

# APPENDIX A

## BEFORE AND AFTER PICTURES



Figure 1a: Downstream view of Ireland Creek above the intake structure June 2001. The thalweg is on the left side of the stream. Sand and clumps of grass obstruct flow into the intake at low water. PP1



Figure 1b: A low-profile bend-away weir was built upstream of the intake to deflect the thalweg towards the intake. The sand and grass have been swept away. Sept 2002



Figure 2a: Sediment is partially obstructing flow into the intake. The intake was installed outside the work window so was set back into the bank, separated from the creek by a thin berm. This berm was not completely washed away during freshet. Sediment subsequently collected around what remained of the bank. June 01

Figure 2b: The bend-away has been built, moving the thalweg toward the center of the creek. This has washed the collected sediment away from the intake. Sept 02





Figure 3a: 3+00 looking south in May 2003 before complexing



Figure 3b: 3+00 in August 2003 after wood has been added.



Figure 4a: 3+50 looking south in May 2003 before complexing



Figure 4b: 3+00 after complexing but before fall planting. August 2003



Figure 5a: 2+50 before planting in August 2003



Figure 5b: 2+50 after planting in October 2003



Figure 6a: 7+60 looking north before planting in May 2003



Figure 6b: 7+60 looking north after planting in October 2003



Figure 7a: 6+00 looking south before planting in May 2003



Figure 7b: 6+00 looking south after planting in October 2003



Figure 8a: 8+00 looking north before planting in May 2003



Figure 8b: 8+00 after planting in October 2003



Figure 9a: 6+00 looking south before planting in May 2003



Figure 9b: 6+00 looking south after planting in September 2003



Figure 10a: 5+50 looking south in May 2003 before planting.



Figure 10b: 5+50 looking south after planting.



Figure 11a: 8+75 looking north before planting in May 2003



Figure 11b: 8+75 after planting and complexing in October 2003



Figure 12a: 10+50 looking east before complexing



Figure 12a: 10+50 after complexing



Figure 13a: 11+00 looking southeast before work began in May 2003



Figure 13b: 11+00 with additional complexing



Figure 14a: 11+50 looking west before complexing. Wood had been buried into the bank during construction so that additional wood could be anchored to it.



Figure 14b after complexing and planting



Figure 15a: 12+50 looking eastward before complexing



Figure 15b: 12+50 after complexing



Figure 16a: 12+50 looking west before complexing



Figure 16b: 12+50 after complexing



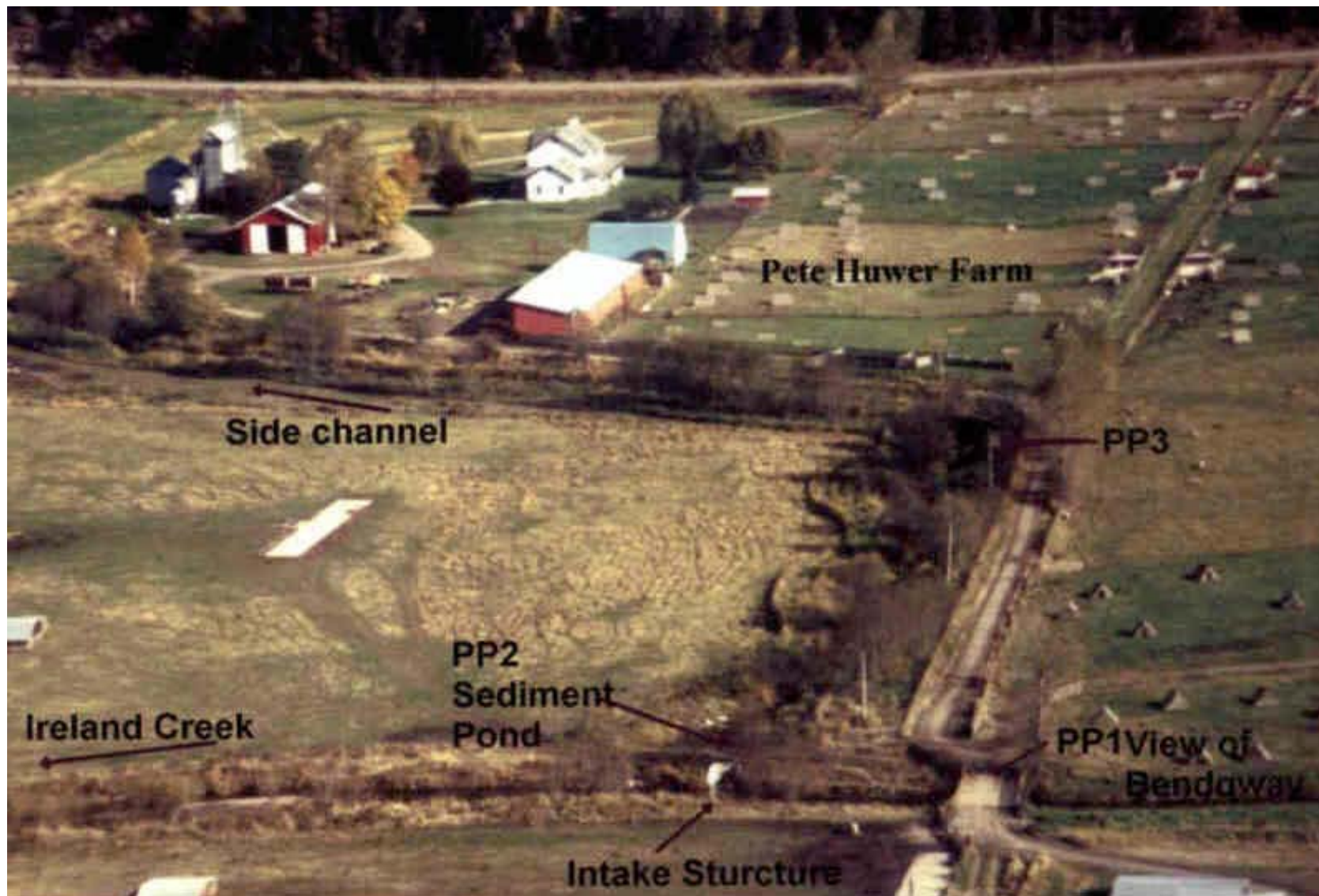
Figure 17a: 14+00 before wood was added.



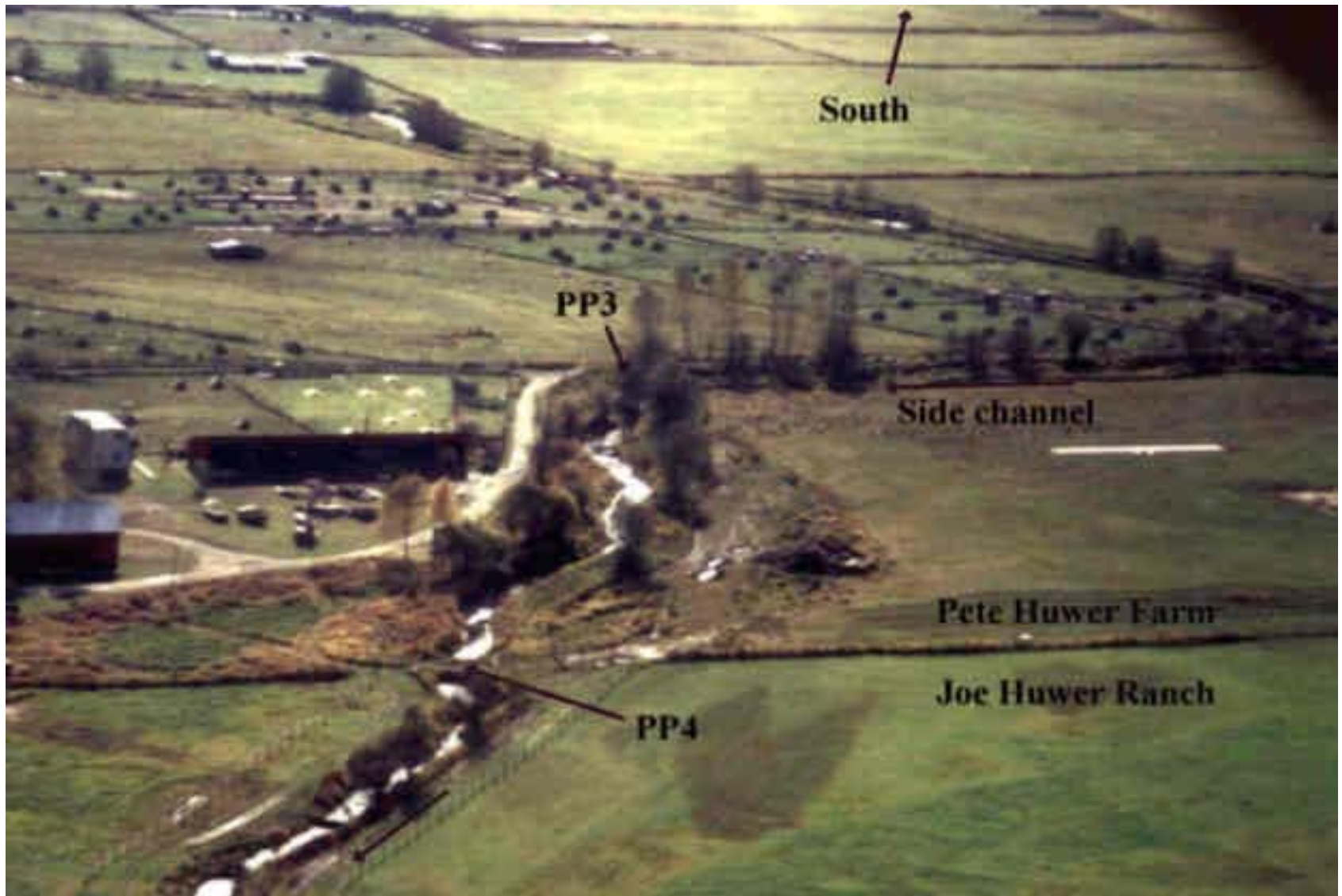
Figure 17b: 14+00 with brush clusters added.

# APPENDIX B:

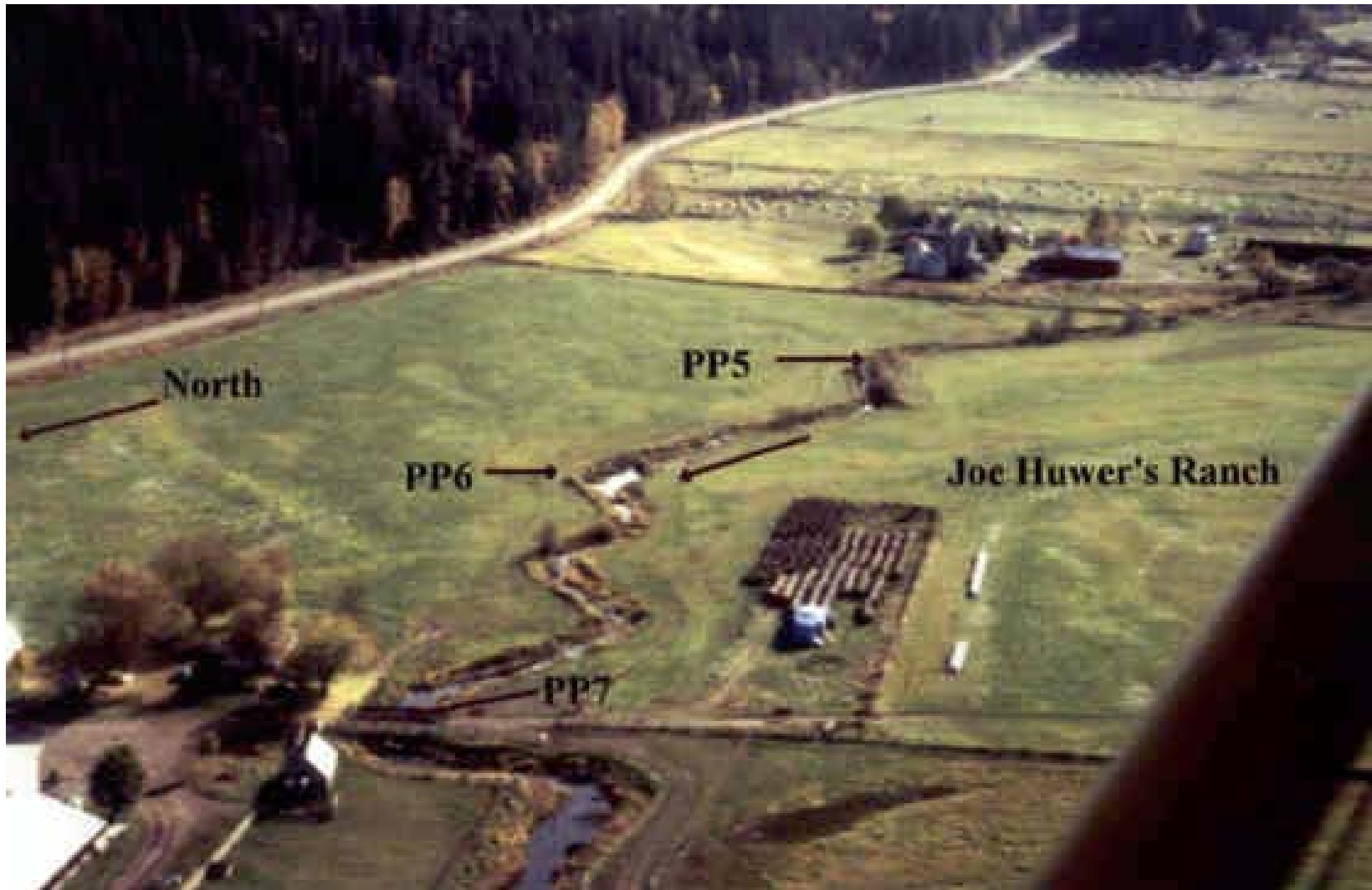
## MISCELLANEOUS PHOTOS



Air photo 1: Taken in the fall of 2002, these photos were taken before the additional complexing and planting were done. This photo was taken facing east.



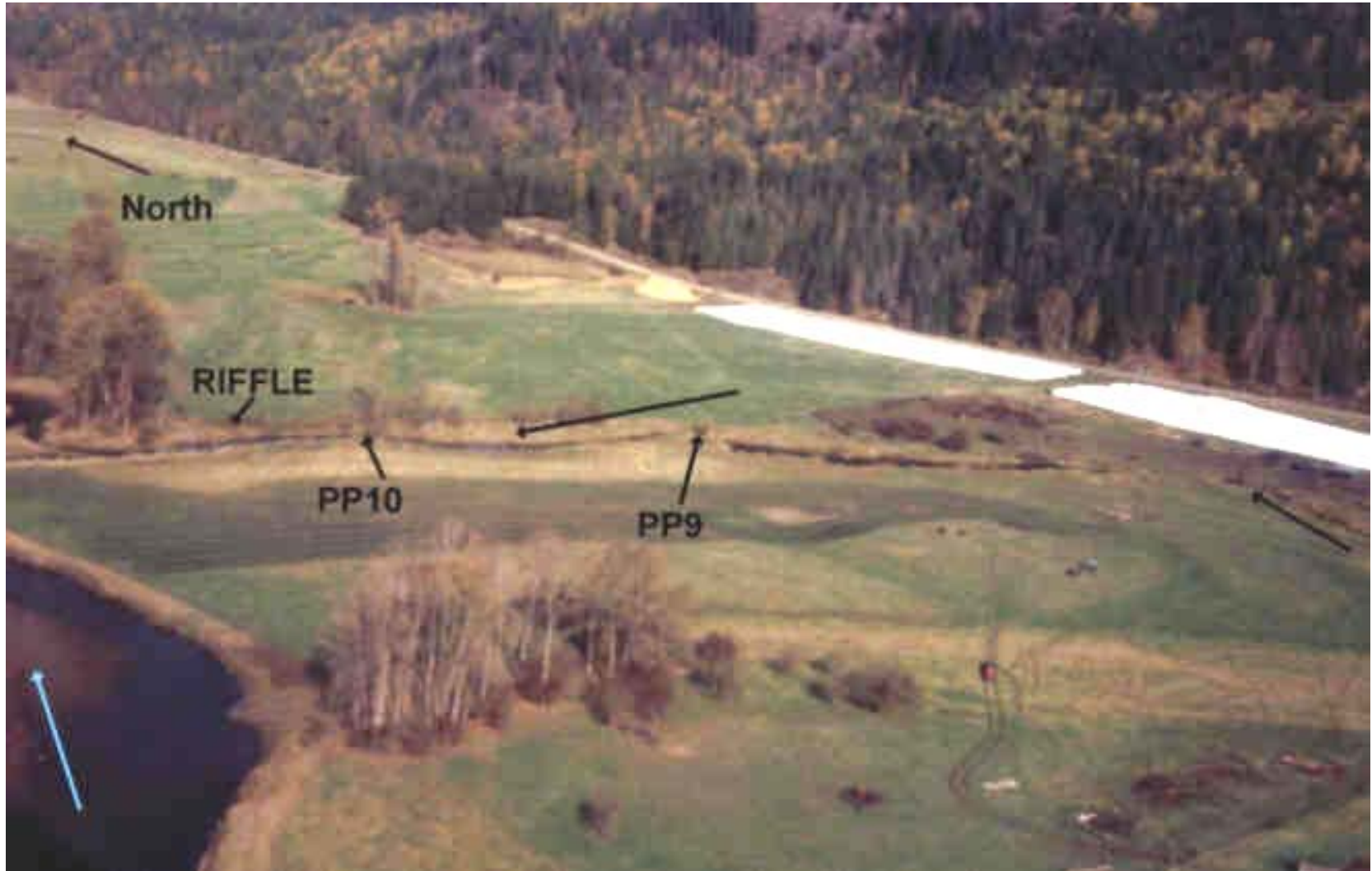
Air photo 2: A view looking south of the side channel at the boundary between Pete and Joe Huwers' properties. What remained of the riparian vegetation was saved during the initial construction.



Air photo 3: There was less vegetation on Joe Huwer's property because the cows had access to the creek. The side channel is affected by high water in the Shuswap up to PP5 on most years.



Air photo 4: The channel is wider on the lower section as it picks up groundwater.



Air photo 5: This lower section of the channel is affected by water backing up when the Shuswap River is high. The riparian vegetation is inundated.



Air photo 6: The side channel enters a braid of the Shuswap River. This area is heavily used by Kokanee and Sockeye for spawning.

# APPENDIX C: FINANCIAL STATEMENT

**Ireland Creek - 02 sh 35**

**Statement of Income and Expenditures**

**REVENUE**

Grant - BC Hydro Water Restoration 43,142.43

**Earned Grant Revenue:** 43,142.43

**EXPENSES**

Wages :

Project Supervisor	2,980.00
Crew	12,202.43
Monitoring	1,440.00

Other Expenses:

Equipment and related expenses	22,212.00
Overhead expenses	4,309.00

**Total expenses :** 43,143.43

**Net Income** -

# APPENDIX D: ACKNOWLEDGEMENTS



## IRELAND CREEK SIDETCHANNEL SALMON HABITAT RESTORATION PROJECT

The Huwer families, Fisheries and Oceans Canada and Whitevalley Community Resource Centre have worked together to created 1.2 kilometers of rearing habitat for juvenile coho, chinook and Kokanee salmon and rainbow trout.

Shortly after the fry emerge from the spawning gravel in May, they seek out refuge in protected areas such as this side channels. The coho and some chinook will remain here for a year. In the spring of their second year, they will return to the oceans as smolts.



Funding for Phase I: Construction



Funding for Phase II: Complexing and Riparian Planting



Sign placed along the road between the properties of Joe and Pete Huwer.

# WCRC completes phase II of Salmon Restoration Program with help of landowners

Whitevalley Community Resource Centre in partnership with the families of Joe Huwer and Pete Huwer has completed Phase II of the Ireland Creek Side Channel in the Mabel Lake valley. The side channel is a salmon habitat restoration project at the confluence of Ireland Creek and the Shuswap River, 10 km south of Mabel Lake.

During Phase I of this project, water was diverted from Ireland Creek to a remnant channel. This 1200 m channel meanders through the Huwers' properties on Mabel Lake Road. In Phase II, the channel was complexed and the riparian area extensively planted.

Complexing involves adding rock and large woody debris such as logs and roots to the channel. The rock and partially submerged wood offer juvenile fish protection both from in-stream and out-of-stream predators such as larger fish, otters, herons and merganser ducks. The wood and rock also add complexity to the stream flow, creating restricted areas of fast water and eddies and pools where the water is relatively calm. The more varied the flow, the more varied the habitats and aquatic life forms.

When Coho and river type Chinook emerge from the spawning gravel in the spring, they seek refuge in side channels such as this and spend the first year of their lives here. In the spring of their second year, they smolt and migrate to the ocean.

Salmon, especially Coho, prefer cool water for rearing, around 12-14 °C. Temperatures above 24 °C are lethal. Because of this, it is important that the stream bank (riparian area) be well vegetated with trees and shrubs to shade the stream and prevent it from being warmed by the sun.

This riparian growth

also protects the stream banks from erosion by strengthening the soil with roots. The vegetation further benefits the aquatic life by supplying nutrients in the form of insects and leaves that drop into the water.

Restoration projects such as this can only succeed with cooperation of the landowners whose properties are affected by the project. It is through their interest and observations that the projects can be maintained and improved upon. In this respect, the Huwer families have been vital to the success of the Ireland Creek project.

Funding for Phase II of this project was provided by BC Hydro's Bridge Coastal Restoration Program (BCRP). BCRP provides \$1.5 million annually to projects that restore fish and wildlife populations and habitat impacted by the construction of hydroelectric generating stations at 15 watersheds located along the coast, the Fraser Valley, Bridge River, Shuswap River and on Vancouver Island. The program is managed by a Board comprised of three public, three First Nation, one federal, one provincial and one BC Hydro representative.



## New member for Lumby RCMP Detachment

Don Mackill is the newest member of the Lumby RCMP. This is Don's first posting. He and his wife Natasha are from Truro, Nova Scotia.