

North Fork Walla Walla River Holistic Floodplain Restoration RM 5.2-6.5

*Private Forest Accord Grant - Fall 2024
Solicitation*

Walla Walla Basin Watershed Council

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Application Form

Project Information

Collaborate Feature

To invite others to collaborate on a request, use the "Collaborate" button at the top of the page.

Enter the collaborator's email address, set their permission level (View, Edit, or Submit), include a message with instructions, and click "Invite." You can revoke access at any time.

The collaborator will receive an email with your message, a link to log in, and instructions to create a password if it's their first time. Once logged in, they can access the request under the "Collaboration Requests" tab on their dashboard and follow your instructions.

Collaborate Video Tutorial

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Access the most current [2024 Grant Guidelines here.](#)

Project Type*

Select all that apply. Examples may be found on the [PFAGrants.com](#) webpage.

Implementation

Project Name/Title*

Project Names/Titles can be no more than 80 characters, including spaces.

North Fork Walla Walla River Holistic Floodplain Restoration RM 5.2-6.5

Total funding requested from ODFW?*

The requested funding amount from ODFW rounded to the nearest dollar. This amount does not include any matching funds you may be providing for the project. Ensure that Exhibit B: Budget, matches this funding request.

\$432,156.00

Total Project Cost*

What is the total cost for this project including all project funds (i.e. ODFW funding requested, matching funds, other contributing funds, etc.).

\$869,582.00

Project Start Date*

The estimated start date of ODFW funding being used.

Depending on the size and complexity of the project, it is recommended that the start date for work on approved projects should not be earlier than October 1st, 2025.

10/01/2025

Project End Date*

When ODFW funding will be completely used. Four year project timelines are encouraged.

12/31/2027

County of Project*

Select the primary county the project is to take place in.

Umatilla County

Impacted Counties

Select any additional counties impacted by the proposed project.

Umatilla County

Assessor Parcel Numbers or TAX number

May be the project center parcel or of every parcel involved in the project. If listing multiple, separate by a comma

5N37000005380

HUC-10 Project Location*

List the most centered HUC-10 code that your project directly impacts. HUC stands for Hydrologic Unit Code. The unique code identifies watersheds.

[Click here to identify your HUC-10](#) - *The webpage and layers bar will take a few minutes to load. Zoom level 10 will show HUC-10 codes. Only type in the 10-digit code that follows the "10-" signifier.*

1707010201

Impacted Basin*

Using [this map](#), state what basin your project takes place in. **Example) North Coast Basin 1**

Umatilla, Basin #7

Latitude (Decimal Degrees)*

Project center point. Enter up to 6 digits right of the decimal.

45.884505

Longitude (Decimal Degrees)*

Project center point. Enter up to 6 digits right of the decimal.

118.206772

What is the ownership of the project site(s)?*

Please select all that apply.

Private Land

Landowner Information*

Does the project take place on land owned by the applicant?

No

Does the Project Propose Ground Disturbance*

Including any soil disturbance, capital improvement, engineering, site grading, or other construction.

Yes

Advancement Funding*

Does the project plan to request an advance payment?

No

Post-project maintenance*

Is this project requesting funding for post-project maintenance? *Note: Post-project maintenance is not a requirement for this funding round.*

No

Is Match Being Provided?

Match funding is not a requirement, and both cash and in-kind contributions are acceptable.

Yes

Herbicide*

Does your project include the use of herbicide?

No

Project Contact Information

Organization Type Applying*

Please choose the category that best describes your organization.

Non-profit 501c3

Fiscal Sponsors*

Is your project using a fiscal sponsor to apply?

Yes

Applying Organization Name*

Walla Walla Basin Watershed Council

Lead Organization Federal Tax ID Number*

93-1255989

Physical Address*

Of the applying organization.

810 S. Main St. Milton-Freewater, OR 97862

Project Manager Title*

Watershed Restoration Specialist

Project Manager Name*

Eric Hoverson

Project Manager Email Address*

eric.hoverson@wwbwc.org

Project Manager Direct Phone Number*

This will be used to contact the organization for any application related questions.

541-938-2170

Project Manager Extension

If applicable, list the extension for the Project Manager phone number

26417

Project Team Qualifications*

Summarize the project team's qualifications, experience, and capacity to execute the proposed tasks, including a brief statement for each team member. Provide examples of similar projects the organization has completed.

WWBWC Staff- Watershed Restoration Specialist Project Manager-Eric Hoverson, BS Biology with fisheries emphasis, water resources minor, University Wisconsin Stevens Point, 35-years applicable experience working with habitat requirements and population assessments of pacific northwest salmonids in the inland eastern portion of Oregon and Washington. Taught at the 200 level of college for 3 years teaching Watershed Processes and Restoration.

WWBWC Staff- Executive Director-Troy Baker, BS degree in natural science with 30-years of experience as a consultant and with the WWBWC dealing with water related natural resources conservation topics, excelling in mapping, drone imagery monitoring and GIS.

WWBWC Board- Directors and project selection committee are comprised of community representatives from various diverse professional disciplines and represent the fabric of our community, of which is defined as those that reside within the watershed, comprised of two states. The professional community is comprised of natural resource professionals on a grander scale that includes those having mutual interest and/or authority over the management of the natural resources of the Walla Walla Basin. This aspect of the community extends throughout and beyond the Pacific Northwest due to ESA salmonids being anadromous in nature and inhabiting the international waters of the Pacific Ocean.

Design Team- Cramer Fisheries-Phil Roni, published author and renown expert in the discipline of Pacific Northwest salmonids for 2 decades. Engineers Tyler Rockhill and Reid Camp provide support through field assessment in development of designs and have related master's degrees and required professional certifications and excellent performance over a 20-year time period.

Design Team- Jacobs Engineering-Lisa Hall and Perrin Robinson provide engineering expertise, project management, and have decades of experience.

Construction Team- Entities are selected via WWBWC RFP bidding process to perform each annual phase of implementation and must meet required qualifications and possess applicable experience constructing similar natural resource restoration projects benefitting watershed ecosystems with demonstrated performance capabilities that emphasize enhancement of riverine systems across expansive floodplains of relatively large magnitude.

This assembly of cooperating professionals specified above have successfully designed and implemented three NFWWR phases thus far; connection of 15 surface spring sources in 2022, restoration of RM 3.6-4.3 in 2023, and RM 4.3-5.2 in 2024.

Project Overview & Purpose

Project Abstract*

Provide a brief summary that outlines the essential details of the proposed project

WWBWC received the 2024 State Land Board Award for phase 3 of the North Fork Walla Walla River (NFWWR) restoration project. Phase 3 was completed in 2024 and was funded by inaugural PFA dollars and had the distinction of being the only project that performed construction during 2024. The completed product was toured by ODFW's Andy Spyrka and Kirsten Ressel with positive reviews. This application seeks funds for phase 4 of 6, RM 5.2-6.5. WWBWC is in the same position as last year, being at the 30% design level with high probability of 2025 construction. Historic floods in the NFWWR during 2020 were the largest on record, resulting in "take" and reduced habitat suitability of ESA Threatened wild steelhead and bull trout populations, native red band rainbow trout, chinook salmon and mountain whitefish. Status of ESA-Listed salmonids in the Walla Walla Basin in regard to population size is categorized as moderate, but trending to small with risk of extinction approaching high probability.

Project Overview*

In your response, please cover the following:

- **Project Summary:** Briefly describe the proposed project.
- **Project Location and History:** Outline the location, historical context, and relevant factors, including land use history.
- **Watershed and Resource Considerations:** Discuss other resource-related projects or issues within the watershed, such as forest health, wildfire risks, and water quality.
- **Habitat and Ecological Conditions:** Provide an overview of current habitat and ecological conditions.
- **Project Condition:** Describe the current state of the project, including public scoping and planning efforts.
- **Potential Challenges:** Identify any issues or conditions that may impact project completion.
- **Funding Necessity:** Explain why funding is crucial for the project's success.
- **Next Steps:** Detail any anticipated actions following project completion, if applicable.
- **Project Summary:** The NFWWR 5.2-6.5 holistic floodplain restoration construction phase will protect, enhance, restore and expand vital aspects within the reach as identified by a multitude of assessments and design strategies. Physical habitat deficiencies will be addressed via the addition of whole trees and boulders. Channel shaping to reclaim sinuosity and encouragement of converting anthropogenic single flume, to multiple channel networks with increased complexity will address a primary limiting factor of off-channel complexity as it relates to population bottleneck and thus reduced carrying capacity and biomass. The project will improve riverine habitat across the re-connected floodplain by way of levee perforation and setback, added roughness, sheet water inundation, riparian tree plantings and grazing

enclosures. In addition to the target fish species, the project aims to benefit a plethora of wildlife species observed on the site such as tailed frogs and beaver.

- **Project Location and History:** The Walla Walla River confluence with the Columbia River is at RM 315, a distance of 23 miles upstream from McNary Dam. The mouth of the NFWWR is at RM 52. The NFWWR is an 18-mile tributary of the Walla Walla River located near Milton Freewater, Oregon. The project area is located from RM 5.2-6.5 on the NFWWR and has been subject to catastrophic effects of the 2020 flood and subsequent emergency response actions. There is detrimental legacy effect from the historical grazing of 600 head of sheep, of which was discontinued decades ago. Currently there is seasonal, rotational grazing by 2-3 dozen cows of which is a hobby for multiple landowners, not a means of making a living.
- **Watershed and Resource Considerations:** The NFWWR is listed on the Department of Environmental Quality 303d list for high water temperature. Forest resources located upstream of the project area are managed professionally by the USFS, BLM and private timber companies.
- **Habitat and Ecological Conditions:** 2020 floodwaters created excessive erosion resulting from shear stress and resulted in expansive areas of the riparian and floodplain becoming stripped of fertile topsoil and vegetative components, leaving a barren cobble field or moonscape type of appearance for up to 10 times the width of the wetted channel. Down cutting incision of the stream channel has resulted in more pronounced disconnection between surface and groundwater. The disconnected riparian and abrupt changes to streambed elevation resulted in the mortality of several galleries of mature alder trees in the riparian area and is creating a favorable environment for non-preferred vegetative components throughout the floodplain. The effects on the vegetative components coupled with disconnected water interchange between surface, ground and spring flows along with climate change has resulted in an abrupt increase of stream temperature and turbidity post 2020-flood as demonstrated by WWBWC water quality monitoring data. Flood impacts reduced habitat complexity, resulting in simplification of habitat features and subsequent lowering of salmonid carrying capacity in a now dysfunction system dominated by un-productive plain bed form riffles. Mechanical flood repair work included the construction of extensive pushup levee networks harnessing the river into a constricted single flume type of channel, instead of the multi-threaded channels appropriate for the valley type. The levees do not provide the river with adequate capacity for handling future high-water events without legitimate threat of avulsion and extensive subsequent damage. Lack of off-channel habitat is considered a limiting factor to salmonid production in the basin as only a minority of such habitat remain from historical status. Interruption of natural riverine processes resulted in reduced ability to manage energies effectively, which makes the system more vulnerable to future impacts from anticipated high-water events of which are expected to occur more frequently as predicted by climate change scientists. In developing restoration design alternatives, no action was perceived as immediate threat to jeopardizing fish health and continued potential for "take" of ESA salmonids. On the other end of the spectrum, a heavy-handed approach would be expensive and unnecessary while causing much disturbance. A tier-based priority system was developed to allow some degree of latitude for quantity of treatment to be conducted annually. Adopting a restoration philosophy involving letting the river do much of the work after jump-starting the restoration process with strategic placement of essential structures conducted. Successful and sustainable restoration of the NFWWR will require a long-term perspective that works with, not against, natural disturbance processes. The overarching design approach is to jump-start physical processes that initiate a self-sustaining positive feedback loop that will gradually improve channel and floodplain function, stability, and habitat. The design incorporates elements that decrease velocity and shear stress in the main channel, secondary channels, and floodplain. Passive and active restoration elements can be implemented to jump-start hydraulic, geomorphic, and vegetative processes. Public-owned land parcels managed by the USFS were assessed for environmental condition and ranked favorably. Therefore, one of the objectives of the project

located on private land is to improve the migratory corridor to improve passage through the project area and into the relatively pristine headwaters where the most suitable habitat currently exists. Extending functioning habitats downstream of public properties is showing considerable improvement based upon the results of the first 3 phases of holistic NFWWR restoration already completed by the WWBWC. The cumulative effect of the multiple phases over an expansive 5.2-miles length of river offers a degree of magnitude essential for triggering significant biological response to physical habitat improvements made as result of implementation. A significant reduction of wetland habitat has resulted from forcing the channel into single formation, therefore much emphasis on increasing wetlands is already proven to be effective and will provide some degree of buffering and fire protection in addition to water quality and quantity improvements.

- **Project Condition:** Continue design advancement from the current 30% level to 80% by March 31, 2025, in effort to allow adequate timing for processing permits with the intent of implementing during the approved work window in 2025. The design process receives critical review at the 15%, 30%, 80% and 100% design level by qualified professional both internally and externally to assure the appropriate design specifics are included for optimizing project outcomes. This exact formula was successfully accomplished by WWBWC with PFA funds in 2024. The WWBWC has an appointed project review committee made up of a multitude of diverse professions from the region including the Tribal Fisheries Program Manager. External review of permission applications from permit entities are to be successfully navigated by the WWBWC Watershed Restoration Specialist of who has developed solid relations with authorization representatives for decades.
- **Potential Challenges:** Performing efficient restoration of all 6 phases of the 5.2-mile overall restoration site in a timely manner prior to another catastrophic high water event catastrophically avulsing the vulnerable gravel levees from the 2020 flood in an uncontrolled manner is of concern, hence the WWBC trend of implementing every single year for the last 3 years and planning to continue this rate of treatment as the status of ESA listed salmonid stocks demand our immediate action.
- **Funding Necessity:** The WWBWC applied for approximately half of the required construction dollars from OWEB in October of 2024 and will not know the result for several months. Securing half the implementation dollars from this PFA source provides an attractive foundation of base dollars to leverage with grant opportunities that arise as our partnership base increases due to the project now being a high profile and successful project effort that is noticeably enticing additional contributors to become part of an award-winning project effort. BPA is paying for the entire design for RM 5.2-6.5.
- **Next Steps:** The WWBWC is funded by OWEB and BPA to continue to evaluate water quantity and quality, physical habitat response to restoration actions, biological response to physical changes in habitat, utilization of adaptive management base upon evaluation of project performance over time. There is a long-standing data base of metrics being professionally monitored by the WWBWC for the purpose of tracking trends over time.

Protections or Restrictions

Describe any protections or restrictions affecting the project in any form (such as easements, water rights, etc.).

No protections or restrictive parameters associated with the project as proposed.

Habitat Conservation Plan Covered Species (anticipated)*

Check all of the Habitat Conservation Plan Covered Species the Project will benefit. **All eligible projects must demonstrate uplift of at least one or more of the following species:**

Bull trout (*Salvelinus confluentus*)
Coastal tailed frog (*Ascaphus truei*)
Mountain whitefish (*Prosopium williamsoni*)
Native salmon and trout (*Oncorhynchus* spp.) - Elaborate below.

Native Salmon or Trout Species (anticipated)

If applicable to your project, briefly specify the native salmon or trout species benefiting from the project, including Distinct Population Segments (DPS), or Evolutionary Significant Unit (ESU), as applicable.

Steelhead Trout- Mid-Columbia ESU Umatilla/Walla DPS, ESA Threatened, moderate population size, trending to small, moderate risk extinction, trending to high.

Bull Trout- ESA Threatened, North Fork Walla DPS is 1 of 5 local bull trout populations in 1 of 2 core areas, significant population decline since the 1990's.

Red Band Rainbow Trout- 2/3 of population estimated to have perished resulting from 2020 flood. Carrying capacity precipitously reduced by flood of 2020.

Chinook Salmon- Extirpated early 1900's due to irrigation dam passage barriers. Hatchery stock reintroduction began in 2000. Juvenile inhabitation in NFWWR.

Mountain Whitefish- Sparse, clustered distribution at significantly lower levels due to pools reduction caused by 2020 flood and habitat suitability decline.

PFA HCP Covered Species Benefit*

Describe how the project will generate some form of measurable ecosystem benefit(s) for one or more [Habitat Conservation Plan \(HCP\) covered species](#).

In your response, please address the following points:

1. **Ecological Impact:** Explain the overall ecological impact of the project, highlighting the specific benefits for PFA HCP-covered species.
2. **Alignment with Mitigation Measures:** Describe how the project aligns with one or more of the seven major categories of restoration measures outlined in the Private Forest Accord Grant Program Guidelines.
3. **Long-Term Sustainability:** Discuss how the project will contribute to the long-term sustainability of the impacted HCP-covered species, extending beyond the grant period.
4. **Indirect Ecological Benefits:** Identify any indirect ecological benefits that may result from the project.

Ecological Impact: Restoring proper riverine function following significant anthropogenic changes resulted from the catastrophic 2020 floods and subsequent emergency response reactions have dramatically reduced carrying capacity for ESA salmonids. Reconnecting the floodplain across an expanded valley floor with enhanced riparian attributes, improving habitat complexity along with water quality and quantity improvements are project objectives intended to improve physical habitat suitability features.

Alignment with Mitigation Measures:

1. Restoring degraded habitat to natural condition/function or a condition likely to improve climate resiliency- A multitude of assessments and hydraulic studies determined that the appropriate channel form for the NFWWR valley type is multi-threaded channel networks as opposed to the current single flume

channel. The project area is supposed to function as a sediment accumulation reach but instead is operating as a transport zone.

2. Preserving land, water, and habitat- Re-connecting hyporheic interaction between ground and surface waterways, re-routing springs dissected by the agricultural road prism, expanded floodplain area and dynamics, shading surface flow through expanded and enhanced vegetative establishment, reducing sheer stress and erosional vulnerability, converting the area back to functioning as a sediment accumulation area instead of a transport zone are all expected responses to project actions.

3. Habitat enhancement- A main objective of the project is to significantly improve diversification of habitat complexity and salmonid suitability for all age classes and reducing population suppression bottlenecks.

4. Reducing or eliminating threats to HPC-covered species- Expanding the dispersal distribution of sensitive species as to not have all eggs in one basket so to speak and improving suitability status from marginal to highly suitable improves species fitness and sensitivity in regard to reduced vulnerability to catastrophic ecological events.

5. Creating new habitats or new populations- Project emphasis being placed on increasing available diverse, off-channel, and micro habitats in the form of alcoves, oxbows, isolated and backwater pools, side channels etc., all of which have been significantly reduced from historical levels due to anthropogenic river straightening and simplification.

6. Translocating affected individuals or family groups to establish new or augment existing populations-

7. Translocating species to enhanced or formerly occupied and still suitable habitat- Improving habitat and passage through formerly wide, shallow, expansive riffles (88% of habitats surveyed were riffle pre-project) the project migratory corridor to allow improved access to superior habitats indirectly benefits population distribution and dispersal, beneficial in regard to protecting species during catastrophic events by reducing concentrations of biota and thus vulnerability to predation or detrimental environmental events.

Long-Term Sustainability: Proactively restoring the processes required to achieve a self-sustaining, and self-regulating harmonious riverine system in regard to energy equilibrium balance requires less need for reactive human intervention intrusion and disturbance. Increases in high flow capacity will protect against projected frequency and magnitude of future detriment associated with flood events. Climate change resiliency will be achieved through improved watershed ecosystem improvement. Fire suppression resulting from increased wetland area and connection between ground and surface waters resulting in increased riparian expansiveness and greenspace vigor.

Indirect Ecological Benefits: Improved habitat conditions for non-target species will result from project actions throughout the ecological food chain hierarchy to benefit an abundance of various forms of biota. Improvements to project site conditions brings ecological value for recreation and life essential natural resources and the economy. Enhanced conditions within the project site expand benefits of a properly functioning and efficient system by protect community interests and infrastructure downstream. Current status of public waters located upstream are categorized as healthy as informed by assessment inventories, therefore improving the migratory corridor to deliver migratory fishes to the most suitable headwater habitats benefit ESA salmonid populations throughout their life cycle and improves fitness and availability during anadromous departure from natal inland waterways to the Pacific Ocean. Forest management actions via timber stand improvement when acquiring whole trees for project use is conducted with the intent to produce healthier stands in the long-term.

ESA-listed Species Impact*

Identify any populations of Endangered Species Act (ESA) listed species that may benefit from your proposed project and any specific limiting factors for the population or species that the project would address. Please reference relevant State and/or Federal recovery plans in your response.

To assist in this process, you may use the NOAA Fisheries Species and Habitat App, available at NOAA Fisheries Species and Habitat App.

ESA Threatened wild steelhead and bull trout populations are present in the project area, albeit at significantly reduced levels when compared to historic. Other target species, not endangers at this time, but are species of value and concern are native red band rainbow trout, chinook salmon and mountain whitefish. The NFWWR project area is listed on the DEQ 303d list for high water temperature as evidenced by maximum summer temperatures recorded as 24 degrees Celsius, which approached the lethal limit for some salmonid species. Tailed frogs have been observed in the project area in both the aquatic and terrestrial life stages.

Specific limiting factors identified in localized, regional natural resource guides unique to the NFWWR project site are lack of habitat complexity, disconnected off-channel habitats due to straightening, and water quality and quantity. These will be address via additional of whole trees and boulders into the channel as engineered logjam configurations, levee setback and perforation, reconnection of surface to groundwater and erosional protection measures via riparian development and organic bank stability. The 2020 floods washed away the majority of vibrant spring vegetation and fine substrates therefore much emphasis is being placed on re-establishing sensitive spring habitats via grazing enclosures, promotion of fine sediment accumulation, connection to the mainstem NFWWR via culverts and promoting floodplain inundation to expand wetland habitats for amphibian benefit and water quality in addition to young of the year salmonid rearing.

The Conservation and Recovery Plan for Oregon Steelhead Populations in the Middle Columbia River Steelhead Distinct Population Segment (2009) recommends the following actions being most effective for recovery of steelhead populations in the NFWWR (RM 0-8.8); -Reconnect floodplains, side & off-channel habitats to main channels -Restore natural hydrograph to provide sufficient flow during critical periods - Enhance hyporheic flow and spring inputs Design plans and implementation efforts incorporate measures to address the actions specified above. In 2023 the WWBWC restored RM 3.6-4.4 of the NFWWR using guidance from this and other managerial plans. These recommended actions are part of the design and implementation strategy for the RM 5.2-6.5 project area.

ODFW and the USFWS reports on Bull Trout status in the NFWWR (1997) identify it as 1 of 4 remaining bull trout strongholds in the basin. The NFWWR is categorized as marginal in regard to suitability, which corresponds with low population status. The value of the NFWWR is that seasonal use by bull trout occurs, therefore preserving the connectivity between the north and south Walla Walla forks is essential to long-term viability of the migratory component of the species. Re-connectivity is the most common theme that describes the holistic floodplain restoration approach being undertaken by the WWBWC ton the NFWWR project site.

In addition to state and federal natural resource management plan of which identify large scale limiting factors, additional studies via watershed assessments identify micro scale result. Combining the sources offers the most holistic strategy to correctly address diagnosed limiting factors of production.

Relation to Conservation and Recovery Plans*

Does your project align with any species conservation and recovery plan(s)? If so, describe any limiting factors and priority actions identified in the recovery plans that will be addressed in your project, and cite the plan. URLs may be inserted. Do not attach plans to this application.

If applicable, include how your project furthers any goals or priorities from any other relevant Local, State, Federal, or Tribal plans.

The Northwest Power Planning Council Walla Walla Sub Basin Plan (2004) explicitly identifies the NFWWR as a Priority Protection and Restoration Reach. The purpose of the Plan is to steer restoration efforts to reaches of importance to salmonid recovery. The target areas are identified by regional experts in the profession of natural resources management to assure that dollars are appropriated and spent wisely in proper areas in the basin. Understanding the status and enhancement potential of a project's reach ensures

safe investment over the long term for achieving proper riverine function and subsequent improvement of physical habitat suitability towards recovery of ESA salmonids. The reach is identified in the Walla Walla Subbasin Plan as a priority restoration and protection location and projections show that a 52% increase in Steelhead populations can be achieved with passage and restoration in tributaries.

The Conservation and Recovery Plan for Oregon Steelhead Populations in the Middle Columbia River Steelhead Distinct Population Segment (2009) recommends the following actions being most effective for recovery of steelhead populations in the NFWWR (RM 0-8.8); -Reconnect floodplains, side & off-channel habitats to main channels -Restore natural hydrograph to provide sufficient flow during critical periods - Enhance hyporheic flow and spring inputs Design plans and implementation efforts incorporate measures to address the actions specified above. In 2023 the WWBWC restored RM 3.6-4.4 of the NFWWR using guidance from this and other managerial plans.

WWBWC Upper Walla Walla River Watershed Action Plan (1999) identifies the NFWWR project reach as being on the DEQ 303d list for water temperature and discusses opportunities to address water quality deficiencies. The NFWWR is listed explicitly as 1 of 3 identified reaches that would gain from increased flow to fully seed salmonid habitat. The guide recommended re-connectivity of springs to the NFWWR that were formerly disconnected by a road prism. This was successfully accomplished by WWBWC in 2022 as 15 roadside springs were reconnected to the NFWWR. Next steps in the restoration process include addressing water quality and quantity issues as stated in the Plan.

ODFW and the USFWS reports on Bull Trout status in the NFWWR (1997) identify it as 1 of 4 remaining bull trout strongholds in the basin. The NFWWR is categorized as marginal in regard to suitability, which corresponds with low population status. The value of the NFWWR is that seasonal use by bull trout occurs, therefore preserving the connectivity between the north and south Walla Walla forks is essential to long-term viability of the migratory component of the species.

Walla Walla 2050 Plan (2024) WWBWC's NFWWR project area is identified as the #2 overall highest ranked Tier-1 Priority Restoration Project location due to location, restorative potential, and holistic project treatment strategies designed to match 2050 Plan objectives such as floodplain reconnection for achieving maximum ecosystem benefit. 2) WWBWC Aquatic Habitat Inventory and Assessment of the North Fork Walla Walla Watershed-Restoration designs are to be developed to address deficiencies identified in the assessment process through successful implementation of the project consistent with adaptively managing underperforming aspects identified within the watershed. The WWBWC has presented the NFWWR RM 3.6-8.8 project as a primary, Tier-1 restoration project as part of the Walla Walla 2050 Planning process. Tier-1 projects are to be considered for restoration funding for the purpose of contributing to achieving goals and objectives of the Plan.

Oregon Department Agriculture (2024) Classifies the NFWWR as a Strategic Implementation Area, which prioritizes protection, enhancement and restoration for purposes of meeting healthy water quality criteria identified by DEQ and the TMDL process. Department of Agriculture Priority Restoration Area- Project Area is located within the designated area of focus. Restoration actions proposed address common objectives with environmental benefit.

Department Environmental Quality (2024) Total Maximum Daily Load-The NFWWR is specifically identified in the report for Excessive Water Temperature. Main objectives of the project focus upon addressing water quality and quantity for ecosystem health. The reach is also listed by the Department of Agriculture as a focal area and is on the 303d list by the Department of Environmental Quality for high water temperature.

Department State Lands (2024) Categorizes the NFWWR as essential salmonid habitat.

- Content from the following management documents is also applicable; Upper Walla Walla Watershed Action Plan, Mid-Columbia Steelhead Population ESA Plan, Oregon Native Fish Conservation Policy, Oregon Conservation Strategy, Oregon Plan for Salmon and Watersheds, Conservation Recovery Plan for Oregon Steelhead, NPCC Columbia Fish & Wildlife Program, NPCC Research Plan.

Community Impact*

Describe how your project will impact the community. In your response, please address the following points:

1. **Definition of Local Community:** Define what "local community" means in the context of your project.
2. **Community Impact:** Discuss any anticipated positive or negative impacts on the local community as a result of the project.
3. **Community Support and Engagement:** Describe how the project has worked to build community support or outline plans for future engagement with the community.

Definition of Local Community: The watershed perimeter and everything that lies within best defines the community from a holistic and connected standpoint. Natural resource management principals consider the relationship between upstream and downstream features and that the holistic attributes of a watershed ecosystem as a whole are inter-connected. In regard to the human component and anthropogenic infrastructure, the watershed is located in a typical semi-arid, eastern Oregon climate and within a rural, primarily agriculture-based economy.

Community Impact: The flood of 2020 albeit detrimental from an environmental impact standpoint, offered opportunity for WWBWC involvement as many landowners reached out for professional advice and assistance due to being overwhelmed by the magnitude of the historic flooding. Significant loss of topsoil and erosional forces washed out a multitude of bridges, paved roads and living quarters. Devastating effects from high water required evacuation procedures from the National Guard helicopter unit. The effect of flooding on ESA-salmonids was extreme in that an estimated 2/3 of all fishes perished via displacement, excessive and prolonged turbidity. The extreme nature of the floods of 2020 of which was estimated as 200-year event, followed by a 50-year event in May of 2020 offered a starting point and justifiable utilization of funding sources to rebuild a formerly superior system back towards functioning efficiently and self-sustaining over time. The project actions will buffer t against climate change impacts as annual precipitation is projected to increase between 0.8 - 2.0 inches by 2100 of which is projected to occur during October through March. Despite an increase in overall precipitation, April 1 Snow Water Equivalent is projected to decrease in by 1.2 – 3.5 inches by the end of the century. These changes are projected to lead to a decrease in summer baseflows and an increase in streamflow during the winter months. In short, climate change is expected to shift the timing and magnitude of runoff in the NFWWR which if not addressed via restoration actions could lead to adverse effects to anadromous salmonids.

Community Support and Engagement:

WWBWC strives to educate the community on watershed management strategies and how they are a proactive means of protection against future catastrophic events and how improvements to ecosystem health relate to the health of the human environment. Education efforts also teach how holistic restoration treatments have positive effects on water conservation and non-target species of interest to the public as well. The results of the initial phases of the NFWWR project already been completed have been looked upon very favorably by the public as well as cooperating natural resource managers. The WWBWC has given considerable effort to showcasing the positive results of the overall project through various reports, presentations, videos and media releases to bring awareness to what is being done proactively to buffer effects from future flood events as well as to provide assistance towards recovery of ESA salmonids, which is an asset to the community. The WWBWC recently hired a full-time outreach specialist to promote the operations of our organization. Our monthly board meetings are open to the public to attend. Videos of the meetings are archived and can be conveniently accessed on our WWBWC website for any interested parties to watch. The NFWWR project manager has given approximately 15 presentations on the topic to landowners, community groups and to natural resource partners. Several reports of various degree of detail have been completed and are available for public record. The NFWWR restoration project has been featured in the Walla Walla Bulletin newspaper, Elkhorn Media internet article, PFA Board feature project presentation during

November of 2024 on You Tube, River Restoration Northwest project of the month for November 2024, Department of State Lands State Land Board restoration project award winner for 2024. The NFWWR project has 21 cooperating partners and growing as sequential phases become completed and momentum increases as accolades are accumulated. The WWBWC will continue to thoroughly promote the successful maturation of project progression by various means through expanded media resources.

Goals, Objectives, & Deliverables

Project Goal Statement*

Provide a 2-3 sentence high-level project goal statement including project location, primary goal, impact, and target species.

Example: The project will restore a 25-acre parcel of forestland in the Umpqua Watershed in partnership with the County by removing invasive plants, resulting in the benefit of additional rearing habitat for (INSERT TARGET SPECIES). The project will also further enhance habitat by planting additional native oak trees that will provide essential coverage for other Habitat Conservation Plan Covered Species (INSERT TARGET SPECIES).

The 1.3-mile, 59-acre holistic floodplain restoration project on the North Fork Walla Walla River will re-establish proper riverine processes and self-sustaining ecosystem function by transitioning an anthropogenic, single-channel, flumed-system to the appropriate multi-threaded channel network. The intent is to improve ESA-salmonid habitat suitability to approach de-listing and benefit a plethora of wildlife species observed on the site such as tailed frogs, otter, skink, beaver and big game.

Measureable Project Objectives

List up to the 5 most significant and measurable project objectives to achieve the project goal. Within each objective, use the *implementation* section below to describe how the objective will be implemented. List all dates as MM/DD/YYYY or MM/YYYY. It is acceptable to list date ranges.

Project objectives should be:

- *Tangible and measurable*
- *Achievable, realistic, and can be completed within the time allowed*
- *Attainable, time-bound, specific goals you can measure at the end of your project*
- *Related to your broader project goal(s)*

Objective number	Measurable Objective	Estimated Completion Date	Responsible Party
1	Increase side channel length	10/31/2026	WWBWC
2	Expand floodplain inundation, capacity, frequency	10/31/2026	WWBWC

3	Improve salmonid habitat suitability	10/31/2026	WWBWC
4	Expand riparian attributes	12/31/2030	WWBWC
5	Improve water quantity & quality	12/31/2023	WWBWC

Project Deliverables

List any deliverables tied to the measurable project objective(s) above. List all dates as MM/DD/YYYY. *A deliverable is any product, service, or result of a project. Documentation of deliverables must be provided to ODFW in progress reports as completed. The responsible party for all deliverables to be handed in must be the Applying Organization/Grantee.*

All projects must include the following deliverables at a minimum:

- *Mid-project performance report (due halfway through project timeline)*
- *Draft project completion report (due 30 calendar days prior to project expiration date)*
- *Final project completion report (due 30 calendar days following the project expiration date)*
- *Implementation projects only: Include an Implementation Monitoring Plan deliverable in the table below, with a due date by the first progress report.*

Measureable Objective	Deliverable	Brief Description of Deliverable	Estimated Completion Date	Responsible Party
1	Add multi-channel networks	Re-active archaic channels & habitats	10/31/2026	WWBWC
2	Levee setback & perforation	Reconnect historic floodplain	10/31/2026	WWBWC
3	Improve habitat complexity features	Add whole trees and boulders to channels	10/31/2026	WWBWC
4	Increase native vegetative components	Utilize trenching and supplemental planting techniques until desired riparian achieved	12/31/2030	WWBWC

5	Improve base flow, temperature, turbidity	Continue monitoring protocols to compare pre-post project metrics	12/31/2030	WWBWC

Implementation*

This section prioritizes the measurable objectives outlined in the objective table above. Each objective should be its own header, followed by a breakdown (using a brief bulleted list, no narrative) of the actual work tasks required to achieve that objective, along with the identification for the responsible party completing each task under the objective (Lead Organization, Contractor, Partner, etc.).

Use your organization name instead of "we, them, they" and please write out acronyms in full the first time you use them.

Example:

Measurable Objective 1: Modify 5 miles of tidal channels to improve connection with the River.

- The (Insert Lead Organization name) will:
 - Complete ODFW fish salvage and in-water work window permit extensions.
 - Conduct fish salvage.
- The Contractor (*or partner*) will:
 - Use excavator to restore/re-grade Channels X,Y, and Z, and leave 1 miles of channels A,B, and C in their current functioning condition.
 - Shape channels and set to grade to drain during each tidal cycle to prevent fish stranding and mosquito issues.

Measurable Objective 2: Protect restored tidal channels and wetlands

- The (Insert Lead Organization name) will:

- Oversee the placement of bridges.
- Ensure bridges are installed according to designs.
- Oversee and assist with erosion control measures.
- **The Contractor (*or partner*) Will:**
 - Place four (4) bridges on 20-foot-long by 2.5-foot-wide by 1.25-foot thick monoblock abutment sills (one per side) with crushed aggregate surfacing at the approaches.
 - Emplace erosion control measures as per plans.

1) Increase side channel length

WWBWC will:

- Assure designs are scientifically defensible
- Acquire all necessary permit permissions
- Oversee construction to assure the engineered designs are implemented correctly afield

Construction Contractor will:

- Use heavy equipment to add multi-channel networks, re-active archaic channels and create diverse off-channel habitats
- Adhere to all pertinent permit and BMP protocols in conduct of duty

2) Expand floodplain inundation, capacity, frequency

WWBWC will:

- Ensure design plans include adequate levee dismantling in specified areas and to specific degree
- Oversee implementation that constraints are addressed thoroughly to allow river to recapture disconnected floodplain

Construction Contractor will:

- Perforate and pull back levees to allow increased, yet controlled river migration as sheet water inundation based upon hydraulic studies and modeling

3) Improve salmonid habitat suitability

WWBWC will:

- Utilize fisheries education and professional experience to add essential complexity components into design plans
- Strive to include as much edge-effect as possible with intent to show maximum changes of metrics measured from pre and post aquatic habitat Inventory
- Assure ELJ configuration are built to spec and form fit as necessary due to rivers being dynamic

Construction Contractor will:

- Install habitat complexity features (trees/boulders) according to design plan set and detail as per oversight directives for optimal performance

4) Improve riparian attributes

WWBWC will:

- assure design plans include adequate riparian development strategies and offer specific input based up relevant experiences of demonstrate success
- Collect all native vegetation stock from localized area
- Provide pertinent native grass seed mix from reputable source in region
- Plant all trees during construction and supplemental Fall and Spring plantings as funded by BPA and seed all disturbed areas
- Maintain effective grazing enclosures

Construction Contractor will:

- Minimize project disturbance footprint
- Utilize strategic access routes that conserve favorable vegetation
- Save all preferred vegetation required to be moved and transplanted
- Construct grazing enclosures according to specs and field conditions

5) **Improve water quantity & quality**

WWBWC will:

-Continue to monitor water temperature, flow and turbidity data using funds provided by BPA and OWEB
 -Make sure implementation is performed within all specified water quality standards using established protocols to reduce turbidity

-Insure ELJ installment isolation and flow reduction are conducted with fish health as top priority

Construction Contractor will:

-Adhere to protective measures around water bodies potentially subject to contamination by construction activities

-Actively respond to construction oversight authority to make timely adjustments commanded by WWBWC supervision

Project Schedule*

Provide a detailed project schedule below, or upload a timeline here, outlining the timeline for your proposed project. The timeline should help reviewers assess the feasibility and realistic nature of your project.

When creating a timeline, consider including the following key points:

- **Project Phases**
- **Major Milestones**
- **Task Breakdown**
- **Resources**
- **Deliverables**
- **Review and Approval Points**
- **Contingency Plans**
- **Final Reporting and Evaluation Timelines**

The timelines and tasks below mimic the 2023-2024 formula which effectively secured PFA funds and successfully constructed the project in October of 2024

10/30/24-Apply for OWEB funds to cover 1/2 of construction costs

10/31/2024-30% project design package completed

3/31/2025-80% designs done, start permitting

4/1/25-Solicit RFP to secure construction team

6/30/25-100% designs complete

9/30/25-Secure all permits

10/1/25-Initiate implementation of the project

10/20/25-Complete in water work

10/21-31-Perform project detailing beyond OHWM

11/1/25-Initiate project reporting and presentations, outreach PR to highlight accomplishments

The timelines and tasks above stay the same except for construction timing pushing to 2026 if permits, funding, environmental conditions such as drought, fires delay

Compliance & Permitting

Compliance Documents*

Describe any necessary compliance documents such as permitting, approvals, or access agreements associated with the proposed project and if they've already been secured or if they are planned to be secured upon award. It is not required for projects to have secured permits prior to applying for funding.

It is the responsibility of the grantee to secure any compliance documents necessary for project implementation and provide documentation to ODFW. If permits are already secured or applied for, please attach proof to this application.

DSL-JPA removal/fill for restoration projects form.

USACE-Nationwide 4345 RGP-6 or JPA as determined by USACE based upon project specifics provided by WWBWC in design reports. DSL-General or JPA as determined by DSL based upon project specifications.

ODFW- Fish Passage Plan to assure adequate fish passage conditions exist throughout implementation of the project.

DEQ- Storm Water 1200-C if > 1 acre-construction firm acquires. Removal/Fill permit is to be secured by WWBWC.

Umatilla County- Zoning permit.

OR State Department of Forestry-State Forestry Practices Act. Determination, protocol, and mode to proceed directives acquired from district forester.

BPA- HIP process. Design is currently at 30% and progressing through BPA HIP review process towards 80% target by March 31, 2025. Cultural Resources is being handled by BPA CR EC Departments in cooperation with 106 State Historical Preservation Act personnel. BPA has already conducted several field surveys and compiled multiple reports for phases 1, 2, 3 for 2022-24 completed implementation phases. BPA CR and EC staff remain intact therefore are familiar with the project area and have the 4th phase scheduled for completion with the intent of attaining permissions to implement the project during 2025 or 2026 if necessary.

Wetland Delineation- Has been completed been by a qualified, professional subcontractor.

Landowners- Signed 10-year agreements for all project related actions such as access, monitoring and construction.

Federal Services Consultation*

Describe if the project plans to, or already has, consulted with the Federal Services (National Marine Fisheries Service, U.S. Fish & Wildlife Service, Army Corps of Engineers Section 404, etc.). If not, describe why. Include any dates when consultation has or is planned to start and end, or when you expect a signed decision, if applicable.

Also include in your discussion how your project will address, has already addressed, or does not plan to address consultation regarding potential impacts on Endangered Species. ESA consultation is mandatory for all projects that could affect ESA-listed species.

The WWBWC routinely participates in the BPA HIP process to efficiently attain project implementation permissions. BPA is the conduit in regard to streamlining connection between the WWBWC and consultation entities. This avenue of processing is preferred and proven efficient and effective in that the inaugural FPA grant process resulted in the NFWWR phase being the only project completed by October 2024; in-part due to the familiarity that the WWBWC Project manager/Watershed Restoration has due to participating in the BPA HIP process for 2 decades. Currently the 30% design package has been circulated for engineer review to the services (NMFS & USFWS) and comment tracker process to inform the path to 80% designs slated for completion by March 31, 2025, which allows ample time for achieving all necessary permits to allow 2025 construction using this round of FPA funding. The USACE, ODFW, DSL, DEQ, County and all other entities will be sent the 80% design package to accompany permit applications in April of 2025, with expected permissions received by September of 2025, allowing approximately a month to perform all construction aspects of restoration. Strict adherence to established best management practice protocols as specified in all

permit permissions received is prioritized and practiced throughout conduct of all project duties. The WWBWC and all sub-contractors are required to prioritize and perform natural resource protection measures in conduct of all project-related actions and this aspect is philosophically emphasized and prioritized by the experienced Watershed Restoration Specialist of whom has taken a lifetime oath to represent and fully protect natural resource interests.

Budget

Budget Upload*

Upload a copy of your budget using the most current form of the [Budget Template](#) found in the Grant Guidelines.

Upload as an excel document.

Budget North Fork Walla Walla River Holistic Floodplain Restoration RM 5.2-6.5 (00000002).xlsx

You can now claim up to 15% of the budget for indirect costs. If you have a Federally Negotiated Indirect Rate (FNIR) letter, please upload in the "Project Attachments" section at the end of this application. Learn more about our indirect rates and policies by reading [Appendix Q](#) of the Grant Guidelines.

ODFW Funding*

Briefly describe how funding from only ODFW is planned to be used for this project. Only discuss ODFW-related funding in this response.

- Define any and all acronyms used.
- Do not cite any documents

Oregon Department of Fish and Wildlife Private Forest Act funds are to be dedicated entirely to putting the maximum dollars on the ground via construction for the purpose of benefitting ESA salmonid species by optimizing habitat suitability and restoring proper riverine function. Restoration implementation involves use of a certified construction subcontractor to perform wood and boulder placement activities along with bank and channel shaping, tree planting and grazing enclosures at a cost of \$381,068. There will be 220 hours of Watershed Council staff time totaling \$11,497 required in conduct of duties to accomplish project objectives. Reimbursement of staff transportation to the project site is budgeted for 500 miles and \$335. The watershed Council being a non-profit charge of only 10% of the requested amounts for a small total of \$39,256, which is a bargain compared to the majority of natural resource management entities.

Budget Justification*

Provide a brief justification for each budget category requesting funding from ODFW.

Be sure to describe any undefined or "other" cost(s), indirect costs, equipment costs over \$5,000 & justification, along with any requests for Advance Payment, Pre-project Reimbursement requests, and Post-Project Maintenance funding.

Personnel costs for the NFWWR RM 5.2-6.5 project reflect WWBWC employee payroll, including health benefits, matching retirement funds, accrued time off, worker compensation insurance, and payroll tax

expenses for the employer. Rates also reflect projected increases needed to accommodate cost-of-living adjustments, merit raises, and projected increases in health insurance premiums.

The Executive Director is budgeted 10 hours to perform pre and post project drone imagery to document project effectiveness over time.

The Watershed Restoration Specialist is budgeted 175 hours to obtain all required permit permissions and work with the chosen design team and construction entities under contract with the WWBWC to assure designs are properly implemented in the field by performing implementation preparations from assistance in attainment of whole tree and boulder materials to construction oversight and project refinement and detailing following construction to assure optimal project performance.

The Watershed Project Manager will be available to assist the Watershed Restoration Specialist during construction for 10 hours as needed.

Outreach and Education Specialist will utilize 10 hours to document and promote the progress and results of the project by developing banners, social media posts and video to inform all interested parties of project status and achievements.

Operations Manager is budgeted 15 hours to conduct all associated administrative duties pertaining to the project.

The requested \$432,156 PFA funds are being matched with \$437,426; \$388,171 of which is pending approval from the Oregon Watershed Enhancement Board and \$49,255 secured from Bonneville Power Administration. Funds from these two sources are being utilized in a similar manner to the appropriation of PFA funds in that the majority is dedicated for construction services, with a lesser extent for WWBWC staff time in conduct of project duties.

Additional Information

Additional Conservation and Recreation Benefit

If applicable, does your project directly provide additional benefits and/or contributing outcomes that benefit conservation and recreation programs and goals in Oregon?

For example, a project designed to improve water quality in a specific watershed might also have the co-benefit of improving municipal drinking water quality. Or a new bridge crossing over a fish bearing stream might benefit both the identified fishery and also provide improved recreational access.

Improved water quality and quantity for ecosystem health and human utilization via shallow domestic well recharge, irrigation, municipal

Salmonid habitat suitability and tailed frog habitat gain towards approaching or achieving ESA de-listing enables sustainable, non-regulated status

Improved physical habitat conditions translate to increases in population size increases and therefore recreational and commercial fishing opportunities

Ecosystem health improvement benefits non-consumptive natural resource experiences and the economic connection to nature hike aesthetics, birdwatching etc.

Project Partners*

Provide a brief list of all project partners involved and their respective roles. Include any contractors or consultants in your response.

Contracted project partnership entities:

Funding-Bonneville Power Administration

Design-Cramer Fish Sciences, Jacobs Engineering Group

Landowners-Dennis Sams, Duane Sams

Surface water lease 20 acres-Trout Unlimited

Anticipated future participants and past contributors during prior phases:

Construction-Aquatic Contracting, R6, Triple River Construction

Materials-Konen Rock Products, Cross Trail Outfitters, Stonehill Properties

Funding-ODFW PFA, Oregon Watershed Enhancement Board, Dennis Dauble

Landowners-Manulife Timber Investment Management, Dennis Rea

Timber Harvest Impact*

Does the project have an impact on current and/or future timber harvest?

Yes, whole trees are sourced from the region for utilization in construction and placement of engineered log jams. Timber stand improvement practices under guidance from Oregon department of forestry regulates private timber sourcing in a responsible manner to promote long term forest health and fire suppression and production of marketable timber through thinning disease and infestation suppression. Harvest routes are designed with water control devices in place to minimize detrimental runoff etc. Future partner Manulife Timber have met with WWBWC staff and submitted a letter of support. They have expressed interest in actively participating in a future phase of restoration of the NFWWR around the year 2027 and have expressed interest in regard to providing expertise and possibly materials via donation for project material contribution.

Public Access*

Does the project impact public access by enhancing or limiting it?

The project will indirectly benefit recreational experiences up and downstream of the project area. Anadromous migratory fisheries complements will be improved and thus fishing opportunities enhances in public USFS and BLM waters starting 2-miles via the NF main stem just upstream of the project area and extending into lateral tributaries for approximately 7 miles. An additional 10 miles of private parcels are adjacent upstream of the project areas migratory corridor miles. Downstream enhanced fisheries will be accented on the main Walla Walla and Columbia Rivers for Tribal and community fishing enhancement and into the Pacific Ocean fisheries. The specific project area access will remain unchanged as it is private property, but interest will peak as fisheries populations are restored to pre-2020 flood levels and beyond as restoration efforts increase carrying capacity and biomass by addressing limiting factors of salmonid production.

Project Match

Total Match Provided*

This includes the comprehensive dollar value of all match types being provided.

\$437,426.00

Secured or Unsecured matching funds?*

Are matching funds secured or unsecured?

Please note: Any match indicated, secured or not, in the application is considered a commitment upon agreement approval.

Unsecured

Unsecured Matching Funds

If matching funds are unsecured, please explain how the project will be affected if the matching funds are not ultimately secured.

The intent of WWBWC is to construct the entire 1.3-mile project during the approved 2025 work window. If OWEB dollars are not secured, the project will be implemented at a 50% degree of treatment. Either half of the mileage will be addressed, or more likely, the priority ELJ's and other habitat improvement strategies will be constructed for maximum habitat uplift and to prevent environmental factors such as head cutting, detrimental non-engineered gravel push up berm avulsion from occurring.

Is ODFW providing match?*

If the Oregon Department of Fish and Wildlife is providing any match please describe in the "Project Match Narrative" below and upload an ODFW letter of commitment in your project attachments. Letters must be on ODFW letterhead describing the match type, amount, and the project name match is provided for.

No

Project Match Narrative*

If providing match, briefly list all match amounts and their funding source(s), expiration date(s), and role.

Oregon Watershed Enhancement Board \$388,171, unsecured pending grant application rank. Funds sought through 12/31/2026 for construction and staff time.

Bonneville Power Administration \$49,255, secured through 10/31/2025 for construction and staff time.

Implementation Monitoring

Implementation Monitoring Plan*

Upload here a document that describes plans to measure the implementation of the project. Be sure to describe how data will be gathered throughout the project to prove benefits, and be consistent with any Measurement Units identified above in this application. Be as detailed as possible at this stage.

It's encouraged that applicants reference [Appendix L: Template Implementation Monitoring Plan](#) in the most current form of the Grant Guidelines to ensure your Implementation Monitoring Plan adheres to programmatic requirements.

NFWWR RM 5.2-6.5 Monitoring Adaptive Management Plan.pdf

Anticipated Benefit Summary

Briefly detail in the table below the quantitative measurement of the anticipated extent of habitat improvement or restoration, such as:

- Miles of stream opened above barriers,
- Acres of habitat restored,
- Cubic feet of flow restored,
- etc.

If the benefits of the proposed action would not be habitat-based in nature, describe the metrics that will be used to characterize the beneficial effects of the proposed project on the covered species, such as the number of individuals translocated or the number of installed culvert devices or pond levelers.

For any units not listed below or for qualitative metrics of success, use "Other unit."

Project Action	Anticipated Number
CFS Restored	2
Roads Repaired	1
Miles of Stream Habitat Restored	1.3
Miles of Stream Opened	17
Culverts Retrofitted	0
Other Unit 1 (Undefined)	3

Other Unit 2 (Undefined)	
Other Unit 3 (Undefined)	

Define Other Unit

If "Other Unit 1, 2 or 3" was selected as a unit, please define it.

Additional Monitoring Plans are attached.

Other Unit 1- Install cobble mattresses across agricultural road to re-route surface spring flow currently running down road, not reaching main stem NFWWR. Clean cobbles are placed across/perpendicular through entire road width at 2-4" (based on spring size) trench depth using track hoe for the purpose of capturing spring flow origins and re-route them as sub-surface flow through the road prism into the floodplain and into NFWWR channel surface flows.

Ground Disturbance

All award recipients are responsible for securing all required local, state, and federal permits and approvals to carry out the approved project. This includes, but is not limited to, fill/removal permits, tribal, historic, and cultural compliance (including the National Historic Preservation Act), in-water work permits, and any other necessary approvals.

Ground Disturbance*

Describe the capital improvement, engineering, site grading, or other construction and identify who is doing the work (Grantee, Partner, Contractor).

Riverine processes will be restored using holistic floodplain reconnection on 1.2 miles, 59 acres of private property for the purpose of enhancing ESA-listed salmonid habitat suitability and contributing to the overarching long-term goal of approaching or achieving de-listing the species identified in the NFWWR project area.

Engineering Team- Cramer Fisheries: Phil Roni, Tyler Rockhill and Reid Camp.

Engineering Team- Jacobs Engineering: Lisa Hall, Perrin Robinson.

Mutually develop 100% designs to achieve permit permissions necessary to implement the project.

Construction Team- Conduct capital improvements of property being restored via site grading and engineered log jam installation etc., as per specified in design plans. Qualified entities are selected via WWBWC RFP bidding process annually to perform each phase of implementation and must meet required qualifications and possess applicable experience constructing similar natural resource restoration projects benefitting watershed ecosystems with demonstrated performance capabilities that emphasize enhancement of riverine systems across expansive floodplains of relatively large magnitude. Construction oversight is the responsibility of the WWBWC Stand is conducted on a daily basis in the field by Project Manager Eric Hoverson, Watershed Restoration Specialist.

Oregon State Historic Preservation Office (SHPO) Consultation*

Has the project consulted with, or plans to consult with, the [Oregon State Historic Preservation Office](#)? If no, why?

The historical and cultural resource aspects of the project are handled through the BPA HIP process. Permissions were granted through this protocol for the first 3 successfully completed phases in 2022-24 and are currently in process with the assigned CR and EC representatives at BPA, of whom have participated in the initial phases and are very familiar with project details having both visited the site to perform surveys and compile the results into confidential reports. BPA has a cooperative, professional relationship with State Historical Preservation Act 106 personnel. BPA CR and EC staff remain intact and have the 4th phase (RM 5.2-6.5) scheduled for completion with the intent of attaining permissions to implement the project during 2025 and/or 2026 if necessary.

SHPO Upload

If the project has consulted with the Oregon State Historic Preservation Office please provide proof of communication as an application attachment, email confirmation is acceptable.

Project Attachments

Project may use this section to upload additional supporting attachments. If the proposal has many attachments, attachments may be uploaded as a zipped folder with clear and concise file name(s).

Example Attachments:

- Project feasibility documentation
- Plans, designs, and/or engineering specifications
- Secured permits and regulatory approvals needed to implement the project
- Letters of Support
- Letters of Commitment
- etc.

Supporting Project Attachment(s)

You may attach multiple files into a single submission. If possible, please include a table of contents or compress the files into a zip folder, ensuring that each file is appropriately named.

PFA Attachments NFWWR 5.2-6.5.pdf

Federally Negotiated Indirect Rate Letter

If you are requesting an indirect rate greater than 15% please upload your Federally Negotiated Indirect Rate Letter here.

ODFW Letter of Commitment

For projects including matching funds from the Oregon Department of Fish and Wildlife, upload a commitment letter on ODFW letterhead detailing the specific match type, amount, brief description, and project name. Address

all letters to the PFA MAC. Letters of Commitment are mandatory prior to any agreement being executed.

Label the file "ODFW Commitment Letter" and upload it here.

Project Map Upload*

Project map(s) are required, uploaded here as a PDF. If you choose not to upload a map, please explain why in the text area below to "skip" this question.

At the minimum, all maps must delineate the following:

- Location(s) of proposed project activities(s), including any construction or research boundaries.
- Regional location and site-specific information such as property boundaries, work locations, survey areas, surface water bodies, and monitoring points.
- True north arrow
- Map title and legend
- Latitude and Longitude of Project Center Point
- Proposed measurement locations (if applicable)
- *Optional - Tax Map and Lot numbers of each property in the project area boundary.*

It is recommended that detailed project maps are uploaded so that grant reviewers can fully understand the project scope.

Map North Fork Walla Walla River Holistic Floodplain Restoration RM 5.2-6.5.pdf

Map is provided as an uploaded file with mandatory delineate features included.

Certification

Conflict of Interest (COI) Statement*

Does the primary applicant and / or the lead organization have a known Conflict of Interest (COI) associated with the PFA Mitigation Advisory Committee, the Oregon Department of Fish and Wildlife, or the Oregon Fish and Wildlife Commission?

No

If a COI is declared, please briefly describe the conflict.

Certification*

I certify that I have approval from my organization to submit this application and that the above information is true and accurate to the best of my knowledge.

Yes

Authorized Representative Name*

Eric Hoverson

Authorized Representative Title*

Watershed Restoration Specialist

Authorized Representative Organization*

The lead organization.

Walla Walla Basin Watershed Council

Certification Date*

11/13/2024

All proposals are considered final and complete at the time of submission. Once submitted, revisions, edits, or additions to your proposal will not be permitted. Please ensure that your proposal is fully complete before submitting.

Thank you for considering the PFA Grants Program. We anticipate announcing awards in the spring of next year.

File Attachment Summary

Applicant File Uploads

- Budget North Fork Walla Walla River Holistic Floodplain Restoration RM 5.2-6.5 (00000002).xlsx
- NFWWR RM 5.2-6.5 Monitoring Adaptive Management Plan.pdf
- PFA Attachments NFWWR 5.2-6.5.pdf
- Map North Fork Walla Walla River Holistic Floodplain Restoration RM 5.2-6.5.pdf

Project Title:	North Fork Walla Walla River Holistic Floodplain Restoration RM 5.2-6.5				
Project Type:	Implementation				
Add additional rows if necessary This budget is to only represent funding requested from ODFW, other than the match budget category.					
Budget Categories		Quantity	Unit	Cost/Unit	Total
Personnel Costs (Titles)					
Executive Director	10	Hours	\$74	\$743	
Watershed Restoration Specialist	175	Hours	\$52	\$9,111	
Outreach & Education Specialist	10	Hours	\$31	\$307	
Watershed Project Manager	10	Hours	\$43	\$434	
Operations Manager	15	Hours	\$60	\$902	
Personnel Cost Subtotal:				\$11,497	
Contractual Costs					
Mobilization	1	Contract	\$15,000	\$15,000	
1200-C Authorization	1	Contract	\$2,000	\$2,000	
Sediment Control	1	Contract	\$2,250	\$2,250	
Water Control	1	Contract	\$1,600	\$1,600	
Learing	1	Contract	\$2,500	\$2,500	
25x1.5 Rootwad	6.50	Contract	\$615	\$3,998	
30x1.5 Rootwad	6.50	Contract	\$504	\$3,276	
35x1.5 Rootwad	21.00	Contract	\$630	\$13,230	
40 x1.5 Rootwad	78.00	Contract	\$630	\$49,140	
Grazing Rootwad 30x1.5	20.00	Contract	\$466	\$9,320	
Grazing Log 30x1.5	10.00	Contract	\$412	\$4,120	
15x2 Log	162.50	Contract	\$358	\$58,175	
25x2 Log	3.50	Contract	\$412	\$1,442	
30x2 Log	3.50	Contract	\$412	\$1,442	
Racking	200.00	Contract	\$15	\$3,000	
Slash	100.00	Contract	\$13	\$1,300	
Boulders	300.00	Contract	\$82	\$24,600	
Small Jam	2.50	Contract	\$2,900	\$7,250	
Woodjam 1	9.00	Contract	\$7,828	\$70,452	
Woodjam 2	2.50	Contract	\$7,210	\$18,025	
Apex Jam	3.50	Contract	\$7,828	\$27,398	
Willow Trench	500.00	Contract	\$10	\$5,000	
Floodplain Log	7.50	Contract	\$1,360	\$10,200	
Inlet Excavation	254.00	Contract	\$15	\$3,810	
Side Channel	1000.00	Contract	\$17	\$17,000	
Access Routes	1.00	Contract	\$6,180	\$6,180	
Grazing Enclosures	5.00	Contract	\$2,060	\$10,300	
Gates	0.50	Contract	\$1,236	\$618	
Bank Shaping	1.50	Contract	\$2,060	\$3,090	
Refinement Detail	24.00	Contract	\$223	\$5,352	
Contractual Cost Subtotal:				\$381,068	
Supply Costs (Lump into categories. Detail should be in Sceipt of Work)					
	0	Each	\$0	\$0	
	0	Each	\$0	\$0	
	0	Each	\$0	\$0	
	0	Each	\$0	\$0	
	0	Each	\$0	\$0	
	0	Each	\$0	\$0	
	0	Each	\$0	\$0	
	0	Each	\$0	\$0	
Supply Cost Subtotal:				\$0	
Equipment Costs (Any single purchase over \$5,000)					
	0	Each	\$0	\$0	
	0	Each	\$0	\$0	
	0	Each	\$0	\$0	
	0	Each	\$0	\$0	
	0	Each	\$0	\$0	
	0	Each	\$0	\$0	
	0	Each	\$0	\$0	
	0	Each	\$0	\$0	
Equipment Cost Subtotal:				\$0	
Travel Costs					
Travel to and from the project site	500	Miles	\$1	\$335	
	0	Miles	\$0	\$0	

	0	Miles	\$0	\$0
	0	Miles	\$0	\$0
Travel Cost Subtotal:			\$335	
Other Costs				
	0	Define	\$0	\$0.00
	0	Define	\$0	\$0.00
	0	Define	\$0	\$0.00
	0	Define	\$0	\$0.00
	0	Define	\$0	\$0.00
	0	Define	\$0	\$0.00
	0	Define	\$0	\$0.00
	0	Define	\$0	\$0.00
Other Costs Subtotal:			\$0.00	
Indirect costs (Auto-generated formula, please do not modify)	Insert Indirect Rate Manually up to 15% only -->		10%	\$39,256
			Total Funding Requested from ODFW	

Match (If applicable)				
Oregon Watershed Enhancement Board	1	Dollar	\$388,171	388,171
Bonneville Power Administration	1	Dollar	\$49,255	49,255
	0	Dollar	\$0	0
	0	Dollar	\$0	0
Total Match Provided				437,426

Total Cost of Project	869,582
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Upload this budget online as an EXCEL document, when submitting the Grant Proposal.

Monitoring and Adaptive Management Plan

Document no: 240315124507_57a4cdde
Version: 1

Walla Walla River Watershed Council

North Fork Walla Walla River
June 3, 2024



Background

The Walla Walla Basin Watershed Council (WWBWC) North Fork (NF) Walla Walla River Sams-Rea Restoration Design Project (Project) is located on the NF Walla Walla River, approximately 10 miles upstream from Milton-Freewater, Oregon. The Sams-Rea Reach has been prioritized by the WWBWC for restoration because of its status as a priority restoration area in the *Walla Walla Subbasin Plan* (Subbasin Plan) (WWWPU and WWBWC 2004), few landowners, and the changes from high flows experienced in spring of 2020. As described in the *North Fork Walla Walla River Sam's-Rea Design Conceptual Design Report* (Jacobs and Cramer 2021), the goal of the Project is to work with river processes to improve instream and floodplain habitat conditions for target species. The desired outcome of the Project is a restoration condition that consists of a properly functioning, complex, and self-sustaining river system with a reconnected floodplain featuring vibrant, productive riparian features.

Goals and Objectives

The Subbasin Plan (WWWPU and WWBWC 2004) included an aquatic habitat assessment that identified stream reaches with high-potential restoration and protection values. In priority restoration areas, key limiting factors for steelhead and spring Chinook include the following:

- Sediment
- Large woody debris
- Key habitat (pools)
- Riparian function
- Stream confinement
- Summer water temperature
- Bed scour

Building on the Subbasin Plan (WWWPU and WWBWC 2004), landowner perspectives provided by WWBWC, Bonneville Power Administration (BPA) funding priorities, and WWBWC priorities, Project goals include the following:

1. Respect landowners' desires, maintain access to private properties, and collaborate with stakeholders.
2. Work with, not against, physical processes that increase hydraulic, geomorphic, and habitat complexity.
3. Improve connectivity vertically, laterally, and longitudinally for water, sediment, woody material, and aquatic species within the valley.
4. Increase the extent and diversity of riparian vegetation and forage (grasses) on floodplains and terraces.
5. Select restoration elements to address key limiting factors by working with functioning river processes. The design takes advantage of active sediment transport, erosion, and deposition processes by adding structural elements (for example, stable wood and rock) at key locations and increasing floodplain complexity with the goal of enhancing habitat conditions for target aquatic species.

Responsible Parties Involved

The following responsible parties are involved with this Project:

- WWBWC: Project Sponsor and adaptive management implementation lead
- Sams family: Private landowner
- Rea family: Private landowner
- Jacobs and Cramer Fish Sciences: Restoration design consultants
- Ecosystem Sciences: Wetland delineation
- BPA: Restoration funding entity and Project review and approval agency
- Oregon Watershed Enhancement Board: Restoration funding entity

Watershed Management Philosophy

Emphasis is placed on attaining holistic knowledge of the watershed by assessing basin characteristics beyond the boundaries of the Project site. Analysis and understanding of the driving forces within the watershed are necessary for identifying the cause of the issue and the proper remedy to rectify with the most effective treatment strategy. Understanding processes necessary to achieve proper self-sustaining watershed function is essential for achieving optimal success of an effective restoration project. Using this approach as it relates to coarse understanding of watershed characteristics and how they may relate to project performance over time educates finite and precise treatment strategies at a reduced scale with understanding of the link between macro- and microcohesiveness during treatment and subsequent response. Monitoring and retreating as necessary are responsible resource management from a professional perspective, and offer the highest probability for effective project performance over time.

Monitoring and Adaptive Management Plan

Monitoring for the Project is intended to provide insight into an overall trend toward or away from Project objectives. Monitoring will also inform the need to maintain Project features in the near or long term. Based on the Project goals, and in compliance with the programmatic Biological Opinion physical and biological parameters will be monitored using standard data-collection field techniques. The following subsections describe the monitoring approaches for each Project objective. In addition to monitoring actions, annual inspections of the restoration elements, including photo documentation as described in this document, will be conducted. The Sponsor will collect and distribute data to BPA in the form of annual reports. Monitoring activity will depend on capacity and funding available to collaborators.

Baseline As-built Surveys

Baseline data have been collected to describe existing (pre-Project) site conditions. An existing conditions survey has been completed on the existing channel to determine the pre-Project conditions of the described reach. LiDAR data flown in 2021 describe baseline topographic data. In addition, surveys were completed with a survey-grade Global Positioning System (GPS) system, including the establishment of Project control points to georeference the Project site. Survey data included channel cross-sections, profiles, and general channel characteristics. Additional features and changes in floodplain topography, habitat features, and infrastructure were located to further characterize the Project reach.

Postrestoration baseline and as-built data will be collected during and immediately following construction of the Project. These surveys are intended to capture the as-built condition of each habitat structure, all floodplain roughness features, and the elevations and extents of all side channel excavation activities.

As-built data will be collected and recorded by the Contractor with the assistance of WWBWC. For each habitat structure (small jams, large jams, and floodplain pinned logs), photo documentation of log placement geometry and boulder placements is recommended before backfill. Large wood will be tallied and tagged, and notes will be recorded about the configuration of the wood and the percent encroachment within the bankfull channel. Structures need to be georeferenced in their final installed location. Complete as-built data will also include documentation of log-burial depth and vertical-pile embedment depth such that metrics like scour and erosion can be monitored over time.

Willow trenching as-built data in terms of number and extents of plantings will be documented so that success rates can be measured relative to water table location and method and timing of plantings.

As-built data for all side channel excavation activities should characterize channel inlet and outlet elevations, and capture the longitudinal channel thalweg, typical cross-section data at representative locations, and riffle composition and extents. Riffle composition can be captured by performing pebble counts along riffles and in the substrate material in between riffle features.

Monitoring Frequency Timing and Duration

Baseline data are already available for the Project and as-built data will be collected following construction of the Project in accordance with the recommendations outlined in the previous subsection. It is recommended by the Project Sponsor and the design consultants that visual surveys, photo documentation, and aerial drone imagery data collection take place annually during low flows and within 30 days of flood events (the 5-year flood event and greater). No more than 2 years will lapse between any monitoring event. Measurements and visual inspection of each log structure are also recommended on an annual basis.

Photo Documentation and Aerial Drone Imagery

WWBWC has made use of drone imagery to track changes in the channel over time. Drone footage, which provides visual documentation of side channel inundation frequency, the approximate portion of floodplain activation following a high flow event, and low flow conditions, will be useful monitoring data for this Project. It is recommended by Jacobs and Cramer that this imagery be used on an annual basis to approximate whether target objectives are being met regarding floodplain and side channel activation.

Photo points and visual inspections will be an annual part of the monitoring plan. The following are standard practices for annual photo documentation:

1. The site will be photographed at each location where large wood habitat features were installed and at side channel excavation areas. Standing in the same location each year, take a photo looking upstream, downstream, and across at the structure. Make note of any additional scour or changes in bed form around the structure and photograph any notable changes in the structure.
2. Several photo points at high points along the ridge will be established and marked with rebar and flagging, and a GPS point of the location will be saved. Take at least one photo looking up valley and one photo looking down valley from each of these locations.
3. Anecdotal observations of fish and wildlife presence, habitat feature use, and other qualitative assessments of site condition will be recorded and included within the monitoring report, as relevant.

Event-based Triggers, Responsible Parties, and Actions Identified

This subsection includes a summary of the NF Walla Walla River Monitoring and Adaptive Management Plan, (Table 1). This plan outlines regular monitoring practices for the Project and event-based triggers with prescribed remedial actions.

Table 1. Monitoring and Adaptive Management Plan Summary Table

Category	Monitoring Metric	As-built Value	Monitoring Frequency	Monitoring Techniques	Adaptive Management Trigger	Applicability	Potential Adaptive Action
Channel characteristic	Presence of a head cut or a fish passage barrier	None	Annual	Visual	- Head cut: > 2 feet - Thalweg: < 4 inches of water depth at low flow in the main channel for continuous stretches in places that had not occurred pre-Project during summer low flows	Main channel and constructed side channel	Possible addition of natural grade controls; if a fish passage barrier exists, excavation may be necessary
Channel characteristic	Presence of a channel avulsion	None	Annual	- Visual - Survey comparison	Main stem channel avulsion	Main stem, especially at the location of a constructed side channel	Possible addition of roughness and/or wood habitat features in the new flow path; monitor for rapid incision and any potential risk to infrastructure and fish passage
Channel characteristic	Floodplain inundation frequency	Variable	Postflood or every 2 years	- Visual - UAV imagery	Disconnection of side channel design features at the 2-year event	Main channel and side channels	Possible side channel regrade or sediment removal
Channel characteristic	Presence of a rapid channel incision	Variable: 2foot vertical between 2020-2023	Annual	Visual	Rapid channel incision (≥ 1.5 feet in treated portions)	Main channel and side channels (inlet-excavated side channels and a constructed side channel)	Possible addition of a natural grade control or assessment for side channel reactivation

Monitoring and Adaptive Management Plan

Category	Monitoring Metric	As-built Value	Monitoring Frequency	Monitoring Techniques	Adaptive Management Trigger	Applicability	Potential Adaptive Action
Channel characteristics	Gradient	2.18%	Postflood (> 5 years)	- Visual - UAV imagery and survey	Avulsion resulting in a > 10% decrease in channel length	Main channel	Channel regrade and floodplain roughness elements added
Habitat survey	Substrate size (D ₅₀)	Varies (refer to the values for locations 1-4 and the design value for the side channel riffle substrate)	Annual, postflood (> 5 years)	- Visual - Wolman pebble count	Significant increase in sediment size and decrease in gradation	Designed streambed substrate mixes in a constructed side channel and at monitoring locations (1,2,3, and 4)	Possible incorporation of wood key pieces or beaver dam analogues for sediment aggradation
Habitat survey	Average residual pool depth and count	3-5 feet; varies	Annual	- Visual - Survey rod	Pools > 2 feet in deposition and an overall decrease in count by 50%	Main channel	Possible addition of wood structures in select locations to encourage scour
Habitat survey	Vegetation cover from plantings	Not yet measured	Annual	- Visual - UAV imagery	< 50% survival < 60% after year 5 < 70% after year 10	Willow trenching planted areas	Revegetation, additional irrigation, and exclusion fencing to be assessed by WWBWC

Monitoring and Adaptive Management Plan

Category	Monitoring Metric	As-built Value	Monitoring Frequency	Monitoring Techniques	Adaptive Management Trigger	Applicability	Potential Adaptive Action
Habitat survey	Large wood structures	Not yet measured	Annual	- Visual - Photo comparison	Significant scour exceeding design values and loose logs that have been dislodged from the structure	Main channel habitat structures and Floodplain pinned logs	Structures to be repaired and the reason for damage to be assessed

Notes:

Adaptive management actions outlined in this plan are for environmental compliance and do not guarantee federal funding.

The summarized monitoring plan is to ensure environmental compliance and is not an in-depth effectiveness monitoring plan.

> = greater than

≥ = greater than or equal to

< = less than

Data Analysis and Reporting

Photo documentation, aerial imagery, and visual inspection, along with vegetation survey data, will be analyzed annually; however, a monitoring report will not be required. Following a 5-year event, a monitoring report will be generated to summarize the findings of a complete monitoring survey. WWBWC will prepare a monitoring report that includes the following:

- Summary of metrics for which data were collected
- Deviations from established methods and protocols used to collect data
- Narrative on results in the context of Project goals, success criteria, and performance standards
- Any recommended actions

If significant issues or concerns are identified, the Sponsor will convene the Project review team to discuss any comments, recommendations, and future actions at the sites.

References

Jacobs and Cramer Fish Sciences (Cramer). 2021. *North Fork Walla Walla River Sam's-Rea Design Conceptual Design Report*. October.

Jacobs and Cramer Fish Sciences (Cramer). 2024. *North Fork Walla Walla River Sams-Rea Design 80% Conceptual Design Report. River Mile 4.3-5.2*. March.

Walla Walla Watershed Planning Unit (WWWPU) and Walla Walla Basin Watershed Council (WWBWC). 2004. *Walla Walla Subbasin Plan*. Prepared for Northwest Power and Conservation Council. May.

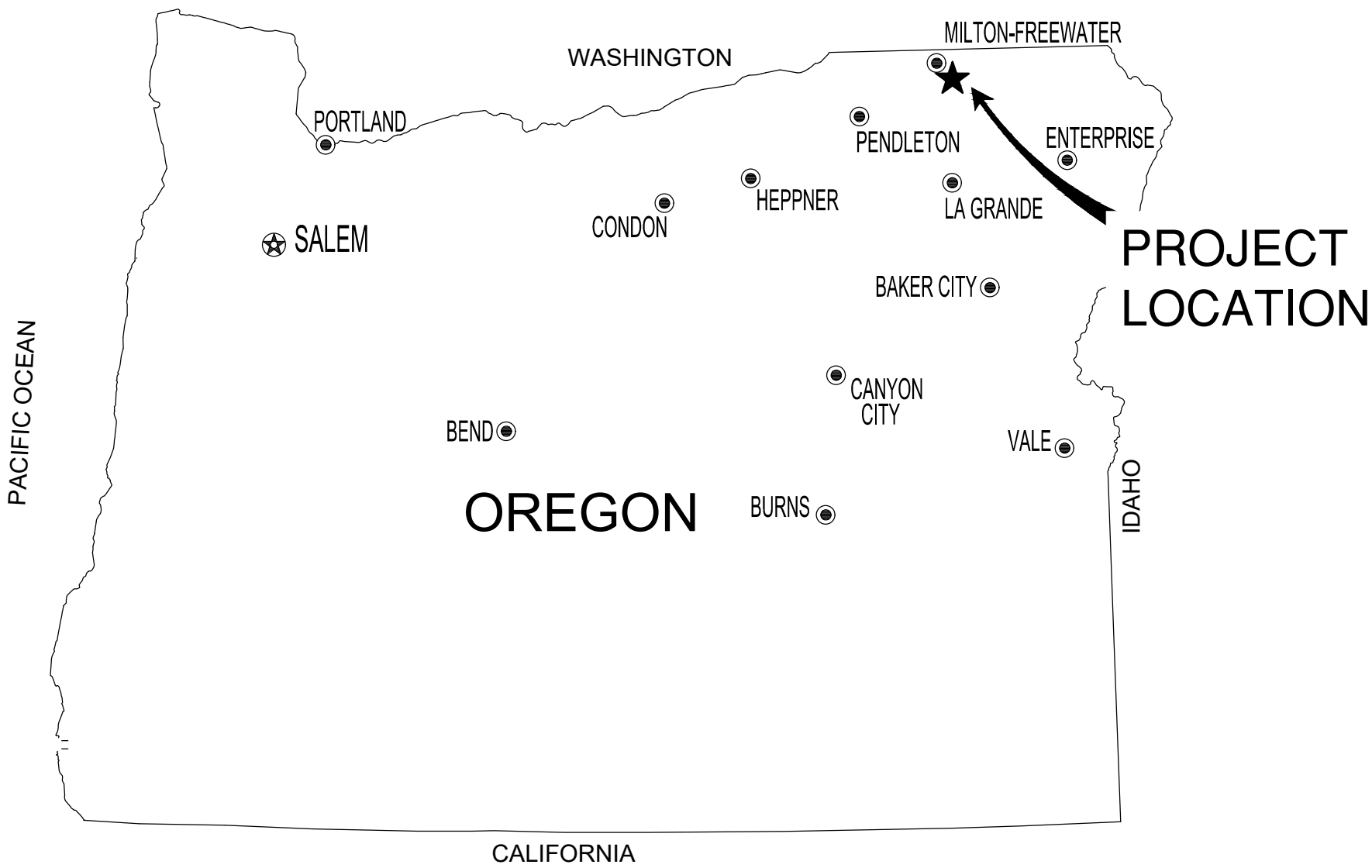
WWBWC 2024 SLB 2024 NFWWR RM 3.6-4.3 Restoration Project Award



NORTH FORK WALLA WALLA RIVER RESTORATION DESIGN - RIVER MILE 5.2-6.5

ANY WORK WITHIN THE FLOWING CHANNEL OF THE NORTH FORK WALLA
WALLA RIVER MUST BE CONDUCTED BETWEEN JULY 1 AND SEPTEMBER 30

SHEET INDEX		
1	G-01	TITLE SHEET / LOCATION MAP / SHEET INDEX
2	G-02	LEGEND / ABBREVIATIONS / GENERAL PROJECT NOTES
3	G-03	HIP GENERAL CONSERVATION MEASURES - 1
4	G-04	HIP GENERAL CONSERVATION MEASURES - 2
5	G-05	HIP GENERAL CONSERVATION MEASURES - 3
6	C-01	OVERALL EXISTING CONDITIONS SITE PLAN AND PLAN INDEX - 1
7	C-02	OVERALL EXISTING CONDITIONS SITE PLAN AND PLAN INDEX - 2
8	C-03	OVERALL PROPOSED TREATMENT SITE PLAN AND PLAN INDEX - 1
9	C-04	OVERALL PROPOSED TREATMENT SITE PLAN AND PLAN INDEX - 2
10	C-05	CONSTRUCTION ACCESS / STAGING / SITE PREPARATION - 1
11	C-06	CONSTRUCTION ACCESS / STAGING / SITE PREPARATION - 2
12	C-07	RESTORATION/REVEGETATION PLAN 1
13	C-08	RESTORATION/REVEGETATION PLAN 2
14	C-09	RESTORATION/REVEGETATION PLAN 3
15	C-10	RESTORATION/REVEGETATION PLAN 4
16	C-11	RESTORATION/REVEGETATION PLAN 5
17	C-12	RESTORATION/REVEGETATION PLAN 6
18	C-13	ORDINARY HIGH WATER AT THALWEG PROFILE - 1
19	C-14	ORDINARY HIGH WATER AT THALWEG PROFILE - 2
20	C-15	INLET GRADING - ALIGNMENTS A, B, AND C
21	C-16	INLET GRADING - ALIGNMENT D AND ALL TYPICAL CROSS SECTIONS
22	C-17	SIDE CHANNEL GRADING - ALIGNMENT E
23	CD-01	ALCOVE WOOD AND BOULDER PLACEMENTS
24	CD-02	LARGE WOOD LARGE LOG JAM
25	CD-03	APEX JAM
26	CD-04	FLOODPLAIN ROUGHNESS WILLOW TRENCHING AND FLOODPLAIN PINNED LOGS
27	CD-05	SITE RESTORATION AND PLANTING DETAILS
28	CD-06	TEMPORARY FLOW ISOLATION AND TEMPORARY WATER CROSSING DETAILS



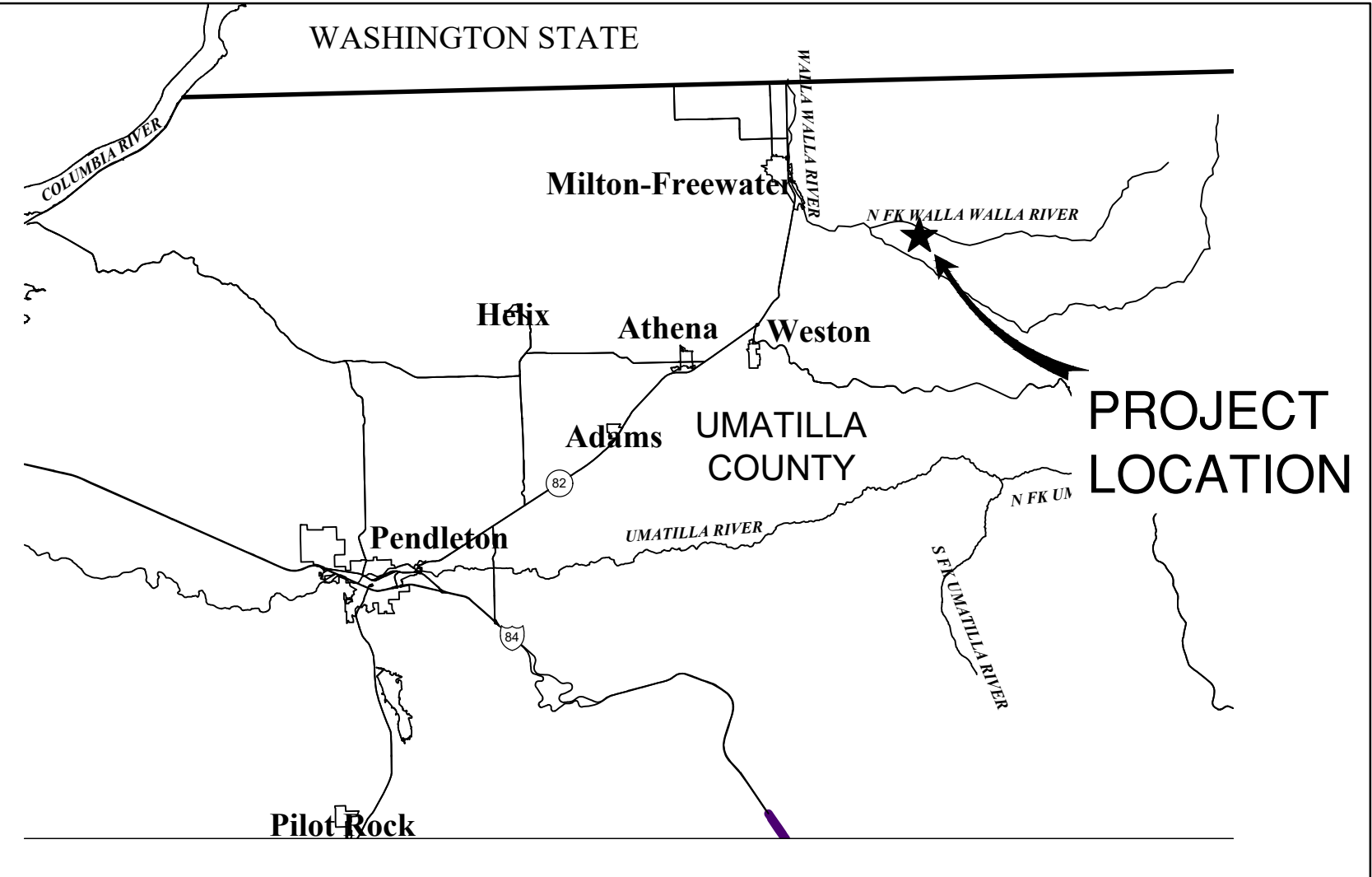
CONTRACTING AGENCY:
WALLA WALLA BASIN WATERSHED COUNCIL
ERIC HOVERSON, WATERSHED RESTORATION SPECIALIST
810 S. MAIN ST., MILTON-FREEWATER, OR 97862
ERIC.HOVERSON@WWBWC.ORG
541-938-2170

FUNDING AGENCIES:
BONNEVILLE POWER ADMINISTRATION AND OREGON WATERSHED
ENHANCEMENT BOARD

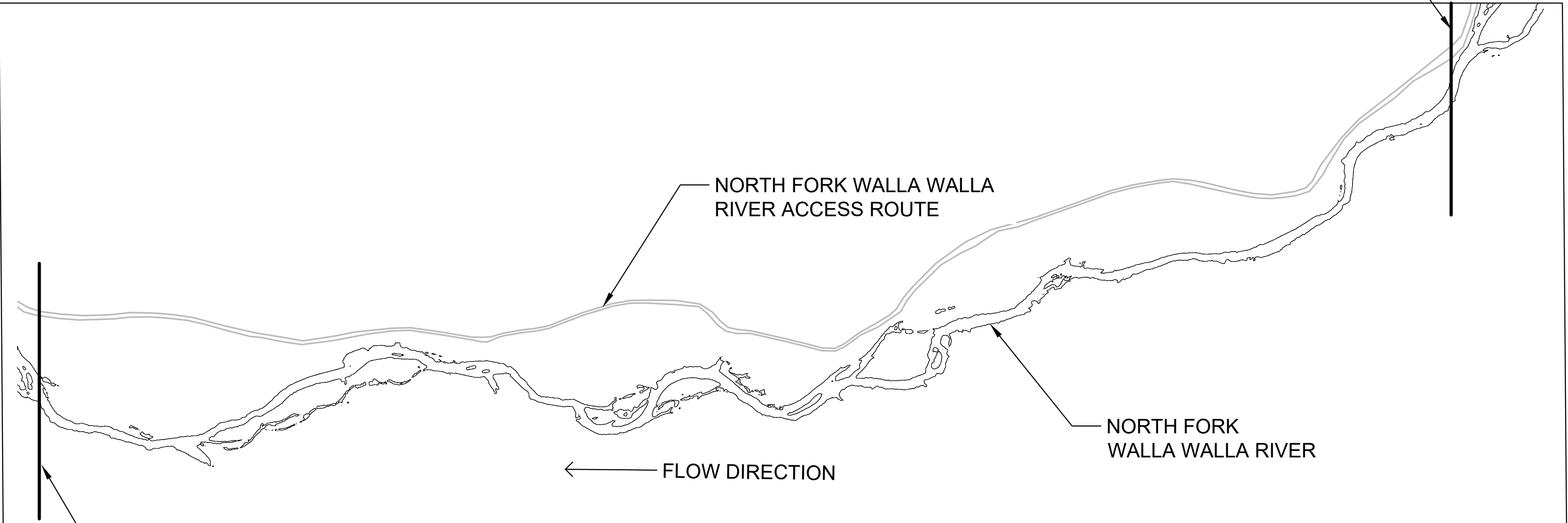
PROPERTY OWNERS:
SAMS FAMILY

ENGINEER:
JACOBS ENGINEERING GROUP
999 W. MAIN ST., SUITE 1200, BOISE ID 83702
208-354-5310

CRAMER & ASSOCIATES, DBA CRAMER FISH SCIENCES
7525 NE AMBASSADOR PLACE, SUITE C, PORTLAND OR 97220



LOCATION MAP
NTS



VICINITY MAP
NTS

JACOBS

GENERAL
TITLE SHEET
LOCATION MAP
SHEET INDEX

NORTH FORK WALLA WALLA RIVER
RESTORATION DESIGN - RIVER MILE 5.2 - 6.5
WALLA WALLA BASIN WATERSHED COUNCIL
MILTON-FREEWATER, OR

AS SHOWN	
VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING. 1"	
DATE	OCTOBER 2024
PROJ	W3Y00607
DWG	G-01
SHEET	1 of 28

THIS PROJECT WAS DESIGNED IN ACCORDANCE
WITH THE BPA HABITAT IMPROVEMENT PROGRAM,
PROGRAMMATIC BIOLOGICAL OPINION (HIP 4).

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MEASURES - 3

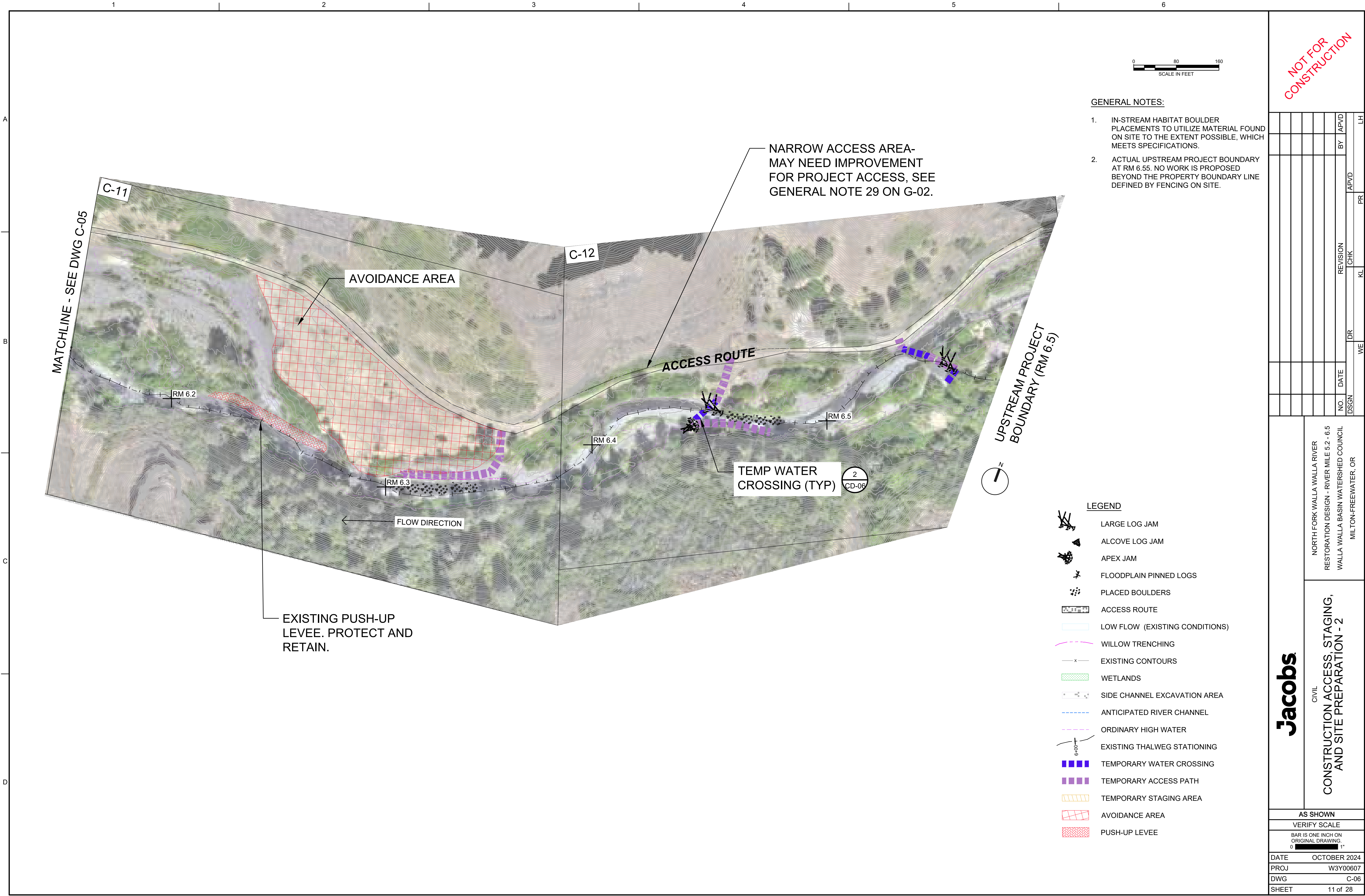
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RESTORATION DESIGN - RIVER MILE 5.2 - 6.5
WALLA WALLA BASIN WATERSHED COUNCIL
MILTON-FREEWATER, OR

N/A	
VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"	
DATE	OCTOBER 2024
PROJ	W3Y00607
DWG	G-05
SHEET	5 of 28

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 - ACTUAL UPSTREAM PROJECT BOUNDARY AT RM 6.55. NO WORK IS PROPOSED BEYOND THE PROPERTY BOUNDARY LINE DEFINED BY FENCING ON SITE.

- LEGEND
- LARGE LOG JAM
 - ALCOVE LOG JAM
 - APEX JAM
 - FLOODPLAIN PINNED LOGS
 - PLACED BOULDERS
 - ACCESS ROUTE
 - LOW FLOW (EXISTING CONDITIONS)
 - WILLOW TRENCING
 - EXISTING CONTOURS
 - WETLANDS
 - SIDE CHANNEL EXCAVATION AREA
 - ANTICIPATED RIVER CHANNEL
 - ORDINARY HIGH WATER
 - EXISTING THALWEG STATIONING
 - TEMPORARY WATER CROSSING
 - TEMPORARY ACCESS PATH
 - TEMPORARY STAGING AREA
 - AVOIDANCE AREA
 - PUSH-UP LEVEE

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NORTH FORK WALLA WALLA RIVER
RESTORATION DESIGN - RIVER MILE 5.2 - 6.5
WALLA WALLA BASIN WATERSHED COUNCIL
MILTON-FREEWATER, OR

CONSTRUCTION ACCESS, STAGING,
AND SITE PREPARATION - 2

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VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING. 1"

DATE

OCTOBER 2024

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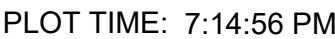
SHEET

11 of 28

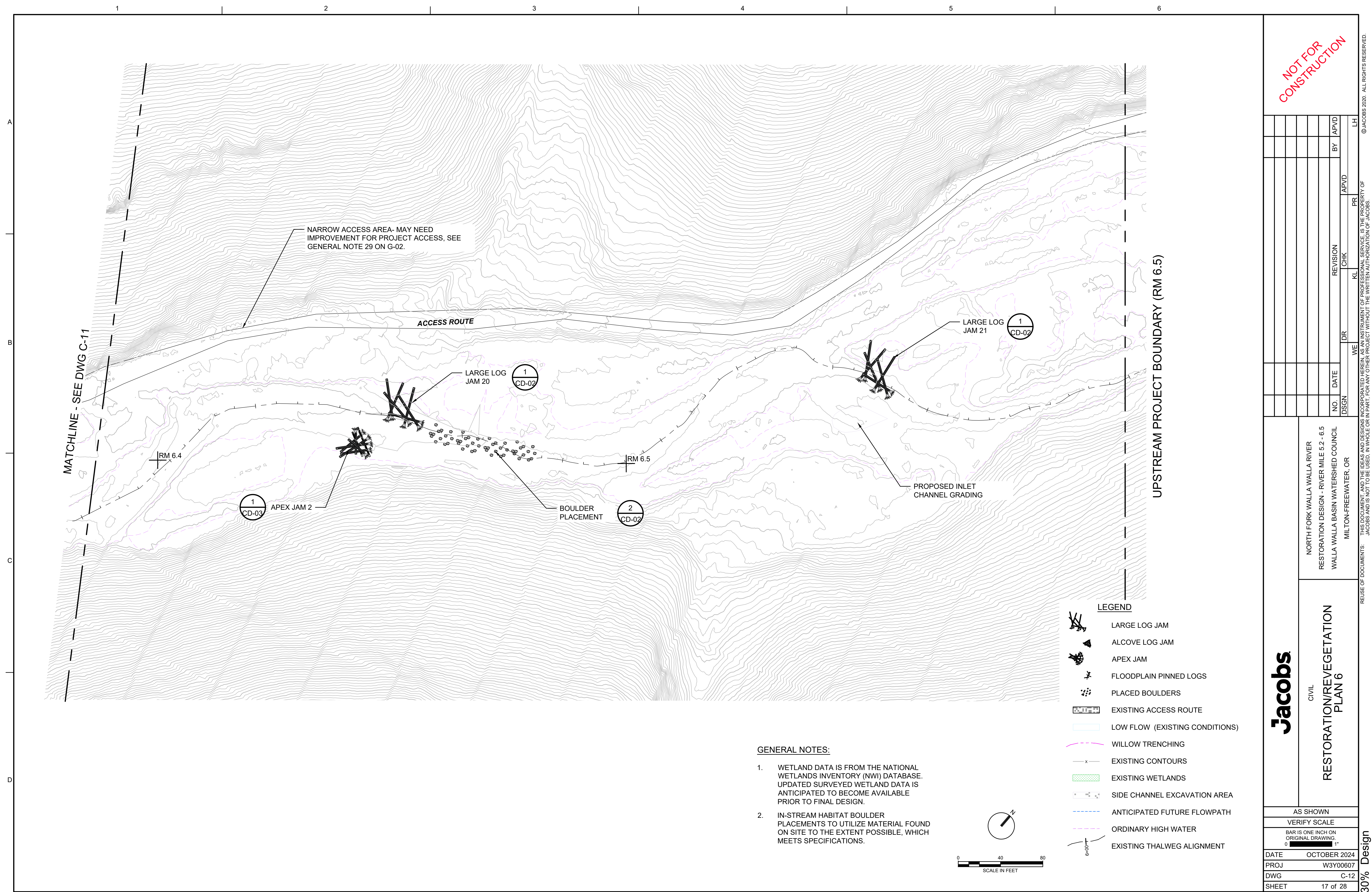
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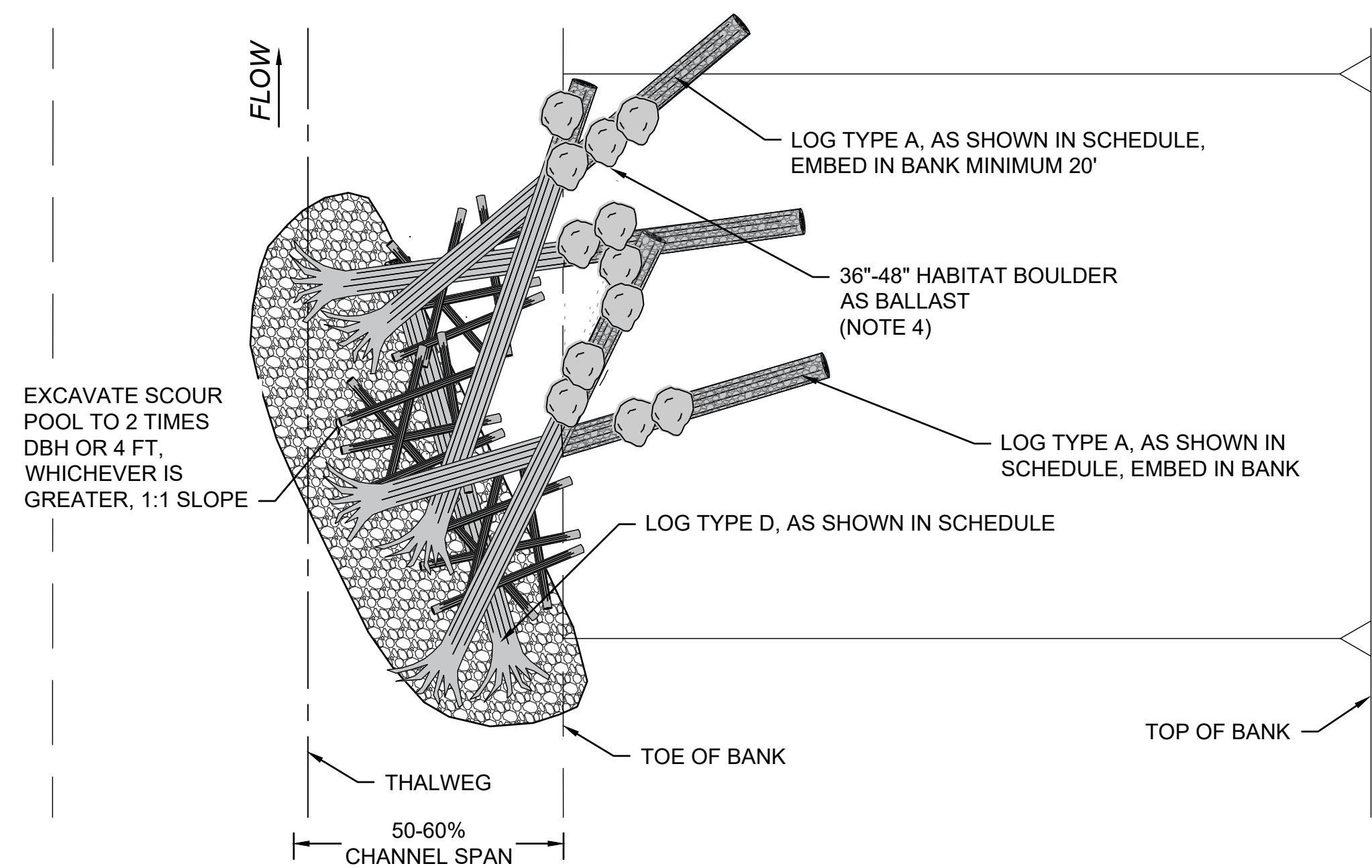


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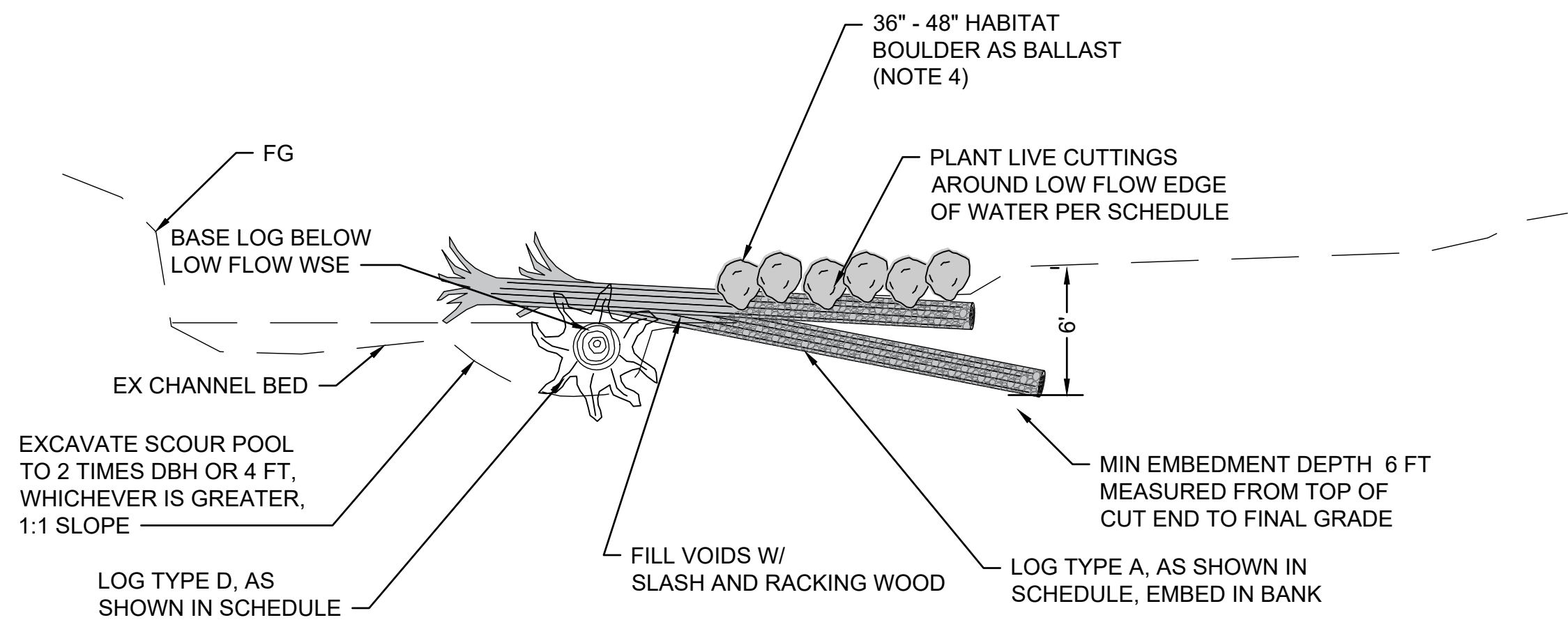
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C

D



PLAN VIEW



SECTION VIEW

LARGE LOG JAM

TYPICAL DETAILS

SCALE: 1" = 10'

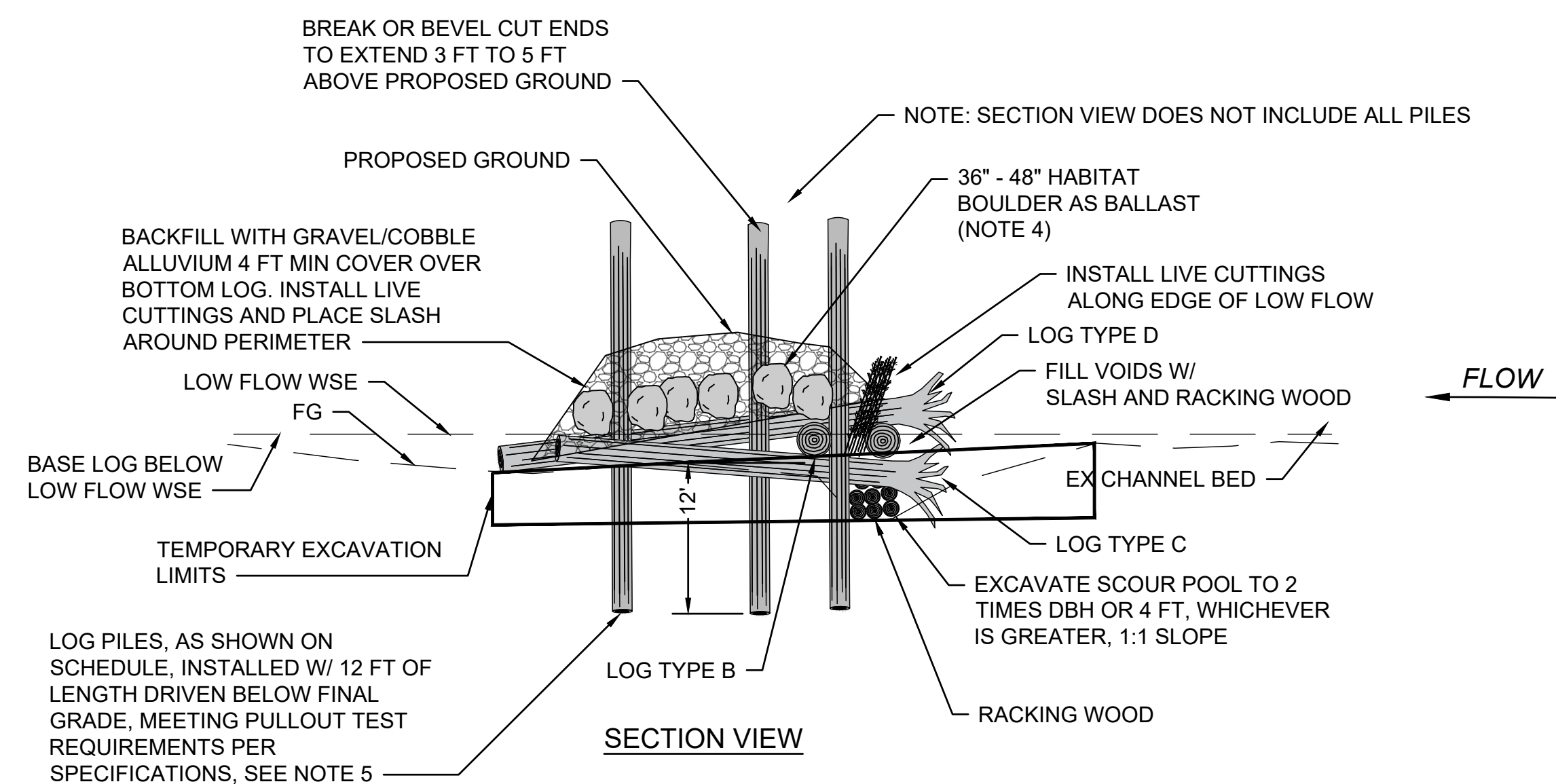
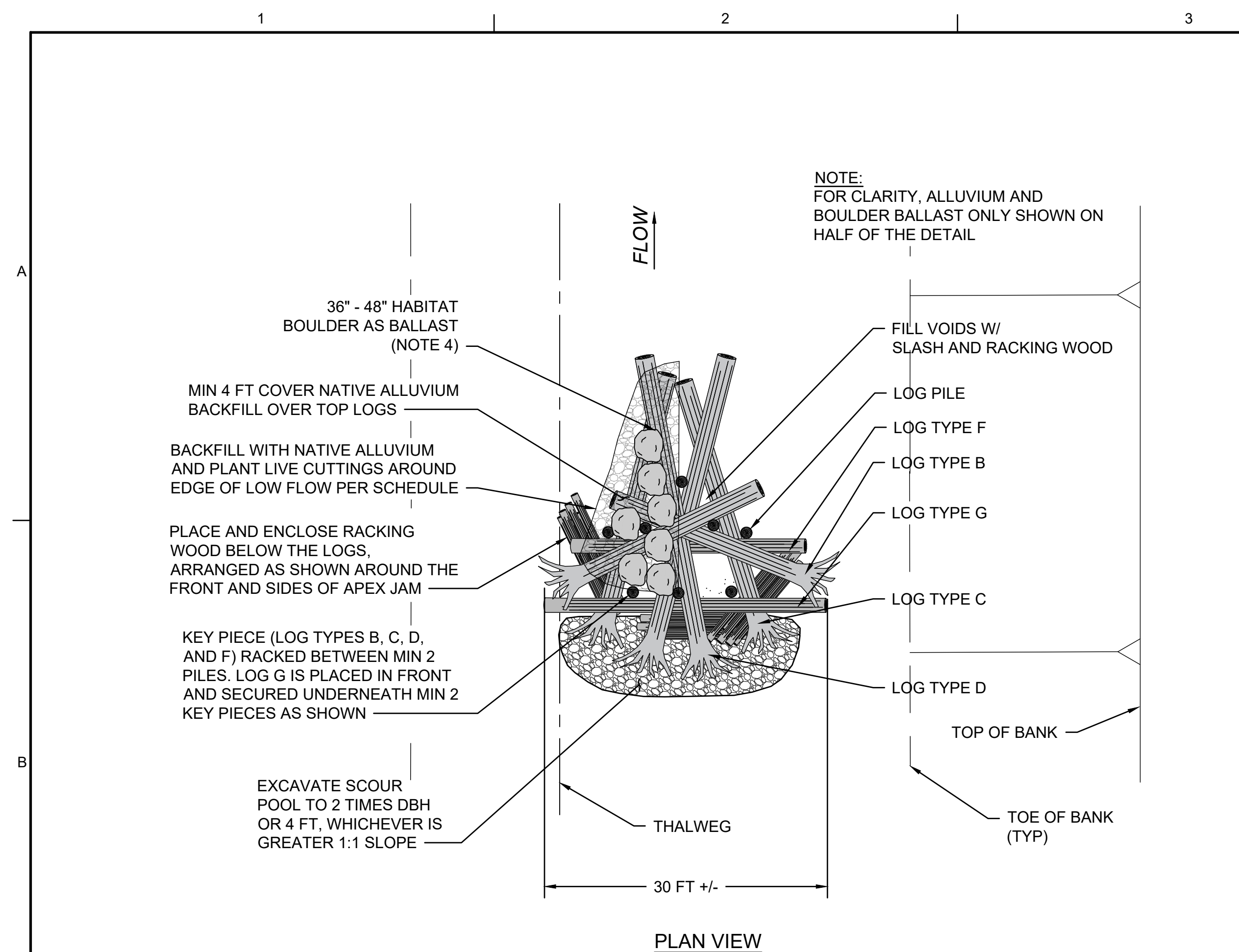
NOTES:

1. CONTRACTOR TO CONSTRUCT HABITAT BOULDERS AS DESCRIBED IN DRAWINGS AND SPECIFICATIONS. CONTRACTING OFFICER WILL PROVIDE GUIDANCE FOR ANTICIPATED FIELD ADJUSTMENTS AND APPROVAL OF INSTALLED FEATURES.
2. INTERMEDIATE AXIS OF HABITAT BOULDERS SHALL BE 36-48" ON AVERAGE AND CONSISTENT WITH SPECIFICATIONS.

LARGE LOG JAM				
NUMBER OF STRUCTURES:		21		
MATERIAL	SIZE	ROOT WAD	QUANTITY PER STRUCTURE	TOTAL
TYPE	LENGTH x DIAM (FT) / ROCK SIZE DIAM (IN)	YES/NO	EA/CY	EA/CY
LOG TYPE A (EA)	40 x 1.75	YES	5	105
LOG TYPE D (EA)	35 x 1.75	YES	1	21
RACKING WOOD (EA)	6-12 x 0.50-0.83	OPTIONAL	30	630
SLASH (CY)	< 10 x < 0.5	NO	16	336
HABITAT BOULDER (EA)	36" - 48"	N/A	12	252
LIVE CUTTING (EA)	N/A	N/A	10	210

LARGE LOG JAM - SCHEDULE

TABLE



ENGINEERED LOG JAM - APEX JAM

TYPICAL DETAILS

NOT TO SCALE

NOTES:

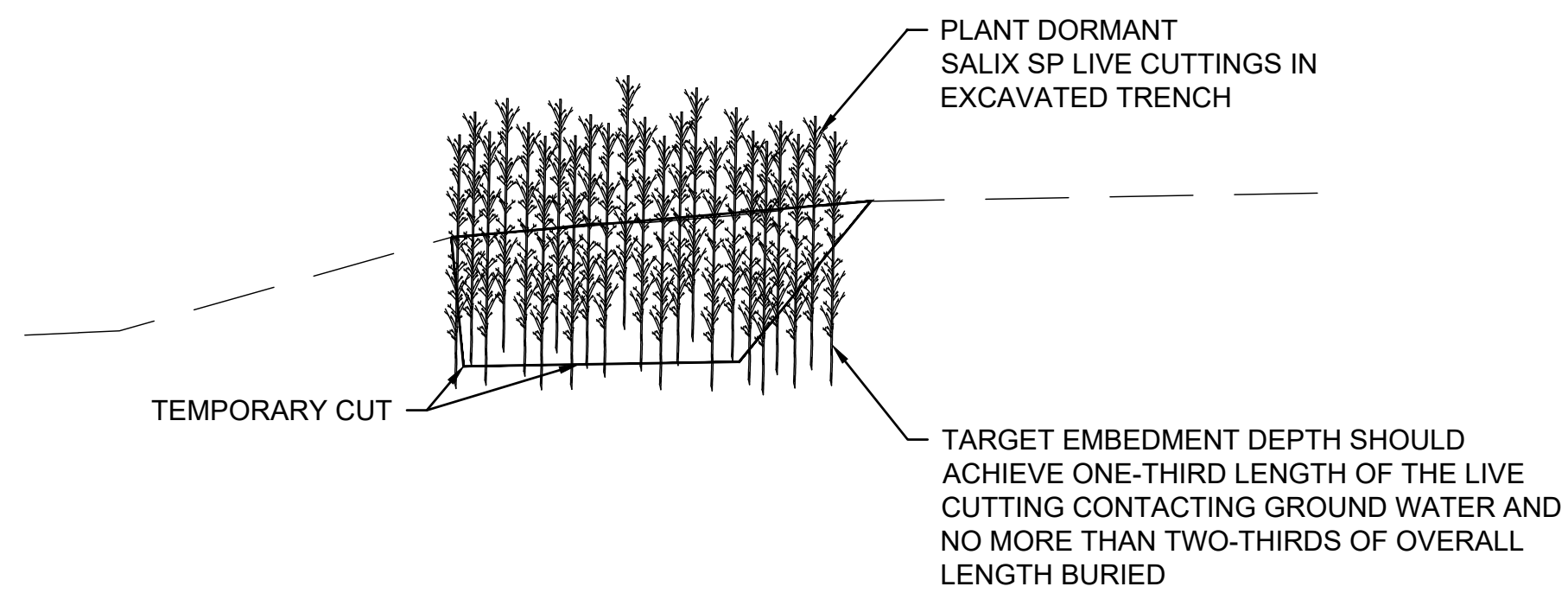
1. CONTRACTOR TO CONSTRUCT WOOD STRUCTURES AS DESCRIBED IN DRAWINGS AND SPECIFICATIONS. ENGINEER WILL PROVIDE GUIDANCE FOR ANTICIPATED FIELD ADJUSTMENTS AND APPROVAL OF INSTALLED STRUCTURES
2. ALL LOGS SHALL FOLLOW APEX JAM LOG SCHEDULE.
3. ALL LOGS WILL BE LOCALLY AVAILABLE CONIFER SPECIES (E.G. PINUS PONDEROSA).
4. INTERMEDIATE AXIS OF HABITAT BOULDERS SHALL BE 36-48" ON AVERAGE AND CONSISTENT WITH SPECIFICATIONS
5. LOG PILES ON APEX JAM: IF MINIMUM EMBEDMENT DEPTH REQUIREMENT OR PULLOUT TEST RESISTANCE VALUE IS NOT ACHIEVED FIRST BY VIBRATORY PILE DRIVING, SEE SPECIFICATIONS FOR ALTERNATIVE INSTALLATION.
6. ALL APEX JAM LOG PILES MUST BE DRIVEN 12 FEET BELOW FINAL GRADE.

APEX JAM				
NUMBER OF STRUCTURES: 3				
MATERIAL	SIZE	ROOT WAD	QUANTITY PER STRUCTURE	TOTAL
TYPE	LENGTH x DIAM (FT) / ROCK SIZE DIAM (IN)	YES/NO	EA/CY	EA/CY
LOG TYPE B (EA)	25 x 1.75	YES	2	6
LOG TYPE C (EA)	30 x 1.75	YES	2	6
LOG TYPE D (EA)	35 x 1.75	YES	2	6
LOG TYPE F (EA)	25 X 2.0	NO	1	3
LOG TYPE G (EA)	30 X 2.0	NO	1	3
RACKING WOOD (EA)	6-12 x 0.50-0.83	OPTIONAL	30	90
SLASH (CY)	< 10 x < 0.5	NO	32	96
LOG PILE (EA)	20-25 x 1.0 -1.5	NO	16	48
HABITAT BOULDER (EA)	36" - 48"	N/A	16	48
LIVE CUTTING (EA)	N/A	N/A	10	30

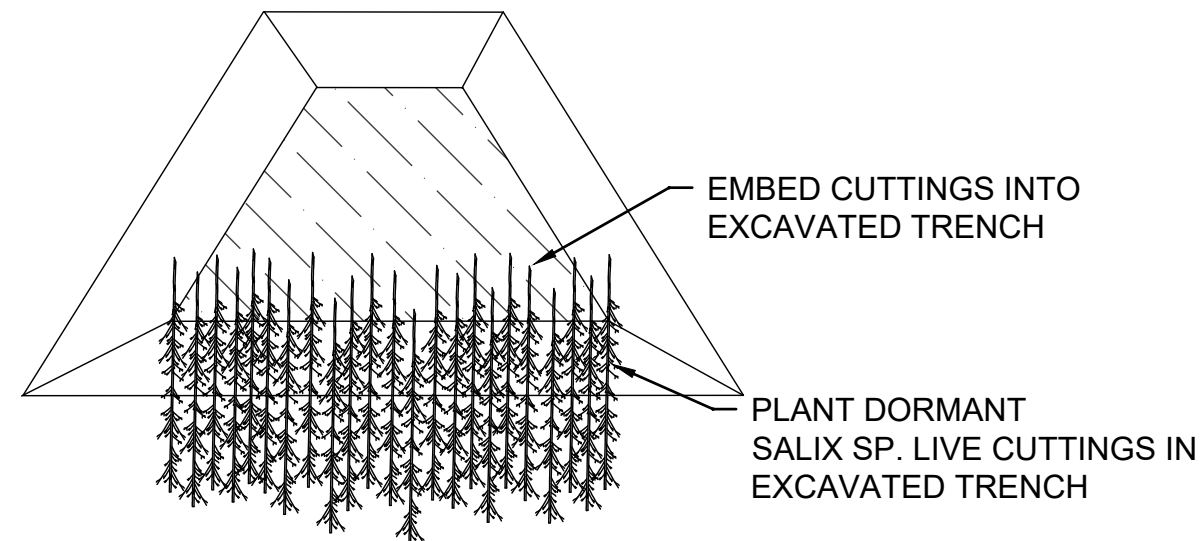
APEX JAM SCHEDULE

TABLE

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SECTION VIEW



PLAN VIEW

FLOODPLAIN ROUGHNESS - WILLOW TRENCING

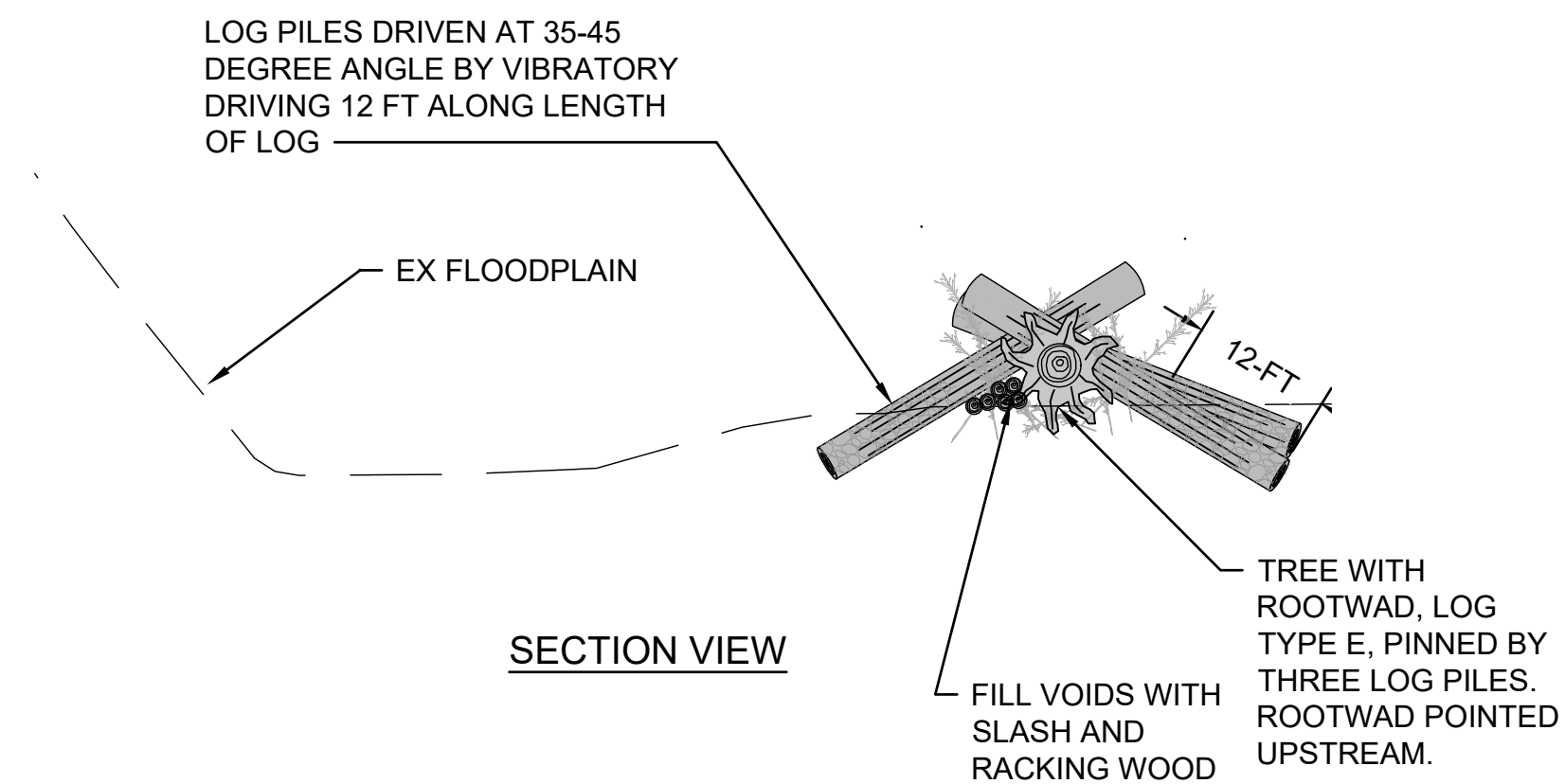
TYPICAL DETAILS NOT TO SCALE

1. WILLOW TRENCING DETAIL SHOWN ON THIS SHEET PERTINENT TO PLANTINGS WHICH ARE NOT INTEGRAL TO LARGE WOOD STRUCTURES OR ROUGHNESS FEATURES. PLANTINGS ASSOCIATED WITH FLOODPLAIN ROUGHNESS FEATURES AND HABITAT STRUCTURES SHOWN ON SHEET CD-05
2. EXCAVATE TRENCH TO A DEPTH INFORMED BY TEST PITS IN LOCATIONS DEPICTED ON DRAWINGS. NOTE THAT FINAL TRENCING LOCATIONS MAY BE FIELD ADJUSTED AT THE DIRECTION OF WBBWC DURING THE TIME OF PLANTING.
3. EMBED WILLOW CUTTINGS INTO TRENCH OR INSTALL USING A STINGER IF COBBLES ARE TOO COARSE TO PENETRATE.
4. BACKFILL WITH CUT MATERIAL.

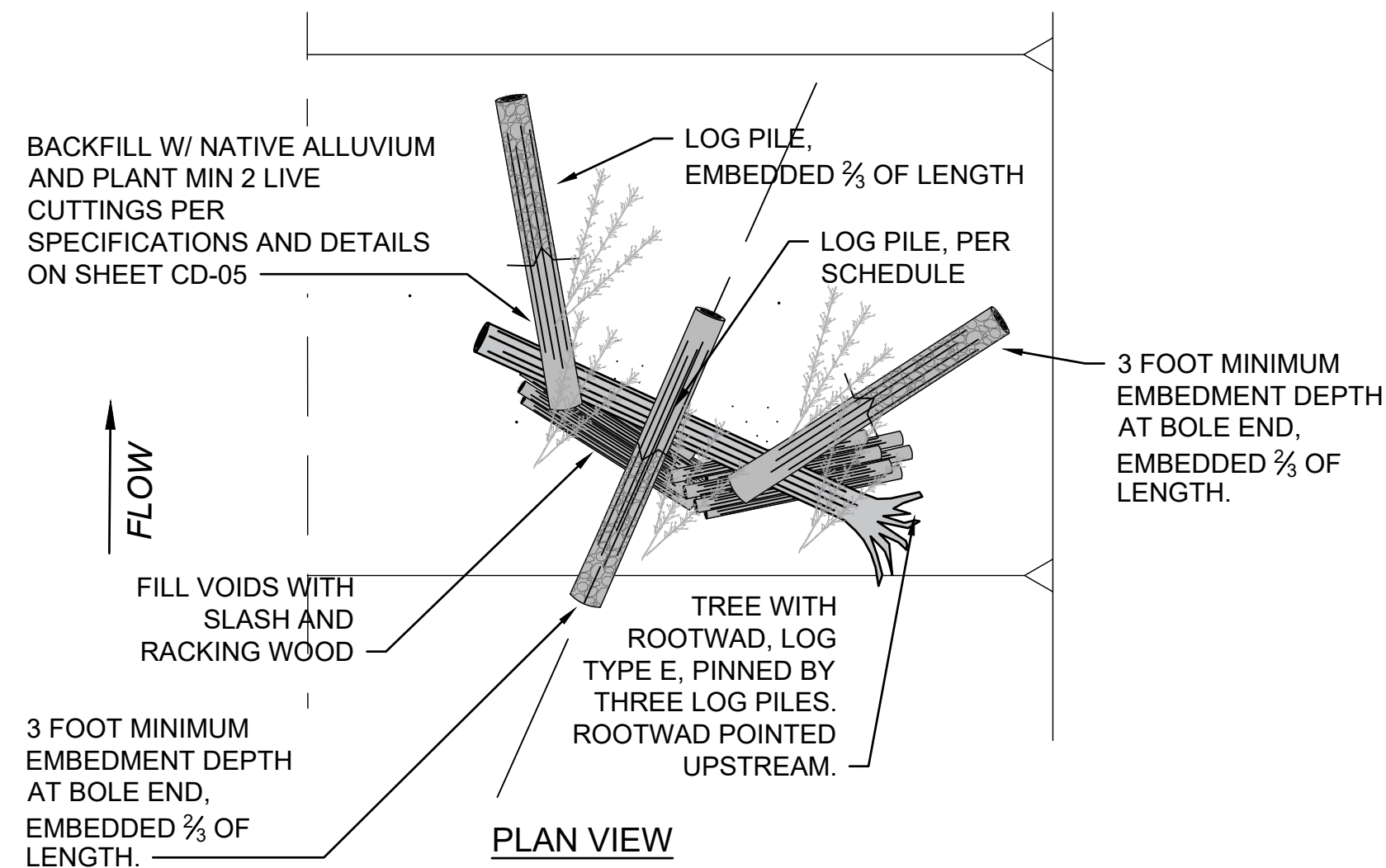
WILLOW TRENCH				
TOTAL LENGTH OF FEATURE (LF)		5100		
MATERIAL	SIZE	ROOT WAD	QUANTITY PER STRUCTURE	TOTAL QUANTITY
TYPE	LENGTH x DIAM (FT) / ROCK SIZE DIAM (IN)	YES/NO	FT/EA	SF/EA
EARTHWORK (SF)	N/A	N/A	3	15300
LIVE CUTTING (EA)	N/A	N/A	3	15300

4 WILLOW TRENCING SCHEDULE

TABLE



SECTION VIEW

PLAN VIEW

2 FLOODPLAIN ROUGHNESS - FLOODPLAIN PINNED LOGS

2 TYPICAL DETAILS NOT TO SCALE

FLOODPLAIN PINNED LOG				
NUMBER OF STRUCTURES: 41				
MATERIAL	SIZE	ROOT WAD	QUANTITY PER STRUCTURE	TOTAL QUANTITY
TYPE	LENGTH x DIAM (FT) / ROCK SIZE DIAM (IN)	YES/NO	EA	EA/CY
LOG TYPE E (EA)	15 x 1.0	YES	1	41
LOG PILE (EA)	10 x 1.0	NO	3	123
SLASH (CY)	< 10 x < 0.5	NO	3	123
LIVE CUTTING (EA)	N/A	N/A	2	82
RACKING WOOD (EA)	6-12 x 0.50-0.83	OPTIONAL	6	246

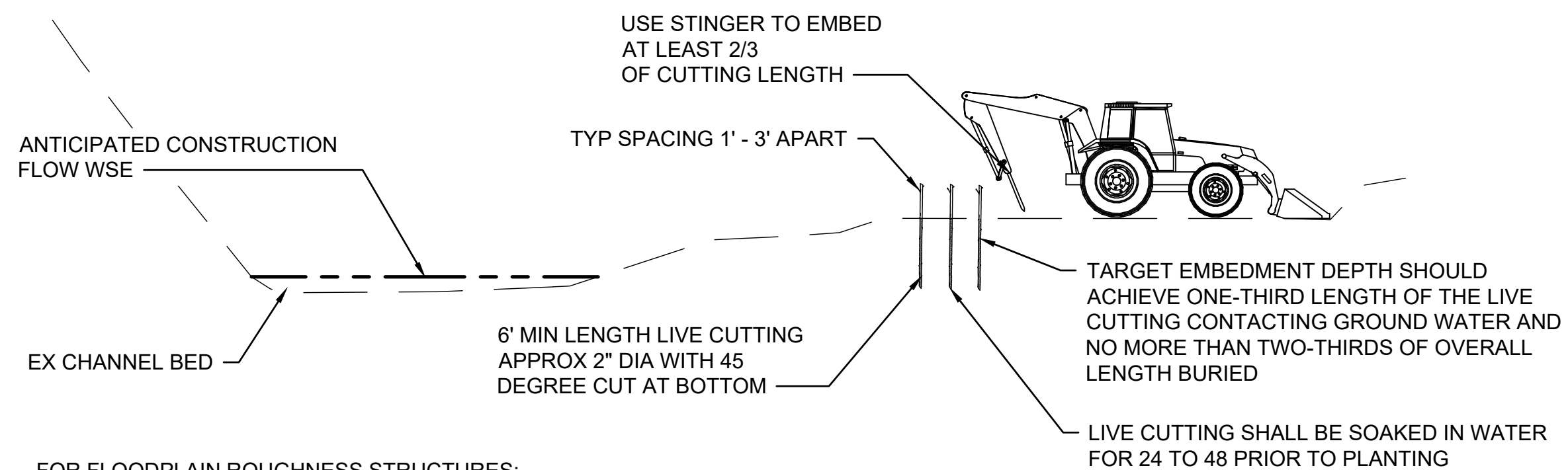
FLOODPLAIN PINNED LOGS SCHEDULE

TABLE

SITE RESTORATION NOTES:

1. UPON COMPLETION OF EARTHWORK AND PLACEMENT OF STRUCTURES, SITE RESTORATION WILL BE COMPLETED IN COMPLIANCE WITH HABITAT IMPROVEMENT PROGRAM (HIP) MEASURES, REFER TO DWGS G-03 THRU G-05. SITE RESTORATION WILL REQUIRE COORDINATION BETWEEN THE CONTRACTOR AND CONTRACTING OFFICER.
2. GROUND SURFACES (WITH SOILS) IMPACTED BY PROJECT-RELATED ACTIVITIES WILL BE GRADED TO PROVIDE STABILITY FOR APPROVAL BY CONTRACTING OFFICER. CONTRACTING OFFICER WILL BE RESPONSIBLE FOR SEEDING.
3. WHERE ONLY COARSE RIVER COBBLE (LACKING SOILS) IS PRESENT, INSTEAD, CONTRACTOR WILL GRADE TO PRE-PROJECT CONDITIONS.
4. TOTAL APPROXIMATE RESTORATION AREA: 3.53 ACRES.

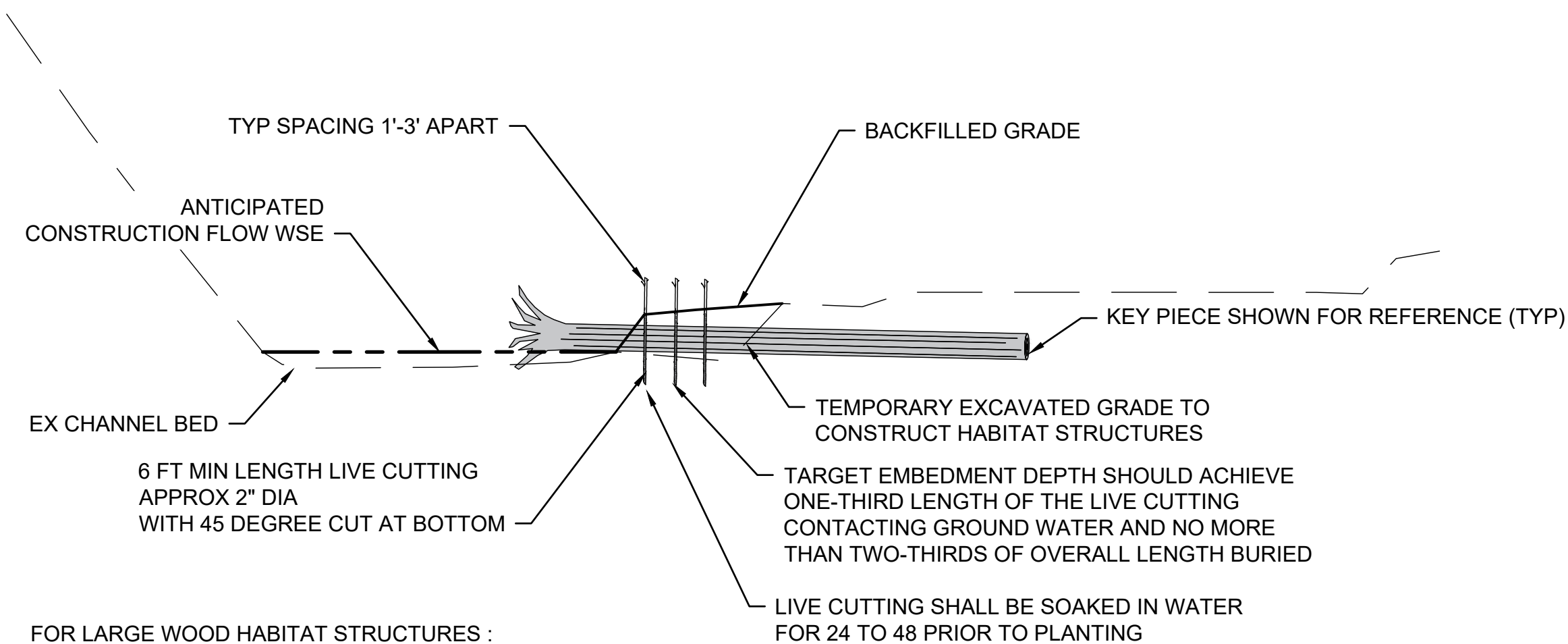
FLOODPLAIN ROUGHNESS PLANTING WITH STINGER



FOR FLOODPLAIN ROUGHNESS STRUCTURES:

1. FLOODPLAIN ROUGHNESS WILLOW CUTTING INSTALLATIONS ARE CONTINGENT UPON TEST PIT RESULTS, PER SPECIFICATIONS. THESE RESULTS WILL INFORM WWBWC WHERE THE WATER TABLE IS LOCATED IN RELATION TO FLOODPLAIN ROUGHNESS FEATURES NEAR THE TIME OF CONSTRUCTION.
2. THIS DETAIL PERTAINS TO THE FOLLOWING FLOODPLAIN ROUGHNESS FEATURES- INCLUDING: ROUGHENED GROUND, PINNED LOGS, AND WILLOW TRENCHING. WHERE EXCAVATION AND BACKFILL IS NOT POSSIBLE TO GET CUTTINGS DOWN TO DESIRED DEPTHS, PLANTING WITH A STINGER IS RECOMMENDED AS SHOWN.
3. FOLLOWING COMPLETION OF THE FLOODPLAIN ROUGHNESS FEATURE, USE STINGER TO PLANT SPECIFIED LIVE CUTTING SPECIES. 1'-3' APART EMBEDDING UP TO 5 FEET OR 6" BELOW WATER TABLE ENCOUNTERED AT TIME OF CONSTRUCTION.
4. BACKFILL FLOODPLAIN ROUGHNESS OR BLEND DISTURBED ALLUVIUM.

HABITAT STRUCTURE PLANTING



FOR LARGE WOOD HABITAT STRUCTURES :

1. EXCAVATE TEMPORARY GRADE FOR HABITAT STRUCTURE INSTALLATION.
2. INSTALL HABITAT STRUCTURE KEY PIECES AND BACKFILL.
3. PLANT SPECIFIED LIVE CUTTINGS AT THE TARGET EMBEDMENT DEPTH AROUND LOW FLOW EDGE OF WATER. BACKFILL AROUND LIVE CUTTINGS AND HABITAT STRUCTURES.
4. PLACE BALLAST BOULDERS AND BACKFILL REMAINDER OF NATIVE ALLUVIUM TO PROVIDE THOROUGH SUBSTRATE CONTACT WITH LIVE CUTTING.

PLANTING METHODS

TYPICAL DETAILS

NOT TO SCALE



NORTH FORK WALLA WALLA RIVER
RESTORATION DESIGN - RIVER MILE 5.2 - 6.5
WALLA WALLA BASIN WATERSHED COUNCIL
MILTON-FREEWATER, OR

CIVIL

SITE RESTORATION AND PLANTING DETAILS

AS SHOWN

VERIFY SCALE

BAR IS ONE INCH ON
ORIGINAL DRAWING.

DATE	OCTOBER 2024
------	--------------

PROJ	W3Y00607
------	----------

DWG	CD-05
-----	-------

SHEET 27 of 28

REUSE OF DOCUMENTS:	THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF JACOBS AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF JACOBS.	THIS	THIS	THIS

30% Design

It is mutually agreed that supervision, management and maintenance of work will be shared as follows:

LANDOWNER will:

- Agree that all improvements made under this agreement will remain on the Landowner's property for a minimum of ten years.
- Provide the land for the purpose of river restoration without cost to WWBWC.
- Permit WWBWC and its staff, funders, contractors and invitees to enter onto the property where the work is being or has been done for the purposes of inspecting the condition of the work and monitoring its effectiveness. Said entry shall be at times reasonably agreeable to Landowner for a ten-year period.

WWBWC will:

- Be responsible to ensure the Project is implemented as previously stated in the Statement of Work and meets all required deadlines noted in this Agreement.
- Hire a subcontractor to construct the North Fork Walla Walla River Restoration Project.
- Agree to immediately notify Landowner of any delays or obstacles that may interfere with the Project's completion by the indicated Project end date.
- Conduct maintenance and monitoring of the effectiveness of the work at agreed upon frequencies and prepare an annual report on the results and condition of the work, which will be delivered to project funding entities and shall be a public record.

Landowner is aware the WWBWC has sought funding for this project from BPA, OWEB and various grant entities and that information relating to the work, including effectiveness is monitoring data, is public record subject to the requirements of ORS 192.410 to 192.505.

Landowner and WWBWC further agree that after completion of the work, all of the improvements funded with grant funds and affixed to the land will become the property of Landowner, provided that the terms of this Cooperative Agreement are met.

Landowner shall save and hold harmless WWBWC and their respective officers, agents, employees and members from all claims, suits, or actions of whatsoever nature resulting from, or arising out of this Agreement.

This agreement shall be effective upon the signature of all of the parties listed below.

AGREED:

Landowner:

Dennis J. Soms
Printed Name

Dennis J. Soms
Signature

8-16-22
Date

Walla Walla Basin Watershed Council:

Eric Hoverson
Printed Name

Eric Hoverson
Signature

WWBWC Restoration Specialist
Title

8-16-22
Date

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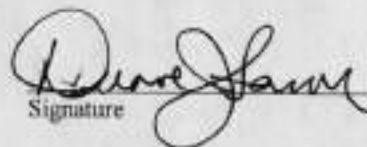
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This agreement shall be effective upon the signature of all of the parties listed below.

AGREED:

Landowner:

Duane Sams
Printed Name


Signature

8/16/2022
Date

Walla Walla Basin Watershed Council:

Eric Hoverson
Printed Name


Signature

WWBWC Restoration Specialist
Title

8-16-22
Date



Walla Walla Basin Watershed Council
810 S. Main St
Milton-Freewater, OR 97862
Attn: Eric Hoverson

December 11, 2023

RE: Support of North Fork Walla Walla River Restoration Project

Mr. Hoverson,

This letter is to show support for the restoration efforts being planned in the North Fork Walla Walla River watershed. As managers of client owned properties along the NF Walla Walla we support advancing engineering design work from conceptual stages to 100% completed. Manulife on behalf of the clients managed for would likely enter into agreements facilitating the restoration efforts along stretches of the river that run through the properties if grant funding becomes available.

If you have any questions or need any additional information, please let me know.

Regards,

Jered Schwabauer
Harvesting Manager
541 962 2087
jschwabauer@manulife.com

Sampling and Analysis Plan

Volunteer Water Quality Monitoring: North Fork Walla Walla River Habitat Enhancement Effectiveness Monitoring



Walla Walla Basin
Watershed Council
810 S. Main St.
Milton-Freewater, OR
97862
Phone: 541-938-2170
Fax: 541-938-2170
www.wwbwc.org

DEQ is a leader in
restoring, maintaining and
enhancing the quality of
Oregon's air, land and
water.



Last Updated: xx/xx/xxxx
LLA22-VOL-0021-SAP
Version 1.0

North Fork Walla Walla River Effectiveness Monitoring

This Sampling and Analysis Plan was prepared by:

Tara Patten
Walla Walla Basin Watershed Council
810 S. Main St. Milton-Freewater, OR 97862
541-938-2170
www.wwbwc.org

Documents can be provided upon request in an alternate format for individuals with disabilities or in a language other than English for people with limited English skills. To request a document in another format or language, call DEQ in Portland at 503-229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696; or email deqinfo@deq.state.or.us.

Project Approvals

Prepared By: _____ Date: _____
Tara Patten, WWBWC Project
Manager

Reviewed By: _____ Date: _____

Reviewed By: _____ Date: _____
Chris Moore, DEQ Quality
Assurance Officer (QAO)

Approved By: _____ Date: _____
Nick Haxton-Evans, Volunteer
Monitoring Coordinator/DEQ
Project Manager

Approved By: _____ Date: _____

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1. Project Management

1.1. Distribution List

The following personnel will be emailed regarding all aspects of this sampling and analysis plan (SAP). Deviations from this SAP must be communicated in writing (e-mail is acceptable) to all individuals identified in [Table 1](#). Final reports from the DEQ Laboratory will be emailed and mailed to the project manager, regional monitoring coordinator and laboratory monitoring coordinator/data manager.

Formatted: Font: Times New Roman

Table 1. Distribution List

Name	Phone	Email
Tara Patten, WWBWC Project Manager	541-938-2170	tara.patten@wwbwc.org
Nick Haxton-Evans, DEQ Volunteer Monitoring Program Coordinator	503-693-5731	nick.haxton-evans@state.or.us
Chris Moore, DEQ Field QAO	503-693-5722	Moore.chris@deq.state.or.us

1.2. Project/Task Organization

Sampling Organization(s): Walla Walla Basin Watershed Council
Analytical Organization: Walla Walla Basin Watershed Council

1.3. Problem Definition/Background

The purpose of this monitoring is to characterize baseline water quality conditions for turbidity, stream flow, and summer water temperature in the North Fork Walla Walla River (NFWWR). Data will be used by the Walla Walla Basin Watershed Council (WWBWC) to compare with post-treatment conditions to evaluate the effectiveness of aquatic habitat restoration actions scheduled for installation within RM 4-9 from 2022-2027.

Effectiveness monitoring is needed in order to evaluate success and enable adaptive management of a restoration effort on the NFWWR that is scheduled to begin in 2022. The NFWWR is utilized by bull trout, steelhead/rainbow trout, and spring Chinook salmon and is identified as a priority restoration and protection area in the Walla Walla Sub-Basin Plan (2004). Current habitat and water quality conditions limit the productivity of these threatened and culturally significant native species. During an aquatic inventories survey conducted in summer 2020, WWBWC staff documented impaired conditions relating to habitat complexity and riparian function in the project reach. The stream is dominated by riffles and, although stream power is sufficient, the reach is structurally starved, severely limiting the creation of the complex habitats that characterize productive riverscapes. Land use and flood control efforts have resulted in a significant decrease in channel meandering and loss of ecological function. WWBWC also observed extensive riparian impacts from the 100-year flood event in February 2020 and subsequently, during the summer, documented the highest peak water temperatures we've seen in the North Fork since 2002 ([Figure 1](#)). Water quality impairment was also present prior to 2020. Water temperatures in the

North Fork exceeded the 16° C year round cold water habitat criterion during much of the summer. The 12° C bull trout spawning and rearing criterion is typically met only from October to April.

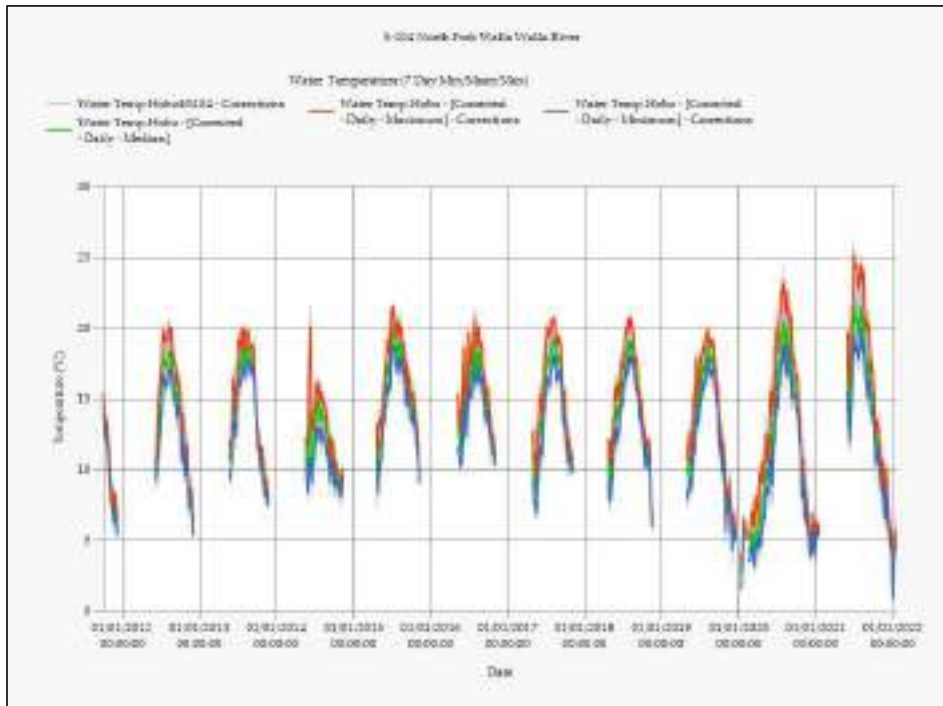


Figure 1. Seven-day moving average of maximum water temperatures near the mouth of the North Fork Walla Walla River from 2012-2022

The first step in the proposed restoration process is the development of design alternatives that include instream structures intended to slow and spread water, connect floodplains, protect spring sources, scour pools, create off-channel habitat, and eventually introduce large woody material to the stream. The project area includes approximately 5 river miles of the North Fork and will likely require a significant investment of time and money to achieve the desired goals. Long-term restoration goals include increased shade, reduced water temperature, reduced turbidity, increased large woody debris recruitment, and increased instream habitat complexity. By restoring geomorphic and riparian functions, the project aims to increase the NFWWR's resilience to predicted climate change impacts including drought, wildfire, and high flow events. Obtaining baseline data and subsequent effectiveness monitoring will help us evaluate the project outcomes and facilitate adaptive management of restoration treatments.

Seasonal streamflow and water temperature data collected by WWBWC are available from NFWWR monitoring location at RM 0.5, and continued monitoring is warranted. Based on our observations of extensive tributary scouring and riparian impacts from the February 2020 high water event along with the water temperature data collected in summer 2020, we expect the current temperature and flow conditions may deviate from the trends documented during the last 10-20 years. A new baseline must be established in order to evaluate restoration project outcomes.

1.4. Project/Task Description

During Water Year 2022, WBWC will collect seasonal continuous temperature, year-round continuous flow, and grab turbidity data in the NFWWR. Measurements will be taken near the confluence of the NFWWR and South Fork Walla Walla River, above and below the restoration treatment reach, and at the mouths of two major tributaries (Locations show in Figure 2).

Continuous water temperature, logged by Onset Hobo U22 sensors at 15 minute intervals, will be collected from April to November at RM 0.5, RM 3.7, RM 8.7, Cup Gulch, and Little Meadow Creek. Summary statistics for the continuous temperature (seven-day maximum moving average and daily differences in min and max temps) will be compared between locations and against designated water quality criteria.

Continuous stage measurements, logged with a Campbell Scientific CS451 pressure transducer at 15 minute intervals, will be collected at RM 0.5 throughout Water Year 2022 (October 1, 2021 to September 30, 2022). WBWC will develop a rating curve and produce a continuous discharge signal for WY 2022. Summary statistics of interest for stream discharge will be the daily mean flow, annual volume, date of 50% volume, annual peak flow, secondary peaks, and annual minimum flow. Discharge data will be compared with historical NFWWR flow data collected by USGS from 1930-1969 (Station #14011000) and OWRD from 1969 to present (Station #14010800).

Grab turbidity samples will be collected monthly and during storm events at RM 0.5, RM 3.7, RM 8.7, Cup Gulch, and Little Meadow Creek. Cross-sectional discharge measurements will be taken during each turbidity sampling event. Turbidity results will be plotted with discharge data for analysis. Comparisons will be made above and below the project reach, between the NFWWR and tributaries, and between the project area and RM 0.5.

See Table 2 for the project timeline.

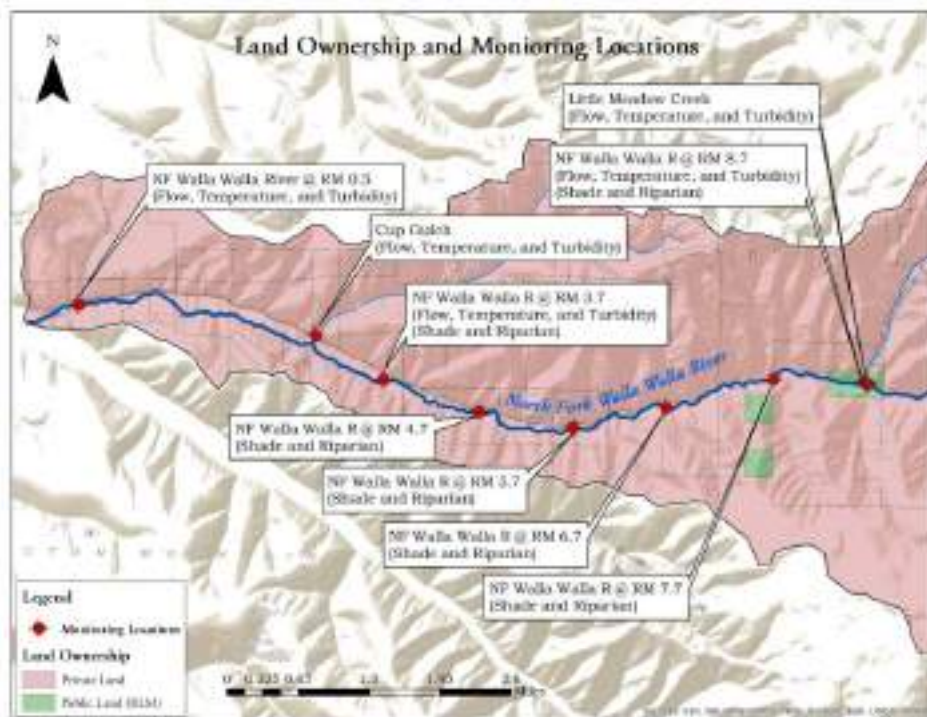


Figure 2. Land ownership and monitoring locations

Table 2. Project Timeline

Task	Q4 2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022	Q1 2023
Project Planning and revision	x	x				
Water temperature Monitoring			x	x	x	
Flow Monitoring at RM 0.5	x	x	x	x	x	
Monthly turbidity and flow measurements	x	x	x	x	x	
Data analysis and reporting					x	x

1.5. Quality Objectives and Criteria

WWBWC will aim to produce “A” level water quality data according to the quality assurance targets described in the 2021 ODEQ VOLUNTEER MONITORING PROGRAM QAPP Version 3.0 (Table 3 below).

Water temperature monitoring is intended to characterize summer temperatures at the mouth of two tributaries and in the NFWWR above and below the treatment reach.

Grab sample turbidity monitoring will characterize baseline conditions. Samples collected during storm events will be representative of storm conditions.

Continuous stream flow monitoring will characterize discharge conditions for a complete water year, enabling comparison with historical data.

Guidelines regarding data comparability, completeness, and sensitivity will be followed as outlined in Section 1.6 of the 2021 ODEQ Volunteer Monitoring QAPP.

Commented [HEN*D1]: Do you have set criteria for “storm conditions”?

Table 3. Accuracy and Precision Targets*

Matrix	Parameter	Precision	Accuracy	Measurement Range
Water	Temperature	± 0.5 °C	± 0.5 °C	-5 to 35 °C
Water	Turbidity	± 20% RPD (± 3 NTU if NTU < 20 NTU)	± 10% of Std. Value	< 1 to 1000 NTU
Water	Stream Discharge	± 10% RPD	± 10% of known	NA

*Values taken from the [ODEQ Volunteer Water Quality Monitoring Program QAPP \(2021\)](#)

1.6. Training Requirements and Certification

Participating WWBWC field staff each have over 5 years’ experience measuring stream flow and using water quality meters.

1.7. Documentation and Records

Table 4 Controlled Documents

Document or Record Name and Description	Storage Location	Storage Time
DEQ Quality Assurance Project Plan (QAPP) (v.3.0)-DEQ04-LAB-0047-QAPP project description and assurance procedures.	DEQ Internet Page	5 years
SAP: North Fork Walla Walla River Habitat Enhancement Effectiveness Monitoring- specific sampling information for each group’s activities.	DEQ Laboratory & WWBWC office/wwbwc.org	5 years

Document or Record Name and Description	Storage Location	Storage Time
DEQ Laboratory Mode of Operations Manual- Methods manual	WWBWC office	5 years
Equipment Notebooks - records of quality control checks, calibrations and maintenance.	DEQ equipment case, WWBWC office	5 years
Field Data or Chain of Custody Sheets/Electronic Files – Field forms containing sampling meta data and raw field data.	WWBWC Office	5 years

2. Data Generation and Acquisition

2.1. Sampling Process Design

Sampling design, collection, methods and handling will be managed by the sampling organization identified in section 1.2. The sampling organization will ensure that all samples will be collected in the appropriate sample containers, preserved as identified in the appropriate reference methods, and transported to the analytical organization within the appropriate sample holding times, with the appropriate documentation, and under the appropriate sample transport conditions. Analytical laboratories assume no responsibility for the quality of data resulting from samples that were collected, shipped, or stored under inappropriate conditions.

WWBWC's goal with the proposed monitoring project is to document current conditions with repeatable methods so we can use the same protocols after restoration to evaluate the effectiveness of the treatments. Knowing that uncontrolled factors such as land use changes, water year variation, climate patterns, and others may affect monitoring results, we chose monitoring sites intending to isolate the impacts of restoration treatment as much as possible. Site locations and parameters are shown in Table 5 below.

The most upgradient monitoring site (RM 8.7) is above the treatment reach, allowing us to document upriver flow, water temperature, and turbidity conditions. The stream flow gauge (RM 0.5) is downstream of the project area and will provide telemetered flow to guide the timing of storm/high flow turbidity measurements and also to correlate turbidity with flow during data analysis. NFWWR @ RM 3.7 is near the lower extent of the restoration reach. Post-treatment flow, water temperature, and turbidity measurements at this site are intended to document restoration-related effects and will be compared to the RM 8.7 data and to baseline conditions measured in WY 2022.

The two tributary sites (Cup Gulch - which is downstream of the project reach, and Little Meadow Canyon - which is at the upper end of the project reach) will help us identify the sources of thermal and sediment inputs. Measurements at these sites will take place upstream of any mixing with the NFWWR.

Water temperature, flow, and turbidity are the parameters of interest because the goals of the restoration project include reducing water temperature and turbidity and improving summertime flow and riparian function. The monthly turbidity measurements will provide a snapshot of turbidity levels under typical flow conditions. The storm/high flow measurements will help us understand sediment mobility within the system, especially within the context of the associated discharge measurements. We believe the combination of monthly and storm measurements will allow us to capture the range of flow conditions and turbidity-generating processes that are occurring in the restoration reach. Continuous, telemetered

flow data collected near the mouth will guide storm sampling and will provide a year-round dataset for future reference. The monthly flow measurements at each turbidity site will provide some information about seasonal trends as well as inform the analysis of the turbidity data.

Sampling locations (Figure 1, Table 5) are located on private property, and all landowners have granted permission for access and data collection. Access to the upgradient sites may be limited during storm events depending on road conditions. WWBWC field staff are equipped to walk to the upper monitoring locations to conduct sampling when conditions limit vehicle access.

Table 5 Summary of the sampling locations

DEQ Station ID *	Organizational Site ID	Latitude/Longitude	Station Description	Parameters
32808	S104	45.900183/-118.2972	North Fork Walla Walla River near mouth (RM 0.5)	Continuous (15-min) stage an water temperature, grab sample turbidity
	S178	45.891073/-118.238672	North Fork Walla Walla River at RM 3.7	Continuous (15-min) water temperature, grab sample turbidity and discharge
	S180	45.896778/-118.252528	Cup Gulch near mouth	Continuous (15-min) water temperature, grab sample turbidity and discharge
	S175	45.89166/-118.148	Little Meadow Creek near mouth	Continuous (15-min) water temperature, grab sample turbidity and discharge
	S174	45.891384/-118.14963	North Fork Walla Walla River at RM 8.7, above Little Meadow Canyon	Continuous (15-min) water temperature, grab sample turbidity and discharge

*If a Station ID number is not available during QAPP/SAP development, the DEQ Laboratory will generate the unique identifier prior to data processing.

2.2. Sampling Methods

- For summer water temperature sampling, Onset HOBO U-22 thermistors will be deployed from approximately mid-May to November. Snowpack and/or late spring precipitation conditions may delay deployment, and early fall storms may cause us to retrieve thermistors early.
- U-22 loggers will be programmed to sample every 15 minutes.
- Each station will be audited with a NIST-traceable digital thermometer at deployment, at least every 3 months during the mid-season, and upon recovery.
- WWBWC will follow the temperature monitoring methods described in ODEQ's Continuous Water Monitoring Procedures, 2020.
- Grab turbidity samples will be collected in clean, glass turbidimeter cells or washed plastic bottles while wading in the stream. Analysis will occur either on-site or at the WWBWC office with a Hach 2100P meter.
- WWBWC will follow the Sample Handling and Custody Procedures in Section 2.3 of the ODEQ Volunteer Water Quality Monitoring QAPP (2021).
- Discharge measurements will be taken using the Velocity-Area method with either a Marsh-McBirney Flo-Mate, Sontek FlowTracker, Ott MF Pro Flow Meter, or a Price AA current meter/AquaCalc Pro according to [WWBWC's Standard Operating Procedures \(v1.3\)](#).

- Stage measurements will be collected with a Campbell Scientific CS451 pressure transducer deployed at a fixed elevation and set to sample every 15 minutes. Level surveys to relate the sensor elevation to an established local datum will occur according to WWBWC's Standard Operating Procedures (v1.3).

2.3. Sample Handling and Custody

WWBWC will follow the sample handling and custody procedures described in Section 2.3 of the ODEQ Volunteer Monitoring Program QAPP (See [Table 6](#) below).

Most sampling and analysis will occur in stream and at the monitoring site. The exception will be occasional turbidity samples which will be collected in a clean plastic bottle or a clean glass sample cell and preserved on ice during transport to the WWBWC office for analysis. Sampling will be conducted this way when walking distance and/or the weight/bulk of field equipment make it difficult to transport the turbidimeter to the monitoring site. The date and time of sample collection will be recorded on the field sheet (Figure 3), and the sample bottle will be labeled with the site location ID.

Data from temperature loggers will be downloaded in the field at least every 3 months to avoid data loss in the case of logger failure.

Table 6 Summary of sampling parameters

Parameter	Container	Preservation	Holding Time
Temperature	In-stream	NA	none
Turbidity	In-stream or clean sampling container	Refrigerate on ice at 4°C	48 hours

2.4. Analytical Methods

WWBWC will conform to the standard methods defined in the ODEQ Volunteer Monitoring Program QAPP (2021). [Table 7](#) includes a summary of analytical parameters and methods to be used.

Table 7. Summary of analytical parameters and methods

Sample Type	Parameter	Reference Method (required)	Equipment
Surface water sample	Field Temperature	EPA 170.1	NIST Traceable VWR digital thermometer
Surface water sample	Continuous Temperature	EPA 170.1	ONSET U-22 Hobo loggers
Surface water sample	Turbidity	SM 2130 B	HACH 2100P
Surface water sample	Stream Discharge	Velocity-Area	Top setting rod, tag line and current meter: Marsh McBirney Flo-Mate, Sontek FlowTracker, Ott MF Pro. For high flow measurements: Bridge crane, Rickly sounding reel with 30-50 lb weight, Price AA meter with Aquacalc Pro+ computer

2.5. Quality Control

Quality control tests will follow the requirements described in the ODEQ Volunteer Monitoring Program QAPP (2021) including accuracy checks and duplicates.

Precision of continuous temperature data will be measured with a NIST traceable thermometer at the monitoring site to compare results of the thermometer and continuous monitoring device result at the time the sample was collected. One audit will be done at the time of deployment and one at the time of retrieval to assess data quality. At least one mid-season audit will be done. Accuracy of continuous data requires pre and post deployment accuracy checks. To check the accuracy of continuous temperature data loggers, we will follow the procedures described in ODEQ's 2020 SOP for Continuous Water Monitoring Procedures for warm and cold water baths monitored with a NIST traceable thermometer.

Duplicate grab temperature measurements will be collected during audits to evaluate precision.

Accuracy of turbidity data will be measured using the Gelex standards assigned following annual meter calibration. Accuracy will be measured before and after each sampling event, and data quality level will be documented. Turbidity sample cells will be checked with a distilled water blank at the end of each sampling day. Scratched cells will be discarded. Precision of turbidity measurements will be measured with duplicate samples.

Discharge measurements will be evaluated for precision by comparing duplicate measurements.

If duplicates or accuracy checks are outside acceptable limits for "A" level data according to the ODEQ Data Quality Matrix V5.0, additional testing or remedial activities (additional duplicates during the same sampling event, additional accuracy checks, recalibration etc) will be performed as soon as feasible. If problems persist, the Project Manager will contact the ODEQ Volunteer Monitoring Coordinator and/or equipment manufacturer to seek guidance and develop a solution.

2.6. Instrument/Equipment Testing, Inspection, and Maintenance Requirements

Instrument testing and maintenance will occur according to ODEQ's Volunteer Monitoring Program QAPP (2021). In addition, FlowTracker operation is tested prior to each measurement with the instrument's built-in BeamCheck function.

2.7. Instrument Calibration and Frequency

Instrument calibration and frequency will follow the procedures from Table 10 in the ODEQ Volunteer Monitoring Program QAPP (2021).

2.8. Non-direct Measurements

WWBWC will follow the data acquisition procedures and requirements for non-direct measurements as described in section 2.9 of the ODEQ Volunteer Monitoring Program QAPP (2021).

2.9. Data Management

WWBWC will utilize the field form shown in Figure 3. Field data will be collected on Rite in the Rain notebooks and datasheets, scanned, and entered weekly by field staff into an AQUARIUS Time Series database. Software and scanned documents are stored on WWBWC's server. The server's hard drive

mirrors continually with a backup drive to ensure redundancy and data preservation in case of electronic failure. An offsite backup drive is updated monthly. Data sheets will be stored in the WWBWC office.

Continuous temperature data will be downloaded onto a field laptop, transferred to the WWBWC server, and uploaded to the AQUARIUS database. Data will be reviewed and processed as described in WWBWC's Standard Operating Procedures v1.3 (p.42). Data will be analyzed using AQUARIUS tools.

Continuous flow monitoring data will be managed and processed according to WWBWC's Standard Operating Procedures v1.3 (p. 21-25). Data will be analyzed using AQUARIUS tools.

All data and quality control results will be checked for completeness, reasonableness, transcription, and calculation errors by the project manager on a weekly basis and reviewed again at the end of the project period. Data will then be submitted for inclusion in the AWQMS database using the most current DEQ templates for submitting continuous and grab sample data. For water temperature, uncorrected data will be submitted (raw values, prior to offset or drift corrections applied).

3. Assessment and Oversight

Project assessment and oversight, including field activities, will be the responsibility of the project manager.

3.1. Assessment and Response Actions

WWBWC will follow the assessment and oversight procedures described in the ODEQ Volunteer Monitoring Program QAPP (2021). Problems identified during the assessments will be resolved by resampling, checking for unusual sampling conditions, inspecting equipment, and reviewing procedures.

3.2. Reports to Management

Accuracy and precision results will be documented daily on field sheets. Any data quality problems will be reported to the project manager as soon as possible. Accuracy and precision data will be included in the data submitted to DEQ at the end of the project period.

4. Data Validation and Usability

Data quality levels (DQL) will be assigned in accordance to DEQ guidance document *Data Validation and Qualification* V5.0 (DEQ09-LAB-0006-QAG). Generally, only targeted DQLs of "A", or "B" will be acceptable unless the basis for the data acceptability is approved and documented by the project manager and DEQ Volunteer Monitoring Coordinator. All data verification, validation, and assessment activities for project purposes are the responsibility of the project manager.

4.1. Data Review, Validation, and Verification

WWBWC will follow the data review, validation, and verification procedures described in Section 4.1 of the ODEQ Volunteer Monitoring Program QAPP (2021).

4.2. Validation and Verification Methods

WWBWC will follow the data validation, and verification procedures described in Section 4.2 of the ODEQ Volunteer Monitoring Program QAPP (2021). Data will be reviewed for transfer errors, completeness and reasonableness at the end of each survey day. QC data will be analyzed weekly and at the end of the water year.

4.3. Reconciliation with Data Quality Objectives

WWBWC will follow the data reconciliation procedures described in Section 4.3 of the ODEQ Volunteer Monitoring Program QAPP (2021).

5. Revision History

Table 8 Revision History

Revision	Date	Changes	Editor
1.0		New SAP	Tara Patten

Figure 3. Field form

Funding Opportunity Number: NOAA-NMFS-HCPO-2022-2007195

Workspace ID: WS00957172

UEI: NMP9E2H5Z318

Application Filing Name: WWBWC North Fork Walla Walla River Floodplain Restoration

North Fork Walla Walla River Monitoring

The Walla Walla Basin Watershed Council has secured funds to conduct project effectiveness monitoring on North Fork Walla Walla River (NFWWR) from the confluence with the South Fork to the Little Meadows Canyon (Table 1). Monitoring covers the entire RM 3.6-8.8 project reach boundaries and additional areas adjacent to the project site. Data collection includes water temperature, stream flow, turbidity, Aquatic Habitat Inventory, spawning redd surveys, and riparian inventory data to document current conditions, flood impacts, and produce a baseline data set for evaluating project outcomes in the future. Data will be used to evaluate the effectiveness of the proposed habitat improvements on the private property above the end of the NFWWR short and long-term. USGS water monitoring stations are located near RM 0.5 and RM 5 of the project and have been effectively operated by the state of Oregon for decades, providing consistent data on a historical and real-time basis. Monitoring of water temperature, streamflow, and turbidity will be conducted according to methods described in WWBWC's standard operating procedures, ongoing for decades. Riparian monitoring will be conducted according to Oregon's Riparian Assessment Framework, which is included in the Oregon Plan for Salmon and Watersheds. Aquatic Habitat Inventory methods follow ODFW 2017 (Moore, Jones) protocols and have been conducted by staff in the basin since the 1990's by existing WWBWC staff.

Table 1. Map showing the NFWWR watershed. The project area proposed for restoration begins just upstream of Cup Gulch and extends to Little Meadow Creek. The sites proposed for pre-treatment monitoring of water temperature, stream flow, turbidity, and riparian condition are shown in pink and green.



Monitoring activities would have four main objectives:

1. Objective 1: Water Temperature Monitoring

- a. Collect 15-minute seasonal water temperature data at 5 locations
 - i. Three NFWWR locations: 1) near mouth, 2) RM 4, 3) Little Meadow Canyon
 - ii. Cup Gulch & Little Meadow Canyon tributary

2. Objective 2: Streamflow Monitoring

- a. Collect year-round 15-minute streamflow data at the NFWWR RM 0.5.

3. Objective 3: Turbidity Monitoring

- a. Collect turbidity data at the same 5 sites described for water temperature data collection. Measurements will be taken monthly and also during high flow events.

4. Objective 4: Riparian Monitoring

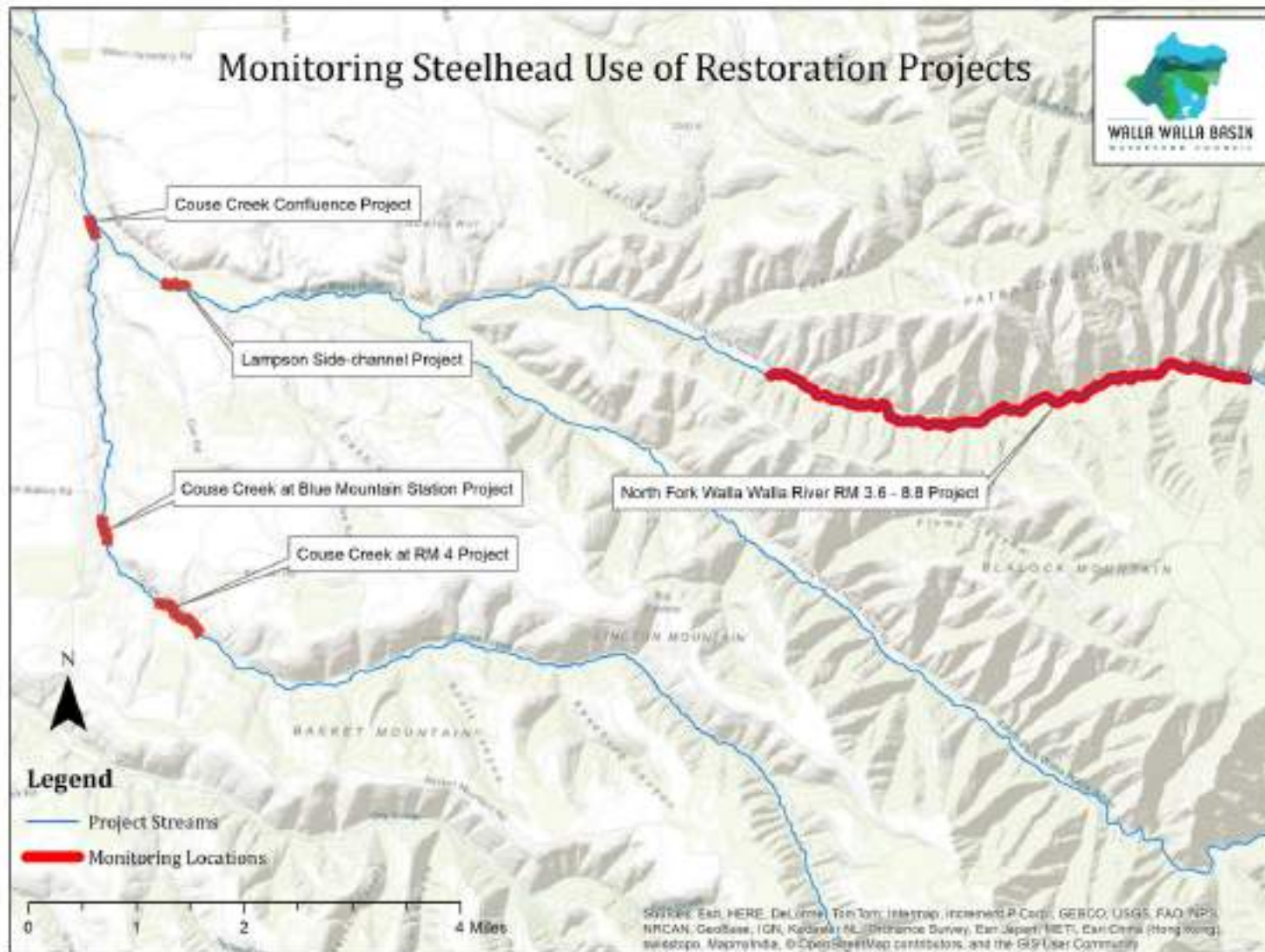
- a. Conduct riparian surveys above, below, and within the proposed project area.

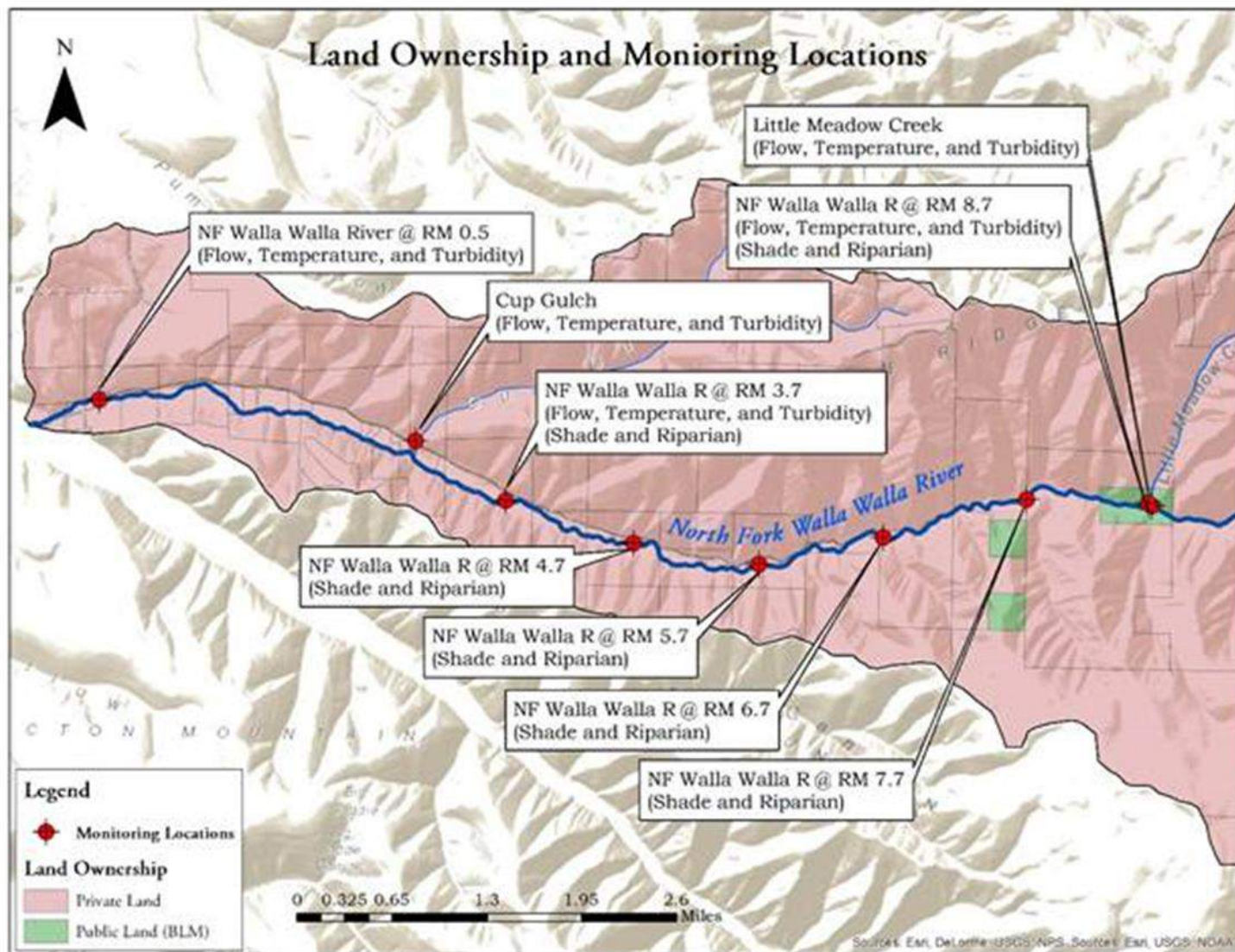
In addition to NFWWR project effectiveness monitoring efforts, the WWBWC has monitored 65 alluvial wells, 24 streamflow gages, and 27 water temperature sites in the Walla Walla Basin for decades as part of a long-term effort to provide information useful for adaptive water management and enhancement efforts. The specific problems the monitoring is intended to inform are elevated temperatures and insufficient flow and seepage losses in the Walla Walla River, declining groundwater elevations, and decreased spring production on the valley floor. An analysis of groundwater, stream temperature, and stream discharge data from water years 2010-2021 found mixed trends in groundwater, increasing stream temperatures, and steady Walla Walla River discharge. Current efforts to stabilize alluvial groundwater declines are not adequate to address the magnitude of the problem. Peak summer temperatures of river water entering the valley from the North and South Forks of the Walla Walla are increasing.

Background of the problem that generated the project Data are needed to guide current planning efforts aimed to address the Basin's inadequate water supply to meet the needs of aquatic life as well as agricultural and municipal uses. The Walla Walla Watershed is utilized by ESA-listed bull trout, summer steelhead, and reintroduced spring Chinook salmon, which are limited by lack of summertime flow and high summer water temperatures. Limited in-stream flow during the dry season is exacerbated by declining water levels in the alluvial aquifer, which cause seepage losses from the riverbed into the ground and reduced spring production. Monitoring data were needed to document current conditions and describe trends to inform development of projects to restore watershed function and increase in-stream flows.

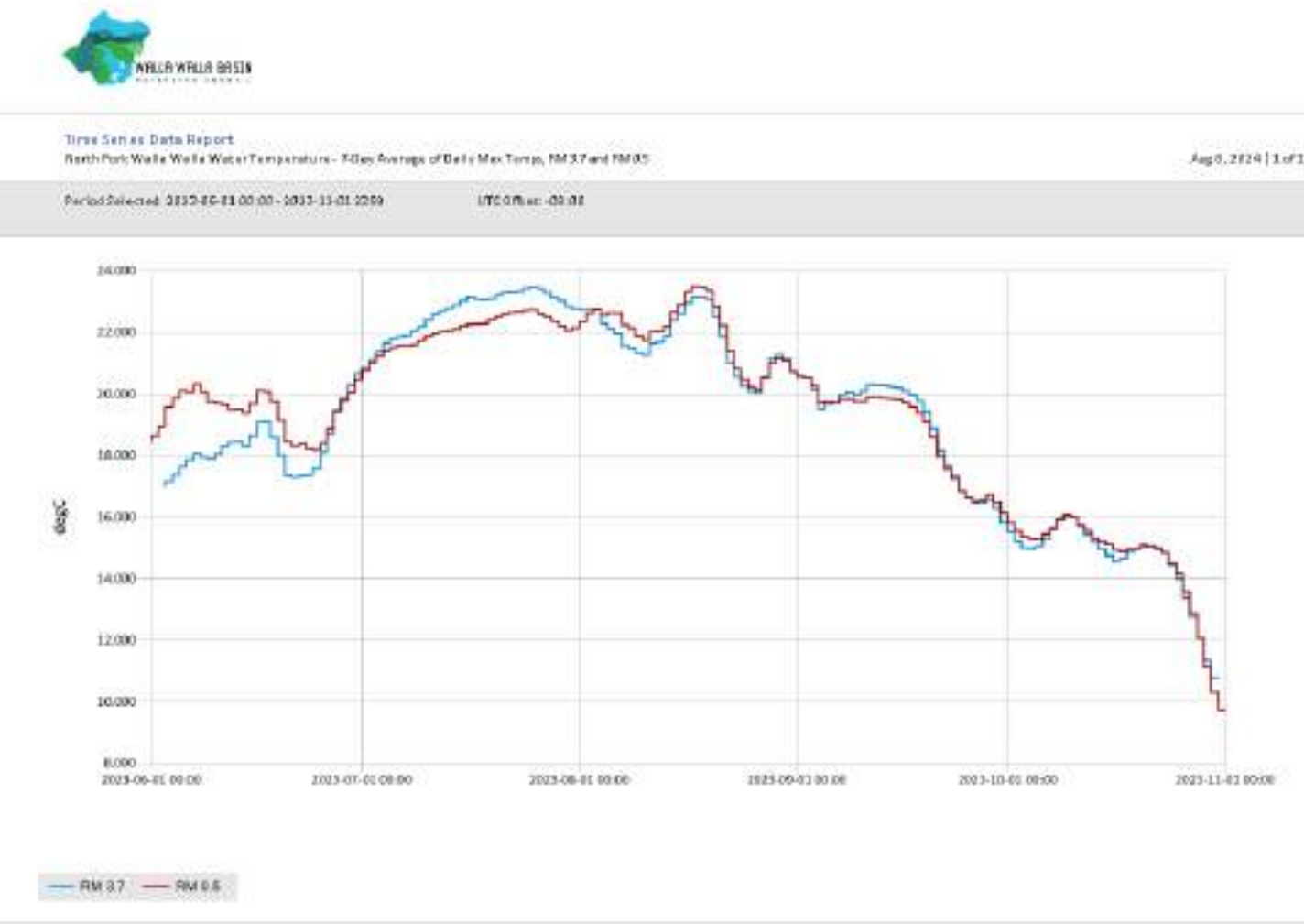
Brief description of the work, placing it in a larger watershed context. Bi-state efforts to develop strategies to address these limiting factors are underway and include the Walla Walla Water 2050 Project, the Bi-State Flow Enhancement Study, and a basin-wide hydrology study led by USGS. Each of these efforts is utilizing stream flow and groundwater data collected by WWBWC. In order to develop relevant, long-term solutions, there is an ongoing need for current data. In addition, the high flow event of February 2020 had a dramatic impact on riparian areas in the upper half of the watershed resulting in large reaches of reduced shade. Peak summertime water temperatures measured in 2020 from the confluence of the North and South Forks of the Walla Walla River downstream to the WA state line were notably higher than those measured during the previous 10 years. Additional water temperature monitoring is needed in order to describe the trend and guide future restoration efforts. The monitoring funds from OWEB and BPA allowed WWBWC to collect year-round groundwater elevation data at 65 alluvial wells, May-November data at 27 stream temperature sites, and year-round stream discharge at 24 gage locations for two water years. Data were published at www.wwbwc.org, and annual reports describing results were completed. WWBWC hired a hydrogeological consultant, GeoSystems Analysis, to conduct a 10-year analysis of groundwater, stream temperature, and stream discharge data and to report on findings (See Trend Analysis Report in uploads). Results show mixed trends in groundwater, increasing stream temperatures, and steady Walla Walla River discharge. Current efforts to stabilize alluvial groundwater declines are not adequate to address the magnitude of the problem. Peak summer temperatures of river water entering the valley from the North and South Forks of the Walla Walla are increasing. The analysis report presents findings from the statistical analysis but does not consider contributing factors. The report does include a list of recommendations to further understand hydrologic trends and controlling variables.

WWBWC Steelhead Redds and Juvenile Snorkeling Counts & Water Monitoring Maps

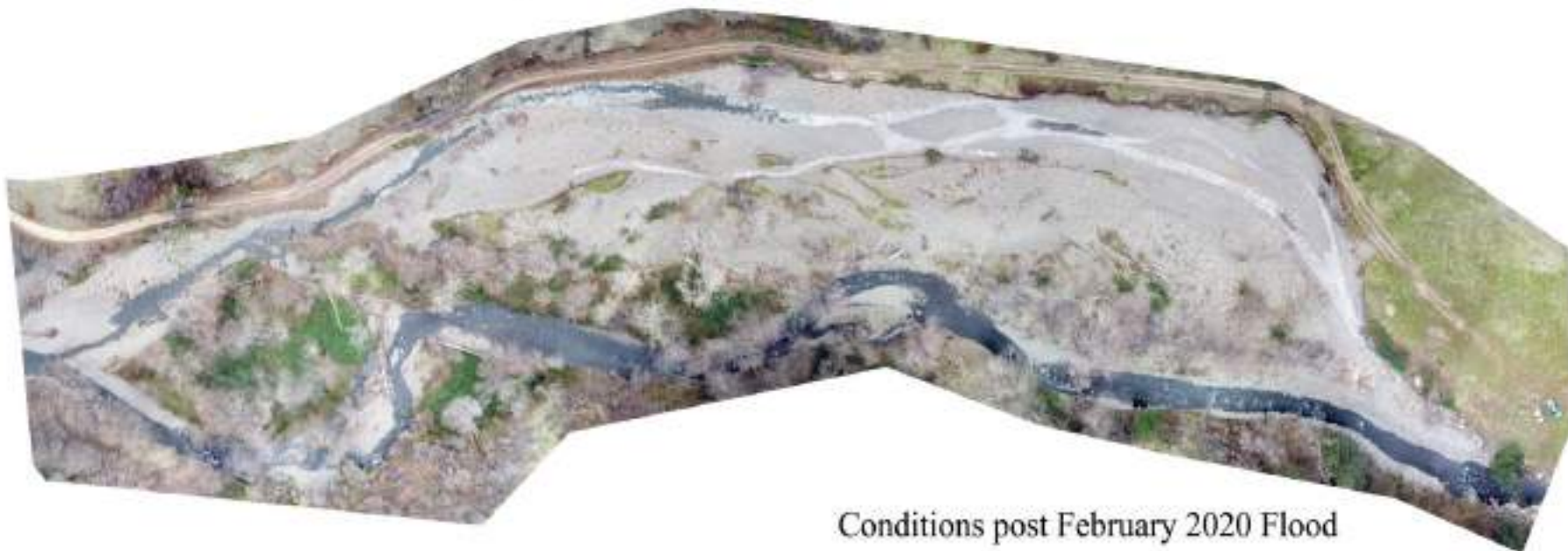




Recurrence Interval	Discharge (cfs)	Confidence Limits (cfs)	
		0.05	0.95
2	487	563	424
5	788	956	674
10	1030	1323	860
50	1697	2606	1316
100	2042	3427	1526
200	2429	4472	1746
500	3013	6299	2053



North Fork Walla Walla River (RM 5.3)



Conditions post February 2020 Flood



Conditions prior to the February 2020 Flood

Post 2020 flood emergency response levees







October 25, 2024

Grazing Plan for North Fork Walla Walla River RM 5.2-6.5 Floodplain Construction

The WWBWC Watershed Restoration Specialist conducted discussions with the cooperating landowner that manages a small herd of 18 cows located in the floodplain restoration project area. Some of the primary benefits of the project location is the remoteness, rural setting and overall lack of anthropogenic development as there are no dwellings located on the site. With that in mind, the land use is primarily of value to the landowners for hunting purposes, with secondary utilization focused upon cattle grazing. It is important to note that the landowner has a full time professional job providing income and benefits and sees raising cows as a family hobby. There is a significant reduction of grazing from historical levels as sheep numbering in the hundreds used to graze in the project area. The landowner is very open to participating in voluntary grazing management strategies to contribute optimal project results and is authentically interested in sustainable, holistic ecosystem health. The plan we intend to implement is a rotational grazing and pasture resting strategy with mobile enclosures outlined by strands of electric fence. The energy imbalance and flashy hydrograph in the project reach that have resulted from damages and reactive actions related to the flood of 2020 make installing fixed fencing premature as the investment would be subject to the high probability of being washed out. Initial project actions are being focused on restoring the correct river channel type and ultimately process through passive restoration strategies by letting the river do the bulk of work. This means that the straightened channel will be coveted to multi-threaded with higher degree of sinuosity. The channel will relocate over time and eventually settle into a more fixed, harmonious position. Therefore, installing mobile fencing with intent to replace with more permanent fence lines is the most responsible manner in which to succeed. Having the ability to mobilize enclosures matches the adaptive management strategy that the WWBWC follows. Due to the disconnection between surface and ground waters in the reach, current vegetative is sparse in distribution, therefore existing stands of preferred vegetation types are to be protected. Reconnecting the floodplain is expected to greatly improve site conditions conducive for promoting natural propagation of naturally produced, appropriate stock of wild alder and cottonwood tree galleries. Part of our vegetative strategy beyond providing the most suitable watershed conditions is to rely on natural regeneration of abundant vegetation supplemented by seasonal willow plantings to provide excess presence of trees to account for winter, summer and grazing loss. Monitoring vegetative response to site conditions and shifting concentrations of cattle to and from locations over and underperforming in a timely manner is our approach and paramount in importance. There is daily presence

by cooperating landowners and WWBWC staff that share a common, agreed objective to assure proper grazing management occurs. The WWBWC reconnected 14 spring sources in 2022 that were disconnected by the road prism. Enclosures were part of the project to protect the lush and vulnerable vegetative attributes associated with spring seep sources. The landowner is an experienced cattleman and educated conservationist and has agreed to provide and install fencing equipment and monitor his herd while relocating them in a timely manner as necessary for the mutual benefit of riparian development, improved water quality conditions and ultimate nourishment of his stock long term. Water gaps will reduce the current unrestricted cattle access to the river in the project reach. Discussions for future off-channel watering areas are planned. As the project advances upstream in future treatment areas, there are fixed fence lines funded by agricultural assistance programs as well as existing fences maintained by the USFS and BLM which will make grazing plan development less complicated in the future as we expect to tie into permanent lines and share riparian goals.

We will implement a rotational grazing plan and pasture-resting strategy with mobile, temporary enclosures outlined by strands of electric fence on posts, all of which are to be located within the project area as represented by the APE map submitted prior. Monitoring vegetative response to restoration site conditions and shifting concentrations of cattle to and from locations that are over and underperforming in a timely manner is our approach. The landowner is an experienced cattleman and educated conservationist committed to relocating his herd while relocating them in a timely manner as necessary for the mutual benefit of riparian development, improved water quality conditions and ultimate nourishment of his stock long term. There is a significant reduction of grazing from historical levels as sheep numbering in the hundreds used to graze in the project area, but now only two dozen cows are present in the project area, and only during 6 months of the year. Additional grazing reduction will occur near our engineered log configurations, which function as physical impediments to entry and thus deterrents to grazing.

Grazing reduction enclosure configurations being used and proposed at the NFWWR Project Site







Typical ELJ configurations in place and planned at NFWWR





Vegetative response and techniques at NFWWR





Forested off channel sub units created for habitat diversity NFWWR









Off channel features added to project for diversity





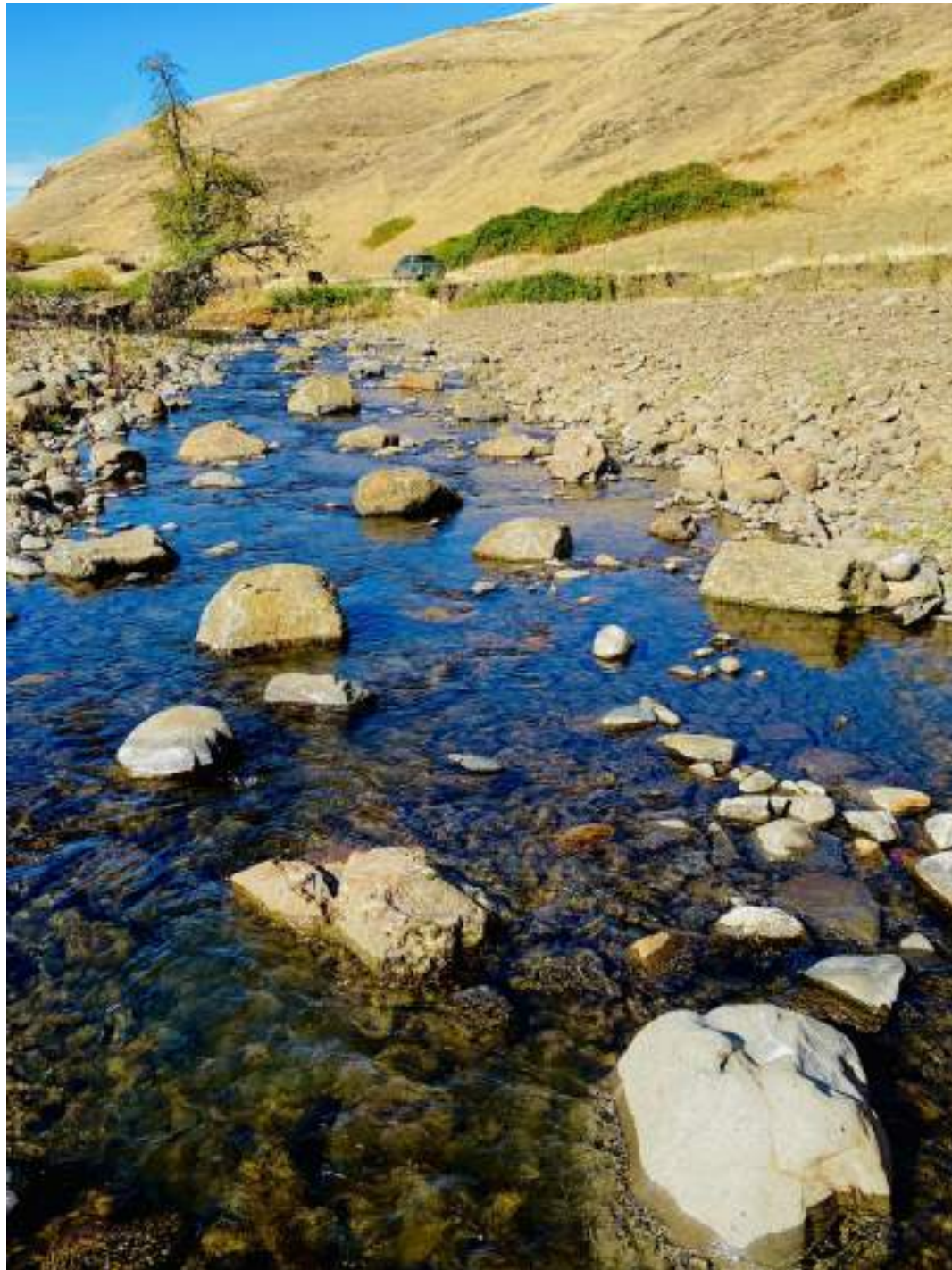
Before and after treatment of eroded bank and riffle at NFWWR





Conversion of riffle to pocket water at the NFWWR Project Site



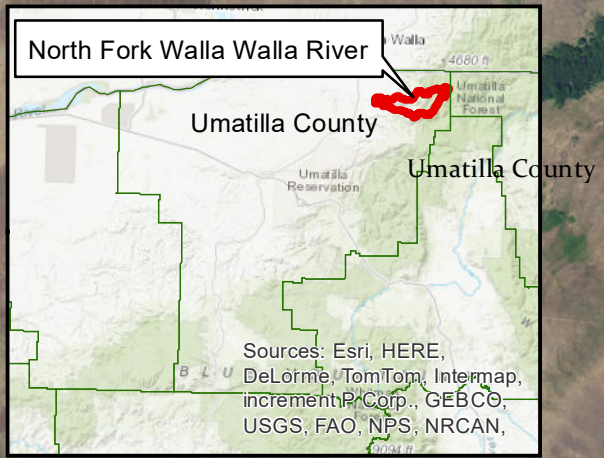






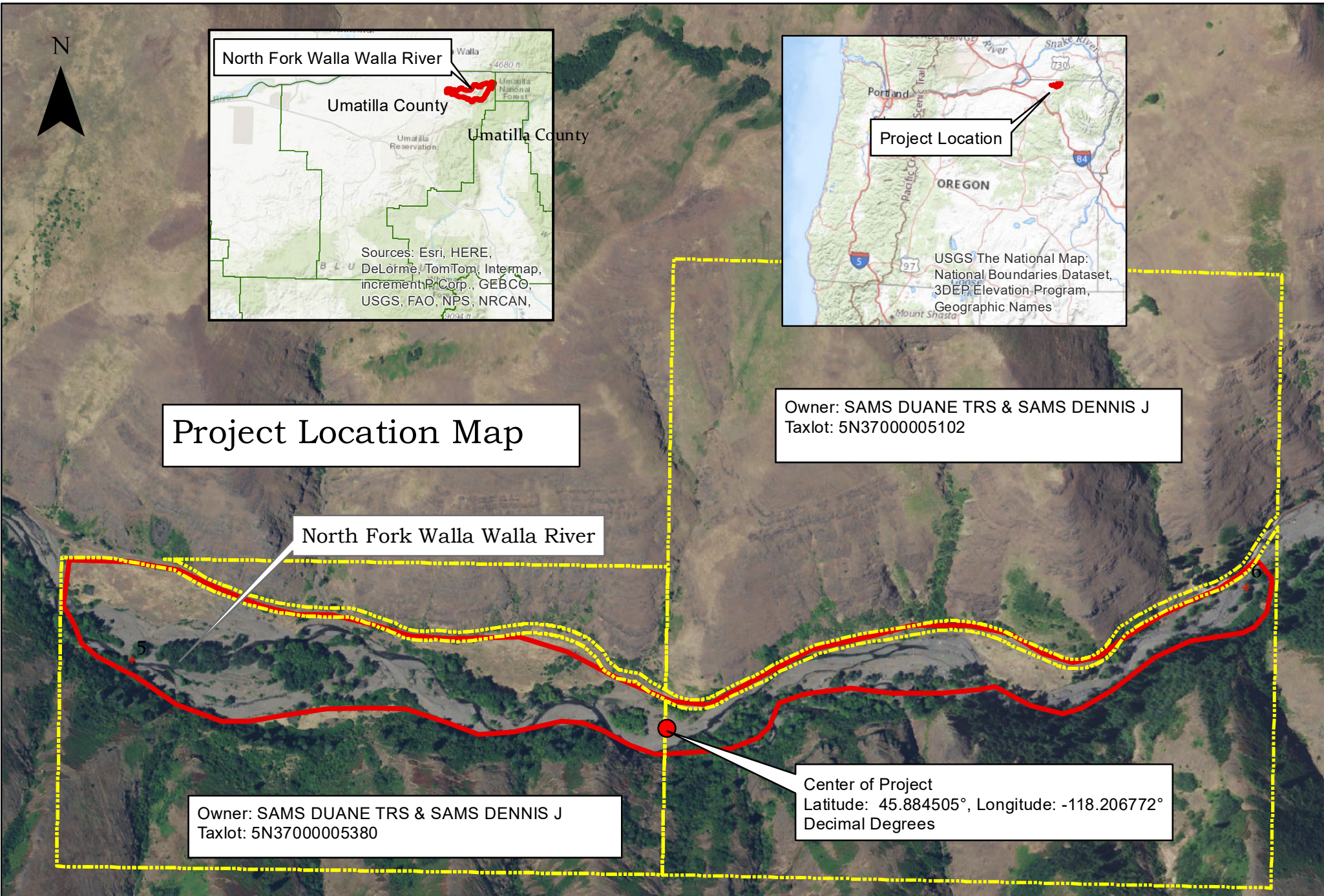
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Project Location Map

Owner: SAMS DUANE TRS & SAMS DENNIS J
Taxlot: 5N37000005102



Legend

- Property Boundary
- Project Boundary

North Fork Walla Walla River Holistic Floodplain Restoration RM 5.2-6.5

0 0.04 0.08 0.16 0.24 0.32 Miles