 23, 2023

PHOTO LOCATION:

Lincoln County, Montana

PHOTO DESCRIPTION:

Proposed platform (Option 1) / ramp (Option 2) area.

PHOTOGRAPH NUMBER:

P-08

PHOTOGRAPHER:

Jay Slocum

PHOTO DATE:

October 23, 2023

PHOTO LOCATION:

Lincoln County, Montana

PHOTO DESCRIPTION:

Proposed platform (Option 1) / ramp (Option 2) area.

PHOTOGRAPH NUMBER:

P-09

PHOTOGRAPHER:

Brad Bennett

PHOTO DATE:

April 17, 2024

PHOTO LOCATION:

Lincoln County, Montana

PHOTO DESCRIPTION:

Typical wetland fringe along the reservoir facing upstream.

PHOTOGRAPH NUMBER:

P-10

PHOTOGRAPHER:

Brad Bennett

PHOTO DATE:

April 17, 2024

PHOTO LOCATION:

Lincoln County, Montana

PHOTO DESCRIPTION:

Typical wetland fringe along the reservoir facing downstream.

PHOTOGRAPH NUMBER:

P-11

PHOTOGRAPHER:

Brad Bennett

PHOTO DATE:

April 17, 2024

PHOTO LOCATION:

Lincoln County, Montana

PHOTO DESCRIPTION:

Proposed platform (Option 1) / ramp (Option 2) area.

PHOTOGRAPH NUMBER:

P-12

PHOTOGRAPHER:

Brad Bennett

PHOTO DATE:

April 17, 2024

PHOTO LOCATION:

Lincoln County, Montana

PHOTO DESCRIPTION:

Proposed platform (Option 1) / ramp (Option 2) area.

PHOTOGRAPH NUMBER:

P-13

PHOTOGRAPHER:

Brad Bennett

PHOTO DATE:

April 17, 2024

PHOTO LOCATION:

Lincoln County, Montana

PHOTO DESCRIPTION:

Observation Point 1: Test Pit Soils – Upland Soils

PHOTOGRAPH NUMBER:

P-14

PHOTOGRAPHER:

Brad Bennett

PHOTO DATE:

April 17, 2024

PHOTO LOCATION:

Lincoln County, Montana

PHOTO DESCRIPTION:

Observation Point 1: Test Pit Soils – Upland Soils

PHOTOGRAPH NUMBER:

P-15

PHOTOGRAPHER:

Brad Bennett

PHOTO DATE:

April 17, 2024

PHOTO LOCATION:

Lincoln County, Montana

PHOTO DESCRIPTION:

Observation Point 2: Test Pit Soils – Wetland Soils

PHOTOGRAPH NUMBER:

P-16

PHOTOGRAPHER:

Brad Bennett

PHOTO DATE:

April 17, 2024

PHOTO LOCATION:

Lincoln County, Montana

PHOTO DESCRIPTION:

Observation Point 2: Test Pit Soils – Wetland Soils