



## WATER PROJECT GRANTS AND LOANS GRANT APPLICATION

### I. Project Information

Project Name: Muddy Creek Water Use and Stream Restoration Project

Project Type:  Conservation       Reuse       Flow Restoration and Protection  
 Above-Ground Storage       Below-Ground Storage  
 Water Infrastructure       Other: Irrigation/Fish Connectivity and Habitat

Grant Funding Requested (must be no more than 75% of Total Cost of Project): \$ 93,500

Match Funding (must be no less than 25% of Total Project Cost): \$ 683,061

Total Cost of Project: \$ 776,561

### II. Applicant Information

<b>Applicant Name: Lake County Umbrella Watershed Council</b>	<b>Co-Applicant Name:</b>
Address: PO Box 848 Lakeview, OR 97630	Address:
Phone: 541-219-0493	Phone:
Fax:	Fax:
Email: <a href="mailto:bdneider23@gmail.com">bdneider23@gmail.com</a>	Email:

<b>Principle Contact: Brandi Neider</b>	<b>Fiscal Officer: Colleen Withers</b>
Address: PO Box 848 Lakeview, OR 97630	Address: 38374 Withers Ranch Rd Paisley, OR 97636
Phone: 541-219-0493	Phone: 541-610-3134
Fax:	Fax:
Email: <a href="mailto:bdneider23@gmail.com">bdneider23@gmail.com</a>	Email: <a href="mailto:slidemountainsolutions@gmail.com">slidemountainsolutions@gmail.com</a>

**Certification:** I certify that this application is a true and accurate representation of the proposed work and that I am authorized to sign as the Applicant or Co-Applicant. By the following signature, the Applicant and Co-Applicant (if applicable) certify that they are aware of the requirements of an Oregon Water Resources Department funding award, have read and are aware of conditions within the [example grant agreement](#) on the Department's website and are prepared to implement the project, if awarded.

Signature of Applicant/Authorized Person:  Date: April 26, 2021

Print Name: Brandi Neider Title: Project Manager

Signature of Co-Applicant/Authorized Person: \_\_\_\_\_ Date: \_\_\_\_\_

Print Name: \_\_\_\_\_ Title: \_\_\_\_\_

**III. Eligibility**

Select applicant entity type for both applicant and co-applicant (if applicable).

<input type="checkbox"/>	City	<input type="checkbox"/>	Oregon County
<input type="checkbox"/>	Port	<input type="checkbox"/>	Irrigation District
<input type="checkbox"/>	Drainage District	<input type="checkbox"/>	Water Improvement District
<input type="checkbox"/>	Water Control District	<input checked="" type="checkbox"/>	Non-Profit Organization
<input type="checkbox"/>	Soil and Water Conservation District	<input type="checkbox"/>	Corporation
<input type="checkbox"/>	Partnership	<input type="checkbox"/>	Sole Proprietorship
<input type="checkbox"/>	Cooperative	<input type="checkbox"/>	Indian tribe
<input type="checkbox"/>	State of Oregon Agency	<input type="checkbox"/>	Individual
<input type="checkbox"/>	Federal Agency	<input type="checkbox"/>	Other:

To be eligible for funding a project must address an instream and/or out-of-stream water supply need and result in project implementation. Does the project address an instream and/or out-of-stream water supply need and result in project implementation?  Yes  No

Provide a brief, one to two paragraph description of the water supply need that the project intends to address. Please reference (and attach) supporting data or reports that document the need.

The ability to divert water for irrigation is the water supply need. This ability will be secured through the implementation of the Muddy Creek Water Use and Stream Restoration Project. The Lake County Umbrella Watershed Council (LCUWC) has secured funding from Oregon Watershed Enhancement Board (OWEB), Ducks Unlimited (DU), and US Fish and Wildlife Service (USFWS) to implement the *lower segment* (1.5 miles of stream habitat restoration below the reservoir) of this project in 2021. The LCUWC has also secured 75% of the funds needed to implement the *upper segment* (fish passage at the reservoir spillway). This OWRD grant proposal seeks to secure remaining funds to complete project in its entirety. Once complete, the landowner will have met the water use requirements and will be able to execute the water right permit and continue irrigation on the acres associated. The project will further reconnect a 12-mile stream system that has been disconnected since 1965 while providing instream habitat for the native fish species in the Goose Lake Basin.

In 2014 the landowner received notice (*see Attachment #6*) from the state requiring an ODFW approved fish screen to be installed prior to water diversion for irrigation use. The landowner, who is a local agriculture cattle producer, began working with several partners to pursue implementation of a fish screen through an OWEB grant. OWEB grant reviewers concluded the screening solution was not the right treatment for a much larger and complex watershed issue. Efforts to maintain water use on the property then evolved into a fish passage and habitat restoration project to support distribution, abundance, and productivity of native redband trout. The project serves to support fish and farmers as both rely heavily on the water in this closed basin watershed.

Is either the Applicant or Co-Applicant required to have a Water Management and Conservation Plan?  Yes  No

If yes, has the plan been submitted to the Water Resources Department and received approval?

Yes      No

*Note: Pursuant to ORS 541.659 if an applicant is required to have a water management and conservation plan, the plan must be submitted to the Water Resources Department and receive approval prior to department acceptance of an application for a loan or grant from the account.*

#### **IV. Project Summary**

Provide a brief, 4-5 sentence summary of the proposed project. This summary should include a brief description of the goal and scope of the project as well as summarize project implementation (i.e., planned infrastructure or activity). Please refer to the Water Project Grants and Loans Application Instructions for additional information on what to include in your project summary.

The goal of the Muddy Creek Water Use and Stream Restoration Project is to maintain the ranch's water right permit for irrigation through addressing fish passage and habitat restoration for Goose Lake redband trout, a state listed species of concern. A 75 ft rock ramp/roughened channel fish passage will be constructed at the spillway of the reservoir and 1.5 miles of stream channel habitat will be restored. This planned improvement will expand fish spawning and rearing habitat by 6 miles, in-return the project will meet the ODFW requirements set forth to divert water for irrigation, therefore sustaining the working landscape and native fish populations in the Goose Lake Basin.

#### **V. Project Location**

**Instructions:** Please answer the following questions about the location of the proposed project.

1. Please provide the following information about the project location.
  - a. Latitude/Longitude (in decimal degrees): 42.191388 / -120.513982
  - b. County: Lake
  - c. Watershed/Basin: Goose Lake
  
2. Please attach and label, Attachment #1, a site plan map showing the following (✓ when complete):
  - a.  Project area boundaries
  - b.  True north arrow
  - c.  Map title and legend
  - d.  Latitude and longitude of project location
  - e.  Property boundaries
  - f.  Tax Map and Lot numbers of each property in project area boundary and listed in Question #3. Use the same Tax Lot No. on the map as is used in Question #3.
  - g.  Surface water bodies
  - h.  Location of involved structures (existing or proposed)
  - i.  Point of Diversion and Place of Use associated with the project (if applicable)

j.  Proposed measurement locations (if applicable)

3. In the table below, identify any properties which project implementation impacts, indicate the types of activities that would occur on that site, and include a landowner agreement form and map for each property. *Add rows as needed.*

Tax Map No. (e.g. 12S06W-12714)	Tax Lot No. (e.g. 100)	Ownership Type (✓ One)	Property Owner of Record	What type of activity occurs on this site as part of project implementation? (✓ all that apply)	If applicable, identify the type and extent of ground disturbing activity (e.g. test pits, borings, new road construction, excavation, etc.).	Landowner Agreement Form Attached (✓ when complete)
39S19E000002400	2400	<input type="checkbox"/> Public <input checked="" type="checkbox"/> Private	Shine Brothers Ranches LLC	<input checked="" type="checkbox"/> Access site <input checked="" type="checkbox"/> Project work <input checked="" type="checkbox"/> Ground disturbing activity <input type="checkbox"/> Other impact:	Excavation along stream channel and spillway	<input checked="" type="checkbox"/>
		<input type="checkbox"/> Public <input type="checkbox"/> Private		<input type="checkbox"/> Access site <input type="checkbox"/> Project work <input type="checkbox"/> Ground disturbing activity <input type="checkbox"/> Other impact:		<input type="checkbox"/>
		<input type="checkbox"/> Public <input type="checkbox"/> Private		<input type="checkbox"/> Access site <input type="checkbox"/> Project work <input type="checkbox"/> Ground disturbing activity <input type="checkbox"/> Other impact:		<input type="checkbox"/>
		<input type="checkbox"/> Public <input type="checkbox"/> Private		<input type="checkbox"/> Access site <input type="checkbox"/> Project work <input type="checkbox"/> Ground disturbing activity <input type="checkbox"/> Other impact:		<input type="checkbox"/>

4. For **each** property listed in Question #3, attach a [Landowner Agreement Form](#). Attach Landowner Agreement form(s) and label Attachment #2.
- Where a single landowner entity is the owner of record for multiple properties, one form may list the multiple properties owned by that entity.
  - For *public* lands attach the landowner form or other documented authorization from the federal or state government property owner allowing project implementation or documentation that demonstrates such authorization is being pursued.

**VI. Project Specifics**

**Instructions:** Please answer the following questions.

**Project Description, Needs, and Goals**

5. Provide additional information (building on the project summary) to further describe the proposed project and the project goal.

The Goose Lake Watershed is a closed basin where agriculture producers and fish species within this basin are heavily dependent on the season’s snowpack for water. Seasonal flows can be extreme, from flooding in the spring to dry stream beds mid to late summer. Drought is not uncommon east of the Cascades. Goose Lake, lying at the center of the watershed, has completely dried five times in the last century. Yet, those who live and work in this area have adapted to this challenging environment to ensure long term sustainability. Juniper Reservoir was built on Muddy Creek in 1965 to store water and manage irrigation on the 3000-acre Shine Brothers Ranch (previously known as the KV Bar Ranch). The reservoir allows water to be managed throughout the year providing irrigation and stock water to the lower meadow between April and September.

The implementation of fish passage and stream habitat restoration along Muddy Creek is a required action to maintain the water right S-54800 for irrigation purposes. The action to improve this system is tied to Oregon Department of Fish and Wildlife (ODFW) interim assessment of redband trout that evaluates the health of fish populations defined in Oregon’s Native Fish Conservation Policy. The Goose Lake redband trout is one of the primary fish species in Muddy Creek and is considered “at risk.” An at-risk designation is applied when three or fewer criteria are met for the populations in the basin. Muddy Creek redband populations, below the reservoir, fail in distribution, abundance, and productivity.

The Project has been broken into two distinct segments of work due to available funds. The *lower segment* was fully funded in 2019 and will address fish passage and stream habitat improvements along a 1.5 mile stretch below Juniper Reservoir. There are seven sites along the *lower segment* with task objectives that include: stabilizing two earthen diversions within the stream channel and constructing a fish bypass around each diversion to allow passage, installing two headgates, reactivating 950 ft of stream channel, removing failed culvert crossings and replacing with hardened crossings for livestock and farm access, installing grade control structures, willow plants, and finally constructing riparian fencing on each side of the creek. The lower segment is fully permitted, contracted, and due for implementation and completion this year (2021). Riparian fencing will need to be installed last and may need to be constructed in 2022 once stream work is complete.

The *upper segment* was awarded OWEB grant funding in March of 2021. Like many grant programs, match funds are required. This OWRD proposal seeks to secure the remaining funds to implement the *upper segment* work. The upper segment task objectives include two sites where a 75 ft rock ramp fishway will be constructed and an inverted syphon will be installed. The inverted syphon will allow the creek and the irrigation ditch to properly intersect. Once the *upper segment* is fully funded, it will be ready for construction.

The work described will achieve the project goal of maintaining water use for irrigation through restoring fish connectivity and instream habitat in Muddy Creek. The project is a win-win for agriculture and fish species within this watershed. Economic, Ecological, and Social/Cultural Benefits will be obtained through the investments made.

6. Provide a summary of evidence to demonstrate project feasibility. This summary may include the results of a feasibility study. Attach the results of the study or other evidence, as necessary to support the summary.

Project partners were awarded an OWEB Technical Assistance Grant in 2015 which supported survey, design, and cost estimates. This technical assistance provided a foundation to obtain restoration funding in 2019 when OWEB awarded the LCUWC with a Restoration Grant to address the lower segment work. As partners awaited cultural resource clearance and permitting, LCUWC secured funds for the majority of the upper segment work. Below is a list of planning objectives that have been completed:

- ✓ Site Survey (topographic survey, discharge measurement)
- ✓ Data Processing and Surface Model Development (data processing, surface model)
- ✓ Passage Alternative Analysis (Existing Conditions Hydraulic Model and Site Conditions Review, hydrologic analysis, existing condition 1D model, existing condition review)
- ✓ Final Fish Passage and Habitat Restoration Design Plan (Attachment 5)
- ✓ Calculation on fill and removal quantities and final cost estimates
- ✓ Culture Resource Clearance by USFWS
- ✓ ODFW Fish Passage Authorization (Attachment 8)
- ✓ DSL Fill and Removal Permit for Lower Segment (Attachment 8)
- ✓ Army Corp of Engineers Nationwide Permit for Lower and Upper Segment (Attachment 8)
- ✓ Lower Segment work put out for bid and local contractor hired – construction to begin this year.

7. Describe partnerships and collaborative efforts associated with the planning or implementation of this project. Include a description of how parties of diverse interests worked, or will work together to achieve a common goal.

Partners involved with this project include John Shine (Landowner), Lake County Umbrella Watershed Council (Project Coordinator), US Fish and Wildlife Service (Technical Assistance, Funder), Oregon Department of Fish and Wildlife (Technical Assistance) Ducks Unlimited (Funder), OWEB (Funder) and Cascade Stream Solutions (Project Engineer). Collaborative efforts between private, state, and federal organizations have allowed this project to grow from a fish screening requirement to a broader restoration and enhancement project that will ultimately provide for greater benefit to the Goose Lake watershed and long-lasting results for the cattle ranch and native fish.

8. List letters of support (name and/or affiliation of sender is sufficient). Attach copies of the letters to your application.

James Williams – Lake County Commissioner (Attachment 4)  
Cassie Roeder – Partners Biologist – US Fish and Wildlife Service (Attachment 3: Match Letter)  
Chris Cholson – Ducks Unlimited (Attachment 3: Match Letter)

## Project Tasks

9. Identify tasks necessary for the proposed project using the following format and including as many tasks as necessary to implement the project. In the event that your proposed project receives grant funding, the tasks identified will be incorporated into your grant agreement as the "Project Description."

*Note: Project management and administration are common functions within specified project tasks and not a separate project task. All cost match and grant budget funds must apply to the tasks identified below. See the Budget Procedures and Allowable Costs document for more.*

**For each Task address the following:**

Task number. Key Task Title

- Task schedule: The approximate dates during which the key task will be completed.
- Description of key task activities: Include specific details of the task such as task purpose, planned approach, and proposed methods.
- Permits/Regulatory Approvals Required: List any permits or regulatory approvals required to conduct the task. All permits/regulatory approvals identified must also be listed in question 15 of this application.

**Task 1.** LCUWC Project Management and Coordination/Fiscal Administration

- Task schedule: October 2018 – December 2022
- Description of key task activities: Ensure compliance with grant agreement requirements and reporting, ensure permitting is complete, obtain competitive project bids and hire contractors based on qualifications and cost/benefit, create and manage project budget, communicate and coordinate with all project partners and contractors, review and approve invoices and ensure contractors are paid. See the project through from start to finish.
- Permits/Regulatory Approvals Required: None

**Task 2.** Technical Consultation and Project Oversight

- Task schedule: October 2018 – December 2022
- Description of key task activities: Project engineer will oversee construction elements to ensure implementation of project is aligned with design specifications.
- Permits/Regulatory Approvals Required: None

**Task 3.** Contractor mobilization/site prep/cleanup (lower segment)

- Task schedule: July – November 2021
- Description of key task activities: Contractor will mobilize equipment, isolate work areas, coordinate with project engineer on fish salvage, assist with rehab post project.
- Permits/Regulatory Approvals Required: None

**Task 4** Replace upper dam with Rock Ramp Fishway and Hardened Water Crossing (lower segment)

- Task schedule: July – November 2021
- Description of key task activities: Contractor will remove upstream dam and provide a rock ramp/roughened channel fishway along with a hardened water crossing at site.
- Permits/Regulatory Approvals Required: Culture Resources, Fill/Removal Permit (DSL, Army Corp), NEPA (USFWS)

**Task 5.** Re-establish 950 ft of Stream Channel (lower segment)

- Task schedule: July – November 2021
- Description of key task activities: Contractor will excavate to re-establish and reconstruct stream channel - work includes placement of gravel, rock, and woody material.
- Permits/Regulatory Approvals Required: Culture Resources, Fill/Removal Permit (DSL, Army Corp) , NEPA (USFWS)

**Task 6.** Install Six Hardened Water Crossings (lower segment)

- Task schedule: July – November 2021
- Description of key task activities: Contractor will remove an undersized culvert and construct six hardened crossings along the 1.5-mile stream corridor for farm equipment and livestock to access each side of creek in each pasture allotment.
- Permits/Regulatory Approvals Required: Culture Resources, Fill/Removal Permit (DSL, Army Corp) , NEPA (USFWS)

**Task 7.** Reconstruct Downstream Dam and Install By-Pass Channel (lower segment)

- Task schedule: July – November 2021
- Description of key task activities: Contractor will reconstruct and improve downstream dam, create a roughened bypass channel (fish passage) around dam while sealing sand and gravel matrix.
- Permits/Regulatory Approvals Required: Culture Resources, Fill/Removal Permit (DSL, Army Corp), NEPA (USFWS)

**Task 8:** Grade Control Structures (lower segment)

- Task schedule: July – November 2021
- Description of key task activities: Contractor will place large wood, rock and willow at priority areas along the 1.5 mile stretch of creek to stabilize banks.
- Permits/Regulatory Approvals Required: Culture Resources, Fill/Removal Permit (DSL, Army Corp), NEPA (USFWS)

**Task 9:** Riparian Fencing (lower segment)

- Task schedule: June – August 2022

- Description of key task activities: Contractor will install approximately 5800 ft of riparian fencing along both sides of the creek with six water gaps to allow livestock to drink and cross the creek.

- Permits/Regulatory Approvals Required: Culture Resources, Fill/Removal Permit (DSL, Army Corp), NEPA (USFWS)

**Task 10:** Bonding (upper segment)

- Task schedule: June – August 2022

- Description of key task activities: Contractor will be required to be bonded due to the work on the dam.

- Permits/Regulatory Approvals Required: Culture Resources, Fill/Removal Permit (DSL, Army Corp), NEPA (USFWS)

**Task 11:** Mobilization, Site Preparation, and Cleanup (upper segment)

- Task schedule: June – August 2022

- Description of key task activities: Contractor will perform demolition of current spillway, removal and disposal of material, establish staging and stockpile areas.

- Permits/Regulatory Approvals Required: Culture Resources, Fill/Removal Permit (DSL, Army Corp), NEPA (USFWS)

**Task 12.** Construct Spillway Fish Passage (upper segment)

- Task schedule: June – August 2022

- Description of key task activities: Work consists of material procurement and delivery, excavation, rock boulder and engineered streambed placement and material compaction, washing sand and fine gravels into engineered streambed matrix.

- Permits/Regulatory Approvals Required: Culture Resources, Fill/Removal Permit (DSL, Army Corp), Fish Passage Plan Permit (ODFW), NEPA (USFWS)

**Task 13.** Construct Inverted Syphon and Roughened Channel at Creek and Ditch Intersection (upper segment)

- Task schedule: June – August 2022

- Description of key task activities: Work consists of water control and temporary rerouting of irrigation flows, excavation, form work, reinforced bar placement, and concrete installation. Roughened channel work consists of material procurement and delivery, excavation, rock boulder and engineered streambed placement and compaction.

- Permits/Regulatory Approvals Required: Culture Resources, Fill/Removal Permit (DSL, Army Corp), Fish Passage Plan Permit (ODFW), NEPA (USFWS)

**Task 14.** Install Flow Measuring Device

- Task schedule: September 2022

- Description of key task activities: Once the project is complete the LCUWC will work with the local watermaster to ensure a flow measuring device is installed, as necessary.

- Permits/Regulatory Approvals Required: OWRD requirements

*Copy and paste additional tasks as needed.*

10. Project Task Scheduling – Estimated total project duration: 2 (months/years)

Place an “X” in the appropriate column to indicate when each Project Task would take place. Note that successful projects generally do not receive their first reimbursement until late Q1 or early Q2 of the year after application submission. Project tasks listed must match the tasks identified in Question 9.

Key Tasks (Add additional rows as needed)	Grant year				Grant year				Grant year			
	2021				2022				2023			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1.Project Management/Coordination	X	X	X	X	X	X	X	X	X	X	X	X
2.Technical Consultation/Oversight	X	X	X	X	X	X	X	X				
3.Mobilization, Site Prep, and Cleanup			X	X								
4. Replace upper dam Fishway and Hardened Crossing			X	X								
5. Re-establish 950 ft of Stream Channel			X	X								
6.Install Hardened Water Crossings			X	X								
7.Reconstruct Downstream Dam and Install By-Pass Channel			X	X								
8.Grade Control Structures			X	X								
9.Riparian Fencing						X	X					
10.Bonding						X	X					
11.Mobilization, Site Prep, Cleanup (upper segment)												
12.Construct Spillway and Roughened Channel Fish Passage						X	X					
13.Construct Inverted Syphon and Roughened Channel at Creek/Ditch Intersection						X	X					
14.Install Flow Measuring Devise						X	X					
Completion Reports and Monitoring								X	X	X	X	X

11. Describe how you propose to measure and report the water diverted and used from the proposed project. Include a proposed method, timing, frequency, and location of measurement in your proposal. If you have questions please contact the Department for more information. Consider that many forms of measurement will incur additional costs.

*Note: Funded projects are required by statute to “regularly measure and report the water diverted and used from the project” [ORS 541.692(3)].” Common approaches for measuring water diverted and used include totalizing flow meters, stream gages, reservoir staff plates and water level sensors paired with volume-depth curves, and flumes. The Department makes the final determination on the method, timing, frequency, and location of measurement. This requirement applies if there is any diversion of water. Grant/loan funds can be used to pay for measurement and reporting expenses during the life of the grant.*

The LCUWC will work with the local Watermaster (Brian Mayer) to determine the type of flow measuring device best suited for this project. LCUWC will budget for the device and ensure it is properly installed once the project is implemented. Coordination between LCUWC and Watermaster will continue as the proposed method, time, frequency, and location of measurement is determined.

12. Provide suggestions for interim and long-term project performance benchmarks and how those benchmarks would be measured.

In relation to the water supply need this grant addresses – suggested interim and long-term project performance benchmarks may include the following domains: Management Process, Agriculture Production, and Environmental Outcome.

1. Management Process would include the adequacy with which the landowner manages the operation of the irrigation delivery system to satisfy water use for agriculture and water needed for fish passage. Tracking and recording flow velocities during irrigation season with an installed flow measuring device is a suggested strategy in which this benchmark could be measured.
2. Agriculture Production would include data collection over a three-year time period to compare livestock stocking levels. Irrigation delivery improvements at site 4,5, and 7 are intended to help distribute irrigation water more efficiently while improving in-stream environment. It would be expected with a more efficiency system the production level will increase. Annual reporting on production of crop or livestock is a suggested strategy in which this benchmark could be measured.
3. Environmental Outcome may include ODFW’s Native Fish Status Report (<https://www.dfw.state.or.us/fish/ONFSR/report.asp>). Species management unit assessment is provided for Redband trout in the Goose Lake Basin. Assessment data has been provided for Muddy Creek and will be gathered in the future. Pre and Post project performance data can be evaluated through these reports. It is likely this report may have stemmed the requirements for the fish screen and initiation of the project. Photo point monitoring can also be used over the course of time to track change in riparian conditions.

13. Describe any issues, unknowns, or conditions that may affect the completion of the key tasks or project. If applicable, describe any measures planned to mitigate them.

Unknowns that may affect the completion of the key tasks include grant funding. Funding for the *lower segment* of the project is secure and implementation is set to take place between July – November 2021. The *upper segment* of the project is 75% funded. A 25% match requirement needs to be secured to complete the rest of the project.

The LCUWC has successfully completed many grant funded projects and is confident in achieving the goals and objectives set out in this Project.

**Permits and Regulatory Approvals**

14. Identify any water rights needed to implement the proposed project below. Check all of the following that apply and provide the information requested:
- The proposed project requires a new water right or other water right transactions. If checked, list transaction(s) required (e.g., new right, transfer, etc.): \_\_\_\_\_
  - The applicants holds the water right(s) required for the project. If checked, list all such water rights required for the project in the table below, adding rows as needed. See the Application Instructions for further instruction, including how to find water right information.
  - The applicant has legal access to a water right that will required for the project and has been given permission to utilize the water right(s). If checked, list all such water rights required for the project in the table below, adding rows as needed. See the Application Instructions for further guidance, including how to find water right information.

Water Right Number (Include prefixes, if applicable, e.g., <u>G</u> 00010)	Is this an application, permit, certificate, limited license, special or final order, transfer, decree, lease, or claim?	Water Right Amount			Tax Map/Lot IDs within the Place of Use where water will be used to implement the proposed project
		Max Volume (ac-ft)	Max Rate (cfs)	Duty (ac-ft/ac)	
S-54800	PERMIT	303.2		2.5	T39S, R19E, Sec. 7 & 18/2400

15. In the table below, provide a list of any permits and regulatory approvals needed to implement the project and indicate the status of each in the table below. Please submit copies of any secured permits/approvals or describe efforts in securing necessary permits/approvals, including current status. If no permits or regulatory approvals are required, please provide an explanation. *Add rows as needed.*

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Permit/ Regulatory Approval	Status and Efforts To Date
Removal/Fill Permit (lower segment) Dept. of State Lands	Completed
Removal/Fill Permit (upper segment) Dept. of State Lands	In Progress
Removal/Fill Nationwide Permit 27 – Army Corp of Engineers	Completed
Water Rights Permit – OWRD	On Record
NEPA – US Fish and Wildlife Service	Approved
Cultural Clearance – US Fish and Wildlife Service	Cleared

## VII. Public Benefits

**Instructions:** Describe how the project would provide public benefits in each of the three public benefit categories identified below. In your responses, describe current conditions and anticipated project outcomes and benefits and provide evidence to support your claims. Describe how the project outcomes will contribute to each anticipated public benefit. Descriptions should be quantitative when possible. Applications will be scored and ranked solely based on the descriptions of the economic, environmental, and social/cultural public benefits and the likelihood of the project achieving the claimed benefits. More specifically, the evaluation will be based on the change in conditions expected to result from the project as demonstrated in the application.

Please see the Scoring Criteria document available on the [Applications, Forms and Guidance webpage](#), for definitions of each public benefit and a description of how the public benefits will be evaluated. Applications that do not demonstrate public benefit in each of the three categories (economic, environmental, social/cultural) will be deemed incomplete.

Leave blank any public benefits that are not applicable to the proposed project.

### 16. Economic Benefits – ORS 541.673(2)

- a. Does the project create or retain jobs? If so, explain.

The Project involves sixteen jobs that will be retained. Fourteen of the jobs currently exist and depend on conservation projects such as this one to continue sustainability. Three of the jobs listed below are indirectly linked to the completion of the Project as irrigation and recreation stability will be gained. The breakdown of these jobs is listed below:

Lake County Umbrella Watershed Council – Project Manager and Fiscal Administrator- 2 jobs  
Cascade Stream Solutions – Project Engineer – 1 job  
River Design Group – Consultant assisting with permits – 1 job  
Thomas Creek Construction – Construction Contractor for Lower Segment – 3 jobs  
Rock Quarry Company – 1 job  
Riparian Fence Contractor – 2 jobs  
Construction Contractor for the Upper Segment – 3 jobs  
Ranch Irrigator - 1 job  
RV Park Camp Host – 2 jobs

- b. Does the project increase economic activity? If so, explain.

Yes, the project has a direct and immediate impact on economic activity with long term impact seen through the investment in agriculture, fisheries, and recreation. Like many other rural communities, Lake County's economic stability is heavily reliant on natural resources. The largest industries in the county are Agriculture, Forestry, Fishing and Hunting. Agriculture and fishing are directly tied to this Project.

#### Direct and Immediate Economic Impact:

According to a recent report from the Oregon Employment Department, one job in a rural area is equivalent to 54,540 jobs in an urban metro area. If this is an accurate comparison, then 14 jobs in Lakeview would be equivalent to 763,560 jobs in Portland. Employment within the county leads to a higher rate of spending which benefits other businesses who depend on consumer sales. The ripple effect at the local level is substantial and projects such as this hold high value and economic benefits. The funds associated with this project are distributed to seven businesses that specialize in the planning and implementation of restoration work. In the restoration world, one project often leads to another connected project within the watershed and momentum continues.

Direct and immediate economic impact is at the forefront as 2020 brought great economic stress with the shutdowns during the pandemic. Recovery is at hand and projects that are ready to implement (such as this one) can move funds into the economy quickly. Total project cost is \$776,561 with 80 percent of these funds placed directly towards materials and construction. The breakdown and distribution of these funds are as followed: LCUWC Project Management and Administration (8%), Engineering Design and Authorization (10%), Materials (40%), Contractors for the lower segment (19%), Contractors for the upper segment (22%). Materials are sourced locally as much as possible, yet irrigation pipe, headgates, and pre-cast concrete are generally sourced from central Oregon. In all LCUWC projects, the council strives to ensure funds are placed locally and stay in Oregon.

#### Long Term Economic Impact:

There are 36 counties in the state of Oregon that produce cow/calf beef, Lake County ranks number 6 with average of \$46,476 in annual cow/calf sales and \$44,372 in annual hay sales. There is no data to show the specific cow/calf or hay expenses associated with these statistics, other than total agriculture farm expense is \$191,511. (2017 USDA Census of Agriculture County Profile). Expenses are associated with irrigation, hay production, land payments or lease, annual equipment and facilities maintenance, vet/animal care, and transportation. The ag related currency flow from this 3000-acre cattle ranch accounts to the statistics above. Project completion will maintain irrigation needs on the ranch and represent an investment in agriculture job stability and retention, as many businesses throughout the area depend on cattle and hay producers and the sales associated.

Additionally, Fishing and Recreation are likely to account for the largest economic return in the Project investment. A unique feature on the ranch is the Juniper RV Resort located directly west of the Juniper Reservoir with 40 RV sites provided for tourists and recreators, <https://www.junipersrv.com/>. Upper Muddy Creek and Juniper Reservoir have one of the best fisheries in the area as people travel from across the country to stay at the *RV Resort* to camp, recreate, and fish for native redband trout. In 2020, the RV Resort had a total of 2377 bookings. A booking is a reservation to stay at the campground. Each booking reservation averages 2.5 people. This is nearly 6000 people per year, which is twice the population of the community. The Project will connect the upper creek system to the lower creek below the reservoir. Connecting the watershed will provide a greater range and distribution of redband trout. Maintaining a resilient fish population therefore contributes to tourism, as described above, and increased economic activity through lodging, dining, and sporting sales. This effect repeats through the state and regional economy.

Economic stability is always at hand in rural communities as the money that circulates in the marketplace is dependent on many factors. Since 2005, the Lake County Umbrella Watershed Council has seen the economic gains that conservation projects bring to the area. In 2020 the council was able to complete six of its eighteen watershed restoration projects spending a total of \$1.47 million dollars in hiring thirteen contractors. The Project at hand will be completed in December of 2022, circulating nearly \$800,000 through the local economy.

In summary, the Project stands to have direct and immediate impact as it is construction ready. The Project will achieve long-term economic impact as agriculture is sustained with the certainty of irrigation while improved fish habitat and connectivity will result in an increase in recreation and tourism money exchange.

c. Does the project result in increases in efficiency or innovation? If so, explain.

The Project results in an increase in efficiency and innovation. Irrigation efficiency will be seen on the ranch when the stream channel is reconnected, and new head gates are installed at Sites 4 and 7. This will allow for a more efficient distribution of irrigation water and ease of management.

Two fish passage bypass channels will be installed at the earthen diversion dams (Site 3 and 7) within the creek. These objectives will improve distribution of water into the meadow while providing a fish connectivity through the stream system. Fish passage will also be implemented at the reservoir spillway (Site 1). Providing fish passage while sustaining dams and irrigation diversions is an innovative solution to two actions that are often contradictory to one another.

d. Does the project result in enhancement of infrastructure, farmland, public resource lands, industrial lands, commercial lands or lands having other key uses? If so, explain.

The Project will enhance and improve the agriculture farmland, not only by retaining the use of water for irrigation but through the implementation of Task 4 where the stream channel is re-established, and new head gates are installed. This will provide greater control and deliberate delivery and shutoff of water throughout the associated pastureland, in-return the soil will be properly aerated reducing nutrient loss and maximizing crop growth rates.

Additionally, the Project will also enhance and improve the infrastructure of the reservoir spillway. Built in 1965, the impacts of dams on aquatic species was not understood. Today we know that fish need connectivity throughout the watershed to sustain species population. By improving the spillway to the reservoir and allowing fish passage, the original infrastructure will maintain its integrity while providing connectivity from the headwaters to the basin.

e. Does the project enhance economic value associated with tourism or recreational or commercial fishing, with fisheries involving native fish of cultural significance to Indian tribes, or with other economic values resulting from restoring or protecting water instream? If so, explain.

As describe in question 16b, the ranch has an RV Resort just west of the Project. According to a study by *Travel Oregon* - In 2019 outdoor recreation in Lake County supported 1400 jobs

and generated \$32 million in wages and compensation, \$22 million in GDP contributions, and \$6.3 million in state and local taxes. This total comes to \$110 million spent by locals recreationist and tourists.

Juniper RV Resort is a destination for many people each year bringing folks into the area from all over the country. The RV Resort is also a hot spot for local events including weddings, parties, and family reunions. The tourism and recreation on the ranch generate a considerable boost to the local community and economy. Managing for agriculture production and tourism on this property creates an important balance where water instream is just as valuable as water out of stream.

A completed Project will connect the upper 6 miles of Muddy Creek to the lower 6 miles – in return this will support native fish populations throughout the watershed and generate more recreation and tourism to the area.

- f. Does the project result in increases in irrigated land for agriculture? (which may include increasing irrigated acres, agricultural economic value, or productivity of irrigated land) If so, explain.

The Project will certainly sustain if not improve the economic value associated with agriculture. Continued use of water for irrigation associated with the water right permit is the goal of the Project. If the project were not implemented and the water right permit was revoked, the loss would not only be felt through direct agriculture sales but it would be seen through the depreciation in the value of the land.

In reference to land value alone and the USDA 2019 Land Value Summary, the average value of an irrigated acre in Oregon is \$5290 while the average value of an un-irrigation acre is \$2200. Maintaining water use by implementing this project will sustain the land value of this property.

Currently the landowner is issued an annual waiver to continue irrigation until the project is complete. This specific area of irrigated pastureland supports the production of cow/calf pairs throughout growing season and generates a profit annually. Improved water distribution and efficiency would likely produce a more productive crop that will be seen through rate of gain in the calf crop. Failure to complete the project as planned will certainly decrease the productivity and overall agriculture economic value- both in land value and production value.

17. Environmental Benefits – ORS 541.673(3)

- a. Describe any measurable improvements in protected streamflows that are likely to result from the project. First, fill in the table below by, 1) listing the existing water right information of the source water right to be moved, protected, or transferred instream, and 2) naming the legal means proposed to permanently dedicate and protect water instream by the Oregon Water Resources Department. After filling in the table, complete your answer to this question by describing how protected streamflows will result in the environmental public benefits in the box below the table. *Note: The legal protection of water instream MUST be included to receive a score for this public benefit. Projects which permanently dedicate water instream will receive a scoring bump in the environmental public benefit category.*

**Legal Protection of Water Instream** (add rows to table as needed)

Water right permit or certificate number to be used in transaction for instream protection (e.g., irrigation, reservoir, or AR/ASR; S-#####)	Rate(s) (cfs)/duty (ac-ft/ac) or volume (ac-ft) of the contributing water right	Estimated rate (cfs)/duty (ac-ft/ac) or volume (ac-ft) of water to be legally protected instream	Percent (%) of right to be legally protected instream	Transaction for Legal Means of Instream Protection * (chose one)
				<input type="checkbox"/> Instream transfer <input type="checkbox"/> Allocation of Conserved Water** <input type="checkbox"/> Above ground storage release <input type="checkbox"/> Below ground storage release
				<input type="checkbox"/> Instream transfer <input type="checkbox"/> Allocation of Conserved Water** <input type="checkbox"/> Above ground storage release <input type="checkbox"/> Below ground storage release
				<input type="checkbox"/> Instream transfer <input type="checkbox"/> Allocation of Conserved Water** <input type="checkbox"/> Above ground storage release <input type="checkbox"/> Below ground storage release

**\*Attention: If awarded funding, water rights legally protected instream will be identified in the grant agreement.**

**IF USING THE ALLOCATION OF CONSERVED WATER PROGRAM:** Identify the portion of the conserved water that will be permanently dedicated instream and protected by the Oregon Water Resources Department: \_\_\_\_\_ % \*\*

**\*\*Attention: If awarded funding, the legal protection of water instream will be a condition of funding. The grant agreement will identify the percent of conserved water identified above that will be permanently dedicated instream.\*\***

Describe how the protected streamflows accomplish one or more of the following:

- (A) Supports the natural hydrograph;
- (B) Improves floodplain function;
- (C) Supports state- or federally-listed sensitive, threatened or endangered fish species;
- (D) Supports native fish species of cultural importance to Indian tribes; or
- (E) Supports riparian habitat important for wildlife:

The project strives to support the natural hydrograph, floodplain function, native fish species, and riparian habitat - and will be able to accomplish these efforts without additional means of protecting streamflow.

(A) Supports the Natural Hydrograph - Over time the natural meander of Muddy Creek has been re-routed, straightened, filled with sediment in some locations, channel incising in other locations, and has lost its flood plain connection. Task 4 project objective will help to address some of the issues by re-establishing 950 ft of stream channel where high spring flows lose connection with the stream and wash out in several directions across the meadows. These high spring flows are typical of the area during spring runoff. *(See Attachment 7 Figure 6 Video Link and Site Photos)*

(B) Improves the Floodplain Function – As stated above the natural stream flow has been altered and straightening of the channel has caused channel erosion where connection with the flood plain is lost along 1 mile on the *lower segment* of the project. To help improve the function of the floodplain Task 7 Grade- control structures will be installed. Grade control structures will slow water velocities during high flows while slowing the rate of erosion and head cuts. By slowing the velocities, sediment will be able to build the channel back up overtime connecting back to floodplain. *(See Attachment 7 Figure 12 Video Link and Site Photos)*

(C) Supports State Sensitive Fish Species - The project will support the Goose Lake nine native fish species, four of which are listed as “species of concern” by the US Fish and Wildlife Service (USFWS) due to vulnerability within this challenging system. These four species of concern (Goose Lake red band trout, Goose Lake lamprey, Goose Lake sucker, and the California Pit Roach) are adapted to the alkaline lake waters, the ever-fluctuating seasonal flows, and periods of drought. The Goose Lake redband trout is also listed as “sensitive” by the state of Oregon. Historically the lake has been subject to severe drought – going dry five times in the last century. Goose Lake native fish species have been able to survive through drought by seeking refuge in the upstream tributaries, a critical component to survival. The Muddy Creek Water Use and Restoration project will help accomplish an important component of a healthy watershed and that is connectivity along tributary streams providing access for native

species to seek cold water refuge in the upper system and complete their life history while sustaining populations. Tasks 3, 6, and 11 include fish passage objectives.

(E) Supports Riparian Habitat - The current state of the riparian is in very poor condition. As a working cattle ranch, livestock can cross the creek at many different locations while loitering on the banks throughout the growing season. The streambanks have very little vegetation where erosion during high flows has stripped away the chance for vegetation to become established. The project will support riparian habitat through implementing Task 7 - grade control structures, Task 5 - hardened water crossings, and Task 8 - riparian fencing. The combination of each of these key task objectives will exclude the creek from livestock, allowing added willow and grasses to stabilize the banks providing clean and cooling temperatures for aquatic species and provide cover and protection for the local mule deer and bird species. The hardened water crossings will allow livestock to cross and drink at particular locations without impacting the stream. *(See Attachment 7 Figure 12 Video Link and Site Photos)*

b. Does the project result in water conservation? If so, explain.

Water conservation practices are part of the standard operations on the Shine Brothers Ranch, this Project will complement the conservation practices that already take place.

**Current Water Conservation:**

The reservoir was built in the 60's as a practice to store water from snowpack to ensure water availability throughout the year. Fisheries in the reservoir and upper creek help sustain the RV Resort, and while water is important to agriculture production, the landowner maintains and conserves water in the reservoir to sustain fisheries, even on dry years. Another water conservation practice is the re-circulation of irrigation water. Flood irrigation flows across the pastures north east of the creek, water that is not absorbed flows back to catch ditches and is then pumped into a pivot and re-used to irrigate crops. Last, the landowner recently completed a project with NRCS where flood irrigation was improved on the pasture west of the creek. A long series of headgates were installed along the ditch to improve the efficiency of flood irrigation. Efficiencies in irrigation often equate to conservation in water as less water because distribution is reached.

**Anticipated Water Conservation:**

As a result of the Project, water conservation can be anticipated by the implementing two headgates and two fish bypass channels, re-establishing 950 ft of stream channel, and constructing grade control structures instream.

- The headgates will be installed on the lower segment at site 4 and 7 aiding the control and management in delivering irrigation water and shutting the water off. When headgates are closed water is able to stay instream and travel down the fish bypass channel instead of backing out over banks. This is an improved project component that did not previously exist.
- By re-establishing the 950 ft stream channel, water is able to stay instream. Pre-project - higher stream flows would spill out over banks into a marshy meadow that received an excess amount of stream flow. Distribution of flood irrigation can achieve crop production goals while conserving water through these efficiencies in transport.
- Grade control structure will be installed to add sinuosity to the stream channel and support willow growth and fish habitat. Grade control structures will be constructed from juniper logs anchored into the banks slowing stream velocities. The slower

velocities are likely to conserve water in the creek for longer periods while infiltrating into the ground water supply.

- c. Describe the anticipated measurable improvement in groundwater levels that enhances environmental conditions in groundwater restricted areas or other areas.

With the onset of climate change and demand for water management practices to be more efficient than ever before – several studies have produced findings that support flood irrigation as a beneficial way to recharge groundwater levels. One such article describes their findings <https://www.wga.com/blog/farmer-floods-fields-recharge-groundwater-basin>. In 2011 a Californian farmer participated in a pilot project in partnership with Sustainable Conservation. The farmer opened irrigation ditches to flood hundreds of acres of farmland. The results of the study showed an increase in groundwater levels. Another study conducted by Oregon State University's Department of Animal and Rangeland Sciences demonstrated similar response as aquifers in New Mexico were recharged through irrigation percolation <https://ecohydrology.oregonstate.edu/pubs/shallow-aquifer-recharge-irrigation-semiarid-agricultural-valley-new-mexico>.

The goal of the Muddy Creek Irrigation and Stream Restoration Project is to maintain the ability to exercise the water right permit to flood irrigate agriculture land. Through implementation of the project the landowner will be in compliance with ODFW requirements to divert water and therefore flood irrigation will continue to re-charge ground water levels.

- d. Describe if and how the project would create a measurable improvement in the quality of surface water or groundwater.

Ecological benefits of the riparian areas are numerous and have a direct correlation with instream water quality. Riparian areas act as buffers between upland areas and open water, they help filter pollutants such as nutrients and sediment. Healthy riparian vegetation helps to reduce stream bank erosion and maintain stable stream channel geomorphology. Vegetation also provides shade, which works to lower water temperatures. Lower water temperatures support higher dissolved oxygen levels which are important to maintain aquatic life. The combination of task objective along the lower segment of the project will increase the quality of instream water.

Measurable improvement in the quality of instream water will be created through restoring one mile of riparian on both sides of the creek. Riparian fence will be constructed to relieve stream corridor of heavy livestock use for majority of the growing season. Six hardened water crossing will provide livestock areas to cross the creek at certain locations, this will reduce streambank erosion and sediment. Willows and other riparian vegetation will have an opportunity to become well established and secure the streambanks. Grade control structure will also be place along that stream corridor to aid in willow establishment and instream habitat.

The LCUWC does not have the funds to complete a water quality study analysis, however the council works with the local high school field biology class to perform water quality studies in the area. This Project would be an excellent opportunity to obtain measurable pre and post water quality data. The study will be useful to project partners and funds but will be an meaningful education opportunity for students.

- e. Does the project increase ecosystem resiliency to climate change impacts? If so, explain.

While the project was initiated by a fish screen requirement, it has truly unfolded into a project that addresses important concerns that are more profound in the wake of climate change. According to scientist, the predicted impacts of climate change in this area will result in longer and severe periods of drought in some places while other locations will experience larger precipitation events and more severe storms. A resilient ecosystem is able to continue functioning and to recover from disturbance- even as change occur. Below are three identified areas in which the project will increase resiliency to climate change impacts.

**Native Fish Resiliency:**

The Goose Lake Basin native fish species have managed to survive in an environment prone to drought, dry lake beds, and low flowing warm streams. Coupled with modified stream functions and irrigation infrastructure – the challenges to survive are even more difficult. The Project at hand strives to connect a 12-mile stream system providing native fish species access to high elevation cold water refuge for spawning and rearing, which is critical in times of drought. The Project also strives to improve habitat along the creek providing a great range and distribution for fish to seek their needs.

**Migratory Waterfowl Resiliency:**

The Goose Lake Basin is located in The Southern Oregon Northeast California (SONEC) region of the Pacific Flyway. This region is critical habitat for migratory waterfowl. Nearly one third of the continental Northern Pintail population stops in the SONEC every spring to rest, forage, and build body condition as they migrate to their breeding grounds. Since the 1950's, Pintail populations have declined significantly and continue to remain below target levels. In an effort to increase this target species, this strategy will focus on maintaining and enhancing early-spring habitat in the Oregon portion of the SONEC region through practices that improve management ability and reduce conversion to other land uses. This habitat is predominately found on privately owned, surface-irrigated agricultural fields used for pasture or grass hay production. A completed project will ensure surface irrigated ag land stays in production and provide habitat to migratory waterfowl.

**Agriculture Resiliency:**

This project already contains a critical component to agriculture resiliency and that is the reservoir built in 1965. Due to the occurrence of drought in the Goose Lake Basin, agriculture producers realized water storage is a necessary component in maintaining pasture and crops during late season dry years. This project will maintain the integrity of the reservoir by allowing flood irrigation to continue downstream as it has for the last four decades.

The project will result in an interesting ecosystem dynamic where fish connectivity, irrigated ag land, and migratory waterfowl habitat is mitigated to increase the resiliency to climate change impacts.

- f. Does the project result in improvements that address one or more limiting ecological factors in the project watershed? If so, explain.

The LCUWC has developed an "Action Plan" that can be found on our website: [Documents | Lake County Umbrella Watershed Council \(lakecountywsc.com\)](#). The LCUWC "Action Plan"

is based on variety of watershed assessments, stream reconnaissance plans, and regional and state documents. The key findings and recommendations have been compiled providing the council with a list of ten limiting factors to be prioritized and addressed in the Goose Lake Basin. The Project at hand addresses five of these limiting factors listed below. Under each limiting factor there is an explanation on how specific task objectives will address the limiting factor associated.

1. Historical stream modifications and associated bank instability
  - Through grade control structures, willow plantings, and riparian fence the project looks to remedy bank stability and restore stream hydrology and function.
2. Water quality
  - Riparian improvement as stated above will assist in the filtration of pollutants supporting better water quality.
3. Fish passage barriers, diminished connectivity, altered habitat, and fish entrapment
  - Constructing two fish bypass channels and a roughened channel fishway at the spillway the project will address fish passage barriers and diminished connectivity.
4. Riparian areas
  - Riparian fence will reduce heavy livestock use along the riparian allowing it to function for habitat and water filtration.
5. Wildlife
  - Continue irrigation on pasture meadows will provide migratory waterfowl habitat.

18. Social/Cultural Benefits – ORS 541.673(4)

- a. Does the project promote public health and safety and of local food systems? If so, explain.

Public Health and Safety is generally defined as the control of hazards that could arise that would impair the health and well-being of the public. Linking this definition to the Project at hand, water quality is a potential hazard that will be improved that otherwise could impact the health and safety of the public and indirectly impact the local food system.

The Project will implement riparian fence along a one-mile stretch of Muddy Creek. To compliment the riparian fence efforts, six hardened water crossing will be installed to allow livestock to cross the creek. Grade control structures and willow plantings will also be placed. These task objectives will restore the riparian on both side of the creek. Healthy riparian areas filter toxins and sediment from the creek and provide shade. Shade along the creek supports cooler water temperatures and high dissolved oxygen levels.

Water quality improvements associated with this Project directly affect the health of fish, wildlife, and livestock – all of which are part of the local food system.

- b. Does the project result in measurable improvements in conditions for members of minority or low-income communities, economically distressed rural communities, tribal communities or other communities traditionally underrepresented in public processes? If so, explain.

Lake County covers 8,138 square miles with a population of 7,869 people – demonstrating a rural area with low population density. According to the United States Census Bureau from 2015- 2019 the medium household income is \$37,898 and the per capita income in the last 12

months is \$24,241. 17% of the population is considered poverty. 51% of the population had a household income less than \$40K/year which would be categorized as low-income. According to this data, a Lake County project such as this is within a low-income community that at times is economically distressed.

A feature that has help sustain the economics of this rural community has been a state supported minimum security correction facility. The facility employees 108 people whose children make up 12% of the school districts population. In 2022 the facility is planned for closure which will a devastating impact on the community. With the reduction of students in the district, nine school employees would also need to seek work elsewhere. Local businesses will surely feel the impacts as well.

While the scope of the Project is narrow, nearly \$800,000 in this rural area will likely produce measurable improvements short term and through this difficult transition. It is uncertain how the area will rebound, yet the LCUWC is optimistic that continued conservation projects such as this one will continue to support jobs and businesses in this rural community.

c. Does the project promote recreation and scenic values? If so, explain.

As stated in question 16e, the property has an RV Resort located directly west of the Juniper Reservoir with 40 RV sites provided for travelers, tourists, and recreators. The RV Resort offers their guests opportunity to fish the creek and the reservoir. Juniper RV Resort is a destination for many people each year bringing folks into the area from all over the country. Hiking, Biking, wildflowers and bird watching is also advertised as a recreational activity while guests stay. The RV Resort is also a hot spot for local events.

*“Junipers Reservoir RV Resort was created approximately 30 years ago by its original owners, Chuck and Treva Kelley. The Kelley’s wanted to share the beauty of the KV Bar Ranch by providing a peaceful RV park with a view of Junipers Reservoir. The RV resort sits at the end of a one mile gravel driveway, on the edge of a juniper forest overlooking the 175 acre Junipers Reservoir and its surrounding meadows. Before the RV Park was created, Junipers Reservoir was operated for many years as a stocked trout fishing reservoir. Over the years, improvements were made to Muddy Creek, which delivers water from snow melt in the mountains to Junipers Reservoir. As a result, trout spawning habitat has improved and the reservoir no longer needs to be stocked in order to provide excellent fishing year after year. A large lawn and cedar buildings sit at the center of the oval shaped RV park, with the generously sized camping sites angled along the outside edge to provide the best views. The resort boasts free fishing in the reservoir for trout, a fish cleaning sink, hiking and biking trails, rock-hounding, bird watching, wildlife viewing, horseshoes, and volleyball. The view from the open air pavilion is spectacular!” – www.junipersrv.com*

The Project will surely add to the recreation and scenic value that already exists as the Project results in fish resiliency and irrigated wet meadows that support bird and wildlife habitat.

d. Does this project contribute to the body of scientific data publicly available in this state? If so, explain.

The Oregon Department of Fish and Wildlife compile Status and Distribution Reports specifically on Native Fishes in the Goose Lake Basin. This document is made public online at: <https://nrimp.dfw.state.or.us/CRL/reports/Info/2008-02.pdf>

According to this document, Goose Lake red band trout showed zero presence below the reservoir, but did demonstrate populations existing above the reservoir – clearly identifying a disconnect in the watershed. The report also shows data gathered on the other native fish species in the Goose Lake Basin:

Goose Lake sucker - no presence in Muddy Creek  
Goose Lake Tui Chub – no presence in Muddy Creek  
Pit Roach – Presence below the reservoir only  
Speckled dace – Presence below the reservoir  
Pit Sculpin – no presence in Muddy Creek  
Lamprey – Presence above the reservoir only

ODFW will continue to monitor and report on the population presence of natives in Muddy Creek even after implementation of the project. This work will contribute to a body of scientific data available in the state and even demonstrate project effectiveness.

- e. Does this project promote state or local priorities, including but not limited to the restoration and protection of native fish species of cultural significance to Indian tribes? If so, explain.

At the state level this project promotes “The Oregon Plan for Salmon and Watersheds.” The Plan’s mission is to restore native fish populations and aquatic systems that support productive and sustainable levels that will provide substantial environmental, cultural, and economic benefits. Three of the 4 elements of the plan are incorporated in this project which include: voluntary restoration actions by private landowners, coordination with state and federal agencies, and monitoring watershed health.

At the local level this project addresses “The Goose Lake Fishes Conservation Strategy Plan” drafted in 1995 and “The Goose Lake Tributaries Reconnaissance and Fish Passage Plan” drafted in 2017. “The Goose Lake Fishes Conservation Strategy Plan” calls for recovery of all native fish in response to severe drought and habitat degradation. The strategy outlined desired future conditions for the Goose Lake Watershed (GLFWG 1995) which were defined as:

1. Dynamic and resilient aquatic habitat
2. Habitat that is characterized by excellent water quality and characteristics similar to those in a healthy, unimpacted watershed ecosystems
3. Native fish that are naturally produced and exist at levels near the potential productive capability .

The “Goose Lake Tributaries Reconnaissance and Fish Passage Plan” states that Goose Lake redband trout is currently considered “vulnerable” with an interim assessment of “at risk” (ODFW’s 2005 Oregon Native Fish Status Report Volume II). The populations found in Muddy Creek meet less than 50% of the criteria used to determine population health. The proposed treatment plan for Muddy Creek suggests fish passage solution to be evaluated to provide passage past the dam.

- f. Does this project promote collaborative basin planning efforts, including but not limited to efforts under Oregon’s Integrated Water Resources Strategy? If so, explain.

Project partners have planning this project since 2015. In the last six years there has been a great deal collaborative effort that has been put forth that align with the Oregon's Integrated Water Resource Strategy. The objectives of the strategy are listed below. A check has been placed next to each recommended action identified in the strategy that project partners have and will accomplish through the implementation and completion of the Muddy Creek Water Use and Stream Restoration Project.

1. Understanding Water Resource Needs
  - ✓ Coordinate inter-agency data collection, processing, and use in decision-making.
2. Understanding Instream and Out of Stream Needs
  - ✓ Improve water-use measurement & reporting
  - ✓ Determine flows needed (quality & quantity) to support instream needs
3. Understanding the coming pressure that affect our needs and supplies
  - ✓ Assist with climate change adaptation & resiliency strategies
  - ✓ Plan and prepare for drought resiliency
  - ✓ Improve state agency coordination
  - ✓ Develop and upgrade water and wastewater infrastructure
  - ✓ Promote community education and training opportunities
4. Meet Oregon's instream and out of stream needs
  - ✓ Coordinate implementation of existing natural resource plans
  - ✓ Improve water-use efficiency and water conservation
  - ✓ Reach environmental outcomes with non-regulatory alternatives
  - ✓ Improve watershed health, resiliency, and capacity for natural storage
  - ✓ Protect and restore instream habitat and habitat access for fish and wildlife
  - ✓ Invest in implementation of water resources projects

The LCUWC values our partnerships and understands that watershed health and water use objectives are met through the collaborative efforts of private landowners and local, state, and federal agencies. The Muddy Creek Water Use and Stream Restoration Project is an investment towards Oregon agriculture and native redband trout with complements to Lake County recreation and tourism and wet meadow migratory bird habitat.

Please visit the LCUWC webpage at <http://lakecountywsc.com> to learn more about our organization, our partners, and the work we do to promote cooperative watershed health and implement water resource strategies throughout Lake County.

## VIII. Project Budget

**Instructions:** Please answer the following questions about the proposed project budget using the tables provided. All Grant and Other Funds must be allowable costs as described in the Department's Grant Budget Procedures and Allowable Costs document.

19. Please provide an estimated line item budget for the proposed project. Examples include: direct project specific costs, such as in-house staff salary, contractual services, travel and administrative costs. See the Budget Procedures and Allowable Costs on the OWRD [Applications, Forms, and Guidance webpage](#) for further guidance.

<b>OVERALL PROJECT BUDGET Line Items</b>	<b>Number of Units* (e.g. # of Hours)</b>	<b>Unit Cost (e.g. hourly rate)</b>	<b>In-Kind Match</b>	<b>Cash Match Funds</b>	<b>OWRD Grant Funds</b>	<b>Total Cost</b>
<b>Materials</b>						
Engineered Streambed Material	1676 tons	55		92,200		92,200
Roughness Element	865.4 tons	65		56,250		56,250
Boulders	913 tons	75		68,500		68,500
Concrete	15 cy	1500		22,500		22,500
Fill Material	380 cy	50		19,000		19,000
Slide ditch gate	2 ea	50		100		100
8'Pipe	40 ft	5		200		200
Briggs 4x 4 rice box	2 eac	5000		10,000		10,000
Rock armor/scour protection	40 tons	55		2200		2200
Inverted Syphon	1 ea	18,165		18,165		18,165
Sand and Gravel	80 tons	25		2000		2000
Juniper Logs & Rootwads	40 ea	55		2200		2200
Willows	50 cy	50		2500		2500
Fence Materials	11,600 ft	1.25		14,500		14,500
Flow Measuring Device	1 ea	1500		1500		1500
<b>Contractual/Consulting</b>						
LCUWC Project Management	236.5 hrs	30		7096		7096
Technical Consultation, Permitting, Construction Oversight (Engineers)	650 hrs	125		81,285		81,285
Construction Bond	1 ea	9300		9300		9300
Construction Contractor (Lower Segment) Mobilization, Labor, Equipment				133,728		133,728
Construction Contractor (Upper Segment) Mobilization, Labor and Equipment	1 each	297172		78,444	85,000	163,444
Fencing Contractor Labor	11,600 ft	1		11,600		11,600
<b>Staff Salary/Benefits</b>						
<b>Equipment (must be approved)</b>						
<b>Supplies</b>						
<b>Other:</b>						
OWEB Grant Administration				49,793		49,793
Administrative Costs**	10%				8500	8500
<b>Total</b>				<b>683,061</b>	<b>93,500</b>	<b>776,561</b>

\* The "Unit" should be per "hour" or "day" – not per "project" or "contract." Units x Unit Costs = Total Cost

\*\* Administrative Costs may not exceed 10% of the total funding requested from the Department

20. Identify the budget for each key task below. Key tasks identified below should be the same as the key tasks identified in Questions 9 and 10.

Key Tasks	In-Kind Match	Cash Match Funds	OWRD Grant Funds	Total Cost
<i>Task 1: Project Management and Fiscal Administration</i>		56,889	8500	65,389
<i>Task 2: Technical Consult and Oversight (Engineer)</i>		81,285		81,285
<i>Task 3: Mobilization, Site Prep/Cleanup (lower segment)</i>		28,000		28,000
<i>Task 4: Rock ramp fishway and hardened crossing</i>		63,696		63,696
<i>Task 5: Reestablish stream channel</i>		29,600		29,600
<i>Task 6: Install six hardened water crossings</i>		68,065		68,065
<i>Task 7: Reconstruct Downstream Dam and Fish Bypass</i>		82,957		82,957
<i>Task 8: Grade Control Structures</i>		12,669		12,669
<i>Task 9: Riparian Fence</i>		26,100		26,100
<i>Task 10: Contractor Bond (upper segment)</i>		9300		9300
<i>Task 11: Mobilization, Site Prep/Cleanup (upper segment)</i>		18,700		18,700
<i>Task 12: Roughened Channel Spillway Fish Passage</i>		113,700	85000	198,700
<i>Task 13: Install Inverted Syphon and Roughened Channel</i>		90,600		90,600
<i>Task 14: Install Flow Measuring Device</i>		1500		1500
<b>Total</b>		<b>683,061</b>	<b>93,500</b>	<b>776,561</b>

## IX. Match Funding

**Instructions:** Fill out the table below and attach the appropriate documentation for both secured and pending match (add rows as needed). Label the documentation as Attachment #3. Applications requesting grant funds must demonstrate match that at a minimum equals 25% of total project cost.

For secured funding, you must attach a letter of support from the match funding source that:

- Specifies the dollar amount identified for this project,
- Equals the dollar amount shown in the “Amount/Dollar Value” column in the table below, and
- Describes the work to be accomplished through the match.

For pending resources, you must attach other written documentation showing a request for the matching funds. Documentation must:

- Include the project name,
- Note the date on which a future funding application will be submitted,
- Identify the funding program from which funds are pending, and
- Provide evidence that the project is eligible for the funding program identified.

Match Funding Source (if in-kind, briefly describe the nature of the contribution)	Type (✓ only One)	Status (✓ only One)	Amount/ Dollar Value	Date Match Funds Available (Month/Year)
Oregon Watershed Enhancement Board	<input checked="" type="checkbox"/> cash <input type="checkbox"/> in-kind	<input checked="" type="checkbox"/> secured <input type="checkbox"/> pending	238,341	10/2018
Oregon Watershed Enhancement Board	<input checked="" type="checkbox"/> cash <input type="checkbox"/> in-kind	<input checked="" type="checkbox"/> secured <input type="checkbox"/> pending	329,920	3/2021
US Fish and Wildlife Service	<input checked="" type="checkbox"/> cash <input type="checkbox"/> in-kind	<input checked="" type="checkbox"/> secured <input type="checkbox"/> pending	49,900	1/2019
Ducks Unlimited	<input checked="" type="checkbox"/> cash <input type="checkbox"/> in-kind	<input checked="" type="checkbox"/> secured <input type="checkbox"/> pending	65,000	1/2019
<b>Total of Match Funds</b>			= \$683,161	

### X. Storage-Specific Project Requirements (if not a storage project skip this section)

**Instructions:** If your proposal is for a storage project that will divert water under an existing or new storage water right or limited license, answer questions 21 through 23 in this section. If your proposal is for above-ground storage, also answer question 24 through 26. All other projects can skip this section.

21. Identify Storage Project Type:      Above-Ground      Below-Ground
22. Indicate the capacity of the storage project and any new-developed water below:
- What will be the *total* capacity of the storage project in acre-feet after completion? \_\_\_\_\_
  - What will be the volume of the *newly-developed* water in acre-feet? \_\_\_\_\_
23. Answer the following “Yes/No” questions about the storage project.
- Will the project divert more than 500 acre-feet of surface water annually?   Yes        No
  - Will the project impound surface water on a perennial stream?   Yes        No
  - Will the project divert water from a stream that supports sensitive, threatened or endangered species?       Yes        No

If you answered “yes” to **any** of the questions above, (a), (b), or (c), the project will need a *Seasonally Varying Flow (SVF) Prescription*, determining the duration, timing, frequency and volume of flows (including ecological base flow), necessary for protection and maintenance of biological, ecological, and physical functions outside of the irrigation season. The Department will establish the SVF prescription after funding is awarded, for more information about this requirement, please contact Technical Coordinator, Rachel LovellFord at 503-986-0941.

24. **Above-Ground Storage Only:** If you answered “yes” to Question 23 (a), (b), or (c) above, your proposed project is above-ground storage, **and** you are requesting **grant** funding then a **minimum of 25%** of the newly developed water must be dedicated to instream use. This is separate from the SVF Prescription. ***If awarded funding, the percentage identified below will be a condition of funding.***

*Note: Any storage project which permanently dedicates water instream will receive a scoring bump in the environmental public benefit category.*

Please identify the percentage of stored water to be dedicated to instream use. \_\_\_\_\_%

25. **Above-Ground Storage Only:** Into which stream(s) will the project release water? \_\_\_\_\_

26. **Above-Ground Storage Only:** How does the project control the outflow from the reservoir? Describe:

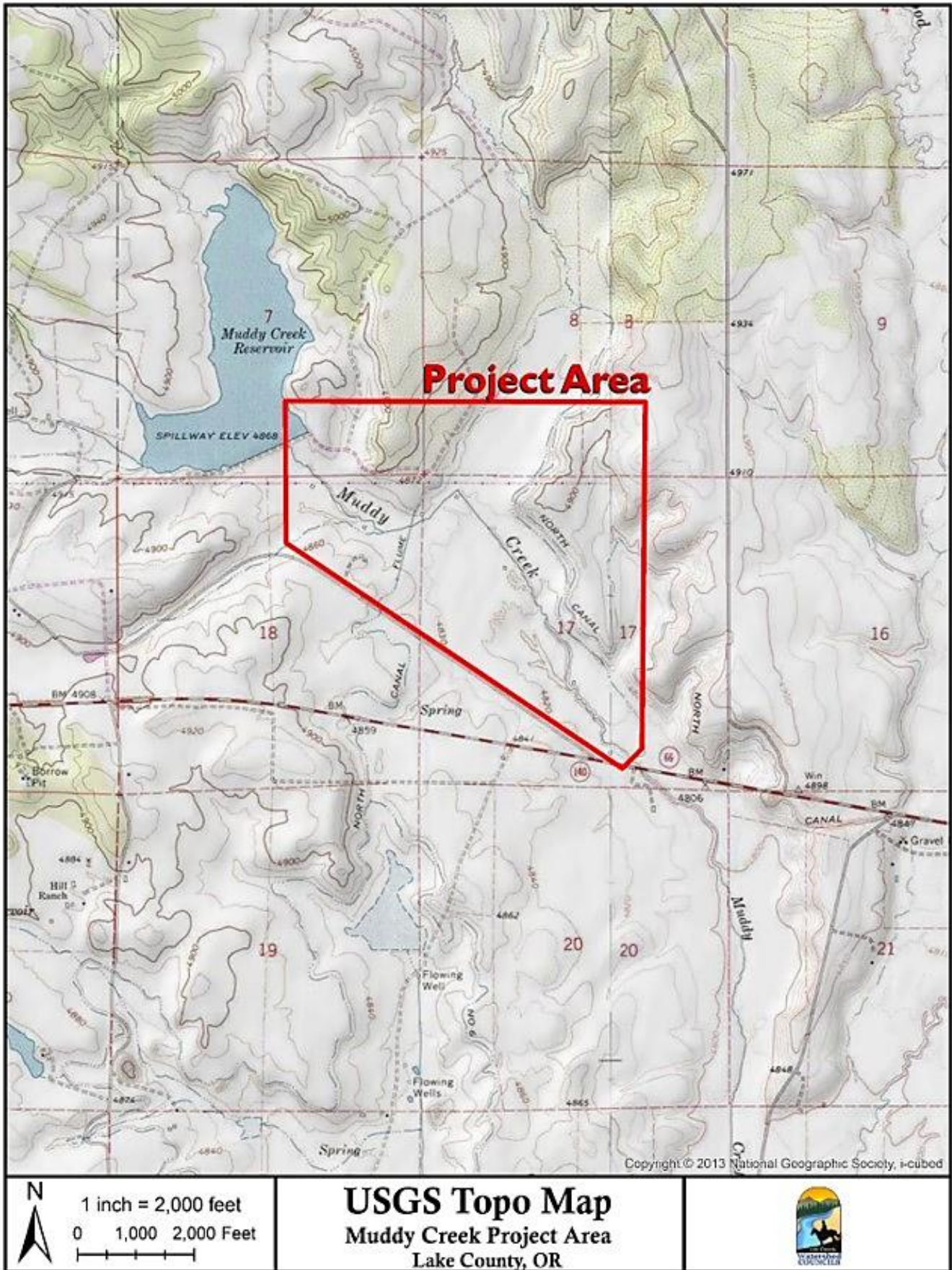
- a. What infrastructure governs changes to reservoir outflow rates?
- b. Whether changes to the outflow rate are made automatically or by hand.
- c. If water is released into more than one stream, what controls the rate of release and how much water goes to which stream?
- d. What are minimum and maximum release rates to each water source?
- e. Any other factors that limit the rate at which water is released from the reservoir.

--

# Attachment 1

## Site Maps

Attachment #1: Site Maps

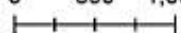


Junipers  
Reservoir



**Legend**

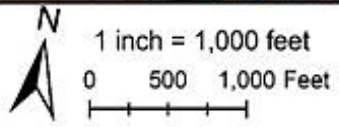
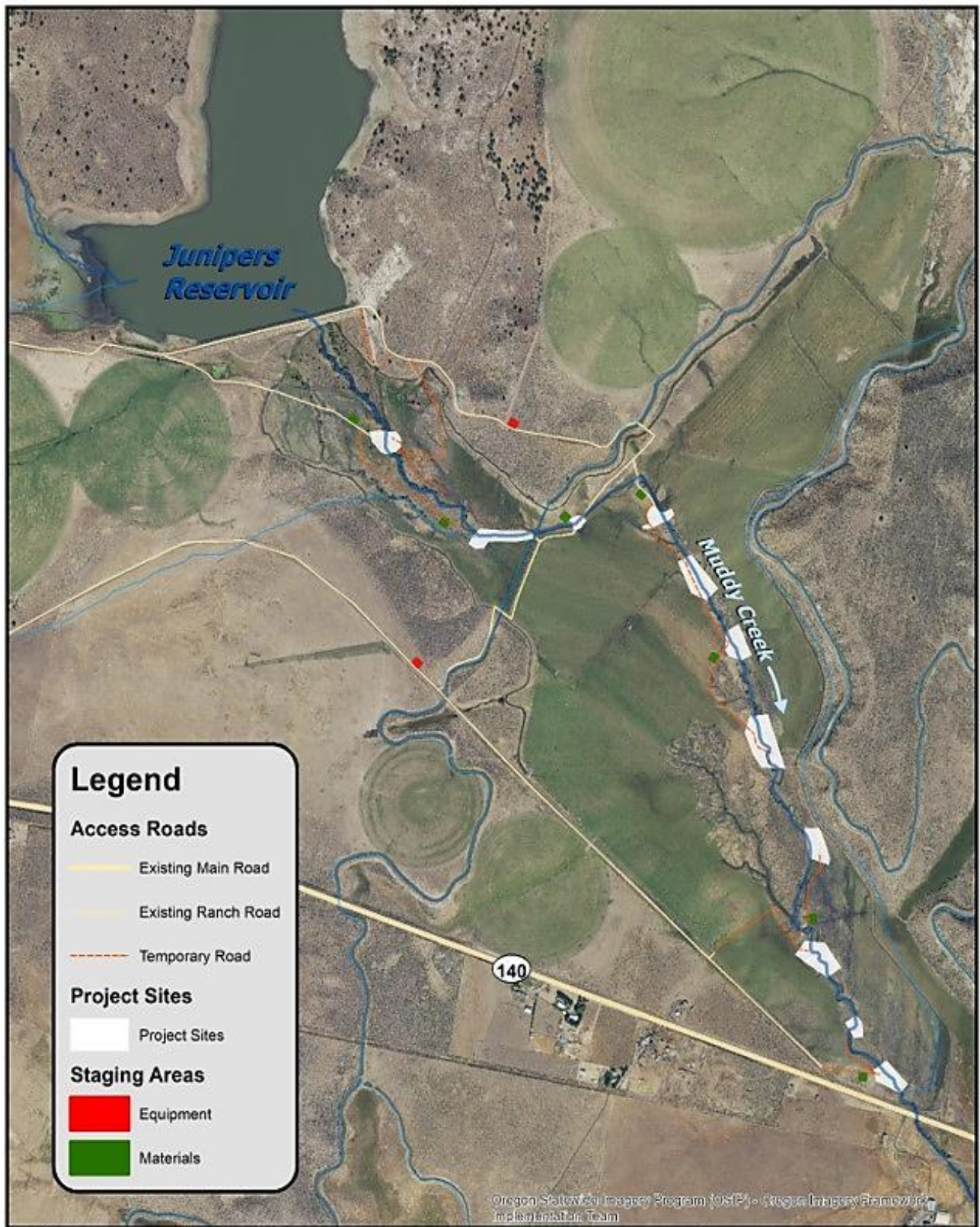
-  Project Area
-  Taxlots

N  
1 inch = 1,000 feet  
0 500 1,000 Feet  


**Taxlot Map - 39S 19E**  
Muddy Creek Project Area  
Lake County, OR



Oregon Statewide Imagery Program (OSIP) - Oregon Imagery Framework  
Implementation Team

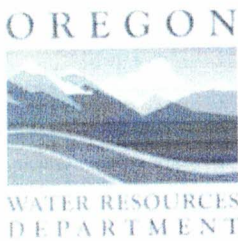


**2017 NAIP Imagery**  
**Muddy Creek Project Area**  
 Lake County, OR



# Attachment 2

## Property Access Authorization



# Water Project Grants and Loans

## Landowner Agreement

*Instructions to Applicants: Work with landowners to complete this form for all properties on which the proposed project would occur. Submit this completed form as part of your grant/loan application. For questions contact WRD DL waterprojects@oregon.gov.*

### Project and Applicant Information

Project Name: Muddy Creek Water Use and Restoration Project

Funding Applicant: Lake County Umbrella Watershed Council Co-Applicant (if applicable): \_\_\_\_\_

Funding Applicant Contact Information:

Name: Brandi Neider

Phone Number: 541-219-0493

Email Address: bdneider23@gmail.com

Co-Applicant Contact Information:

Name: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Email Address: \_\_\_\_\_

### Landowner Information

Landowner(s) Name: Shine Brothers Ranches LLC (John Shine)

Landowner Authorized Representative: John Shine

Landowner Contact Information (or Authorized Representative)

Address: PO Box 590

(required) Lakeview, OR 97630

(optional) Phone Number: 541-219-1396

(optional) Email Address: \_\_\_\_\_

### Property Information

List each property owned by the above-mentioned Landowner on which the project would occur:

County	Tax map	Lot number
<u>Lake</u>	<u>39S19E000002400</u>	<u>2400</u>

### Landowner Acknowledgement

1. John Shine is/are the legal owner(s) (the Landowner) of the above described property (the Property).
2. I am authorized to act on behalf of the Landowner.
3. I am aware of and agree to the above-mentioned proposed project and grant permission for the Applicant, and the Applicant's agents, to conduct the following activities on the Property. (List activities below)

a. Access the property with prior communication to plan and implement project objectives to restore fish passage and habitat along stream corridor.

b. Access the property with prior communication to capture pre and post photo monitoring.

c.

d.

4. I am aware that monitoring information related to the Project is a matter of public record.
5. I certify that the above-mentioned information is true and accurate, I am aware of and agree to the proposed work, and I am authorized to sign as the Landowner or Authorized Representative.

Signature of Landowner or Authorized Representative: \_\_\_\_\_

Date: 5/13/2020 Print Name: John Shine

# Attachment 3

## Documentation of Matching Funds

## OREGON WATERSHED ENHANCEMENT BOARD RESTORATION GRANT AGREEMENT

**Grantee:** Lake County Umbrella Watershed Cour      **Grant Number:** 219-4005-16400  
**Grant Name:** Muddy Creek Fish Passage and Habitat Enhancement Project  
**Award Amount:** \$238,341.00      **Project Completion Date:** 12/1/2021  
**Award Date:** 10/19/2018      **Progress Report Date:** 10/31/2019  
**Post-Implementation Status Reporting Period:** 5 years (See Exhibit D)

**Post-Implementation Status Reporting Schedule:**

Three reports due in years 1, 3 and 5 following approval Status Reporting date of the Project Completion Report (PCR).

**Grantee**

Lake County Umbrella Watershed Council  
17482 Tunnel Hill Rd  
Lakeview, OR 97630  
**Phone:** (541) 219-0830  
**Email:** schreder@centurytel.net  
**Contact:** Marci Schreder

**Project Manager for the Grantee**

Marci Schreder  
N/A  
17482 Tunnel Hill Rd.  
Lakeview, OR 97630  
**Phone:** (541) 219-0820  
**Email:** schreder@centurytel.net

**Payee**

Lake County Umbrella Watershed Council  
Colleen Withers  
17482 Tunnel Hill Rd  
Lakeview, OR 97630  
**Phone:** (541) 610-3134  
**Email:** lakecountywscedu@yahoo.com

**Project Manager for the Board**

Oregon Watershed Enhancement Board  
Greg Ciannella  
231 SW Scalehouse Loop Ste 103  
Bend, OR 97702  
**Phone:** (541) 306-6570  
**Email:** greg.s.ciannella@oregon.gov

**Fund Source:**

This grant includes \$238,341.00 of either Oregon Lottery funds or another state fund source and must comply with the requirements defined in Article XV, section 4b(2) of the Oregon Constitution.

**This Grant Agreement is between the Oregon Watershed Enhancement Board, hereafter called "Board," and the Grantee as identified above, in consideration of the mutual covenants contained herein. This Agreement consists of the following, in descending order of precedence: modifications to this Agreement contained in Exhibit B, if applicable, this Agreement less all exhibits attached, Exhibits I (Grant Application selected for funding by the Board), B (Conditions of Agreement), A (Schedule for Release of Funds), C (Project Completion Report Requirements), D (Post-Implementation Status Report Requirements), E (Permits and Licenses), F (Cooperative/Landowner Agreement(s)), G (Oregon Prevailing Wage Rate Law), and H (Insurance Requirements).**

## OREGON WATERSHED ENHANCEMENT BOARD RESTORATION GRANT AGREEMENT

**Grantee:** Lake County Umbrella Watershed Council      **Grant Number:** 221-4001-18983  
**Grant Name:** Muddy Creek Fish Passage (Phase II)  
**Award Amount:** \$329,920.00      **Project Completion Date:** 11/10/2023  
**Award Date:** 3/9/2021  
**Progress Report Date(s):** 11/15/2021

**Post-Implementation Status Reporting Period:** 3 years (See Exhibit D)

**Post-Implementation Status Report (PISR) Schedule:**

Two PISRs will be required. Due Dates will be August 31 in one year and August 31 in three years following an approved Project Completion Report.

**Grantee**

Lake County Umbrella Watershed Council  
38374 Withers Ranch Rd  
Paisley, OR 97636  
**Phone:** (541) 610-3134  
**Email:** slidemountainsolutions@gmail.com  
**Contact:** Colleen Withers

**Project Manager for the Grantee**

Brandi Neider  
N/A  
PO Box 848  
Lakeview, OR 97630  
**Phone:** 5412190493  
**Email:** bdneider23@gmail.com

**Payee**

Lake County Umbrella Watershed Council  
Colleen Withers  
38374 Withers Ranch Rd  
Paisley, OR 97636  
**Phone:** (541) 610-3134  
**Email:** slidemountainsolutions@gmail.com

**Project Manager for the Board**

Oregon Watershed Enhancement Board  
Greg Ciannella  
775 Summer St NE Ste 360  
Salem, OR 97301-1290  
**Phone:** (971) 345-7015  
**Email:** greg.s.ciannella@oregon.gov

**Fund Source:**

This grant includes \$329,920.00 of either Oregon Lottery funds or another state fund source and must comply with the requirements defined in Article XV, section 4b(2) of the Oregon Constitution.

**This Grant Agreement is between the Oregon Watershed Enhancement Board, hereafter called "Board," and the Grantee as identified above, in consideration of the mutual covenants contained herein. This Agreement consists of the following, in descending order of precedence: modifications to this Agreement contained in Exhibit B, if applicable, this Agreement less all exhibits attached, Exhibits I (Grant Application selected for funding by the Board), B (Conditions of Agreement), A (Schedule for Release of Funds), C (Project Completion Report Requirements), D (Post-Implementation Status Report Requirements), E (Permits and Licenses), F (Cooperative/Landowner Agreement(s)), G (Oregon Prevailing Wage Rate Law), and H (Insurance Requirements).**



# United States Department of the Interior Fish and Wildlife Service



**Modoc National Wildlife Refuge**  
P.O. box 1610  
5364 Co. Rd. 115  
Alturas, CA 96101  
(530)233-3572

April 20, 2021

Oregon Water Resource Department  
Attn: Grant Program  
725 Summer Street NE Suite A  
Salem, OR 97301

Subject: KV Bar Ranch/ Muddy Creek Fish Passage Stream Restoration Project

On behalf of USFWS, Partners for Fish and Wildlife Program, I would like to express our strong support of the Lake County Umbrella Watershed Councils (LCUWC) in their efforts to obtain a Water Resource Department Grant for the KV Bar Ranch/ Muddy Creek Fish Passage Stream Restoration Project. This project addresses the fish passage issues of the Muddy Creek downstream of Juniper Reservoir.

This project will provide fish passage, feeding, and refugia habitat for Goose Lake fishes, including red band trout. A primary goal of this project is to ensure that fishes can move both into and out of Juniper Reservoir as there is currently an isolated population of fish above the reservoir dam. Additionally, this project will secure the landowners' irrigation source, and rights by updating his current structures to meet the OR Dept. of Fish and Wildlife diversion requirements. LCUWC has been working with the Partners program, and Oregon Department of Fish and Wildlife to plan and design the habitat restoration and enhancement elements of the project.

As a partner with the Council, the USFWS Partners for Fish and Wildlife Program (Partners Program) is in full support of the Council's efforts in restoring Muddy Creek by providing technical assistance during the planning and implementation phase of this project. To date, this technical assistance has resulted in a total of \$10,000 of an in-kind match. Additionally, the Partners Program has already provided \$49,9000 in cash to support the financial needs of the phased project.

Our shared priorities and concern for a broad range of natural resources, wildlife habitats, and working lands for conservation is the foundation for the partnership between the Partners Program and the LCUWC.



*Leader in Wetlands Conservation*

---

Oregon Water Resource Department  
Attn: Grant Program  
725 Summer Street NE Suite A  
Salem, OR 97301

May 27, 2020

To Whom It May Concern:

This letter serves to demonstrate Ducks Unlimited (DU) support and our \$65,000 financial contribution towards the ultimate restoration of the Muddy Creek system on the KV Bar Ranch. In partnership with the Lake County Umbrella Watershed Council, conservation efforts were initiated with the KV Bar Ranch. DU is the world's leading wetland and waterfowl organization. In Lake County, Oregon, we primarily focus on maintaining flood-irrigation on historical wet meadows for the benefits of working ranches and spring staging migratory wetland birds.

Enhancing and refurbishing the spillway and outlets on Juniper Reservoir, restructuring and refurbishing the flood-irrigation infrastructure below Juniper Reservoir, and restoration of the highly degraded stream channel on lower Muddy Creek were identified as the highest priorities. In partnership with the Intermountain West Joint Venture, a Regional Conservation Partnership Program grant was secured and funded the design and installation of the new flood-irrigation infrastructure system in 2018 enhancing more than 50 acres of seasonal wet meadows.

In 2016, DU secured a North American Wetland Conservation Act standard grant with a funding allocation of \$65,000 for the restoration of the lower Muddy Creek stream channel on the KV Bar Ranch. This project generally entails restoring and stabilizing streambanks, channel sinuosity and, reestablishing the stream substrate elevation, all likely benefitting floodplain hydrology and function. This funding remains in place under agreement and will be applied this summer/fall during implementation of that project.

These investments to date are wholly dependent on the functioning integrity of Juniper Reservoir as the source of hydrology and irrigation for lower Muddy Creek and its associated floodplain of critical seasonal wet meadows. Please consider the secured \$65,000 as eligible match for LCUWC's funding request to refurbish the spillway on Juniper Reservoir.

Thank you in advance for your time and consideration. Please feel free to reach out with any questions or needs for additional information.

Respectfully,

Chris Colson  
Regional Biologist  
Ducks Unlimited

The additional support of the Water Resource Department will significantly improve the Counsel's ability to complete the Muddy Creek Restoration project and achieve a tremendous milestone towards our shared goals to restore valuable fish and wildlife habitat and improved water quality within the Goose Lake Basin.

If there are any questions or concerns, please call me at (530) 233-3572.

Sincerely,

*Cassandra Roeder*

Cassie Roeder  
Partners for Fish and Wildlife  
Modoc National Wildlife Refuge

# Attachment 4

## Letters of Support



## Lake County Board of Commissioners

513 Center Street  
Lakeview, Oregon 97630  
(541) 947-6003  
Fax: (541) 947-5775

Barry Shullanberger, Commissioner  
James Williams, Chair  
Mark Albertson, Vice-Chair

April 22, 2021

Oregon Water Resource Department  
Attn: Grant Program  
725 Summer St. NE Suite A  
Salem, OR 97301

Dear Grant Reviewer,

This letter is to demonstrate support of the Lake County Umbrella Watershed Council as they pursue grant funding to implement the Muddy Creek Water Use and Stream Restoration Project. The Council has been successful over the last fifteen years at securing grant funds that support the local economy through implementing conservation projects across the landscape. Each year the council presents to the Lake County Board of Commissioners on economic and ecological progress. Last year alone the council demonstrated the completion of six projects which brought in \$1,474,000 into Lake County. 2020 was a challenging year yet grant funded conservation projects implemented through the LCUWC assisted in sustaining jobs.

Recently, three prisons in the state of Oregon were identified for closure. Lakeview's minimum-security prison is one of them. Closing the prison would mean a direct loss of 108 jobs. The loss of jobs and relocation of families will result in a reduction of 80 students (12%) in the school district. The reduction of student population will cost the district nine educators. These numbers may seem minimal, yet in rural areas a single job is equivalent to 54,540 jobs in an urban area.

This goes to show that an investment made in Lake County will have a tremendous impact as economic sustainability is always at hand. The Muddy Creek Water Use and Stream Restoration Project is also an investment towards agriculture production and native fish populations, both of which hold high importance in our county as water in the high desert is critical for the longevity of both.

I encourage the OWRD grant review team to support the project as it will lead to noticeable economic and ecological benefits in our community. I appreciate your time and consideration, please contact me with questions.

Sincerely,

James Williams  
Lake County Commissioner

# Attachment 5

Engineer

Design Plans

# KV Bar Ranch

## Fish Passage and Habitat Enhancement Project

December 2019

### SHEET INDEX

COVER SHEET	G1	1
CONSTRUCTION ACCESS	G2	2
PROJECT FEATURES LOCATION MAP	G3	3
SITE 1: SPILLWAY AND SITE 2: DITCH PIPE CROSSING DEMOLITION SHEET	SW1	4
SITE 1: SPILLWAY PLAN SHEET	SW2	5
SITE 1: SPILLWAY ROUGHENED CHANNEL CROSS SECTIONS	SW3	6
SITE 1: SPILLWAY PROFILE AND ROUGHENED CHANNEL DETAILS	SW4	7
SITE 1: SPILLWAY WEIR CONCRETE DETAIL	SW5	8
SITE 2: SIPHON AND ROUGHENED CHANNEL PLAN	SH1	9
SITE 2: INVERTED SIPHON CROSSING PLAN AND PROFILE	SH2	10
SITE 2: INVERTED SIPHON CROSSING DETAILS	SH3	11
SITE 3: UPSTREAM DAM RECONSTRUCTION, ROUGHENED CHANNEL, AND HARDENED CROSSING	UD1	12
SITE 3: ROUGHENED CHANNEL PROFILE AND ROUGHENED CHANNEL AND FLOODPLAIN SECTIONS	UD2	13
SITE 3: DAM SECTIONS	UD-3	14
SITE 3: HARDENED CROSSING	UD-4	15
SITE 4 AND SITE 5: BERM RECONSTRUCTION AND CHANNEL EXCAVATION PLAN	BR1	16
SITE 4 AND SITE 5: BERM RECONSTRUCTION AND CHANNEL EXCAVATION PROFILE	BR2	17
SITE 6: ROAD CROSSING	RC1	18
SITE 6: ROAD CROSSING	RC2	19
SITE 7: DOWNSTREAM DAM FISH PASSAGE OVERVIEW PLAN	DD1	20
SITE 7: DOWNSTREAM DAM FISH PASSAGE PLAN	DD2	21
SITE 7: SPILLWAY PROFILE ROUGHENED CHANNEL PROFILE AND DETAILS	DD3	22
SITE 7: SPILLWAY PROFILE ROUGHENED CHANNEL CROSS SECTIONS	DD4	23
SITE 7: DOWNSTREAM DAM RECONSTRUCTION SECTIONS	DD5	24
SITE 7: DOWNSTREAM DAM FISH PASSAGE HARDENED CROSSING	DD6	25
SITE 8: HABITAT ENHANCEMENT AREAS AND HARDENED CROSSING LOCATIONS	HE1	26

### GENERAL NOTES

- TOPOGRAPHY IS BASED ON CASCADE CONDUCTED 2015. CONTRACTOR NOTIFY LCUWC AND CASCADE IF CONTRACTOR NOTES DISCREPANCIES BETWEEN THE PLANS AND THE STREAM BANK.
- VERTICAL AND HORIZONTAL DATUMS ARE BASED ON NAVD88 AND OREGON STATE PLANE, ZONE SOUTH, NAD83
- TOPOGRAPHIC SURVEY WAS CONDUCTED FOR DESIGN PURPOSES AND IS NOT INTENDED TO BE A LAND SURVEY.
- CONTRACTOR SHALL NOTIFY USA NORTH AT 811 OR 1-800-227-2600 OR WWW.USANORTH.ORG TO REQUEST IDENTIFICATION AND LOCATION OF EXISTING UNDERGROUND UTILITIES. CONTRACTOR SHALL CONTACT USA NORTH 2 TO 14 DAYS BEFORE PLANNED EXCAVATION DATE.
- THIS PROJECT IS SUBJECT TO REQUIREMENTS OF PERMITS ISSUED BY VARIOUS REGULATORY AGENCIES. THE CONTRACTOR IS RESPONSIBLE TO UNDERSTAND AND PERFORM ALL WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE PERMITS. PRIOR TO COMMENCING WORK THE CONTRACTOR SHALL COORDINATE WITH THE OWNER'S REPRESENTATIVE TO VERIFY THE MOST RECENT COPY OF ALL APPLICABLE PERMITS ARE INCORPORATED IN TO THE PROJECT CONSTRUCTION DOCUMENTS.
- THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING AN EROSION CONTROL AND POLLUTION PREVENTION PLAN FOR CONSTRUCTION ACTIVITIES. THIS PLAN MUST BE APPROVED BY THE CASCADE PRIOR TO CONSTRUCTION ACTIVITIES COMMENCING FOR THIS PROJECT.
- WHEN CONDITIONS IN THE FIELD DO NOT CONFORM WITH INFORMATION IN THESE PLANS AND/OR WHEN UNUSUAL CIRCUMSTANCES ARISE DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY CONTACT THE CASCADE.
- IN THE EVENT THAT ANY ARCHEOLOGICAL ARTIFACTS ARE UNCOVERED DURING CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL STOP ALL WORK IMMEDIATELY IN THE AREA AND CONTACT THE LCUWC. WORK IN THE AREA SHALL NOT RESUME UNTIL APPROVED BY LCUWC.

Approved by: \_\_\_\_\_

LAND OWNER: \_\_\_\_\_ Date \_\_\_\_\_

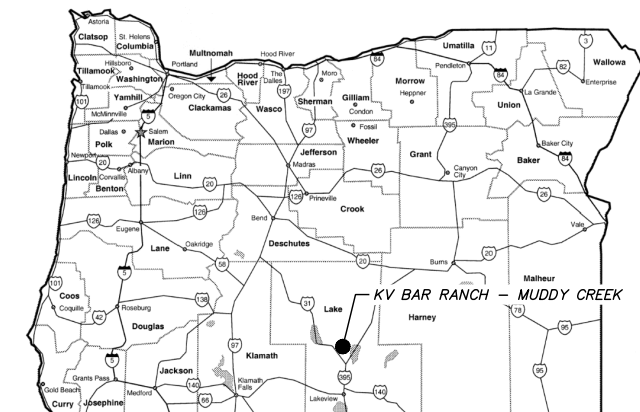
LAKE COUNTY UMBRELLA WATERSHED COUNCIL: \_\_\_\_\_ Date \_\_\_\_\_



2019.12.27

(date)

Leonard Joey Howard  
OREGON REGISTERED  
PROFESSIONAL ENGINEER NO. # 64402  
Cascade Stream Solutions, LLC



Lake County Watersheds Council  
Ph: 541.219.0830  
Email: schreder@centurytel.net

Cascade Stream Solutions

961 Bellview Ave.  
Ashland, Oregon 97520  
Phone: (541) 864-0492



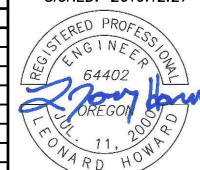
#### Drawing Information

Date	27 December 2019
Status	
Designer	jh
Drafter	jh
Checked	
File Name	G1 Cover
Plotted Scale	0 1/2 1

#### Revisions

No.	Date	Description

SIGNED: 2019.12.27



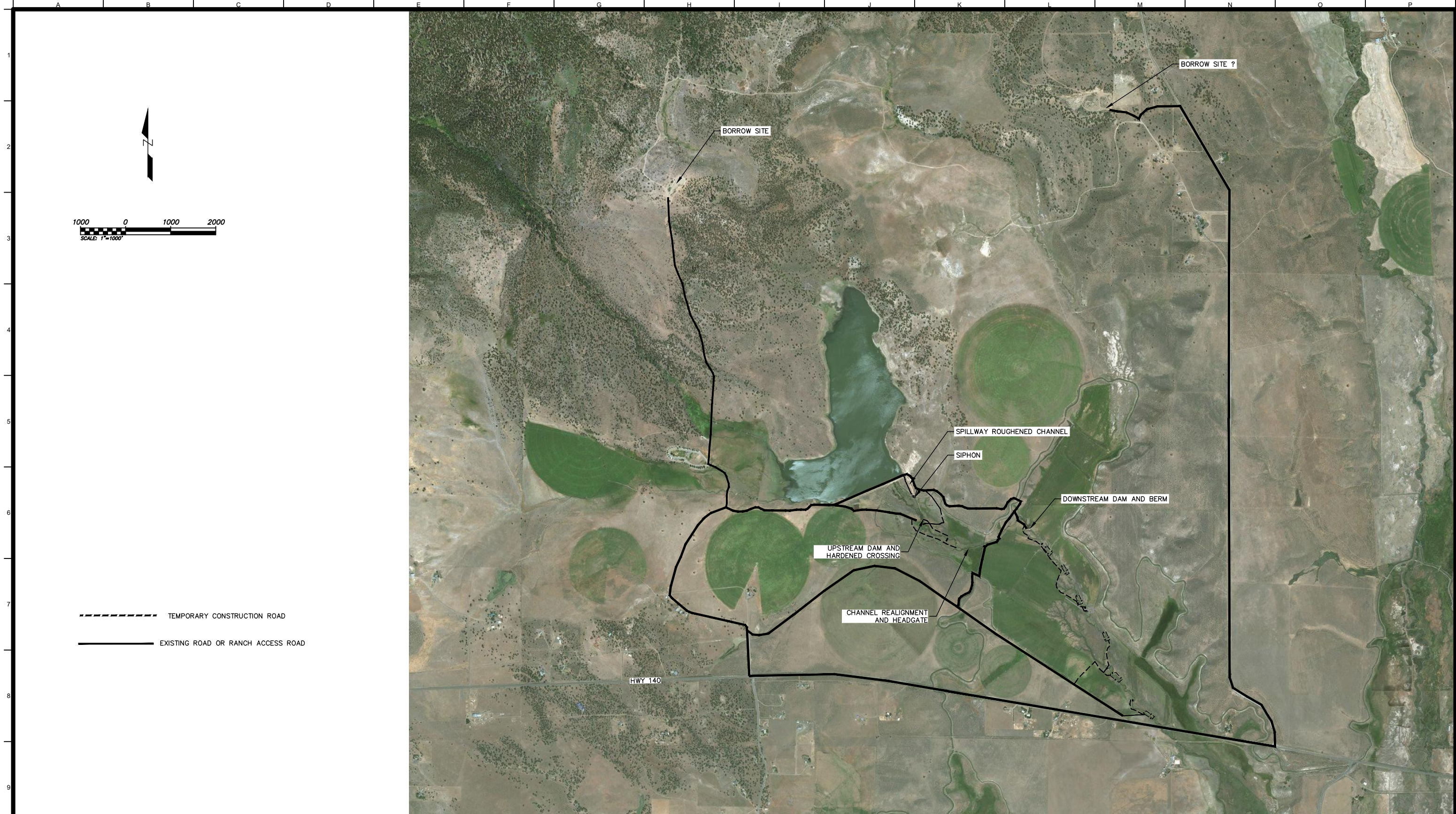
KV Bar Ranch  
Fish Passage Project  
Cover Sheet

Job Number  
2017-115

Sheet Number

G1

Sheet 1 of 27



Lake County Watersheds Council  
 Ph: 541.219.0830  
 Email: schreder@centurytel.net

**Cascade Stream Solutions**  
 961 Bellview Ave.  
 Ashland, Oregon 97520  
 Phone: (541) 864-0492

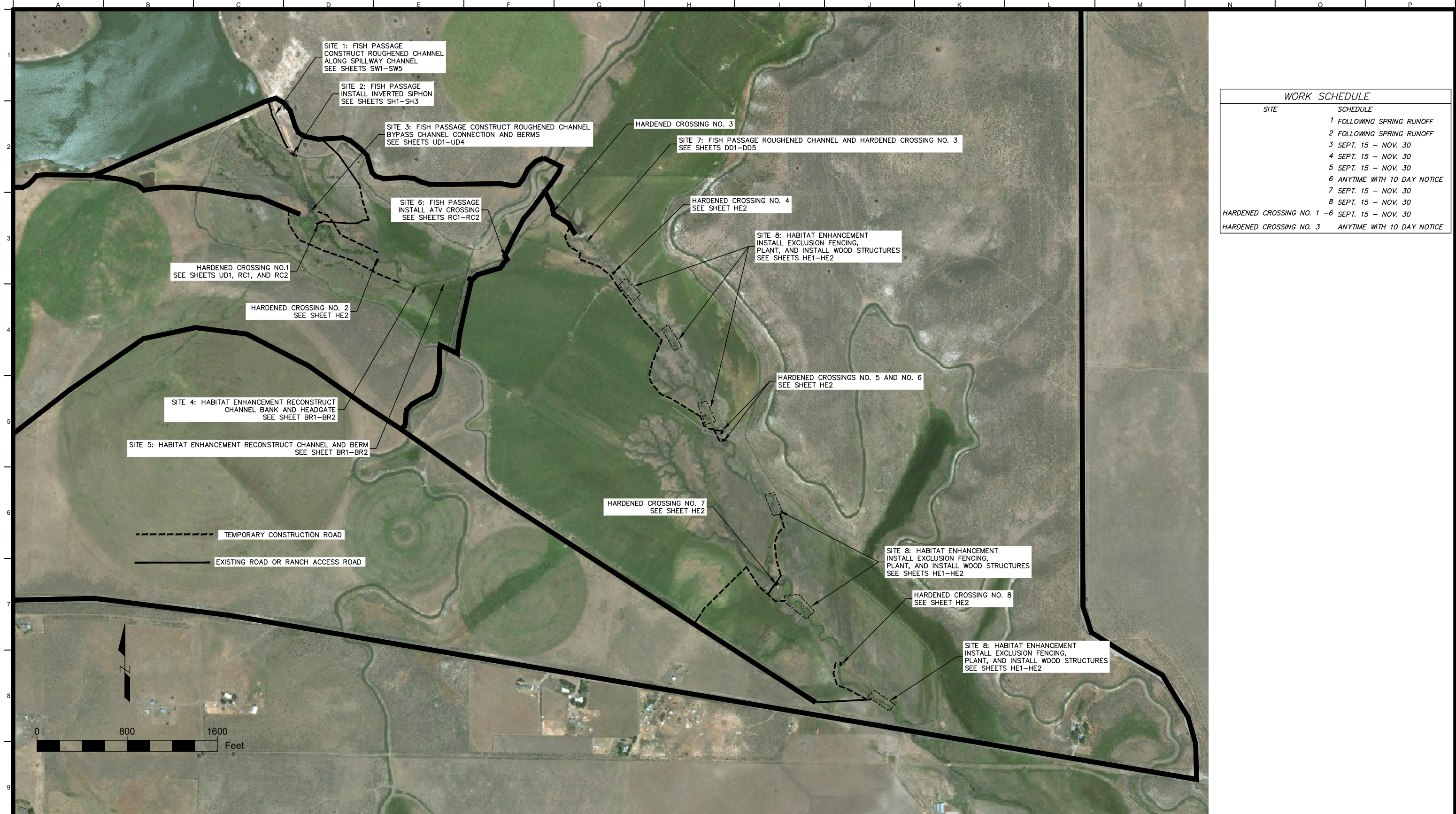
Drawing Information		Revisions	
Date	27 December 2019	No.	Date
Status			
Designer	jh		
Drafter	jh		
Checked			
File Name	G2 G3 - Access and Overview plan		
Plotted Scale			

Revisions	
No.	Date

SIGNED: 2019.12.27

**KV Bar Ranch  
 Habitat Enhancement Project  
 Construction Access**

Job Number  
 2017-115  
 Sheet Number  
**G2**  
 Sheet 2 of 27

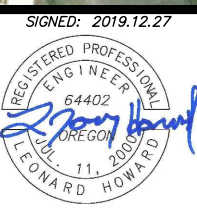


WORK SCHEDULE	
SITE	SCHEDULE
	1 FOLLOWING SPRING RUNOFF
	2 FOLLOWING SPRING RUNOFF
	3 SEPT. 15 - NOV. 30
	4 SEPT. 15 - NOV. 30
	5 SEPT. 15 - NOV. 30
	6 ANYTIME WITH 10 DAY NOTICE
	7 SEPT. 15 - NOV. 30
	8 SEPT. 15 - NOV. 30
HARDENED CROSSING NO. 1-6	SEPT. 15 - NOV. 30
HARDENED CROSSING NO. 3	ANYTIME WITH 10 DAY NOTICE

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 Email: schreder@centurytel.net

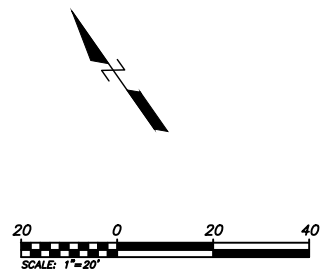
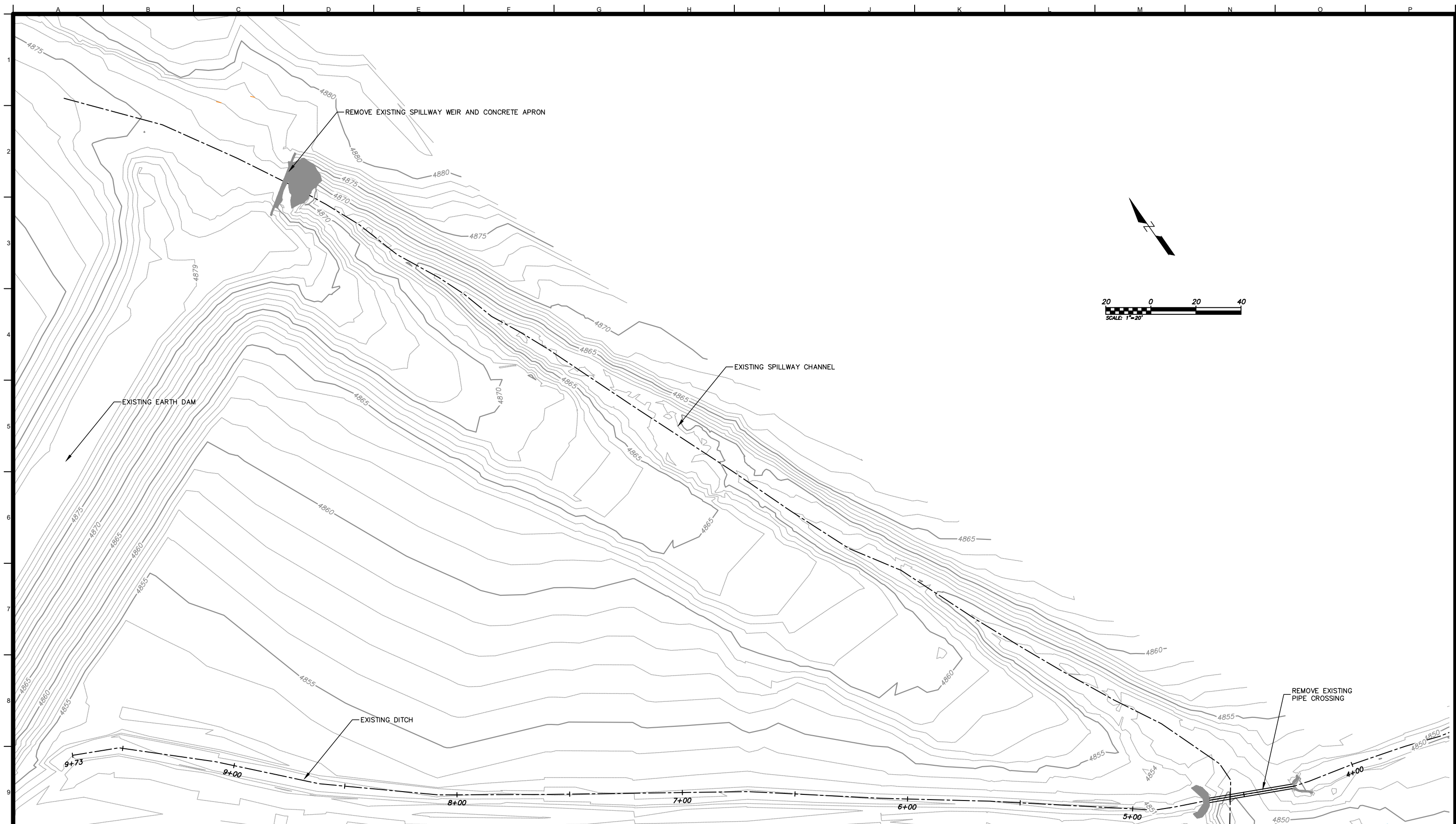
**Cascade Stream Solutions**  
 961 Bellview Ave.  
 Ashland, Oregon 97520  
 Phone: (541) 864-0492

Drawing Information		Revisions	
Date	27 December 2019	No.	Date
Status			Description
Designer	jh		
Drafter	jh		
Checked			
File Name	G2 G3 - Access and Overview plan		
Plotted Scale	0 1/2 1		



**KV Bar Ranch**  
 Habitat Enhancement Project  
 Project Features Location Map

Job Number  
2017-115  
 Sheet Number  
**G3**  
 Sheet 3 of 27



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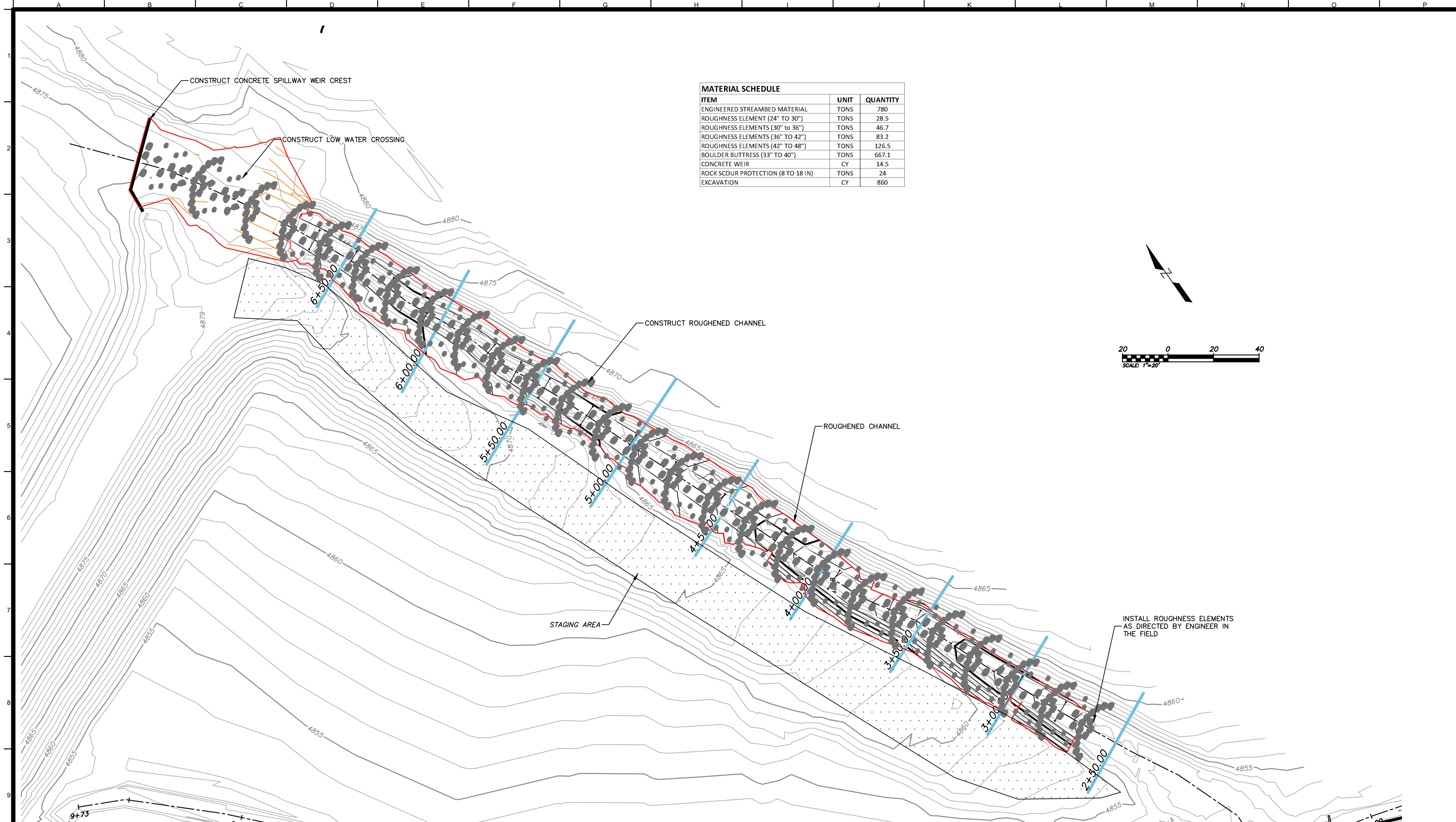
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Drawing Information		Revisions		
Date	27 December 2019	No.	Date	Description
Status				
Designer	jh			
Drafter	jh			
Checked				
File Name	SITE 1 - SW1 SW Spillway 20190915			
Plotted Scale				

SIGNED: 2019.12.27

**KV Bar Ranch**  
**Fish Passage Project**  
**Site 1: Spillway and Site 2: Ditch Pipe Crossing**  
**Demolition Sheet**

Job Number  
2017-115  
 Sheet Number  
**SW1**  
 Sheet 4 of 27



MATERIAL SCHEDULE		
ITEM	UNIT	QUANTITY
ENGINEERED STREAMBED MATERIAL	TONS	780
ROUGHNESS ELEMENT (24" TO 30")	TONS	28.5
ROUGHNESS ELEMENTS (30" TO 36")	TONS	46.7
ROUGHNESS ELEMENTS (36" TO 42")	TONS	83.2
ROUGHNESS ELEMENTS (42" TO 48")	TONS	126.5
BOULDER BUTTRESS (33" TO 40")	TONS	667.1
CONCRETE WEIR	CY	14.5
ROCK SCOUR PROTECTION (8 TO 18 IN)	TONS	24
EXCAVATION	CY	860

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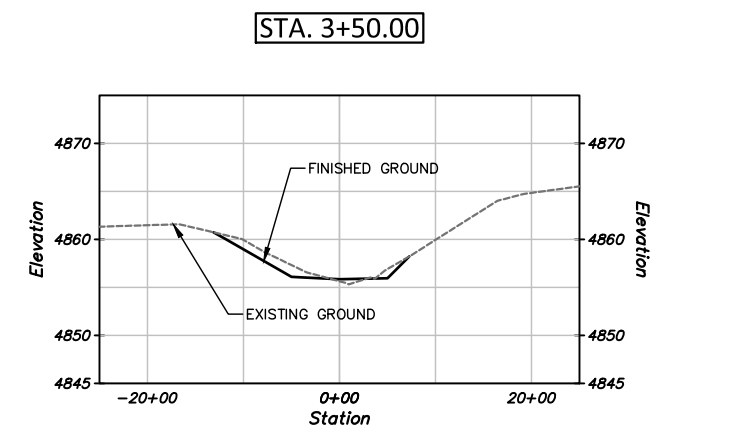
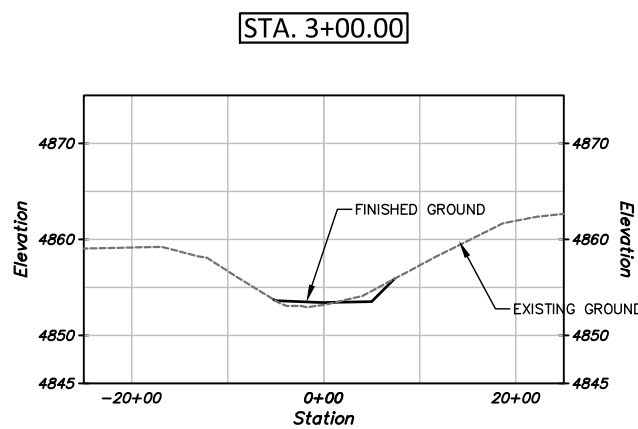
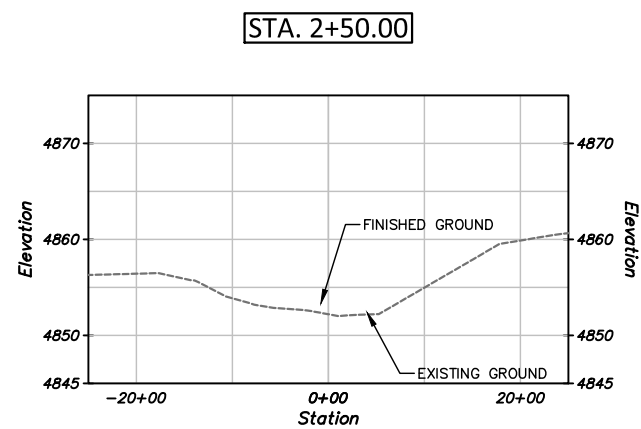
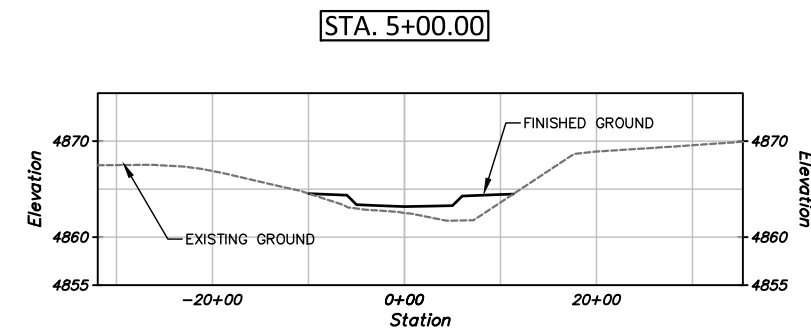
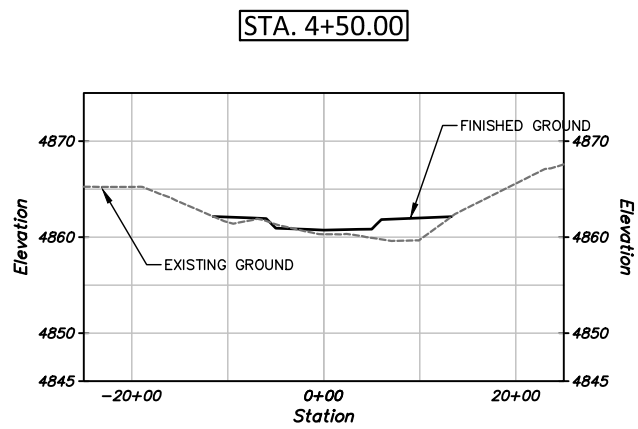
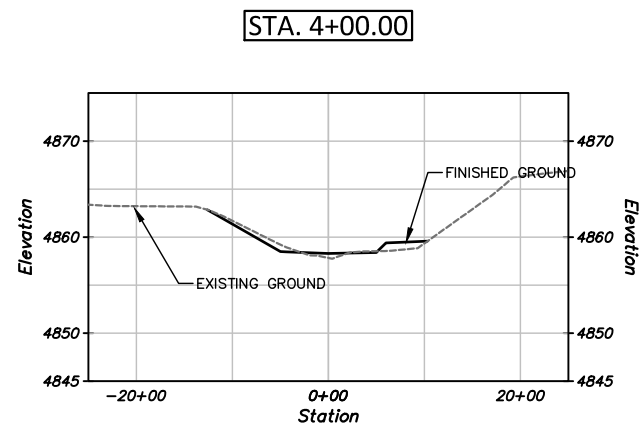
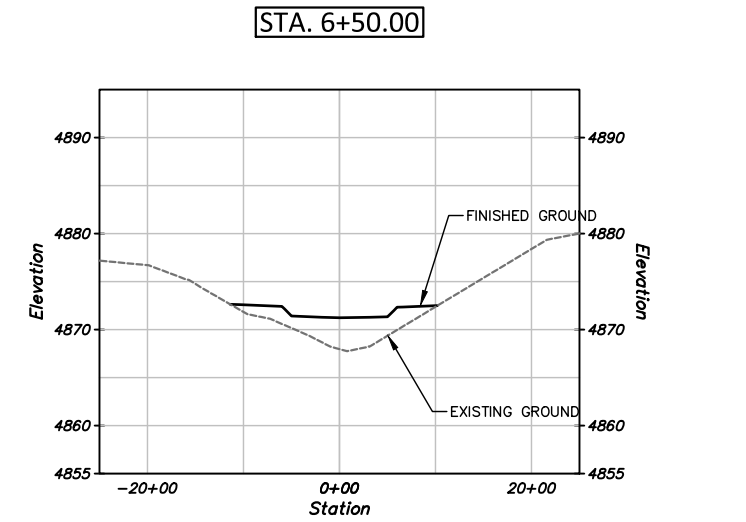
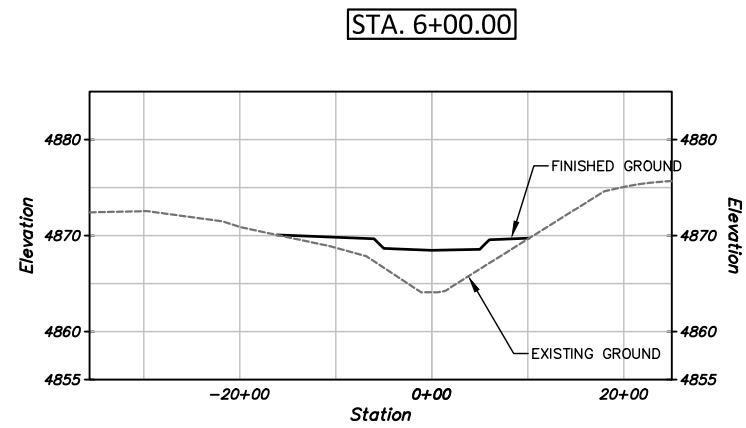
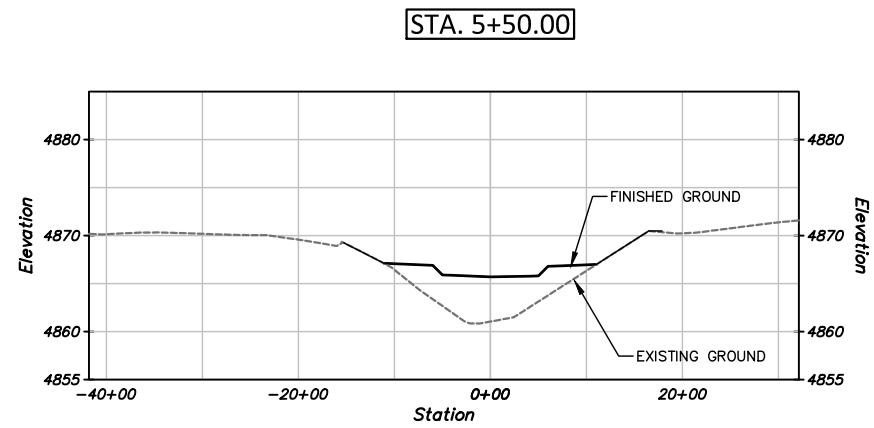
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Date	27 December 2019	No.	Date
Status			Description
Designer	jh		
Drafter	jh		
Checked			
File Name	SITE 1 - SW1 SW Spillway 20190915		
Plotted Scale	0 1/2 1		

SIGNED: 2019.12.27

**KV Bar Ranch**  
**Fish Passage Project**  
**Site 1: Spillway Plan Sheet**

Job Number  
2017-115  
 Sheet Number  
**SW2**  
 Sheet 5 of 27



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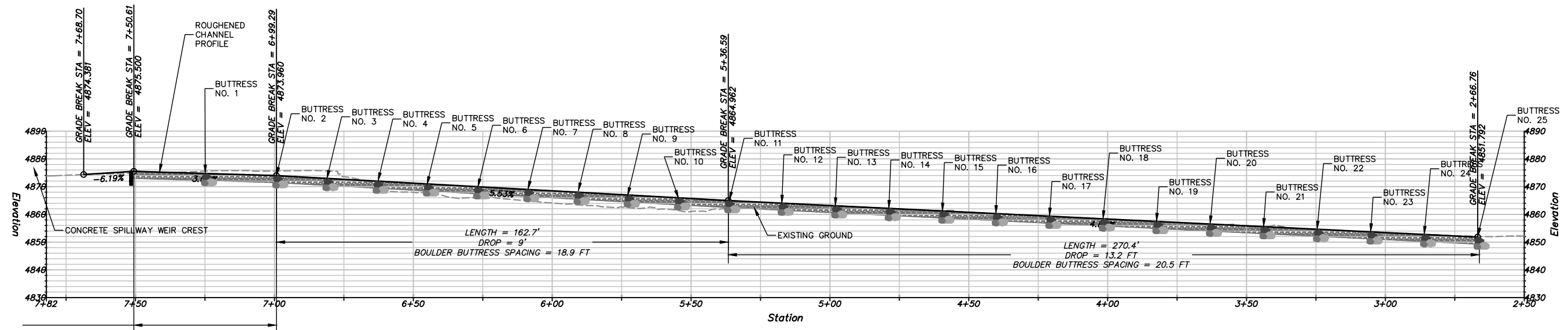
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Date	27 December 2019	No.	Date
Status		Description	
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Drafter	jh		
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Plotted Scale	0 1/2 1		

SIGNED: 2019.12.27

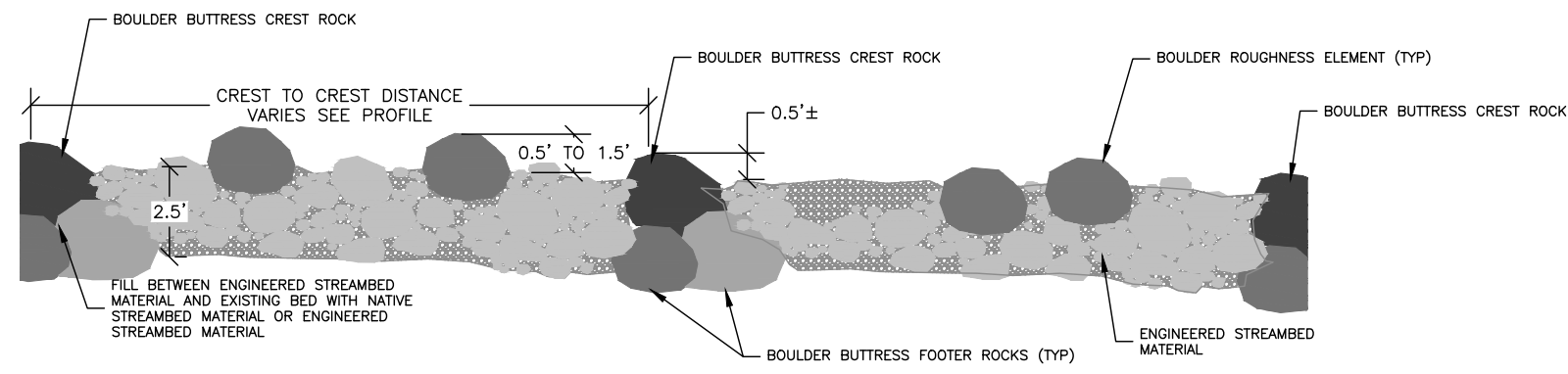
**KV Bar Ranch**  
**Fish Passage Project**  
**Site 1: Spillway Roughened Channel Cross Sections**

Job Number  
2017-115  
Sheet Number  
**SW 3**  
Sheet 6 of 27

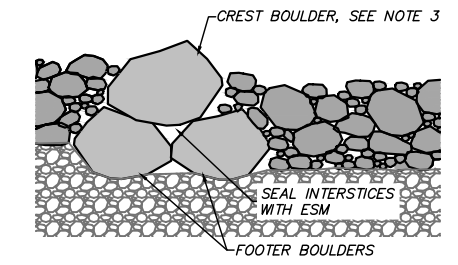


**BOULDER BUTTRESS LOCATIONS**

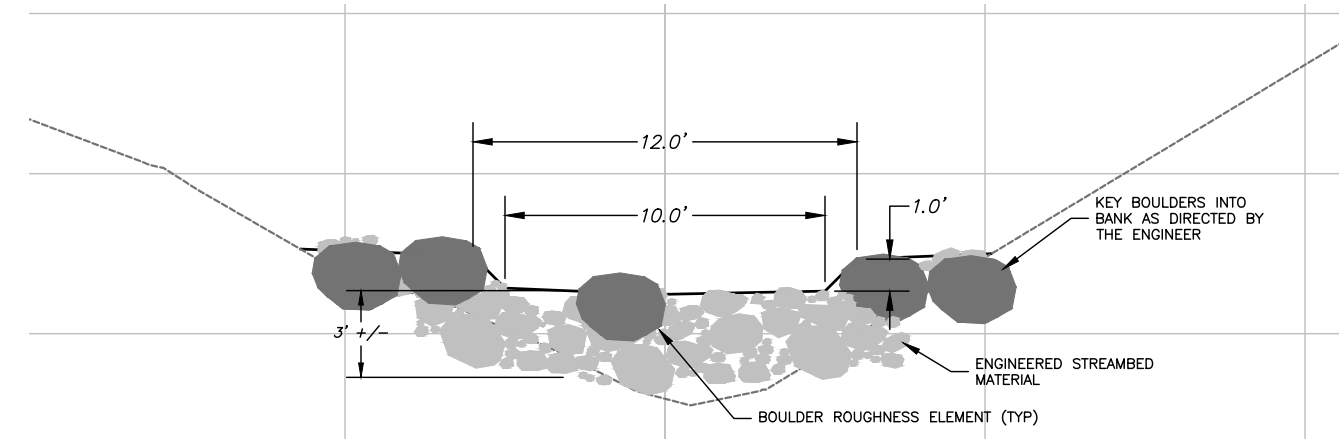
BUTTRESS NO.	STATION, FT	ELEVATION, FT
1	725.0	4847.7
2	699.3	4874.0
3	681.2	4873.0
4	663.1	4872.0
5	645.1	4871.0
6	627.0	4870.0
7	608.9	4869.0
8	590.8	4868.0
9	572.7	4867.0
10	554.7	4866.0
11	536.6	4865.0
12	517.3	4864.0
13	498.0	4863.1
14	478.8	4862.1
15	459.5	4861.2
16	440.2	4860.3
17	420.9	4859.3
18	401.7	4858.4
19	382.4	4857.4
20	363.1	4856.5
21	343.9	4855.6
22	324.6	4854.6
23	305.3	4853.7
24	286.0	4852.7
25	266.8	4851.8



**A TYPICAL ROUGHENED CHANNEL PROFILE**  
SW4 H: 1"=3' V: 1"=3'



**B BOULDER BUTTRESS SECTION DETAIL**  
SW4 H: 1"=3' V: 1"=3'



**C CHANNEL CROSS SECTION DETAIL**  
SW4 H: 1"=3' V: 1"=3'

**ROUGHENED CHANNEL NOTES**

- SUBGRADE FOR ENGINEERED STREAMBED MATERIAL AND BOULDER BUTTRESSES SHALL CONSIST OF A 6 INCH LAYER OF NATIVE STREAMBED GRAVELS OR 1" MINUS AGGREGATE. SUBGRADE SHALL BE COMPACTED USING A VIBRATORY PLATE OR TAMPER.
- ENGINEERED STREAMBED MATERIAL SHALL BE CONSTRUCTED IN 1 FOOT LIFTS. LARGER PARTICLES WITHIN THE ESM WILL PROTRUDE ABOVE THE 1 FOOT LIFT. ESM LAYERS SHALL BE COMPACTED USING A VIBRATORY PLATE. ESM SHALL BE MOISTENED TO SEGREGATION OF FINES DURING MIXING PROCESS. LIFTS SHALL BE COMPACTED USING VIBRATORY PLATE OR TAMPER.
- ROUGHNESS BOULDERS SHALL BE PLACED AS DIRECTED BY THE ENGINEER IN THE FIELD.
- BOULDER BUTTRESSES SHALL BE INDIVIDUALLY PLACED AND FOUNDED ON FOOTER ROCKS. CONTRACTOR SHALL INDIVIDUALLY SELECT BOULDERS BASED ON SIZE AND SHAPE TO FORM STABLE BOULDER STEP STRUCTURE AND MINIMIZE INTERSTITIAL SPACES BETWEEN BOULDERS. BOULDERS SHALL HAVE A MINIMUM OF THREE POINTS OF CONTACT WITH ADJACENT BOULDER STEP MATERIAL. CONTRACTOR SHALL FILL INTERSTITIAL SPACES WITH FINE MATERIAL BY JETTING IN MATERIAL. BOULDER CREST ROCKS SHALL RANGE FROM 2.9 FEET TO 4 FEET AS MEASURED ALONG THE B-AXIS. BOULDER STEP FOOTER ROCKS SHALL BE NO SMALLER THAN 2.5 FEET AS MEASURED ALONG THE B-AXIS.

ENGINEERED STREAMBED MATERIAL (ESM)	
% OF MIX	ROCK SIZE
7%	SAND/SILT
9%	0.1"-0.4"
34%	0.5"-8"
34%	9"-21"
16%	22"-48"

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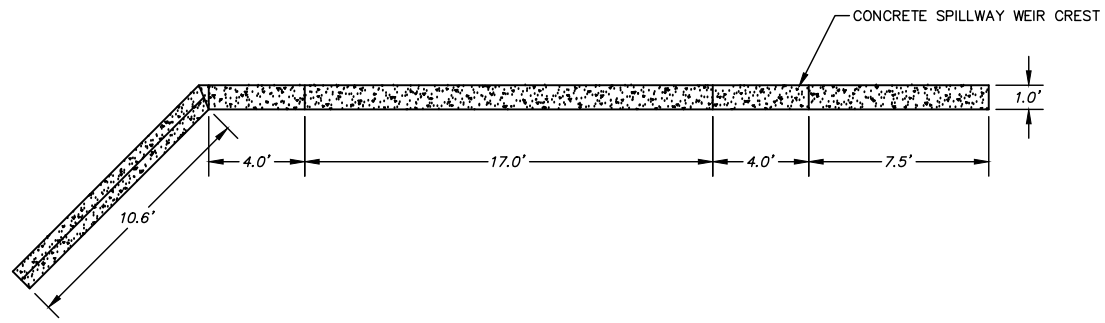
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Ashland, Oregon 97520  
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Drawing Information		Revisions	
Date	27 December 2019	No.	Date
Status		Description	
Designer	jh		
Drafter	jh		
Checked			
File Name	SITE 1 - SW1 SW Spillway 20190915		
Plotted Scale	0 1/2 1		

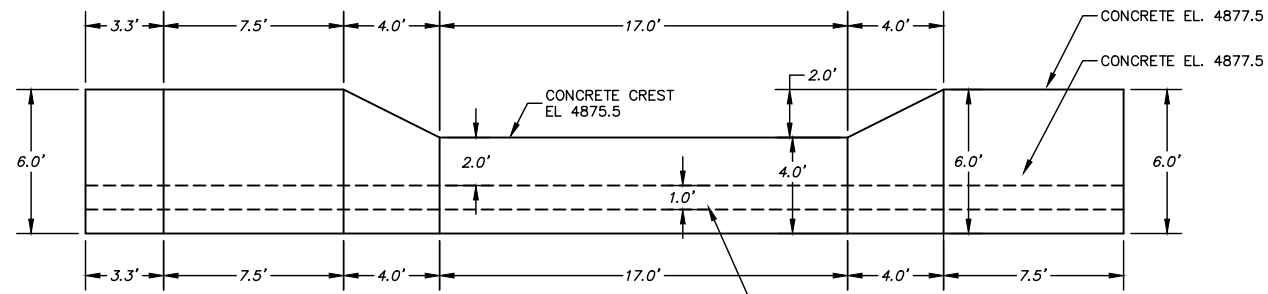
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**KV Bar Ranch**  
Fish Passage Project  
Site 1: Spillway Profile Roughened Channel and Details

Job Number 2017-115  
Sheet Number  
**SW 4**  
Sheet 7 of 27

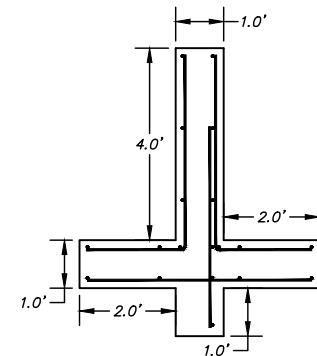


**(A) SPILLWAY WEIR PLAN**  
 SWS / H: 1"=4' V: 1"=4'



**(B) SPILLWAY SECTION**  
 SWS / H: 1"=4' V: 1"=4'

DOUBLE MAT REBAR  
 NO. 5 REBAR  
 12 INCHES ON CENTER EACH WAY  
 31 INCH LAP SPLICE  
 2 INCHES CLEAR BETWEEN REBAR AND CONCRETE



**(B) SPILLWAY SECTION**  
 SWS / H: 1"=4' V: 1"=4'

CLASS	28-COMPRESSIVE STRENGTH, PSI	SIZE AND TYPE AGGREGATE	MAX SHRINK	ENTRAINED AIR-PRECENT	MAX. SLUMP INCHES	MAX W/C RATIO
A	4500	3/4" CONC.	0.07%	6+/-1	3"	0.45

**CONCRETE MIX DESIGN**  
 H: 1"=4' V: 1"=4'

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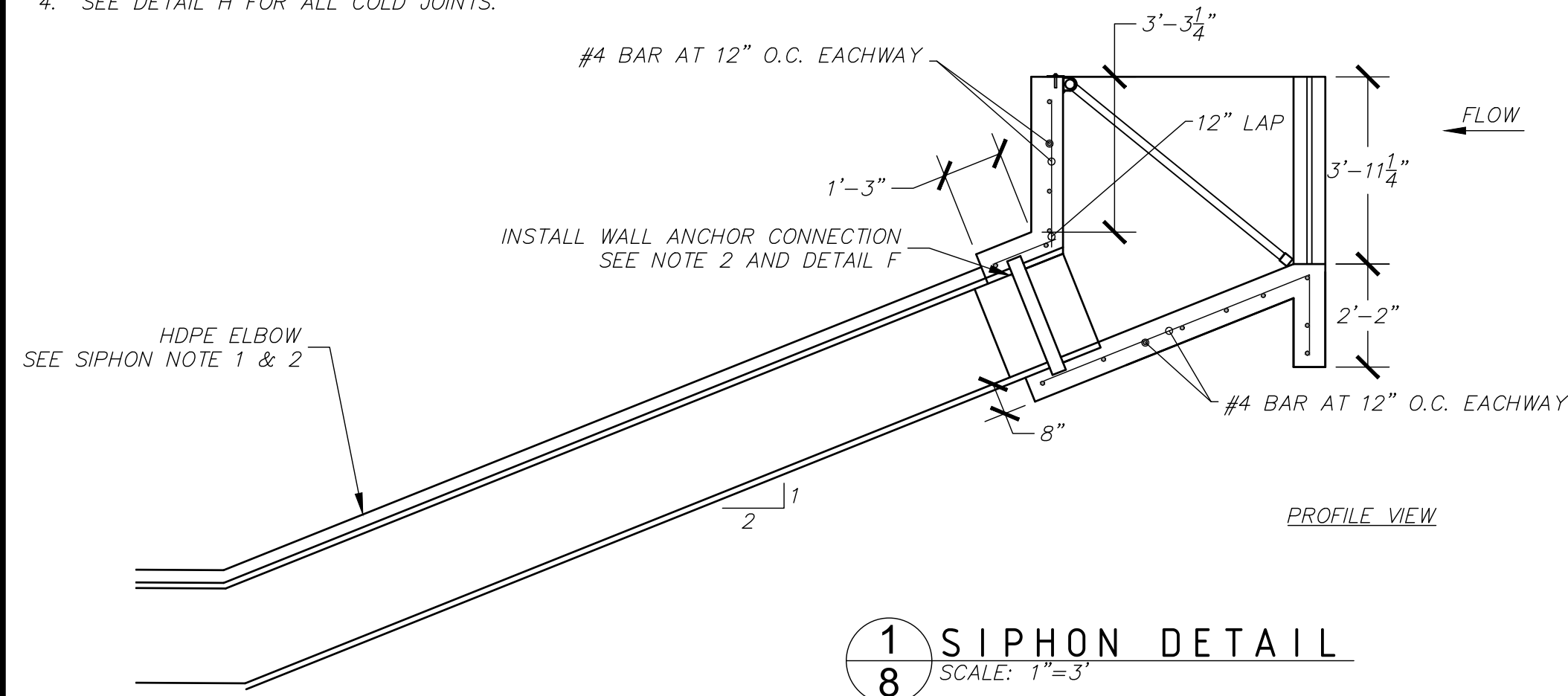
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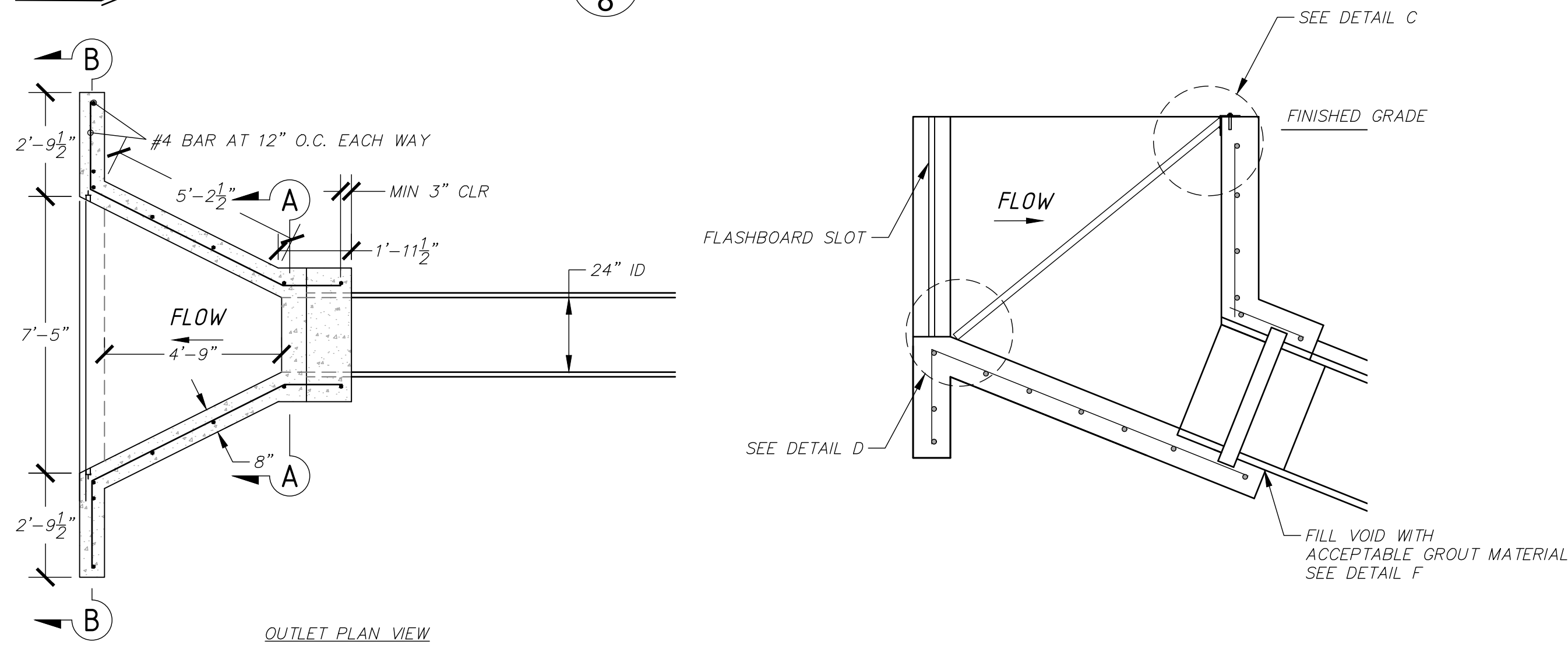
**KV Bar Ranch**  
**Fish Passage Project**  
 Site 1: Spillway Weir Concrete Detail

Job Number  
 2017-115  
 Sheet Number  
**SW5**  
 Sheet 8 of 27

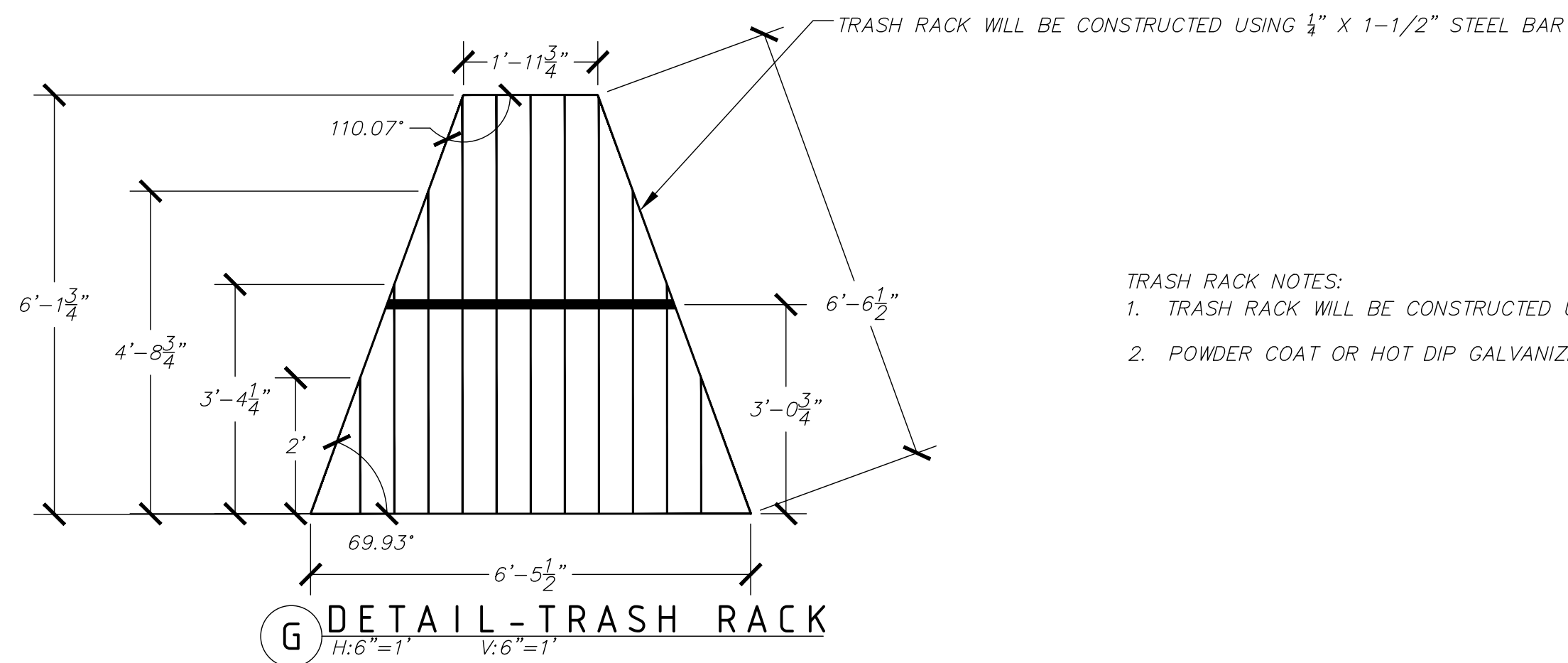
- SIPHON NOTES:**
- CONTRACTOR SHALL BUTT FUSE ALL HDPE TO HDPE CONNECTIONS.
  - CONTRACTOR SHALL BUTT FUSE HDPE WALL ANCHOR TO HDPE PIPE CONNECTION. HDPE WALL ANCHOR SHALL BE ISCO IPS DR-17 HDPE WALL ANCHOR OR APPROVED EQUAL.
  - CONTRACTOR SHALL CONNECT CAST IN PLACE CONCRETE WALL TO EXISTING MASONRY WALL. CONNECTION SHALL CONSIST OF 12 INCH LONG BAR DOWELS EMBEDDED 4" DEEP INTO EXISTING MASONRY BLOCK WALL. DOWEL SHALL LAP WALL REINFORCING A MINIMUM OF 6". INSTALL #4 BAR DOWELS 4" DEEP INTO EACH MASONRY BLOCK.
  - SEE DETAIL H FOR ALL COLD JOINTS.



**1 SIPHON DETAIL**  
SCALE: 1"=3'

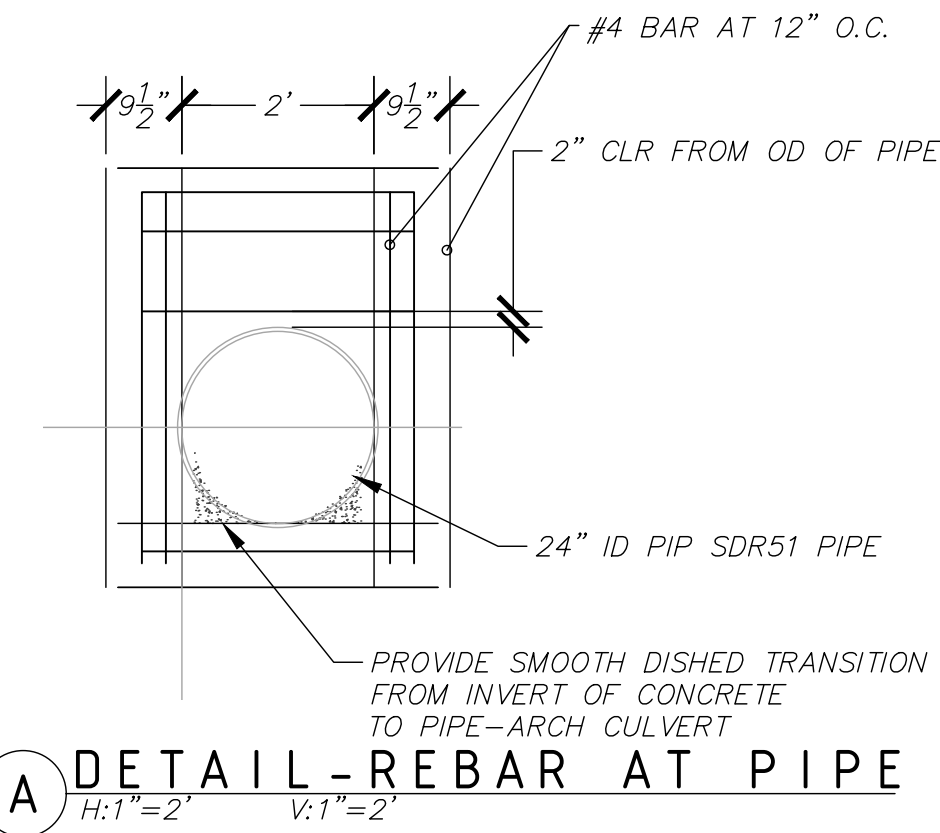


**2 SIPHON DETAIL**  
SCALE: 1"=3'

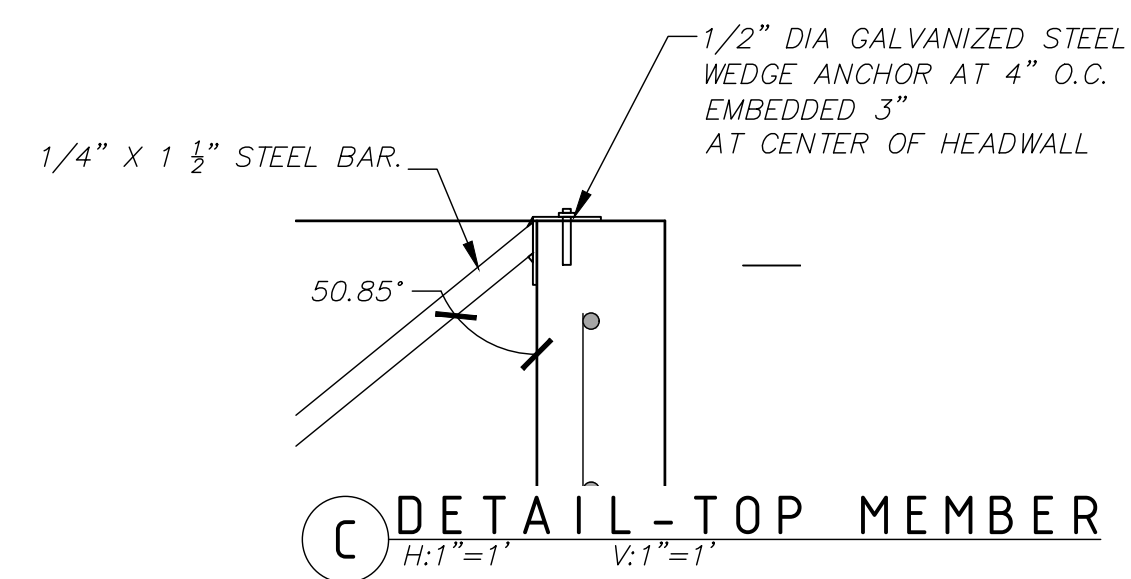


- TRASH RACK NOTES:**
- TRASH RACK WILL BE CONSTRUCTED USING 1/4" X 1-1/2" STEEL BAR
  - POWDER COAT OR HOT DIP GALVANIZE ALL METAL FOLLOWING FABRICATION.

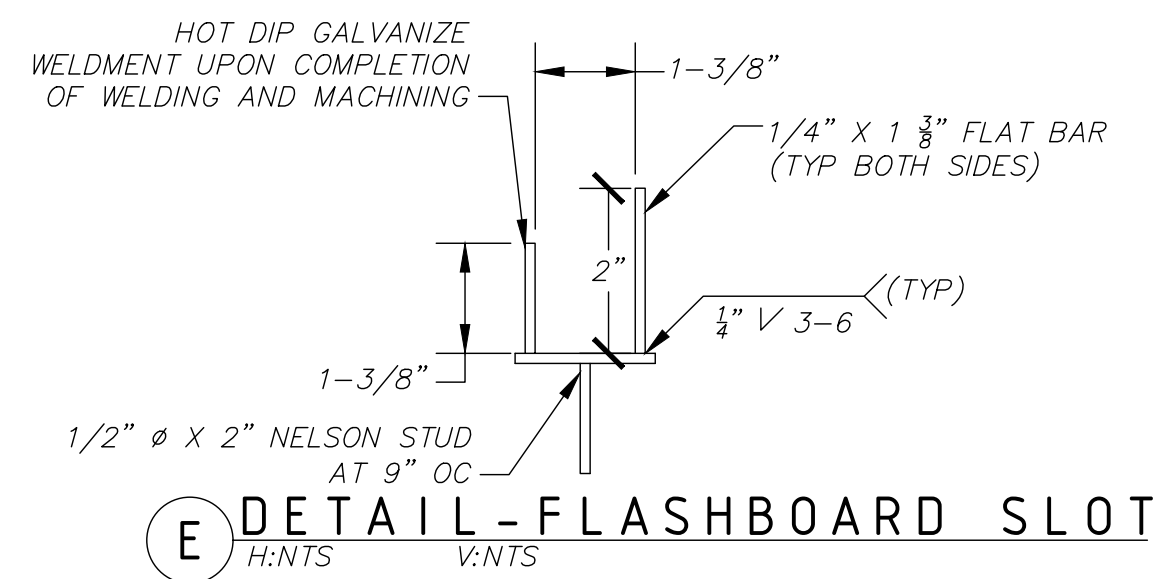
**G DETAIL-TRASH RACK**  
H: 6"=1' V: 6"=1'



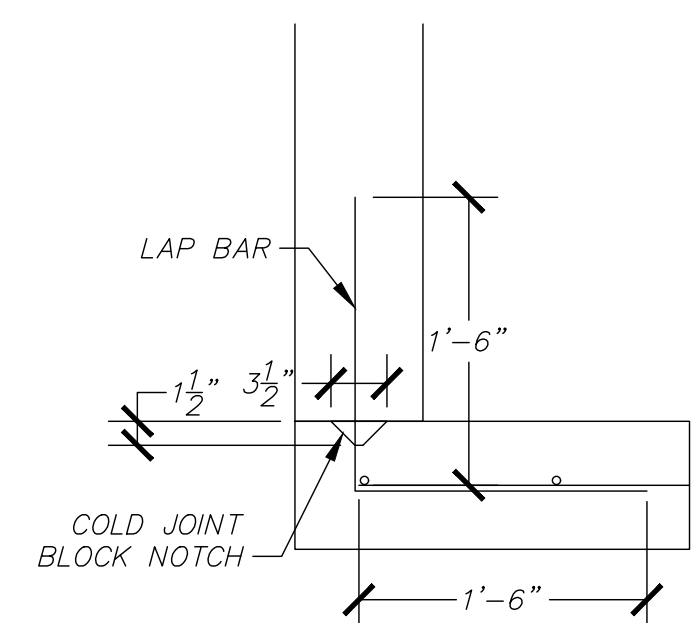
**A DETAIL-REBAR AT PIPE**  
H: 1"=2' V: 1"=2'



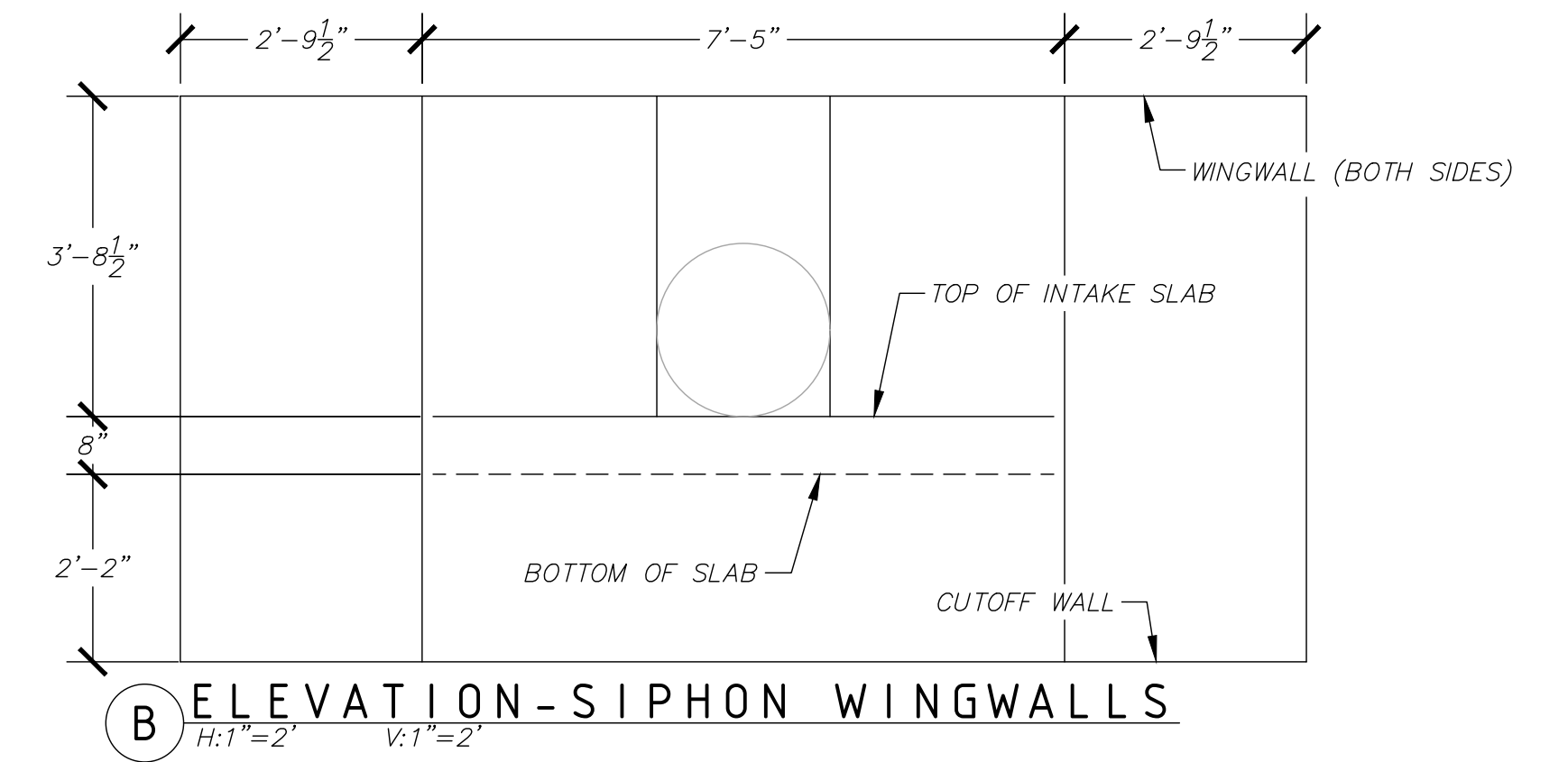
**C DETAIL-TOP MEMBER**  
H: 1"=1' V: 1"=1'



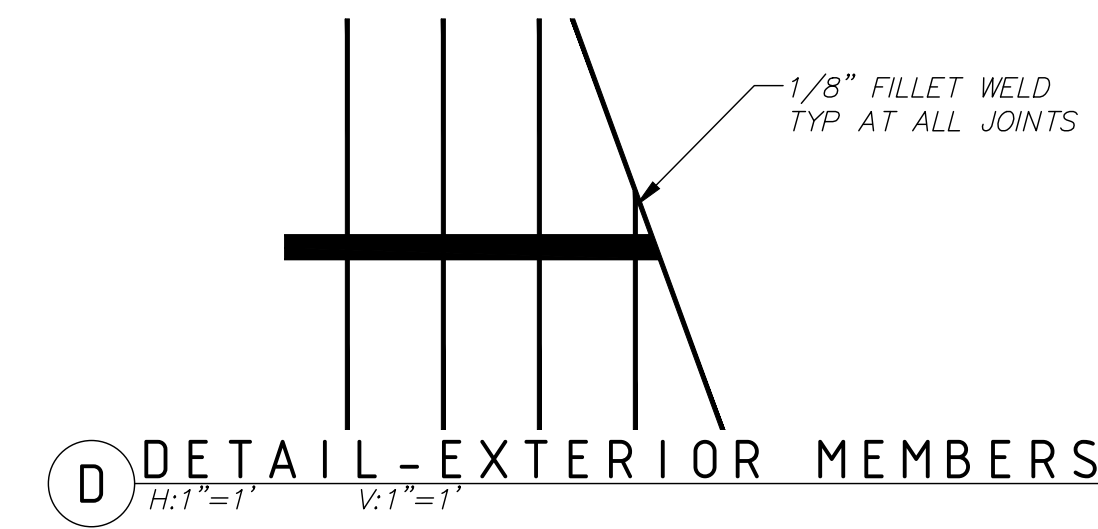
**E DETAIL-FLASHBOARD SLOT**  
H: NTS V: NTS



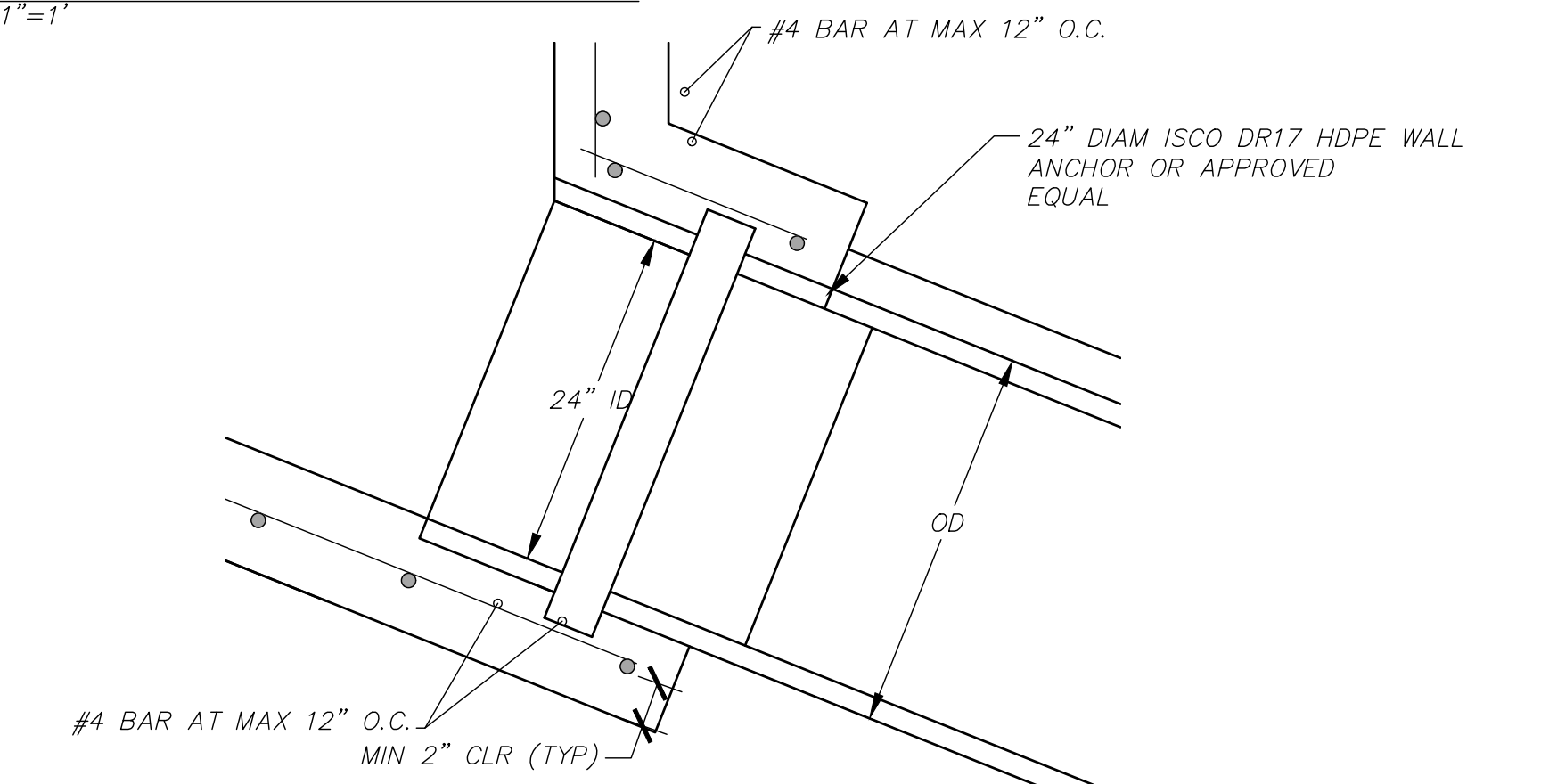
**H DETAIL-COLD JOINT**  
H: 1"=1' V: 1"=1'



**B ELEVATION-SIPHON WINGWALLS**  
H: 1"=2' V: 1"=2'




**D DETAIL-EXTERIOR MEMBERS**  
H: 1"=1' V: 1"=1'



**F DETAIL-HDPE CONNECTION**  
H: 1"=1' V: 1"=1'

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Drawing Information		Revisions	
Date	27 December 2019	No.	Date
Status		Description	
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Drafter	jh		
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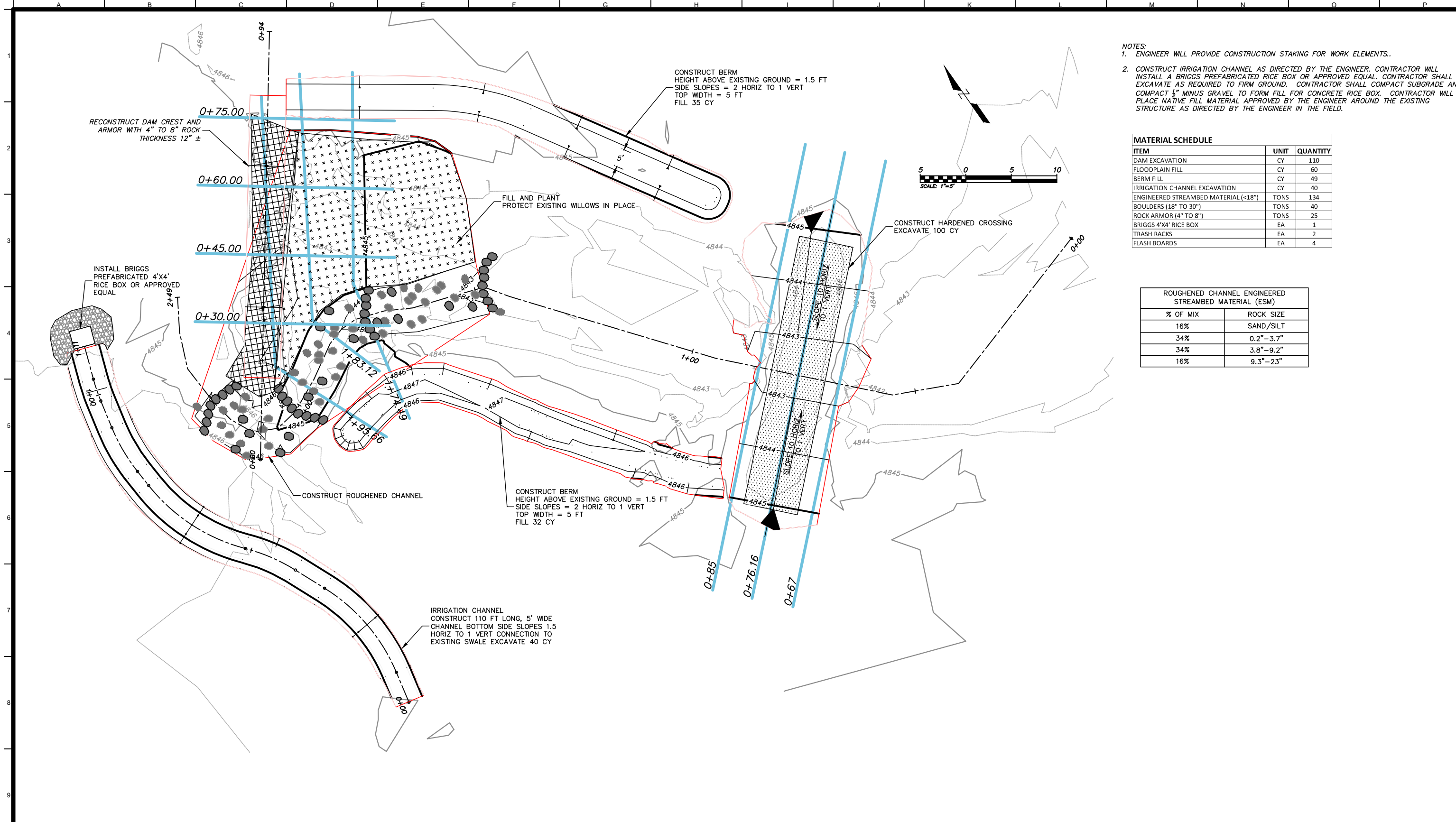
Revisions	
No.	Date

SIGNED: 2019.12.27  
REGISTERED PROFESSIONAL ENGINEER  
64402  
LEONARD HOWARD



KV Bar Ranch  
Fish Passage Project  
Site 2: Inverted Siphon Crossing Details  
Sheet

Job Number  
2017-115  
Sheet Number  
**SH3**  
Sheet 11 of 27



- NOTES:
- ENGINEER WILL PROVIDE CONSTRUCTION STAKING FOR WORK ELEMENTS.
  - CONSTRUCT IRRIGATION CHANNEL AS DIRECTED BY THE ENGINEER. CONTRACTOR WILL INSTALL A BRIGGS PREFABRICATED RICE BOX OR APPROVED EQUAL. CONTRACTOR SHALL EXCAVATE AS REQUIRED TO FIRM GROUND. CONTRACTOR SHALL COMPACT SUBGRADE AND COMPACT 1/2" MINUS GRAVEL TO FORM FILL FOR CONCRETE RICE BOX. CONTRACTOR WILL PLACE NATIVE FILL MATERIAL APPROVED BY THE ENGINEER AROUND THE EXISTING STRUCTURE AS DIRECTED BY THE ENGINEER IN THE FIELD.

MATERIAL SCHEDULE		
ITEM	UNIT	QUANTITY
DAM EXCAVATION	CY	110
FLOODPLAIN FILL	CY	60
BERM FILL	CY	49
IRRIGATION CHANNEL EXCAVATION	CY	40
ENGINEERED STREAMBED MATERIAL (<18")	TONS	134
BOULDERS (18" TO 30")	TONS	40
ROCK ARMOR (4" TO 8")	TONS	25
BRIGGS 4'X4' RICE BOX	EA	1
TRASH RACKS	EA	2
FLASH BOARDS	EA	4

ROUGHENED CHANNEL ENGINEERED STREAMBED MATERIAL (ESM)	
% OF MIX	ROCK SIZE
16%	SAND/SILT
34%	0.2"-3.7"
34%	3.8"-9.2"
16%	9.3"-23"

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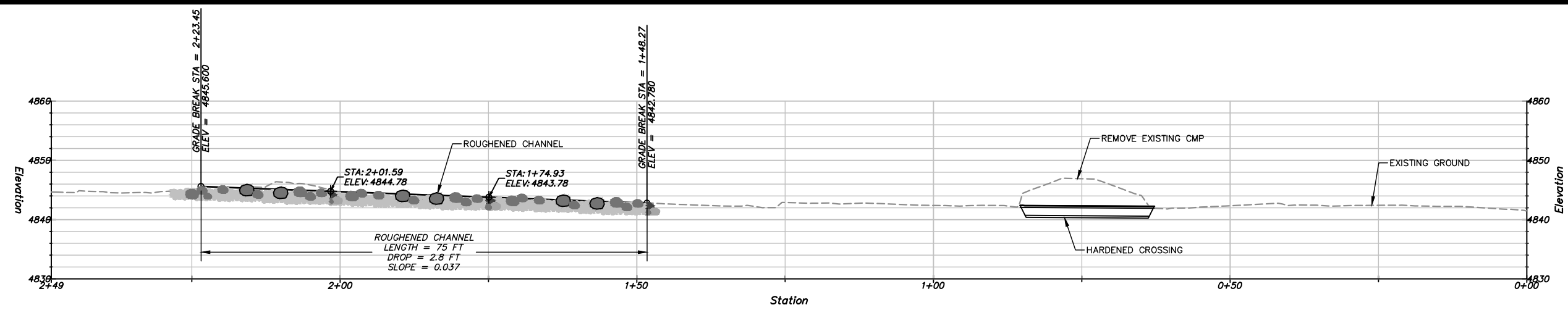
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Status			Description
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Drafter	jh		
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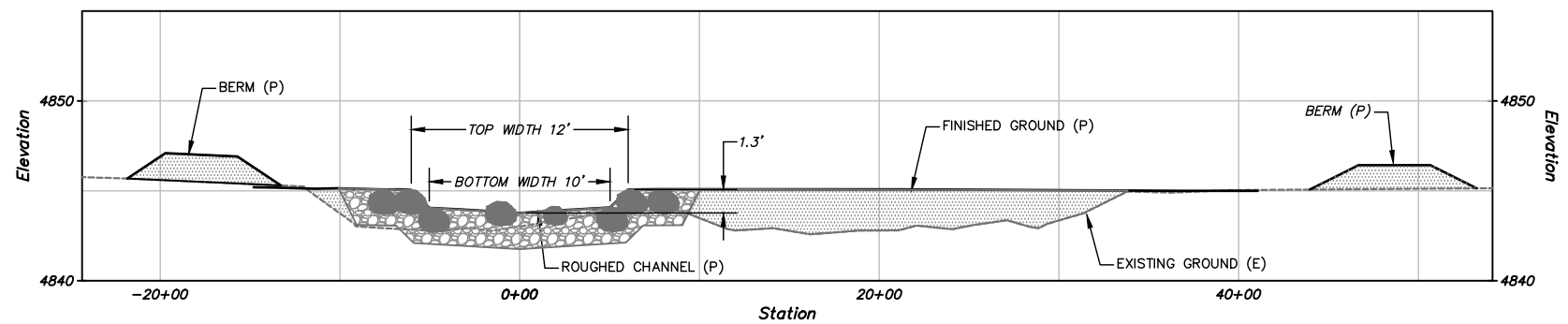
*PRELIMINARY  
NOT FOR CONSTRUCTION*

**KV Bar Ranch  
Fish Passage Project  
Upstream Dam Reconstruction, Roughened  
Channel, and Hardened Crossing**

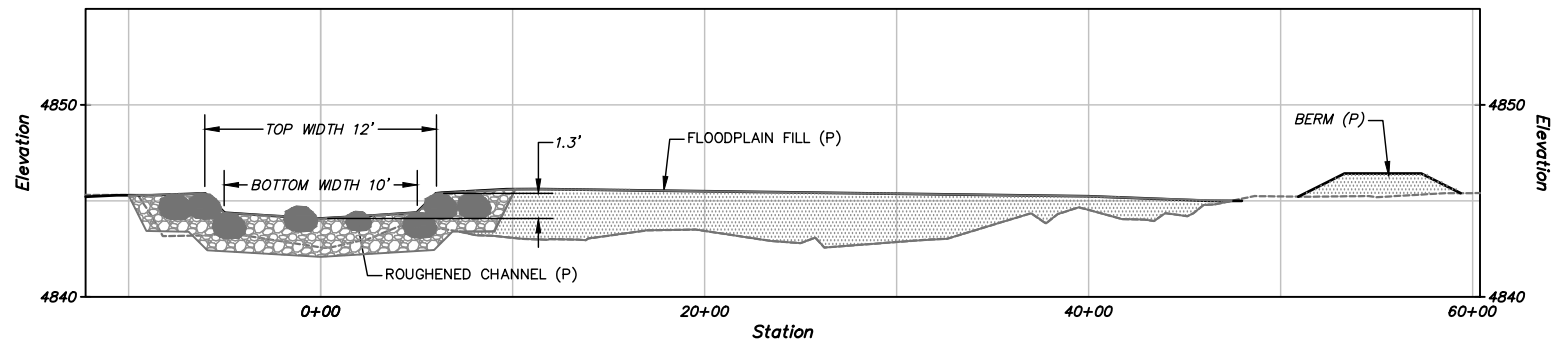
Job Number  
2017-115  
Sheet Number  
**UD1**  
Sheet 12 of 27



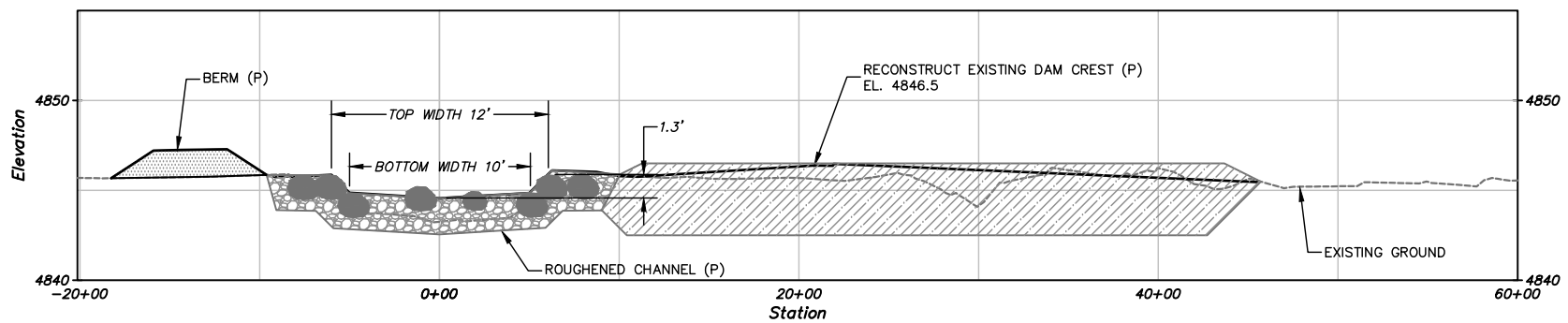
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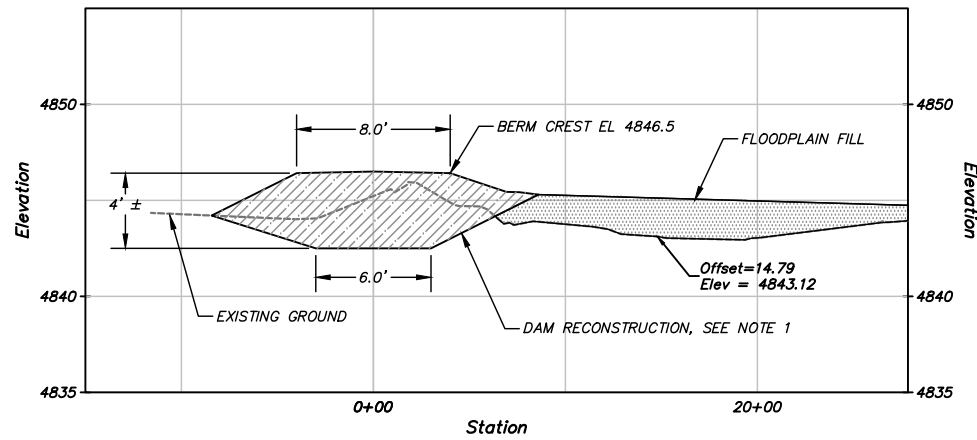
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PRELIMINARY  
NOT FOR CONSTRUCTION

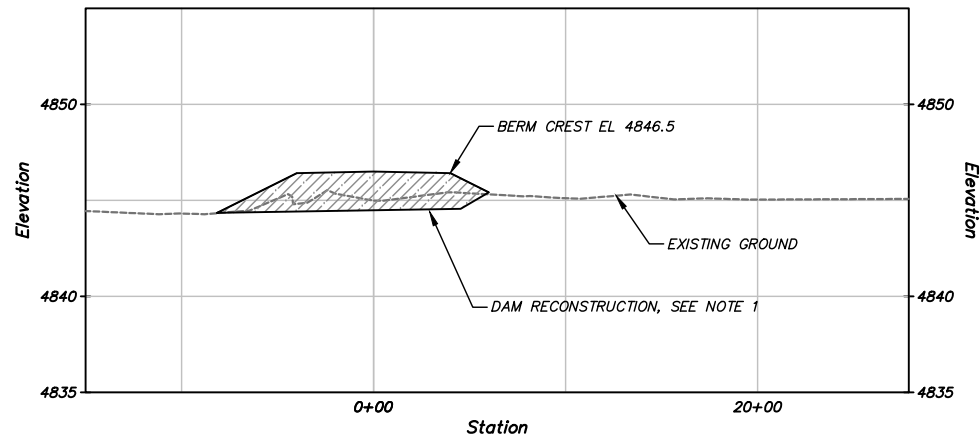
**KV Bar Ranch**  
Fish Passage Project  
Roughened Channel Profile and Roughened  
Channel and Floodplain Sections

Job Number  
2017-115  
Sheet Number  
**UD2**  
Sheet 13 of 27

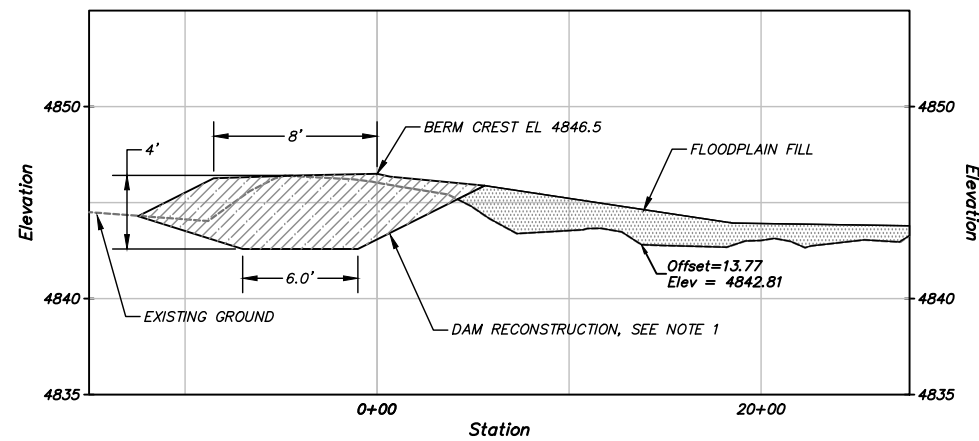
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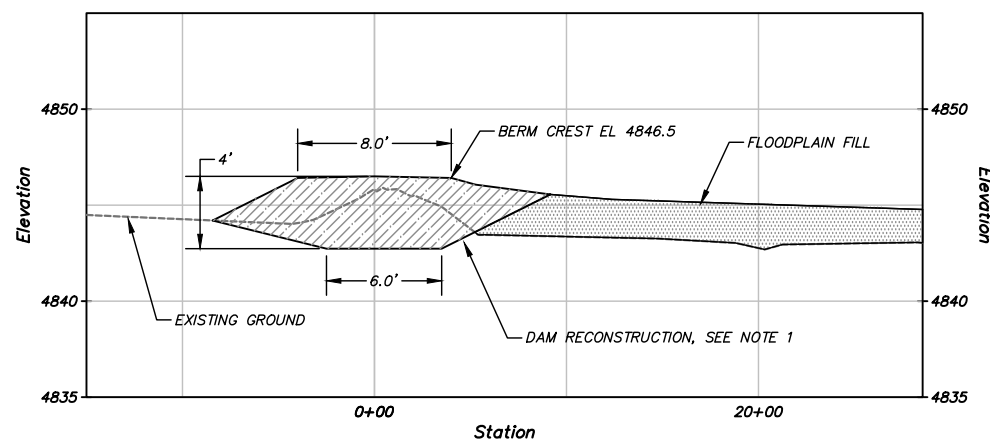
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STA. 0+30.00



STA. 0+45.00



NOTES:

1. CONTRACTOR WILL REMOVE EXISTING DAM AND RECONSTRUCT USING NATIVE MATERIAL AND FILL IMPORTED FROM APPROVED SITES. EXISTING MATERIAL SHALL BE EXCAVATED TO AN ELEVATION OF APPROXIMATELY 4842.5 FEET. CONTRACTOR WILL COMPACT SUBGRADE AND PLACE AND COMPACT FILL IN 8 INCH LIFTS. FILL MATERIAL SHALL BE MOIST, BUT NOT SATURATED. EACH LIFT WILL BE COMPACTED WITH A MINIMUM OF TWO PASSES WITH A VIBRATORY COMPACTOR.
2. CONSTRUCT FLOODPLAIN USING NATIVE MATERIAL AND FILL IMPORTED FROM APPROVED SITES. COMPACT SUBGRADE AND PLACE AND COMPACT FILL IN 8 INCH LIFTS. FILL MATERIAL SHALL BE MOIST, BUT NOT SATURATED. EACH LIFT WILL BE COMPACTED WITH A MINIMUM OF TWO PASSES WITH A VIBRATORY COMPACTOR. FLOODPLAIN SURFACE SHALL BE RIPPED TO A DEPTH OF 3 INCHES FOLLOWING CONSTRUCTION AND PLANTED WITH NATIVE GRASSES AND WILLOWS.

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Email: schreder@centurytel.net

Cascade Stream Solutions  
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Ashland, Oregon 97520  
Phone: (541) 864-0492

Drawing Information		Revisions	
Date	27 December 2019	No.	Date
Status			Description
Designer	jh		
Drafter	jh		
Checked			
File Name	SITE 2 - US DAM-B		
Plotted Scale	0 1/2 1		

PRELIMINARY  
NOT FOR CONSTRUCTION

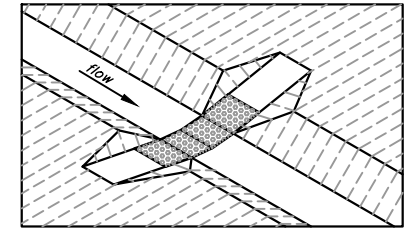
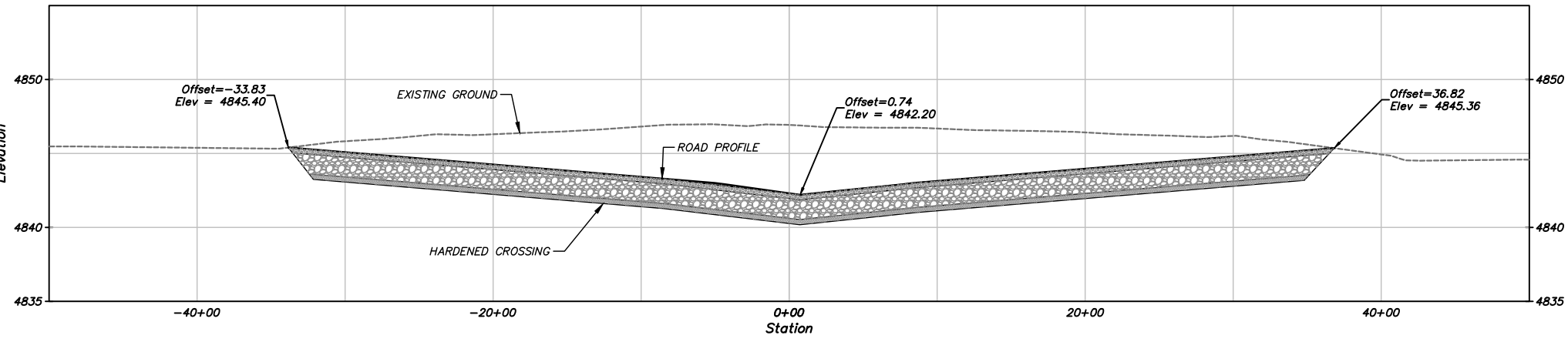
KV Bar Ranch  
Fish Passage Project  
Dam Sections

Job Number  
2017-115  
Sheet Number

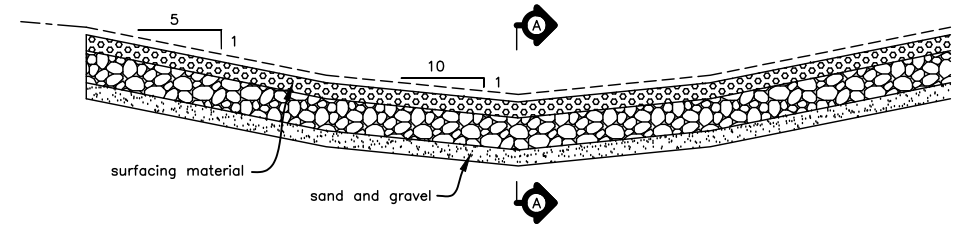
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Sheet 14 of 27

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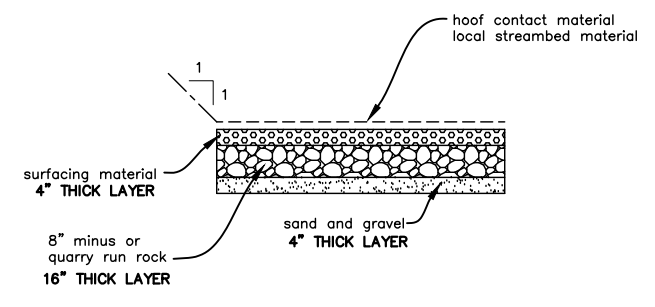
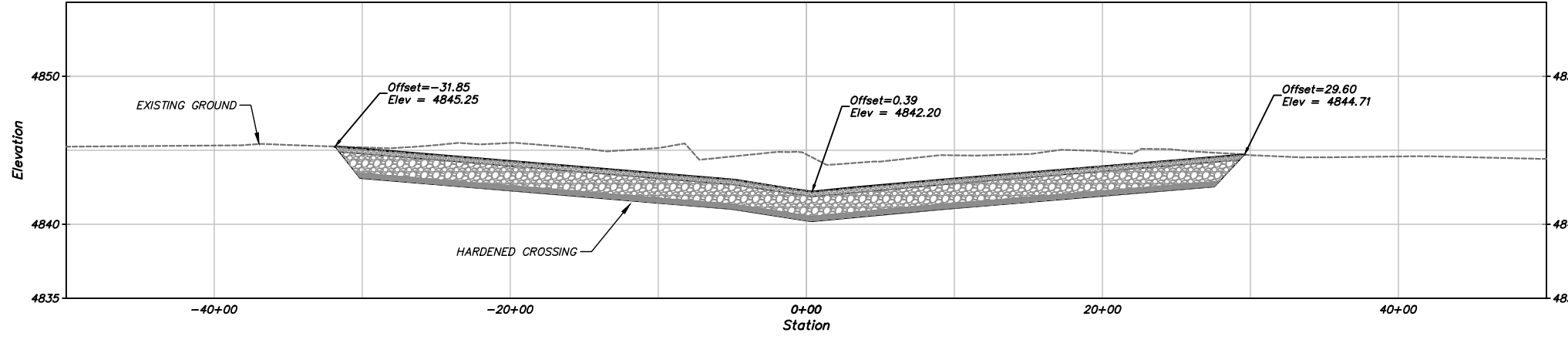


ISOMETRIC



CENTERLINE PROFILE

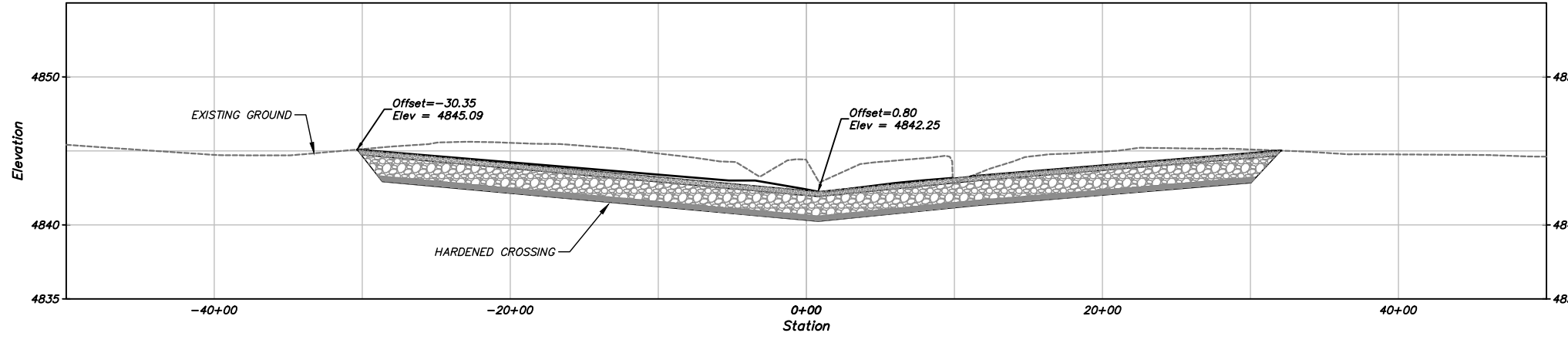
STA. 0+67.00



SECTION A

**HARDENED WATER CROSSING**  
H: NTS V: NTS

STA. 0+85.00



MATERIAL SCHEDULE		
ITEM	UNIT	QUANTITY
EXCAVATION	CY	150
8" MINUS QUARRY RUN ROCK	CY	36
SAND AND GRAVEL	CY	9
SURFACE MATERIAL (0.5" to 2.5")	CY	9

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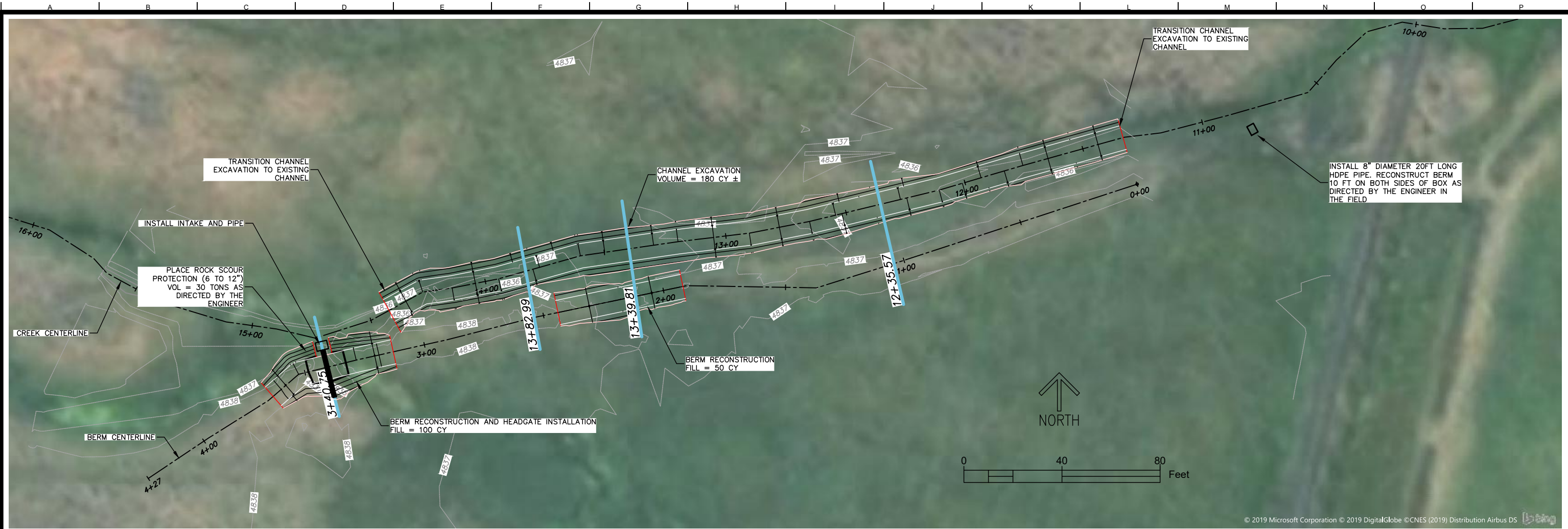
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Drawing Information		Revisions	
Date	27 December 2019	No.	Date
Status			Description
Designer	jh		
Drafter	jh		
Checked			
File Name	SITE 2 - US DAM-B		
Plotted Scale	0 1/2 1		

*PRELIMINARY  
NOT FOR CONSTRUCTION*

**KV Bar Ranch  
Fish Passage Project  
Hardened Crossing**

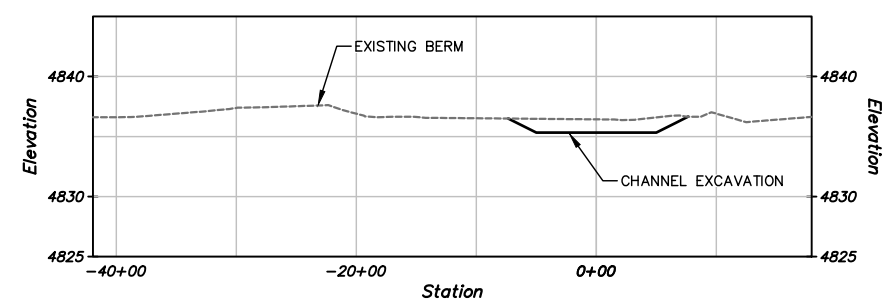
Job Number  
2017-115  
Sheet Number  
**UD4**  
Sheet 15 of 27



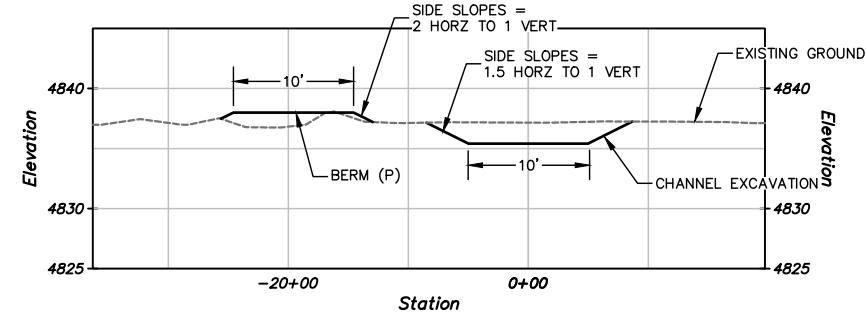
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MATERIAL SCHEDULE		
ITEM	UNIT	QUANTITY
EXCAVATION	CY	180
BERM RECONSTRUCTION FILL	CY	150
ROCK SCOUR PROTECTION	TONS	40
SURFACE MATERIAL	TONS	13
BRIGGS 4'X4' RICE BOX	EA	1
24" FLATBACK HEADGATE	EA	1
HDPE PIPE - 8 IN	FT	20
SLIDE DITCH GATE 8" DIAM	EA	1

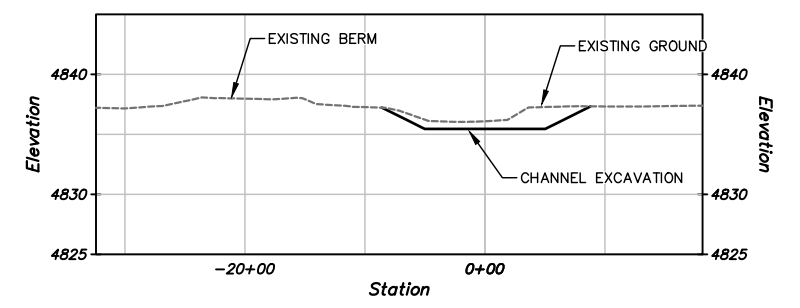
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STA. 13+39.81



STA. 13+82.99



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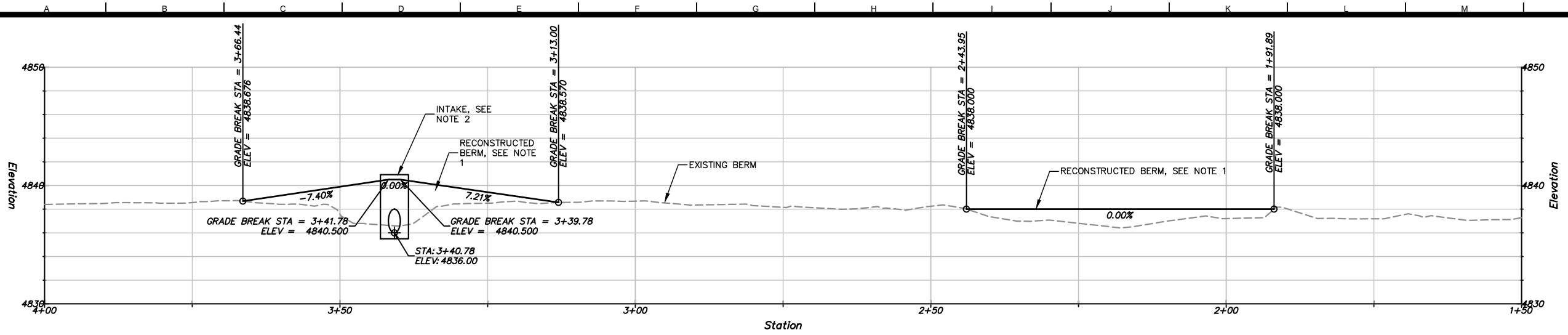
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Phone: (541) 864-0492

Drawing Information		Revisions	
Date	28 December 2019	No.	Date
Status		Description	
Designer	jh		
Drafter	jh		
Checked			
File Name	Site 4 and 5		
Plotted Scale	0 1/2 1		

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REGISTERED PROFESSIONAL ENGINEER  
64402  
LEONARD HOWARD

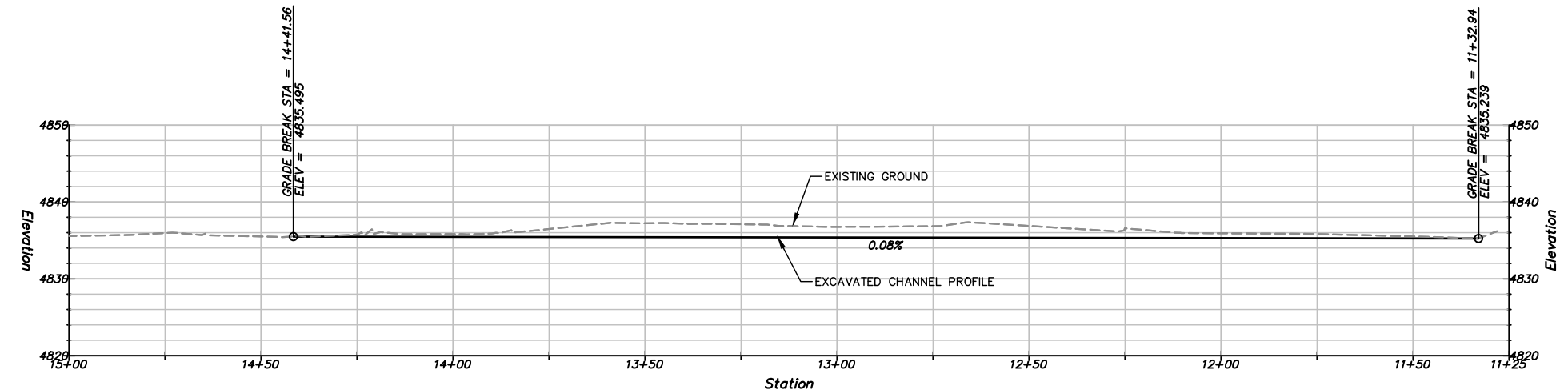
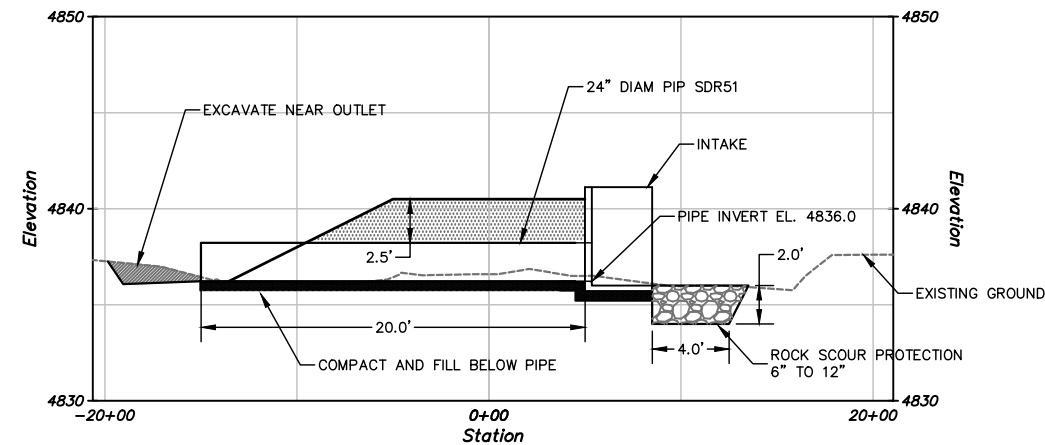
**KV Bar Ranch**  
**Fish Passage Project**  
**Sites 4 and 5: Berm Reconstruction and Channel Excavation Plan**

Job Number  
2017-115  
Sheet Number  
**BR1**  
Sheet 16 of 27



**BERM PROFILE**  
H: 1"=10' V: 1"=5'

STA. 3+40.75



**CREEK PROFILE**  
H: 1"=20' V: 1"=10'

- CHANNEL EXCAVATION NOTES:**
- EXCAVATE TO FIRM GROUND AS DIRECTED BY THE ENGINEER IN THE FIELD. FILL WITH SAND, GRAVEL, AND COBBLE IN 10" LIFTS. COMPACT LIFTS WITH VIBRATORY COMPACTOR. FILL MATERIAL SHALL BE MOIST, BUT NOT SATURATED.
  - INSTALL BRIGGS TWIN TRACK WEIR 4X5 (TT45) WITH FRESNO VALVE SERIES 6600 MODEL 101C SLIDE GATE OR APPROVED EQUIVALENT. STEM SHALL EXTEND 2 FEET TOP OF TWIN TRACK CONCRETE STRUCTURE.

- BERM RECONSTRUCTION NOTES:**
- EXCAVATE TO FIRM GROUND AS DIRECTED BY THE ENGINEER IN THE FIELD. FILL WITH SAND, GRAVEL, AND COBBLE IN 10" LIFTS. COMPACT LIFTS WITH VIBRATORY COMPACTOR. FILL MATERIAL SHALL BE MOIST, BUT NOT SATURATED.
  - INSTALL BRIGGS TWIN TRACK WEIR 4X5 (TT45) WITH FRESNO VALVE SERIES 6600 MODEL 101C SLIDE GATE OR APPROVED EQUIVALENT. STEM SHALL EXTEND 2 FEET TOP OF TWIN TRACK CONCRETE STRUCTURE. CONTRACTOR SHALL EXCAVATE AND REMOVE ORGANIC AND COHESIVE MATERIAL AND BACK FILL TO CONSTRUCT A FOUNDATION CAPABLE OF SUPPORTING TWIN TRACK STRUCTURE. BACK FILL MATERIAL SHALL CONSIST OF SAND AND GRAVEL. CRUSHED ROCK SMALLER THAN 4" IN DIAMETER MAY BE USED TO CREATE FOUNDATION. FOUNDATION MATERIAL WITHIN 12 INCHES OF TWIN TRACK STRUCTURE SHALL BE NO LARGER THAN 1 INCH.
  - CONNECT 20 FT LONG 24 INCH DIAM PIP SDR51 PIPE TO TWIN TRACK WEIR. EXTEND PIPE THROUGH BERM. EXCAVATE AT PIPE OUTLET AS NECESSARY TO CREATE FREE FLOW FROM PIPE. COVER PIPE WITH A MINIMUM OF 30 INCHES OF FILL. MATERIAL WITHIN 1' OF PIPE SHALL CONSIST OF SAND AND GRAVEL AND SHALL BE LESS THAN 2 INCHES ALONG THE LONGEST AXIS.

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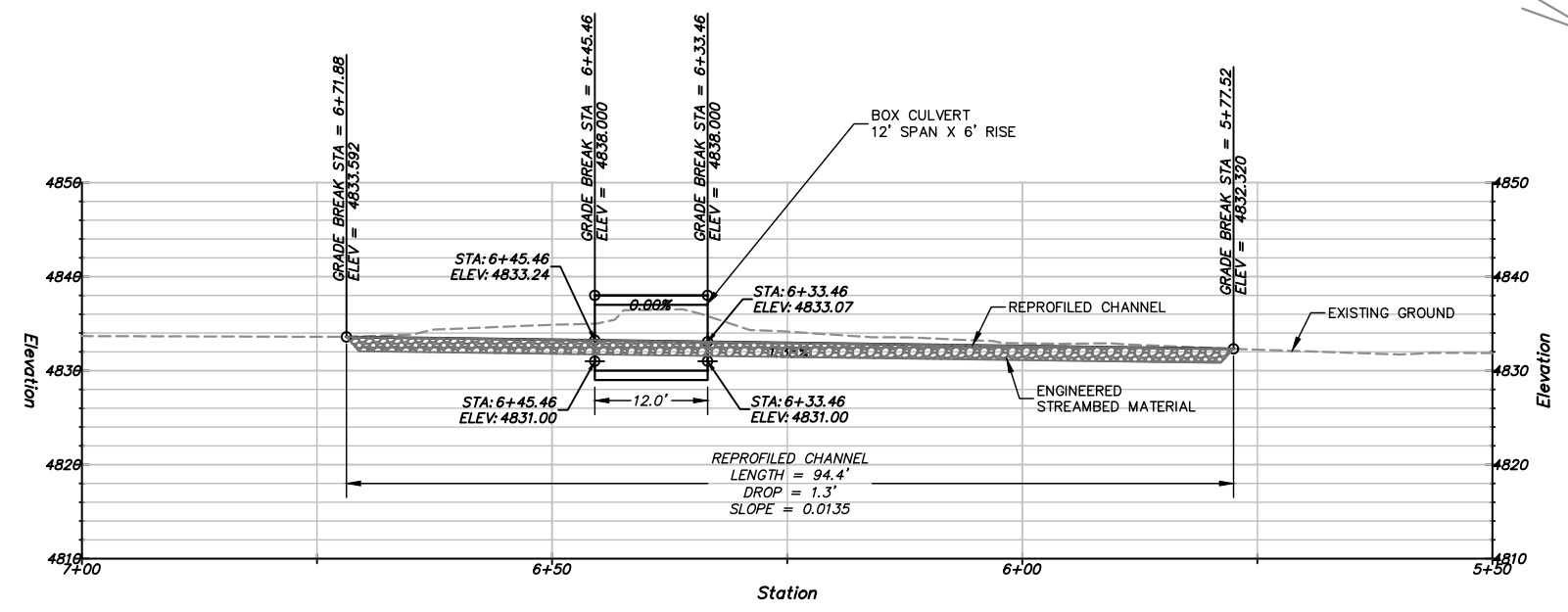
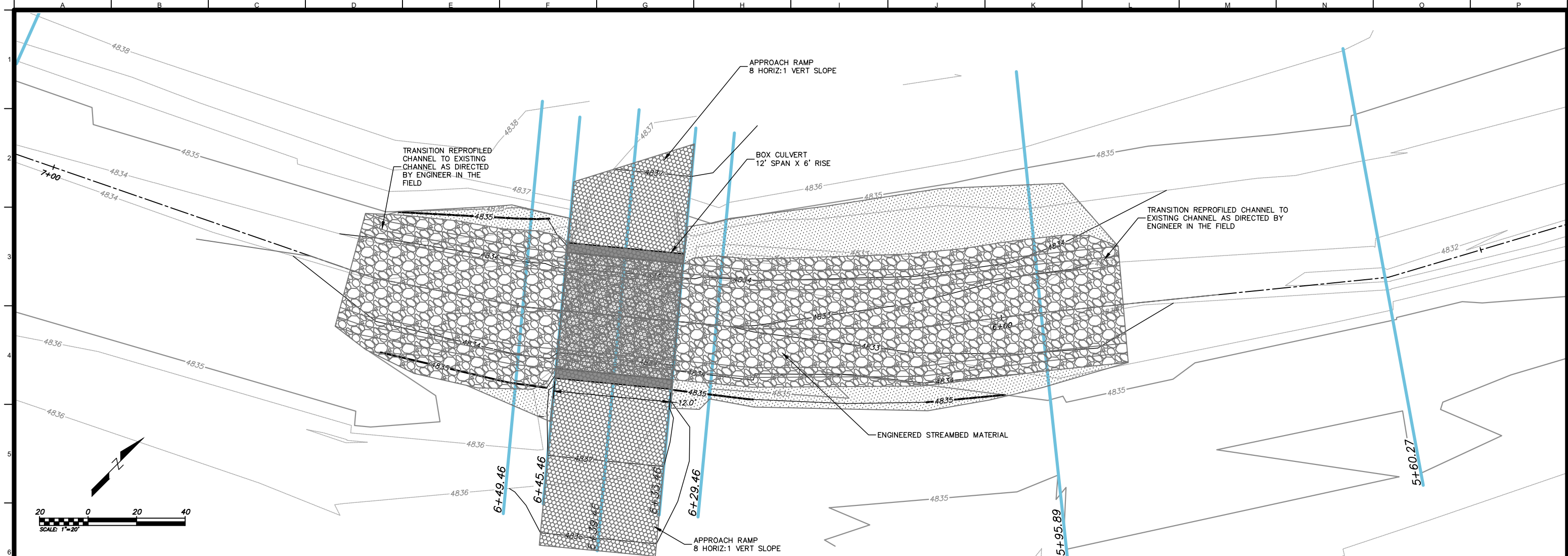
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Drawing Information		Revisions	
Date	28 December 2019	No.	Date
Status			
Designer	jh		
Drafter	jh		
Checked			
File Name	Site 4 and 5		
Plotted Scale			

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64402  
OREGON  
LEONARD HOWARD

**KV Bar Ranch**  
**Fish Passage Project**  
**Sites 4 and 5: Berm Reconstruction and Channel Excavation Profiles**

Job Number 2017-115  
Sheet Number  
**BR2**  
Sheet 17 of 27



MATERIAL SCHEDULE		
ITEM	UNIT	QUANTITY
PRE-CAST 12' SPAN X 6' RISE X 12 FT LONG	EA	1
APPROACH FILL	CY	22
EXCAVATION	CY	174
ENGINEERED STREAMBED MATERIAL (<18IN)	TON	98
1" MINUS CRUSHED ROCK	TON	17

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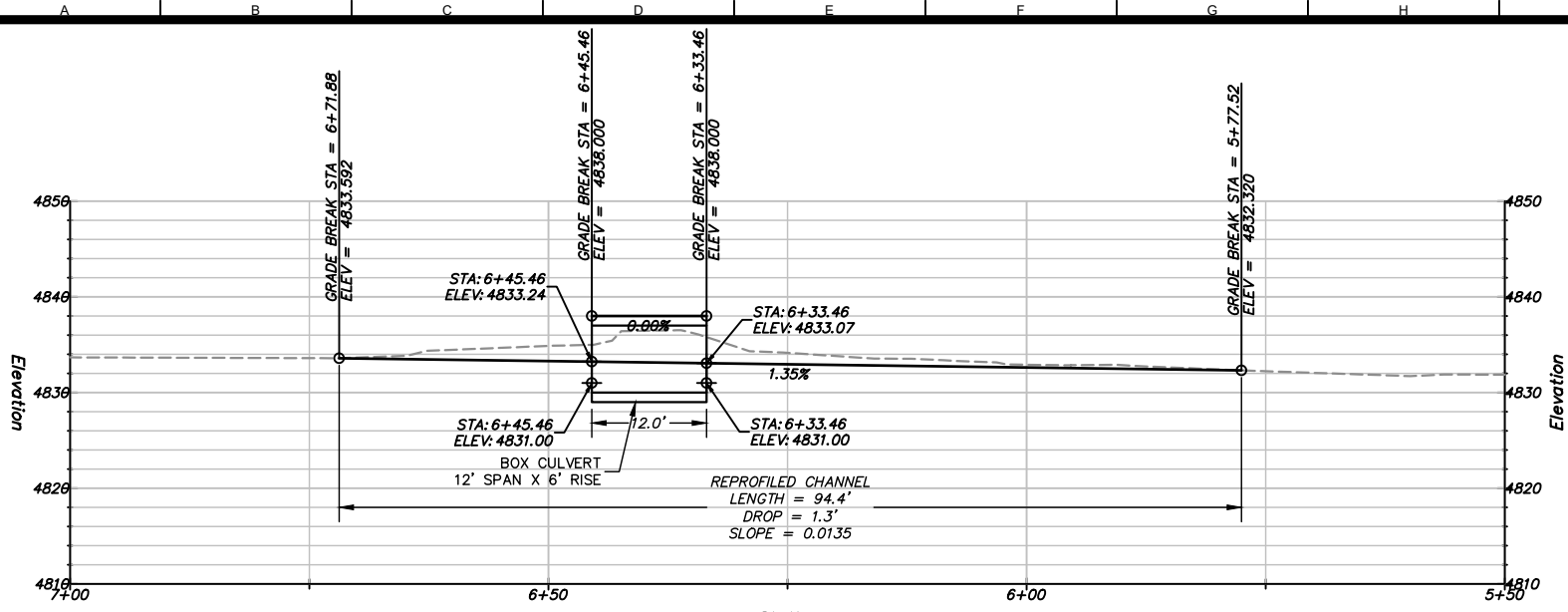
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Drawing Information		Revisions	
Date	27 December 2019	No.	Date
Status			
Designer	jh		
Drafter	jh		
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File Name	SITE 6 - Vehicle Crossing-R2		
Plotted Scale			

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**KV Bar Ranch**  
**Fish Passage Project**  
**Site 6: Road Crossing**  
**Plan Sheet**

Job Number  
2017-115  
 Sheet Number  
**RC1**  
 Sheet 18 of 27



STA. 5+95.89

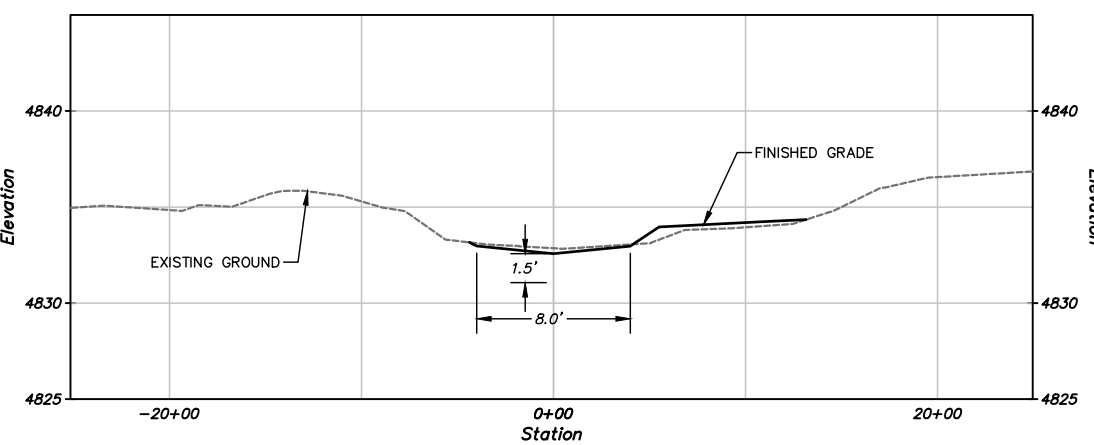
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STA. 6+39.46

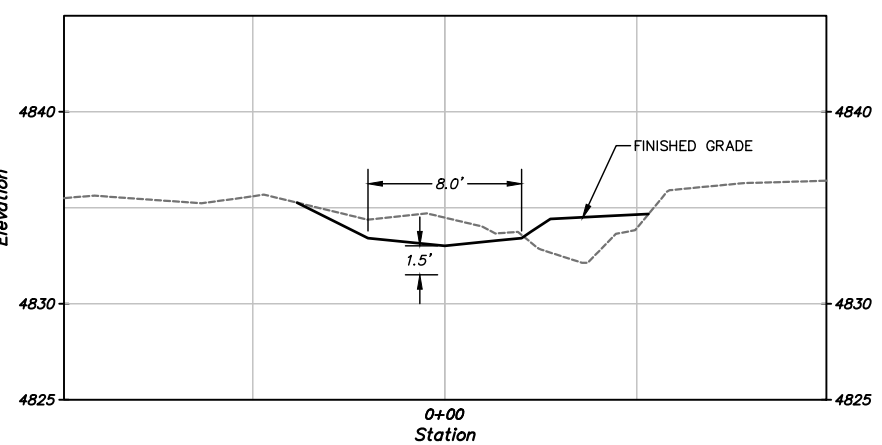
ROUGHENED CHANNEL NOTES

- SUBGRADE FOR ENGINEERED STREAMBED MATERIAL AND BOULDER BUTTRESSES SHALL CONSIST OF A 6 INCH LAYER OF NATIVE STREAMBED GRAVELS OR 1" MINUS AGGREGATE. SUBGRADE SHALL BE COMPACTED USING A VIBRATORY PLATE OR TAMPER.
- ENGINEERED STREAMBED MATERIAL SHALL BE CONSTRUCTED IN 1 FOOT LIFTS. LARGER PARTICLES WITHIN THE ESM WILL PROTRUDE ABOVE THE 1 FOOT LIFT. ESM LAYERS SHALL BE COMPACTED USING A VIBRATORY PLATE. ESM SHALL BE MOISTENED TO SEGREGATION OF FINES DURING MIXING PROCESS. LIFTS SHALL BE COMPACTED USING VIBRATORY PLATE OR TAMPER.
- ROUGHNESS BOULDERS SHALL BE PLACED AS DIRECTED BY THE ENGINEER IN THE FIELD.

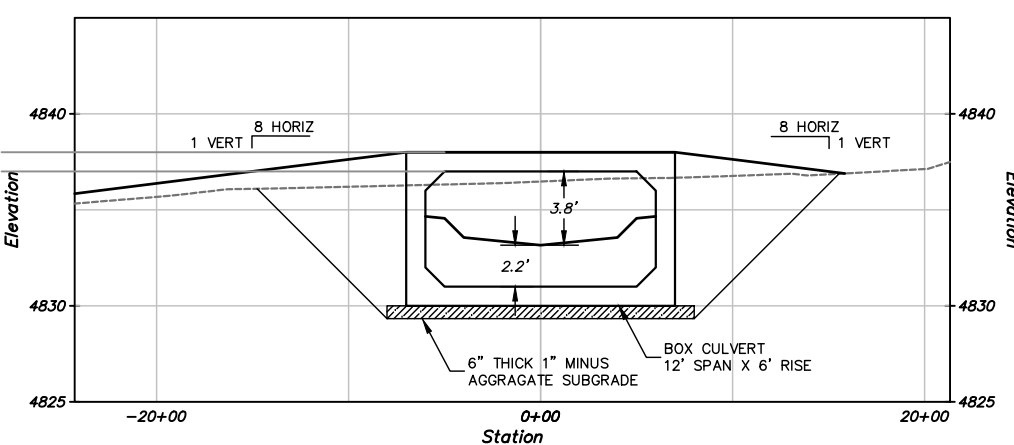
ENGINEERED STREAMBED MATERIAL (ESM)	
% OF MIX	ROCK SIZE
7%	SAND/SILT
9%	0.1"-0.3"
34%	0.4"-4.5"
34%	4.6"-11"
16%	12"-18"



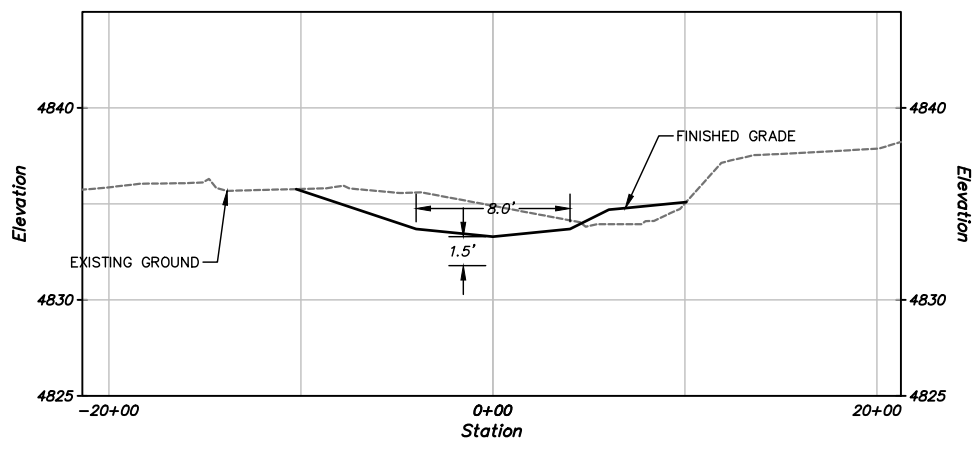
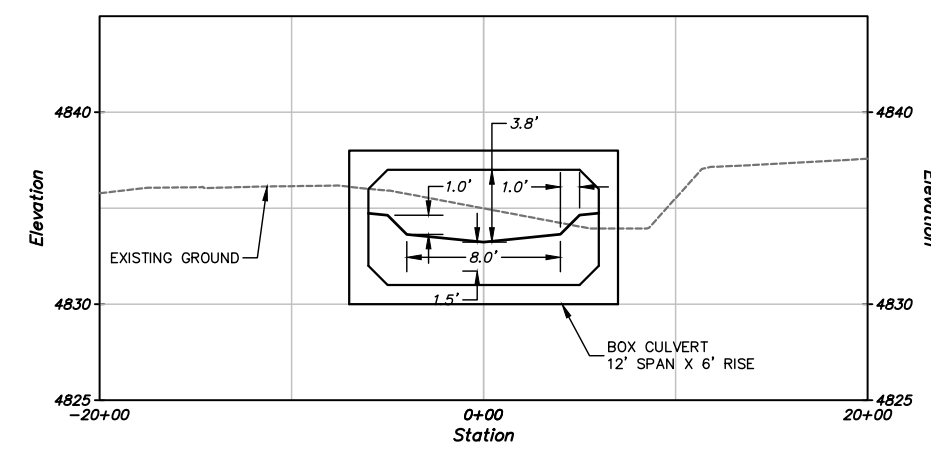
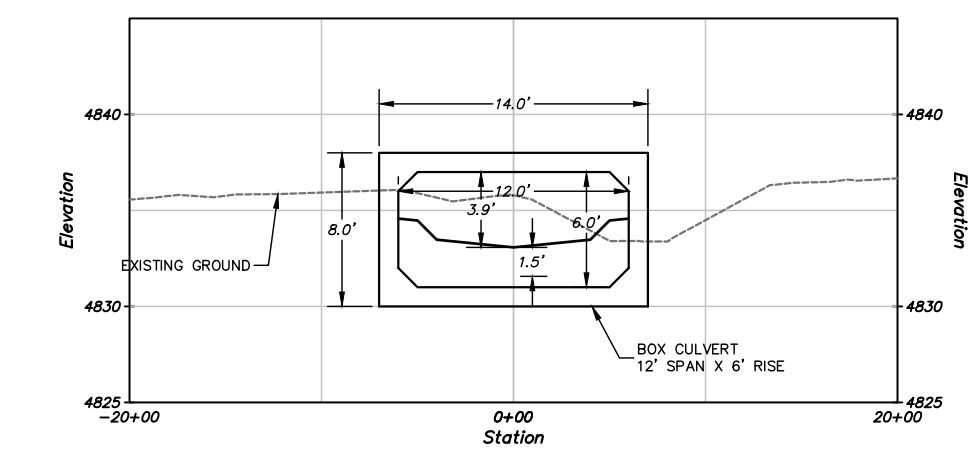
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STA. 6+45.46



STA. 6+49.46




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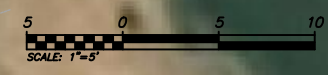
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File Name	SITE 6 - Vehicle Crossing-R2		
Plotted Scale	0 1/2 1		

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64402  
LEONARD HOWARD



**KV Bar Ranch**  
Fish Passage Project  
Site 6: Road Crossing  
Profiles and Cross Sections

Job Number  
2017-115  
Sheet Number  
**RC2**  
Sheet 19 of 27



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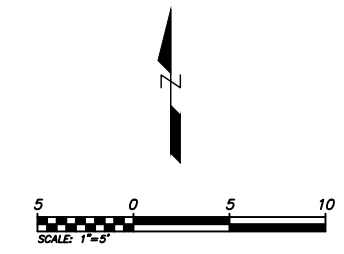
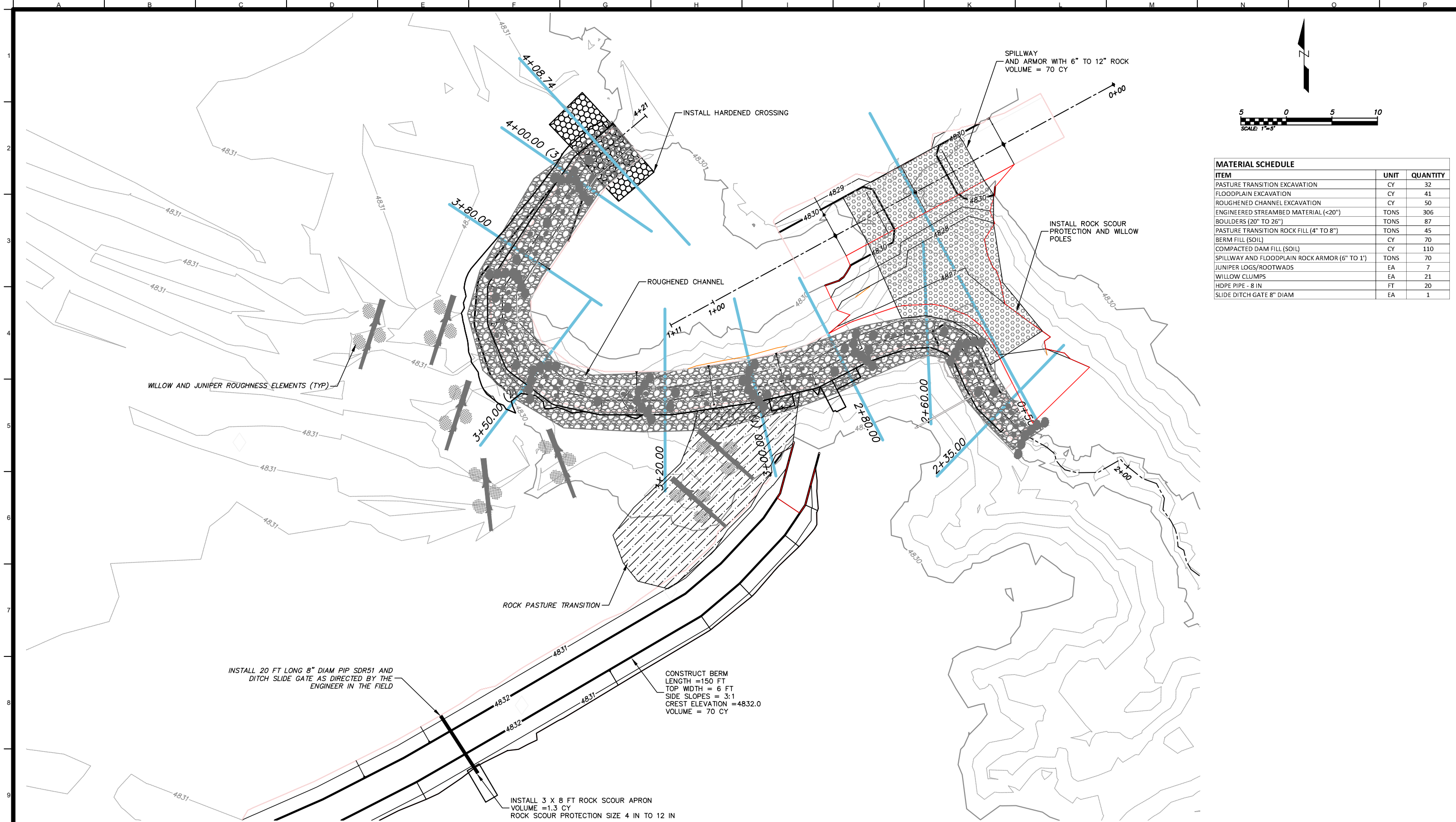
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Drawing Information		Revisions		
Date	27 December 2019	No.	Date	Description
Status				
Designer	jh			
Drafter	jh			
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File Name	SITE 7 - DS CROSSING-R2			
Plotted Scale				

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**KV Bar Ranch**  
**Fish Passage Project**  
**Site 7: Downstream Dam Fish Passage Plan**

Job Number  
2017-115  
 Sheet Number  
**DD1**  
 Sheet 20 of 27



MATERIAL SCHEDULE		
ITEM	UNIT	QUANTITY
PASTURE TRANSITION EXCAVATION	CY	32
FLOODPLAIN EXCAVATION	CY	41
ROUGHENED CHANNEL EXCAVATION	CY	50
ENGINEERED STREAMBED MATERIAL (<20")	TONS	306
BOULDERS (20" TO 26")	TONS	87
PASTURE TRANSITION ROCK FILL (4" TO 8")	TONS	45
BERM FILL (SOIL)	CY	70
COMPACTED DAM FILL (SOIL)	CY	110
SPILLWAY AND FLOODPLAIN ROCK ARMOR (6" TO 1')	TONS	70
JUNIPER LOGS/ROOTWADS	EA	7
WILLOW CLUMPS	EA	21
HDPE PIPE - 8 IN	FT	20
SLIDE DITCH GATE 8" DIAM	EA	1

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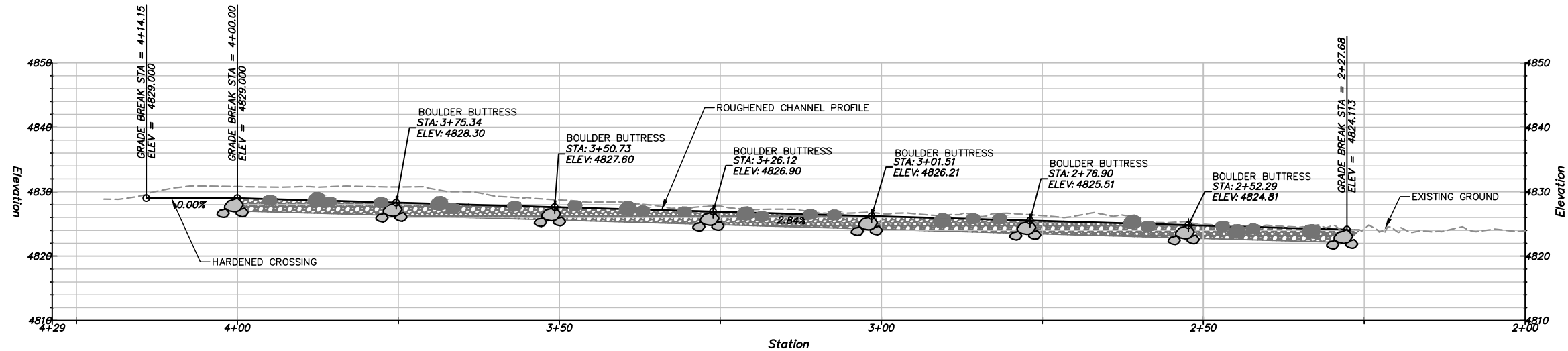
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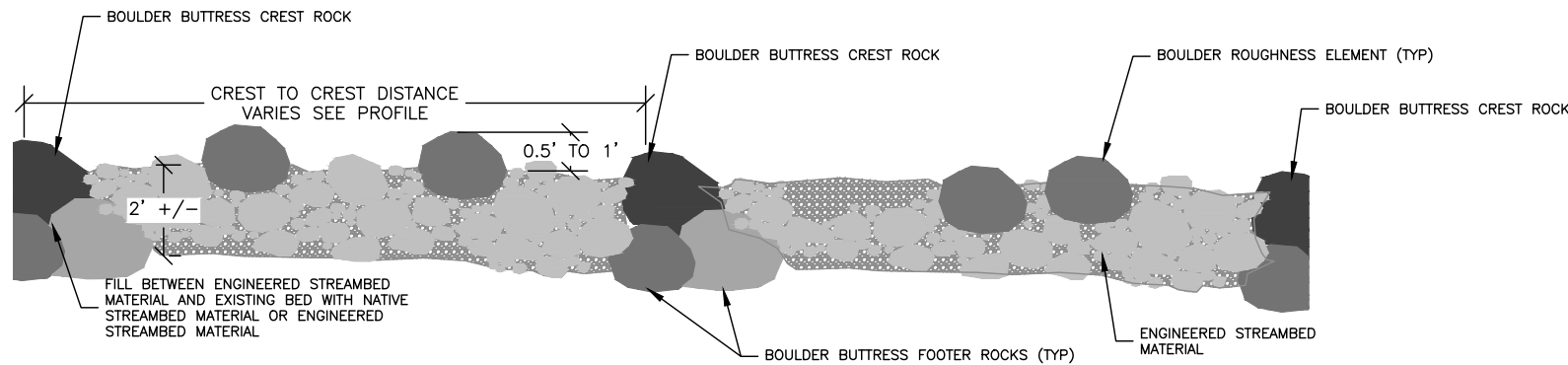


**KV Bar Ranch**  
**Fish Passage Project**  
 Site 7: Downstream Dam Fish Passage Plan

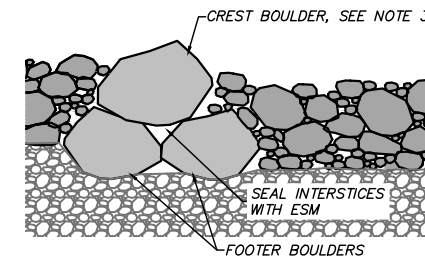
Job Number  
2017-115  
 Sheet Number  
**DD2**  
 Sheet 21 of 27



**ROUGHENED CHANNEL PROFILE**  
H: 1"=10' V: 1"=10'



**A TYPICAL ROUGHENED CHANNEL PROFILE**  
DD3 H: 1"=3' V: 1"=3'



**B BOULDER BUTTRESS SECTION DETAIL**  
DD3 H: 1"=3' V: 1"=3'

**ROUGHENED CHANNEL NOTES**

- SUBGRADE FOR ENGINEERED STREAMBED MATERIAL AND BOULDER BUTTRESSES SHALL CONSIST OF A 6 INCH LAYER OF NATIVE STREAMBED GRAVELS OR 1" MINUS AGGREGATE. SUBGRADE SHALL BE COMPACTED USING A VIBRATORY PLATE OR TAMPER.
- ENGINEERED STREAMBED MATERIAL SHALL BE CONSTRUCTED IN 1 FOOT LIFTS. LARGER PARTICLES WITHIN THE ESM WILL PROTRUDE ABOVE THE 1 FOOT LIFT. ESM LAYERS SHALL BE COMPACTED USING A VIBRATORY PLATE. ESM SHALL BE MOISTENED TO SEGREGATION OF FINES DURING MIXING PROCESS. LIFTS SHALL BE COMPACTED USING VIBRATORY PLATE OR TAMPER.
- ROUGHNESS BOULDERS SHALL BE PLACED AS DIRECTED BY THE ENGINEER IN THE FIELD.
- BOULDER BUTTRESSES SHALL BE INDIVIDUALLY PLACED AND FOUNDED ON FOOTER ROCKS. CONTRACTOR SHALL INDIVIDUALLY SELECT BOULDERS BASED ON SIZE AND SHAPE TO FORM STABLE BOULDER STEP STRUCTURE AND MINIMIZE INTERSTITIAL SPACES BETWEEN BOULDERS. BOULDERS SHALL HAVE A MINIMUM OF THREE POINTS OF CONTACT WITH ADJACENT BOULDER STEP MATERIAL. CONTRACTOR SHALL FILL INTERSTITIAL SPACES WITH FINE MATERIAL BY JETTING IN MATERIAL. BOULDER CREST ROCKS SHALL RANGE FROM 20 FEET TO 30 FEET AS MEASURED ALONG THE B-AXIS. BOULDER STEP FOOTER ROCKS SHALL BE NO SMALLER THAN 2.5 FEET AS MEASURED ALONG THE B-AXIS.

ENGINEERED STREAMBED MATERIAL (ESM)	
% OF MIX	ROCK SIZE
7%	SAND/SILT
9%	0.1"-0.7"
34%	0.8"-7"
34%	8"-20"
16%	20"-24"



**C CHANNEL CROSS SECTION DETAIL**  
DD3 H: 1"=3' V: 1"=3'

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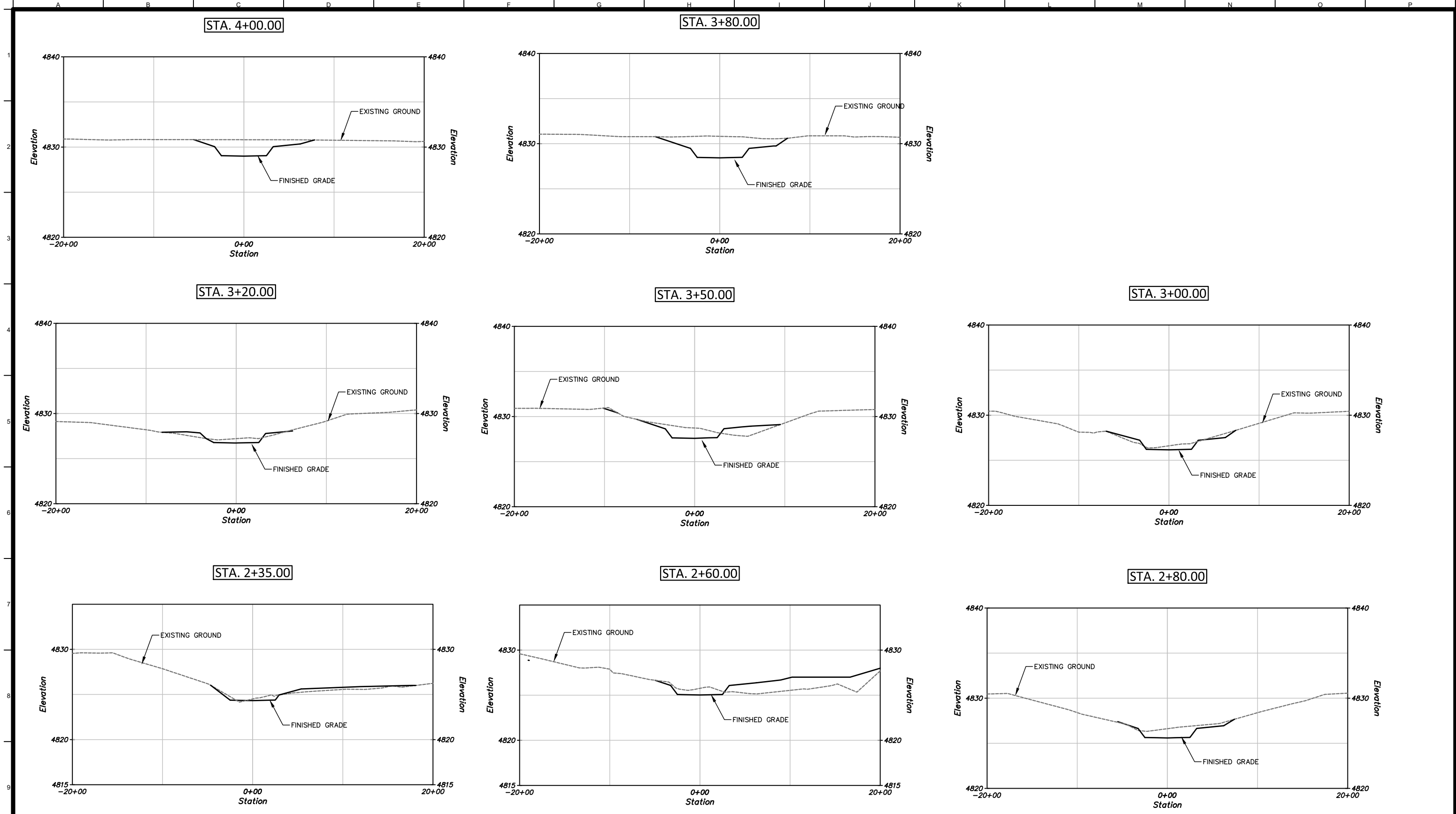
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Drawing Information		Revisions	
Date	27 December 2019	No.	Date
Status		Description	
Designer	jh		
Drafter	jh		
Checked			
File Name	SITE 7 - DS CROSSING-R2		
Plotted Scale	0 1/2 1		

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64402  
LEONARD HOWARD

**KV Bar Ranch**  
Fish Passage Project  
Site 1: Spillway Profile Roughened Channel and Details

Job Number  
2017-115  
Sheet Number  
**DD3**  
Sheet 22 of 27



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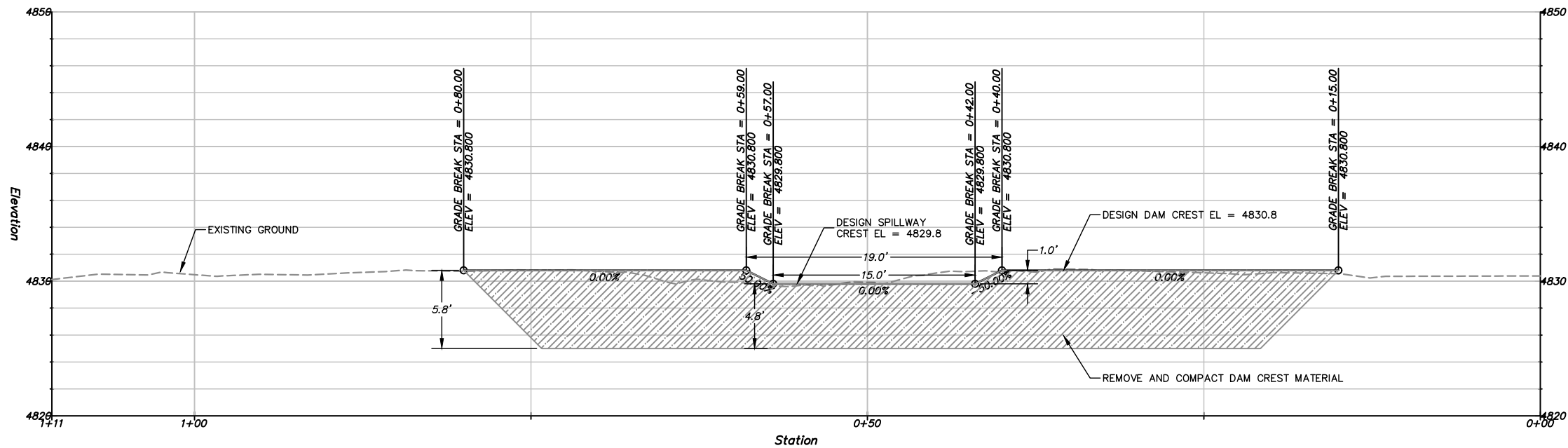
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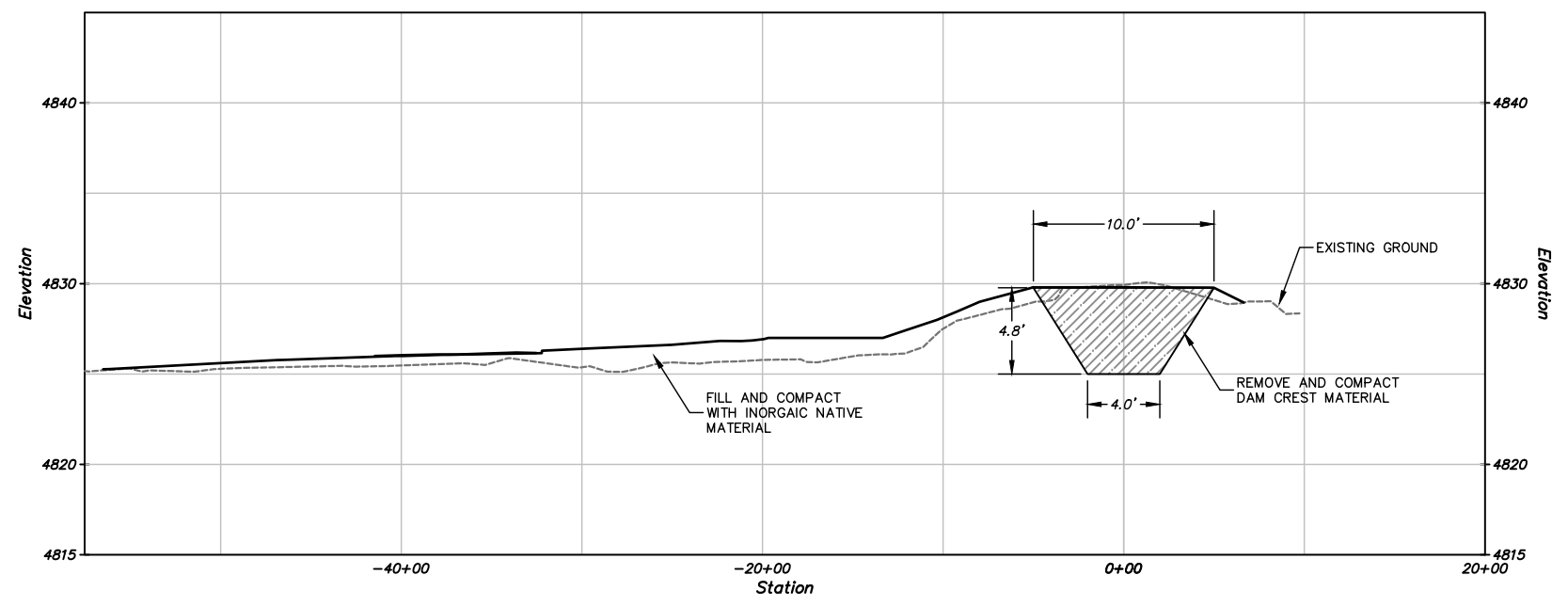
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**KV Bar Ranch**  
**Fish Passage Project**  
**Site 7: Downstream Dam Fish Passage**  
**Roughened Channel Sections**

Job Number  
2017-115  
 Sheet Number  
**DD4**  
 Sheet 23 of 27



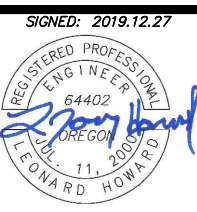
- NOTES:
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  - CONSTRUCT FLOODPLAIN USING NATIVE MATERIAL AND FILL IMPORTED FROM APPROVED SITES. COMPACT SUBGRADE AND PLACE AND COMPACT FILL IN 8 INCH LIFTS. FILL MATERIAL SHALL BE MOIST, BUT NOT SATURATED. EACH LIFT WILL BE COMPACTED WITH A MINIMUM OF TWO PASSES WITH A VIBRATORY COMPACTOR. FLOODPLAIN SURFACE SHALL BE RIPPED TO A DEPTH OF 3 INCHES FOLLOWING CONSTRUCTION AND PLANTED WITH NATIVE GRASSES AND WILLOWS.



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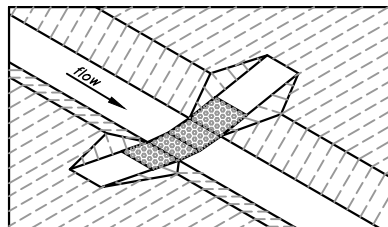
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Plotted Scale				

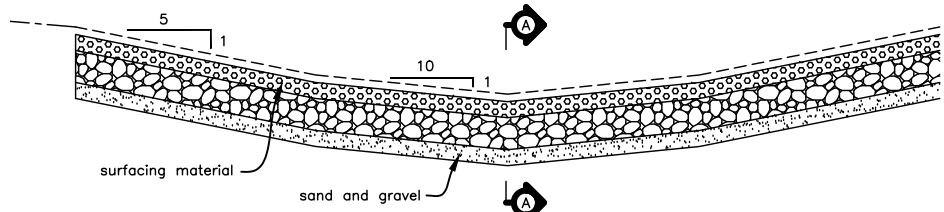


**KV Bar Ranch**  
**Fish Passage Project**  
**Site 7: Downstream Dam Reconstruction**  
**Sections**

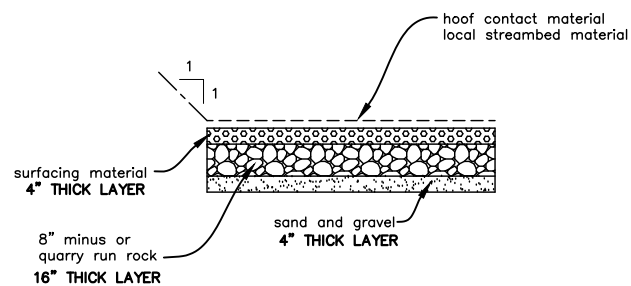
Job Number  
2017-115  
 Sheet Number  
**DD5**  
 Sheet 24 of 27



ISOMETRIC



CENTERLINE PROFILE

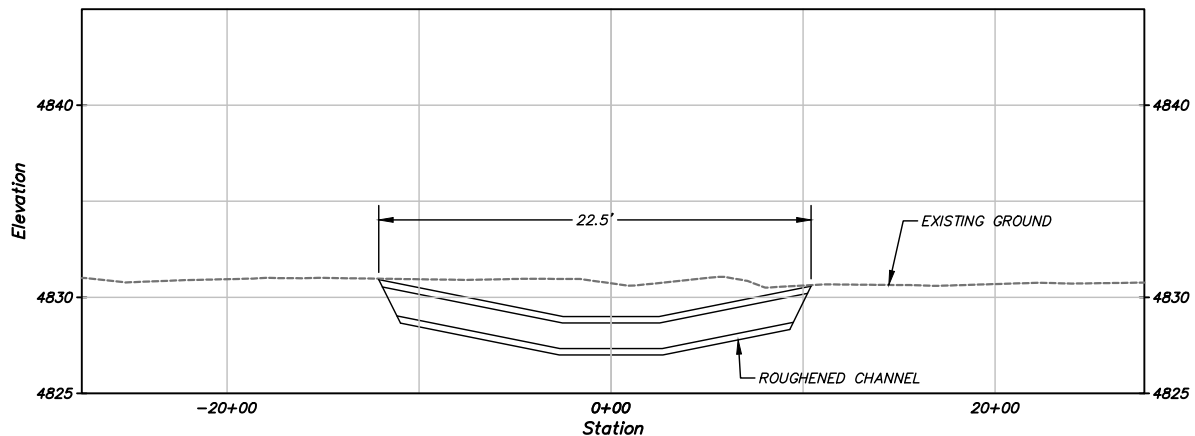


SECTION A

**HARDENED WATER CROSSING**

H: NTS V: NTS

STA. 4+08.74



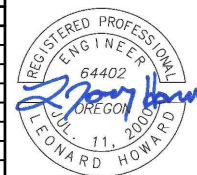
MATERIAL SCHEDULE		
ITEM	UNIT	QUANTITY
EXCAVATION	CY	30
8" MINUS QUARRY RUN ROCK	CY	3
SAND AND GRAVEL	CY	11
SURFACE MATERIAL (0.5" TO 2.5")	CY	3

Lake County Watersheds Council  
Ph: 541.219.0830  
Email: schreder@centurytel.net

**Cascade Stream Solutions**  
961 Bellview, Ave  
Ashland, Oregon 97520  
Phone: (541) 864-0492

Drawing Information		Revisions	
Date	27 December 2019	No.	Date
Status			Description
Designer	jh		
Drafter	jh		
Checked			
File Name	SITE 7 - DS CROSSING-R2		
Plotted Scale	0 1/2 1		

SIGNED: 2019.12.27

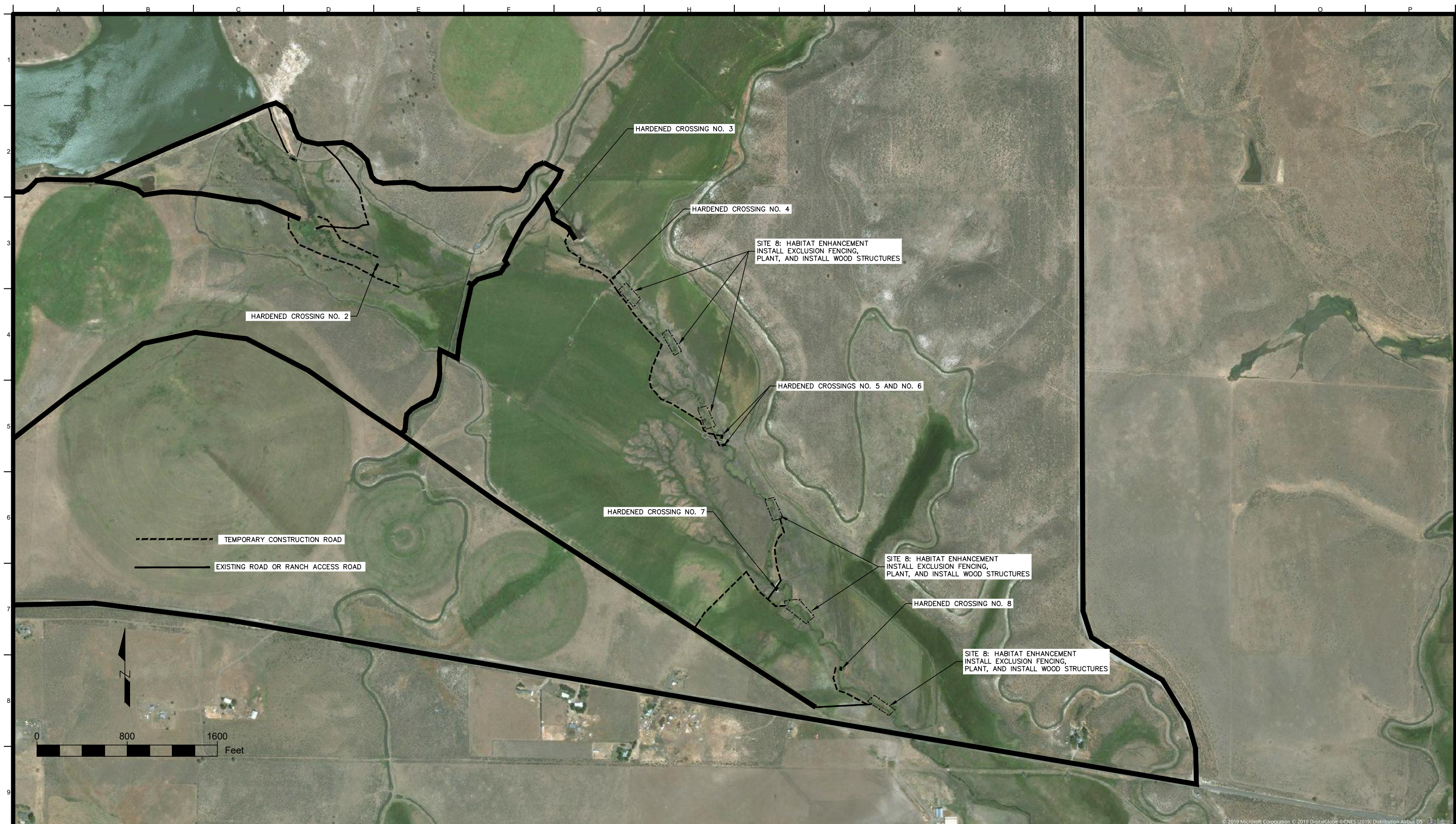


**KV Bar Ranch**  
**Fish Passage Project**  
**Site 7: Downstream Dam Fish Passage**  
**Hardened Crossing**

Job Number  
2017-115  
Sheet Number

**DD6**

Sheet 25 of 27



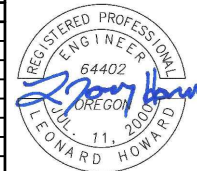
Lake County Watersheds Council  
 Ph: 541.219.0830  
 Email: schreder@centurytel.net

**Cascade Stream Solutions**  
 961 Bellview Ave.  
 Ashland, Oregon 97520  
 Phone: (541) 864-0492

Cascade  
STREAM SOLUTIONS

Drawing Information		Revisions		
Date	27 December 2019	No.	Date	Description
Status				
Designer	jh			
Drafter	jh			
Checked				
File Name	SITE 8 HABITAT ENHANCEMENT			
Plotted Scale	0 1/2 1			

SIGNED: 2019.12.27

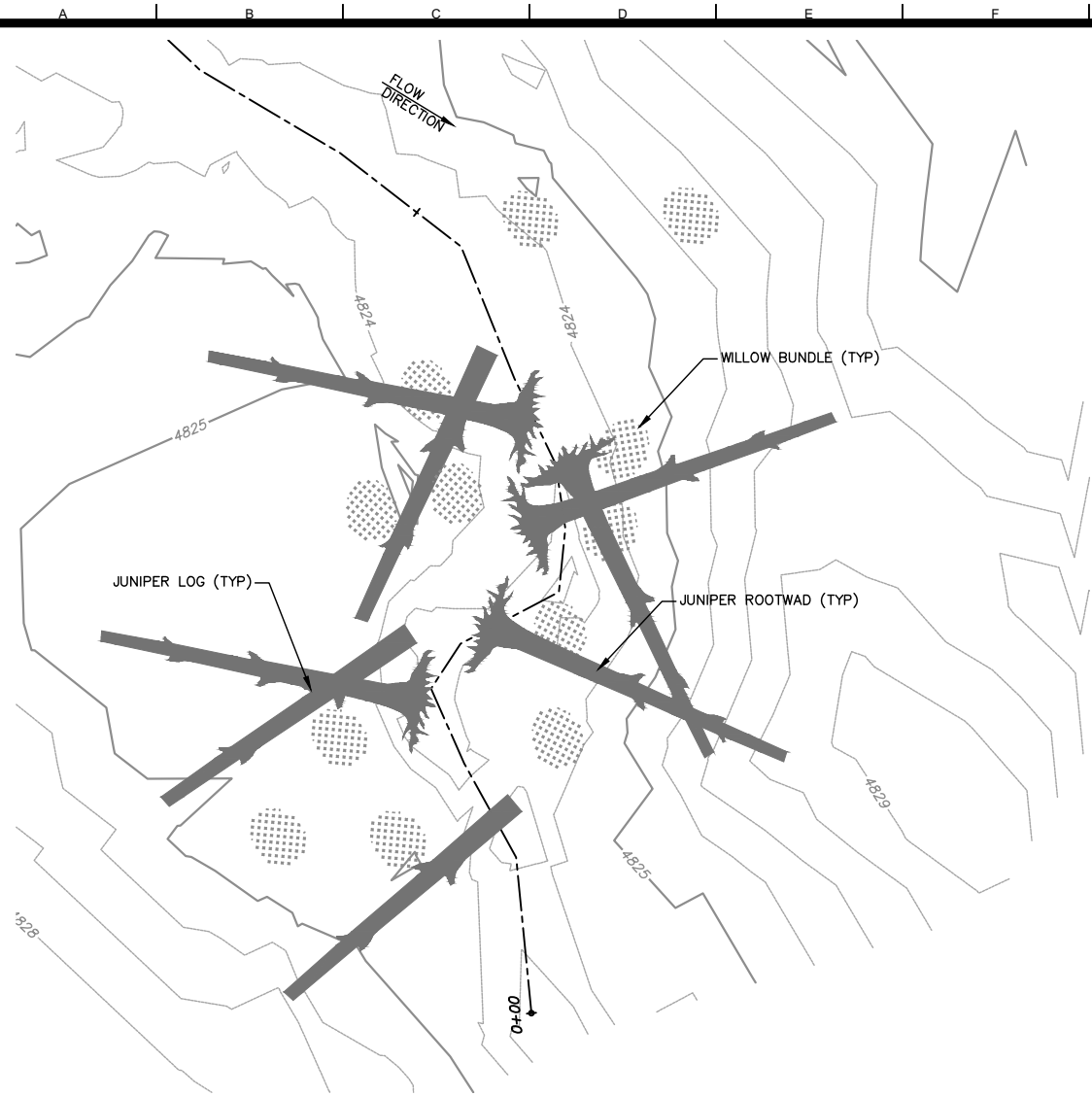


**KV Bar Ranch**  
 Habitat Enhancement Project  
 Site 8 Habitat Enhancement Areas and  
 Hardened Crossing Locations

Job Number  
2017-115  
 Sheet Number

**HE1**

Sheet 27 of 27

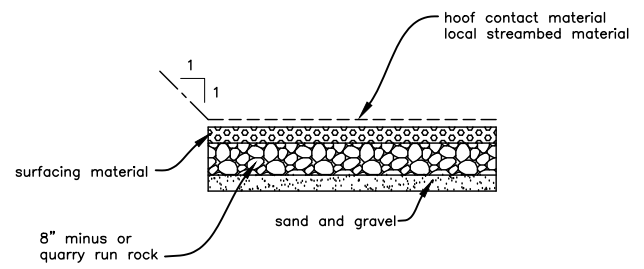
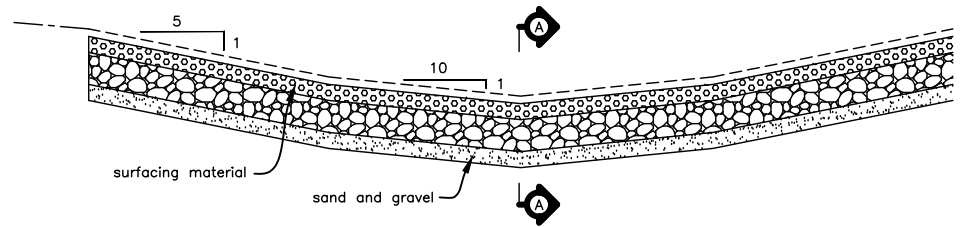
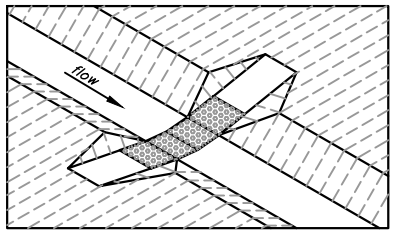


**WOOD AND WILLOW GRADE CONTROL STRUCTURE**  
 H: 1"=5' V: 1"=5'

**WOOD AND WILLOW GRADE CONTROL NOTES:**

1. CONSTRUCT TWO WOOD WILLOW GRADE CONTROL STRUCTURES PER HABITAT ENHANCEMENT AREA. SPACE WOOD AND WILLOW GRADE CONTROL STRUCTURES APPROXIMATELY 100 FEET APART WITHIN HABITAT ENHANCEMENT AREA.
2. PLACE WOOD AND WILLOWS AS DIRECTED BY THE ENGINEER IN THE FIELD. ANCHOR WOOD WITH SOIL AND BOULDERS. BURY APPROXIMATELY TWO-THIRDS OF WOOD IN BANK TO SECURE WOOD IN PLACE. ROOTWADS AND LOGS SHALL HAVE A MINIMUM DBH OF 18 INCHES AND BE 20 FEET LONG.

MATERIAL SCHEDULE PER SITE		
ITEM	UNIT	QUANTITY
JUNIPER LOGS/ROOTWADS	EA	8
WILLOW CLUMPS	EA	12

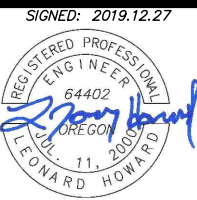


**HARDENED WATER CROSSING**  
 H: NTS V: NTS

Lake County Watersheds Council  
 Ph: 541.219.0830  
 Email: schreder@centurytel.net

**Cascade Stream Solutions**  
 961 Bellview Ave.  
 Ashland, Oregon 97520  
 Phone: (541) 864-0492

Drawing Information		Revisions		
Date	27 December 2019	No.	Date	Description
Status				
Designer	jh			
Drafter	jh			
Checked				
File Name	SITE 8 DETAIL			
Plotted Scale	0 1/2 1			



**KV Bar Ranch**  
**Fish Passage Project**  
**Site 8: Habitat Enhancement Area**  
**& Hardened Crossing Detail**

Job Number  
2017-115  
 Sheet Number  
**HE2**  
 Sheet 27 of 27

Attachment 6  
Compliance Letter



# Oregon

John A. Kitzhaber, M.D., Governor

## Department of Fish and Wildlife

Fish Division  
4034 Fairview Industrial Dr. SE  
Salem, OR 97302-1142  
503-947-6200  
Fax: 503-947-6202  
[www.dfw.state.or.us](http://www.dfw.state.or.us)

October 13, 2014

**Chuck Kelley**  
P.O. Box 711  
Lakeview, OR 97630



**Re: S-54800 Fish Screening Requirement**

Dear Mr. Kelley,

Oregon Water Resources Department (OWRD) water right permit S-54800 requires that fish screening be installed and functional, with approval in writing by the Oregon Department of Fish and Wildlife (ODFW), prior to the diversion of water. ODFW has taken your request to be excused from fish screening compliance under ORS §498.306(13) to the Fish Screening Task Force. On Friday, October 10, 2014, the Task Force voted to keep the fish screening requirement in place.

The following options are available to you:

1. Install an ODFW criteria fish screen at the diversion specified in S-54800.
2. Request a contested case hearing before the State Fish and Wildlife Commission (ORS §498.306(10(e))).
3. Take other provisions (mitigation) to the Commission and show them that these measures are adequate for the protection of the fish (ORS §498.316).
4. Relinquish the water right through OWRD.

ODFW conducted a site visit on Oct 14, 2014 with Chuck Kelley, John Shine and Marci Schreder to evaluate fish screen options and funding assistance. Mr. Shine was receptive to installing a fish screen that would meet the conditions of water right S-54800. Ms. Schreder offered to assist in obtaining funds to help cost share the screen installation. A conceptual design and associated cost estimate is currently being developed. ODFW is encouraged by the progress this project has taken towards providing fish protection at this diversion.

If you have any questions, please feel free to contact me (503) 947-6217.

Thank you,

Pete Baki

Statewide Fish Screening Coordinator

Cc: Alan Ritchey, Chip Dale, Mike Harrington - ODFW

# Attachment 7

## Video and Site Photos

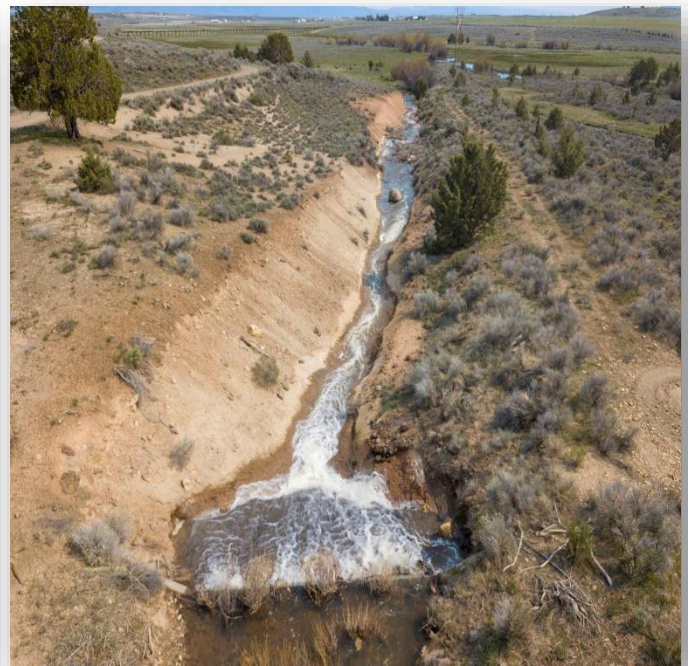
# Muddy Creek Water Use and Restoration Project

## Video Link and Site Photos



**Figure 1.** An aerial overview of the lower segment of the stream channel as it flows through the meadow system and pasture fields. For full visual of the upper and lower segment of the project see

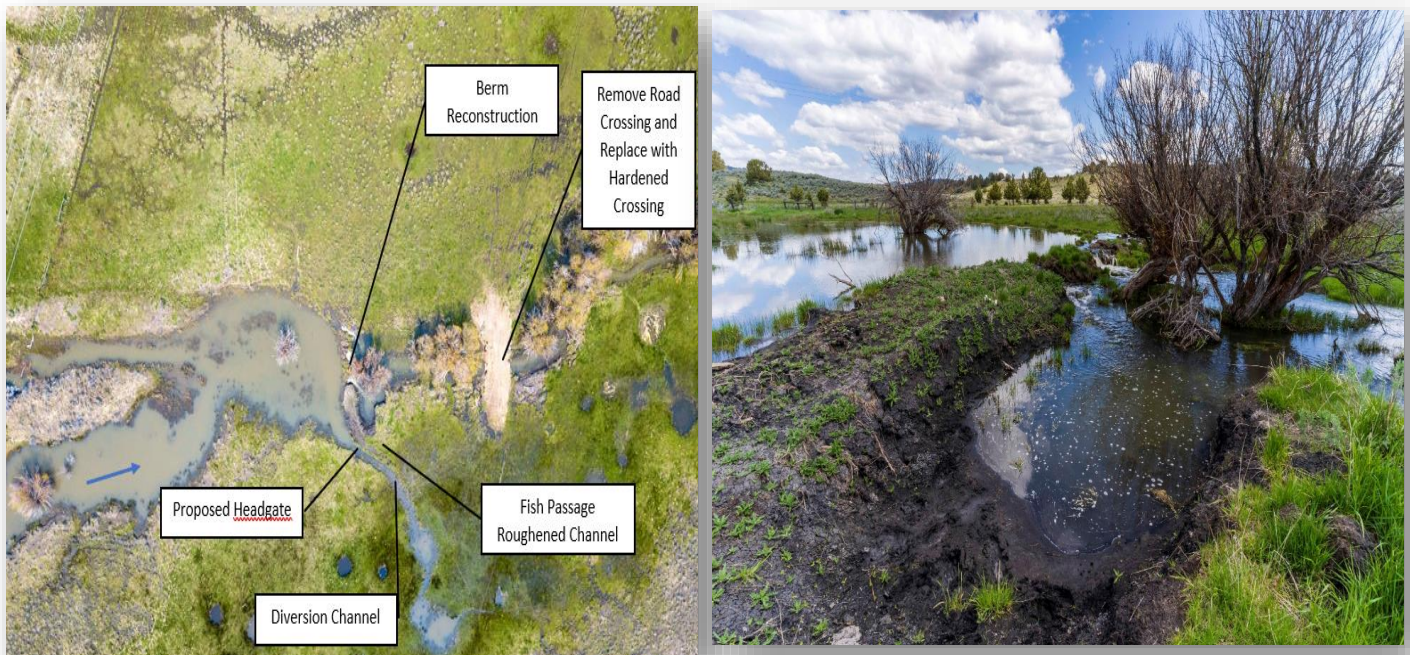
<https://www.youtube.com/watch?v=x9i3kGKwkA0&t=2s>



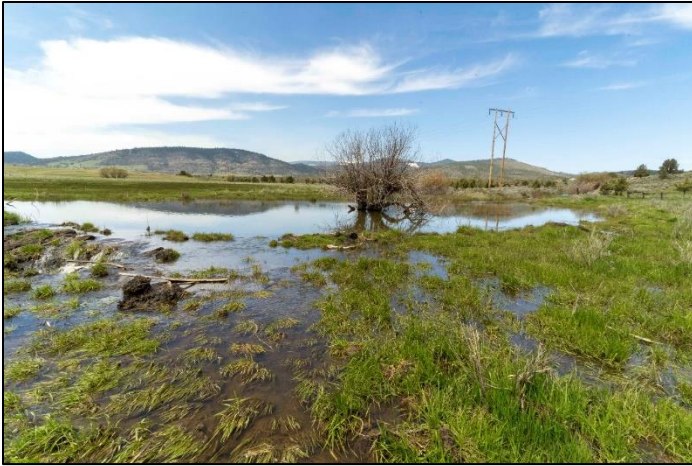
**Figure 2.** An upstream view of Site 1 reservoir spillway crest during spring flow (left), a downstream view of the spillway as it exits reservoir (right).



**Figure 3.** An aerial overview of the Site 2 where spillway exit intersects irrigation pipe (left), and an upstream view of the creek and pipe intersection (right).



**Figure 4.** An aerial overview of the Site 3 project elements (left), and an upstream view of the existing earthen berm (right).



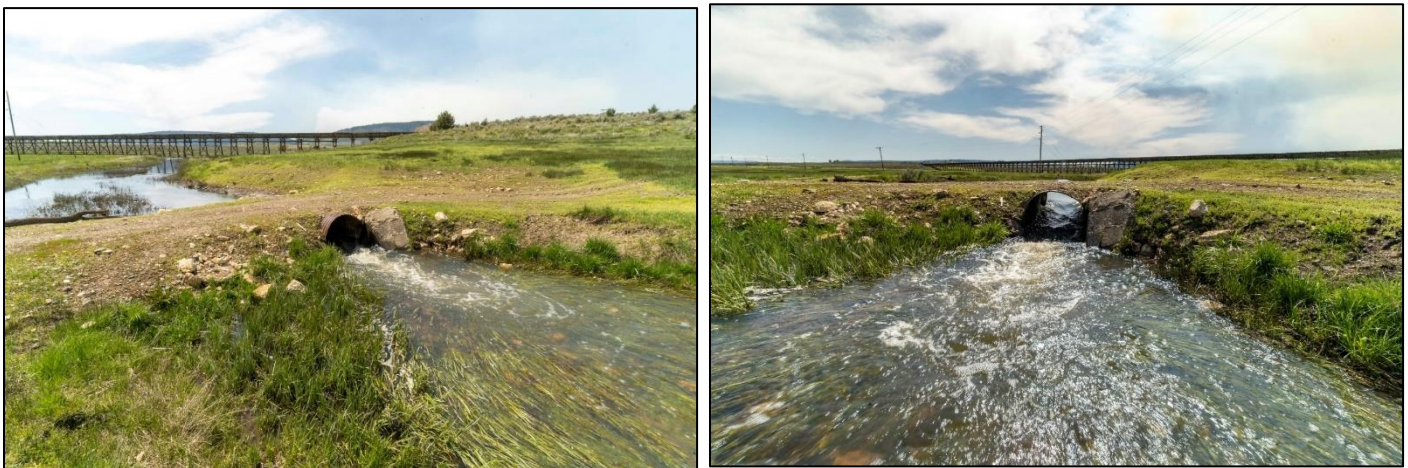
**Figure 5.** An upstream view of overland flow to the river-left side of the earthen berm (left), and the existing crossing that will be replaced with an armored crossing (right).



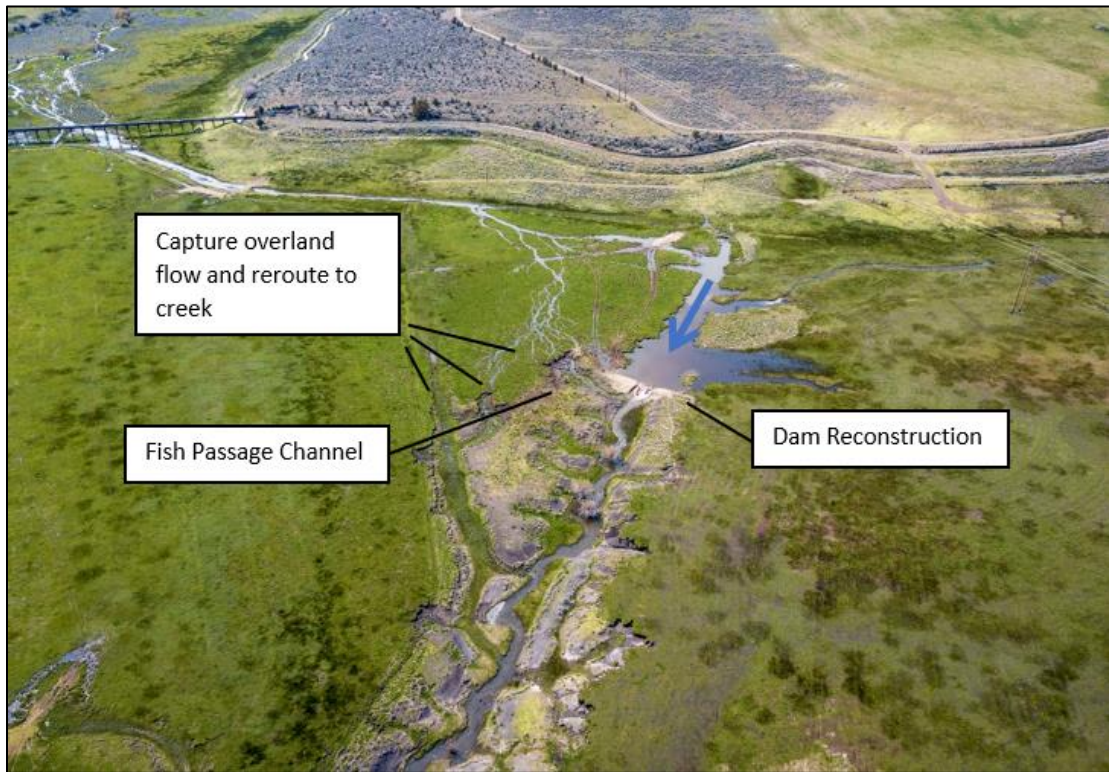
**Figure 6.** An aerial overview of Site 4 and Site 5 with project elements.



**Figure 7.** The location of the Site 4 headgate (white arrow) at the upstream end of the earthen berm (left), and the location of the proposed slidegate return pipe (white arrow) at the downstream end of the Site 5 excavated channel segment (right).



**Figure 8.** Upstream views of the existing Site 6 culvert. The culvert will be replaced with a roughened channel and a low water ford.



**Figure 9.** An overview of Site 7 with proposed project elements.



**Figure 10.** Views of the existing earthen dam at Site 7 from river-left (left) and river-right (right).



**Figure 11.** An undersized culvert abandoned instream. Site location where one of six hardened water crossing will be constructed livestock to cross without impacting creek.



**Figure 12.** Views of the current streambank conditions where wood, root wads, and willow will be placed to slow velocities allowing banks to mend and restore vegetation.

# Attachment 8

## Project Feasibility Documentation

Department of State Lands  
775 Summer Street, Suite 100  
Salem, OR 97301-1279  
☎ 503-986-5200

Permit No.:	<u>62705-RF</u>
Permit Type:	<u>Removal/Fill</u>
Waters:	<u>Wetland/Waterway</u>
County:	<u>Lake</u>
Expiration Date:	<u>October 9, 2021</u>

**JOHN SHINE**

**IS AUTHORIZED IN ACCORDANCE WITH ORS 196.800 TO 196.990 TO PERFORM THE OPERATIONS DESCRIBED IN THE REFERENCED APPLICATION, SUBJECT TO THE SPECIAL CONDITIONS LISTED ON ATTACHMENT A AND TO THE FOLLOWING GENERAL CONDITIONS:**

1. This permit does not authorize trespass on the lands of others. The permit holder must obtain all necessary access permits or rights-of-way before entering lands owned by another.
2. This permit does not authorize any work that is not in compliance with local zoning or other local, state, or federal regulation pertaining to the operations authorized by this permit. The permit holder is responsible for obtaining the necessary approvals and permits before proceeding under this permit.
3. All work done under this permit must comply with Oregon Administrative Rules, Chapter 340; Standards of Quality for Public Waters of Oregon. Specific water quality provisions for this project are set forth on Attachment A.
4. Violations of the terms and conditions of this permit are subject to administrative and/or legal action, which may result in revocation of the permit or damages. The permit holder is responsible for the activities of all contractors or other operators involved in work done at the site or under this permit.
5. Employees of the Department of State Lands (DSL) and all duly authorized representatives of the Director must be permitted access to the project area at all reasonable times for the purpose of inspecting work performed under this permit.
6. Any permit holder who objects to the conditions of this permit may request a hearing from the Director, in writing, within twenty-one (21) calendar days of the date this permit was issued.
7. In issuing this permit, DSL makes no representation regarding the quality or adequacy of the permitted project design, materials, construction, or maintenance, except to approve the project's design and materials, as set forth in the permit application, as satisfying the resource protection, scenic, safety, recreation, and public access requirements of ORS Chapters 196, 390, and related administrative rules.
8. Permittee must defend and hold harmless the State of Oregon, and its officers, agents and employees from any claim, suit, or action for property damage or personal injury or death arising out of the design, material, construction, or maintenance of the permitted improvements.
9. Authorization from the U.S. Army Corps of Engineers may also be required.

**NOTICE:** If removal is from state-owned submerged and submersible land, the permittee must comply with leasing and royalty provisions of ORS 274.530. If the project involves creation of new lands by filling on state-owned submerged or submersible lands, you must comply with ORS 274.905 to 274.940 if you want a transfer of title; public rights to such filled lands are not extinguished by issuance of this permit. This permit does not relieve the permittee of an obligation to secure appropriate leases from DSL, to conduct activities on state-owned submerged or submersible lands. Failure to comply with these requirements may result in civil or criminal liability. For more information about these requirements, please contact Department of State Lands, 503-986-5200.

Kirk Jarvie, Southern Operations Manager  
Aquatic Resource Management  
Oregon Department of State Lands

  
\_\_\_\_\_  
Authorized Signature



**DEPARTMENT OF THE ARMY**  
U.S. ARMY CORPS OF ENGINEERS, PORTLAND DISTRICT  
EUGENE FIELD OFFICE  
211 E 7TH AVENUE, SUITE 105  
EUGENE, OR 97401-2763

July 2, 2020

Regulatory Branch  
Corps No. NWP-2020-209

Ms. Cassandra Roeder  
Modoc National Wildlife Refuge  
P.O. Box 1610  
5364 County Road 115  
Alturas, CA 96101  
cassandra\_roeder@fws.gov

Dear Ms. Roeder:

The U.S. Army Corps of Engineers (Corps) has received a copy of the binding stream and wetland restoration agreement between the landowner and the U.S. Fish and Wildlife Service (FWS) for the project on Muddy Creek, a tributary to Cottonwood Creek. The project is near Lakeview, Lake County, Oregon. The site is located at latitude 42.193219°, -120.519702°.

The Corps understands you have determined the work is consistent with the terms and conditions of Nationwide Permit No. 27 (Aquatic Habitat Restoration, Establishment, and Enhancement Activities) and are proceeding accordingly.

By copy of this letter we are notifying those Tribes with Ancestral Territories located within the project boundaries of your project interest. The FWS is responsible for coordinating the project with the Tribes prior to beginning work to ensure the project will not affect cultural resources or traditional cultural properties. It is also the responsibility of the FWS to ensure compliance with the requirements of the Endangered Species Act and cultural resource laws (Nationwide Permit General Condition 18 and 20).

If you have any questions regarding the Corps' regulatory program, please contact me at the letterhead address, by telephone at (541) 294-4317, or E-mail [anita.m.andazola@usace.army.mil](mailto:anita.m.andazola@usace.army.mil).

Sincerely,

A handwritten signature in cursive script that reads "Anita Andazola".

Anita Andazola  
Project Manager, Regulatory Branch

cc:

Oregon Department of State Lands (Bethany Harrington, [bethany.harrington@state.or.us](mailto:bethany.harrington@state.or.us))  
Oregon Department of Environmental Quality ([401applications@deq.state.or.us](mailto:401applications@deq.state.or.us))  
Shine Brothers Ranch, LLC (John Shine, [johnfshine@gmail.com](mailto:johnfshine@gmail.com))



# Oregon

Kate Brown, Governor

## Department of Fish and Wildlife

Fish Division

4034 Fairview Industrial Drive SE

Salem, OR 97302

(503) 947-6201

FAX (503) 947-6202

[www.dfw.state.or.us/](http://www.dfw.state.or.us/)



April 24, 2019

John Shine  
PO Box 590  
Lakeview, OR 97630

Marci Schreder  
17482 Tunnel Hill Rd  
Lakeview OR 97630

Re: Muddy Creek fish passage and habitat enhancement project; State of Oregon Fish Passage Approvals PA-14-0033, PA-14-0034, and PA-14-0035

PA-14-0033 Spillway Roughened Channel  
PA-14-0034 Channel reconstruction  
PA-14-0035 Squashed pipe culvert and Ford (Hardened crossings)

Mr. Shine and Ms. Schreder,

The Oregon Department of Fish and Wildlife's (ODFW) Fish Passage Program staff have reviewed the engineered design plans to provide fish passage and habitat enhancement in the Muddy Creek reach on the KV Bar Ranch property in Lake County, Oregon. Muddy Creek is a tributary stream to Cottonwood Creek in the Goose Lake Basin. Project objectives are to improve connectivity between two isolated redband trout populations in the Goose Lake system. The proposed project has multiple components related to the reservoir spillway and concrete apron, channelized stream reaches with irrigation diversion structures, and undersized culverts that block fish passage and alter water conveyance to lower reaches of Muddy Creek.

As part of the complicated project there are three primary project aspects that involve fish passage, each of which independently trigger the state of Oregon's fish passage policy, as per ORS 509.585 and invoke ODFW's fish passage review. These project components include removal of the existing reservoir spillway and concrete apron and construction of a roughened channel within the existing spillway channel. To provide fish passage in this section there will be 24 rock weirs constructed at one foot lifts, fill placed for subgrade streambed material, and large boulders placed to increase channel roughness. The roughened channel will be constructed at a 4.71% slope. In addition to this project, engineered streambed material will be graded into the channel to construct a four percent slope crossing the concrete siphon designed to convey water to the irrigation ditches. The second objective of the project is to reconstruct multiple sections of the stream channel where previously these channel reaches were straightened or re-aligned for irrigation. The third aspect of the project is to replace an undersized culvert barrier with a squashed culvert design based on stream simulation approach and to remove undersized culverts at four locations and replace these with a hardened water

crossing also known as a Ford to allow for low water crossings by ATV's and farm equipment.

These actions have triggered the state's fish passage rules and regulations administered by ODFW. As such, ODFW has reviewed the Cascade Stream Solutions design engineered plans for the different project components. From our review we have determined the design plans for the various projects are consistent with the states fish passage design criteria, as defined in OAR 635-412-0035 (1), (3), (8), and (10) and therefore approve these project components identified above, as required by Oregon fish passage law (ORS 509.585).

The Muddy Creek roughened channel and channel reconstruction project components have numerous site constraints, installation challenges, and final construction limitations. The existing alignment of Muddy Creek channel was repeatedly disturbed and extensively channelized by previous land-use practices. Sections of the newly aligned and constructed channel will result in stream gradients in Muddy Creek that will range between 4.71% to 6.23% and excavation activities will redistribute soil and rock material along the meander corridors. Given these constraints and uncertainties, fish passage approvals (PA-14-0033, PA-14-0034 and PA-14-0035) are contingent on specific operational provisions which include:

1. All in water work, defined as work at or below the ordinary high water elevation of the project area, shall be completed during the appropriate ODFW in-water work period from July 15 to September 30.
2. Fish salvage and rescue shall be performed prior to commencement of any in-water work, including work area isolation and temporary water management.
3. Temporary water management and work area isolation measures shall be implemented during the project and all of its components.
4. Pursuant to OAR 635-412-0035 (10e), prior to in-stream construction activities, all fish must be safely collected, removed from the construction site or dewatered reach, and placed in the flowing stream by an authorized person in possession of a separate valid permit issued by ODFW. An Oregon Scientific Take Permit (OR-STP) from ODFW is required to conduct fish salvage in Oregon and other additional authorization may be needed from NMFS or USFWS if work is in ESA waters. OR-STP's can take up to 4-6 weeks for processing and can be applied for at: <https://apps.nmfs.noaa.gov/index.cfm> or if you have questions about OR-STP permitting, please contact [fish.research@state.or.us](mailto:fish.research@state.or.us)
5. As per ORS 509.601, the owner shall be responsible for all maintenance required such that the project provides adequate passage for native migratory fish. Adequate fish passage is defined as volitional fish passage of native migratory fish species between the fish passage design flows (5% to the 95% exceedance flows) for the project and its components.
6. Failure to maintain fish passage for the project, at these locations and for the duration of these approvals shall constitute a violation of the approvals and applicable fish passage laws (ORS 509.585 and 509.610).
7. Annual monitoring and reporting on the effectiveness of upstream passage of fish is required for the project. This shall entail monitoring, by a qualified fisheries biologist, to determine whether or not the four project components (identified above) function as they were designed to function for fish passage. Fish passage monitoring reports shall report on channel bed stability of the reconstructed channel and the new culvert solutions, confirmation of jump heights no greater than what are in the approved engineered design drawings, and the effectiveness of fish passage of native migratory

fish at a variety of fish passage flows when these fish are migrating through the project area(s). Monitoring and reporting shall coincide with the time of the year when adult and juvenile fish species are migrating through the project areas. Monitoring and reporting shall consist of a summary of the fish passage conditions and fish passage performance with particular emphasis on flow velocities and the volitional unimpeded passage of fish during the appropriate fish passage design flows. Monitoring and reporting shall be based on visual observations, established photo points, flow velocity characteristics, or other means; particularly with regards to fish passage conditions and fish passage performance through the project.

8. Monitoring reports shall be submitted to the ODFW Klamath River Watershed District Fish Biologist and the ODFW Fish Passage Program Coordinator annually for a period of five years – post construction. These reports shall be submitted within two-months of the conclusion of the upstream fish passage migration window, as determined by ODFW, for native migratory fish species.
9. The ODFW shall be allowed to inspect the project(s) at reasonable times for the duration of this approval. Unless prompted by emergency or other exigent circumstances, inspection shall be limited to regular and usual business hours, including weekends.
10. It is the responsibility of the LCUWC to comply with all necessary and required local, county, state, and federal approvals and permits.

Please retain this correspondence for your records, as this documents ODFW's approval and fish passage design exceptions of fish passage associated with the project. Again, please note that it is your responsibility to monitor and maintain the project as approved for fish passage (ORS 509.610).

Respectfully,



Kregg Smith  
Asst. Fish Passage Coordinator  
Oregon Dept of Fish & Wildlife  
4034 Fairview Industrial Dr. SE  
Salem, OR 97302

Cc Justin Miles, ODFW Assistant District Fish Biologist  
Joey Howard, Cascade Stream Solutions  
Alan Ritchey, ODFW Screens and Passage Program Manager  
Benji Ramirez, ODFW Klamath District Fish Biologist  
Greg Apke, ODFW Fish Passage Coordinator  
Project Files (PA-14-0033, PA-14-0034, PA-14-0035)