BEFORE THE POLLUTION CONTROL HEARINGS BOARD
STATE OF WASHINGTON

AIRPORT COMMUNITIES COALITION, Appellant, v. STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY; and PORT OF SEATTLE, Respondents.	PCHB No. 01-133 DECLARATION OF ERIK STOCKDALE

Erik Stockdale declares as follows:

1. I am over the age of 18, am competent to testify, and have personal knowledge of the facts stated herein.

2. I am a Senior Wetlands Specialist with the Washington State Department of Ecology (Ecology) in the Shorelands and Environmental Assistance Program. I have been employed at Ecology since October 1992. From February 1986 to October 1992 I worked as a Resource Planner for King County.

3. I received a bachelor's degree in Aquatic Biology and Environmental Studies (double major) from the University of California at Santa Barbara in 1983. I received a Master of Marine Affairs (MMA) degree from the University of Washington Institute for Marine Studies in 1986. I am a certified Professional Wetlands Scientist with the Society of Wetland

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Scientists (SWS). I served on the board of the Pacific Northwest chapter of SWS for three years.

4. In the last nine years at Ecology, I have worked on hundreds of projects throughout the Northwest Region that involved the assessment of impacts to wetlands and other aquatic habitats and the evaluation of proposed mitigation activities. I have made presentations at numerous symposia, and to a wide variety of audiences. I have conducted training workshops for local governments on a variety of wetland topics. From time to time I lecture at the University of Washington, and give presentations at continuing legal education seminars.

5. I have worked on various complex projects seeking permits from Ecology, and have served as an expert witness on cases before the Shoreline Hearings Board and the Energy Facility Site Evaluation Council. I provided the lead technical support to Ecology's successful appeal of Snohomish County's Critical Areas Ordinance before the Western Washington Growth Management Hearings Board. I negotiated the first wetland mitigation bank in the State of Washington with Paine Field. From time to time I provide technical support on criminal and civil enforcement actions being taken by Ecology and other state agencies. I am the lead technical staff on various salmonid recovery efforts and watershed planning efforts in the Northwest Region. I contributed to the development of the Washington State Function Assessment Method (Ecology, 1999)[1] as well as to the mitigation compliance study published by Ecology (2000).[2] I provide technical assistance to the various programs at Ecology (water quality, solid waste, toxic cleanup, and water resources).

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[1] Hruby, T. and others. **Methods for Assessing Functions in Riverine and Depressional Wetlands Located in the Lowlands of western Washington.** http://www.ecy.wa.gov/programs/sea/wfap/index.html

[2] Johnson, P. and others. 2000. **Washington State Wetland Mitigation Evaluation Study. Phase 1: Compliance.** Ecology publication 00-06-016. Available at http://www.ecy.wa.gov/biblio/0006016.html; and Johnson, P. and others. 2001. **Washington State Wetland Mitigation Evaluation Study Phase 2: Evaluating Success.** Draft report, July 2001. Expected to be released by end of year.

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changing the design or operation of the project; (c) reducing and rectifying adverse impacts by restoring the affected areas; (d) reducing and rectifying the adverse impacts by preservation and maintenance operations over the life of the project; (e) compensating for adverse impacts by creating, restoring, enhancing or preserving substitute resources; and finally (f) monitoring the impacts and compensatory mitigation and taking appropriate corrective measures.[4] Ecology and the Corps devoted considerable time and energy discussing and evaluating the type and extent of compensatory mitigation necessary to offset the unavoidable impacts.

13. Evaluating a wetland mitigation proposal in terms of acres of impact and acres of mitigation is a useful tool due to the lack of adequate metrics to discuss the tradeoffs being considered. Ecology uses mitigation ratios as guidelines and not as requirements. They have not been adopted by rule. Wetland management is complex, and many projects we review fail to fit neatly into convenient ratio-driven boxes. It is important not to become a "ratio zombie", as the critical determination is to ensure "no net loss" of wetland functions. Projects can meet an acreage replacement but fail at replacing meaningful functions. Ecology's mitigation ratios recognize the inherent "tradeoff" in wetland functions that often result when wetland mitigation is provided. Wetland enhancement by its very definition results in the improvement of a suite of wetland functions (primarily habitat) at the expense of wetland acreage. Enhancement can therefore result in the loss or diminishment of acreage-based functions such as water quality improvement. As demonstrated below, the NRMP exceeds the minimum mitigation ratios presented to the Port and also provides for meaningful and adequate replacement of lost functions.

14. Habitat mitigation activities in and around airports in the United States are strongly circumscribed by Federal Aviation Administration (FAA) regulations, and for good

[4] See Kooser, J. and P. Lund. 1996. **Water Quality Guidelines for Wetlands: Using the Surface Water Quality Standards for Activities Involving Wetlands.** Ecology publication WQ-96-06, available at http://www.ecy.wa.gov/biblio/96006.html

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reason.[5] Concern over bird-aircraft strike hazard (BASH) prompted the FAA to limit wetland mitigation projects and other activities that create wildlife attractant hazards near existing airports.[6] The FAA recommends that all new wildlife attractants be at least 10,000 feet from turbine aircraft movement areas.[7] Figure 7.2-3 of the NRMP shows how all but the upper reach of Miller Creek and all of Des Moines and Walker creek basins are within the 10,000-foot radius. In addition, these three basins are dominated by urban development and do not have the same availability of in-basin restoration options that more rural basins have.

15. Ecology recognizes that public infrastructure projects may require a unique blend of natural resource mitigation strategies that do not fit the generic mitigation prescriptions outlined in its guidance documents. As discussed above, due to FAA requirements, unique considerations must be given to airports when wetland mitigation is conducted within 10,000 feet of a runway. In addition, ch. 90.74 RCW requires Ecology to consider out-of-basin mitigation for public infrastructure projects. Under RCW 90.74.005(2), state regulatory agencies are directed to consider "innovative mitigation measures" for infrastructure projects when they "are timed, designed, and located in a manner to provide equal or better biological functions and values compared to traditional on-site, in-kind mitigation proposals." In RCW 90.74.020(1) the legislature specifically provided that mitigation plans for such infrastructure projects can include "compensatory mitigation within a watershed." RCW 90.74.020(2) sets forth guidelines to be used when reviewing mitigation plans:

> The departments of ecology and fish and wildlife may not limit the scope of options in a mitigation plan to areas on or near the project site, or to habitat types of the same type as contained on the project site. The departments of ecology and fish and wildlife shall fully review and give due consideration to compensatory mitigation proposals that improve the overall biological functions

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[5] FAA Advisory Circular 150/5200-33 "Hazardous Wildlife Attractants on or Near Airports."

[6] See section 7.2.3.1 in the NRMP titled "Wetland Mitigation and Aircraft Safety" (page 7-9) for more background. A copy of the NRMP is attached to the Declaration of James C. Kelley as Attachment M, submitted with the Port's response to Appellant's Motion for Stay.

[7] SeaTac averages 13.5 bird strikes a year. See Table 7.2-1 NRMP page 7-10.

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6. I began my professional career in wetland science and management in 1986 on the Puget Sound Wetlands & Stormwater Management Research Program. King County received a Coastal Zone Management grant from Ecology to evaluate the environmental effects of using freshwater wetlands for stormwater management purposes. I wrote a literature review on the effects of urban stormwater on freshwater wetlands, a subject that became the focus of my master's thesis. The literature review identified what was known and what was not known on the subject, and helped set the framework for the research design. In addition, I was involved in the selection of the research sites that were intensively studied for ten years, as well as many other project planning and management tasks.[3]

Project History

7. Construction of the Port of Seattle's (Port) Master Plan Update improvement projects at SeaTac International Airport (STIA) will necessitate the filling of 18.37 acres of palustrine freshwater wetlands in the Miller, Walker and Des Moines creek basins. The wetlands are in highly urbanized basins. All have been modified and degraded to varying degrees. Many of the wetlands occur on platted land, literally "in the back yards" of homes recently condemned and purchased by the Port. Some wetlands formed on the embankment of the fill placed for the second runway. Others occur in the Vacca Farm area, and dominate some of the fairways at the Tyee Golf course on Des Moines Creek.

8. In Ecology's development of the Clean Water Act § 401 Certification (401 Certification) for the Port's Master Plan Update improvements, I was responsible for evaluating impacts to wetlands and aquatic resources and determining if there was reasonable assurance that the project would comply with water quality standards with regard to those resources. Ecology's initial review of the project began in 1996 with the Port's submittal of the draft Environmental Impact Statement. From 1996 to November 2000, I worked with a

[3] The final research report is titled: Azous, A. and R. Horner, eds. 1997. Wetlands and Urbanization, Implications for the Future. Final report of the Puget Sound Wetlands and Stormwater Management Research Program. It is available at: http://splash.metrokc.gov/wlr/basins/weturban.htm.

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team of Ecology staff on the Port's applications for a 401 Certification. In that capacity, I reviewed the Port's Natural Resource Mitigation Plan (NRMP) for compliance with state laws and regulations. In short, the NRMP sets forth all of the actions that the Port will undertake to mitigate for the project's impacts to wetlands.

9. In an effort to reduce duplication of review with the U.S. Army Corps of Engineers (Corps), who is currently considering the issuance of a Clean Water Act § 404 permit for the project, Ecology did not participate in the verification of the location and extent of wetlands and other waters of the U.S. Consistent with its practice in other similar situations, Ecology relied on the Corps to provide that review task. I attended several site visits with Corps staff while they conducted their wetland delineation verification. I also spent time with the Port's consultants evaluating the impact sites and the proposed mitigation sites.

10. During the several years that Ecology worked with the Port on its NRMP, the plan evolved from a marginal plan to a very comprehensive and well designed plan. As the scope of the project evolved, and wetland and aquatic resource impacts became better defined, Ecology and the Corps made recommendations to increase the scope and character of the mitigation package, and the Port complied.

11. In January 2001, Ecology contracted with Ms. Katie Walter, a Certified Professional Wetlands Scientist at Shannon & Wilson, to assume the day-to-day review of the wetlands aspects of the project, allowing me to focus on other projects. As the key pieces of the mitigation strategy were in place, Ms. Walter's main responsibility was to complete the review of the remaining details in the NRMP. Although I no longer had day-to-day responsibility for the project, I continued to work in tandem with Ms. Walter and remained informed of any proposed changes to the NRMP.

Development of the NRMP

12. Mitigation is a series of sequential steps: (a) avoiding adverse impacts either by finding another site or changing the location of the project; (b) minimizing adverse impacts by

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and values of the watershed or bay and accommodate the mitigation needs of infrastructure development. The departments of ecology and fish and wildlife are not required to grant approval to a mitigation plan that the departments find does not provide equal or better biological functions and values within the watershed or bay.

16. Taking into consideration the FAA's restriction and the requirement to provide meaningful mitigation for the anticipated impacts to wetlands and the provisions of ch. 90.74 RCW, Ecology presented the Port with a set of minimum "environmental objectives" for the project at a meeting in November 1998. Those objectives included:

- Ecology's primary goal is to ensure that the Port's project will meet requirements of the applicable aquatic resource regulations.
- Ecology has the responsibility to protect, mitigate for, and restore the water quality, hydrology, food-chain support functions, and aesthetics of the Miller Creek and Des Moines Creek basins, and related sub-basins in and around SeaTac Airport from impacts associated with the Third Runway/Master Plan Improvement project.
- Ecology's responsibilities are linked to insure the protection of all beneficial uses in receiving waters including water quality, water quantity and fish.
- The agency will achieve its objectives by requiring appropriate wetland, floodplain, stream and riparian mitigation, as well as all necessary water quality, stormwater treatment and detention management practices.
- Wetlands shall be replaced on a one-to-one basis[8] "in basin" to ensure compensation for lost infiltration, water quality and other wetland functions.

In addition to the one-to-one in-basin mitigation, Ecology required the Port provide out-of-basin[9] mitigation at the rate of two-to-one.

17. As required by Ecology's wetland mitigation guidance, the Port completed a thorough and rigorous process in evaluating impacts to wetlands and avoiding them wherever possible. The unavoidable impacts to wetlands and streams have been minimized to the extent practicable. Through the provisions of the NRMP, the Port has reduced adverse impacts to

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[8] "One-to-one" replacement means that for every acre of wetland impacted, one acre of wetland must be created, restored or enhanced.

[9] "Out-of-basin" means out of the immediate creek basin, but within the same Watershed Resource Inventory Area (WRIA). Mitigation being proposed in Auburn is in the same WRIA as the wetlands at the project site.

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wetlands and provided for compensation for those impacts. The NRMP also establishes rigorous monitoring protocols to gauge the success of the mitigation.

18. As stated above, Ecology's wetland guidance starts with general wetland mitigation ratios as a proxy for achieving "no net loss" of wetland functions.[10] The two tables that follow were derived from table 4.1-3 of the NRMP. They serve to provide an accounting for various mitigation elements in the NRMP:

Compensatory Mitigation for 18.37 Acres Permanent Wetland Impacts

Location	Wetland creation	Wetland restoration	Wetland enhancement	Wetland preservation	Upland buffer enhancement	Total area
In-basin mitigation	0	6.6	21.46	23.55	50.66	102.27
Out-of-basin mitigation	29.98	0	19.50	0	15.9	65.38
Total mitigation	29.98	6.6	40.96	23.55	66.56	167.65

Mitigation ratio	1:1	1:1	1:2	1:10	1:5	**Total credit**
In-basin mitigation credit	0	6.6	10.73	2.36	10.13	29.82
Out-of-basin mitigation credit	29.98	0	9.75	0	3.18	42.91
Total mitigation credit	29.98	6.6	20.48	2.355	13.31	72.73

Compensatory Mitigation for 2.05 Acres Long Term (> 1 year) Temporary Wetland Impacts

	Wetland enhancement	Upland buffer enhancement	**Total**[11]
Wetland A17 complex mitigation (acres)	2.85	8.6	**11.45**
Mitigation credit	1.43	1.72	**3.15**

[10] See McMillan, A. 1998. **How Ecology Regulates Wetlands.** Ecology publication 97-112, available at http://www.ecy.wa.gov/biblio/97112.html

[11] The mitigation totals 11.45 total acres and 3.15 acre credits, the latter accounting for the 1:2 mitigation ratio for wetland enhancement and 1:5 mitigation ratio for upland buffer enhancement. These totals are included in the 167.65 acres of total mitigation acres proposed, and 72.73 acre credits.

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19. The final NRMP provides for 102.27 acres of in-basin mitigation and 65.38 acres of out-of-basin mitigation, for a total of 167.65 acres. This means that a total of 167.65 acres of wetland and upland buffer mitigation is proposed to mitigate for the 18.37 acres of unavoidable impact—over nine times the acreage of the impact.

20. To determine the mitigation credits for the Port's mitigation plan, mitigation ratio "discounts" are applied to the acres of wetland enhancement (two acres enhancement for one acre of impact), upland buffer enhancement (5 acres buffer for one acre impact) and wetland preservation (10 acres preservation for one acre impact). With the acreage discounts of 1:2 for wetland enhancement, 1:10 for wetland preservation and 1:5 for upland buffer enhancement, the mitigation package provides 29.82 acre credits for in-basin mitigation and 42.91 acre credits for out-of basin mitigation, for a total of 72.73 acre credits.

21. Finally, when the acre credits are divided by the 18.37 acres of permanent impact (not including the 2.05 long-term temporary impacts which are addressed separately), the NRMP provides 1.62-acre credits in basin for every acre of impact, and 2.34 acre credits out-of-basin for every acre of impact. The net mitigation credit for the mitigation package is 3.96-acre credits for every acre of impact. This accounting does not include the realignment and restoration of Miller Creek through the former Vacca Farm, a highly degraded headwater wetland system in the basin, the in-stream habitat restoration elements proposed in Miller and Walker creeks, nor buffers on Des Moines Creek at the Tyee golf course. Even without providing credit for those mitigation activities, the NRMP exceeds the minimum environmental objective Ecology set for the Port by a significant margin. Ecology has never before required 167 acres of aquatic and riparian resource mitigation for the loss of 18.37 acres of wetlands. The Port has put forth the largest and most significant urban watershed mitigation package ever seen in Washington State.

22. The actions detailed in the NRMP will result in meaningful restoration of the Miller, Walker and Des Moines Creek basins. In-basin wetland restoration and enhancement

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will total 28.06 acres (17.33 acre credits), meeting the minimum in-basin objective of one-to-one mitigation. The NRMP also calls for the restoration of a 1.7 mile long, 200-foot wide swath of riparian habitat along Miller and Walker creeks, a highly disturbed urban creek system. Over 380 homes are being removed from the basins, including their attendant driveways, rooftops, septic systems and other structures. This will result in a significant "un-building" of a riparian system and restoration of a much-needed vegetated buffer along the creeks. The "un-building" will remove 4.3 acres of total impervious surfaces that currently drain to the creeks, untreated and un-detained, within the restored buffer.[12] Removal of impervious surface area in an urban watershed is the single most beneficial action that can be taken to restore the physical, chemical and biological systems in a watershed. Under the 401 Certification, the Port is also required to retrofit the entire stormwater system at the airport. The retrofitting of the stormwater system will also contribute to the reduction of the "net impervious" level in the basins. Removal of human habitation from the riparian zones will reduce the watershed-scale effects of fertilizer and pesticide runoff, clearing and other human intrusions, pet waste and predation, soil compaction, etc. If the residents of these basins wanted to conduct a meaningful watershed-scale restoration action, they would do many of the activities the Port is committing to do in the NRMP.

23. Revegetation of the riparian swath will restore a productive multi-layer native forest system along currently degraded creeks. As the trees and shrubs mature, they will provide critical detrital and food-chain support functions to the creek. In time, the trees will provide a source of large woody debris to the creek.

24. Research conducted by Booth & Reinelt[13] and Booth & Jackson[14] suggests that two main interdependent factors contribute to the degradation of stream systems. Those

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[12] There are 75 homes within the buffer restoration area. Assuming 2500 square feet of imperviousness per home, that totals 4.3 acres of impervious area. This does not include accessory structures.

[13] Booth, D. and L. Reinelt. 1993. **Consequences of Urbanization on Aquatic Systems - Measured Effects, Degradation Thresholds, and Corrective Strategies.** Watersheds '93, A National Conference on Watershed Management. March 21-24, 1993, Alexandria, Virginia, pages 545-550.

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factors are decreased corridor integrity and increased flows from the upstream basin. The Port's NRMP and stormwater management plan will heal the numerous abuses inflicted on the riparian zone of the creek systems while also retrofitting the airport's stormwater management detention and treatment system to current standards. These related actions will restore stream corridor integrity and decrease stormwater flows from the upstream basin. The net result will be restoration of currently degraded stream functions and processes. The substantial commitment the Port has made will benefit the overall biotic integrity of the affected basins.

Conclusion

25. In sum, it is my judgment that the natural resource mitigation plan provides sufficient mitigation for the Port's impacts to wetlands and other aquatic resources in Miller, Walker and Des Moines creek. The NRMP is perhaps the most detailed and most significant mitigation plan I have ever reviewed. The NRMP adequately mitigates for impacts to wetlands in the affected basins, and is designed to restore watershed-scale processes currently missing.

26. Several elements of the NRMP provide assurance that the mitigation measures prescribed will be successfully implemented. For example, the NRMP requires a 15-year monitoring period, with strict and detailed performance standards and contingency measures. An adaptive management strategy is embedded in the monitoring program to ensure elements can be readily modified if monitoring indicates changes are needed. Moreover, the Port will provide the funding for three to five dedicated staff at Ecology, to ensure detailed oversight, inspection and tracking of project implementation and compliance with the terms of the 401 Certification.

27. Based on my evaluation of the proposed mitigation strategy, I am confident that Ecology has reasonable assurance that the project will not result in significant degradation of aquatic resources. Indeed, the NRMP is designed to more than offset the loss of the already-

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[14] Booth, D. and C.R. Jackson.1997. **Urbanization of Aquatic Systems: Degradation Thresholds, Stormwater Detention, and the Limits of Mitigation.** J. Am. Wat. Res. Assoc. 33(5): 1077-1090.

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degraded wetlands in the affected basins. The NRMP will implement an unprecedented urban watershed restoration effort that not only includes wetland restoration and enhancement, but riparian corridor re-establishment and reforestation, removal of impervious surface area, and a retrofitting of the entire airport's stormwater system to current standards. In concert these actions will improve the currently degraded condition of many of the reaches and wetlands within the basins. Implementation of the NRMP will not result in irreparable harm.

I declare under penalty of perjury under the laws of the state of Washington that the foregoing is true and correct.

DATED this 1st day of OCTOBER 2001.

Erik Stockdale

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