No. 73419-4
THE SUPREME COURT OF WASHINGTON

PORT OF SEATTLE, a port district of the State of Washington,
Petitioner,
v.
THE POLLUTION CONTROL HEARINGS BOARD, an agency of the State of Washington,
Respondent,

AIRPORT COMMUNITIES COALITION; and CITIZENS AGAINST SEA-TAC EXPANSION,
Petitioners,
v.
STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, an agency of the State of Washington,
Petitioner.

DECLARATION OF DYANNE SHELDON IN SUPPORT OF RESPONDENT/CROSS-PETITIONER AIRPORT COMMUNITIES COALITION'S EMERGENCY MOTION FOR INJUNCTIVE RELIEF PURSUANT TO RAP 8.3

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Dyanne Sheldon 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 submit this declaration in support of the Airport Communities Coalition's ("ACC") motion asking the Court to enjoin any action by the Department of Ecology or the Port which would alter the current status quo at the project site or cause irreparable injury, pending the Court's decision regarding the parties' appeals of the Pollution Control Hearings Board's Order. I do so because once these wetlands are destroyed it will not be possible to recreate or compensate for them fully in the next 50 years.

3. I am an environmental scientist, with over 20 years of experience specializing in wetland ecology and management related issues. My curriculum vita is attached as Exhibit A. I have a Bachelor of Science in Botany, and a Masters degree in Education and Curriculum Development. I have worked as a wetland ecologist and land-use planner in the Pacific Northwest for over 20 years, and as a naturalist and educator for over 25 years. In 1981 I was one of three biologists hired by King County to assist in conducting King County's wetland inventory: the first such effort ever undertaken in the Pacific Northwest by a local jurisdiction. From that position I was hired as the Wetland Planner for

King County, Washington, the first such 'local wetland planner' position in the country. I created the precedent-setting wetland management program at King County: it established the first wetland rating system, the first requirements for buffers and setbacks on wetlands from development activities and the first requirements for compensatory mitigation ever demanded by a local or state government in this region.

4. In my capacity as the only wetland planner for King County, I reviewed and conditioned or denied every single development permit application that related to streams and/or wetlands submitted to the County between 1983 and 1988. In the intervening 16 years I have watched the consequences of some of the actions I allowed to be permitted at that time. As the first person to attempt to regulate wetlands for a local jurisdiction, through the process of placing conditions on individual permit applications, I did not have the benefit of any precedents, scientific 'research,' or the results of long-term studies to inform my decision-making process. The wetland rating system I helped develop in 1981 had never been used previously, no one in King County had ever required a buffer before, and certainly no one had ever required or attempted to create wetland mitigation in King County prior to the mid-1980's. The entire *science* of wetland management in the Pacific Northwest was barely in its conceptual stage: the Army Corps of Engineers' Clean Water Act

§ 404 permitting requirements allowed up to 10 acres of wetland fill at that time. The wetland scientific and management community of the Pacific Northwest has watched and learned the lessons from those early attempts to 'protect' wetlands: the lessons learned and the mistakes made have informed and influenced wetland regulations and policies in this region for nearly the last two decades.

5. Based on my years of experience regulating wetlands and my knowledge of wetland ecology I have often been solicited by State and Federal agencies to actively participate in regulatory, policy and planning activities related to wetland and habitat issues throughout the region. In the mid-1980's I was asked frequently by the Washington State Department of Ecology Wetlands Section staff to participate formally and informally in processes to formulate wetland management policy and regulatory framework and guidance. At the Department of Ecology's request I provided input on the original proposed State Wetland Management Program, the Wetland Rating System for Western Washington, the State Wetlands Integration Strategy, and the State Model Wetland Ordinance (modeled directly on the King County Critical Areas Ordinance that I originally drafted in 1982 as King County's Wetland Management Guidelines). The State Model Wetland Ordinance contains requirements for buffers and building setbacks, rating systems, and

replacement ratios for compensatory mitigation: all issues for which Ecology actively contacted me and sought my input based on my professional experiences. As a consultant I've been hired by Ecology numerous times to provide technical expertise in wetland management related issues. In 1992 I was hired to conduct the field assessment element, to provide technical review and oversight, and to write key portions of the precedent-setting study: Wetland Replacement Ratios: Defining Equivalency (available at: http://www.ecy.wa.gov/pubs/92008.pdf). This was the first study prepared by Ecology that identified some of the key re-occurring design, implementation, maintenance and monitoring problems that resulted in compensatory mitigation failures in the region. I have also worked analyzing wetland compensation issues for the U.S. Environmental Protection Agency, completing two studies on the cumulative effects of the Army Corps of Engineers' Section 404 Nationwide Permit process on wetland loss in 1988/89.

6. I was hired in 2001 by the Washington State Department of Ecology to conduct a review of the last 10 years of scientific literature on the science and management of wetlands in the Pacific Northwest region. This work is currently ongoing and has resulted in the review and synthesis of over 800 reports that document the latest research findings on

how wetlands function, what effects human actions have caused on those functions, and how effective compensatory mitigation is for replicating or replacing those functions.

7. I have worked as an environmental consultant since 1988, and for more than 12 years as the Principal of Sheldon & Associates, Inc. At Sheldon & Associates I have continued to provide technical assistance and guidance to many local jurisdictions, functioning in an 'on-call' capacity as their technical critical areas staff. I have reviewed and conditioned many hundreds of permit applications and mitigation documents for numerous local city and county governments from simple applications to two of the largest single-owner development projects ever approved in King County: Redmond Ridge and Trilogy, both more than 1000 acres in size. These two Urban Planned Developments (UPD's) have many parallel issues to the STIA Third Runway project: they are large and complex, they are very controversial, and there have been years of permit submittals, negotiations, and conflicting expert testimony and acrimonious public hearings. The two UPD projects were in planning stages, permit application review and conditioning phases for over 10 years, and have now been in the construction phases for more than 3 years. The level of scrutiny and analysis of the applications, the complexity and perceived 'bomb-proof' nature of the permit conditions, and the

subsequent reality of implementation, permit condition 'interpretation', and enforcement on these projects has strongly influenced my opinions on the methods, means, and implications of well-crafted and non-ambiguous conditions language. The harsh lessons learned from attempting to implement what were then precedent-setting permit conditions has been sobering, even with a relatively willing applicant. That experience has informed my professional opinions on the viability of utilizing certain types of "mitigation" conditions to meet wetland protection and mitigation standards such as those of the federal Clean Water Act.

8. For the past 7 years, I have taught a course at the University of Washington in Environmental Law and Policy for the Wetland Science and Management Certificate program, of which I'm a founding Board member. I have designed successful wetland compensation projects for open water, emergent, shrub and forested freshwater systems, as well as several estuarine restoration projects. I have performed the technical design, coordinating with civil and hydraulic engineers, as well as our on-staff landscape designers. I have provided construction oversight and long-term monitoring of our own designs and of compensation projects designed by others. Observing the construction and installation of our own work, and that of others, I have learned many crucial elements that are often overlooked or not accounted for in

compensation design. I also teach a course in Wetland and Upland Habitat Restoration Design for the Professional Engineering Learning Program through the University of Washington special education program. The knowledge I've gained from 20 years of watching the impacts caused to natural ecosystems in spite the efforts of the best-intended permit conditions is reflected in my professional opinions of the emptiness of promises that, once destroyed, wetland systems can be re-made to wholly function in any reasonable period of time.

9. Sheldon & Associates has, as consulting scientists for ACC, reviewed over the last several years the documentation provided by the Port of Seattle describing its proposed development at Sea-Tac Airport and its impacts to wetlands, streams and fisheries resources. I have in that time evaluated such documents as the Port's Wetlands Delineation and Wetland Functional Assessment documents, Natural Resources Mitigation Plans, Joint Aquatic Resource Permit Application, and other documents related to aquatic resource impacts. In addition to my own review, I have also consulted with and reviewed comments submitted to the Washington Department of Ecology ("Ecology") and the U.S. Army Corps of Engineers by Amanda Azous, another independent wetlands scientist retained by ACC. I also attended and was an expert witness in the Washington Pollution Control Hearings Board ("PCHB") trial on

Ecology's section 401 Certification under the Clean Water Act, in which ACC succeeded in having the PCHB require 16 modified conditions in the 401 Certification necessary for compliance with the Clean Water Act. The expert opinions expressed here, therefore, are based on all of these factors and draw on information provided by my colleague, Amanda Azous.

10. The scientific literature makes it clear: eliminating a wetland is rather easy compared to attempting to create or restore one (National Academy of Sciences 2001). Removal of mature wetland forest, filling in wetland basins, and completely altering the contributing basins of these onsite wetlands will render it impossible to restore them to their former condition once they are eliminated. Grant of an injunction is necessary, therefore, to prevent the Port and/or Ecology from taking irrevocable steps that would significantly degrade the aquatic resources of the Miller, Walker and Des Moines Creek watersheds.

11. It is universally accepted that wetlands are among the most productive ecosystems on the planet. Water movement, on the surface and within shallow groundwater, is the principal route for the transport of water, organic matter and nutrients within a watershed.[1] Eliminating the wetlands within that landscape irrevocably alters the basic food web

[1] Hillbricht-Ilkowska, Phosphorus and Nitrogen Retention in Ecotones of Lowland Temperate Lakes and Rivers, HYDROBIOLOGIA, 1993, Vol. 251, No. 1-3.

within that basin. An emergent wetland typically will produce three or more times the organic carbon (the basis of the food web) than is produced by a similar area of upland shrub and forest land.[2] The condition of plants growing in water or saturated soil provides a steady supply of water and nutrients that have the potential to support high productivity. As a result, wetland communities have a profound influence on the food web, water flow conditions and habitat available in a watershed. This is particularly critical in the existing conditions on the west side of the existing airport runways, for the upland habitats have been all totally eliminated under thousands of cubic yards of fill material: the wetlands are the only remaining habitat zones in that upper basin.

12. To accommodate the Third Runway, the Port plans to fill at least 18.37 acres of wetlands in the Miller, Walker and Des Moines Creek watersheds, permanently impact an additional 2.05 acres of wetlands along Miller Creek, and alter the location of nearly 1000 feet of Miller Creek. Eliminating critical headwater wetlands in the upper end of the contributing basin, within a fragile but viable creek system, will impair water quality, aquatic ecosystem diversity, productivity and stability within the creek, resulting in significant harm, including changes in water

[2] Barnes and Mann, Fundamentals of Aquatic Ecosystems. Tables 4.1 and 11.1.

chemistry, reduced food web support, and alterations to invertebrate communities.

13. Many of the threatened wetlands provide important functions particularly valuable in the urbanized environment surrounding the airport. The majority of wetland acres being eliminated by the Third Runway project in the Miller Creek watershed are rated as Class II wetlands (Washington classification system), the second highest category of wetland in the state.

14. Filling of these wetlands will cause permanent alteration and significant degradation of these urban watersheds. Wetlands will be used for temporary roads, erosion control, staging areas and stockpiling for the construction of the Third Runway. This will result in the clearing of habitat, compaction and disturbance of the native hydric soils, elimination of chemical functions afforded by the mixing of soil and water, and the destruction of hydrologic functions so critical to maintaining baseflows in the creeks these wetlands support. Restoring the physical, chemical and biological processes that maintain wetland functions after they have been filled has proven to be unlikely to be successful (National Academy of Sciences 2001).

15. A recent study by the National Academy of Science (NAS) found that the time for reaching equivalency for soil, plant and animal

components in wetland restoration projects ranged from more than three to 30 years for soils, 10 years or more for below-ground biomass, and more than five to 10 years for establishing target species composition, with the higher time frames representing wetlands with greater damage. Note that 10 years for re-establishing vegetation species is only for the *composition* of the vegetation community (i.e., the same mix of species present); it does not begin to address the structural complexity nor size of the vegetation (i.e., replacing mature deciduous and coniferous trees that may top 50-75 feet in height). Thus research compiled by the National Academy of Science has shown that if wetlands are allowed to be filled it will not be possible to re-establish pre-disturbance conditions by removing fill material within a reasonable timeframe. Even if successful, re-creation or restoration will require many decades to reach equivalency for some functions, resulting in a significant temporal loss of wetland functions within the watershed.

16. In addition, restoration of filled wetlands would be especially difficult in the present case because the Port has failed to establish pre-existing water levels in the subject wetlands. Therefore it would be impossible to accurately recreate pre-disturbance hydroperiods, the primary determinant of wetland functions, because the Port has not documented what the pre-existing conditions are. Water levels were

recorded only sparsely in 2000 and four times in 2001, and then only in some but not all of the wetlands to be filled, as the Port has no intention to have to re-create the wetlands it plans to eliminate. Sampling occurred almost exclusively during a low rainfall year and therefore is not representative of normal conditions. Monitoring data is too sparse to accurately define existing hydroperiods or the conditions prior to filling the upper watershed.

17. The Port's failure to establish baseline data for the wetlands it plans to eliminate will make it doubly impossible to return to the status quo if an injunction is not granted. Removing of the mature vegetation canopy, filling the wetland basins, and destroying the soil's ability to transport groundwater are all irreversible in a reasonable timeframe. The paucity and inadequacy of pre-disturbance data render a successful restoration virtually unattainable once fill activities have begun. If the Port is allowed to fill wetlands before a full review on the merits of its plans, there will be immediate and irreparable harm to these wetlands.

18. The Port's mitigation plan will not remedy these severe and irreparable injuries. The majority of the proposed mitigation is out of kind and is located in the Green River watershed, not onsite. It is unrelated to the functions eliminated or the needs of the affected watersheds.

19. The failure of restoration and enhancement activities to compensate for loss of actual wetlands is well documented in the scientific literature.[3,4] The onsite wetlands targeted for elimination have far superior water quality and water storage functions compared to the upland buffers the Port is proposing to restore as compensation for wetland loss.[5, 6] Moreover, enhancement of riparian buffers and remaining wetlands actually could reduce those areas' effectiveness for water quality and storage functions because of disturbance to the soils.[7] Such a substitution of functions is not based on sound science and will not avoid irreparable harm to the watershed.

20. Even if one assumes that accurate replacement of wetland functions is readily possible, there remains another fundamental area of concern: the wetland functional assessment conducted by the Port on the onsite wetlands is inadequate. It will not be possible, once the wetlands are eliminated, to use the results of the functional assessment as an accurate measure to determine if future compensation actions were

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[3] Compensating for Wetland Losses Under the Clean Water Act, fn.7 *supra.*

[4] *Wetland Mitigation Evaluation Study Phase 1*, Department of Ecology Publication No. 00-06-016, June 2000. DOE found only 14% of enhancement projects met performance standards for the mitigation.

[5] Dunne and Black 1970. *Partial area contributions to storm runoff production in permeable soils.* Water Resources Research 6:1296-1311.

[6] Dunne and Leopold 1978. Water in Environmental Planning. San Francisco, W. H. Freeman.

successful in recreating the lost functions. The functional assessment used by the Port does not provide any methods, a standard acceptable protocol, nor is it replicable (a fundamental parameter of good science).

21. Even using its own questionable functional assessment method, the Port's own data show the importance of the wetlands within the Miller and Des Moines Creek watersheds for improving water quality, providing habitat, moderating seasonal water levels, and producing organic carbon. Reducing remaining wetlands within these watersheds will alter stream hydrology in Miller, Walker and Des Moines Creeks, permanently remove wetland habitat with no replacement, and adversely affect fish communities by altering the food web and increasing the supply of nitrogen to the estuary at the mouth of the creeks.[8]

22. This shift carries enormous consequences for resident fisheries and species that use the lower reaches of the affected creeks. Detrital food sources are essential to the development of invertebrate communities on which salmonid fish species feed. Reductions in the wetland systems located adjacent to the creeks are certain to affect

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[7] Shaffer, P. W and T. L Ernst. 1999. Distribution of soil organic matter in freshwater emergent/open water wetlands in the Portland, Oregon Metropolitan Area. Wetlands 19:505-516.

[8] Nitrogen is a limiting nutrient for phytoplankton production in coastal waters. The reduction of wetlands within the watershed could result in increased eutrophication in the shoreline environment.

productive capacity and therefore fish production.[9] The Port's plan offers no effective mitigation for the loss of these wetland functions.

23. Some of the problems in the State of Washington's initial 401 Certification for the Port's project were corrected by the Washington Pollution Control Hearings Board in its 139-page decision modifying conditions of the Certification so that the 401 standard was met. Clearly the Pollution Control Hearings Board determined through detailed hearings and deliberations that the conditions of the 401 permit were inadequate to address the State's legal obligation to maintain the State's water quality. The 401 conditions, as issued by the PCHB, are the current 401 permit conditions issued through the State's legal process. Pending any modification through the legal process, they should be fully executed.

24. In short, filling and disturbance of wetlands will cause immediate and severe harm to aquatic resources of Miller, Des Moines, and Walker Creeks. It will be practically impossible to reverse this harm in any reasonable timeframe. The Port's mitigation plan will not replace the lost wetlands or functions. If the destruction of wetlands is allowed before this Court can rule on the merits of this case, irreparable harm to the watersheds will occur.

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[9] *Dissolved Organic Material and Trophic Dynamics, R. S. Wotton, BioScience, Vol. 38, No. 3.*

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

DATED this 1 day of April, 2004, at Seattle, Washington.

Dyanne Sheldon

Exhibit A

Sheldon & Associates, Inc.

Dyanne Sheldon

Ms. Sheldon is a wetland ecologist and certified science teacher, with over 20 years of field experience in both fresh and tidal wetlands of the Pacific Northwest. She was King County's first Wetland Planner and she has run her own consulting firm for over 11 years. Her professional experiences include conducting wetland delineations, inventories, and impact assessments; developing habitat compensation designs; construction oversight for wetland compensation projects; regulatory coordination and permit applications; expert witness testimony; crafting wetland and other sensitive area code language for local jurisdictions per the requirements of the Growth Management Act; review and critique of submitted wetland analysis studies; conducting public workshops and participating in public meetings and hearings regarding the consequences of proposed actions on wetland resources; providing "on-call" technical assistance for local jurisdictions including verifying wetland impact assessments and analysis and conditioning of wetland compensation designs. She is certified to teach 8-12 grade science and has taught courses for middle and high-school students, and at the University of Washington on environmental law and policy, and wetland biology. She has also worked with school districts designing site plans to incorporate outdoor education opportunities.

Areas of Expertise

Wetlands Ecology: delineation, functional assessment, impact analysis, inventory, relationship to management

Education: examples of courses:

Environmental Law and Policy, for Wetland Science and Manag. Cert., UW Extension.
Wetland Ecology, for the Wetland Science and Management Certificate, UW Extension.
Wetland Ecology, for University of Washington, Bothell.
Wetland Mitigation Design: for Professional Engineering Program, UW
Wetland Ecology and Management: guest lecturer: Wetland Restoration Network, UW

Environmental Planning: development of policy and regulations relating to aquatic lands including streams and wetlands, assessment of effectiveness of code language

Environmental Restoration: preparation of wetland compensation designs, establishment of monitoring parameters, construction oversight, monitoring post construction

Environmental Law and Policy: assist in permit application and coordinating between various regulatory jurisdictions; craft wetland code language, interpret regulatory standards,

Wildlife: assessment of impacts, assessment of habitat suitability, conduct surveys, preparation of Biological Assessments per the requirements of the Endangered Species Act.

Work Experience

Principal 1990-Present Sheldon & Associates, Inc., Seattle, WA

Manage seven professional staff that provide technical ecological expertise to public and private clients. Staff include wetland ecologists, water quality expert, landscape restoration designer, wildlife biologist, and fisheries biologist. In addition to managing a business and providing oversight to other technical staff, Ms. Sheldon continues to conduct a significant amount of technical wetland scientific and analysis work for public and private clients.

Wetland Ecologist 1988-1989 Jones & Stokes Associates, Seattle, WA

Created the first 'Wetland Section' for the Bellevue office of Jones & Stokes, hiring wetland ecologist staff and landscape architects to provide wetland analysis and restoration expertise. Conducted two years of sequential studies for the U.S. EPA, Seattle Office, on the restoration potential of diked lands in Washington and Oregon. Also conducted a then precedent setting analysis of the effectiveness of wetland regulations by local jurisdictions, also for EPA. Coordinated the field confirmation by 7 field staff of wetland delineations conducted on 2,000 acres of land proposed for development in eastern King County.

Wetland Planner 1984-1988 King County, Building and Land Development, Seattle, WA

As the first wetland planner for King County, Washington, Ms. Sheldon created the wetland regulatory program for the County, the first of its kind for a local jurisdiction in the United States. She

reviewed all development permits submitted to the County that related to streams, wetlands, shorelines or habitat issues. She crafted the first draft of the County's Critical Areas Ordinance, and participated for years in the public process of revising and redrafting the code language to reflect staff and public input.

Director Naturalist 1975-1979 Westwood Hills Environmental Education Center
St. Louis Park, MN

Created a 150 acre environmental education Center for a first-ring suburb of Minneapolis. Conducted the site analysis, trail design, trail construction (hands-on supervising 100 juvenile youth for several summers), and input on interpretive structure design. Conducted all interpretive programming for K-12, as well as pre-schoolers and senior citizens, year-round (including snow-shoe tours in the winter).

Education

Master's Education: Arizona State University, Phoenix. Masters in Curriculum and Instruction, 2000
Bachelor Science: University of Minnesota, St. Paul, Minnesota : Botany, 1975

Special Training

Corps of Engineers Course, Federal Wetland Delineation Methodology (1987)
Special training offered only to Federal employees and Ms. Sheldon, based on King County position.
Corps of Engineers Course, Wetland Evaluation Technique Assessment Methodology (1989)
Special training offered only to Federal employees and Ms. Sheldon, based on King County position.
Federal Wetland Delineation Methodology (1989)
Society of Professional Soil Scientists Hydric Soils Workshop (1993)

Memberships

Society of Wetland Scientists

Ms. Sheldon is a charter member of the Pacific Northwest Chapter of the Society of Wetland Scientists. She served two terms as President of the Pacific Northwest Chapter (1991-1993) at the very beginning of this chapters existence, hosting the National Society of Wetland Scientists meeting in Seattle in 1993, the most successful National Meeting ever held.

Society of Ecological Restoration
National Association of Science Educators
National Association for Environmental Education

Publications

(Partial list, as author or major reviewer, as noted)

Methods for Assessing Wetland Functions. Volume 1: Riverine and Depressional Wetlands in the Lowlands of Western Washington. 1998. T. Hrubry, T. Granger, K. Brunner, S. Cooke, K. Dublanica, R. Gersib, L. Reinelt, L. Richter, D. Sheldon, A.Wald, F. Weinman. Washington State Department of Ecology Publication #98-106.

Restoring Wetlands in Washington: A Guidebook for Wetland Restoration, Planning and Implementation. 1993. M. Stevens and R. Vanbianchi, Principal Authors. W. Eliot, D. Gordon, and D. Sheldon, Editors. Washington State Department of Ecology Publication #93-17

Washington State Wetlands Rating System: Western Washington. 1991 and 1993. S. Tosach, A. McMillan, S. Maurman (authors). D. Sheldon, Major Reviewer. Washington State Department of Ecology Publication #93-74

Washington State Wetlands Rating System: Eastern Washington. 1991. S. Tosach, A. McMillan, S. Maurman (authors). D. Sheldon, Major Reviewer. Washington State Department of Ecology Publication #91-58

Wetland Mitigation Replacement Ratios: Defining Equivalency. 1992. A.J. Castelle, C.Conolly, M. Emers, E. Metz, S. Meyer, M.Witter, S. Maurman, M. Bentley, D. Sheldon, and D. Dole. Washington State Department of Ecology Publication #92-8.

Wetland Buffer: Use and Effectiveness. 1992. A.J. Castelle, C.Conolly, M. Emers, E. Metz, S. Meyer, M.Witter, S. Maurman, M. Bentley, D. Sheldon, and D. Dole. Washington State Department of Ecology Publication #92-10