



STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

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December 5, 2001

Grant Beck, Director
San Juan County Permit Center
P.O. Box 947
Friday Harbor, WA 98250

Dear Mr. Beck:

RE: Ayer property on Orcas Island

This letter is in response to your request for additional review of the SEPA checklist, and other materials, for the Ayer wetland restoration proposal. In addition to the checklist and three site plans, I reviewed the *Wetland Boundary Determination Final Report (Report)*, dated May 2001, and the *Non-Compensatory Type 1 Proposal for Wetland Restoration (Proposal)*, dated June 2001, both prepared by Amanda Azous. I also spoke with Ms. Azous, the wetland consultant for this project, on October 29, 2001 regarding the details of the proposal.

The proposal includes *Phalaris arundinacea* (reed canarygrass) removal for the existing 3.6 acre wetland, excavation (ranging from 3 to 15 feet in depth) of approximately 2 acres of existing wetland, and replanting portions of the wetland. The plan is to change the current emergent wetland into an aquatic bed, open water and emergent wetland system, which could be stocked with cutthroat trout. The underlying soil in the wetland area is Semiahmoo muck.

The Department of Ecology (Ecology) believes this proposal is a wetland *conversion*, changing one type of wetland into another, and is not "restoration", which is defined as the process of intentionally returning an ecosystem to a close approximation of its pre-disturbance condition. A wetland conversion trades certain wetland functions for other functions. As this type of activity would alter the beneficial uses and the water quality of the existing wetland, **the proposal will require approval by Ecology**, under Chapter 90.48 RCW and Chapter 173-201A WAC, and may also require a permit from the U.S. Army Corps of Engineers.

Ecology has the following concerns with this project:

1. The wetland function assessment method that was employed in the *Proposal* was the Wetland Evaluation Technique (WET). The consensus decision among the statewide function assessment technical committee (list attached) was that WET is generally not appropriate for the Pacific Northwest. WET was developed for nationwide use and so it has generalized many assumptions about what characteristics drive wetland function. The "scores" derived from WET are general and only relate to the likelihood that the wetland performs the function, not the degree to which it may perform the function. Ecology strongly suggests that a wetland function assessment method developed for this region, such as the Washington State Wetland Function Assessment Method, be utilized for analysis of the impacts associated with the current proposal. If WET is to be utilized, its limitations should be taken into account.

AR 030790

Exhibit-2019

2. The *Proposal* states that water flows out of the subject wetland via a small channel at the north end and then sheet flows to another wetland; in addition, there is significant groundwater flow through the soils surrounding the subject wetland. Removal of 2 acres of Semiahmoo muck, which has a high moisture-supplying capacity (USDA, 1962), will not only alter the hydrologic regime of the subject wetland, but the connected downstream wetland systems as well. The *Report* notes that the subject wetland is a headwater for several downstream wetlands "fed by the groundwater stored in the peat soils." With less organic soil, there will be a reduced amount of absorptive capacity to hold water later in the growing season, thereby reducing late season flows from the subject wetland. Therefore, Ecology does not agree with the current assessment indicating that there will be no impact to downstream aquatic resources, or that the current hydroperiod will be preserved.
3. The *Proposal* specifies that the excavated muck will be placed on the uplands surrounding the subject wetland. The resulting runoff from such activity will release tannins into the system, and will take a considerable amount of time to flush out of the wetland community. In addition, the low pH of the subject wetland would limit the invertebrate community, which would ostensibly be required as a food base for the trout. Studies have shown that, in general, acidic waters have less invertebrate biomass and/or species richness, lower ratio of consumers to producers, and fewer clearly dominant taxa (Friday 1987; Sutcliffe and Hildrew 1989, Adamus and Brandt 1990, Schell and Kerekes 1989, Hall 1994, Mason 1996). The loss of this wetland function (invertebrate habitat) would decrease wetland habitat for other, higher trophic organisms, thereby decreasing overall habitat function.
4. One of the suggested performance standards in the *Proposal* is to reduce *Phalaris* dominance within the wetland to occasional specimens within three years. For purposes of reasonable assurance that this activity would have a high probability of success, Ecology would be interested in reviewing examples of similar projects completed by the applicant's consultant. Ecology is aware that *Phalaris* control is extremely maintenance intensive and, even with the appropriate attention, may still fail. In addition, the *Proposal* does not include information on whether maintenance would occur, although monitoring is mentioned.

Thank you for the opportunity to provide technical assistance on this proposed project. Please contact me at 425-649-7124 if you have any questions or would like more information.

Sincerely,



Sarah Suggs, Wetlands Specialist
Shorelands & Environmental Assistance Program

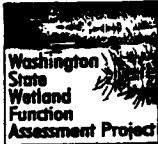
SS:jc

Cc: Amanda Azous

AR 030791

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Members of the Statewide Technical Committee

Name	Organization
Ken Brunner	US Army Corps of Engineers
Dr. Sarah Cooke	Cooke Scientific Services
Joel Fruedenthal	Clallam County
Robert Fuerstenberg	King County Surface Water Management
Dr. Tom Hruby	Washington State Department of Ecology
Dr. Chuck Klimas	Klimas and Associates
Ivan Lines	US Natural Resources Conservation Service (retired)
Andy McMillan	Washington State Department of Ecology
Charles Newling	Wetland Training Institute
Dr. Ken Raedeke	Raedeke Associates
Dyanne Sheldon	Sheldon and Associates
Curtis Tanner	US Fish and Wildlife Service
Paul Wagner	Washington State Department of Transportation
Dr. Fred Weinmann	US Environmental Protection Agency (retired)
Bob Zeigler	Washington Department of Fish and Wildlife

DEPARTMENT OF ECOLOGY
NORTHWEST REGIONAL OFFICE

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Memorandum

August 7, 2001

TO: ✓ Ann Kenny, Ecology NWRO Shorelines and Environmental Assessment
Kevin Fitzpatrick, Ecology NWRO Water Quality Section Manager
Ray Hellwig, Ecology Northwest Regional Director

FROM: Dave Garland, NWRO Water Quality Watershed Unit Supervisor *DWG*

SUBJECT: Review of "Low Flow Analysis, Flow Impact Offset Facility Proposal, Port of Seattle"
Parametrix Inc., July 2001

This memo is to document my review of the report, "Low Flow Analysis, Flow Impact Offset Facility Proposal" prepared for the Port of Seattle by Parametrix Inc., (July 2001). This most recent report presents considerable improvements in analysis and mitigation for predicted impacts of the proposed third runway on late summer streamflows. I also read review comments on the Port's Low Flow Analysis by King County Department of Natural Resources sent to Ann by Pam Bissonnette with a cover letter dated August 3, 2001 (DNR, August 3, 2001).

An earlier low flow analysis prepared for the Port, "Sea-Tac Airport Master Plan Update Low Streamflow Analysis" (*Earth Tech, December 2000*), used the term "low streamflow" to refer to total flow in local streams during August and September, since those months were considered the most critical for minimum streamflows. After re-evaluating 47 years of streamflow records for Miller, Walker and Des Moines creeks, this more recent analysis uses a 3-month period for proposed low-flow augmentation. This provides a margin of safety for future climatic aberrations and, as pointed out by King County DNR, constitutes substantial streamflow mitigation for the third runway project.

In a special study commissioned by the 1998 legislature, Pacific Groundwater Group developed a "slice model" to quantify the hydrogeologic behavior of the proposed runway fill over a characteristic cross-section in "Sea-Tac Runway Fill Hydrologic Studies Report" (PGG, June 2000). The slice model predicted that infiltration of precipitation into pervious areas of the runway fill during winter months would result in summer drainage from the embankment. Subsequent low flow analyses, (*Earth Tech, December 2000*), integrated the results of the PGG slice model over the 5,400-foot embankment distance along Miller Creek. Because the cross-section of the June 2000 'slice model' was located at an uncharacteristically thick section of the fill at the proposed Miller Creek retention wall, the groundwater flow characterized by integrating the original 'slice' along the length of the embankment adjacent to Miller Creek was thought to be unrepresentative. Accordingly, the subject re-evaluation of embankment drainage and other factors effecting the drainage (Parametrix, July 2001) takes several representative embankment 'slices' into account and provides more reasonable fill drainage estimates for the HSPF streamflow models.

Exhibit-2012

Non-Hydrologic Impacts

Estimates of non-hydrologic impacts such as influence of imported water district water, exercise of water rights and on-site system effects were improved resulting in estimates of net reductions in project streamflow impacts as follows:

	<u>Dec. 2000</u>	<u>July 2001</u>
Miller Creek	.04 cfs	- .02 cfs
Walker Creek	0.0 cfs	- .01 cfs

CONCLUSIONS

1. The Port has provided a more detailed integration of the PGG 'slice model' (PGG, June 2000) over the length of the proposed runway embankment along Miller and Des Moines creeks. This more detailed consideration of fill thickness and fill soil characteristics yields improved low flow estimates for delayed embankment drainage to Miller and Des Moines creeks during the summer low flow months.
2. The long-term success of low streamflow maintenance at 1994 levels still depends on successful construction, maintenance and operation of new stormwater storage and release facilities on Miller, Walker and Des Moines creeks. Design and operation of these proposed storage facilities have been considered in detail in the Low Flow Analysis (Parametrix, July 2001) and are the subject of many of the comments from King County DNR (DNR, August 3, 2001).

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