FINAL REPORT

WETLAND EVALUATION BASED ON CURRENT STRUCTURE AND FUNCTION

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Introduction

Wetland mitigation is a term describing any activity taken to avoid or minimize damage to wetlands, and to restore, enhance, or create wetlands. Compensation Banking is a promising mitigation technique that has appeared in the last 7-8 years. It has been described as wetland restoration, creation, or enhancement undertaken expressly for the purpose of providing compensation for wetland losses from future development activities (Lewis 1990). It includes a credit program and wetland restoration, creation, or enhancement occurring prior to elimination of another wetland. Credits are withdrawn from the bank to compensate for an individual wetland impact. Each bank usually has a unique credit system based upon the function and values of the wetlands in the area. As defined here, compensation banking does not involve any exchange of money for permits.

The establishment of a compensation bank often begins with a group or government agency purchasing a degraded wetland or, in some instances, creating a new wetland. The creation or purchase site becomes the bank. The functions and values of the site are evaluated and quantified, using a predetermined methodology applicable to the area, and the cost of acquisition, restoration, and operation calculated. Credits, that can later be withdrawn to compensate for unavoidable, adverse impacts to wetlands, are established in the bank. For example, the proposed construction of a state highway requires filling a half acre of wetland for an exit ramp. The ramp cannot be relocated and there is no opportunity to compensate for the loss on site. The state agency involved in the construction may purchase a half acre of credits (or an appropriate number if a greater than 1:1 mitigation ratio is required) from the bank as compensation for the impact. Conversely, the state agency might enhance a wetland near a road site and receive a certain number of credits for that restoration. The credits are placed in an account and may be withdrawn to compensate for unavoidable losses associated with one or more future projects. Wetland banks have proven especially useful for mitigating small wetland impacts, such as stream crossings by structures and culverts, where individual impacts although small and localized may be cumulatively significant.

Wetland compensation banking is an off-site compensatory mitigation concept. The attraction of compensation banking is that rather than creating small, isolated wetlands to compensate for each wetland alteration, one large, contiguous wetland can be created to mitigate many individual alterations. Thus, a benefit of this technique is it allows smaller wetland impacts to be aggregated to restore, create, or enhance a larger wetland compensation bank site. An additional advantage to the agencies responsible for guaranteeing no net loss of wetlands is a single, 20-acre wetland is easier to create and maintain than 20 unconnected, one-acre wetlands. compensation banking also allows the permitting process for certain sites to be streamlined by providing a readily available supply of credits to those who need and qualify for them. It also provides an indication of the costs of mitigation. A drawback of mitigation banking is

that it entails considerable legal, scientific, and administrative complexity and a potential for serious abuse if the parameters for bank use are not clearly defined. A concern of agencies charged with maintaining the functions and values of wetlands is compensation banking may lead to a net loss in wetlands values if the created or restored wetland in the bank is of lower quality than the impacted wetland. Another concern is that if users can too easily obtain credits from a bank to mitigate for unavoidable losses, there is little incentive to minimize or reduce wetlands destruction. Most agency representatives also believe that the bank should be located in the same geographical area and consist of wetland types similar to the wetland where the impacts occurred. In addition, they believe the bank should be operational prior to allowing any project to use the bank's value as compensation for unavoidable impacts.

To prevent abuse and the net loss of wetland values an agreement must be reached among all agencies involved with the process. Any restoration, creation, or enhancement project must be carefully designed by the applicant and agreed to by all concerned parties through a legally enforceable wetland compensation banking agreement. An equitable agreement requires negotiation and compromise. Long-term operational, maintenance, and monitoring plans as well as legal guarantees must be included in the mitigation plan to ensure that tasks are feasible and will be undertaken by the appropriate parties under the force of law.

This document provides a description of the process used to negotiate a wetland banking agreement for the Washington State Department of Transportation and a copy of that agreement.

Acknowledgements

We appreciate the contribution made by many individuals during this project. Personnel from the following agencies responded generously with their time when we needed advice and reviews: Army Corps of Engineers, Environmental Protection Agency, Fish and Wildlife Service, National Marine Fisheries Society, Federal Highway Administration, Northwest Indian Fisheries Commission, Puget Sound Water Quality Authority, and Washington State Departments of Ecology, Wildlife, Fisheries, Community Development, and Transportation. We particularly wish to thank those of you who contributed information from your own experiences and personal files. With these contributions previously unavailable information is now available.

We would also like to thank those of you who assisted in the pre-workshop interviews and those who remained with us as a committed work group throughout the process. We extend our special appreciation to the personnel of Washington State Department of Transportation for their generous support and patience during this project. We are especially grateful to Art Lemke, Bernie Chaplin, David Stevens, Jim Schafer and Mary Ossinger for their help in bring this project to a successful conclusion.

The Workshop Process

ABSTRACT

Friedmann's (1973) Transactive Planning Theory includes the concept of an active society capable of learning about itself and utilizing that knowledge to effectively guide its own development. Effective application of the theory requires open dialogue. Presented here is the first successful application of environmental education teaching strategies and Friedmann's theory to wetland compensation banking agreement negotiations. The theory was previously applied to wilderness management issues/conflicts. It had neither been tested using environmental education (EE) strategies to foster open dialogue and real listening nor applied to wetland mitigation banking negotiations. EE skills required to facilitate discussions of controversial environmental issues; guide participants to higher levels of understanding and cooperation; and clarify personal environmental ethics while better understanding and accepting a diversity of values were used throughout this project. Nineteen wetland practitioners and management personnel from seven agencies were interviewed in February 1992 about experiences with wetland banking. Over a two-year period, 22 representatives from 12 agencies involved with reviewing and permitting activities within wetlands participated in 13 hands-on workshops which included: team building, values clarification, journaling/writing and content activities. The project resulted in the first comprehensive wetland compensation banking agreement for the Washington State Department of Transportation.

INTRODUCTION

The workshop process used in the ***Wetland Evaluation Based on Current Structure and Function Project*** is illustrative of a practical application of John Friedmann's (1973) Transactive Planning Theory and its integration with environmental education (EE) teaching strategies. The project provided the directors an opportunity to demonstrate approaches utilized by teachers discussing controversial issues in the classroom could be applied successfully to natural resource negotiations.

Transactive planning has been applied to natural resource issues and conflicts. The best known application is in the Limits of Acceptable Change (LAC) System for Wilderness Planning, developed and employed by the USDA - Forest Service (Stankey, et al. 1985). Effective application of Friedmann's Theory requires open dialogue. The theory had not been previously tested using EE teaching strategies to foster open, honest discussion and real listening nor applied to wetland compensation banking negotiations. The authors integrated proven EE teaching strategies into Friedmann's theoretical framework to form the

basis for the negotiation of the Washington State Department of Transportation's first comprehensive wetland mitigation banking agreement.

Friedmann's (1973) Transactive Planning Theory, is based on the concept of an active society capable of learning about itself and utilizing that knowledge to effectively guide its development. Achieving an active society depends on dialogue or face to face communication to prompt an exchange of information and ideas among members of the learning group. This exchange leads to mutual learning among participants. Societal learning occurs when society transforms the knowledge into a consensus for community action.

When engaging in dialogue one must be *authentic.* To be authentic means to discover oneself through dialogue, while others are discovering themselves. Transactive planning mirrors an identity crisis resulting in the reexamination of one's basic values and assumptions. The difference is in transactive planning self discovery is prompted through dialogue with another individual (Friedmann, 1973).

Conflict arises from peoples' differences and is the sole reason for dialogue. Friedmann (1973) considers it an inevitable part of the discussion process, but not its termination. Conflict may arise due to a participant's inability to clearly communicate his/her meaning within the context of another person's perceptions and feelings. Friedmann states resolution can take place if there is an alliance of shared interests and commitments. All players must share some *common thread* in order to perpetuate dialogue. The process must be relevant to a particular condition of each participant's life otherwise individuals will not be involved.

Transactive planning requires one to be *accepting* while engaged in dialogue. Discussion creates an avenue to accept another person as they have chosen to be. Accepting a person who is different means opening oneself to that person. It requires an openness that validates the differences in the other being. When one is able to accept a person's differences without feeling threatened, s/he has increased understanding of self and others (Friedmann, 1973).

Mutual learning is a measure of successful dialogue. Participants in negotiations encompass an assorted array of opinions, thus creating a diverse assemblage of knowledge. Mutual learning occurs when diverse fields and backgrounds of knowledge are effectively combined in a joint exploration of problems and possible solutions. A crucial component of transactive planning is the coalescence of this diversity of knowledge into consensus. If mutual learning is effective, then societal learning as a whole transforms this knowledge into community action to guide and develop its environment (Friedmann, 1973).

During the Summer of 1981, Intermountain Environmental Education Training Team (IEETT) members Al McGlinski, Dick McCloskey and Vern Fridley designed the Sawtooth Issues Workshop, now co-led by Rob Tiedemann. This process oriented EE workshop offered hands-on experience with contemporary environmental issues to teachers and other professionals involved with environmental discussions, decision-making, and policy. Workshop participants could acquire the skills to successfully facilitate discussions of controversial public issues in both small and large groups; learn to guide audiences to higher levels of understanding and cooperation through group activities; clarify personal environmental ethics and better understand and accept the diversity of values in their communities; perfect the use of neutral discussion skills; participate in field and community investigations, simulation games, and values clarification exercises applicable to their professional work setting; and, learn effective methods to investigate natural environments and the social and political issues that influence their management. In 1983, with financial assistance from the U.S. Forest Service and the Idaho Department of Water Resources, the workshop was offered at a resident camp in the Sawtooth National Recreation Area in Idaho. The workshop has been offered on an annual basis since its initiation.

In 1991, Washington State Department of Transportation (WSDOT) officials saw a need for a cooperative agreement between WSDOT and the resource and regulatory agencies involved in wetland permitting activities. The agreement would include an outline for the development and operation of a WSDOT wetland compensation banking system. WSDOT recognized a statewide wetland banking program would help meet Washington State's goal of no net loss of wetlands.

a program overseen by participants in the negotiations. The success of the agreement could be monitored and discussed at regular meetings and the agreement revised as needed.

Boise State University and Ecological Design, Inc. submitted a formal proposal to WSDOT, anchored on our experience from the Sawtooth Issues Workshop, that we facilitate a process which would lead to a Wetland Banking Agreement for WSDOT. In January 1992 the proposal was accepted.

DESCRIPTION OF THE PROCESS

Pre-workshop interviews were conducted with 19 decision makers in seven state and federal agencies. The interviewees examined: Why some wetland compensation banking programs had not met expectations; opportunities for wetland banking in Washington; agency positions on wetland banking; essential elements of an agreement; personal concerns about wetland banking; past experiences with agencies that might hinder reaching consensus on an agreement; the process that might lead to an agreement; and commitments agencies would make to reach consensus. Interviewees or their representatives were invited to attend a series of wetland compensation banking agreement workshops.

Cooperative learning/inclusion techniques and hands-on activities, which would help the group reach consensus, were developed using the results of the pre-workshop interviews. Workshops included activities for team building and differentiating individual natural resource values from agency positions. Group growth was analyzed using the sequence: inclusion, control, affection (Schutz, 1978, Appendix A). New participants were introduced using a Group Story Activity (Appendix B). Concepts were clarified using modified Project Wild and OBIS activities.

PROJECT RESULTS

Twenty-two individuals representing 12 government entities convened on March 16, 1992, at the University of Washington's Pack Forest Camp to begin the first of 13, two-day, wetland compensation banking agreement workshops. The agencies included: Army Corps of Engineers, Environmental Protection Agency, Fish and Wildlife Service, National Marine Fisheries Society, Federal Highway

Administration, Northwest Indian Fisheries Commission, Puget Sound Water Quality Authority, and Washington State Departments of Ecology, Wildlife, Fisheries, Community Development, and Transportation. The 22 participants attended a total of 566 of the 572 possible participant days available for the workshops (13 workshops x 2 days x 22 participants = 572 participant days).

An objective of the early workshops was to initiate a team building process and help participants differentiate individual values about natural resources from agency positions. Cooperative learning/inclusion techniques and hands-on activities were used to review ideas addressed in the pre-workshop interviews. The opening session began with the development of a set of ground rules which would govern this and future workshops. We believed the setting of ground rules at a professional workshop is important for the same reasons it is in a classroom. The norms of a group are the usual and accepted behavior of the group by the members of that group. The behavior of the group members toward one another, toward the facilitator, and toward the purpose of the group regulates how the group functions. Some group norms are open, verbalized and written down. These are the explicit rules of the group. Others, more invisible, are implicit. Implicit rules are actions all group members follow but do not talk about. We initiated our first session by providing participants with a sample of the ground rules developed at the State of Washington Timber, Fish and Wildlife Agreement Workshop. Participants were allowed time to discuss, modify, add or delete rules to fit their needs (Appendix C). Our goal as facilitators was to move any ground rules implicit within an individual's agency to an explicit level in our group. By becoming aware of its norms, the group could change those that hinder productivity and emphasize those that help the group's effectiveness. Whereas it is impossible for an individual to change a group's norms, it is both possible and practical for a group to decide to change its norms to improve effectiveness. Workshop ground rules, developed by participants, moved norms implicit within an individual's agency to an explicit level in our group. Awareness allowed the group to change norms hindering productivity and emphasize those increasing effectiveness.

After setting the ground rules, we began our team building efforts. A team is a group of individuals who must work together in order to attain individual and organizational objectives. Teams differ from other

types of groups in four essential elements: (1) Teams must have a charter or reason for working together; (2) members of the team must be interdependent--they need each other's experience, ability, and commitment in order to arrive at mutual goals; (3) team members must be committed to the idea that working together leads to more effective decisions than working in isolation; and (4) the team must be accountable as a functioning unit within a larger organizational context.

Team building began with a small group problem-solving activity used at the Sawtooth Issues Workshop (Appendix D). Individuals were given a piece of information necessary to solve a problem. Without participation from each group member, the problem cannot be solved. The objective was to develop cooperation and trust, while demonstrating the need for real rather than ritualistic listening, during problem solving.

Individual values and agency positions were differentiated using values clarification exercises. A forced-choice activity helped participants compare personal beliefs to agency positions about wetland management and demonstrate similarities and differences within the group (Appendix E). Personal roles in maintaining functions and values of wetlands were communicated during a values shield activity. Role playing helped participants understand how their agency was perceived by other professionals. Participants envisioned themselves as members of another agency participating in the workshop and provided their perception of that agency's role in maintaining wetlands. Discussion involved comparisons between the outsider's perception and those of the agency's real employees. Misconceptions were corrected and participants looked for grounds for agreement.

Essential elements of successful wetland compensation projects were elicited using a Wetland Building Block exercise (Appendix F). Participants divided into small groups which included practitioners (biologists, ecologists) and management personnel (policy analysts, planners, managers). Practitioners discussed elements of wetland projects, wrote short phrases describing each element, attached the notes to wooden blocks and arranged the blocks in the order that would allow the greatest chance for success. The management group listened and formulated questions to be asked after the practitioners finished.

Discussion, following presentations of plans to the large group, concerned similarities and differences in elements needed for successful projects and agency policies or practices that promote or discourage their inclusion. Consensus in the large group was reached about essential elements, issues, policies and practices that must be addressed in a banking agreement. The following issues emerged and were incorporated into a Wetland Compensation Activity (Appendix G):

1. Compliance with the mitigation sequence of avoiding, minimizing, and then compensating for impacts.
2. Protection and preservation of bank sites in perpetuity.
3. The geographic distance between banks and impacts.
4. Who should participate in the bank and for how long?
5. What should be the number, location, and size of the banking sites?
6. What should be the rules and requirements of the banking program?

A banking agreement draft was developed from the summary presentations of the Wetland Compensation Activity. Remaining workshops were spent formalizing the agreement. The work sessions were broken-up with a modified version of the Project Wild activity Hooks and Ladders and OBIS activity "Sound Off" (Appendix H).

Questions answered during negotiations and summarized in the agreement include:

- What functions and values are provided by wetlands and affected by transportation facility construction and operation? What functions and values are not identified in the literature?
- How can existing tools be used to develop a unified methodology to identify and evaluate wetland functions and values? What additional information is needed to develop an evaluation method for transportation facility construction and operation?
- Which impacts must be assessed on a case-by-case basis and which can be assessed as a class of roadway activities?

- What model can be developed to determine appropriate mitigation, type and amount of restoration and enhancement required to mitigate, and the ratio of constructed to impacted wetlands when compensation is required?
- What quantitative methods can be used to account for impacts and mitigation by minimizing, restoring, enhancing, and compensating measures?
- What are the issues and concerns associated with banking?
- What are the essential elements of a banking agreement?
- What language best describes a wetland banking agreement?
- How will the agreement be implemented and success monitored?
- What commitments will agencies and organizations make to implement and maintain a banking program?

Tasks accomplished during the process include:

- Strategies were developed to reach consensus among WSDOT, interest groups and resource and regulatory agencies on a *unified wetland evaluation method* and a *wetland banking agreement*.
- Wetland banking workshops were designed and facilitated.
- Consensus was reached on a *unified wetland evaluation method* and essential elements of a *wetland banking agreement*.
- A *wetland banking agreement* reflecting the consensus was developed.

DISCUSSION

The Theory of Transactive Planning has been applied to the Limits of Acceptable Change (LAC) System for Wilderness Planning developed and employed by the USDA-Forest Service (Stankey, et al. 1985). The first application of the theory to the LAC planning process occurred in 1985 at the Bob Marshall Wilderness Complex in Montana (Ashor, 1985). Due to increased public participation in the planning and management of natural resources, Forest Service personnel have continued to employ transactive planning and maintain the concept of "consultative management" in their dealings with the public (Tipple, 1989).

Until this project transactive planning had not been integrated with environmental education strategies to increase open, honest discussion and help individuals recognize their own beliefs. However, similar approaches are in place. Experiential education in adventure programming provides an example. Participants in these programs typically are involved in new, sometimes remote settings, where the emphasis is "learning by doing" (Miles and Priest, 1990). The framework for experiential education is similar to transactive planning in that learning is participatory and discussion is guided through facilitation. While adventure experiences fill a legitimate need in our society, transactive planning combined with EE strategies is more flexible and can include a much broader audience, filling voids produced by different styles of learning. As an approach to negotiation, transactional planning focuses on each participant, stressing the individual as an integral component of the whole team. The team no longer consists of a dichotomy of vocal versus passive participants but rather an "egality" where the group supports equal political and veto power for all participants. Agreement is not based on majority rule, but rather consensus with varying degrees of accord.

A facilitator guides discussion and focuses ideas to prevent collision among participants' concerns and dialogue. The development of ground rules early in the process helps to minimize conflict due to personality differences and individual values. The participants were observed reminding each other of the agreed upon rules and were careful to separate individual positions from agency positions. Goals and objectives were based on group consensus with every member supporting the decision. If one member of the group disagreed, the group continued to engage in dialogue until all concerns were clearly expressed. Participants strove to listen to each other and work at understanding the opposing viewpoint. Compromise is a necessary factor in any situation dealing with conflict resolution. However, if honest discussion transpires and effective mutual learning takes place, participants are more receptive to some form of compromise decision. We believe that the group problem-solving sessions introduced early in the workshops and designed to demonstrate the concept of real versus ritualistic listening were instrumental in this process.

Time spent participating in hands-on educational activities, values clarification and team building during the workshops paid dividends. During the two-year period, a group of agency representatives became a team determined to successfully complete the agreement. Group growth was monitored by changes in levels of inclusion, control, and affection.

Inclusion in the group was deemed to be adequate because attendance at meetings was high; members anticipated meetings and activities and arranged calendars to allow participation; individual needs and job demands were recognized and accepted; absent members were kept informed about what occurred and was planned; the group was committed and worked cooperatively to develop an agreement; good interaction and attention at meetings was evident; and all individuals were accepted, participated in discussions and contributed to the group.

Control within the group was deemed adequate because structure for controlling was not necessary; cooperation was high and individuals showed respect for each other; much bargaining took place; conflict was accepted and dealt with openly; the decision-making processes were clear; and the group was productive, followed through on decisions and accepted responsibility for its actions.

Affection was deemed adequate when it was observed that communication was open and honest; feelings were expressed and individuals accepted feedback; and individuals trusted and supported each other, were free to be different and were receptive to new ideas and change.

The banking team completed its task and WSDOT's first comprehensive wetland compensation banking agreement is ready to be signed. During the process benefits accrued including: improved communication and understanding between the resource and regulatory agencies; efficient evaluation of wetland qualities; determination of the most appropriate form of mitigation; improved conceptual and final design of mitigation measures; and improved accounting methods for wetland gains and losses.

Numerous EE programs emphasize hands-on activities, multidisciplinary approaches to learning science and learning in the affective domain; these are all essential elements of environmental education. Few programs, however, focus on how to teach participants to handle controversial environmental issues. We believe that due to the unique subject matter of EE, controversial issues should be conveyed in a way that involves active participation and dialogue. Transactive planning teaches individuals to take challenges and risks in expressing themselves and listening to others, especially those with differing viewpoints. When integrated with EE strategies, Friedmann's Theory of Transactive Planning can be used successfully and efficiently as a framework for the negotiation of natural resource conflicts.

WSDOT
Wetland Compensation Bank Agreement

Executive Summary

EXECUTIVE SUMMARY

The purpose of the Washington State Department of Transportation Wetland Compensation Bank Program Memorandum of Agreement (Agreement) is to set forth the principles and procedures that all signatories to the Agreement will adhere to in establishing, implementing, and maintaining the Washington State Department of Transportation Wetland Compensation Bank Program (Program).

The Agreement applies only to activities initiated, accomplished, or sponsored by the WSDOT.

Goals of the Agreement inlcude:

1. Maximize opportunities for wetland compensation that ensure no net loss and that may result in a long-term net gain of wetland area, and functions and values.
2. Coordinate and maximize the efficient use of agency resources for better protection of wetlands.
3. Streamline and increase the predictability of the process of obtaining Federal and State of Washington permits within the jurisdiction of the signatories for WSDOT activities that adversely impact wetlands.

Goals of the Program include:

1. Consolidate compensation sites for future, small and isolated wetland impacts at appropriate locations to better ensure their performance and to more economically construct and maintain them.
2. Locate wetland compensation sites within the landscape to maximize the functions and values of the wetland and adjacent interacting ecosystems.
3. Reduce the effort expended by resource, regulatory, and review agencies to respond to and act on proposed WSDOT activities that adversely impact wetlands.

An interagency committee, to be known as the Oversight Committee, is established by the Agreement. The Oversight Committee will be composed of one representative from each agency which is a signatory to the Agreement. Representatives from signatory agencies will be voting members of the Oversight Committee.

The purpose of the Oversight Committee is to review all information required by the Agreement and to make recommendations to the WSDOT and Federal and State of Washington, resource and regulatory agencies. The Oversight Committee may recommend acceptance or recommend modifications needed for acceptance pursuant to Federal and State of Washington law.

The WSDOT will identify and select Candidate WCB Sites based on their potential to provide sustainable, quality wetland functions and values with development, management, and maintenance, and for their potential to compensate for anticipated adverse impacts to wetlands attributable to WSDOT activities.

The WSDOT and the Oversight Committee will consider criteria described in the Agreement for the identification and selection of Candidate WCB Sites. The Agreement does not limit the location, number, and size of Candidate WCB Sites and WCB Sites.

The WSDOT will complete activities described in the Agreement for each Candidate WCB Site proposed for development.

It is the intent of signatories to the Agreement that the WSDOT appropriately manage, maintain, and protect WCB Sites in perpetuity. Management and maintenance of a WCB Site will be guided by information generated by monitoring, and modified to best achieve performance standards.

Locational requirements described in the agreement will be considered by the Oversight Committee before the Oversight Committee recommends acceptance of the use of a WCB Site, or recommends modifications needed for acceptance.

The currency for exchange of credits and debits will normally be area, by wetland system/class, as defined by Cowardin et al. Other currency may be used at the request of the WSDOT after the Oversight Committee recommends acceptance of its use.

Credits will be established only after development, management, and maintenance of a WCB Site according to a development plan recommended for acceptance by the Oversight Committee and approved by Federal and State of Washington, resource and regulatory agencies, and only after the Oversight Committee recommends acceptance of the as-built condition.

Normally, credits and debits will be exchanged according to the ratios identified in the Agreement when area is the currency. Credits and debits may be exchanged according to modified exchange ratios at the request of the WSDOT when the Oversight Committee recommends acceptance of their use. Modification of exchange ratios must be justified by assessment data indicating WCB Sites are more successful than other forms of wetland compensation.

Credits at a WCB Site may be used to compensate for unavoidable adverse impacts to wetlands attributable to WSDOT activities only after all appropriate and practicable measures have first been taken, in sequence, to mitigate impacts.

At the time the Oversight Committee recommends acceptance of the as-built condition, or the as-built condition with changes to final plans, fifty per cent of the area of each wetland system/class, as described by Cowardin et al., within each WCB Site and preserved areas will be available for exchange with debits.

The remaining fifty per cent of the area of each wetland system/class, as described by Cowardin et al., within each WCB Site and preserved areas will be available for exchange with debits at the time the Oversight Committee agrees that all performance standards specified in the development plan have been met. Additionally, at least five years must have elapsed from the time the monitoring plan has been implemented and the Oversight Committee has recommended acceptance of the as-built condition, or as-built condition with changes to final plans.

A WCB Site used to compensate for adverse impacts to wetlands attributable to WSDOT activities will normally be of the same system and class, as defined by Cowardin et al., and provide the same wetland functions and values as the impacted wetlands. Use of a WCB Site that is not of the same system and class, as defined by Cowardin et al., as the impacted wetland or that does not provide the same wetland functions and values may be appropriate for compensation in special circumstances.

WCB Sites will be inspected semi-annually for the five year period after the Oversight Committee recommends acceptance of the as-built condition and annually thereafter by qualified WSDOT personnel or other qualified person(s) contracted by the WSDOT.

WCB sites will be monitored by the schedule described in the Agreement. Monitoring will provide objective, quantifiable data and will conform to the monitoring protocol described in the Agreement. Sufficient information should be generated to assess compliance with permit conditions and project goals and objectives, and to provide a baseline for future evaluations.

It is the intent of signatories to the Agreement that all reasonable effort be made to ensure the provisions of the Agreement are implemented in a timely and cooperative manner. Issues arising during the implementation of the Agreement should be resolved at the staff level. Issues that cannot be resolved at the staff level in a timely fashion will be elevated through equivalent levels of each organization including, if necessary, agency directors.

The Agreement will be periodically reviewed by all signatories for its appropriateness and relevance and may be modified at any time with the written approval of all signatories. The Agreement will initially be reviewed within two years after it is signed by all signatories.

WSDOT
Wetland Compensation Bank Agreement

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
WETLAND COMPENSATION BANK PROGRAM
MEMORANDUM OF AGREEMENT

JANUARY 4, 1994

SIGNATORIES

US Army Corps of Engineers

US Environmental Protection Agency

US Fish and Wildlife Service

National Marine Fisheries Service

Federal Highway Administration

Washington State Department of Ecology

Washington State Department of Wildlife

Washington State Department of Fisheries

Washington State Department of Transportation

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
WETLAND COMPENSATION BANK PROGRAM
MEMORANDUM OF AGREEMENT

JANUARY 4, 1994

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I. PURPOSE AND SCOPE OF THE AGREEMENT

A. PURPOSE

The purpose of the Washington State Department of Transportation Wetland Compensation Bank Program Memorandum of Agreement (Agreement) is to set forth the principles and procedures that all signatories to the Agreement will adhere to in establishing, implementing, and maintaining the Washington State Department of Transportation Wetland Compensation Bank Program (Program).

Signatories to the Agreement are:

1. US Army Corps of Engineers (COE)
2. US Environmental Protection Agency (USEPA)
3. US Fish and Wildlife Service (USFWS)
4. National Marine Fisheries Service (NMFS)
5. Federal Highway Administration (FHWA)
6. Washington State Department of Ecology (Ecology)
7. Washington State Department of Wildlife (Wildlife)
8. Washington State Department of Fisheries (Fisheries)
9. Washington State Department of Transportation (WSDOT)

B. SCOPE

The Agreement applies only to activities initiated, accomplished, or sponsored by the WSDOT. Specifically, those activities are:

1. WSDOT activities, as defined in the Agreement, adversely impacting a wetland.
2. Identification and selection of a Candidate Wetland Compensation Bank Site (Candidate WCB Site).
3. Proposals to develop, as defined in the Agreement, a Candidate WCB Site.
4. Development of a Candidate WCB Site.
5. Management, maintenance, and protection, as defined in the Agreement, of a Wetland Compensation Bank Site (WCB Site).
6. Inspection and monitoring, as defined in the Agreement, of a WCB Site.
7. Assessments, as defined in the Agreement, of a WCB Site.
8. WSDOT proposals to compensate for adverse impacts to wetlands, after mitigation sequencing has occurred, by using credits available at a WCB Site.
9. Review and permit actions by resource and regulatory agencies associated with WSDOT activities adversely impacting wetlands.

II. RELATIONSHIP OF THE AGREEMENT TO EXISTING AUTHORITIES

The Agreement recognizes the following existing authorities:

1. National Environmental Policy Act (42 USC 4321 *et seq.*)
2. Federal Water Pollution Control Act (Clean Water Act) (33 USC 1251 *et seq.*)
3. Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 USC 661 *et seq.*)
4. Coastal Zone Management Act of 1972 (16 USC Part 1451 *et seq.*)
5. Executive Order 11990 - Protection of Wetlands (42 FR 26961)
6. Executive Order 11988 - Floodplain Management (42 FR 26951)
7. Council on Environmental Quality Regulations for Implementing the Procedural Provision of the National Environmental Policy Act (40 CFR Parts 1500-1508)
8. USEPA 404 (b) (1) Guidelines (40 CFR Part 230)
9. COE Permit Rules and Regulations (33 CFR Parts 320-330)
10. USEPA and COE MOA Concerning Mitigation Under 404(b)(1) Guidelines (FR Vol. 55, No. 48)
11. Preservation of the Nation's Wetlands (DOT Order 5660.1A)
12. Mitigation of Environmental Impacts to Privately Owned Wetlands (23 CFR 777)
13. National Pollutant Discharge Elimination System Permit Application Regulation for Storm Water Discharges (40 CFR Parts 122, 123, and 124)
14. State Environmental Policy Act (Chapter 43.21C RCW)
15. Growth Management Act (Chapter 36.70A RCW)
16. Shoreline Management Act (Chapter 90.58 RCW)
17. Hydraulic Act (Chapter 75.20 RCW)
18. Water Pollution Control Act (Chapter 90.48 RCW)
19. Governor's Executive Order (EO 89-10)
20. Governor's Executive Order (EO 90-04)
21. State Environmental Policy Act Rules (Chapter 197-11 WAC)
22. Growth Management Act Rules (Chapter 365-190 and 195 WAC)
23. Shoreline Management Act Rules (Chapter 173-14 through 28 WAC)
24. Hydraulic Project Rules (Chapter 220-110 WAC)
25. Water Pollution Control Act Rules (Chapter 173-201A WAC)
26. State Federal Water Pollution Control Act Procedure Rules (Chapter 173-225 WAC)
27. WSDOT Protection of Wetlands Action Plan (D 31-12)

Nothing in the Agreement is intended to diminish, modify, or otherwise affect any of the statutory or regulatory authorities of Federal or State of Washington agencies, local governments, or Indian tribes.

III. GOALS OF THE AGREEMENT AND THE WETLAND COMPENSATION BANK PROGRAM

A. GOALS OF THE AGREEMENT

1. Maximize opportunities for wetland compensation that ensure no net loss and that may result in a long-term net gain of wetland area, and functions and values.
2. Facilitate implementation of rules and regulations controlling WSDOT activities that adversely impact wetlands.
3. Facilitate compliance with Federal and State of Washington laws controlling WSDOT activities that adversely impact wetlands.
4. Coordinate and maximize the efficient use of agency resources for better protection of wetlands.
5. Streamline and increase the predictability of the process of obtaining Federal and State of Washington permits within the jurisdiction of the signatories for WSDOT activities that adversely impact wetlands.
6. Make it feasible for the WSDOT to compensate for adverse impacts to wetlands in off-site and non-contiguous locations.
7. Maximize the benefits and minimize the environmental and economic risks of implementing, operating, and managing the Program.

B. GOALS OF THE PROGRAM

1. Provide off-site compensation in advance of adverse impacts to wetlands after all appropriate and practicable measures have been taken to: first, avoid the impacts to wetlands; second, minimize the impacts to wetlands; third, repair, rehabilitate, and restore the affected wetlands; fourth, reduce or eliminate the adverse impacts to wetlands over time by maintenance and preservation; and fifth, provide in-kind, on-site compensation for adverse impacts to wetlands.
2. Consolidate compensation sites for future, small and isolated wetland impacts at appropriate locations to better ensure their performance and to more economically construct and maintain them.
3. Provide appropriate compensation for adverse impacts to wetlands when impacts are small in area and magnitude.
4. Provide appropriate compensation for adverse impacts to wetlands when impacts are temporal or interim.
5. Locate wetland compensation sites within the landscape to maximize the functions and values of the wetland and adjacent interacting ecosystems.
6. Reduce the effort expended by resource, regulatory, and review agencies to respond to and act on proposed WSDOT activities that adversely impact wetlands.

7. Increase opportunities to add to the public's awareness and understanding of wetlands and of the Program.
8. Provide the required professional expertise for successful management and maintenance of wetland compensation sites.
9. Generate information that provides a better understanding of wetland functions and values, and methods of successfully compensating for wetland impacts.

IV. DEFINITIONS

Adverse Impacts to Wetlands - Any loss or degradation of wetland area, and/or functions and values attributable to WSDOT activities.

Analysis of Risk - An analysis of land use, population growth, and development trends to determine the risk of loss or degradation of wetlands over time.

Appropriate - Consistent with the scope and degree of environmental impacts of a project [adapted from FR Vol. 55, No. 48].

As-Built Condition - The physical, chemical, and biological characteristics of a Candidate WCB Site after complete implementation of a development plan.

Assessment - A systematic evaluation by qualified person(s) of any or all wetland functions and values at a Candidate WCB Site, WCB Site, or wetland that may be adversely impacted by WSDOT activities.

Buffer - A designated area along the perimeter of a wetland that lessens adverse impacts to wetlands attributable to adjacent land uses.

Candidate Wetland Compensation Bank Site (Candidate WCB Site) - Property proposed by the WSDOT expressly for the purchase and/or development of a WCB Site, or actually purchased and/or developed by the WSDOT to earn Program credits.

Compensation - The restoration, creation, or enhancement of wetlands and in limited circumstances the preservation of wetlands to replace wetland area, and functions and values adversely impacted by WSDOT activities. Preservation of wetlands is acceptable compensation only when used in conjunction with restoration, creation, or enhancement of wetlands.

Consensus - General agreement resulting from negotiations among members of the Oversight Committee. The goal of negotiations is to reach a resolution agreeable to all members.

Creation - Establishment of wetland area, and functions and values where none previously existed.

Credits - The acres, or other agreed upon unit of currency, available at a WCB Site for use as compensation.

Currency - The medium of exchange of credits for debits. The currency represents an amount of wetland area, and functions and values.

Debits - The acres, or other agreed upon unit of currency, adversely impacted by WSDOT activities.

Development - Restoration or creation of wetland area, and functions and values at a Candidate WCB Site, or the enhancement of wetland functions and values at a Candidate WCB Site.

Development Plan - A formal plan for development of a Candidate WCB Site leading to establishment of a WCB Site. A development plan contains the elements shown in Section VI C - Figure 2 of the Agreement and described in Appendix C of the Agreement.

Ecosystem - All of the organisms in a given place in interaction with their non-living environment.

Enhancement - Actions taken to intentionally augment one or more functions and values of an existing, degraded wetland, where wetland hydrology is currently present.

Functions and Values - Functions are the physical, chemical, and biological characteristics of a wetland. Values are those characteristics that are beneficial to society. Specific wetland functions and values include ground water recharge, ground water discharge, flood flow alteration, sediment stabilization, sediment and toxicant retention, nutrient removal and transformation, production export, fish and wildlife habitat, wildlife diversity and abundance, aquatic diversity and abundance, uniqueness and heritage value, and recreation [Wetland Evaluation Technique (WET); Volume II: Methodology].

General Permit - Department of the Army authorization for the discharge of dredged or fill material in waters of the United States that is issued on a nationwide or regional basis for a category or categories of activities when: (1) Those activities are substantially similar in nature and cause only minimal individual and cumulative environmental impacts; or (2) The general permit would result in avoiding unnecessary duplication of the regulatory control exercised by another Federal, state, or local agency provided it has been determined that the environmental consequences of the action are individually and cumulatively minimal [33 CFR 323.2(h)].

Individual Permit - Department of the Army authorization for the discharge of dredged or fill material in waters of the United States that is issued following a case-by-case evaluation of a specific project involving a proposed discharge(s) in accordance with the procedures of 33 CFR Part 323 and 33 CFR Part 325 and a determination that the proposed discharge is in the public interest pursuant to 33 CFR Part 320 [33 CFR 323.2(g)].

In-Kind Compensation - Development of wetlands that are of the same system and class, as defined by Cowardin et al., and that provide the same wetland functions and values as those adversely impacted by WSDOT activities.

Inspection - A review and examination of a WCB Site by qualified WSDOT personnel or other qualified person(s) contracted by the WSDOT.

Interim Wetland Impacts - A temporary or short-term loss or degradation of wetland area, or functions and values. Examples include temporary or short-term impacts associated with staging areas for construction materials and equipment, temporary access and haul roads, and temporary alterations of drainage.

Landscape - A heterogeneous land area composed of a cluster of interacting ecosystems that are repeated in similar form throughout.

Limiting Factor - Environmental factor that limits the growth or activities of an organism or that restricts the size of a population or its geographical range.

Management - Fiscal and administrative actions by the WSDOT to preserve and protect WCB Sites.

Maintenance - Physical actions by the WSDOT to preserve and protect WCB Sites.

Mitigation - In accordance with Council on Environmental Quality regulations (40 CFR §1508.20) and Governor's Executive Order 90-04, mitigation includes in the following order of preference:

1. Avoiding the impact altogether by not taking a certain action or parts of an action.
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts.
3. Repairing, rehabilitating, or restoring the affected environment.
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
5. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments.
6. Monitoring the impact and taking appropriate corrective measures.

Mitigation for individual actions may include a combination of the above measures.

Monitoring - A systematic evaluation of a WCB Site by qualified WSDOT personnel or other qualified person(s) contracted by the WSDOT to determine the degree to which the site meets its performance standards, and to determine modifications in management and maintenance of the WCB Site needed to achieve performance standards.

Off-site - Outside and not adjacent to the limits of the project area.

On-site - Within or adjacent to the limits of the project area.

Out-of-Kind Compensation - Development of wetlands that are not of the same system and class, as defined by Cowardin et al., or that do not provide the same wetland functions and values as those adversely impacted by WSDOT activities.

Oversight Committee - An interagency committee composed of one representative from each of the agencies that are signatories to the Agreement.

Performance Standards - Quantifiable standards capable of measuring the degree of success of a WCB Site when compared to previously established goals and objectives.

Practicable - Available and capable of being done after considering cost, existing technology, and logistics in light of overall project purposes [40 CFR §230.3].

Preservation - Acquisition of existing wetlands with high quality functions and values and/or acquisition of wetland buffers, and the management and maintenance of wetlands and wetland buffers.

Protection - Legal measures to prevent harm, injury, or degradation to a wetland or wetland buffer (e.g. acquisition in fee simple, conservation easement, deed restriction).

Restoration - Actions taken to intentionally reestablish wetland area, and functions and values where wetlands previously existed, but are currently absent because of the absence of wetland hydrology or hydric soils. Reestablishment of historic wetland types with high quality functions and values where degraded wetlands are currently present may also be considered restoration (e.g. conversion of diked, palustrine wetland to estuarine wetland).

River Reach - A segment of river and associated riparian area defined by geomorphic features with similar environment and aquatic habitat.

Temporal Wetland Impacts - A loss or degradation of wetland area, or functions and values that occurs between the time adverse impacts to wetlands occur and mitigation becomes fully operational.

Watershed - A three dimensional geomorphic or landscape unit defined by surface water flows and ground water discharges to a common outlet over a specified time.

Wetland - Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas [33 CFR §323.2C and 40 CFR §230.3].

Wetland Compensation Bank Site (WCB Site) - Property purchased and developed by the WSDOT to earn Program credits and for which the as-built condition has been accepted by the Oversight Committee. Also, property purchased and preserved in conjunction with wetland restoration, creation, or enhancement by the WSDOT to earn Program credits and for which the as-built condition has been accepted by the Oversight Committee. Both actions result in the availability of credits at a WCB Site.

WSDOT Activities - Construction, operation, and maintenance activities sponsored or accomplished by the Washington State Department of Transportation.

V. OVERSIGHT COMMITTEE

A. MEMBERS AND ACTIONS

An interagency committee, to be known as the Oversight Committee, is established by the Agreement. The Oversight Committee will be composed of one representative from each agency which is a signatory to the Agreement. Representatives from signatory agencies will be voting members of the Oversight Committee.

The Oversight Committee may agree by consensus to accept new members. A Federal or State of Washington agency with interest in the Program may request to be a member of the Oversight Committee. A representative of the requesting agency will be a voting member of the Oversight Committee only: (1) with the unanimous affirmative vote by all existing members of the Oversight Committee, and (2) if the requesting agency signs the Agreement.

One representative from each local government and Indian tribe having jurisdiction over a Candidate WCB Site, WCB Site, or wetland adversely impacted by a WSDOT activity will be invited to participate in discussions of the Oversight Committee.

A signatory agency other than WSDOT may choose not to participate in reviews and discussions that are unrelated to its review, resource, or regulatory responsibilities.

WSDOT will be responsible for convening and facilitating meetings of the Oversight Committee.

B. PURPOSE AND RESPONSIBILITIES

The purpose of the Oversight Committee is to review all information required by the Agreement and to make recommendations to the WSDOT and Federal and State of Washington, resource and regulatory agencies. The Oversight Committee may recommend acceptance or recommend modifications needed for acceptance pursuant to Federal and State of Washington law.

The Oversight Committee's review and recommendation responsibilities include, but are not limited to, the activities shown in Figure 1 and Appendix A of the Agreement. The Oversight Committee may review and recommend acceptance, or review and recommend modifications needed for acceptance of these activities.

Figure 1 - Partial List of the Oversight Committee's Review and Recommendation Responsibilities

Oversight Committee Activity #1a - Review and recommend acceptance, or review and recommend modifications needed for acceptance of:

a. Rationale for the location of a Candidate WCB Site.

b. Rationale for exceptions to the locational requirements for a Candidate WCB Site.

Oversight Committee Activity #1b - Review and recommend acceptance, or review and recommend modifications needed for acceptance of a preliminary development plan for a Candidate WCB Site including:

a. Compensation goals and objectives.

b. Quantitative performance standards.

c. Description of the proposed WCB Site.

d. Conceptual design plan.

e. Protection plan.

f. Implementation schedule.

g. Management and maintenance plan.

h. Analysis of risk.

i. Analysis of limiting factors.

j. Information provided by local governments and Indian tribes.

Oversight Committee Activity #1c - Review and recommend acceptance, or review and recommend modifications needed for acceptance of methodologies recognized in the Agreement, and proposed modifications to them including:

a. Assessment methods for a Candidate WCB Site and WCB Site.

b. Inspection checklist and schedule for a Candidate WCB Site and WCB Site described in Appendix E of the Agreement.

c. Monitoring protocol and schedule for a Candidate WCB Site and WCB Site described in Appendix F of the Agreement.

Oversight Committee Activity #2 - Review and recommend acceptance, or review and recommend modifications needed for acceptance of:

a. Documents describing the as-built condition of a Candidate WCB Site.

b. Justification for changes to final development plans for a Candidate WCB Site.

Figure 1 - (Continued)

Oversight Committee Activity #3 - Review and recommend acceptance, or review and recommend modifications needed for acceptance of:

a. Estimate of the reasonably attainable wetland category, as described by Ecology (Washington State Department of Ecology 1991), of a WCB Site.

b. Justification for modifying the inspection checklist and schedule described in Appendix E of the Agreement.

c. Justification for modifying the monitoring protocol and schedule described in Appendix F of the Agreement.

d. Assessment reports.

Oversight Committee Activity #4 - Review and recommend acceptance, or review and recommend modifications needed for acceptance of:

a. Monitoring reports.

Oversight Committee Activity #5 - Review and recommend acceptance, or review and recommend modifications needed for acceptance of:

a. Use of fifty per cent of the area of each wetland system/class, as described by Cowardin et al., within a WCB Site and preserved area for compensation after acceptance of the as-built condition.

Oversight Committee Activity #6 and #9 - Review and recommend acceptance, or review and recommend modifications needed for acceptance of:

a. Documents describing the following:
   - Wetland area, and functions and values adversely impacted by a WSDOT activity.
   - Credits available at a WCB Site and debits attributable to a WSDOT activity.

b. Also, when appropriate, documents describing the rationale for the following:
   - Out-of-kind compensation.
   - Use of currency other than area.
   - Modification of credit ratios based on the results of assessments.

c. Information provided by local governments and Indian tribes.

Oversight Committee Activity #7 - Review and recommend acceptance, or review and recommend modifications needed for acceptance of:

a. Documents demonstrating that performance standards for a WCB Site have been met.

Figure 1 - (Continued)

Oversight Committee Activity #8 - Review and recommend acceptance, or review and recommend modifications needed for acceptance of:

a. Use of the remaining fifty per cent of the area of each wetland system/class, as described by Cowardin et al., within a WCB Site and preserved area for compensation after agreement that performance standards have been met, and a minimum of five years after acceptance of the as-built condition.

Oversight Committee Activity #10 - Review and recommend acceptance, or review and recommend modifications needed for acceptance of:

a. Modifications to the Agreement.

Oversight Committee Activity #11 - Review and recommend acceptance, or review and recommend modifications needed for acceptance of:

a. Exchange ratios for wetlands dominated by invasive or exotic plant species.

Oversight Committee Activity #12 - Review and recommend acceptance, or review and recommend modifications needed for acceptance of:

a. Exchange ratios for out-of-kind compensation.

The Oversight Committee will recommend acceptance, or recommend modifications needed for acceptance for each of these activities within thirty days after receipt of complete information.

C. DECISION MAKING

Recommendations by the Oversight Committee will be agreed to by consensus. If consensus cannot be achieved, an issue will be resolved by a vote of members of the Oversight Committee participating in negotiations. If two or more members of the Oversight Committee participating in negotiations are not in agreement with the other participating members, the result is no resolution. When resolution cannot be achieved, a signatory may choose to elevate the issue through equivalent levels of each agency including, if necessary, agency directors.

Members of the Oversight Committee will normally participate in negotiations and vote in person. Members unable to attend a meeting in person may participate by conference call or other means of telecommunicating, or may vote by proxy. An absent member of the Oversight Committee will provide the Oversight Committee with written permission for a designated proxy to act in their behalf for a proxy vote to be valid.

The WSDOT will document all Oversight Committee discussions, recommendations, and dissenting opinions in a written record. The WSDOT will distribute the written record to each member of the Oversight Committee and each invited representative of local governments and Indian tribes within thirty days of each action of the Oversight Committee.

The written record of all dissenting opinions will be included with all documents prepared by or for the Oversight Committee over the life of a WSDOT activity or project.

Each member of the Oversight Committee will provide, and each participating representative of local governments and Indian tribes may provide the WSDOT with a letter indicating acceptance of, or suggested modifications to, the written record. The letter will be provided to the WSDOT within thirty days after a member of the Oversight Committee receives the written record.

VI. ESTABLISHMENT OF WETLAND COMPENSATION BANK SITES

A. IDENTIFICATION AND SELECTION OF CANDIDATE WETLAND COMPENSATION BANK SITES

The WSDOT will identify and select Candidate WCB Sites based on their potential to provide sustainable, quality wetland functions and values with development, management, and maintenance, and for their potential to compensate for anticipated adverse impacts to wetlands attributable to WSDOT activities.

The WSDOT and the Oversight Committee will consider, in the following order of preference, the following criteria for the identification and selection of a Candidate WCB Site:

1. A site where one or more of the three criteria used to determine if a site is a wetland (i.e. hydrophytic vegetation, hydric soils, and wetland hydrology), especially wetland hydrology, have been completely lost and can be restored.
2. A site where one or more wetland functions and values have been eliminated by prior human activity and can be restored to their previous type, size, and vigor.
3. A site where wetland functions and values have been severely degraded by prior human activity and can be enhanced to their previous type, size, and vigor.
4. A site that is not a wetland, but where a wetland can be created that is adjacent to and has high potential to complement existing wetlands. Examples include areas adjacent to existing riparian corridors, Washington Natural Heritage Sites, Washington State Wildlife Areas, and National Wildlife Refuges.
5. A site that is not wetland, but where a wetland can be created.
6. A site where development, management, and maintenance could appropriately enhance one or more existing wetland functions and values.

A site where there are unresolved violations of §404 of the Clean Water Act will not be identified and selected as a Candidate WCB Site.

The WSDOT and the Oversight Committee will also consider, in no particular order of preference, the following criteria for the identification and selection of a Candidate WCB Site:

1. Distance between a site and wetlands adversely impacted by proposed WSDOT activities.
2. Ability of a site to compensate for adverse impacts to wetlands attributable to proposed WSDOT activities.
3. Ability to protect existing and/or proposed wetland functions and values at a site from direct, indirect, and cumulative impacts attributable to adjacent, current and foreseeable land uses.
4. Potential for a site to provide a broad range of wetland functions and values.
5. Potential for a site to improve the functions of the ecosystem within the watershed.
6. Potential for a site to contribute to restoration of the historic composition of the ecosystem and to biodiversity.
7. Potential for a site to be self-sustaining with minimum maintenance and other human intervention.
8. Appropriateness of the size of a site.
9. Potential for a site to complement the existing geographic distribution of fish and wildlife habitat.
10. Potential for a site to favorably maintain or alter trends in the quantity and quality of fish and wildlife habitat.
11. Potential for a site to maintain or enhance fish and wildlife habitat diversity.
12. Potential for a site to restore fragmented habitats and migratory corridors.
13. Potential for a site to restore, create, or enhance fish and wildlife habitats for Federal and State of Washington, threatened and endangered species; Federal species of special concern; and State of Washington priority species.
14. Compliance with local, regional, State of Washington, or national goals for the protection of wetlands.
15. Compliance with local, regional, or State of Washington restoration, creation, enhancement, or preservation plans.
16. Compliance with applicable local government comprehensive plans, development regulations, and shoreline master programs.
17. The results of an analysis of risk.
18. The results of an analysis of limiting factors.

B. LOCATION, NUMBER, AND SIZE OF WETLAND COMPENSATION BANK SITES

The Agreement does not limit the location, number, and size of Candidate WCB Sites and WCB Sites.

C. DEVELOPMENT PLANS FOR CANDIDATE WETLAND COMPENSATION BANK SITES

The WSDOT will complete the activities shown in Figure 2 for each Candidate WCB Site proposed for development.

Figure 2 - List of Activities Required for Development of a Candidate WCB Site

WSDOT Activity #1 - Identify and select a Candidate WCB Site

a. Develop rationale for the location of a Candidate WCB Site.
b. If appropriate, develop rationale for exceptions to the locational requirements for a WCB Site.

WSDOT Activity #2 - Develop preliminary development plan for the Candidate WCB Site including appropriate elements of the following:

a. Compensation goals and objectives.
b. Quantitative performance standards.
c. Description of the proposed WCB Site.
d. Conceptual design plan.
e. Protection plan.
f. Implementation schedule.
g. Management and maintenance plan.
h. Analysis of risk.
i. Analysis of limiting factors.
j. Information provided by local governments and Indian tribes.

WSDOT Activity #3 - Review methodologies recognized in the Agreement, and if needed revise:

a. Assessment methods.
b. Inspection schedule and checklist.
c. Monitoring protocol and schedule.

These activities will conform to the guidance found in Appendix C, Appendix E, and Appendix F of the Agreement. The Oversight Committee will recommend acceptance of these activities, or recommend modifications needed for acceptance.

The WSDOT will prepare a final development plan for each Candidate WCB Site which incorporates the recommendations of the Oversight Committee. The final development plan will be provided to Federal, State of Washington, and local permitting agencies and Indian tribes for their review.

The WSDOT will develop each Candidate WCB Site in accordance with the final development plan and approved Federal, State of Washington, and local permits.

The WSDOT will document the as-built condition of each Candidate WCB Site. The Oversight Committee will recommend acceptance of the as-built condition, or recommend modifications needed for acceptance.

The WSDOT will provide justification for changes to final development plans for each Candidate WCB Site. The Oversight Committee will recommend acceptance of changes to final development plans, or recommend modifications needed for acceptance.

The WSDOT will be responsible for the costs of developing Candidate WCB Sites, documenting the as-built conditions, and justifying changes to final development plans of Candidate WCB Sites.

D. MANAGEMENT, MAINTENANCE, AND PROTECTION OF WETLAND COMPENSATION BANK SITES

It is the intent of signatories to the Agreement that the WSDOT appropriately manage, maintain, and protect WCB Sites in perpetuity. Management and maintenance of a WCB Site will be guided by information generated by monitoring, and modified to best achieve performance standards.

The WSDOT is committed to permanently retaining, in their natural condition, all WCB Sites which are established in accordance with the Agreement.

The WSDOT will establish legal instruments to ensure protection of a WCB Site in perpetuity before the Oversight Committee can recommend acceptance of a Candidate WCB Site as a WCB Site, and the subsequent use of a WCB Site for compensation. This may be accomplished by acquisition in fee simple, conservation easement, deed restriction, or by other means.

WCB Sites will not be altered, except as authorized by signatories to the Agreement. WCB Sites will not be placed into surplus, traded, or used for any other purpose, except as authorized by signatories to the Agreement. WCB Sites will be protected from human development or disturbance that impairs their functions and values.

A WCB Site will be identified and the Agreement referenced on WSDOT right-of-way plans to protect WCB Sites from adverse impacts attributable to WSDOT activities, disposal of property, or conversion of use. Additionally, the Agreement will be referenced on the conveyance document for the property, which will be recorded with the county auditor.

The WSDOT will be responsible for the costs of management, maintenance, and protection of WCB Sites. The WSDOT may develop formal partnerships to share costs with, and may transfer management and maintenance of a WCB Site to, other agencies or entities. However, in all cases the WSDOT will have ultimate responsibility for costs, and for the operation of each WCB Site to ensure it meets the performance standards described in the preliminary development plan and/or conditions of Federal, State of Washington, and local permits.

VII. CRITERIA FOR USE OF WETLAND COMPENSATION BANK SITES

The following locational requirements will be considered by the Oversight Committee before the Oversight Committee recommends acceptance of the use of a WCB Site, or recommends modifications needed for acceptance:

1. When adverse impacts to wetlands attributable to a WSDOT activity occur in a single watershed, the WCB Site will be located within the same watershed and associated ecosystem.
2. When adverse impacts to wetlands attributable to a WSDOT activity occur in multiple watersheds, the WCB Site will be located within the most appropriate watershed and associated ecosystem, as determined by the Oversight Committee.
3. When adverse impacts to wetlands attributable to WSDOT activities include alterations of flood flows or impacts to fish habitat, the WCB Site will be located within the same river reach and watershed where the wetland impacts occur, unless those specific impacts to flood flows and fish habitat are mitigated for separately.

The Oversight Committee may recommend acceptance of exceptions to locational requirements 1 and 2 described above, based on the following criteria:

1. A WCB Site provides wetland area and/or functions and values that meet regional, State of Washington, or local restoration, creation, enhancement, or preservation priorities or planning efforts.
2. A WCB Site located within a watershed adjacent to the watershed in which adverse impacts to wetlands attributable to WSDOT activities occur supports

significantly greater quantity or quality of wetland area, and functions and values for the region than a WCB Site within the same watershed.

VIII. CURRENCY, CREDITS, AND DEBITS

A. RELATIONSHIP OF CURRENCY TO WETLAND FUNCTIONS AND VALUES

Currency will be capable of equitable exchanges of wetland area, and functions and values between WCB Sites and wetlands adversely impacted by WSDOT activities.

The currency for exchange of credits and debits will normally be area, by wetland system/class, as defined by Cowardin et al. Other currency may be used at the request of the WSDOT after the Oversight Committee recommends acceptance of its use.

Wetland functions and values may be assessed by formal methods to confirm the use of area as the appropriate currency for exchange of credits and debits, and the appropriateness of the exchange ratios identified in Section VIII C of the Agreement. Selection of formal assessment methods will be based on their availability, applicability, and practicability and the following order of preference:

1. Objective, quantitative assessment methods.
2. Objective, qualitative or objective, semi-quantitative assessment methods.

Formal assessment methods that may be used include, but are not limited to, the following:

1. COE *Wetland Evaluation Technique (WET); Volume II: Methodology* and the *Indicator Value Assessment (IVA)* may be used to assess recognized wetland functions and values in most wetland environments.
2. USFWS *Habitat Evaluation Procedure (HEP)* may be used to assess wildlife habitat, excluding anadromous fishery and aquatic resources. Evaluation species selected for HEP will include species indigenous to each environment of concern including upland, wetland, and deepwater habitats.
3. *Estuarine Habitat Assessment Protocol* may be used to assess wetland functions in the Puget Sound and the coastal estuarine environment.
4. USEPA Region 10 *In-Stream Biological Monitoring Handbook* may be used for riverine systems.
5. USEPA *Rapid Bioassessment Protocols for Use in Streams and Rivers* may be used for riverine systems.
6. Parameters identified in Appendix F of the Agreement, *Elements of a Monitoring Plan and Report.*

Several formal methodologies may be used in combination to provide the most comprehensive assessment.

Best professional judgment may be used to assess wetland functions and values in one or more of the following circumstances:

1. Upland environments considered for wetland creation where wetland functions and values are not present.
2. Severely degraded sites considered for wetland restoration.
3. Sites where wetland functions and values are nominally present and that will be adversely impacted by WSDOT activities.
4. When use of a formal assessment would provide little relevant information.
5. When no objective method is available to assess functions and values for a particular wetland type.
6. To supplement formal methods.

Formal assessments and applications of best professional judgments will be performed by qualified WSDOT personnel or other qualified person(s) contracted by the WSDOT. Written documentation will be provided to the Oversight Committee.

The WSDOT will be responsible for the costs of assessments.

The Oversight Committee will recommend acceptance of the results of assessment methods, or recommend modifications needed for acceptance.

The Oversight Committee may recommend new assessment methods as they become available to the WSDOT.

In all circumstances, the currency for an existing WCB Site will remain the same from the time the first credit is withdrawn to the time the last credit is withdrawn from the WCB Site.

B. CALCULATION OF CREDITS AND DEBITS

Credits will be established only after development, management, and maintenance of a WCB Site according to a development plan recommended for acceptance by the Oversight Committee and approved by Federal and State of Washington, resource and regulatory agencies, and only after the Oversight Committee recommends acceptance of the as-built condition.

Credits resulting from restoration or creation of wetlands at a WCB Site will be calculated by measuring the difference between wetland area prior to development, management, and maintenance and wetland area at the time of a proposed exchange of credits and debits. Wetland area will be quantified by the formal delineation method(s) required by signatories to the Agreement.

Credits resulting from enhancement of wetlands at a WCB Site will be calculated by measuring the wetland area enhanced by development, management, and maintenance.

Credits resulting from preservation of high quality wetlands within a WCB Site, preservation of wetlands and stream buffers neighboring a WCB Site, or preservation of areas other than wetlands and stream buffers required to maintain the ecological integrity of a WCB Site will be calculated by measuring the area preserved.

Debits at wetlands adversely impacted by WSDOT activities will be calculated by measuring the difference between wetland area prior to the occurrence of impacts, and wetland area after the occurrence of impacts.

The Oversight Committee will recommend acceptance of calculated credits and debits, or recommend modifications needed for acceptance.

Normally, credits and debits will be exchanged according to the ratios identified in Section VIII C of the Agreement when area is the currency. Credits and debits may be exchanged according to modified exchange ratios at the request of the WSDOT when the Oversight Committee recommends acceptance of their use. Modification of exchange ratios must be justified by assessment data indicating WCB Sites are more successful than other forms of wetland compensation.

C. USE OF CREDITS TO COMPENSATE FOR WETLAND IMPACTS

1. Mitigation Sequencing

Credits at a WCB Site may be used to compensate for unavoidable adverse impacts to wetlands attributable to WSDOT activities only after all appropriate and practicable measures have first been taken, in sequence, to mitigate impacts.

Those measures include, in the following order of preference, the following:

1. Avoiding the impact altogether by not taking a certain action or parts of an action.
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology or by taking affirmative steps to avoid or reduce impacts.
3. Repairing, rehabilitating, or restoring the affected environment.
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
5. Compensating on site for the impact by replacing, enhancing, or providing substitute resources or environments.

2. Accounting Procedures

Prior to using credits available at a WCB Site to compensate for adverse impacts to wetlands not regulated by Federal and State of Washington, resource and regulatory agencies, or for activities that are exempted by Federal and State of Washington, resource and regulatory agencies, the WSDOT will provide the Oversight Committee with a current accounting of credits available at the WCB Site and debits at the impacted wetland. The table on the second page of the Public Notice Attachment Form and Transaction Notice (Appendix D) will be completed to report the current accounting of credits and debits.

No review or recommendation by the Oversight Committee is required for use of a WCB Site to compensate for adverse impacts to wetlands not regulated by Federal and State of Washington, resource and regulatory agencies, or for activities that are exempted by Federal and State of Washington, resource and regulatory agencies.

Prior to using credits available at a WCB Site to compensate for adverse impacts to wetlands permitted by a §404 General Permit, the WSDOT will provide the COE - Seattle District and the Oversight Committee with a current accounting of credits available at the WCB Site and debits at the impacted wetland. The table on the second page of the Public Notice Attachment Form and Transaction Notice (Appendix D) will be completed to report the current accounting of credits and debits.

No review or recommendation by the Oversight Committee is required for use of a WCB Site to compensate for adverse impacts to wetlands permitted by a §404 General Permit.

Prior to using credits available at a WCB Site to compensate for adverse impacts to wetlands requiring a §404 Individual Permit, Shoreline Permit, or Hydraulic Project Approval, the WSDOT will provide

the COE - Seattle District and the Oversight Committee with background information and a current accounting of credits available at the WCB Site and debits at the impacted wetland. All items shown on the first page of the Public Notice Attachment Form and Transaction Notice (Appendix D) and the Elements of a Wetland Impacts Report (Appendix B) will be completed to report background information. The table on the second page of the Public Notice Attachment Form and Transaction Notice (Appendix D) will be completed to report the current accounting of credits and debits.

The Oversight Committee will recommend acceptance, or recommend modifications needed for acceptance of background information and calculated credits and debits when a §404 Individual Permit, Shoreline Permit, or Hydraulic Project Approval is required.

3. Availability of Credits and Compensation Ratios

The Oversight Committee will recommend acceptance, or recommend modifications needed for acceptance of the as-built condition of a WCB Site, or as-built condition with changes to final plans.

At the time the Oversight Committee recommends acceptance of the as-built condition, or the as-built condition with changes to final plans, fifty per cent of the area of each wetland system/class, as described by Cowardin et al., within each WCB Site and preserved areas will be available for exchange with debits.

The remaining fifty per cent of the area of each wetland system/class, as described by Cowardin et al., within each WCB Site and preserved areas will be available for exchange with debits at the time the Oversight Committee agrees that all performance standards specified in the development plan have been met. Additionally, at least five years must have elapsed from the time the monitoring plan has been implemented and the Oversight Committee has recommended acceptance of the as-built condition, or as-built condition with changes to final plans.

The exchange of credits and debits to compensate for adverse impacts to wetlands will be based on the ratios identified in Table 1 for the period before performance standards are met, and on the ratios in Table 2 for the period after performance standards are met. The ratios identified in Table 2 that are less than 1:1 will be changed to 1:1 to compensate for adverse impacts to wetlands within the jurisdiction of the NMFS, Wildlife, and Fisheries.

Compensation ratios are based on the category of the wetland adversely impacted by WSDOT activities and the category of the WCB Site. Categories are those described in the Washington State

Wetland Rating System for Western Washington (1991) and the Washington State Wetland Rating System for Eastern Washington (1991).

For the period before performance standards have been met, the WCB Site category will be that identified in the development plan recommended for approval by the Oversight Committee. For the period after performance standards have been met, the WCB Site category will be that reasonably attainable based on the results of monitoring. The ratios shown in Table 1 and Table 2 are for in-kind compensation only.

Table 1 - Mitigation Ratios for the Period Before Performance Standards are Met

	Type of Mitigation					
	Restoration or Creation			Enhancement		
Category of Impacted Wetland	Category I*	Category II*	Category III*	Category I*	Category II*	Category III*
IV	1.2:1	1.5:1	1.8:1	2:1	2:1	3:1
III	1.5:1	1.8:1	2:1	2.5:1	3:1	4:1
II	1.8:1	2:1	3:1	3:1	4:1	6:1
I	2:1	4:1	6:1	4:1	8:1	10:1

*Category of a WCB Site identified in the development plan recommended for approval by the Oversight Committee.

Table 2 - Mitigation Ratios for the Period After Performance Standards are Met

	Type of Mitigation					
	Restoration or Creation			Enhancement		
Category of Impacted Wetland	Category I*	Category II*	Category III*	Category I*	Category II*	Category III*
IV	0.5:1**	0.7:1**	1:1	1:1	1.5:1	2:1
III	1:1	1:1	1:1	1.5:1	2:1	2:1
II	1:1	1:1	2:1	1.5:1	2:1	4:1
I	1:1	1.5:1	3:1	2:1	4:1	6:1

*Category of a WCB Site reasonably attainable based on the results of monitoring.

**The ratio for a Category IV wetland impacted by a single WSDOT activity is < 1:1 when replaced by a portion of a Category I or II WCB Site. However, in no case may the total wetland area created, restored, or enhanced at a WCB site be less than the total wetland area adversely impacted by all WSDOT activities for which compensation is accomplished at the WCB Site (i.e. the ratio for all WSDOT activities making use of the entire WCB Site will not be < 1:1).

Exchange ratios for wetlands dominated by invasive or exotic plant species (i.e. > 80 percent cover of species listed in Appendix G) will be reviewed by the Oversight Committee on a case-by-case basis. The Oversight Committee will recommend acceptance, or recommend modifications needed for acceptance, of exchange ratios for wetlands dominated by invasive or exotic plant species.

4. Preservation Credits

The WSDOT will receive credit for preservation as an incentive to develop more comprehensive development plans for Candidate WCB Sites, to achieve higher quality wetland categories, and to establish greater quantity and quality of wetland functions and values.

The exchange of credits and debits to compensate for adverse impacts to wetlands will be based on the ratios identified in Table 3 and the following requirements when development plans include the preservation of high quality wetlands within a WCB Site, the enhancement and/or preservation of wetlands or stream buffers neighboring a WCB Site, and the enhancement and/or preservation of areas other than wetlands and stream buffers required to maintain the ecological integrity of a WCB Site:

1. The balance of the area required to meet the ratio identified in Table 1 and 2 is met by preserving an existing Category I wetland within a WCB Site at a ratio of 5:1 or by preserving an existing Category II wetland within a WCB Site at a ratio of 10:1; or
2. The balance of the area required to meet the ratio identified in Table 1 and 2 is met by enhancing and preserving the functions of a neighboring wetland or stream buffer at a ratio of 5:1, or by preserving a neighboring wetland or stream buffer at a ratio of 10:1; or
3. The balance of the area required to meet the ratio identified in Table 1 and 2 is met by enhancing the functions of an area, other than a neighboring wetland or stream buffer, required to maintain the ecological integrity of a WCB Site at a ratio of 5:1; or by preserving an area, other than a neighboring wetland or stream buffer, at a ratio of 10:1.

The WSDOT will not receive credit for preservation when the exchange of credits and debits to compensate for adverse impacts to wetlands is accomplished by restoration or creation at a ratio ≤ 1:1 as shown in Table 1 and 2, or accomplished by enhancement at a ratio ≤ 2:1 as shown in Table 1 and 2. The ratios shown in Table 3 are for in-kind compensation only.

Table 3 - Mitigation Ratios for the Periods Both Before and After Performance Standards Are Met When Development Plans Include Preservation

	Type of Mitigation					
	------- Restoration or Creation -------			---------- Enhancement ----------		
Category of Impacted Wetland	Category I*	Category II*	Category III*	Category I*	Category II*	Category III*
IV	1:1	1:1	1:1	2:1	2:1	2:1
III	1:1	1:1	1:1	2:1	2:1	2:1
II	1:1	1:1	1:1	2:1	2:1	2:1
I	1:1	1:1	1:1	2:1	2:1	2:1

*Category of a WCB Site reasonably attainable based on the results of monitoring.

Preservation is acceptable as compensation only when it is used in conjunction with restoration, creation, or enhancement of a neighboring Candidate WCB Site.

Any preservation credit remaining at a WCB Site at the time all restoration, creation, and enhancement credits have been used will be available to the WSDOT, at the discretion of the Oversight Committee, for other mitigation projects that include creation, restoration, or enhancement within the watershed.

After all preservation credits available within a WCB site or an area neighboring a WCB Site have been used, the exchange of credits and debits to compensate for adverse impacts to wetlands will be based on the ratios identified in Table 1 for the period before performance standards are met, and on the ratios in Table 2 for the period after performance standards are met.

D. USE OF CREDITS FOR IN-KIND AND OUT-OF-KIND COMPENSATION

A WCB Site used to compensate for adverse impacts to wetlands attributable to WSDOT activities will normally be of the same system and class, as defined by Cowardin et al., and provide the same wetland functions and values as the impacted wetlands. Use of a WCB Site that is not of the same system and class, as defined by Cowardin et al., as the impacted wetland or that does not provide the same wetland functions and values may be appropriate for compensation in special circumstances. Those circumstances include the following:

1. When in-kind compensation is not practicable.
2. When out-of-kind compensation meets the goals of a regional, State of Washington, or local wetland restoration strategy or wetland conservation plan.

Exchange ratios for out-of-kind compensation will be reviewed by the Oversight Committee on a case-by-case basis. The Oversight Committee will recommend acceptance, or recommend modifications needed for acceptance, of a proposal for out-of-kind compensation and associated exchange ratios.

E. ACCOUNTING OF CREDITS AND DEBITS

The WSDOT will maintain a record of all Program transactions and provide a copy of the record of each transaction to all members of the Oversight Committee. The WSDOT will also provide an annual summary of transactions to all members of the Oversight Committee by December 31st of each year.

IX. REQUIREMENTS FOR INSPECTIONS AND MONITORING

A. INSPECTIONS

Inspections of WCB Sites will be required to accomplish the following:

1. Detect vandalism and other adverse modifications to WCB Sites.
2. Ensure proper maintenance of each WCB Site.

WCB Sites will be inspected semi-annually for the five year period after the Oversight Committee recommends acceptance of the as-built condition and annually thereafter by qualified WSDOT personnel or other qualified person(s) contracted by the WSDOT.

The WSDOT will normally use the inspection checklist shown in Appendix E to document inspections.

The WSDOT will provide justification to the Oversight Committee for modifying the inspection checklist described in Appendix E and the inspection schedule described above. The Oversight Committee will review and recommend acceptance, or review and recommend modifications needed for acceptance of the use of a modified inspection checklist and inspection schedule.

The WSDOT will provide the Oversight Committee with completed inspection checklists.

The WSDOT will be responsible for performing or funding inspections and documenting results. The WSDOT will retain responsibility for inspections if management and maintenance of a WCB Site are transferred to another agency or entity.

B. MONITORING

Monitoring of WCB Sites will be required to accomplish the following:

1. Determine the degree to which a WCB Site meets its performance standards.
2. Identify potential problems and recommend corrective measures.
3. Provide a record of site progress.
4. Evaluate the appropriateness and practicability of restoration, creation, enhancement, and preservation measures.
5. Evaluate assessment methodologies.
6. Evaluate monitoring protocols.

Monitoring will provide objective, quantifiable data and will conform to the monitoring protocol guidance in Appendix F.

Sufficient information should be generated to assess compliance with permit conditions and project goals and objectives, and to provide a baseline for future evaluations. Differences between project plans and the as-built condition will be documented to the Oversight Committee.

WCB Sites will be monitored by qualified WSDOT personnel or other qualified person(s) contracted by the WSDOT.

WCB Sites will be monitored at a frequency sufficient to accomplish the following:

1. Document current conditions.
2. Determine significant changes in hydrology, soils, and vegetation.
3. Record the development of wetland functions and values.
4. Determine attainment of performance standards.

The WSDOT will provide justification to the Oversight Committee for altering the monitoring protocol described in Appendix F and the monitoring schedule described below:

1. Emergent, scrub-shrub, and forested wetlands will be monitored at the time the Oversight Committee recommends acceptance of the as-built condition and in years two, four, six, eight, and ten after the Oversight Committee recommends acceptance of the as-built condition.
2. Monitoring will occur for a period of 30 years at 10-year intervals after performance standards have been met.

The Oversight Committee will review and recommend acceptance, or review and recommend modifications needed for acceptance of the use of standard methods and the monitoring protocol shown in Appendix F and the monitoring schedule described above, or modifications to them.

The WSDOT will provide the Oversight Committee with a report summarizing results of each monitoring effort.

The Oversight Committee will recommend acceptance of monitoring reports, or recommend modifications needed for acceptance.

The WSDOT will be responsible for performing or funding monitoring and documenting results. The WSDOT will retain responsibility for monitoring if management and maintenance of a WCB Site are transferred to another agency or entity.

X. MAINTENANCE OF THE AGREEMENT

A. RESOLUTION OF ISSUES, CONCERNS, AND CONFLICTS

It is the intent of signatories to the Agreement that all reasonable effort be made to ensure the provisions of the Agreement are implemented in a timely and cooperative manner. Issues arising during the implementation of the Agreement should be resolved at the staff level. Issues that cannot be resolved at the staff level in a timely fashion will be elevated through equivalent levels of each organization including, if necessary, agency directors.

B. MODIFICATION OF THE AGREEMENT

The Agreement will be periodically reviewed by all signatories for its appropriateness and relevance and may be modified at any time with the written approval of all signatories. The Agreement will initially be reviewed within two years after it is signed by all signatories.

All proposed modification will be submitted in writing to the WSDOT. Within thirty days of receiving proposed modifications, the WSDOT will distribute them to all signatories for a sixty day review period. Each signatory will submit written comments and/or approvals to the WSDOT by the last day of the sixty day review period. The WSDOT will provide written notice to each signatory of any approved modifications to the Agreement.

C. DURATION OF THE AGREEMENT

The Agreement will remain valid for a signatory until the time it chooses to withdraw from the Agreement. A signatory may withdraw from the Agreement by providing all remaining signatories with written notice of its intent to withdraw, and waiting thirty days for all remaining signatories to resolve issues and concerns. If, after thirty days, the withdrawing signatory continues to choose to withdraw, it will send a final written notice of withdrawal to all remaining signatories.

D. EXECUTION OF THE AGREEMENT

Each signatory to the Agreement intends to commit the resources required to implement and maintain the Agreement.

The Agreement will be in force and put into effect with the signatures of agency directors or equivalent authorities.

Approved:

US Army Corps of Engineers
Date

US Environmental Protection Agency
Date

US Fish and Wildlife Service
Date

National Marine Fisheries Service
Date

Federal Highway Administration
Date

Washington Department of Ecology
Date

Washington Department of Wildlife
Date

Washington Department of Fisheries
Date

Washington State Department of Transportation
Date

Agreement Contributors

AGENCY	INDIVIDUALS
Federal Highway Administration	Bill Glover Barry Morehead
National Marine Fisheries Society	Valerie Elliott Nick Iadanza Mark Ames
Northwest Indian Fisheries Commission	Dennis McDonald
Puget Sound Water Quality Authority	Ginny Broadhurst
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Washington Department of Ecology	Mary Burg Bruce Smith Tom Hruby
Washington Department of Fisheries	Carl Samuelson
Washington Department of Natural Resources	Carol Richmond
Washington State Department of Transportation	Bernie Chaplin David Stevens Jim Schafer Mary Ossinger
Washington Department of Wildlife	David Mudd

Project Staff

This project was completed by the research team of Dr. Richard J. McCloskey and Robert B. Tiedemann. The team had previously demonstrated its ability to explore the interests, concerns, biases and beliefs of persons from local, state, and federal resource and regulatory agencies, and interest groups through individual interviews and group workshops. The research team had a history of assisting groups through neutral facilitation and negotiation to describe their missions, articulate their interests, and discover common ground.

Richard J. McCloskey, Ph.D., Professor of Biological Sciences, Boise State University is a nationally recognized ecologist and educator.

Dr. McCloskey has developed and facilitated environmental education workshops for seven colleges and universities and the National Science Foundation. He has trained students throughout the Pacific Northwest in the methods and skills of neutral facilitation and consensus building. He has perfected his skills in negotiation while attending the George Meany Center for Labor Studies (Washington, D.C.) and the Rocky Mountain Labor School. He presently serves as Professor of Biological Sciences, Boise State University and Project Director for Idaho's Environmental Education Project sponsored by the USDA-Forest Service. He has served as a member of the Board of Directors for the Idaho Natural Resources Legal Foundation for six years and was a small game research biologist for the Iowa Conservation Commission prior to coming to Boise State University.

Dr. McCloskey has demonstrated his expertise in the art of politics and human relations as a county planning commissioner, and advisor on environmental matters to the staffs of Senators Frank Church and James McClure, Governor John Evans, and Attorney General David Leroy. He has been honored by awards from the US Forest Service, National Wildlife Foundation, World Population Action Council, and The Population Institute. His credibility with educators, natural scientists, social scientists, and the community are demonstrated by his election to national honorary societies in education (Phi Delta Kappa, Kappa Delta Pi), research (Sigma Xi), sociology (Alpha Kappa Delta) and service (Blue Key) and his selection by Gannet Press as one of Idaho's Distinguished Citizens and by BSU as the 1994 School of Arts and Sciences Teacher of the Year.

Dr. McCloskey's expertise in this area is demonstrated by his peer reviewed paper ***Environmental Education Teaching Strategies Used to Negotiate a Wetland Banking Agreement*** in the Proceedings of the 22nd Annual International Conference of the North American Association for Environmental Education. His leadership and neutral facilitator skills are demonstrated by his co-leadership of the Alpine Conference and Heartland Peaks Environmental Education Workshop.

Dr. McCloskey served as project coordinator for the WSDOT/BSU wetland banking project. He collaborated in the design and development of workshops and advised at critical times during negotiations on methods to resolve political and human conflicts that hindered consensus. Dr. McCloskey's organizational talents, understanding of the politics of institutions and agencies, and skills in human relations are unique. His demonstrated ability to plan and conduct discussions of controversial environmental issues and to facilitate resolutions to those issues were valuable assets to this research project.

Robert B. Tiedemann, CFS, CWB, President of Ecological Design, Inc., is a nationally recognized ecologist. He served with distinction as Wetland Ecologist and Senior Environmental Planner for the Idaho Transportation Department from 1978-1991. His efforts to develop and use wetlands banks as a mitigation alternative earned him the 1990 US Environmental Protection Agency/Environmental Law Institute - National Wetlands Newsletter annual award for outstanding individual contribution to wetland conservation. The award recognizes his efforts to develop and implement the wetland banking program, and his design and supervision of wetland bank construction in the State of Idaho. Mr. Tiedemann is the principal author of the Idaho Interagency Wetland Banking Agreement and a consultant who has successfully negotiated the environmental review and approval processes for development projects throughout the Pacific Northwest.

Mr. Tiedemann is a Certified Fisheries Scientist, Certified Wildlife Biologist, and qualifies as a Professional Wetland Scientist as presently proposed by draft certification requirements of the Society of Wetland Scientists. He presently serves as chairperson for the National Academy of Science - Transportation Research Board committee for investigating the use of remote sensing and other technologies for the identification and classification of wetlands.

Knowledge of the work required to provide professional services to the Washington State Department of Transportation was demonstrated by Mr. Tiedemann's fourteen year work history with the Idaho Transportation Department. His skills and abilities include project management, field inspection, review of the literature, generation and analysis of data, report writing, coordination with local, state, and federal resource and regulatory agencies, and mediation and negotiation with interest groups and the public.

Mr. Tiedemann is experienced in complying with state and federal laws; local ordinances; executive orders; and agency rules, regulations, orders and advisories applicable to transportation planning, design, construction and maintenance. He has participated in their development and frequently assists the resource and regulatory agencies in their interpretation for specific roadway projects.

Mr. Tiedemann's credibility with the communities of resource and regulatory agencies is demonstrated by a nomination letter, authored by John Olson, US Environmental Protection Agency - Boise Operations Office, published in the National Wetlands Newsletter. His ability to understand and resolve conflict is demonstrated by a paper presented to the American Fisheries Society titled, ***The Actors, the Script, and the Stage for Resolution of Natural Resource Conflicts in Idaho.*** His leadership and neutral facilitation skills are demonstrated by his co-directing The Sawtooth Workshop, Inc. And, his technical expertise is demonstrated by documents titled, ***An Assessment of Existing Conditions and Trends for Riparian and Other Wetlands in the Boise Valley, and a Description of Solutions and Suggested Actions;*** and ***Idaho Department of Fish and Game - Region 3 Prescription for Revegetation of Wetlands, Riparian Areas, and Uplands Within a Typical Southwest Idaho Stream Corridor (DRAFT).***

Mr. Tiedemann's credibility with other scientists, and persons from resource and regulatory agencies and interest groups benefited this research project. His demonstrated ability to effectively communicate with people with different interests and conflicting values, and to act as a liaison and an educator helped participants in discussions reach higher levels of understanding.

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Appendices

Process Section

APPENDIX A:

GROUP GROWTH: INCLUSION, CONTROL, AND AFFECTION IN GROUPS

This version of group growth was developed by William C. Schutz. The following description has been adapted from his book "The Interpersonal World."

Inclusion Inadequate:

The group's attendance will be poor. Members will seldom arrive on time. Absent members will not be told of the place of the next meeting or of the events of the meeting they missed. Some members may feel excluded. Members will not care if the group meets. There will be little interaction. Participation will be uneven. Group will lack clear goals. Members may have trouble cooperating. There will be little action. Individual needs will not be recognized. Membership will have little meaning. There will be little group feeling. There will be a lack of confidence.

Control Inadequate:

Decision-making processes will be poor. The power struggle will be constant and debilitating. Leadership will be lacking. Group will be highly competitive and critical. There will be constant infighting. Individuals may be irresponsible and not dependent. Confusion will reign. Decisions will be imposed. There will be indiscriminate opposition. A few members will tend to dominate. Group will often be deadlocked. Some members will be passive and restrained with little to achieve. Group will tend to be highly structured.

Affection Inadequate:

Communication will be limited. Exposure will be almost non-existent. Members will withhold feedback. Members will not trust each other. Few members will have close friends in the group. Social distance will be evident. Some members will dislike others. Deviancy from the norm will be objectionable. Members will be hostile toward new ideas. Many will feel rejected. Selfishness and jealousy will be open. Much dissatisfaction will be expressed about the group.

APPENDIX B:

GROUP STORY

STAGESETTING - "Today we have several newcomers to our workshop. To help introduce (Names) to the group, we will be participating in an activity called "Group Story."

INSTRUCTIONS -

1. Each of us will offer a piece of a story that may be fact or fiction. All of these pieces taken together will constitute our group story.

2. I will begin the story by saying my name; the organization for which I work; and something about my past, present, or future. That something may be fact or fiction, but must reveal something about myself. I will then pass the story to the person on my right who will continue in the same fashion. We will end when the story comes back to me.

(NOTE TO FACILITATOR: By beginning the story with a revelation about something that occurred during a previous workshop or something you felt about the workshop process that has been occurring, you can often direct the story to provide the newcomers, as well as, the other participants and yourself with valuable insight as to the feelings of group members about the process in which they are involved.)

STAGESETTING: During the next 30 minutes we would like you to establish some ground rules for today's and subsequent wetland workshops. We would like to begin by offering some ground rules established by participants in the State of Washington Timber, Fish and Wildlife (TFW) Agreement Workshop and several other workshops. Just like this workshop is designed to lead to better wetland management, the TFW Agreement brought together people with different interests and established a commitment to better manage Washington's forests.

SUGGESTED GROUND RULES:

1. Be honest (If you disagree with us let us know.)

2. Use "I" statements (Some of the issues that we will be discussing may be rather volatile. "I" statements allow others to know that you are expressing your opinion.)

3. No censoring oneself. (This is giving permission to yourself to express you opinion.)
   a. Go beyond trying to prove your point of view to working to solve the problems of the group.
   b. Try to reach consensus.

4. Respect the views of others.
   a. Recognize that the interests of all the participants are legitimate and important.
   b. Use non-judgmental communication. (This gives permission to others to express their beliefs without fear of attack or ridicule.)
   c. Never talk over someone else. Let them finish their thought.

5. Accept the goal of brainstorming. (To generate ideas; no right or wrong answers.)

6. View group diversity as a strength.
   a. Accept differences in others, listen, ask questions, learn from their experiences.
   b. Remember: "None of us is as smart as all of us."

7. It is okay to pass. If you feel comfortable, we would like you to give a reason for passing.

8. Keep on schedule

Are there any others you would like to add to this list? Are there any you would like to alter? Delete?

Is it the group consensus that we can all live with these ground rules?

APPENDIX D: EXPLORING PROBLEM SOLVING WITH TINKER TOYS

ARRANGEMENT - 5 - 7 participants per group around a table.

MATERIALS - Scratch paper, markers, set of Tinker Toys

STAGESETTING - "During the next hour we will be involved in an activity which will give us insight into the components needed for problem-solving in groups."

INSTRUCTIONS - "There are seven pieces of paper on your table. Each person should take one (or two if there are fewer than seven in your group) and share the information on the paper with the other members of your group. You can read the information on your paper to other members of your group but you cannot show the paper to anyone else to read. There is a problem to solve. All the resources you need to solve the problem are in this room."

ACTIVITY - (30 minutes)

DISCUSSION - (10 minutes)

What can we say about the group who built the tallest structure?
What initially kept you from solving the problem?
What helped you solve the problem?
What are some things demonstrated through use of this activity?

SUMMARY - (15 minutes) "The people who developed this exercise felt that it contained *elements of involvement* that most groups go through to solve common problems. They hypothesized that the following would take place during the problem-solving exercise."

(Note: Have the following ready on a flipchart.)

Trust
Ritualistic Listening
Real Listening
    Vision
    Space
    Noise

Trust - It is difficult for problem-solving to occur if the people do not trust or feel comfortable with the other people. You must trust that the facilitator gave you a solvable problem and that others in your group are communicating all the information that they have.

Ritualistic Listening - This is a kind of polite listening because the data or information offered has no relevance at this time. Many speeches, introductions, etc., are often listened to ritualistically.

Real Listening - When real problem-solving begins to take place, the kind of listening going on is very real because the information shared begins to mean something. People interrupt. They say things like, "Please repeat that." When did real listening first occur in your group?

When real listening occurs three things usually change:

Vision - Participants will begin listening by really looking at the other people in the group and constructing a visual display (writing data in a common place).

Space - People will move closer together, sometimes changing places, or move around the table.

Noise - The noise level will go up when groups start working together.

CLOSURE - Using this type of an activity at the beginning of a session can be important for several reasons:

1. It can be used as an icebreaker with a new audience.
2. The problem could not be solved without the contributions of each person in the group.
3. It demonstrates that "win-lose" solutions are not always the best. Cooperation increased the number of people who could win.
4. People feel more committed to a session if they contribute by saying something. The earlier the better.
5. It is easier to talk to each other in a small group than to talk to one "leader" in front of a large group.
6. This exercise illustrates that each person in the group brings information and skills that can be used by the entire group to solve common problems. The pieces of paper represented the information and skills that each of you brought to the group.

You could sum up this activity by saying "None of us is as smart as all of us."

We will be concerned in this workshop with providing ways for each person to contribute knowledge, information and skills to the solving of common problems. The content and the activity itself are not necessarily the most important aspect. What is important is the idea that you can use different techniques to get people talking to each other and contributing.

HELPING AND WORKING TOGETHER MAKES EVERYONE A WINNER!

NATURAL RESOURCE VALUES

STAGESETTING - "In the next hour we will be examining our natural resource values and exploring how they might influence our discussions and negotiations at this workshop. I will be reading several statements that will give you some insight into the differences and similarities in the values of your colleagues in this room."

PRE-ACTIVITY DISCUSSION -

1. How many of you have ever participated in a values clarification exercise? (Note: Get a show of hands. Reassure the participants that a values clarification activity is not designed to change personal values but to allow individuals to better understand their own beliefs.)
2. What do we mean by a value? (Brainstorm quickly. Record all responses.)

INSTRUCTIONS -

1. Have all of the participants stand in a single line in front of the facilitator.
2. This activity is divided into three parts. The first two parts are what we call forced choice activities and the third is a graded scale activity.
3. "In the first activity I will read a statement. I will give you a few seconds to think about the statement then I will say, 'Move.' When I say move, if you agree with the statement please move toward the right half of the room; if you disagree with the statement please move toward the left. You cannot stand in the middle, you must make a choice (this is why we call it a forced choice activity). Make your own decisions regardless of the movement of your peers."
4. "For this portion of the activity, you will not be allow to speak. After you have moved, observe where you are standing in relation to the rest of the group."

Question Sets:

SET I:

1. Canada geese are more important than bald eagles.
2. Waterfowl habitat is more important than plant diversity.
3. Flood flow moderation is a wetland function and value more important than heritage value.

SET II: (INSTRUCTIONS: Read a statement. After the group has moved ask someone to explain why they are on the right or the left. See if you can determine if the individuals within a group are there for the same reason or if they have interpreted the statement from differing viewpoints.)

1. All values and functions of wetlands are equally important.
2. Wetland banking is a phrase that has allowed continued abuse of the resource.
3. Wetland mitigation must be evaluated on a case-by-case basis by all players.
4. What we call advanced wetland compensation is less important than what it accomplishes.

SET III: (INSTRUCTIONS: After the following statements are read you may move any distance away from the middle of the room you wish. The distance you move will indicate the degree to which you agree or disagree with the statement. If you move to the extreme right of the room it will indicate strong agreement with the statement; to the left strong disagreement.)

1. A balance between economic growth and environmental protection will never be found.
2. Natural resource politics do not address natural resource needs.
3. Natural resources have continued to suffer losses in spite of the efforts of state and federal agencies.
4. My agency's policies are consistent with my natural resource beliefs.
5. If I were managing the resource we would change the way we do things.

SUMMARY:

1. What did you notice about the responses to the statements?

2. Why do you think the responses varied so much in the group?

3. What are some of the things that lead to the development of individual value systems?

Points to bring out: As you can see from this discussion, each of us has our personal beliefs regarding certain subjects. These values have developed because of differences in educational, religious, economic and political backgrounds. This activity is not an attempt to change those values but to present you with information that may be incorporated into your value system.

During this workshop we will be throwing you some bricks. All we ask is that you examine them with an open mind, take what are useful in building your value systems and discard the rest. We also ask you to be sensitive to the differing values of the members of the group, keep an open mind and allow discussions to develop.

People group together for different reasons. We should always be skeptical of survey results unless we know the exact questions and the results have been analyzed and validated.

ADVANCED WETLANDS COMPENSATION VALUES SHIELD

STAGESETTING - "During the next 75 minutes we will explore perceptions of individual and agency roles in advanced compensation."

INSTRUCTIONS - 1. Divide the group into pairs. Members of each pair should represent Biologists, Ecologists and Other Practitioners *or* Policy Analysts, Policy Makers, Managers, and Decision Makers. The groups should not be mixed.

2. Distribute value shield sheets or large pieces of newsprint and markers.

3. Distribute index cards containing the name of an agency and a second card containing the name of one other major player involved with wetlands?

4. "In the four boxes on your values shield illustrate the following:

(FOR BIOLOGISTS, ECOLOGISTS AND OTHER PRACTITIONERS)

A. How do you perceive your personal role in maintaining the functions and values of wetlands through advanced compensation?

B. How do you think the agency listed on your card perceives its role in maintaining the functions and values of wetlands through advanced compensation?

C. How do you think other agencies perceive the role of your agency (one listed on the card) in maintaining the functions and values of wetlands through advanced compensation?

D. How do other players (Developers, environmental groups, general public, etc.) perceive your agency's role (one on card) in maintaining the functions and values of wetlands through advanced compensation?" (Choose an appropriate group.)

(FOR POLICY ANALYSTS, POLICY MAKERS, MANAGERS, AND DECISION MAKERS)

A. How do you perceive your personal role in promoting or discouraging advanced compensation?

B. How do you think the agency listed on your card perceives its role in promoting or discouraging advanced compensation?

C. How do you think other agencies perceive the role of your agency (one listed on the card) in promoting or discouraging advanced compensation?

D. How do other players (Developers, environmental groups, general public, etc.) perceive your agency's role (one on card) in promoting or discouraging advanced compensation?" (Choose an appropriate group.)

5. Have each group share the information on their shield without divulging the name of the agency or other player listed on their card.

6. Have members of other groups determine which agency and which other player is being represented.

DISCUSSION -

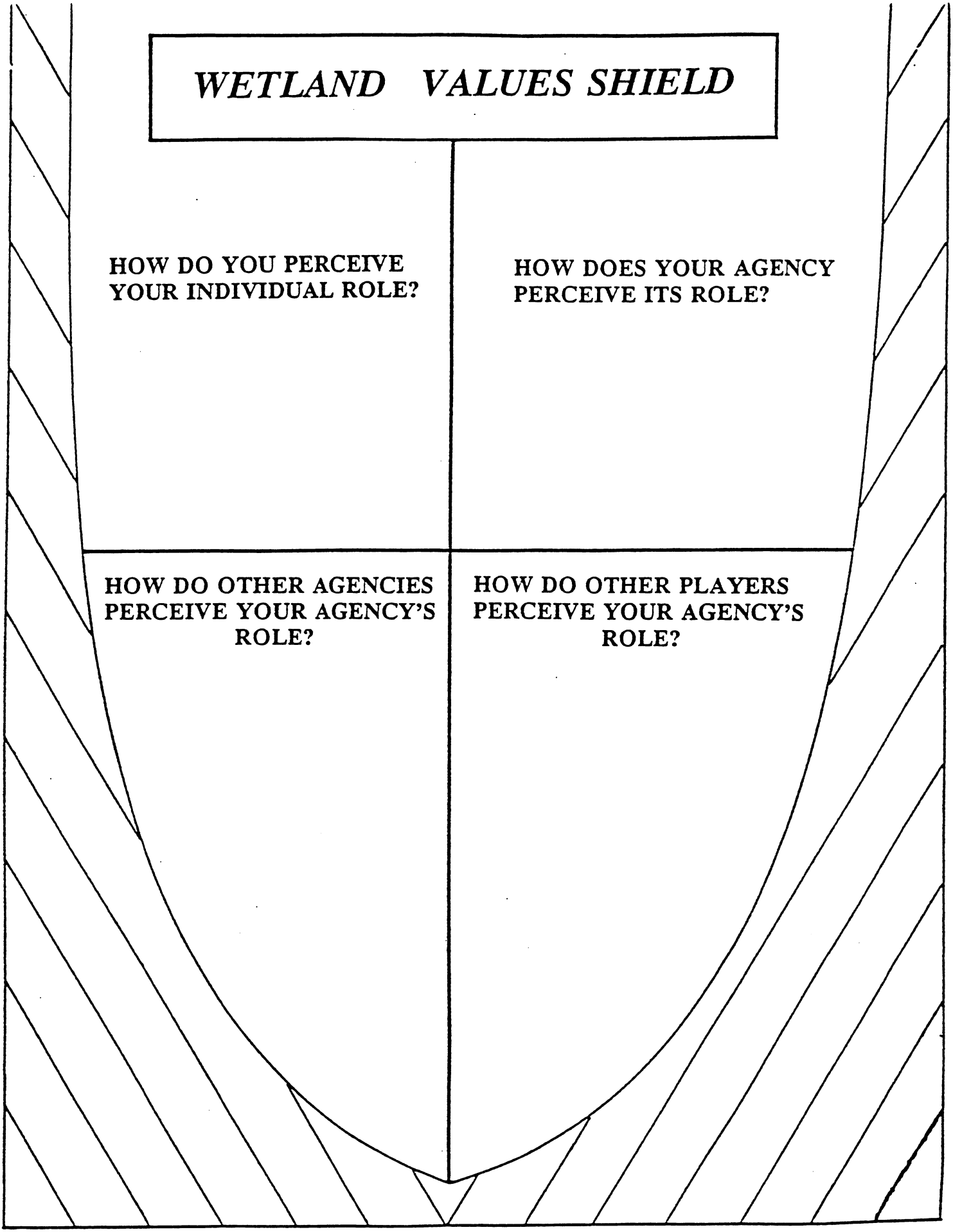
1. How did you feel about the depiction of the role of the various agencies and players in advanced compensation?

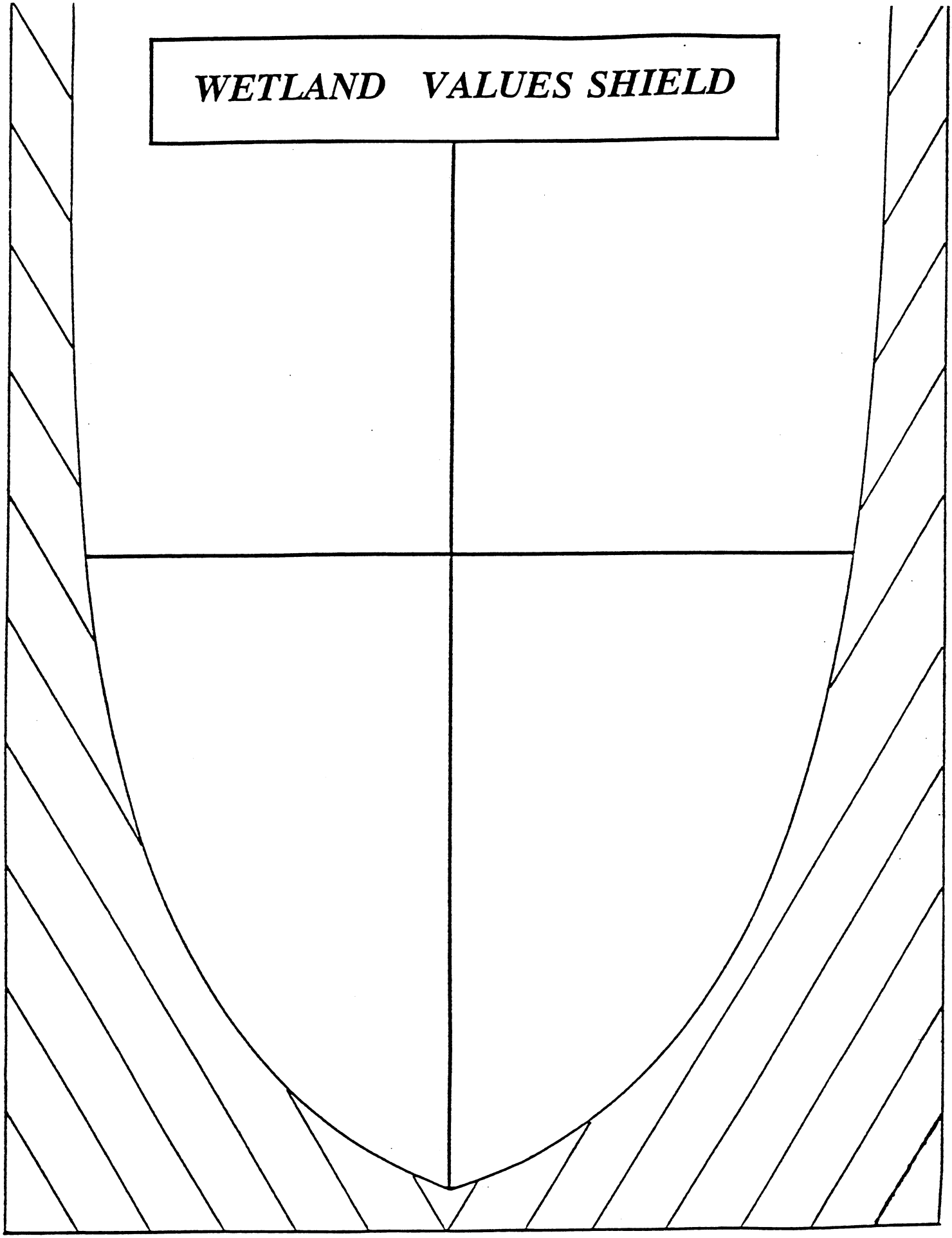
2. How did you feel about the depiction of the agency by whom you are employed?

3. In what ways was the perception of your agency's role in advanced compensation accurate? In what ways was it inaccurate?

4. How might you as a representative of your agency help correct any misconceptions?

WETLAND VALUES SHIELD




WETLAND VALUES SHIELD

APPENDIX F: WETLAND BUILDING BLOCKS: AN EXERCISE

STAGESETTING - "Experience has shown the likelihood of success of wetland compensation projects depends, in part, on good science and proper planning. In the next hour wetland biologists, ecologists, and other practioners will develop a plan for an idealized wetland compensation project. Policy analysts, policy makers, managers, and decision makers from agency will observe the plan as it is constructed and ask questions after it is completed."

INSTRUCTIONS -

1. Form groups of six or fewer. Each group should be composed of at least two biologists, ecologists, or other practitioners and two policy analysts, policy makers, managers, or decision makers.

2. FOR BIOLOGISTS, ECOLOGISTS, AND OTHER PRACTITIONERS:

   Part 1: "For the next 15 minutes discuss your past experiences with wetland compensation projects. Discussion may focus on what parts of the project were supported by good science, what methods and techniques worked and why, what planning tools were needed to accomplish the project, the participants and their role in successful projects, and why the project was judged to be successful. Discussion may then focus on other issues you feel are important.

   Part 2: Write a word or short phrase on each post-it sticker that best summarizes each of the essential building blocks in a successful wetland compensation project. Attach each sticker to a different play building block. Next lay each play building block on the table in the order it should be accomplished to best assure a successful wetland compensation project.

3. FOR POLICY ANALYSTS, POLICY MAKERS, MANAGERS, AND DECISION MAKERS:
   Part 1 and Part 2: "Observe the discussion. Do not speak. Note those portions of the discussion of particular interest to you. Prepare questions to ask at the end of the exercise."

4. FOR ALL:
   Part 3: Policy analysts, policy makers, managers, and decision makers ask the questions prepared during the previous discussion (i.e., Parts 1 and 2). Biologists, ecologists and other practitioners answer the questions and provide clarification.

5. FOR BIOLOGISTS, ECOLOGISTS, AND OTHER PRACTITIONERS:
   Part 4: Present your idealized wetland compensation project to the large group.

DISCUSSION - 1. What have you learned about the science of wetland compensation from this exercise?

2. How are the idealized wetland compensation plans of each group similar? Different?

3. What thoughts do you have about the importance of sequencing the building blocks of a wetland compensation project?

4. What building blocks are routinely included in the projects you have experienced? Which building blocks are routinely included in the projects, but not strong enough to work effectively?

5. How can we summarize what we have learned from this exercise?

CATEGORIES OF CONCERNS FOR A COMPREHENSIVE ADVANCE WETLAND COMPENSATION PROGRAM

STAGESETTING - "During our workshop at Pack Forest a number of issues and concerns regarding wetland banks and a wetland banking were raised. I have summarized these on the list that is being distributed (TASK CARD A). During the next two hours we will be discussing those concerns and attempting to reach consensus."

INSTRUCTIONS -

1. Divide the participants into three groups. Assign each group one of the issue areas.
2. Review and discuss each of the concerns in the category of concern highlighted in the above list. Use the following information:
   - Your professional experience.
   - Your understanding of the literature.
   - Our previous discussions at Pack Forest.
3. Brainstorm possible resolutions to each concern or group of concerns.
4. Identify and author the language required in a draft agreement, the actions needing to be accomplished and the agencies needing to accomplish them, or other resolutions to each concern or group of concerns.
5. Be prepared to present your results to the other groups.

TASK CARD A:

ARCHITECTURE AND CONTENT OF AN AGREEMENT

WHO PARTICIPATES AND HOW?

PLANNING

STATE-OF-THE-SCIENCE OF WETLAND RESTORATION AND CREATION

LOCATION, NUMBER, AND SIZE OF SITES

ACCOUNTING

RULES AND REQUIREMENTS OF AN ADVANCED COMPENSATION PROGRAM

OPERATION AND MAINTENANCE OF SITES

MONITORING

SPONSORSHIP AND OWNERSHIP OF SITES

BENEFITS OF A PROGRAM

A PROGRAM'S FIT INTO THE EXISTING REVIEW AND REGULATORY PROCESS

POLITICS

DISCUSSION - Have groups present their results and frame questions around the material presented.

APPENDIX H: WETLANDS SOUND OFF[1]

STAGESETTING - "Many animals communicate with members of their own kind, as well as, with other species of animals, by sound. In this activity you will be playing the role of a nocturnal animal that seeks a mate in a wetland habitat. Your only means of locating your mate is by the common sound you both make."

INSTRUCTIONS -

1. Establish the geographic limits of the wetland.

2. Tell the participants "Select a mate and agree on a common sound. When I shout "sound-off" your goal will be to find your ate as soon as possible. When you find your mate, take your blindfold off and move to the margin of the wetland."

3. Blindfold participants...No peeking...Walk, no running.

4. Move the blindfolded participants to various locations within the wetland. Place the boundary keepers ("Dept. of Wildlife personnel" near the edges of the wetland to help control wandering.

5. At the end of Round 1 discuss the results with participants.

6. Round 2:
   - Place a roadway through the middle of the wetland.
   - Two players (without blindfolds) play the role of autos traveling the road. They must travel the full length of the road before turning around and returning.
   - Autos make a brake and collision sound when they hit an animal.
   - Hit animals are removed by the Department of Wildlife; Autos continue to travel.

8. Round 3: Establish a predator with its own unique sound. (Note changes in the behavior of the wetland animals when the predator is present. How does this influence the mortality of the prey species from the auto traffic?)

DISCUSSION -

1. What did you observe during this activity?

2. How is this activity related to "real life?"

3. How did the presence of a road change the Department of Wildlife's responsibilities? How did the presence of wildlife change the Department of Transportation's responsibilities?"

4. In what ways could a wetland bank compensate for this loss of habitat?

5. How can we best summarize what we have learned from this activity?

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[1] Adapted by Rob Tiedemann, Ecological Design, Inc. and Dick McCloskey, Boise State University, from an activity developed for Outdoor Biology Instructional Strategies, University of California-Berkeley. Permission is given to use for educational purposes; credit would be appreciated.

Appendices

Agreement Section

Appendix A - Sequence of Activities in the WSDOT Wetland Compensation Bank Program

WSDOT Activity #1
Identify and select a Candidate Wetland Compensation Bank Site (WCB Site).
- Develop rationale for the location of a Candidate WCB Site (Section VI A and VII).
- If appropriate, develop rationale for exceptions to the locational requirements for a WCB Site (Section VI A and VII).

WSDOT Activity #2
Develop preliminary development plan for the Candidate WCB Site including appropriate elements of the following:
- Compensation goals and objectives
- Quantitative performance standards
- Description of the proposed WCB Site
- Conceptual design plan
- Protection plan
- Implementation schedule
- Management and maintenance plan
- Analysis of risk
- Analysis of limiting factors
- Information provided by local governments and Indian tribes (Section VI C, Appendix C)

WSDOT Activity #3
Review methodologies recognized in the Agreement, and if needed modify:
- Assessment methods (Section VIII A)
- Inspection schedule and checklist (Section IX A, Appendix F)
- Monitoring protocol and schedule (Section IX B, Appendix E)

Oversight Committee Activity #1
Oversight Committee reviews WSDOT Activity #1 - #3 and recommends acceptance or modifications needed for acceptance (Section VI C).

Agency Activity #1
Federal, State of Washington, and local permitting agencies and Indian Tribes independently review WSDOT Activity #4 and provide recommendations.

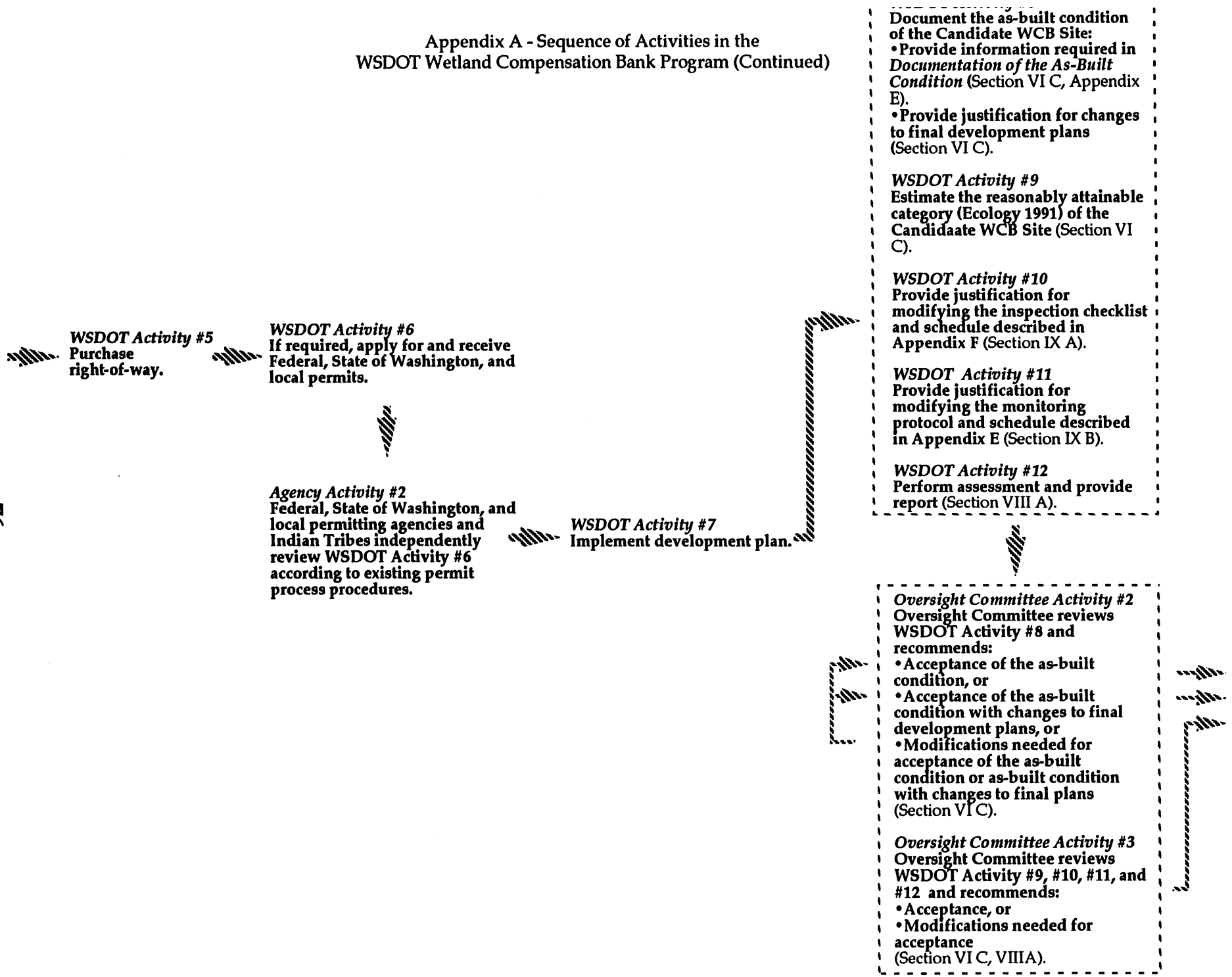
WSDOT Activity #4
Develop final development plan for the Candidate WCB Site.

Periodic Oversight Committee Activity
Oversight Committee recommens new assessment methods as they become available (Section VIII A).

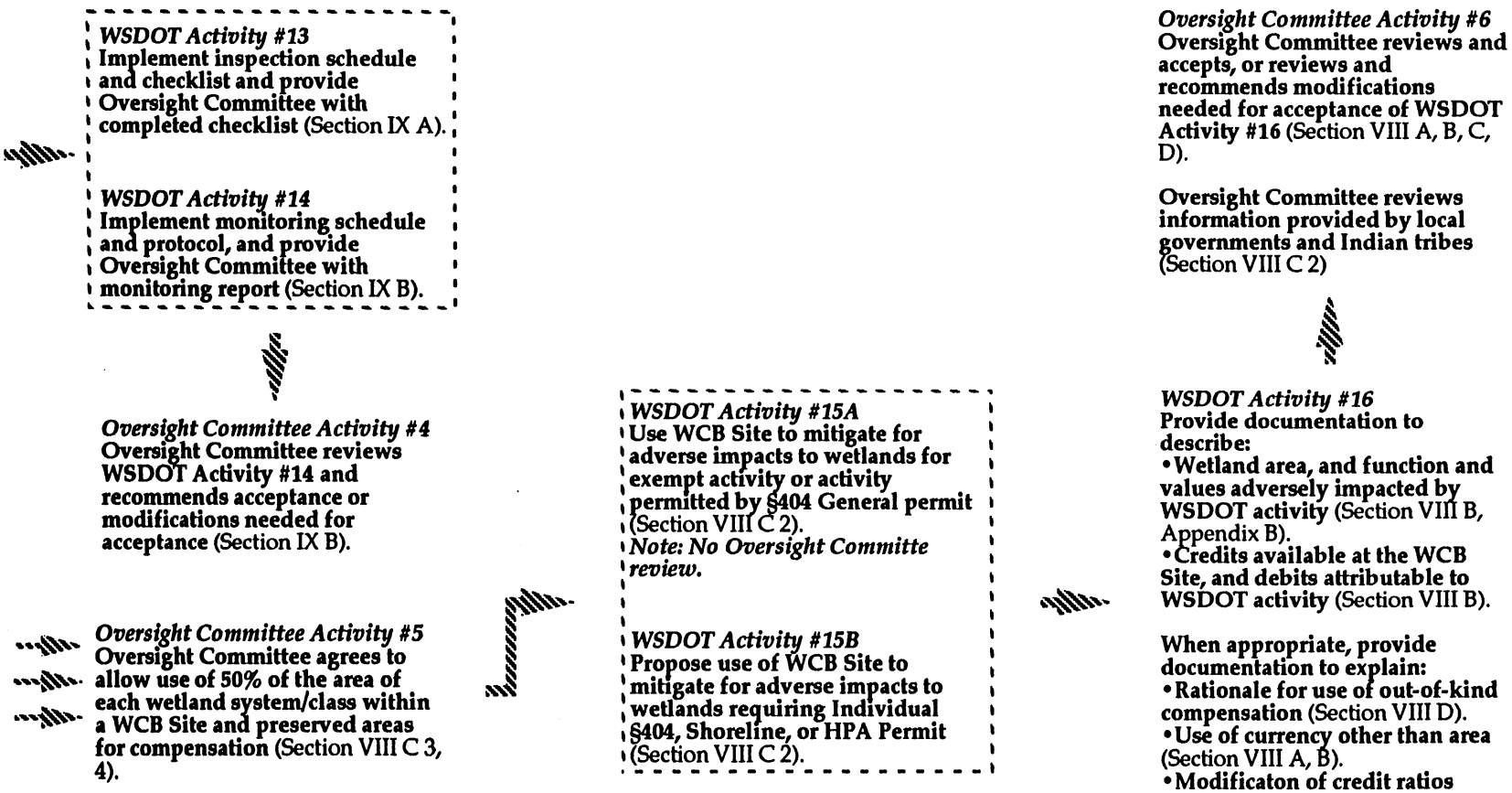
Occasional Oversight Committee Activity
Oversight Committee reviews and accepts, or review and recommends modifications needed for acceptance of exchange ratios for wetlands dominated by invasive or exotic plant species (Section VIII C 3).

Occasional Oversight Committee Activity
Oversight Committee reviews and accepts, or review and recommends modifications needed for acceptance of proposals for out-of-kind compensation and associated exchange ratios (Section VIII D).

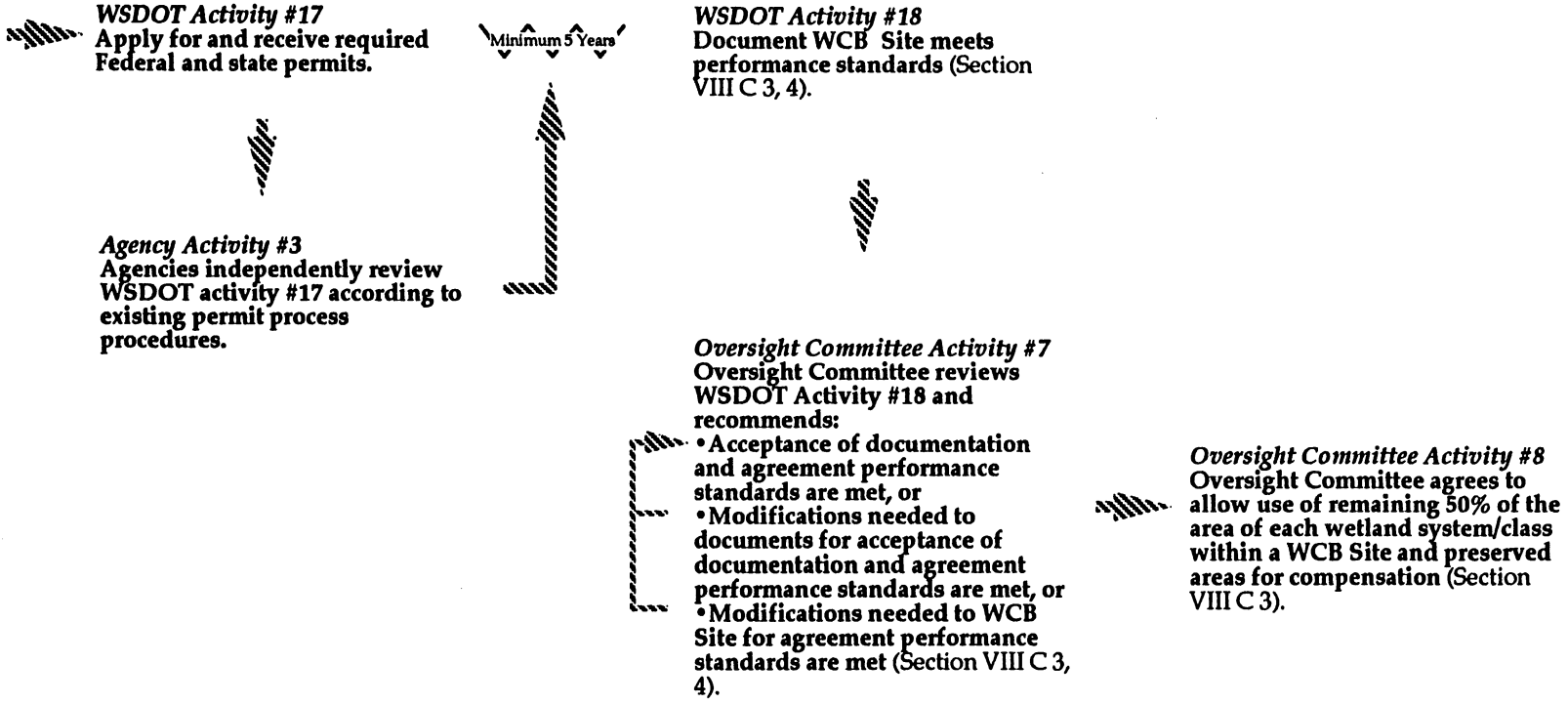
Appendix A - Sequence of Activities in the
WSDOT Wetland Compensation Bank Program (Continued)



Appendix A - Sequence of Activities in the
WSDOT Wetland Compensation Bank Program (Continued)



Appendix A - Sequence of Activities in the
WSDOT Wetland Compensation Bank Program (Continued)



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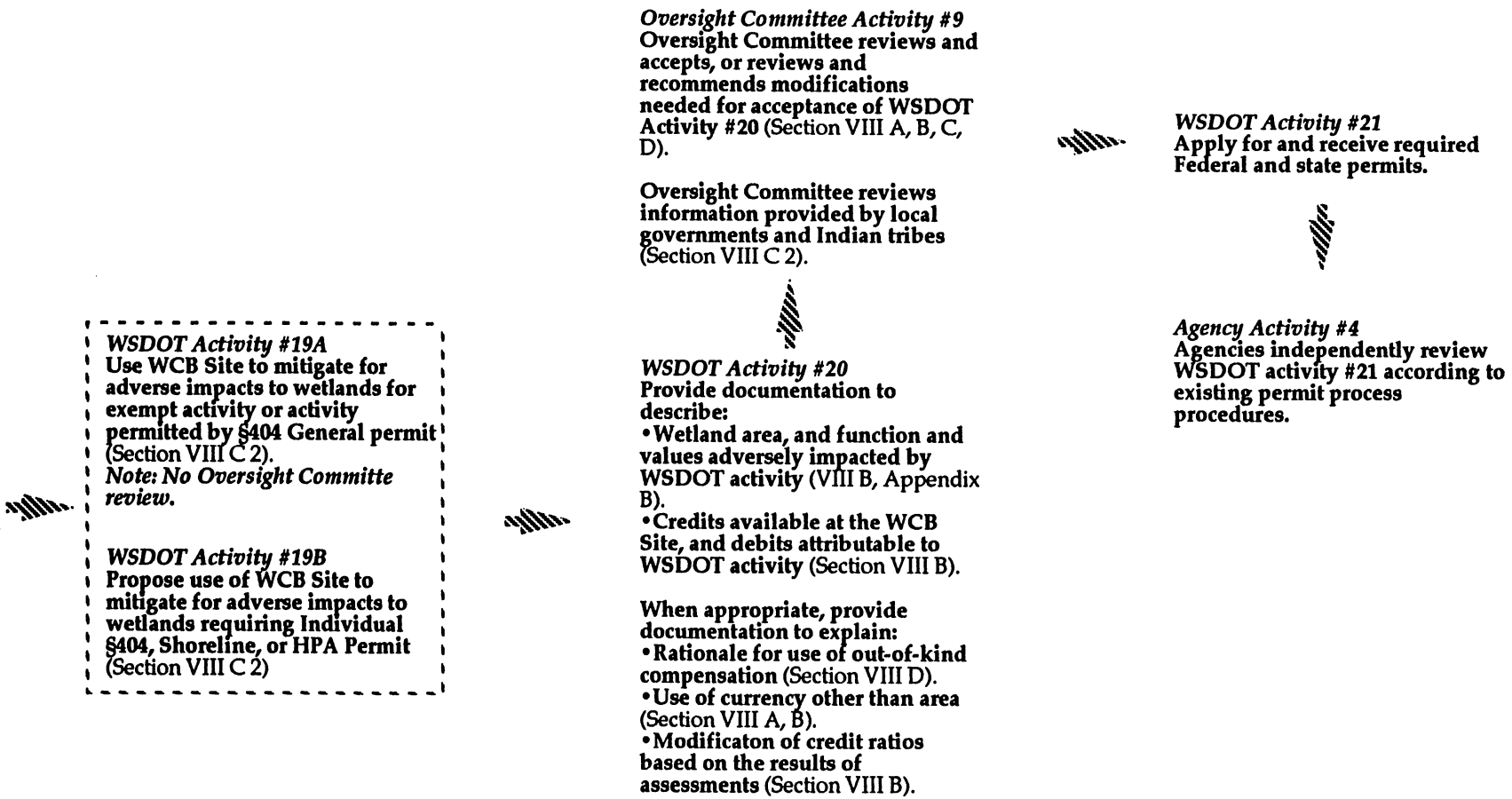
WSDOT Wetland Compensation Bank Program (Continued)



APPENDIX B - ELEMENTS OF A WETLAND IMPACT REPORT

A document to describe a wetland adversely impacted by a Washington State Department of Transportation (WSDOT) activity will be prepared by a qualified wetland professional and will contain, at a minimum, the following elements:

A. Location and Description of the WSDOT Activity Adversely Impacting Wetlands

B. Description of the Wetland Adversely Impacted by the WSDOT Activity
   1. Map indicating the area of jurisdictional wetlands and the area of proposed fill
   2. Habitat types and functions and values impacted
      a. Cowardin classification (Cowardin et al. 1979)
      b. Hydrogeomorphic setting (Brinson 1992)
      c. Ecoregion (Omernik 1987, Washington State Department of Ecology 1991)
      d. Soil characterization (e.g. soil survey classification and series, organic content, structure, texture, and permeability)
      e. Functional characterization
         Note: Acceptable methods include best professional judgment and/or Ecology rating system (Washington State Department of Ecology 1991).
      f. Relationship to aquatic and upland resources within the watershed
      g. Relevant hydrologic factors (e.g. water depths, velocity, hydroperiod)
      h. Water quality assessment (e.g. nutrients, temperature, fecal coliform)
      i. Perimeter-to-area ratio

C. Description of the Wetland Functions and Values Directly and Indirectly Impacted by the WSDOT Activity

D. Temporal Impacts or Losses

E. Justification for Using the Wetland Compensation Bank Site for Compensation Including Compliance with Mitigation Sequencing

F. Identification of the Federal, State of Washington, or Local Rules and Regulations Requiring Mitigation for Impacts to Wetlands (e.g. Conditions of Approval for a General or Individual §404 Permit, DOT Order 5660.1A, etc.)

APPENDIX C - ELEMENTS OF A DEVELOPMENT PLAN FOR A CANDIDATE WETLAND COMPENSATION BANK SITE

A development plan for a Candidate Wetland Compensation Bank Site (Candidate WCB Site) will contain all or some of the elements listed below. The contents of the development plan may vary depending on the goals and objectives, and the characteristics of a particular Candidate WCB Site. It will be prepared by a qualified wetland professional.

A. Compensation Goals and Objectives
   1. Habitat types and wetland functions and values to be created, restored, or enhanced
   2. Historic habitat assessment
   3. Relevant hydrologic factors (e.g. water depths, velocity, hydroperiod, reliability, consistency)
   4. Hydrogeomorphic setting
   5. Estimate the reasonably attainable category (Washington State Department of Ecology 1991) of the Candidate WCB Site.
   6. Rational for the location of a Candidate WCB Site or exceptions to locational requirements
   7. Analysis of risk
   8. Analysis of limiting factors

B. Quantitative Performance Standards
   1. Target wildlife, aquatic resources, and vegetation characteristics
      a. Wildlife, aquatic resources, and vegetation target species
      b. Wildlife and aquatic resources habitat attributes
      c. Wildlife, aquatic resources, and vegetation species diversity and richness
      d. Required vegetation survival rates
      e. Vegetation cover estimate
      f. Vegetation structure and canopy stratification
      g. Above and below ground vegetative biomass after establishment of vegetation

   2. Target hydrologic regime
      a. Water sources
      b. Discharge points
      c. Water depths
      d. Water velocity
      e. Hydroperiod
      f. Affected areas
      g. Flow directions

   3. Target morphometry
      a. Area
      b. Slope
      c. Perimeter-to-area ratio

   4. Target soil characteristics
      a. Organic content
      b. Texture
      c. Structure
      d. Color
      e. Permeability

   5. Target water quality (e.g. nutrients, pH, alkalinity, total suspended solids, temperature, dissolved oxygen, heavy metals, fecal coliforms)

C. Description of the Proposed Wetland Compensation Bank Site
   1. Location and size
   2. Location of the watershed
   3. Existing habitat types and wetland functions and values
   4. Hydrogeomorphic setting
   5. Ecoregion
   6. Buffer area location, size, and type
   7. Existing and proposed, adjacent and watershed land uses
   8. Potential site constraints (e.g. contaminated soils, adjacent land uses, soils, water quality and quantity, utility lines)
   9. Current ownership
   10. Water quality
   11. Existing seasonal high and low, surface and groundwater levels

D. Conceptual Design Plan
   1. Plan view drawing (1' contours with specific spot elevations)
   2. Grading plan
   3. Hydrologic alterations
   4. Seasonal high and low, surface water levels and groundwater levels
   5. Structure locations and elevations (e.g. water control, large organic debris, nesting boxes)
   6. Soil amendments
   7. Erosion control
   8. Bank stabilization
   9. Planting plan
      a. Species list (common and scientific name)
      b. Source
      c. Density and spacing
      d. Planting dates
      e. Plant material type and minimum size
      f. Required survival rates
      g. Landscape contractor responsibilities (e.g. fertilization, plant replacement, irrigation schedule, supply, and delivery methods)
   10. Upland buffer locations
   11. Special maintenance features (e.g. fences and signage)
   12. Transect, data collection, and photographic locations
   13. Map locating distinct land areas for inspections

E. Protection Plan
   1. Legal instruments to protect Candidate WCB Sites and WCB Sites (e.g. acquisition in fee simple, conservation easement, and deed restriction)

F. Implementation Schedule
   1. Development tasks
   2. Development task initiation and completion dates
   3. Development plan page reference

G. Management and Maintenance Plans
   1. Responsible parties
   2. Funding mechanism
   3. Initiating procedures

H. Monitoring Plan (see Appendix F)

I. Information Provided by Local Governments and Indian Tribes

APPENDIX D - PUBLIC NOTICE ATTACHMENT FORM AND TRANSACTION NOTICE

1. Name of the Wetland Compensation Bank Site (WCB Site):

2. Description of the location of the WCB Site, including its location within and adjacent to ecologically distinct environments:

3. Description of the Washington State Department of Transportation (WSDOT) activity adversely impacting wetlands:

4. Description of the wetland adversely impacted by the WSDOT activity:

5. Description of the wetland functions and values directly and indirectly impacted by the WSDOT activity:

6. Justification for using the WCB Site for compensation including compliance with mitigation sequencing:

7. Identification of the Federal, State of Washington, or local rules and regulations requiring mitigation for impacts to wetlands (e.g. Conditions of Approval for a General or Individual §404 Permit, DOT Order 5660.1A, etc.):

8. Oversight Committee recommendations:

9. Dissenting opinions of members of the Oversight Committee:

Record of All Transactions To Date From This Wetland Compensation Bank Site

Date	Wetland System and Class	Wetland Category	Compensation Ratio	Credit (Acres)	Debit (Acres)	Balance (Acres)

COMMENTS:

APPENDIX E - INSPECTION CHECKLIST

Name of the Wetland Compensation Bank Site:

Unit Number:

Name, Title, and Telephone Number of the Inspector:

Inspection Date:

Inspection Time (Start): Inspection Time (Finish):

Description of Weather Conditions at the Time of the Inspection:

The purpose of the inspection is to identify and report unusual, artificial, or unwanted conditions at the Wetland Compensation Bank Site (WCB Site). Do not attempt to fix or change these conditions. Instead, report these conditions on this form and return it to the WSDOT Environmental Branch after you complete the inspection.

Inspect the following items throughout the site, circle the appropriate response, and mark the location of the ITEM NUMBER on the right-of-way plans or other map.

ITEM NUMBER	ARE THERE PROBLEMS OR UNWANTED CONDITIONS?		IS THE ITEM NUMBER SHOWN ON THE MAP?	
1. Fencing.	Yes	No	Yes	No
2. Signage.	Yes	No	Yes	No
3. Litter.	Yes	No	Yes	No
4. Vandalism.	Yes	No	Yes	No
5. Dumping or filling.	Yes	No	Yes	No
6. Encroachment from activities not on WSDOT property.	Yes	No	Yes	No
7. Unofficial human use trails (e.g. trampled plants worn ground).	Yes	No	Yes	No
8. Other area of bare ground.	Yes	No	Yes	No
9. Water diversions to and from the site.	Yes	No	Yes	No
10. Water control structures functioning properly (e.g. condition of wiers, check dams, gates).	Yes	No	Yes	No
11. People observed on-site (note numbers and activities).	Yes	No	Yes	No
12. Domestic animals and livestock observed on-site (note numbers and type).	Yes	No	Yes	No
13. Wildlife observed on-site:				
Direct observation.	Yes	No	Yes	No
Indirect observation (e.g. tracks, droppings).	Yes	No	Yes	No
14. Evidence of browsing of vegetation by wildlife.	Yes	No	Yes	No
15. Unusual smells (note sources).	Yes	No	Yes	No
16. Obtrusive noise (note sources).	Yes	No	Yes	No
17. Dead and dying vegetation.	Yes	No	Yes	No
18. Missing and removed vegetation.	Yes	No	Yes	No
19. Weedy and invasive vegetation (see appendix I of the Agreement).	Yes	No	Yes	No
20. Sedimentation.	Yes	No	Yes	No
21. Erosion.	Yes	No	Yes	No

OTHER OBSERVATIONS:

COMMENTS:

APPENDIX F - ELEMENTS OF A MONITORING PLAN AND REPORT

INTRODUCTION

A monitoring plan for a Candidate Wetland Compensation Bank Site (Candidate WCB Site) will contain all or some of the elements listed below. The contents of the monitoring plan may vary depending on the goals and objectives, and the characteristics of a particular Candidate WCB Site. It will be prepared by a qualified wetland professional.

Monitoring plans will be capable of generating data that allows investigators to best measure the site characteristics of a WCB Site and evaluate if it meets its goals and objectives. Individualized monitoring plans will reference or describe methods and procedures for sampling, sample analysis, and data analysis.

Monitoring plans should provide the following general information:

- Justification for the time and frequency of monitoring.
- Persons or organizations responsible for monitoring.
- Persons or organizations responsible for performing and overseeing corrective actions.
- Time between completion of the project and the start of monitoring.
- Reference site establishment (Kentula, M.E., R.P. Brooks, S.E. Gwin, C.C. Holland, A.D. Sherman and J.C. Sifneos 1992).

Data generation methods will be standardized between sites and years. The WSDOT *Guide for Wetland Mitigation Project Monitoring, Operational Draft* (Horner and Raedeke 1989) and *An Approach to Improving Decision Making in Wetland Restoration and Creation* (Kentula, M.E., R.P. Brooks, S.E. Gwin, C.C. Holland, A.D. Sherman and J.C. Sifneos 1992) will be used to establish data collection, evaluation, and presentation methods. References are provided for select parameters.

The data generated during each stage of monitoring will be hierarchical to facilitate comparative evaluations over time and among similar sites (Kentula, M.E., R.P. Brooks, S.E. Gwin, C.C. Holland, A.D. Sherman and J.C. Sifneos 1992). Data generated during an evaluation of as-built conditions will be the basis for both Phase I and Phase II monitoring.

Schedules for Phase I and Phase II monitoring are described below.

DOCUMENTATION OF AS-BUILT CONDITIONS

Sufficient information should be generated to assess compliance with permit conditions and project goals and objectives, and to provide a baseline for future evaluations.

A. General
   1. Small scale baseline map, aerial photographs, and 8 1/2" x 11" field review maps
      a. Locate property boundaries, scale, datum, north arrow, date.
      b. Locate permanent transects (baseline, site characterization, wetland morphology, buffer) and sample plot locations.
      c. Locate permanent photo points.
   2. Wetland types
      a. Describe type (Cowardin et al. 1979).
      b. Describe hydrogeomorphic setting (Brinson 1992).
      c. Describe ecoregion (Omernik 1987, Washington State Department of Ecology 1992).
   3. Drainage area
      a. Shown drainage area on a topographic map.
      b. Show position in the watershed (e.g. stream order).

4. Surrounding land use and other potential inputs to the WCB Site
    a. Estimate the per cent cover of surrounding land uses. Photograph major land use types within 300 meters of the site.

__ % trees
__ % shrubs
__ % herbaceous vegetation
__ % and type of open water
__ % human land use:
    __% crops
    __% fallow
    __% grazing
    __% and type of industrial use
    __% commercial
    __% transportation corridor
    __% single family housing
    __% multiple family housing
    __% recreation

B. Morphometry
1. Area
    a. Determine jurisdictional wetland boundary and show on project map.
2. Depths and slopes
    a. Determine minimum, maximum, and mean depths and slopes.
    b. Establish a bench mark as a reference elevation.
    c. Measure elevation changes along site characterization and morphology transects (Kentula, M.E., R.P. Brooks, S.E. Gwin, C.C. Holland, A.D. Sherman and J.C. Sifneos 1992, modified Horner and Raedeke 1989).
3. Determine perimeter to area ratio.

C. Hydrology
1. Water dimensions
    a. Determine hydroperiod, flood storage capacity, and proportion of open water.
    b. Measure inundation above ground by staff gauge or crest gauge (Horner and Raedeke 1989).
    c. Measure depth to water below ground by willow well (Horner and Raedeke 1989).
2. Flow rates
    a. Identify and evaluate water sources and, if appropriate, conduct hydrologic modeling.
    b. Measure inflow and outflow discharge by flume, weir, or continuous flow meter.
3. Flow patterns
    a. Indicate major pathways by direct observation.
4. Indirect hydrology indicators
    a. Indicate presence or periodicity of hydrology by indirect indicators (e.g. drift lines, water stained leaves, oxidized root channels).

D. Substrate
1. Soils sources
    a. Document location of soils sources, presence of plant propagules, and additions of soil amendments.
2. Soil depth
    a. Determine depth to compacted soil or liner by soil auger or shovel.
3. Soil color
    a. Determine extent of hydric soils and delineate boundaries by observing chroma and hue of soil matrix and mottles and comparing them to a Munsell color chart.

4. Soil texture
    a. Classify soil by feel as compared to a soil texture triangle (Horner and Raedeke 1989).
5. Organic matter
    a. Compare to reference wetland.
    b. Sample as-built condition if salvaged marsh surface or other organic materials are added.
    c. Determine ash free dry weight from samples (Horner and Raedeke 1989).
6. Sediment flux
    a. Measure rates of sediment accretion and erosion for comparison to reference wetland by installing feldspar clay pads at substrate surface as reference points (Cahoon et al. 1989).
7. Hydrogen sulfide presence or absence
8. Soil horizon description

E. Vegetation
1. Species list
    a. Identify species, wetland indicator status, and origin (i.e. native, naturalized, exotic).
    b. Document plant sources, planting density, species locations, planting dates, plant material type, and minimum size.
2. Species cover estimate by canopy cover, line intercept, and basal area methods (Horner and Raedeke 1989)
3. Map of plant communities
4. Survivorship
    a. Evaluate planting success by visually determining per cent plant survival to the nearest 10%.

F. Fauna
1. Evaluate use by wildlife, fish, and invertebrates by direct and indirect observations; record results by species; and determine common and rare, threatened and endangered status of each species.

G. Water Quality
1. Sample the WCB Site and measure appropriate water quality parameters (e.g. pH, alkalinity, conductivity, total suspended solids, nutrients, heavy metals, fecal coliform).

H. Additional Information
1. Photographic record
    a. Photograph in color WCB Site and surrounding landscape from several directions (Horner and Raedeke 1989).
2. Descriptive narrative
    a. Describe and explain notable features and changes for each major parameter.
    b. Describe advice offered by project managers, wetland managers, project biologists and others with hands-on project involvement.

PHASE I MONITORING REPORT REQUIREMENTS
Phase I monitoring begins immediately after development of a Candidate WCB Site is complete.

Emergent, scrub-shrub, and forested wetlands will be monitored at the time the Oversight Committee recommends acceptance of the as-built condition and in years two, four, six, eight, and ten after the Oversight Committee recommends acceptance of the as-built condition.

A. General
   1. Wetland types
      a. Describe type (Cowardin et al. 1979).
      b. Describe hydrogeomorphic setting (Brinson 1992).
      c. Describe ecoregion (Omernik 1987, Washington State Department of Ecology 1992).
   2. Surrounding land use and other potential inputs to the WCB Site
      a. Estimate the per cent cover of surrounding land uses. Photograph major land use types within 300 meters of the site.

         __ % trees
         __ % shrubs
         __ % herbaceous vegetation
         __ % and type of open water
         __ % human land use:
            __% crops
            __% fallow
            __% grazing
            __% and type of industrial use
            __% commercial
            __% transportation corridor
            __% single family housing
            __% multiple family housing
            __% recreation

B. Morphometry
   1. Area
      a. Determine jurisdictional wetland boundary and show on project map.
   2. Depths and slopes
      a. Determine minimum, maximum, and mean depths and slopes.
      b. Establish a bench mark as a reference elevation.
      c. Measure elevation changes along site characterization and morphology transects (Kentula, M.E., R.P. Brooks, S.E. Gwin, C.C. Holland, A.D. Sherman and J.C. Sifneos 1992, modified Horner and Raedeke 1989).
   3. Determine perimeter to area ratio.

C. Hydrology
   1. Water dimensions
      a. Determine hydroperiod, flood storage capacity, and proportion of open water.
      b. Measure inundation above ground by staff gauge or crest gauge (Horner and Raedeke 1989).
      c. Measure depth to water below ground by shallow well (Horner and Raedeke 1989).
   2. Flow rates
      a. Identify and evaluate water sources and, if appropriate, conduct hydrologic modeling.
      b. Measure inflow and outflow discharge by flume, weir, or continuous flow meter.
   3. Flow patterns
      a. Indicate major pathways by direct observation.

4. Indirect hydrology indicators
    a. Indicate presence or periodicity of hydrology by indirect indicators (e.g. drift lines, water stained leaves, oxidized root channels).

D. Vegetation
1. Species list
    a. Identify species, wetland indicator status, and origin (i.e. native, naturalized, exotic).
    b. Document plant sources, planting density, species locations, planting dates, plant material type, and minimum size.
2. Species cover estimate by canopy cover, line intercept, and basal area methods (Horner and Raedeke 1989)
3. Map of plant communities
4. Survivorship
    a. Evaluate planting success by visually determining per cent plant survival.

E. Fauna
1. Evaluate use by wildlife, fish, and invertebrates by direct and indirect observations; record results by species; and determine common, rare, or exotic status of each species.

F. Water Quality
1. Sample the WCB Site and measure appropriate water quality parameters (e.g. pH, alkalinity, conductivity, total suspended solids, nutrients, heavy metals, fecal coliform).

G. Additional Information
1. Photographic record
    a. Photograph in color WCB Site and surrounding landscape from several directions (Horner and Raedeke 1989).
2. Descriptive narrative
    a. Describe and explain notable features and changes for each major parameter.
    b. Describe advice offered by project managers, wetland managers, project biologists and others with hands-on project involvement.

PHASE II MONITORING REQUIREMENTS

Phase II monitoring begins immediately after performance standards have been met. All wetland types should be monitored for a period of 30 years at 10-year intervals after performance standards have been met.

Phase II monitoring should include all Phase I monitoring requirements and the following additional substrate and vegetation parameters.

A. Substrate
1. Soil depth
    a. Determine depth to compacted soil or liner by soil auger or shovel.
2. Soil color
    a. Determine extent of hydric soils and delineate boundaries by observing chroma and hue of soil matrix and mottles and comparing them to a Munsell color chart.
3. Soil texture
    a. Classify soil by feel as compared to a soil texture triangle (Horner and Raedeke 1989).
4. Organic matter
    a. Compare to reference wetland.
    b. Sample as-built condition if salvaged marsh surface or other organic materials are added.
    c. Determine ash free dry weight from samples (Horner and Raedeke 1989).

5. Sediment flux
    a. Measure rates of sediment accretion and erosion for comparison to reference wetland by installing feldspar clay pads at substrate surface as reference points (Cahoon et al. 1989).
6. Hydrogen sulfide presence or absence
7. Soil horizon description

B. Vegetation parameters
1. Species diversity (Horner and Raedeke 1989, Pielou 1986)
2. Productivity studies (Horner and Raedeke 1989)
3. Individual tree and shrub tagging
4. Above and below ground biomass

DATA EVALUATION AND PRESENTATION

Data should be analyzed and graphically presented according to methods described by *An Approach to Improving Decision Making in Wetland Restoration and Creation* (Kentula, M.E., R.P. Brooks, S.E. Gwin, C.C. Holland, A.D. Sherman and J.C. Sifneos 1992). Monitoring reports should present graphics including descriptive graphs, summary graphs, performance curves, time series graphs, and characterization curves.

APPENDIX G - PARTIAL LIST OF INVASIVE AND EXOTIC PLANT SPECIES IN THE STATE OF WASHINGTON

Scientific Name	Common Name
Agropyron repens	quackgrass
Alopecurus pratensis	meadow foxtail
Alopecurus aequalis	short awn foxtail
Arctium minus	burdock
Bambusa spp.	bamboo
Bromus brizaeformis	rattlesnake chess
Bromus commutatus	hairy chess
Bromus erectus	brome
Bromus inermis	smooth brome
Bromus japonicus	Japanese brome
Bromus mollis	soft chess
Bromus rigidus	ripgut grass
Bromus secalinus	chess
Bromus tectorum	cheat grass
Cenchrus longispinus	sandbur
Centaurea cyanus	knapweed
Centaurea diffusa	thistle
Centaurea maculosa	knapweed
Centaurea repens	knapweed
Centaurea solstitialis	St. Barnaby's thistle
Cirsium vulgare	bull thistle
Cirsium arvense	creeping thistle
Cynosurus cristatus	dogtail
Cynosurus echinatus	dogtail grass
Cytisus scoparius	Scot's broom
Dactylis glomerata	orchardgrass
Dipsacus sylvetris	teasel
Digitaria sanguinalis	crab grass
Echinochloa crusgalli	barnyard grass
Elaeagnus angustifolia	Russian olive
Euphorbia peplus	spurge
Euphorbia esula	spurge
Festuca arundinacea	Kentucky fescue
Festuca pratensis	meadow fescue
Holcus lanatus	velvet grass
Holcus mollis	velvet grass
Hordeum jubatum	foxtail barley
Hypericum perforatum	St. John's wart
Juncus effusus	soft rush
Lolium perenne	English ryegrass
Lolium multiflorum	Italian ryegrass
Lolium temulentum	ryegrass
Lotus corniculatus	birdsfoot trefoil
Lythrum salicaria	purple loosestrife
Matricaria matricarioides	pineapple weed
Medicago sativa	alfalfa
Melilotus alba	white clover
Melilotus officinalis	yellow clover
Myriophyllum spicatum	Eurasion milfoil

Scientific Name	Common Name
Phalaris arundinacea	reed canary grass
Phleum pratense	timothy
Phragmites communis	common reed
Poa conpressa	Canada bluegrass
Poa palustris	fowl bluegrass
Poa pratensis	Kentucky bluegrass
Polygonum aviculare	knotweed
Polygonum convolvulus	black bindweed
Polygonum cuspidatum	Japenese knotweed
Polygonum lapathifolium	willow weed
Polygonum persicaria	lady's thumb
Rubus discolor	Himalayan blackberry
Rubus laciniatus	cut leaf blackberry
Rubus macrophyllus	blackberry
Rubus vestitus	blackberry
Salsola kali	Russian thistle
Setaria viridis	green bristle grass
Sisymbrium altissimum	tumble mustard
Sisymbrium loeselii	tumble mustard
Sisymbrium officinale	tumble mustard
Spartina spp.	spartina
Tanacetum vulgare	tansy
Trifolium arvense	clover
Trifolium dubium	clover
Trifolium hybridum	alsike clover
Trifolium pratense	red clover
Trifolium repens	white clover
Trifolium subterraneum	clover
Ulex europaeus	gorse

Some cultivated species such as wheat, corn, barley, and rye.