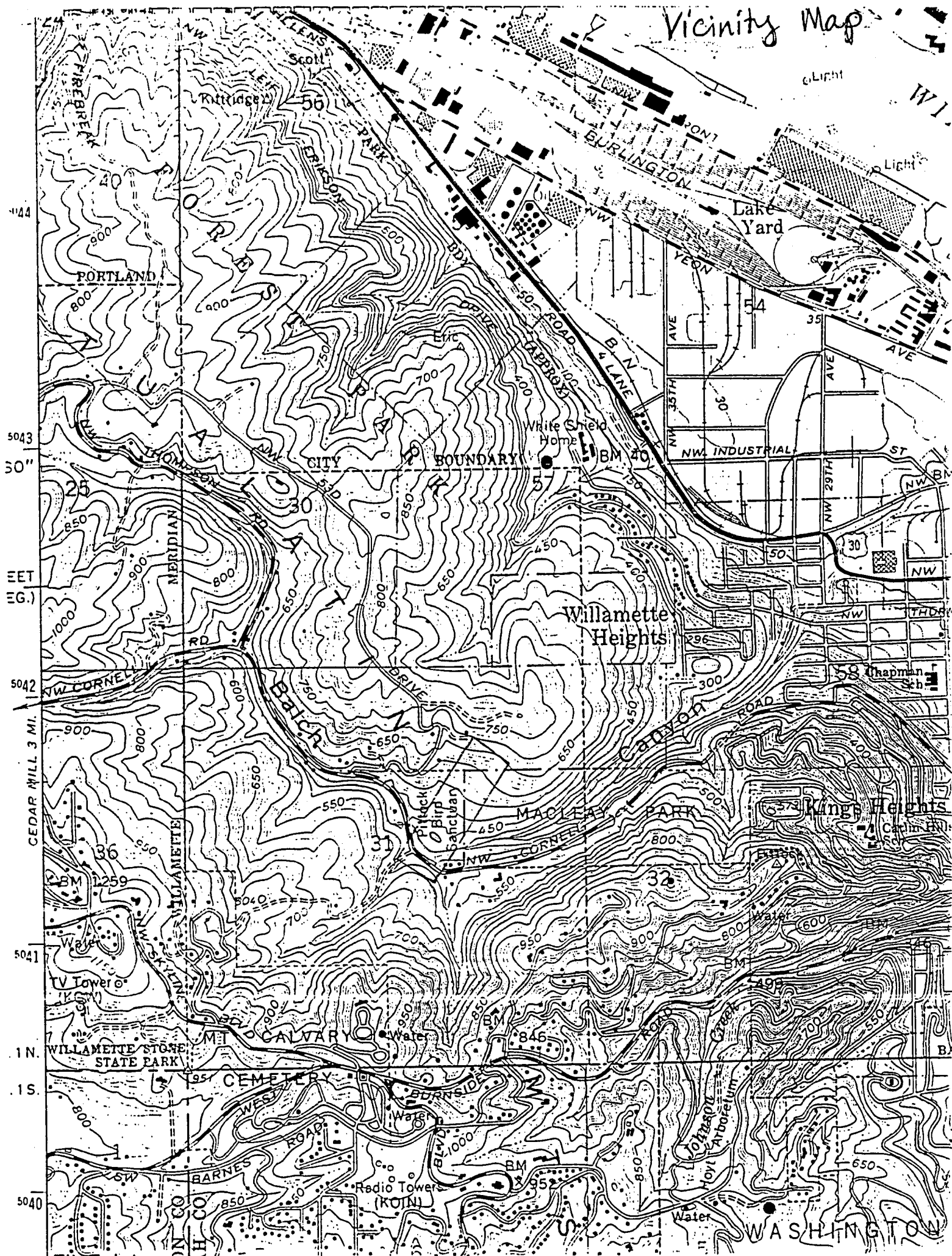
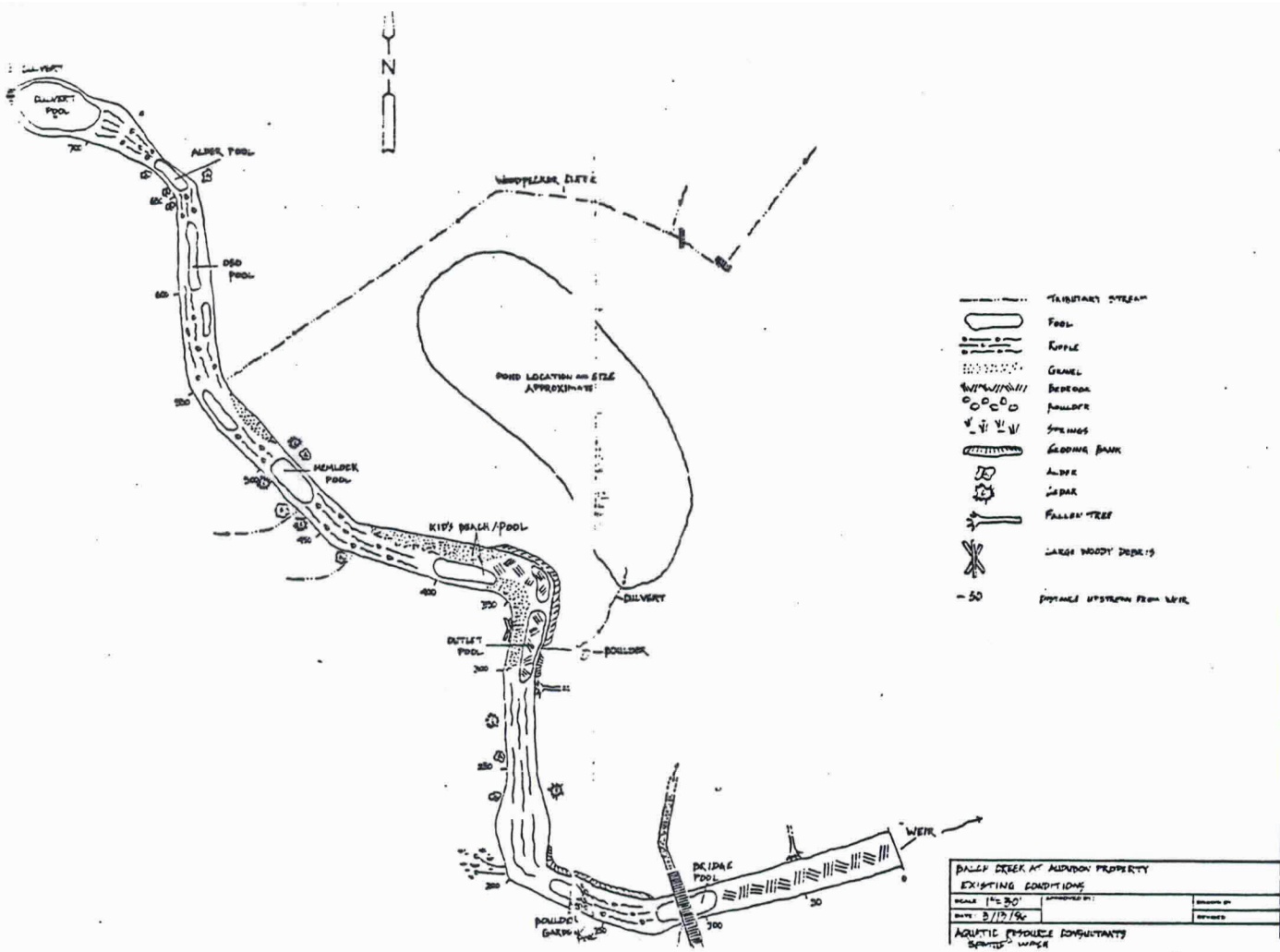
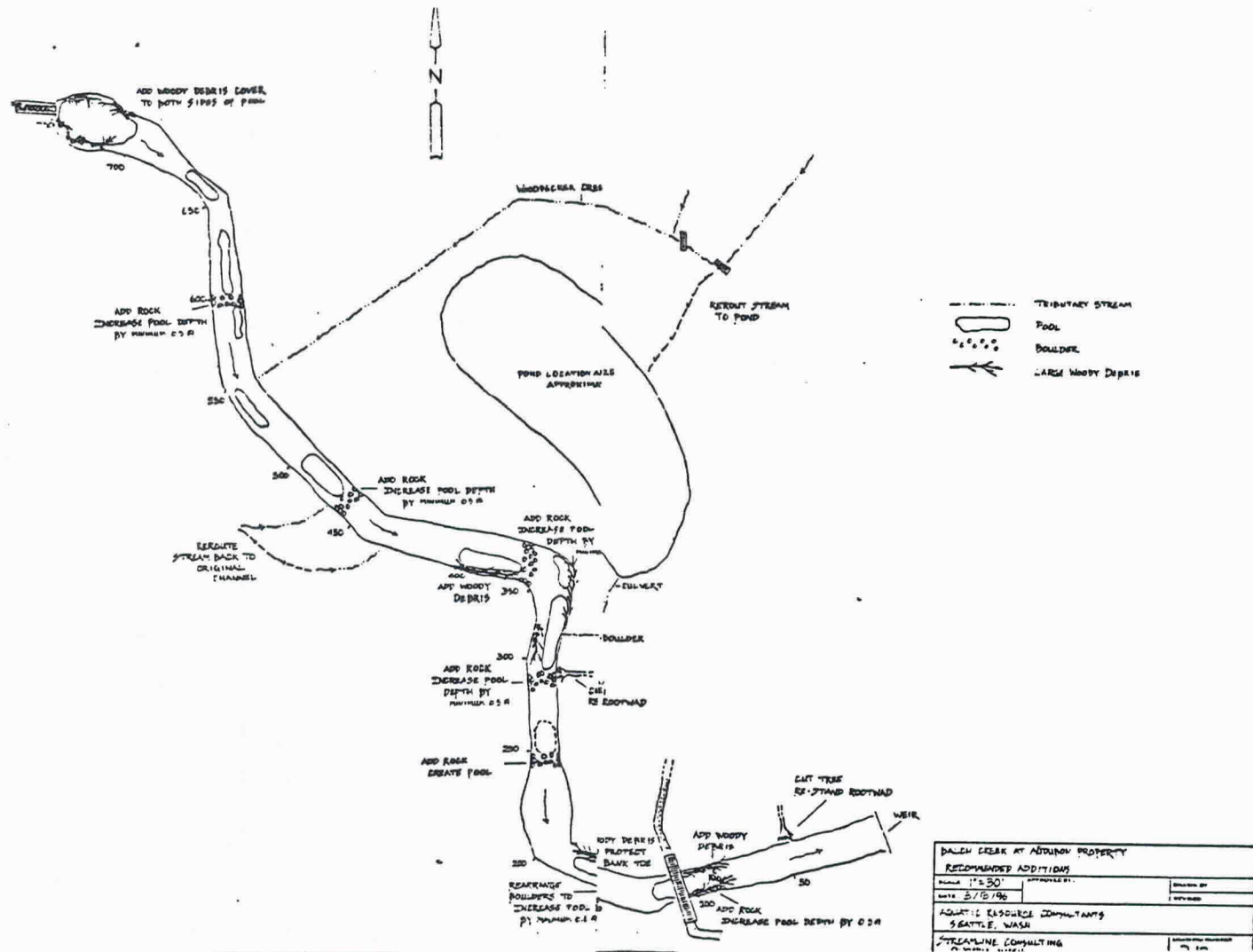


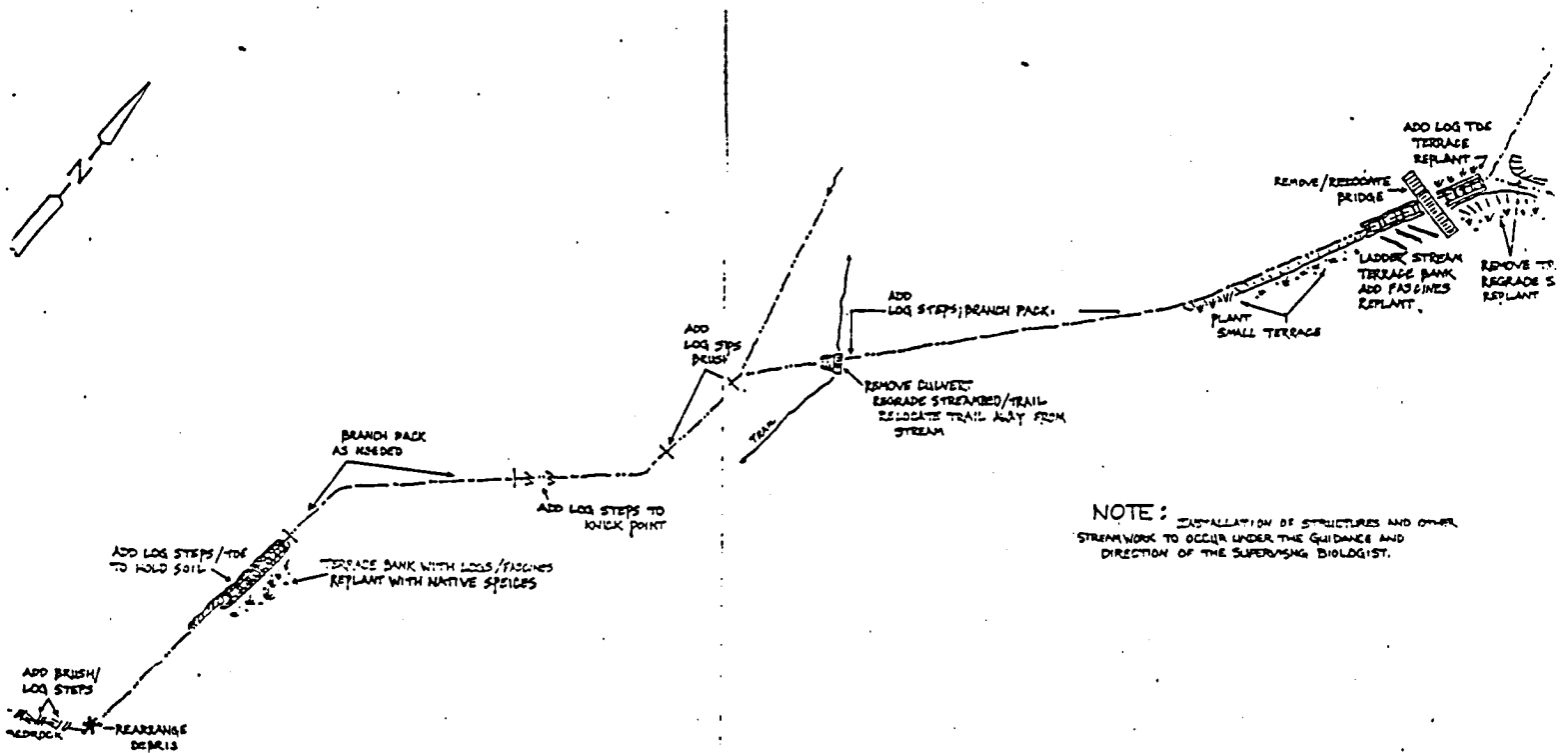
**Greenspaces Restoration Projects
Final Report
to Metro and USFWS
from the Audubon Society of Portland
re: Balch Creek Channel Demonstration Restoration Project
Funding Year: 1996
Report Date: November 1997**

Vicinity Map









LIST FOR REPLANTING DISTURBED AREAS

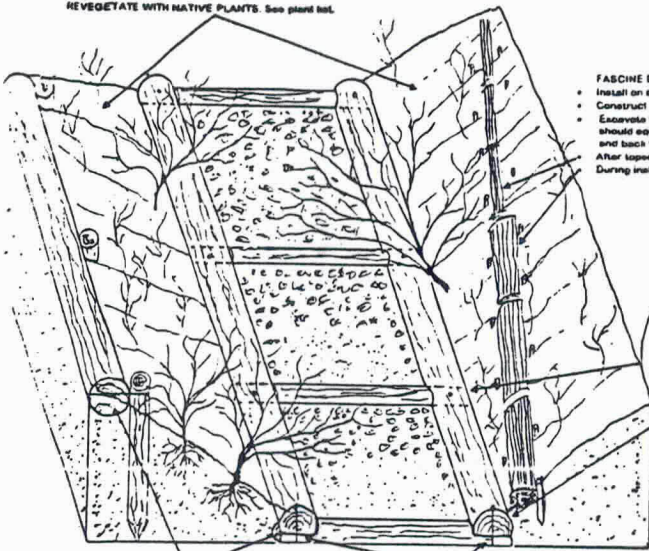
SHRUBS:

SILICATUM	INDIAN PLUM	ONYCHIA CERASIFOLIA
A. SCLERATA	SHRUB FERN	POLYTHICUM PLUMUM
MYRTUS HIRSHII	HICKLEBERRY	VACCINIUM PARVIFOLIUM
MACROPHYLLA	SALICIDORBY	RUBUS SPECTABILIS

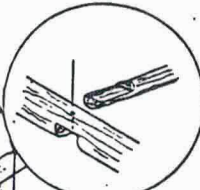
REDUCED 60%

WOODPECKER CREEK - PORTLAND AUDUBON SOCIETY GENERAL STREAM PLAN		
SCALE: 1" = 20'	APPROVED BY:	DRAWN BY: A
DATE: 3/15/96		REVISED
AQUATIC RESOURCE CONSULTANTS SEATTLE, WASH		
STREAMLINE CONSULTING OLYMPIA, WASH		

REVEGETATE WITH NATIVE PLANTS. See plant list.



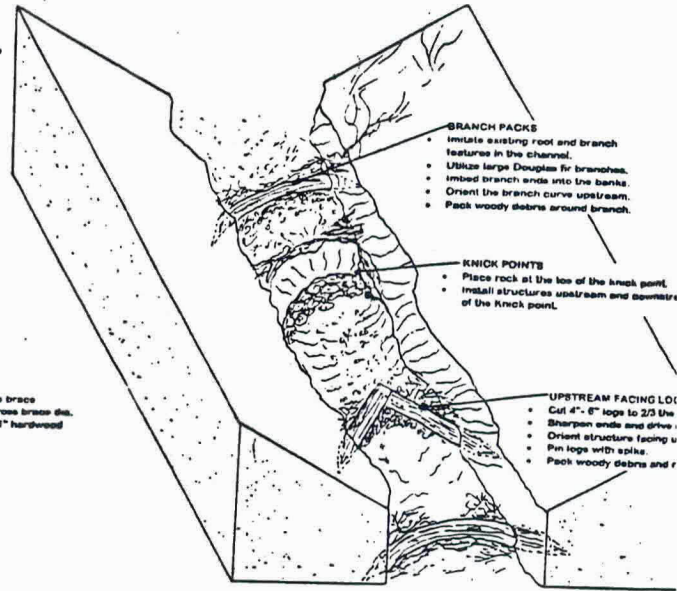
- FASCINE BUNDLES**
- Install on slope to convey drainage.
 - Construct with live or dead material.
 - Excavate trench angling downstream. Trench depth should equal 3/4 of the bundle dia. Stake on both ends and back fill trench. Leave 1/4 of bundle exposed. After topsoil covering. During installation.



- CROSS BRACE DETAIL**
- Notch toe logs to the width of the cross brace.
 - Depth of notch should be half of the cross brace dia.
 - Drill through both pieces and pin in 1" hardwood doweling.

- TERRACE LOGS**
- Install 12" - 18" logs at base of banks.
 - Re-grade and terrace slopes.
 - Install 12" - 18" logs upslope to maintain terraces.
 - Drive 4"-6" dia stakes vertically as deeply as possible to maintain log position.

- CROSS BRACED TOE LOGS**
- Install 12" - 18" dia. logs at base of both banks where bank failure occurs at both banks.
 - Notch and pin cross braces, see detail.
 - Ensure cross braces are at bed level.
 - Back fill cross braces with woody debris and rock.



- BRANCH PACKS**
- Imitate existing root and branch features in the channel.
 - Utilize large Douglas fir branches.
 - Imbed branch ends into the banks.
 - Orient the branch curve upstream.
 - Pack woody debris around branch.

- KNICK POINTS**
- Place rock at the toe of the knick point.
 - Install structures upstream and downstream of the knick point.

- UPSTREAM FACING LOG**
- Cut 4" - 6" logs to 2/3 the length of the knick point.
 - Sharpen ends and drive into the banks.
 - Orient structure facing upstream.
 - Pin logs with spikes.
 - Pack woody debris and rock around log.

BANK FAILURE STABILIZATION STRUCTURES

All structure dimensions and locations are determined in the field by the site supervisor at installation.

Replant bare soils with native vegetation. Recommended native plant species are listed on the plan sheet. Because of the close proximity of bedrock, some areas may not be suitable for replanting.

CHANNEL STABILIZATION STRUCTURES

WOODPECKER CREEK
CONCEPTUAL VIEW OF CHANNEL AND
BANK STABILIZATION STRUCTURES
DRAWN FOR:
AUDUBON SOCIETY OF PORTLAND
DRAWN BY:
AQUATIC RESOURCE CONSULTANTS, SEATTLE WASHINGTON
STREAMLINE CONSULTING, OLYMPIA WASHINGTON

Aquatic Resource Consultants

1606 Nob Hill Avenue North, Seattle, Washington 98109

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Fax: (206) 286-8045

Inventory of and Recommended Habitat Modifications for Balch Creek in the Portland Audubon Society Sanctuary

Aquatic Resource Consultants was asked by the Portland Audubon Society to investigate the portion of Balch Creek in the Audubon Sanctuary. The purpose of this investigation was to identify possible stream modifications that would increase the habitat available for resident cutthroat trout in this reach of Balch Creek.

Goal of project was to identify simple, low cost projects that would increase the refuge and rearing habitat for resident cutthroat. These modifications were to be completed using hand labor and would rely mostly on on-site materials (logs, large rock and soil). With this goal in mind, the project plans and recommendations were kept to the minimum necessary to describe the project elements, locations, and objectives. All modifications discussed in this report will be field located and installed under the supervision of a representative of Aquatic Resource Consultants or one of its associates.

METHODS

Approximately 750 feet of Balch Creek from an old weir at the downstream end of the Audubon property upstream to Cornell Road was inventoried for this project. A plan view map of the project area was prepared from distances obtained from a hip chain measuring device, azimuths from a compass, and stream widths measured at regular intervals. A longitudinal profile and cross sections from six locations in the project area were obtained using basic differential leveling techniques utilizing a laser level, hip chain or fiberglass tape.

The longitudinal profile was analyzed to identify the residual depths and lengths in the project area. Residual pool depth is defined as the amount of water that remains in a pool if stream flow was "shut off" [i.e., stage of zero flow]. This information was used to locate possible project sites which were then confirmed on-site.

RESULTS

In the approximate 750 feet of Balch Creek in the project area, the average bankfull stream width is 15 feet (range: 10 to 25 feet). The substrate varies from bedrock and boulders to areas of small gravel. Bedrock is visible in approximately 20 percent of the project area (120 feet of 750 feet). The average stream gradient in the project reach is 2.7 percent.

Fifteen pools were identified from the longitudinal profile. To facilitate communication, the larger, more visible pools were named using distinguishing features in the area or features that formed the pool. These pools are identified on the plan view drawing.

Most of the identified pools are small, shallow, short pools. The median depth of the 15 identified pools was 0.4 feet (range: 0.1 - 3.0); the median length was 21 feet (range: 8 - 54 feet). The small size of these pools provides little rearing or refuge area for fish. The two most prominent pools (the "Culvert" and "Alder" pools) are located at the most upstream end of the project area. The Culvert Pool is the scour pool downstream of the Cornell Road culvert; this pool provides the best fish habitat (i.e., water depth and cover) in the entire project area.

Several sediment sources and areas of bank erosion were located in the project reach. A debris jam in a small right bank (as looking downstream) tributary at approximately 450 feet upstream from project start has blocked the channel and caused this tributary to "jump" its channel near its confluence with Balch Creek. The new flow path of this tributary is eroding a new channel that is adding sediment to Balch Creek.

Three areas of significant bank erosion were located. The first is the left bank immediately upstream of the footbridge (adjacent to the Boulder Pool). The second is left bank area downstream of the Kid's Beach and Pool and near the confluence of pond outlet. The third is the left bank immediately downstream of the confluence of Woodpecker Creek and Balch Creek. It appears that high flows in Balch Creek force water from Woodpecker Creek into the bank.

RECOMMENDATIONS

As mentioned above, a primary goal of this project was to identify low cost projects i.e., projects that would be implemented by hand labor such as youth crews. Projects will also rely mostly on on-site materials (logs, large rock and soil). With these goals in mind, the plans and specifications and other details prepared were the minimum necessary to describe project elements, locations, and objectives of action. As such, all recommendations presented in this discussion assume that a representative of Aquatic Resource Consultants or one of its associates would be on-site to assist in during project implementation. Because the project will rely mainly on using locally available materials, final placement and securing of materials will be decided on-site. The quantities and sizes of available material will be defined prior to the start of the project. If needed, additional materials will be imported from nearby areas. All materials should be as large as can be safely moved and positioned with available methods.

The primary recommended action is to modify the existing pool depths and available cover to increase available rearing and refuge areas. At six existing pools, add rock "weirs" at the pool tailouts to increase residual pool depths by 0.5 - 0.75 feet. Modify the existing pool controls by adding row(s) of spaced rock to increase flow resistance in the pool. Add a second, offset row of rock as needed to add additional flow resistance. The rock weirs should be built using the largest available rock that can be moved into position. If large rock not available in the immediate area, import rock from other areas or from off-site.

There are currently two larger, fallen trees located in the project area. The first is at approximately 50 feet and the second at 275 feet. At both of these trees, the bole (i.e., the stem) of the tree is still attached to the rootwad. In both cases, cut the bole from the rootwad, leaving approximately 8 - 10 feet of stem attached. Stand the bole and its rootwad upright to its previous position along channel. Place rock or otherwise secure rootwad in place.

Salvage and add additional woody material to other locations as noted on the project plan. The purpose of the wood is to provide additional overhead cover along the stream's edge. The woody debris should consist of a mixture of both coniferous and deciduous trees, boles, tree tops and root wads. The material should be the largest material that can be moved into position in the stream. Where possible, secure the woody debris by placing a portion of the material on the stream bank. The amount of wood to be placed on the stream bank will depend on the size and volume of the material. Further secure the woody debris in place with large rock.

Also place woody material along the edges of the large pool downstream of Cornell Road culvert. The woody material should be placed on bank where possible and extend into large pool. If available, tree tops or other branched material should be used. Secure any woody material placed along the sides of the pool with rock, placed under larger material, or otherwise secured.

The small right-bank tributary located at approximately 450 feet should be re-routed into its original channel. The diversion that created the channel change should be cleared as needed to return the stream to its existing channel.

We also recommend that Woodpecker Creek be re-routed from its current location to flow into the pond. This would likely improve the summer water quality of the pond (i.e., more inflow to the stream); Before the creek is returned to the pond, stabilize the outlet channel from the pond to Balch Creek with log or rock weirs and gravel to reduce channel erosion. The adjacent streambanks should then be re-planted with native vegetation.

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Inventory of and Recommended Stream Modifications for Woodpecker Creek in the Portland Audubon Society Sanctuary

Aquatic Resource Consultants was asked by the Portland Audubon Society to investigate Woodpecker Creek, a small tributary to Balch Creek, in the Audubon Sanctuary. The purpose of this investigation was to identify possible stream modifications that would increase the stability of the stream channel and thus reduce the amount of turbidity and fine sediment reaching Balch Creek.

The primary goal of this project was to identify simple, low cost projects that would increase the channel stability of Woodpecker Creek. These modifications were to be completed using hand labor and would rely mostly on on-site materials (logs, larger branches, rock and soil). With this goal in mind, the project plans were kept to the minimum necessary to describe the project elements, locations, and objectives. All modifications discussed in this report would be field located and installed under the supervision of a representative of Aquatic Resource Consultants or one of its associates.

METHODS

Approximately 570 feet of Woodpecker Creek from a small foot-bridge near the pond on the Audubon property upstream to the "Eagle Scout" bridge on the Woodpecker Trail was inventoried for this project. A plan view map of the project area was prepared from distances obtained from a hip chain measuring device, azimuths from a mirror-sighting compass, and stream widths measured at regular intervals. A longitudinal profile of the project area was obtained using standard leveling techniques. This information was used to locate possible project sites that were then confirmed on-site.

RESULTS

There is no identified fish use in the project area. The stream flow throughout the year appears to be quite low (gallons per minute). In the approximate 570 feet of Woodpecker Creek in the project area, the average bankfull stream width is 4 feet. The substrate varies from areas of bedrock to sand and silt with small gravel. Bedrock is visible or in close proximity to the surface in much of lower portion of the project area. The average stream gradient in the project reach of 13 percent (range: 8 - 24 percent).

There are several sources of sediment in the project area. In the lower approximate 300 feet of the project area, there are several bank slumps or failures. In this area, there are also five knickpoints or drops in the channel bed.

At approximately 300 feet, there is a 2.7 foot drop at a culvert trail crossing. This culvert is undermined on the downstream side; a portion of the stream flow is by-passing the culvert.

At 400 feet to the confluence of the two small tributaries, the left bank has a series of small failures. In the area of the Eagle Scout bridge, the trail has also failed.

RECOMMENDATIONS

As mentioned above, a primary goal of this project was to identify low cost projects (i.e., projects that would be implemented by hand labor such as youth crews) that would reduce the amount of turbidity and fine sediment input to Balch Creek. These projects will also rely mostly on on-site materials (woody debris [logs and branches], rock and soil). With these goals in mind, the plans and specifications and other details prepared were the minimum necessary to describe project elements, locations, and objectives of action. As such, all recommendations presented in this discussion assume that a representative of Aquatic Resource Consultants or one of its associates would be on-site to assist in during project implementation. The location of proposed structures are approximate; final locations and elevations will be determined prior to construction. Because the project will rely mainly on using locally available materials, final placement and securing of materials will be decided on-site. The quantities and sizes of available material will be defined prior to the start of the project. If needed, additional materials will be imported from near by areas.

Salvage and add woody material to locations as noted on the project plan. The purpose of the wood is to provide additional channel roughness and flow resistance to the channel. The woody debris should consist of a mixture of both coniferous and deciduous trees and large branches. The majority of the woody debris will be placed perpendicular to the flow, imbedded in the toe of the bank slope, to create a series of small steps throughout the length of the stream in the project area.

At station 300, the existing culvert should be removed, the streambed stabilized, and the existing trail relocated. Upon removal of the culvert, a series of steps should be constructed with large rock (10 - 12 inches) to stabilize the streambed and prevent further downcutting. The placement and elevation of the steps will be determined after the culvert is removed. The trail should be relocated away from the edge of the streambank.

The bank failures near stations 125 and 400 should be terraced with bank logs and revegetated with native plant species. The Eagle Scout bridge should be removed and relocated in a more stable area. Bank drainage should be conveyed to the stream through facines constructed with either live or dead material. The choice of material will depend on the type and quantity of available plant material.

Where bank failures occur at both banks at the same location, install toe logs at the base of both banks. Brace these logs with cross-pieces to form a "ladder-like" structure instream. The toe logs will help hold bank soils and prevent further erosion by stream flows. See project plans for further detail.

Where noted and otherwise possible, replant bare soils with native vegetation. Recommended native plant species are listed on the plan sheet. Because of the close proximity of bedrock, some areas may not be suitable for replanting. The suitability of the site for planting will be confirmed in the field.

4. Project Description:

Location of Project: County - Multnomah, Township/Range/Section - T.1N.;R.1E.;Section 31, Stream Mile - approximately mile 1.5, Zoning - Base zone: FF, Overlay zones: ec, cn, nr

Balch Creek is approximately 3.5 miles long and provides habitat for one of the few remaining populations of native Cutthroat Trout within the Portland City limits. The project will enhance riparian and fish habitat by stabilizing the streambed and banks through the strategic hand placement of rocks and logs in both Balch Creek and Woodpecker Creeks. Work crews (paid and volunteer) were augmented with individuals attending workshops. The sites are located on Audubon property and are not located near roads. One of the project's intents was to demonstrate restoration techniques for sites in environmentally sensitive areas where the use of heavy equipment would cause environmental degradation. The project will provided educational opportunities for citizens, citizen groups, organizations, and jurisdictions and youth work corps in hand placement restoration techniques. The project will be conducted in accordance with the guidelines of the Forest Park Natural Resource Management Plan.

For additional description see "Inventory of and Recommended Stream Modifications for Woodpecker Creek in the Portland Audubon Society Sanctuary" and "Inventory of and Recommended Stream Modifications for Balch Creek in the Portland Audubon Society Sanctuary"

5. Benefits and goals of the project

- Enhance and restore fish, herptile, and riparian habitat
- Improve water quality by controlling erosion
- Provide educational opportunities for schools and Audubon visitors
- Train and demonstrate restoration techniques
- Assist in meeting objectives of Forest Park Natural Resource Management Plan.

6. Work Tasks and Timelines

Contract period Dec 1995 to June 1997. Period extended to December 31, 1997.

<u>Task</u>	<u>Date Completed</u>
Restoration plan and design	March 13, 1996
Develop maintenance/monitoring plan	August, 1996
Weekly education program began	March 2, 1996
Weekly monitoring begins	August, 1996
Permits Prepared/submitted	July, 1996
Permits approved	August, 1996
Plan and market crew training and citizen demonstration workshops (2)	June 1996 - August 1996
Permits finalized	September, 1996

Tools and supplies inventoried	August, 1996 and 1997
Equipment and supplies rental and purchase	September, 1996
Plants, soil and equipment delivered	September, 1996 and 1997
Groundwork with youth crew, demonstration workshops for agency personnel and public	September 1996 and 1997
Monitoring	Ongoing
Evaluation and maintenance (Johnson's contract)	Over two years

7. Project Budget

Summary: Project costs = \$52,387.70 plus agency personnel salaries (estimate unavailable)

Total billed to Metro = \$8,483.63

Total match is 6:1

Please see two attached budget forms submitted to Metro.

8. Project staff/Workers/Volunteers

Patrice Mango, Ivy Francis, Eric Machorro, Bureau of Environmental Services (BES) provided technical assistance, project oversight, and funding for the services of Alan Johnson an aquatic biologist and channel restoration expert.

Alan Johnson, Aquatic Consultants, Inc., developed plans to identify techniques and placement of materials for restoration in both Balch and Woodpecker Creeks.

Carl Menconi, private consultant, provided crew field oversight, assisted in the procurement of tools and in educational workshops.

Jennifer Devlin and Mitch Lockett of the Portland Audubon Society (PAS) provided project oversight, in-kind use of facilities for work crew training, citizen workshops, and base of operations, ongoing displays about the project and access to the sites.

Kim Wilson of PAS provides Walk About Naturalist program ongoing to engage citizens in monitoring the area for at least three years. Kim trains other staff and volunteers to assist in the education and monitoring of these sites. These staff and volunteers are Alan Tomaszewski, Abel Kloster, Bryan Ledford, Keith Robillard, Katie Ray and Laura Graham.

Holly Michaels, Oregon Department of Fish and Wildlife (OFW+W) provided input to planning and project review.

Lee Kellogg, Friends of Forest Park provided review of plans relative to the Forest Park Management Plan.

The Northwest Service Academy/Americorp and Cascade Education Corp provided youth crews to accomplish the ground work needed to move rocks, logs, etc.

Mary Ruhl, graphic artist produced interpretive signage for the project.

Jennifer Thompson, USFWS, arranged for a video filming day on site interviewing field crews for an agency video on restoration projects.

9. How Project Relates to Greenspaces Program

Because the Audubon Society of Portland Sanctuary has trails which are open to the public, this site is not only important as a Greenspace for wildlife (it is part of a contiguous forested corridor which includes Forest Park) but to encourage people to explore and observe nature. We host over 8,000 students per year on sanctuary tours and several hundred per year on our walkabout restoration and monitoring project. An additional 40,000-50,000 people walk our trails without a guide and benefit from the interpretive graphics placed at one of the restoration sites.

10. What Worked/Didn't/Helpful Hints

Worked /Helpful Hints

- Soliciting input from many different sources in the planning phase.
- Having a personal contact at the City of Portland to secure examples of permit applications that had been awarded to use as templates to apply for our permit (I really could not understand the language of the permit application.)
- Being flexible
- Hiring an experienced crew supervisor
- Securing funding for long term education and monitoring

Didn't Work

- Expecting the project to be on a perfectly tidy timeline ... there are just too many variable...weather, landslides, availability of crews, etc.

11. Advice for other Project Managers

Take more photos than you think you need...everyone wants them. Take them with a camera that prints the date on the print.

12. Monitoring and Maintenance Plan

We have funds to monitor this project weekly over a three year period. The information useful to know is:

1. Did the in-stream prescriptions DO anything in terms of water quality?
2. Have bank areas that were erosion problems been stabilized ?
3. Did the addition and rearrangement of rock in Balch Creek increase pools depth? How about after floods? Are the pools still intact? If not, should they be maintained by hand or should we use prescriptions that hold together better (ie using more steel, etc?)

4. Did treatments to stream areas that were eroded down to bedrock hold? How well did the weir series hold? What is the evolution of the crib structures?

Specific Monitoring tasks include:

Balch Main Stem

Water Quality - weekly
temperature
turbidity

Plant survivorship in replanted areas - quarterly
Photographs
Area/Plant Mapping and tagging

Pool Depth and Pool Locations - quarterly
Measuring new pools and plotting their locations after high water events
Photographs

Woodpecker Creek - all quarterly

Plant Survivorship and replanting
Crib Structures over time - photo documentation
Weir locations and survivorship - photo documentation

Bill From Portland Audubon Society to Metro (contract # 904686)

	Description of Services or Materials Purchases	Cost or Cash Value (cash, in-kind materials and services; volunteers labor)	Request for reimbursement from Metro
Personnel Costs	1) Jennifer Devlin/Mitch Lockett- Audubon- project oversight 2) Ivy Francis/Patrice Mango- BES - project oversight 3) Holly Michael- ODFW, restoration planning 4) Kim Wilson - Audubon, planning, walkabout naturalist, monitoring plan, ongoing monitoring 5) Volunteers - Kathleen Wilson, Jeannie Waterbury, Tom Rapp, Julie Combs, Mary Kuhl, Bryan Ledford, ten citizens at restoration weekend. - planning meetings, plantings, art displays.	1) \$11,000 (contract from BES) 2) Figure not available 3) Figure not available 4) \$7,000 (contract from BES) 5) \$731.50 see attached staff log and walkabout reports, volunteer hours are highlighted. Volunteer contributions rated at \$4.74/hr.	None
Materials and Supplies	1) Permits 2) Plants (receipt marked #3) 3) Tools (receipt marked #4) 4) Watering backpacks (receipt marked #1) 5) Tools (receipt marked # 6) 6) Tools for grip hoist, etc. (receipt marked # 5)	1) \$257 2) \$484.75 3) \$70.74 4) \$250.00 5) \$23.25 6) \$386.57	1) \$257 2-6) none
Equipment Rental	N/A	N/A	None
Professional or Outside Services	1) Alan Johnson - consultant for site plans, project oversight 2) Carl Menconi - consultant for site work 3) Cascade Education Corp- youth crew for site work 4) ESD #112 - youth crew for site work	1) Figure not available 2) Total figure not available (for planning etc) but for site work = \$1995. 3) \$2,400 4) \$3,800	1) none 2) \$1,995 3) \$2,400 4) \$1,155
PROJECT COST		\$ 28,398.81 + consultant and agency personnel time	
TOTAL METRO REIMBURSEMENT REQUESTED			\$5,807

Final Bill From Portland Audubon Society to Metro (contract # 904686)
Representing funding period from April 1997 - November 1997

	Description of Services or Materials Purchases	Cost or Cash Value (cash, in-kind materials and services; volunteers labor)	Request for reimbursement from Metro
Personnel Costs	1) Jennifer Devlin/Mitch Lockett- Audubon- project oversight 2) Ivy Francis/Patrice Mango/Eric Machorro - BES - project oversight 3) Volunteers: Abel Kloster, Keith Robillard, Katie Ray, Laura Gramann - Walkabout naturalists (22 walkabouts x 2 hours/per x \$4.75)	1) \$4,000 (contract from BES) 2) Figure not available 3) \$ 209 - see attached staff log and walkabout reports, volunteer hours are highlighted.	None
Materials and Supplies	1) Three interpretive signs along Balch Creek 2) Outdoor farm cart for carrying plants, etc for ongoing maintenance 3) Outdoor farm cart for ongoing manintenance	1) \$ 3000 2) \$ 109.99 3) \$ 109.99	1) None 2) \$109.99 3) \$109.99
Equipment Rental	N/A	N/A	none
Professional or Outside Services	1) Aquatic Resource Consultants - consultant for site plans, project oversight 2) Carl Menconi - consultant for site work 3) Cascade Education Corp- youth crew for site work 4) Americorp - crew for site work	1) \$14,103.26 2) \$ 1,656.65 3) \$ 300 4) \$ 500	1) none 2) \$1,656.65 3) \$ 300 4) \$ 500
PROJECT COST		\$ 23,988.89	
TOTAL METRO REIMBURSEMENT REQUESTED			\$ 2676.63

Photos Site #3 Area with low pool/riffle ratio

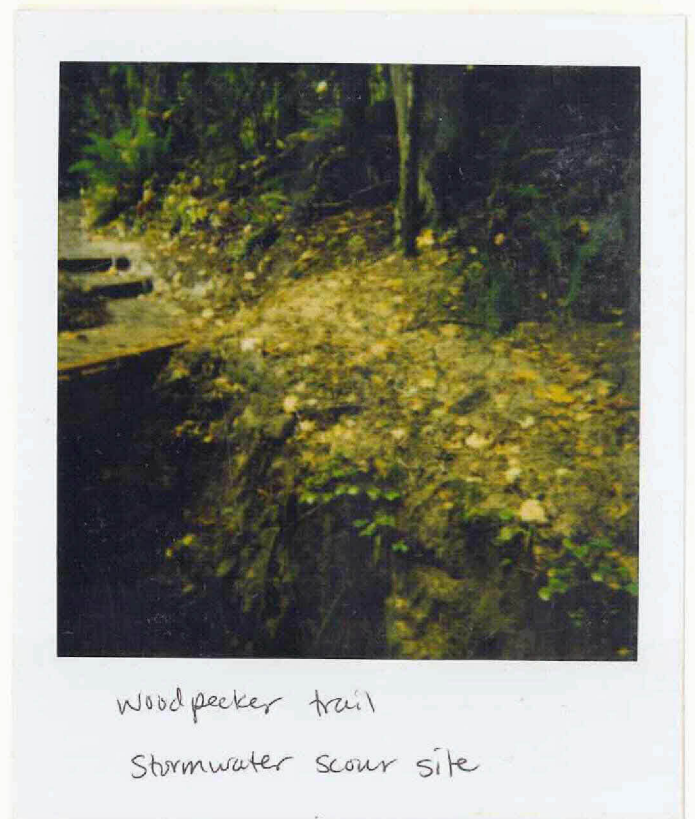
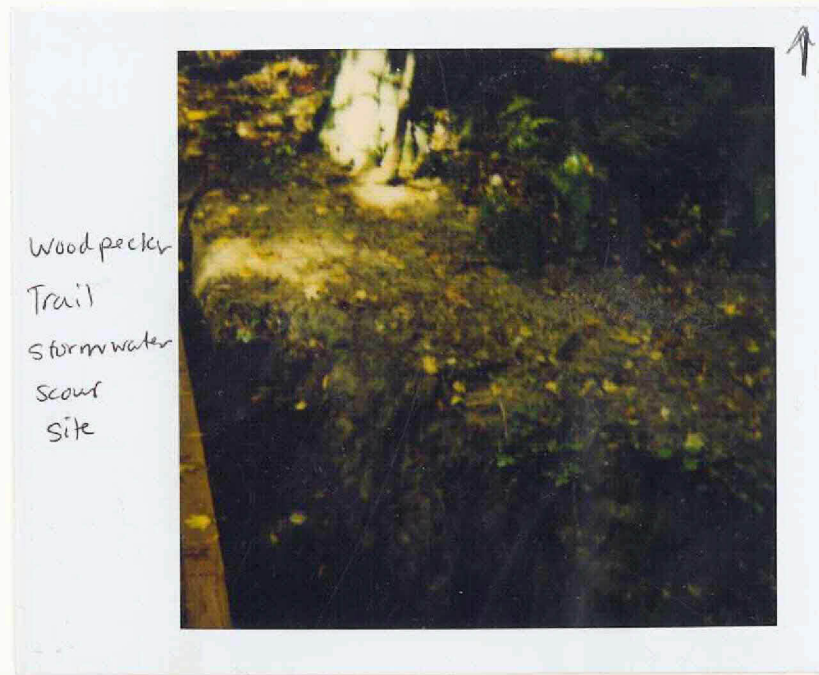


Bridge Downstream Site #3



Bridge downstream site #3

Photos: Site #1 Incised channel, threatening footbridge



Photos: Site #2 Streambank erosion/slope instability



Hiker erosion site #2



Hiker
erosion
site #2

↑
up

~~Auburn~~

Audubon - Restoration #904686

Balch + Wosopetuk Creek

1996-97

Rnd 5

up ↑



Hiker erosion site



Downstream from Kid's beach

1/10/97

Post-project



Downstream from bridge

1/10/97

Post-project.



Downstream from kid's beach

1/10/97

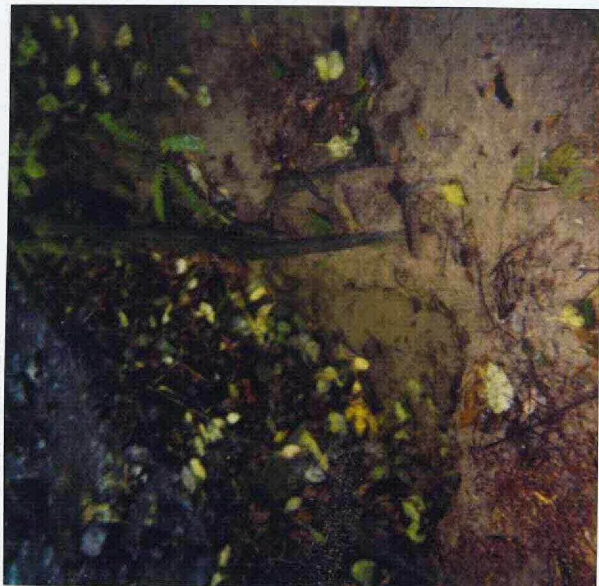
Post-project



Hiker
Erosion
site #2



Hiker
Erosion
site
looking
down



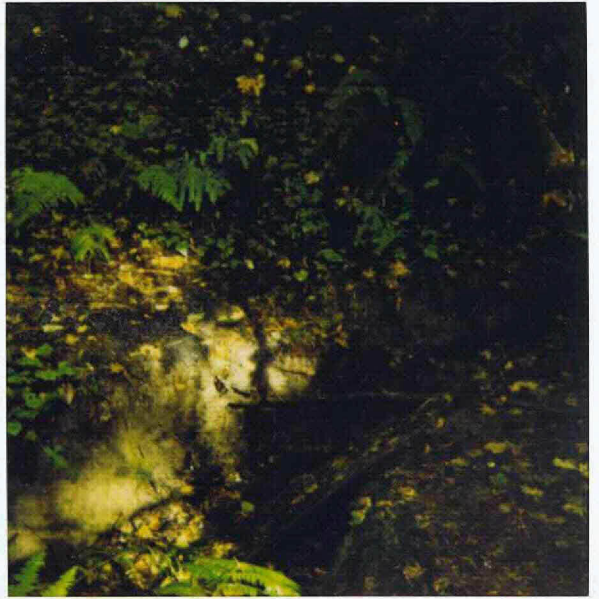
Hiker
Erosion
Site
Looking
down

← S



Hiker Erosion site #2





Woodpecker Trail
Stormwater Scour site



New-weir site, taken from overlook.

Feb '97

Post-project



Upstream from bridge

1/10/97

Post-project



"Mass Wasting site on lower WP Creek

Aug 96

Pre-project



SEPT 26
batch



Sept '96

Batch



Bones Creek at
Balch Confluence



Bridge downstream site



W.P. Trail



Plant Survivorship, Woodpecker Creek.

June '97

Post-project.



Restoration workers on woodpecker creek slump.

Sept '96

During project