

# Lewis River Aquatic Fund Projects (SA 7.5.3.2)

## Project Closeout Report

**Project Title:** **Lewis River Hydroelectric Project  
North Fork Lewis River (RM 13.5 ) Habitat Enhancement**

**Project Approved By:** Aquatic Coordination Committee  
4/15/2009

**Original Project Sponsor:** USDA Forest Service

**Project Funding** \$190,000

**Project Description (work completed):** Historically, the Lewis River watershed was severely impacted by logging, gravel mining, residential development, blockage of LWD transport due to dams and flow regulation. These impacts have reduced LWD loading, channel complexity, the development of side-channels/off-channels and reduced habitat-forming processes (e.g. floods) necessary for creating early rearing habitat for juvenile Chinook, Steelhead, and Coho that originate in the upstream reaches.

During September of 2010, LCFEG hired Kysar-Koistenin Excavating, Inc. and within a four week period we successfully placed 4 main stem LWD structures and built 3 off-channel complexity jams along 2,000ft of the North Fork Lewis River (RM 13.5). LCFEG utilized ACC Funds to purchase of root-wad attached logs and assist in paying for contractor costs during this restoration project. In combination with support provided by Salmon Recovery Funding Board, the NF Lewis (RM 13.5) Habitat Enhancement Project has successfully enhanced nearly a half mile of stream bank with the placement of a total of 26 log complexity structures along the east bank of North Fork Lewis River.

After project completion, we have observed a dramatic increase of slow velocity margin habitat which is critical to the rearing success of juvenile Fall Chinook. The placement of the log complexity structures effectively created in-stream velocity breaks and increased sorting of mobile gravels to provide future stable spawning areas for returning salmonid adults. Recent spawning surveys (2010/2011) by Washington Department of Fish and Wildlife (WDFW) have enumerated an increase of Fall Chinook, steelhead and Coho spawning activity along the project reach, in addition to observing large schools of salmonid juveniles congregating around LWD structures. Due to the support provided by ACC Funds, this project has successfully enhanced early rearing habitat for Chinook in addition to improving spawning, rearing, and adult holding habitat for all salmonid species.

**Workforce:**○ **Personnel (by craft)**

Tony Meyer, LCFEG Executive Director  
Tammy Weisman, LCFEG Operations Manager  
Peter Barber, LCFEG Project Manager  
Glen Saastad, LCFEG Crew Supervisor  
Gardner Johnston, Engineer/Biologist Interfluve, Inc.  
Mike McAllister, Engineer Interfluve, Inc.

○ **Contractors:**

James Koistenin, Owner/operator Kysar-Koistenin Excavating, Inc.

**Schedule Summary:**

Planned Completion Date: 10/1/2010

Actual Completion Date: 10/1/2010

**Problems Encountered:**

None.

**Things that went well:**

- Minimal of amount of turbidity created during the wood installation.
- Observed immediate fish utilization post construction.
- Received a large wood donation of reservoir wood collected by Pacific Power.

**Work Not Completed:**

- Encountered delays in completing riparian restoration activities due to access to the project due to encountering high water during in the Fall/Winter. We plan to have the entire project site planted during Fall/Winter of 2011/12.

**Lessons Learned:****\* Attachments (Photo Documentation):**

See attached.

\*(Per National Marine Fisheries Service's Biological Opinion for Relicensing of the Lewis River Hydroelectric Projects):

Identify process or methodology the project will include and provide photo documentation of habitat conditions at the project site **before, during, and after** project completion.

- a. Include general views and close-ups showing details of the project and project area, including pre- and post-construction.
- b. Label each photo with date, time, project name, photographer's name, and documentation of the subject activity.





August 2010. Lewis River off-channel restoration.



September 2010. Lewis River off-channel construction.



Oct. 2010. Lewis River (RM 13.5) Off-channel post-construction



Jan. 2011. High water Lewis River (RM 13.5)



Aug. 2010 Lewis River main stem (RM 13.5)



Oct. 2010. Lewis River main stem post construction



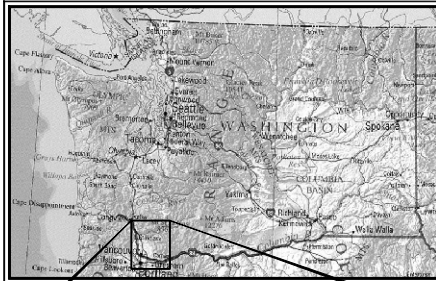


NF Lewis River (RM 13.5) Complexity log structure, Coho redd 10/6 /2011

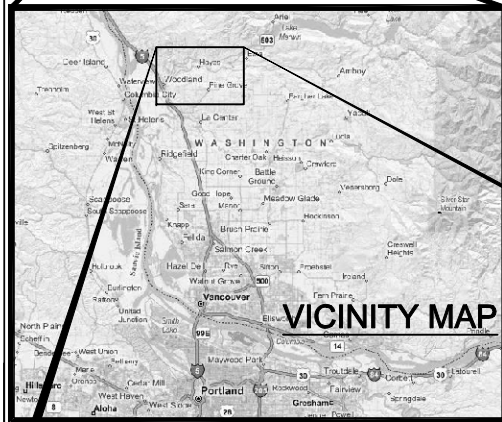


# LEWIS RIVER (RIVER MILE 13-14) HABITAT ENHANCEMENT PROJECT

WOODLAND, WA

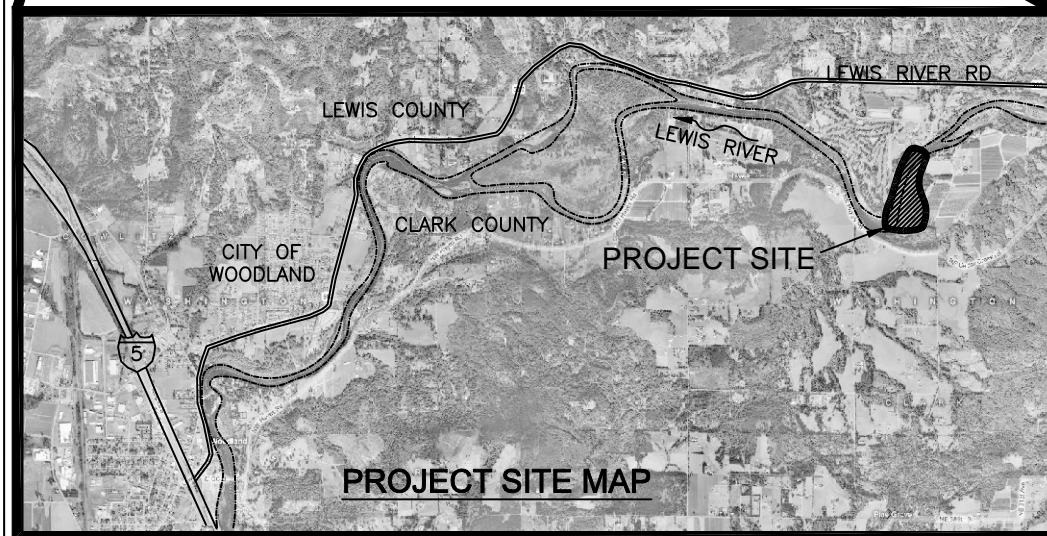


WASHINGTON STATE



CLARK & LEWIS COUNTIES

WATERBODY: LEWIS RIVER  
TRIBUTARY OF: COLUMBIA RIVER  
NW1/4 & SW1/4 SECTION 11, T5N R1E  
TAX PARCEL 252866000  
COORDINATES  
LATITUDE 45° 55' 52" N  
LONGITUDE 122° 39' 14" W

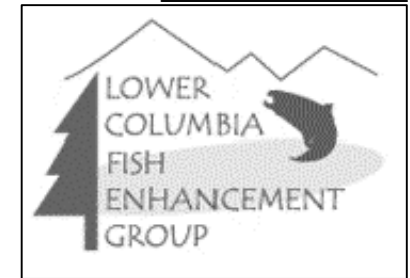


PROJECT SITE MAP

PROPERTY OWNER

SAM KY SAR  
2600 NE CEDAR CREEK RD  
WOODLAND, WA 98674

PROJECT PROPOSED BY



## SHEET INDEX

1. COVER, SHEET INDEX AND VICINITY MAP
2. PROJECT SITES AND PHASES, AERIAL VIEW
3. EXISTING CONDITIONS, PLAN VIEW
4. PROPOSED EAST BANK REARING HABITAT SITES, PLAN VIEW
5. PROPOSED EAST BANK REARING HABITAT, DETAILS
6. LOG AND BOULDER CABLING DETAILS

LEWIS RIVER (RIVER MILE 13-14)  
HABITAT ENHANCEMENT PROJECT

COVER, SITE MAP, SHEET INDEX

PURPOSE: HABITAT

DATUM: N/A

ADJACENT PROPERTY OWNERS:  
SEE SHEET 2

NAME: KY SAR

REFERENCE #: 008409-09-01

SITE LOCATION ADDRESS:  
2600 NE CEDAR CREEK RD.

PROPOSED: HABITAT ENHANCEMENT  
ALONG: LEWIS RIVER  
NEAR: WOODLAND

COUNTY: CLARK STATE: WA  
DATE: JANUARY 27, 2010

SHEET 1 OF 6



## LEGEND

- PROJECT AREA
- FUTURE POTENTIAL ACTIVITIES
- OHW — ORDINARY HIGH WATER LINE

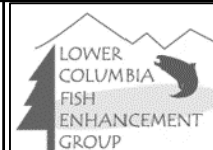
POTENTIAL FUTURE PHASES ARE INCLUDED ONLY TO PROVIDE CONTEXT.

## PROJECT SITE MAP



LEWIS RIVER (RIVER MILE 13-14)  
HABITAT ENHANCEMENT PROJECT

AERIAL VIEW  
PROJECT SITES & PHASES



REFERENCE: 008409-09-01  
APPLICANT: LCFEG  
PROPOSED: HABITAT ENHANCEMENT  
NEAR: WOODLAND, WA

DATE: JANUARY 27, 2010

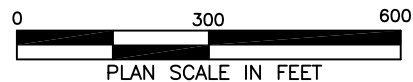
SHEET 2 OF 6



## LEGEND

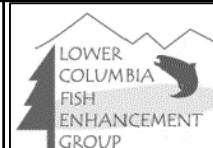
- EXISTING GROUND CONTOUR
- - - - - PROJECT AREA
- OHW — ORDINARY HIGH WATER LINE

## PLAN VIEW



LEWIS RIVER (RIVER MILE 13-14)  
HABITAT ENHANCEMENT PROJECT

EXISTING CONDITIONS  
PLAN VIEW



REFERENCE: 008409-09-01  
APPLICANT: LCFEG  
PROPOSED: HABITAT ENHANCEMENT  
NEAR: WOODLAND, WA

DATE: JANUARY 27, 2010

SHEET 3 OF 6

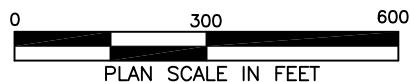




**PLAN VIEW**

**LEGEND**

- PROJECT AREA
- OHW — ORDINARY HIGH WATER LINE
- X WOOD PLACEMENTS

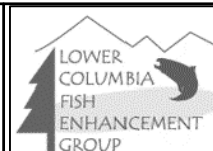


TOTAL DISTURBANCE AREA = 8.78 AC  
ACTIVITY WITHIN OHW = 8.51 AC

FILL WITHIN OHW  
WOOD: 880 CY (184 LOGS)  
BOULDERS: 230 CY

LEWIS RIVER (RIVER MILE 13-14)  
HABITAT ENHANCEMENT PROJECT

EAST BANK  
PROPOSED REARING HABITAT SITES  
PLAN VIEW

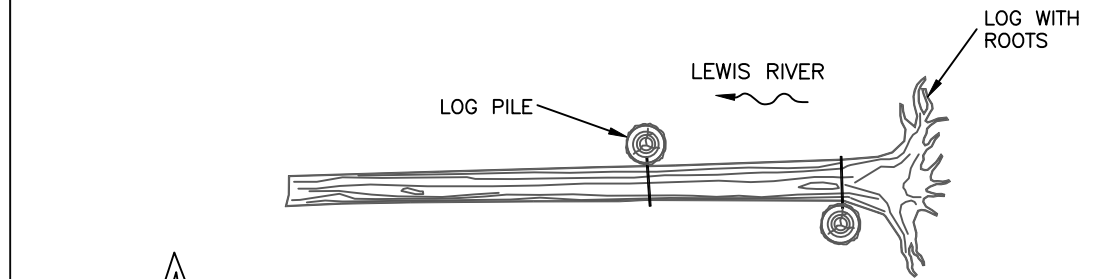


REFERENCE: 008409-09-01  
APPLICANT: LCFEG  
PROPOSED: HABITAT ENHANCEMENT  
NEAR: WOODLAND, WA

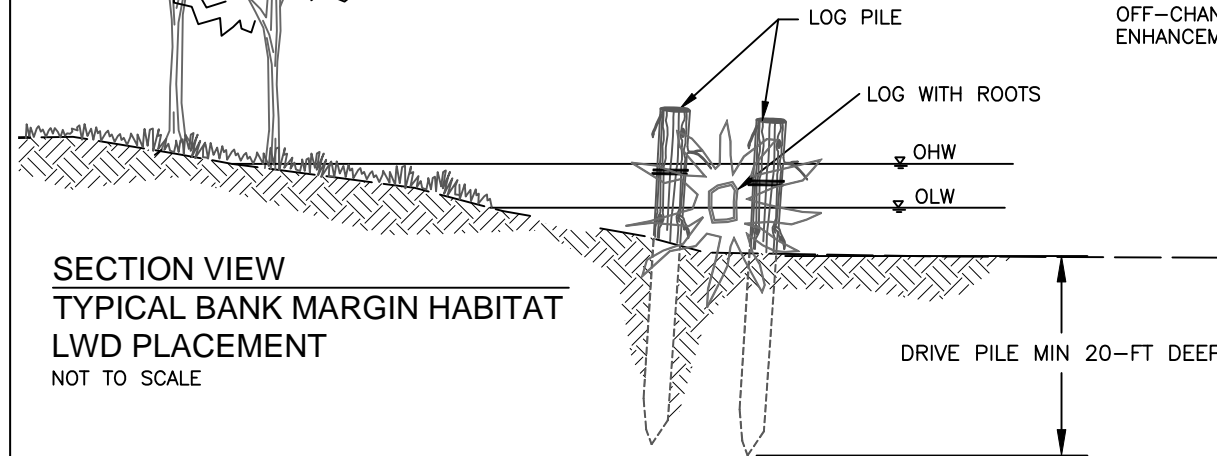
DATE: JANUARY 27, 2010

SHEET 4 OF 6





**PLAN VIEW**  
**TYPICAL BANK MARGIN HABITAT**  
**LWD PLACEMENT**  
 NOT TO SCALE



**SECTION VIEW**  
**TYPICAL BANK MARGIN HABITAT**  
**LWD PLACEMENT**  
 NOT TO SCALE

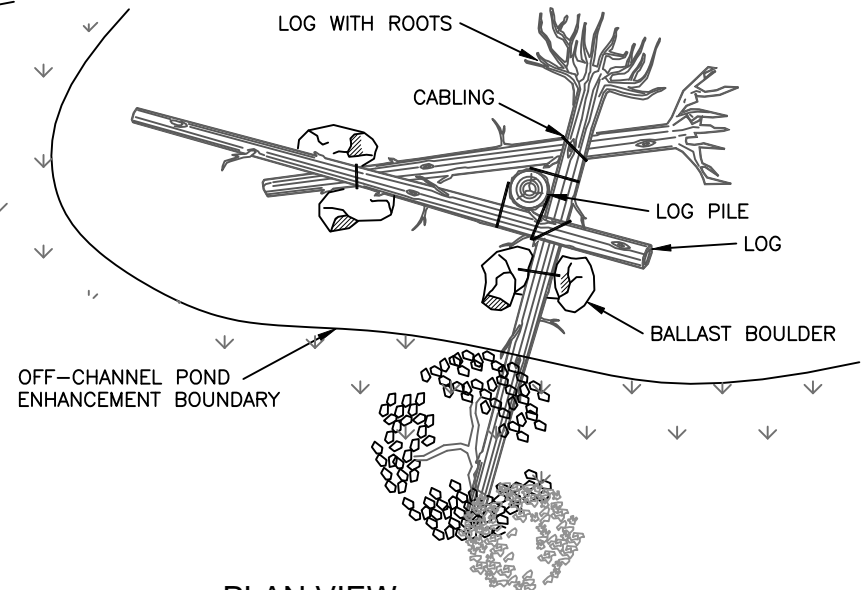
**NOTES:**

DETAILS ARE APPROXIMATE. ACTUAL CONFIGURATIONS AND MATERIAL QUANTITIES FOR EACH LOG JAM WILL BE DETERMINED IN THE FIELD BASED ON THE SPECIFIC SIZE AND DIMENSIONS OF ACQUIRED MATERIALS.

BALLAST REQUIREMENTS WILL BE DETERMINED ON A PER EACH BASIS FOR KEY PIECE LOGS. FOR ESTIMATING PURPOSES, A 40' LONG 24" DBH D.FIR WITH ROOTS REQUIRES 2.5 TONS OF BUOYANCY RESISTANCE THAT CAN BE PROVIDED BY COMPLETE OR PARTIAL BURIAL OF LOGS, OR CABLING TO BALLAST BOULDERS, PILES (SNAGS), OR EXISTING TREES. (4 TONS DRY BOULDERS PROVIDE 2.5 TONS BALLAST WHEN SUBMERGED).

BRACING TO EXISTING TREES OR INSTALLED VERTICAL LOGS WILL OCCUR AT LOCATIONS IDENTIFIED IN THE FIELD TO PROVIDE HORIZONTAL STABILITY.

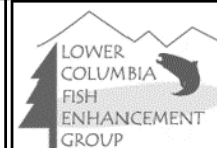
FILLER LOGS AND TREE TOPS MAY BE INSTALLED AT "RACKING" LOCATIONS TO EMULATE NATURAL DEBRIS ACCUMULATIONS AND TO OPTIMIZE FISH HABITAT. THESE PIECES ARE TO BE CONSIDERED MOBILE AND TRANSIENT, AND AS SUCH MAY BECOME LOOSE, DISPLACED, DISLODGED, OR ACCUMULATED ONTO DURING FLOODING.



**PLAN VIEW**  
**TYPICAL OFF-CHANNEL HABITAT**  
**LWD PLACEMENT**  
 NOT TO SCALE

LEWIS RIVER (RIVER MILE 13-14)  
 HABITAT ENHANCEMENT PROJECT

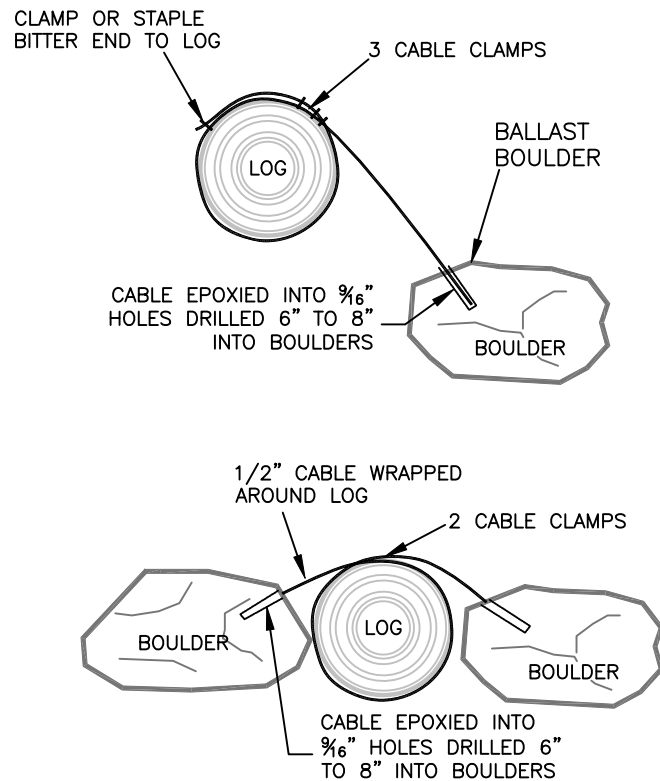
EAST BANK  
 CONSTRUCTED REARING HABITAT  
 DETAIL VIEWS



REFERENCE: 008409-09-01  
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 NEAR: WOODLAND, WA

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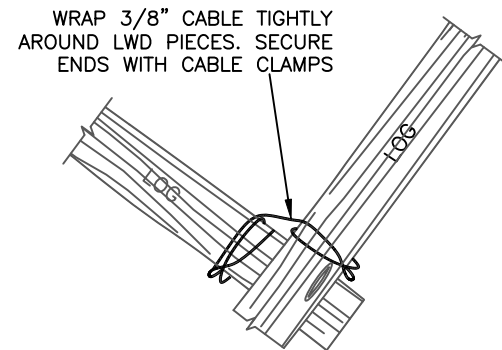
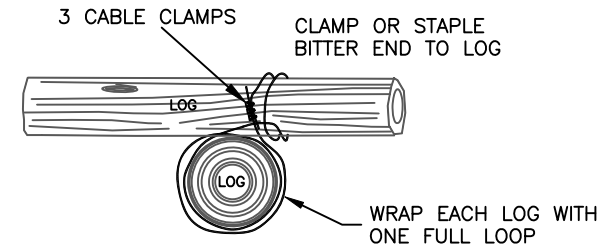
SHEET 5 of 6



### LOG-BOULDER CABLING DETAILS

NO SCALE

CABLING IS DEPICTED HERE, BUT OTHER METHODS FOR SECURING LOGS MAY BE USED AS DIRECTED BY THE ENGINEER. SUCH METHODS INCLUDE BUT ARE NOT LIMITED TO CHAINING OR THREADED ROD & BOLT.



### LOG-LOG CABLING DETAILS

NO SCALE