

# PIERCE COUNTY IN-LIEU-FEE PROGRAM FINAL INSTRUMENT

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TECHNICAL APPENDICES AND COMPENSATION  
PLANNING FRAMEWORK

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Pierce County Public Works

Surface Water Management





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## List of Acronyms and Abbreviations

BMP	Best Management Practice
CAO	Critical Areas Ordinance
CFR	Code of Federal Regulations
Corps	U.S. Army Corps of Engineers
CPF	Compensation Planning Framework
DA	Department of the Army (usually indicating Corps permits)
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
FDIC	Federal Deposit Insurance Corporation
Forum	Mitigation That Works Forum
HGM	Hydrogeomorphic Method
IGA	Inter-Governmental Agreement
ILF	In-Lieu Fee
IRT	Interagency Review Team
JBLM	Joint Base Lewis-McChord

LUAC	Land Use Planning Committee
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NWI	National Wetlands Inventory
PALS	Pierce County Planning and Land Services
PCSWM	Pierce County Public Works' Surface Water Management
RCW	Revised Code of Washington
TLF	Temporal Loss Factor
UGA	Urban Growth Area
USFWS	U.S. Fish and Wildlife Service
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WRIA	Watershed Resource Inventory Area

## APPENDIX A: PROGRAM OVERVIEW

### 1.0 Introduction

Collectively, the Basic Agreement, these Appendices, and the Exhibits that follow constitute the In-Lieu Fee (ILF) Program Instrument for Pierce County. The Basic Agreement lays the legal framework for the operation of the program and establishes the terms of the agreement. These Appendices describe the program and its operation in greater detail.

The Pierce County ILF Program is a Pierce County-sponsored “in-lieu fee” mitigation program. The proposed program structure and processes for completing mitigation projects are based largely upon guidance outlined in a federal rule issued in April 2008, and adopted June 9, 2008, by the U.S. Army Corps of Engineers (Corps) and U.S. Environmental Protection Agency (EPA). The federal rule was published in the Federal Register April 10, 2008, titled Compensatory Mitigation for Losses of Aquatic Resources, federal rule [33 CFR Part 332 and 40 CFR Part 230] (hereafter referred to as the federal rule). Pierce County (the “Sponsor”) seeks to “certify” the ILF Program under the federal rule. This Instrument has been generated under the authority of the federal rule. Nothing in this ILF Program Instrument shall be held to contradict or override the federal rule; in the case of any ambiguity, the federal rule shall control.

The federal rule defines an *in-lieu fee program* as “a program involving the restoration, establishment, enhancement, and/or preservation of aquatic resources through funds paid to a governmental or non-profit natural resources management entity to satisfy compensatory mitigation requirements. Similar to a mitigation bank, an in-lieu fee program sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the in-lieu program sponsor.”

The proposed ILF Program will provide an alternative to permit applicants and permitting agencies, with respect to the need to provide mitigation for unavoidable impacts to freshwater wetlands (predominantly) and to other non-wetland aquatic resources on a case-by-case basis. Under the program, public and private applicants for environmental permits may be allowed to pay into the ILF Program fund instead of performing permittee-responsible or “their own” mitigation for unavoidable environmental impacts from their development actions. The amount of the payment will be based on “full cost accounting” of the cost to fully and successfully compensate for the impacts to wetland functions (“debits”) using ILF Program credits. Proof of payment will be required before permitted impacts can occur.

The ILF Program seeks to address historic inadequacies associated with compensatory mitigation in three ways. First, the ILF Program will be operated to ensure that unavoidable impacts are fully addressed and ecological benefits are maximized. The ILF Sponsor will create a comprehensive, equitable and consistent program that factors in all elements and phases necessary to ensure mitigation success among small and large projects, including: rigorous baseline conditions analyses; seamless and transparent fee transaction processes; ecologically

based site selection criteria that address critical watershed needs; professional project design and implementation; and long-term commitment to adaptive management, maintenance, monitoring and stewardship to ensure no net loss of functions.

Second, the ILF Program intends to implement its mitigation-receiving sites before unavoidable, authorized impacts occur. This will reduce the temporal loss of functions normally associated with ILF programs that have a time lag between the site development impact and the completion of compensatory mitigation.

Third, the performance of the program overall will be monitored and reported. Any deficiencies will be corrected or adaptively managed.

Pierce County Surface Water Management (PCSWM) is the agency responsible for implementing the ILF Program. PCSWM has extensive experience addressing flood control, water quality, and the preservation of natural drainage systems by constructing stormwater control facilities and by preserving and restoring floodplains and aquatic habitat areas.

PCSWM contains the following sections with the expertise and professional experience necessary to successfully implement and operate an ILF Program:

- Capital Improvement Program—designs and constructs projects that have been highly successful in reducing local flooding, improving surface water quality, and preserving the environment.
- Environmental Permitting—maintains the scientific expertise to perform environmental services including environmental assessments, adverse impact mitigation, design and permitting for compliance with environmental and land use laws, and construction of wetlands and riparian restorations.
- Planning and Programming—provides planning and programming services, including basin planning, flood hazard management planning, property management and planning, code amendments, education and outreach, low impact development, stormwater and site development, and technology services.
- Water Quality and Watershed Services—improves ecosystem health in Pierce County by managing stormwater systems, monitoring watersheds, and building partnerships.
- Maintenance and Operations—maintains all public storm facilities and natural storm systems in unincorporated portions of Pierce County.

In addition to PCSWM, representatives from a group of agencies comprising an “Interagency Review Team” (IRT) will play a significant role in the Pierce County ILF Program. The District

Engineer for the Corps, Seattle District, or his designee (District Engineer) serves as Chair of the IRT. The Washington State Department of Ecology (Ecology) will co-Chair the IRT. Other member agencies will include tribes, and federal, state, and local agencies.

The IRT exercises oversight during the certification process for the ILF Program. In this role, the IRT has reviewed and commented on the ILF Program Prospectus as well as reviewed and commented on this Instrument, contributing to its final development.

Once the program is certified and operational (i.e., when the IRT recommends approval of this Instrument and the Sponsor, Ecology, and District Engineer all sign it), the IRT will play an integral role in reviewing and providing comments to the Co-Chairs on proposed mitigation “receiving sites” and Mitigation Plans (see Appendix L). The IRT will provide oversight and comment on Pierce County ILF Program actions, including future amendments to this Instrument. Agencies and tribes represented on the IRT will likely change through time.

The Pierce County ILF Program is intended to compensate for unavoidable impacts to freshwater wetlands and their buffers within Water Resource Inventory Areas (WRIAs) 11 and 12. The program would primarily serve Pierce County permit applicants requiring mitigation for impacts related to their projects (including cases when Pierce County is the permittee). However, the ILF Program would also be available to provide compensatory mitigation for unavoidable impacts regulated at all levels of government, including local, state, tribal and federal permits. If the program is used by other municipal governments, appropriate intergovernmental agreements may need to be in place. This is more fully described in Appendix U.

Collectively, the Basic Agreement, Appendices, and the Exhibits constitute the *Pierce County In-Lieu Fee Program Instrument* (“Instrument”). These Appendices provide a detailed account of the proposed program. This Instrument has been developed with input from the Co-Chairs and other IRT members following review of a program prospectus and a public notice period. The prospectus provided an overview of the program; this Instrument provides much greater detail about how the program will operate and the process by which mitigation projects will be identified, implemented, and adaptively managed. Once the program is certified (i.e., after all parties sign the Instrument), the Pierce County ILF Program may begin selling “credits” and implementing compensatory mitigation projects.

## 1.1 Permitting Oversight and Authority

The Basic Agreement portion of this Instrument describes in more detail the role of the Corps, Ecology, and other IRT agencies.

## 1.2 Mitigation Sequencing and the ILF Program

The availability of the ILF Program for use in meeting mitigation obligations associated with a project does not change the requirement for permit applicants to adhere to the “mitigation

sequence” required by federal, state, and local agencies (see Appendix C). Current federal, state, and local permitting requirements to avoid and minimize impacts before allowing compensation remain unchanged. The ILF Program only becomes an option *after* a project proponent meets all requirements of prior steps in the mitigation sequence.

Prior to Pierce County ILF Program involvement, the project proponent must take the steps outlined below; these will be guided or reviewed by Pierce County Planning and Land Services (PALS) and other permitting agencies:

1. Demonstrate that efforts have been taken to avoid wetland and other aquatic resource impacts.
2. Further minimize impacts to the maximum extent possible.
3. Implement on-site mitigation to the extent possible and ecologically feasible.
4. Determine that some or all of the impacts can be mitigated most effectively off-site.
5. Review all available off-site mitigation options (e.g., mitigation banks, ILF Program, permittee responsible).<sup>1</sup>
6. Contact ILF Program Manager to determine if the PCILF program can meet the mitigation need.
7. If permitting agencies determine the PCILF Program offers an ecologically preferable and practicable way to meet mitigation obligations associated with an impact project, then the PCILF Program involvement begins.
8. Permitting agencies review the permit proposal, including data provided by the applicant to quantify impacts to functions and values of wetlands (Appendix D) and assess credit requirements; and approve or deny permit(s) conditioned on purchasing credits from the ILF Program to satisfy compensatory mitigation requirements.
9. Applicant pays credit fee to PCILF Program to buy credits to offset their debits (Appendix F, Section 2.0).

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<sup>1</sup> Federal permitting agencies must consider compensatory mitigation options in the order in which they are listed in 33 CFR 332.3(b)(2) through 33 CFR 332.3(b)(6) (see Appendix C).

10. Statement of Sale (Exhibit 12) sent to Corps, Ecology, and other applicable permitting agencies. Aquatic Resource Permits as well as Pierce County Building and Site Development permits must be issued before the Sponsor can provide the Statement of Sale, but receipt of the Statement of Sale by the permit agencies will generally be a condition of those respective permits and approvals.

Meanwhile, the PCILF Program will continue with the selection of future PCILF receiving sites. This process will be detached from the process of debit sales. Because the PCILF Program will be pre-capitalized, site selection will frequently occur in advance of sales, in order to stay ahead of credit demand. Site selection and implementation shall follow the following general process:

1. PCILF Program staff review impacts and watershed needs (Appendices I and J).
2. PCILF Program staff selects preferred sites and proposes project concepts (Appendix K).
3. PCILF Program staff submits proposed sites and concept plans, along with Spending Agreement (Exhibit 12), to the Co-Chairs and IRT for IRT comment.
4. IRT reviews proposed sites and project concept plans; selects and recommends approval of sites; the Corps and Ecology approves proposed sites and signs Spending Agreement (Exhibit 12).
5. PCILF Program staff develops draft mitigation plan (Appendix L) and site protection instrument (Appendix Q).
6. IRT reviews draft mitigation plan and draft site protection instrument.
7. PCILF Program staff develops final mitigation plan and final site protection instrument.
8. The Corps and Ecology (following consultation with the IRT) approves final mitigation plan and final site protection instrument.
9. PCILF Program staff implements mitigation project.<sup>2</sup>

Nothing in this program affects the requirement that all Department of the Army (DA) permits subject to Section 404 of the Clean Water Act comply with applicable provisions of the Section 404 (b)(1) Guidelines at 40 CFR part 230. Furthermore, the Corps will issue a DA permit only upon the condition that Credit Fees have been accepted into the PCILF account sufficient to

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<sup>2</sup> All steps related to “credit fulfillment” are listed and discussed in Appendix L.

adequately compensate for debits calculated at the impacting project. Work in waters of the United States authorized by DA permits may not commence until proof of purchase of PCILF credits has been submitted to the Corps.

Mitigation credits under this program may be sold to fulfill state and/or county requirements, even when no DA permit is required. Work shall not start in waters of the State without first receiving authorization from the permitting agencies with jurisdiction. Nothing in this program affects the permitting requirements or enforcement authority of state or local permitting entities over any permits conditioned on PCILF Program use. Such permitting entities may still enforce the individual requirements of permits granted under the program.

## 2.0 Need for the Program

Studies of compensatory wetland mitigation in Washington State and nationwide generally demonstrate that less than 50 percent of mitigation sites are successful ecologically or in achieving their performance standards and intended goals (Johnson et al. 2002; Mockler et al. 1998; National Research Council 2001; Sheldon et al. 2005). Furthermore, they fail to effectively replace lost or damaged resources, habitats, and functions (National Research Council 2001; Sheldon et al. 2005). These studies identify several common flaws, including inappropriate site selection, project design without a landscape or watershed context, poor planning and implementation of projects, lack of oversight, maintenance, and follow-through, and insufficient long-term management and monitoring. In addition, most mitigation projects implemented by permittees are small-- less than one acre in size. The environmental benefits of these piecemeal, "postage stamp" projects, even when successful, are often limited in scope. This is because mitigation typically occurs "on the same site where impacts occur ("on-site" mitigation) regardless of whether the mitigation would be successful and sustainable over time or contribute in a meaningful way towards the overall health of watershed processes" (Washington State Department of Ecology 2008).

Federal regulations have identified in-lieu fee programs as one option to potentially correct some of the shortcomings of existing mitigation approaches (33 CFR Part 332 and 40 CFR Part 230). In-lieu fee programs consolidate compensatory mitigation projects and resources to target more ecologically significant functions, provide financial planning, provide scientific expertise, reduce temporal loss of function, and reduce uncertainty about project success.

The Mitigation That Works Forum (Washington State Department of Ecology 2008) also supports development of in-lieu fee programs. The Forum was convened by Ecology, and included 22-members representing state and federal agencies with mitigation responsibilities, local governments, ports, business, environmental, and land use/conservation interests. The Forum endorsed watershed-based mitigation, such as ILF programs, which direct mitigation dollars to the places in a watershed that are most likely to be ecologically successful and meaningful.



The Puget Sound Partnership (PSP) is a state agency, created in 2007, to connect citizens, governments, tribes, scientists and businesses working together to restore and protect Puget Sound based on science-based regional priorities, and with accelerated implementation of priority actions. Their mission is to reverse the decline in ecological conditions of Puget Sound and restore the Sound to health by 2020. PSP's blueprint for restoring Puget Sound, known as the Puget Sound Action Agenda, focuses on an ecosystem approach to restoration. Their Action Agenda describes the need to improve the quality of Puget Sound and supports the creation of in-lieu-fee programs around Puget Sound.

Pierce County has experienced considerable population growth in the last 70 years or so. More recently, between 2000 and 2010 Pierce County's population increased by 13.5 percent (U.S. Census Bureau 2011). Further Pierce County population growth is expected to be substantial. Increasing population inevitably leads to an increase in new development which will require more effective mitigation. New development either results in the direct loss of natural resource acreage and function, or it indirectly impairs processes and function due to urbanization and increases in impervious surfaces. The effects of expanding imperviousness include increased flooding, erosion, elevated water temperatures, high nutrient loads and turbidity, and low dissolved oxygen—all of which adversely affect fish and wildlife habitat. Successful restoration in key locations could provide significant improvements to hydrologic processes and water quality.

Although development pressures are affecting resource functions throughout the Puget Sound region, the PCILF Program aims to provide an alternative to permittee-responsible mitigation within select watersheds of Pierce County where currently no such alternative exists.

### 3.0 Objectives of the PCILF Program

1. Provide high quality mitigation for unavoidable impacts to aquatic resources at development sites.
2. Develop an ecologically based site selection process to identify the most appropriate mitigation options that result in greater ecological benefit to a sub-basin, basin, or watershed than could be achieved through permittee-responsible mitigation.
3. Utilize scale efficiencies by combining the impacts from individual smaller projects within a service area into mitigation at larger sites.
4. Meet permitting requirements more efficiently by streamlining the compensatory mitigation process.
5. Select the best mitigation-receiving sites for the PCILF Program through a rigorous analysis by a group of professional resource managers and local experts,

drawing from personal knowledge and best available science and analyses for a particular basin or watershed.

6. Develop a self-sustaining program to complete mitigation projects and address “no net loss” of wetland functions on a watershed scale.
7. Provide an alternative to permittee-responsible mitigation where currently no such alternative exists.
8. Provide an effective and transparent accounting structure for collecting in-lieu fees, disbursing project funds, and compliance reporting.
9. Work in an efficient and transparent manner with the IRT to implement mitigation projects and enact amendments to the PCILF Program Instrument.
10. Provide a functionally viable option to mitigate for small unavoidable impacts that currently may be falling through the cracks because they may qualify for exemptions (PCC Title 18E.20.030) and Reasonable Use Exceptions (PCC Title 18E.20.050).

## APPENDIX B: DEFINITIONS

Terms used for in-lieu fee programs may have different meanings than their colloquial usage would suggest. There are also differences in the legal definitions used by Pierce County and the federal agencies. For many terms not described below, the definitions used by the Regulatory Program of the U.S. Army Corps of Engineers and U.S. Environmental Protection Agency in the Federal rule [33 CFR Parts 320-331; 40 CFR Part 230] are adopted by Pierce County for the PCILF Program. Where a term is defined both here and in Pierce County Code 18.25, the definition listed here will be used in the administration of the PCILF Program.

**Adaptive management** means the development of a management strategy that anticipates likely challenges associated with compensatory mitigation projects and provides for the implementation of actions to address those challenges, as well as unforeseen changes to those projects. It requires consideration of the risk, uncertainty, and dynamic nature of compensatory mitigation projects and guides modification of those projects to optimize performance. It includes the selection of appropriate measures that will ensure that the aquatic resource functions are provided and involves analysis of monitoring results to identify potential problems of a compensatory mitigation project and the identification and implementation of measures to rectify those problems.

**Advance credits** means any credits of an approved in-lieu fee program that are available for sale prior to being fulfilled in accordance with an approved mitigation project plan (analogy of a credit card, but *not* one that is pre-paid—see definition for *pre-capitalized*, below). Advance credit sales require an approved in-lieu fee program instrument that meets all applicable requirements including a specific allocation of advance credits, by service area where applicable. The instrument must also contain a schedule for fulfillment of advance credit sales.

**Applicant** means an entity seeking a permit for a project that will result in impacts to aquatic resources. Use of the term applicant indicates that a permit has not yet been issued. After the permit has been issued they are referred to as a permittee.

**Aquatic Resources** (sometimes referred to as “aquatic areas”) means "wetlands" and any non-wetland water feature including all shorelines of the state, rivers, streams, marine waters, inland bodies of open water including lakes and ponds, reservoirs and conveyance systems and impoundments of these features if any portion of the feature is formed from a stream or wetland.

**Buffer** means an upland and/or riparian area that protects and/or enhances aquatic resource functions associated with wetlands, rivers, streams, lakes, marine, and estuarine systems from disturbances associated with adjacent land uses.

**Compensatory mitigation** means the restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of

aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

**Credit** means a unit of measure (e.g., a functional or areal measure or other suitable metric) representing the accrual or attainment of aquatic functions at a compensatory mitigation site. The measure of aquatic resource functions is based on the resources restored, established, enhanced, or preserved (see Appendix D). Credits may also be provided through preservation pursuant to 33 CFR 332.8(o)(6).

**Credit Fees** are fees paid by a permittee to purchase PCILF mitigation credits. Credit Fees are used to pay for all aspects of implementing and managing mitigation projects, as well as Long-Term Management duties. They are determined from full-cost accounting of the cost to implement mitigation receiving sites within each service area. Credit Fees are one component of a *Mitigation Fee*<sup>3</sup>, the other being *Land Fees*.

**Credit/Debit Tool** is the abbreviated title for a peer-reviewed functional mitigation assessment methodology developed by Ecology. The full title for this document is *Calculating Credits and Debits for Compensatory Mitigation in Western Washington, Final Report. March 2012*. This method is referred to in this Instrument as the “Credit/Debit Tool” or as “the tool.” The purpose of the tool is to provide a predictable and reproducible method for assessing mitigation requirements at a given impact project based on losses of wetland functions and values, and similarly, to assess lift in wetland functions and values resulting from a mitigation project. The tool comprises indicators to rate functions in a wetland unit related to habitat, hydrology, and water quality. The tool is not designed for use in other non-wetland aquatic areas. Many indicators used in the tool are the same as those used in the Wetland Rating System for Western Washington (Hruby 2006). The tool is designed for use at both impact sites (to assess functional loss, “debits”) and at mitigation sites (to assess functional lift, “credits”). The tool is discussed in greater detail in Appendix D. A link to the full document and the preferred citation is available at Exhibit 5.

**Cumulative impact** means the summation of impacts on a habitat, species, or resource resulting from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.

**Debit** means a unit of measure (e.g., a functional or areal measure or other suitable metric) representing the loss of aquatic resource functions at an impact or project site. The measure of

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<sup>3</sup> In Pierce County Code, 18G.20, the “mitigation fee” is labeled the “credit fee”. In this document, “mitigation fee” is the total of the land fee and the credit fee, but in Pierce County Code, the full cost to the developer is known as the “credit fee”, and it includes that portion of the fee that will be deposited into the land fee account.

aquatic resource functions is based on the resources impacted by the authorized activity (see Appendix D).

**Direct impact** means those adverse effects caused by project activities that occur with the permitted action.

**Enhancement** means the manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area. [33 CFR 332.2]

**Establishment** (also *creation*) means the manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area and functions. [33 CFR 332.2]

**Establishment Phase** (also *performance period*) means the period of time from project construction until all mitigation credits associated with a project have been released, i.e., when a mitigation project is still “earning” mitigation credit. The end of the establishment phase marks the beginning of the *Long-Term Management Phase*.

**Function** (*in ecosystems*) means any performance attribute or rate function at some level of biological organization (e.g., green plants capturing light energy and converting it into chemically stored energy) (NRC 1992). Functions are formed and maintained by the physical, chemical, and biological processes and structures that occur in ecosystems.

**Functional lift** (or simply “lift”) is the increase in wetland functions provided by mitigation work and usually expressed in terms of credits.

**Impact** means adverse effect.

**Impracticable** means that site conditions or other constraints exist that would cause “extreme and unreasonable difficulty” in completing mitigation on-site (Black’s Law Dictionary, West Publishing Co. 1996).

**Indirect impact** means those adverse effects caused by project activities that are reasonably certain to occur, but occur later in time or at some distance from the project site.

**Initial physical and biological improvements** means that the majority of physical and biological actions (e.g., grading and planting) approved in the Mitigation Plan have been *implemented*.

**In-lieu fee program** means a program involving the restoration, establishment, enhancement, and/or preservation of aquatic resources through funds paid to a governmental or non-profit natural resources management entity to satisfy compensatory mitigation requirements for DA

permits, as well as other federal, state, tribal, and local permits. Similar to a mitigation bank, an in-lieu fee program sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the in-lieu program Sponsor. However, the rules governing the operation and use of in-lieu fee programs are somewhat different from the rules governing operation and use of mitigation banks. The operation and use of an in-lieu fee program are governed by an *in-lieu fee program instrument*.

***In-lieu fee program instrument*** means the legal document for the establishment, operation, and use of an in-lieu fee program, sometimes referred to as the “*Instrument*”.

***Interagency Review Team (IRT)*** means an interagency group of federal, tribal, state, and local regulatory and resource agency representatives that reviews documentation for, and advises the district engineer and Ecology on, the establishment and management of an in-lieu fee program.

***Isolated wetlands*** means wetlands that, generally, have no hydrologic connections to other aquatic resources. Though not always protected under federal law, isolated wetlands often perform many of the same important environmental functions as other wetlands, including recharging streams and aquifers, storing flood waters, filtering pollutants from water, and providing habitat for a host of plants and animals. These wetlands continue to be protected under state and local laws and rules.

***Land Fees*** are fees paid by a permittee using the PCILF to account for the land costs associated with implementing a mitigation project. Land Fees may be used by the PCILF to acquire new Roster sites, or to refund SWM funds that were used for the purchase of properties for Pre-Capitalized Mitigation Receiving sites.

***Long-Term Management Phase*** means the period beginning at a site when the final credits are released from a mitigation project. During the Long-Term Management Phase, the monitoring and maintenance will continue according to long term management plans contained in the reviewed and approved mitigation plans for a site.

***Marine*** means all salt waters of Puget Sound including estuarine areas with average annual salinity 0.5 ppt or greater. Tidal freshwaters (and Non-Tidal freshwaters) are not Marine waters for the purpose of this instrument.

***Mitigation Fees*** are all fees paid by a permittee using the PCILF to purchase ILF credits, including land fees and credit fees to be used in implementing mitigation projects.

***Mitigation Receiving Site*** refers to a site where wetland or other aquatic resource improvements are being done by the PCILF Program under an IRT-approved mitigation plan.

***No net loss*** means a mitigation policy goal aiming to prevent and offset the destruction or degradation of wetlands, other aquatic resources, and their *buffers*.

**Non-Compensatory Mitigation** refers to mitigation required for buffer impacts or indirect impacts to wetland functions when there is no actual loss of wetland area. This term is defined in Pierce County Critical Areas Code 18.25.030 and used in Pierce County Code 18E.30.050. Usually, wetland or wetland buffer enhancement (i.e., something that lifts wetland functions with no increase in wetland area) is provided to meet requirements for non-compensatory mitigation.

**Out-of-kind** means a resource of a different structural and functional type from the impacted resource.

**Performance standards** are observable or measurable physical (including hydrological), chemical and/or biological attributes that are used to determine if a compensatory mitigation project meets its objectives.

**Permittee** means an entity which has been issued a permit by one or more regulatory agencies.

**Pre-Capitalized** means to have created mitigation receiving sites which have credits that have already been approved for release by the IRT in advance of credits being purchased (analogy of a pre-paid credit card).

**Preservation** means the removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions [33 CFR 332.2]. Preservation may generate mitigation credit.

**Receiving site**, or simply "*mitigation site*," refers to the area where the compensatory mitigation project will be constructed, monitored, maintained, managed, and permanently protected.

**Re-establishment** means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

**Regulating agencies** or "*agencies with regulatory authority*". For credit transactions through the PCILF Program, each permitted impact and mitigation receiving project will require permits from one or more agencies (e.g., Corps, Ecology, Washington Department of Fish and Wildlife (WDFW), Pierce County). For all cases where mitigation will be required, Pierce County (or other local government) will have regulatory authority under the Critical Areas Ordinance, PCC Title 18E (or under other related municipal codes, as applicable). In cases involving wetland impacts, Ecology will also have authority as provided under RCW 90.48. This authority may extend to buffer impacts as well. In most cases federal agencies will also have regulatory

authority (e.g., the Corps, EPA, U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA), etc.). In cases where the Corps has jurisdiction, addressing impacts to buffers and adequate buffers for mitigation sites will be required to the extent specified in 33 CFR 332.3(i).

**Rehabilitation** means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

**Released Credits** are credits from an approved mitigation receiving site where performance standards have been achieved and a portion or all of the credits have been approved for sale in accordance with the release schedule in the approved site mitigation plan.

**Restoration** means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation. [33 CFR 332.2]

**Riparian areas** are lands adjacent to streams, rivers, lakes, and estuarine-marine shorelines. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality.

**Service Area** means the geographic area within which impacts can be mitigated at a specific in-lieu fee program, as designated in its instrument.

**Sponsor** means any public or non-profit entity responsible for establishing, and in most circumstances, operating an in-lieu fee program.

**Temporal loss** is the time lag between the loss of aquatic resource functions caused by the permitted impacts and the replacement of aquatic resource functions at the compensatory mitigation site. Higher compensation ratios may be required to compensate for temporal loss. When the compensatory mitigation project is initiated prior to, or concurrent with, the permitted impacts, the district engineer may determine that compensation for temporal loss is not necessary, unless the resource has a long development time.

**Watershed Processes** are the dynamic physical, biological, and chemical interactions that form and maintain the landscape and ecosystems in a hydrologic unit. These processes include the movement of water, sediment, nutrients, pathogens, toxins, and wood as they enter into, pass through, and eventually leave the hydrologic unit.

**Wetlands.** The Pierce County Critical Areas Code regulates all wetlands that meet the most recent edition of the federal wetland delineation manual and applicable regional supplements



approved by Ecology. This includes isolated wetlands that may not be regulated by the Corps and EPA. Pierce County Code 18.25 defines *wetlands* as:

“Wetland” or “wetlands” means areas that are inundated or saturated by surface water 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. Wetlands generally do not include those artificial wetlands intentionally created from non-wetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities; or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. However, wetlands may include those artificial wetlands intentionally created from non-wetland areas created to mitigate conversion of wetlands, if permitted by Pierce County.

This ILF Instrument incorporates all other terms as defined in 33 CFR 332.2.



## APPENDIX C: MITIGATION SEQUENCING AND PARTICIPATING AGENCIES

The Pierce County ILF Program provides project applicants another way to meet requirements for compensatory mitigation after adhering to higher priorities in the mitigation sequence. Specifically, the program provides applicants the opportunity to pay a fee to Pierce County instead of completing mitigation on their own, after demonstrating that impacts to wetlands and other aquatic resources have been avoided and minimized to the greatest possible extent.

The availability of the PCILF Program as a means of meeting compensatory mitigation requirements does not affect requirements for an applicant and regulatory agencies to exhaust all the steps in the mitigation sequence.

### 1.0 Mitigation Sequencing

“Mitigation sequencing” refers to the order in which different mitigation actions are considered. Specifically, it means sequentially avoiding impacts, minimizing impacts, and compensating for remaining unavoidable impacts to wetlands or other aquatic resources. Local, state, and federal governments all adhere to regulations requiring mitigation sequencing for proposals that will adversely affect wetlands and other aquatic resources.

Section 404(b)(1) of the Clean Water Act establishes regulatory requirements identifying avoidance and minimization of impacts to aquatic resources as the first steps in the mitigation sequence (40 CFR 230.10(a) and 40 CFR 230.10(d)).

Applicants must follow these steps, in order, and revise their project proposals to the maximum extent practicable to eliminate or decrease the negative effects of a proposed project. The required order of sequence is:

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. Rectifying the impact by 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

Nothing in this Instrument affects the requirement that all DA permits subject to section 404 of the Clean Water Act comply with applicable provisions of the Section 404 (b)(1) Guidelines.

In order to qualify for use of the PCILF program, a project applicant would have to demonstrate, and permitting agencies concur, that all practicable avoidance and minimization measures have been taken. In addition, the applicant would need to demonstrate that in-lieu fee compensation offers the most ecologically preferable option for offsetting losses.

## 2.0 Location Criteria

After considering the mitigation sequence, it is necessary to determine whether compensatory mitigation shall occur on site (where the impacts are occurring) or off site.

Pierce County Code (Appendix E of Pierce County Code 18E.30.70<sup>4</sup>) requires adherence to location criteria for permittee-responsible concurrent mitigation. Essentially, the codes reads that compensatory mitigation must be provided on-site unless it is demonstrated that such onsite mitigation is not scientifically feasible or practical due to physical features of the site and when it is provided off-site it must still be near to, and within the same watershed, as the impact.

The state of the science, however, suggests that on-site mitigation is often not sustainable or otherwise infeasible and that site selection should, on the contrary, be determined by an analysis of known degradation or limiting factors within a watershed. The best sites are those that rely on restoring or rehabilitating historically present ecological processes (such as dike removal along a river) and that are, therefore, ecologically sustainable. On-site mitigation is unlikely to meaningfully contribute to watershed restoration or recovery goals for several reasons, including:

- The propensity to force the compensation on site regardless of watershed needs
- The (often) small size of the impact
- The lack of regulatory oversight on many small compensatory mitigation projects
- The fact that development that results in aquatic resource impact is often divorced from watershed and ecological considerations

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<sup>4</sup> Or as amended.

The Pierce County location criteria are circumvented if it is first determined that the PCILF program will be utilized to meet the needs for compensatory mitigation. Moreover, Federal rule [33 CFR 332.3(b)], mandates the consideration of mitigation bank credits prior to PCILF Program credits, and PCILF Program credits prior to permittee-responsible mitigation; therefore, from the standpoint of State and Federal permit agencies, location criteria is not the highest determinant of whether use of the PCILF program is appropriate in each circumstance. When considering options for successfully providing the required compensatory mitigation, the Federal Rule [33CFR 332.3(b)] requires the district engineer to consider the type and location options in the following order of preference:

1. Mitigation bank credits
2. ILF Program credits
3. Permittee-responsible mitigation under a watershed approach
4. Permittee-responsible mitigation through on-site and in-kind mitigation
5. Permittee-responsible mitigation through off-site and/or out-of-kind mitigation

The Federal Rule goes on to say that “in general, the required compensatory mitigation should be located within the same watershed as the impact site, and should be located where it is most likely to successfully replace lost functions and services, taking into account such watershed scale features as aquatic habitat diversity, habitat connectivity, relationships to hydrologic sources (including the availability of water rights), trends in land use, ecological benefits, and compatibility with adjacent land uses....”

The Corps may override the preference for mitigation banks when, for instance, an in-lieu fee program has credits available that have been released from a specific approved mitigation project, or when a larger, more ecologically valuable parcel, or more rigorous scientific analysis is provided [33 CFR 332.3(b)(2)].

Finally, on a case-by-case basis, permitting agencies may determine that it is appropriate to decouple the functions associated with the impacts. This means that compensation for some functions that cannot be transferred off site might occur on-site or in the immediate vicinity of the impacts, while compensation for other functions could occur off site, such as through the purchase of ILF credits.

### 3.0 Authorizing Entities

PCILF Program credits may be appropriate for use in meeting mitigation obligations associated with authorizations from the following entities:

- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- Indian Tribes
- Washington State Department of Ecology
- Washington State Department of Fish and Wildlife
- Pierce County Planning and Land Services
- National Oceanic and Atmospheric Administration
- Washington State Department of Natural Resources
- Municipal Government Entities

Omission of an entity from the list above shall not preclude an entity from using the ILF Program to meet its mitigation obligations.

## APPENDIX D: CREDITS AND DEBITS

The standard unit of measure used for in-lieu fee programs to quantify an impact is a “debit.” Lift at a mitigation site is measured in “credits.” Generally speaking, the PCILF Program will continue to use the terms “debit” and “credit” when speaking about impacts and mitigation projects. The ILF Program will create and sell wetland credits as described in Section 1.0 below. Each wetland credit will also have a sub-type relating to the category of functions provided (habitat, hydrologic, or water quality) as described in Section 2.0. Section 3.0 describes how PCILF Program debits and credits will be quantified.

### 1.0 Debits and Credits—General

The PCILF Program will offer applicants a means of mitigating unavoidable impacts to freshwater wetlands (predominantly). The PCILF Program may be used on a case-by-case basis for impacts to other freshwater aquatic resources (e.g., lakes, ponds, ditches, streams) and wetland buffers when authorized by the agencies/authorities with jurisdiction. Impacts to tidally influenced freshwater wetlands or streams generally may only be mitigated through ILF credits if there are mitigation receiving sites that provide tidally influenced freshwater credits.

For any given permitted unavoidable impact, there will be one or more regulatory agencies with jurisdiction, which will be determined on a case-by-case basis. For example, for “isolated” wetlands, Pierce County would have regulatory authority under the Critical Areas Ordinance (Pierce County Code 18E.30) and Ecology would also have authority as provided under RCW 90.48.

The PCILF Program will, generally, offer applicants one basic type of aquatic resource credit: freshwater wetland credits. Projects that only disturb wetland and riparian *buffers* but that have no *direct* wetland or other aquatic resource impacts may still need to provide compensatory mitigation. Reduction of wetland and riparian buffers is, essentially, an indirect aquatic resource impact; because reduced buffers will remove some of the protection afforded the wetland/stream and reduce the quality of many wetland/stream functions.

Within Pierce County, wetland and riparian buffer-only impacts must be compensated with “Non-Compensatory Mitigation”, per Titles 18E.30.050(B) and 18E.30.070-Appendix C of Pierce County Code (see Definitions, Appendix B). Non-compensatory mitigation refers to mitigation required for buffer impacts or indirect impacts when there is no actual loss of wetland *area* and generally consists of actions that lift wetland functions but do not add replacement wetland area.

The purchase of ILF credits could be considered suitable compensation for indirect wetland impacts and could satisfy the requirement to create non-compensatory mitigation in these situations. In short, one option to compensate for buffer-only impacts or indirect impacts is the

purchase of PCILF credits. There is no mechanism to purchase credits from only the buffer portion of ILF sites. The amount of credits required in such circumstances would be determined by consulting the permitting agencies.

On a case-by-case basis, the PCILF Program may also provide an option to compensate for other freshwater aquatic resource impacts such as stream, riparian, or open water systems like lakes, ponds and ditches. In such cases, permitting agencies would calculate debits and credits using accepted methods (e.g., area-based ratios, habitat equivalency analyses, etc.). These would be deducted from the number of credits otherwise available at the receiving site. Mitigation design reports submitted for specific ILF receiving sites will suggest which types of aquatic resources each site could potentially compensate. For instance, if the receiving site contains a stream, the report will suggest that credits may be used to compensate for riparian or stream disturbances, when all regulatory entities agree.

Credits sold will be tracked carefully in the Credit Ledger (see Appendix G) by aquatic resource type and function. Mitigation plans proposed by Pierce County to fulfill ILF credits must be reviewed by the IRT, which will include representation from all governmental organizations (public agencies and tribes) having a substantive interest in the PCILF Program (per 33 CFR 332.8 (b)(2)) and in the allocation of earned mitigation credits. Once reviewed and approved by the Co-Chairs, mitigation plans for ILF receiving sites will be subject to Corps/Ecology Joint Public Notice procedures.

## 2.0 Calculating Wetland Debits and Credits

The PCILF Program proposes to use *Calculating Credits and Debits for Compensatory Mitigation in Wetlands of Western Washington, Final Report, March 2012* (Hruby 2012), also called the Credit/Debit Tool, for the assessment of impacts and mitigation needs within the service areas.

The Credit/Debit Tool is a method that estimates and quantifies the following items for freshwater wetlands:

1. The loss of wetland functions and values when a wetland is altered, also called *Debits*
2. The gain in wetland functions and values that result from compensatory mitigation, also called *Credits*

The use of the tool offers a critical step needed to establish a functional equivalency of credits and debits of freshwater wetlands. The tool only applies to freshwater wetlands and preservation of uplands. Other methods to determine equivalencies will need to be used when and if there is a proposal to use PCILF credits to compensate for other aquatic resources.

The steps used in applying the Credit/Debit Tool to determine ILF mitigation credits needed are summarized as follows:



1. Classify the freshwater wetland unit at the impact site using the hydrogeomorphic (HGM) classification system (Smith et al. 1995).
2. Score the water quality, hydrology and habitat functions of the wetland at the impact site using the Credit/Debit Tool.
3. Estimate the amount of mitigation needed to replace the functions lost by calculating the basic mitigation requirement and factoring in temporal losses of function (as appropriate).
4. Once a mitigation-receiving site draft mitigation plan has been approved by the Co-Chairs (following consultation with the IRT), the Sponsor will develop a final mitigation plan utilizing one or more of the following credit generating treatments: wetland establishment, re-establishment, rehabilitation, enhancement, and/or preservation.
5. Score the expected future functions at the mitigation site by determining which functions would be present when all the goals for mitigation site have been achieved. If the mitigation site is already a wetland and the mitigation plan proposes re-habilitation or enhancement, the functions for the existing conditions must be scored first to estimate the net change in potential functions following mitigation.
6. Identify the risk factors that could reduce the effectiveness/success of the mitigation, as outlined in the wetland tool (e.g., advanced, meets established criteria, concurrent, consideration of larger scale environmental processes and plans, climax wetland community type, mitigation strategy (creation vs. restoration)). The estimated number of credits available is multiplied by a factor of 0.4 to 1.0 to discount for risk. The risk factors are set on a case-by-case basis depending on the type of mitigation proposed (e.g., establishment versus enhancement) and other considerations that could affect the ability of the proposed mitigation to achieve its goals.

Steps 1 to 3 are completed by individuals trained in the use of the Credit/Debit tool, which may be the project proponent or their wetland consultant.

Steps 4 to 6 are conducted by the ILF Program Sponsor.

## 2.1 Impact Site Debits

The process of using the PCILF Program begins with the assessment of unavoidable impacts to wetland functions resulting from a proposed development (refer also to Appendix A—Program Overview). Applying the Credit/Debit Tool will result in the quantification of units of functional loss, or “debits,” associated with the development project. A “debit” equates to the amount of

mitigation, in acre-points, needed to replace the functions lost at the impact site. The debits are based on the existing condition of the wetland before the impact. When quantifying an impact to a wetland system, the debits will be divided into three categories based on wetland functions: (1) water quality debits (2) hydrology debits, and (3) habitat debits. Once the number of debits has been determined by the applicant and agreed to by the permitting agencies, the appropriate number of credits may then be purchased from the PCILF Program to offset these debits.

In general, the number of credits needed equal the number of debits. However, the applicant always has the opportunity to make a case that fewer credits are needed, because of some particular circumstance. Conversely, the opportunity is also present for regulating agencies to require more credits because of some particular circumstance. The final determination of credits needed for any project is part of the review of an ILF use plan (Exhibit 14) and is the responsibility of regulating agencies' project managers, not the PCILF Program Sponsor or IRT. This process is discussed in greater detail in Appendix A (Program Overview) and Appendix L (Credit Fulfillment).

## 2.2 Mitigation Site Credits

At the proposed mitigation-receiving site, the Credit/Debit Tool will be applied to document existing conditions (units of function currently being provided). The tool will also be applied to determine the potential lift associated with the conceptual mitigation plan (anticipated units of function provided by the site after the proposed mitigation has been implemented). A "credit" equates to the increase in functions, measured in acre-points, that results from mitigation activities at the receiving site.

Like "debits," mitigation projects will earn credits in the same three wetland functional categories: (1) water quality credits, (2) hydrology credits, and (3) habitat credits. There may be cases when pre-mitigation project functions in one or more categories are already high at the mitigation receiving site. In these cases, the project will only achieve lift in the functional category(s) in which functions were improved (i.e., only when the tool calculates a lift in functions as a result of the project). For example, a riverine wetland dominated by reed canarygrass (*Phalaris arundinacea*) with ample over-bank storage may provide high hydrologic and water quality functions in its pre-mitigation project condition. If the mitigation project mainly improves habitat complexity, the project might only earn "habitat credits," and not earn any hydrology credits or water quality credits. Refer to Appendix W for the proposed credit calculations for the mitigation-receiving sites.

## 2.3 Buffer-Only Impacts

In some cases, unavoidable impacts may affect only wetland buffer with no direct impacts to wetlands. In cases when the PALS permit reviewer and any other applicable permitting agencies determine the PCILF Program to be the most practicable mitigation option (i.e., impacts are

unavoidable and no on-site options exist) the applicant can purchase PCILF Program credits to meet the mitigation need. In these cases the amount of mitigation required will be determined on a case-by-case basis (see Section 3.3 below). The PCILF Program Manager will track the impacts on the appropriate ledger (see Appendix G, Section 2.0). Impacts will also be tracked in the PCILF Program Ledger (see Appendix F, Section 6.0).

If PCILF credits are purchased to meet a buffer-only impact, these credits must be fulfilled at an “integrated” mitigation receiving site, i.e., a project that creates lift in wetland functions *and* goes through the full IRT review and approval process. In other words, ILF fees—even those derived from buffer-only impacts—cannot be used to implement buffer-only mitigation projects, unless such use is explicitly approved by the Corps and Ecology after consultation with other IRT members.

### 3.0 Quantifying Debits and Credits

The Credit/Debit Tool is designed to quantify impacts to freshwater wetlands. Determinations of debits (and thereby an applicant’s credit requirement) must be approved by regulatory agencies permitting an impact. If all regulatory agencies issuing permits for an unavoidable impact project agree that the PCILF Program is the most ecologically preferable way for the applicant to meet mitigation needs, then mitigation requirements must be quantified and approved prior to permit issuance. The tool will provide the *initial* basis for quantifying wetland impact “debits.” However, the number of debits associated with the impact as determined by the tool *may* be adjusted for site-specific variables, determined on a case by case basis. All permitting agencies reviewing an unavoidable impact project must agree to the calculation of debits and the required compensatory mitigation. Different permitting agencies may have differing requirements for fulfilling the compensatory mitigation obligations. In such cases, the more stringent requirements must be adhered to.

Similarly, the Credit/Debit Tool will be used to quantify wetland and buffer mitigation, including the preservation, enhancement, re-establishment, rehabilitation, and establishment of wetlands. The Corps and Ecology (with input from the IRT) will approve the amount and type of mitigation credit generated by mitigation-receiving sites.

Any time best professional judgment is used to alter mitigation requirements or proposed earned mitigation credit, the Sponsor will provide detailed rationale based on best available science. The Sponsor will document and deliver this rationale to the appropriate entities (i.e., regulatory agencies for impact projects and the IRT for mitigation projects).

If unavoidable impacts to streams, riparian areas, or wetland buffers are permitted by Pierce County and other regulatory agencies and/or tribes, and off-site mitigation through the PCILF Program is chosen to fulfill the mitigation obligation, debits and credits will be determined on a case-by-case basis. These determinations will be made in close coordination with members of the IRT, especially those IRT member agencies with expertise in fish resources, namely tribes,

the USFWS, NMFS, and WDFW. These credit determinations will follow accepted methods of quantifying mitigation currently in use: namely area ratios based on the resource type being affected. The interagency document, *Wetland Mitigation in Washington State—Part 1: Agency Policies and Guidance* (Washington State Department of Ecology et al. 2006) and Pierce County Code (Appendix C of P.C.C. 18E.30.070) will be followed, as applicable.

The following sections of the Federal rule are relevant:

33 CFR 332.3(f)(2) The district engineer must require a mitigation ratio greater than one-to one where necessary to account for the method of compensatory mitigation (e.g., preservation), the likelihood of success, differences between the functions lost at the impact site and the functions expected to be produced by the compensatory mitigation project, temporal losses of aquatic resource functions, the difficulty of restoring or establishing the desired aquatic resource type and functions, and/or the distance between the affected aquatic resource and the compensation site. The rationale for the required replacement ratio must be documented in the administrative record for the permit action.

33 CFR 332.3(f)(3) If an in-lieu fee program will be used to provide the required compensatory mitigation, and the appropriate number and resource type of released credits are not available, the district engineer must require sufficient compensation to account for the risk and uncertainty associated with in-lieu fee projects that have not been implemented before the permitted impacts have occurred.

33 CFR 332.8(o)(6) *Credits provided by preservation.* These credits should be specified as acres, linear feet, or other suitable metrics of preservation of a particular resource type. In determining the compensatory mitigation requirements for DA permits using mitigation banks or in-lieu fee programs, the district engineer should apply a higher mitigation ratio if the requirements are to be met through the use of preservation credits. In determining this higher ratio, the district engineer must consider the relative importance of both the impacted and the preserved aquatic resources in sustaining watershed functions.

33 CFR 332.8(o)(7) *Credits provided by riparian areas, buffers, and uplands.* These credits should be specified as acres, linear feet, or other suitable metrics of riparian area, buffer, and uplands, respectively. Non-aquatic resources can only be used as compensatory mitigation for impacts to aquatic resources authorized by DA permits when those resources are essential to maintaining the ecological viability of adjoining aquatic resources. In determining the compensatory mitigation requirements for DA permits using mitigation banks and in-lieu fee programs, the district engineer may authorize the use of riparian area, buffer, and/or upland credits if he determines that these areas are essential to sustaining aquatic resource functions in the watershed and are the most appropriate compensation for the authorized impacts.

Section 3.5 of this document explains that credit cannot be generated by restoration projects within public rights-of-way or from other county, state, or federal restoration projects in existence outside the PCILF Program.

### 3.1 Mitigation Assessment Method (Credit/Debit Tool)

The Credit/Debit Tool quantifies wetland impacts and wetland mitigation activities (which may include the preservation, enhancement, restoration and creation of wetlands). In doing so, the tool standardizes wetland assessment across wetland community types and helps regulators better determine if actions taken to mitigate an impact to wetlands will adequately replace the functions and values lost. The development and implementation of this tool is one of several efforts by Ecology to improve wetland mitigation in the state and it is presented as best available science in compliance with RCW 36.70A and WAC 365-195.

A final version of the tool (Hruby 2012) underwent a peer review by 26 technical experts from local governments, public agencies, the tribes, and wetland scientists, as well as one year of field testing. The final version incorporates the comments received during the peer review and the field testing.

In addition, Ecology has conducted several trainings on use of the tool to the staff of regulatory agencies and other practitioners. Given that the format and content of the tool is based largely on the Wetland Rating System for Western Washington (Hruby 2006), initial users of the tool will be able to use it to assess mitigation requirements at impact sites and to assess functional lift at mitigation sites. For expected functional lift associated with mitigation site projects, all credits (water quality, hydrology, and habitat) proposed for fulfillment at a mitigation site must be reviewed and approved by the IRT.

Exhibit 4 to these Appendices is an Ecology Focus Sheet describing the Credit/Debit Tool. The full Credit/Debit tool document can be found on the Department of Ecology's Publications Website. Exhibit 5 to these Appendices provides the web-site link (as of the date of this Final document), along with the preferred citation.

The PCILF Program will use the tool as the basis for determining wetland mitigation requirements associated with projects impacting wetlands and functional lift associated with wetland mitigation projects. Using the tool will provide consistency in establishing predictable and reproducible baseline information for making mitigation decisions<sup>5</sup>. Both the Federal Rule

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<sup>5</sup> It is important to note that the tool does not prompt the user to gather all information that might be necessary for evaluating the baseline condition of a debit site or mitigation-receiving site. Pierce County, for instance, requires hydrology monitoring to demonstrate that a project will not adversely affect the hydroperiod of adjacent wetlands (PCC, Title 18E.30.070(V)). Additional case-specific baseline or monitoring data requirements will be addressed in individual mitigation plans (Appendix W).

and Pierce County Code (Title 18E.30.070 (III)(D)(2)) support the use of alternative mitigation assessment methods.

As mentioned previously, the scoring output of the tool will not stand alone. In all cases, mitigation requirements associated with impact projects must be reviewed and approved by PALS staff as well as all other agencies with jurisdiction. Also, the amount and type of mitigation credit generated by mitigation projects will always be reviewed and commented on by the IRT. Any time a case is made to alter mitigation requirements or earned mitigation credit from what is suggested by application of the tool, detailed rationale based in best available science must be documented and delivered to appropriate entities (i.e., regulatory agencies for impact projects and the IRT for mitigation projects).

Despite the availability of and intent to use the Credit/Debit Tool, the PCILF Program shall retain the ability to establish debits/credit requirements on a case-by-case basis in consultation with the IRT using existing approved methods (e.g., area-based ratios, additional monitoring data from the impact or mitigation-receiving sites, etc.). This will be necessary in those infrequent instances of a proposal to compensate for impacts to an aquatic resource other than a freshwater wetland through the purchase of ILF credits.

### 3.2 Determination of Wetland Debits and Credits

Application of the Credit/Debit Tool will result in quantification of units of wetland functional loss, or debits, associated with the project. Once the number of debits has been determined, the permittee can purchase a commensurate number of credits from the PCILF Program to offset the debits.

The tool accounts for temporal losses that occur between the time a wetland is impacted and when the compensatory wetland is providing sufficient levels of wetland function. A temporal loss factor (TLF) is included in the calculation of debits. Thus, in order to complete the calculation of debits it is necessary to know the timing of mitigation construction.

The PCILF Program intends to implement mitigation-receiving sites prior to unavoidable impacts occurring (refer to Appendix EE). Because of this, the PCILF Program will have *released* credits available to sell prior to unavoidable impacts occurring (this is not common among ILF programs). However, on occasion all of the available *released* credits may be sold and the program may then need to use some of its reserve of advance credits (Appendix E)<sup>6</sup>. It is for this reason that the PCILF Program recommends permitting agencies apply a *concurrent* TLF when

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<sup>6</sup> Advance credits are unique to ILF programs. This is where credit is given in advance of receiving site construction, because ILF programs, per the Federal rule, may take 3 years from the time credits are sold until receiving sites are constructed (33 CFR 332.8(n)(4)).

determining the debits attributable to a project that will compensate with PCILF credits. This will achieve a balance between those instances where mitigation receiving site development lags behind wetland impacts (normally requiring a *delayed* TLF) and where mitigation-receiving site construction and performance is well ahead of wetland impacts (otherwise requiring an *advance* TLF).

This recommendation for use of the *concurrent* TLF will be reassessed annually to assess whether it is still justified based on uncommitted *released* credits the PCILF Program may have available. In other words, if the PCILF Program is able to keep receiving site selection and construction well ahead of the demand for credits, a *concurrent* TLF may no longer be applicable and it may be more appropriate to use the *advance* TLF. Conversely, if receiving site selection and construction lags behind the demand for credit it may be more appropriate to use the *delayed* TLF.

### 3.3 Quantification of Non-Wetland Impacts

The current version of the tool can only be used to quantify functional losses or lift (i.e., debits or credits) of freshwater wetlands. At this point, the assessment method is not designed for use in quantifying impacts or lift related to functions and values of other aquatic areas (e.g., streams, rivers or the open water component of lakes), associated buffers, wetland buffers, or other aquatic bed environments or saltwater/brackish wetlands.

When unavoidable impacts to wetland buffers are permitted and off-site mitigation through the PCILF Program is chosen to fulfill the mitigation obligation, debits and credits will be determined on a case-by-case basis. These determinations will be made in close coordination with members of the IRT, especially those IRT member agencies with regulatory authority over wetlands and their buffers. These credit determinations will follow methods of quantifying mitigation currently in use: namely, area ratios based on the resource type being affected. Appendix E of Pierce County Code Section 18E.30.070 outlines wetland mitigation ratios in detail.

### 3.4 Calculation of Debits and Credits by Area, with Multiplication Factors

The tool quantifies debits associated with wetland impacts and credits associated with compensatory wetland mitigation projects.

$$\text{Debits} = [\text{Functions and Values of Wetland Being Impacted}] \times [\text{Area of Impact}] \times [\text{Temporal Loss Factor}] + [\text{Debits from Additional Ecological Impacts not Captured by the Tool}]$$

Debits are quantified by rating functions and values of the wetland that will be impacted, multiplying the scores by the area of the impact, and then multiplying the result by a TLF. The TLF accounts for time lag between when an impact occurs and when replacement functions are anticipated to be achieved by mitigation (Figure 1).

Debits (or impacts) are typically determined or verified by agencies with jurisdiction and not by the Sponsor; the PCILF Program offers credits for purchase once debits have been determined. The TLF, as discussed above, is part of the determination of debits. The PCILF Program has little control over the TLF; however, the sponsor *recommends* use of TLFs associated with concurrent mitigation. The TLF accounts for the time lag between when an impact occurs and when replacement functions are achieved by mitigation. Since the PCILF Program will be “pre-capitalizing” ILF receiving sites—implementing them in advance of credit purchases—this temporal lag will be shortened, on average, to that of concurrent mitigation (Appendix EE).

Credits are calculated by rating functions and values of a wetland to be enhanced, restored, created, or preserved before and after mitigation (using project plans to estimate mature conditions for in-lieu fee programs) and multiplying the difference in scores by the area of mitigation treatment. To account for risk of project failure, the result is then multiplied by a risk factor (Figure 2).

$$\text{Credits} = ([\text{Wetland Functions \& Values after Mitigation}] - [\text{Wetland Functions and Values Before Mitigation}]) \times [\text{Area of Mitigation}] \times [\text{Risk Factor}] + [\text{Credits from Additional Ecological Lift not Captured by the Tool}]$$

There will be situations where additional actions will further lift ecological functions, but not so much, or in such a manner, that these lifts in functions will be quantified by the Credit/Debit tool. In these instances, the Sponsor may propose and justify requests for additional lift and such requests will be reviewed by the IRT and approved by the Corps and Ecology. An example of an improvement of condition not captured by the Credit/Debit Tool is the improvement to the quality of ground and surface water by removing fill or soil contaminated with diesel fuel or other substances (particularly in cases where contaminant levels may be below cleanup levels and therefore do not trigger Liable Party Cleanup).



Similarly, there will be situations where conditions at the impact site could result in a modification of the debit calculation and thus a greater (or fewer) number of debits may be calculated than are determined by the Credit/Debit Tool alone.

The Credit/Debit tool does not generate a consistent number of debits or credits for a given area of impact or mitigation because not all wetlands impacted or restored provide the same ecological functions to the same level or degree. The number of credits earned for a given area of mitigation is based on ecological lift gained from the mitigation activities. Similarly, the number of debits is not strictly based on the *area* of wetland impact but also on the loss of ecological functions. With respect to credit generation, a large site where mitigation activities are chiefly enhancement can produce very little credits, whereas a relatively small site that produces a large amount of lift (through re-establishment or creation) can produce a lot of credits. Several scenarios of debit calculations (real and hypothetical) are presented in Exhibit 15 to illustrate this in more detail.

Figure 1. Temporal Loss Factors, used as Part of Debit Calculation

Timing of Mitigation	Temporal Loss Factor
<b>Advance</b> —At least two years has passed since plantings were completed or one year since “as-built” plans were submitted to regulatory agencies.	1.25
<b>Concurrent</b> —Physical alterations at mitigation site are completed within a year of the impacts, but planting may be delayed by up to 2 years if needed to optimize conditions for success. For impacts to an emergent or shrub community For impacts to a deciduous forested wetland community For impacts to an evergreen forested wetland community For impacts to a deciduous Category 1 forested wetland community For impacts to an evergreen Category 1 forested wetland community	1.5 2 2.5 3 3.5
<b>Delayed</b> —Construction is not completed within one year of impact, but is completed (including plantings if required) within 5 growing season of impact. For impacts to an emergent or shrub community For impacts to a deciduous forested wetland community For impacts to an evergreen forested wetland community For impacts to a deciduous Category 1 forested wetland community For impacts to an evergreen Category 1 forested wetland community	3 4 5 6 7

Figure 2. Risk Factors, used in Calculation of Credit Earned at Receiving Site

Type of Mitigation	Risk Factor
<p><b>Advance Mitigation</b></p> <p>The site meets <b>criteria in Charts 1 and 3</b> of the site selection guidance (i.e., identified in a local plan and is sustainable) <b>AND</b> meets the <b>criteria in Charts 4-11</b> for the appropriate functions. (Ecology publication #09-06-032)</p> <p><i>Advance means that at least two years have passed since plantings were completed or one year since as-built plans were submitted to regulatory agencies.</i></p>	1.0
Advance mitigation without meeting criteria in Ecology publication #09-06-032.	0.83
<p><b>Concurrent Mitigation</b></p> <p>Mitigation site meets <b>criteria in Charts 1 and 3</b> of the site selection guidance (i.e., identified in a local plan and is sustainable) <b>AND</b> meets the <b>criteria in Charts 4-11</b> for the appropriate functions. (All worksheets for Chart 3 and in Appendix D of Ecology publication #09-06-032 are submitted).</p> <p><i>Risk factor applies to all types of mitigation.</i></p>	0.9
<p>Mitigation site chosen meets the <b>criteria in Charts 2 and 3</b> of the site selection guidance (i.e., identified as a site with potential and that is sustainable); <b>AND</b> meets <b>criteria in Charts 4-11</b> for the appropriate functions. (All worksheets for Chart 3 and in Appendix D of Ecology publication #09-06-032 are submitted).</p> <p><i>Risk factor applies to all types of mitigation.</i></p>	0.80
<p><i>Site does not meet criteria in site selection guide, or guide was not used.</i></p> <p><b>Re-establishment, rehabilitation, or enhancement</b> of an aquatic bed, shrub, or forest community. 0.67</p> <p><b>Re-establishment, rehabilitation, or enhancement</b> of an emergent community. 0.5</p> <p><b>Creation</b> of an aquatic bed, shrub, or forest community with data showing there is adequate water to maintain wetland conditions 5 years out of every 10. 0.67</p> <p><b>Creation</b> of an emergent community with data showing there is adequate water to maintain wetland conditions 5 years out of every 10. 0.5</p> <p><b>Creation</b> of an aquatic bed, shrub, or forest community <u>without</u> adequate hydrologic data. 0.5</p> <p><b>Creation</b> of an emergent community <u>without</u> adequate hydrologic data. 0.4</p>	

### 3.5 Public Rights-of-Way and Existing Easement Exclusions

In cases where a mitigation site is traversed by a public right-of-way (e.g., utility easement or trail) or where other easements or covenants allow access or activities that would compromise ecological processes and functions, these access/activity areas and an appropriate buffer shall

be excluded from generating mitigation credit. If the easement area (and the buffer area surrounding it) is afforded the same restoration/enhancement actions as the surrounding area ILF credit may be granted for that buffer area, up to edge of the easement. In all cases, however, the easement itself will never earn ILF credit because it can never be guaranteed that the easement holder will not clear or otherwise maintain the easement or implement their easement allowances.

Generally, appropriate buffers between these easements and ILF mitigation projects will be determined in consultation with the IRT during the mitigation planning process.

### 3.6 How Mitigation Relates to Restoration Projects

Mitigation credit shall not be available from other county, state, or federal restoration projects in existence outside the PCILF Program. In cases where mitigation sites are adjacent to or near to existing or proposed restoration sites, the Mitigation Plan will clearly show areas of restoration (where no credit is available) and where mitigation credit can be generated.

The PCILF Program will not derive credit from any project(s) or portions of projects funded with Salmon Recovery Fund money or any projects already planned and funded or completed to meet a permit condition. However, ILF credit fees can be used to implement a project that is identified in salmon recovery planning documents or to implement other restoration plans when all of the following apply:

- The project is not fully funded
- The funding used to acquire a project site does not restrict using the site as mitigation
- The project is not a mitigation requirement associated with a permit (e.g., a mitigation project)

In these cases, the Corps and Ecology may request a map illustrating parts of the restoration site that generate PCILF credits and parts of the site that do not. The mechanism to manage this arrangement will be determined case by case by the Corps and Ecology, with input from the IRT.

The Federal rule [332.3(j)(2)] states:

Except for projects undertaken by federal agencies, or where federal funding is specifically authorized to provide compensatory mitigation, federally-funded aquatic resource restoration or conservation projects undertaken for purposes other than compensatory mitigation, such as the Wetlands Reserve Program, Conservation Reserve Program, and Partners for Wildlife Program activities, cannot be used for the purpose of generating compensatory mitigation credits for activities authorized by DA permits. However, compensatory mitigation credits may be generated by activities undertaken in

conjunction with, but supplemental to, such programs in order to maximize the overall ecological benefits of the restoration or conservation project.

If Mitigation Fees are used to implement projects or portions of projects prioritized in a Salmon Recovery Plan, the unavoidable, permitted impacts for which Mitigation Fees were collected must be accounted for when measuring progress toward watershed-wide salmon recovery goals. For each mitigation project implemented through the PCILF Program, the Sponsor will provide details of the mitigation project to WRIA Forum staff for entry into the Habitat Work Schedule, which is an online mapping and tracking tool used to measure progress and increase accountability for implementation of salmon recovery projects statewide. At a minimum, information added to the Habitat Work Schedule database will include the amount of funding from Mitigation Fees, the type and amount of enhancement, restoration, creation, etc. to aquatic resources and buffers at the mitigation project, and the reports about unavoidable, permitted impact projects from which Mitigation Fees were derived. Mitigation projects will be clearly categorized as such in the Habitat Work Schedule database so it is evident to salmon recovery planning staff that ecological lift at mitigation projects is achieved at the expense of allowing permitted ecological impacts elsewhere in the watershed.

## APPENDIX E: ADVANCE CREDITS

The Federal Rule defines *advance credit* as “any credits that are available for sale prior to being fulfilled in accordance with an approved mitigation project plan.” [33 CFR Part 332.2] As described in the Federal Rule (33 CFR 332.8(n)(1)), the ILF Program Sponsor may request advance credits within each service area based on:

1. The Compensation Planning Framework
2. The Sponsor’s past performance for implementing aquatic resource restoration, establishment, enhancement and/or preservation activities in the proposed service area or other areas
3. The projected financing necessary to begin planning and implementation of ILF projects

Advance credits are not related to prior restoration or mitigation activities conducted by the program Sponsor or to projects that are intended to meet prior mitigation obligations. However, the Sponsor’s experience in acquiring and implementing restoration and mitigation projects influences how advance credit requests are reviewed.

Advance credits are like a mitigation “credit card” with a set spending limit that the IRT issues to the ILF Program Sponsor based on the three criteria listed above. When an unavoidable impact project occurs, the Sponsor can “borrow” a mitigation credit from the credit card, and in turn sell that mitigation credit to the applicant who uses it to satisfy the compensatory mitigation requirements. The ILF Sponsor must then pay off the balance on the “credit card” by fulfilling (i.e., “producing”) mitigation credits equal to (or greater than) the number of credits borrowed from the credit card. The remaining allowable “spending limit” on the credit card decreases as mitigation credits are sold to applicants, but increases accordingly when the Sponsor “produces” mitigation credits at mitigation projects. Section 33 CFR 332.8(n)(3) of the Federal rule describes this concept. Although Pierce County is requesting advance credits, it is their intent to implement sites in advance of credit purchases, thereby “pre-capitalizing” credits.

### 1.0 Advance Credit Request and Rationale

The Pierce County ILF Program requests a total of 195 advance credits: 120 advance credits within the Chambers-Clover Creek watershed--divided evenly among function categories (40 water quality, 40 hydrology, and 40 habitat function credits), and 75 advance credits within the Nisqually watershed--divided evenly among function categories (25 water quality, 25 hydrology, and 25 habitat function credits).

Credit allocation among the service areas is shown in Table 1 below. When credits are sold to an applicant, they shall be debited from the total number of advance credits available (See Exhibit 15-Tracking Hypothetical Credit Sales).

**Table 1. Advance Credits Requested by Service Area**

Service Area	Total
Chambers-Clover Creek watershed (WRIA 12)	120
Nisqually River watershed (WRIA 11)	75
<b>TOTAL ADVANCE CREDITS REQUESTED</b>	<b>195</b>

The number of advance credits requested for each service area is based on several factors:

**1. The Sponsor's Ability to Implement Mitigation-Receiving Sites.**

South Midland Wetland Reserve (constructed in 2007 and 2008) and Larchmont Wetland Reserve (constructed in 2013) are together expected to earn 150 credits<sup>7</sup> or more (See Exhibit 6). Performance monitoring of the South Midland Wetland Reserve demonstrates that this site is achieving standards and is providing superior wetland habitat as well as water quality treatment and hydrologic functions, particularly in comparison to the site's prior condition.

**2. The Sponsor's Ability to Implement such Mitigation-Receiving Sites within Three Growing Seasons.**

PCSWM already follows a 3 year plan from conception to construction: Year 1 to scope, year 2 to design and permit, year 3 to construct. We expect to be able to fulfill credit sales within the three-year requirement. However, because PCILF sites were pre-capitalized, the sponsor expects to have released credits at the inception of the PCILF program. PCSWM will also have the ability to begin identifying the next receiving sites immediately so expects to maintain a head start in fulfilling advance credit sales.

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<sup>7</sup> As of the date of this Final Instrument, the IRT has not yet seen nor addressed the proposal for the amount of credits that will be generated from these two pre-capitalized sites. A public notice will be issued for those sites prior to the determination of potential credit generation at these sites.

### 3. Proportions of Service Area with Urban and Rural land Uses.

The Sponsor is requesting more credits for the Chambers-Clover Creek watershed because significantly more of that watershed is zoned for urban development.

Development is steered into the Urban Growth Area (UGA) at higher densities so that is where a greater demand for compensatory mitigation is expected.

The advance credit request notwithstanding, the PCILF Program aims to reduce temporal loss and exposure to risk by minimizing the use of these advance credits. This will be achieved by pre-capitalizing credits (refer to Appendix EE): PCSWM will use funds earned through the sale of pre-capitalized credits to select, design, and implement future mitigation-receiving sites in advance of further credit sales, thereby staying ahead of unavoidable, permitted impacts. For the PCILF Program, advance credits would provide a backstop in the event that a single project or several projects need more credits than are available for sale as “released” credits: If the demand for credits outpaces released “pre-capitalized credits,” the PCILF program can sell credits from the pool of advance credits.

## 2.0 Relationship between Advance Credits and Amount of Allowed Impacts

The allotment of advance credits does not translate into a specific area of wetland impacts that could be *allowed* in the process of “drawing down” those advance credits. The total area of wetland impacts that can be compensated with a given number of advance credits in a service area is dependent upon the area and existing functions and values of the impacted wetlands, and other factors. Hypothetically, 195 advance credits could compensate for anywhere from 1 acre of the highest function wetlands (when the mitigation sites is implemented after the impact) to greater than 10 acres of the lowest functioning wetlands.

Also, the advance credit allotment does not permit an entity to fill or disturb *any* amount of wetland area. ILF programs do not allow more wetland impacts than already do or would occur without ILF programs; wetland avoidance and minimization measures are still required with the same rigor.

The amounts of impacts mitigated through the PCILF program will vary for several reasons:

- An impact project may be partially mitigated on site, with the remainder of mitigation occurring off site through the ILF Program.
- The advance credit balance shrinks as these credits are “withdrawn” to meet mitigation needs related to impacts, but is recharged with the release of credits from implementation of mitigation projects.
- Sites and projects will vary widely. Although the tool will provide a consistent method for assessing debits of impact, there are likely to be cases where mitigation requirements approved by permitting agencies vary from what the

tool suggests. For example, mitigation requirements may be reduced for a project because the project includes implementation of best management practices (BMPs) above and beyond what would be required by Pierce County Code. Any time mitigation proposals differ from what the tool suggests, the applicant must provide science-based justification for the alteration, and the changes must be approved by the permitting agencies with authority.

- Permit reviewers from the Corps, Ecology, or other agencies (e.g., local jurisdiction, WDFW, tribes, federal) may require additional credits based on a case-by-case review (see Appendix C 3.0—Authorizing Entities).

### 3.0 Advance Credit for Aquatic Areas and Aquatic Area Buffers

Because the Credit/Debit Tool cannot be used to assess stream and stream buffer credits, the PCILF Program is not requesting advance credit for river and stream impacts. However, one of PCSWM's proposed pre-capitalized receiving sites could serve as mitigation for aquatic resource losses. Appendix D, Section 3.3, describes the process for allowing mitigation through the PCILF Program for unavoidable non-wetland aquatic resource and aquatic resource buffer impacts.



## APPENDIX EE: PRE-CAPITALIZED CREDITS

The PCILF Program aims to reduce the temporal loss and exposure to risk by pre-capitalizing credits with the implementation of mitigation-receiving sites prior to the collection of fees for unavoidable, permitted impacts. PCSWM funds were invested for parcel acquisition, design, and 2007 implementation of a “pre-capitalized” mitigation-receiving site known as the South Midland Wetland Reserve. In addition, funds allocated by the state legislature are being used, along with PCSWM funds, to develop a second initial pre-capitalized mitigation receiving site, known as the Larchmont Wetland Reserve.

The presence of pre-capitalized credits does not remove the requirement for advance credits. Pre-capitalizing credits simply puts the Sponsor that much closer to having released credits available. Advance credits represent the promise that the sponsor will implement receiving sites. Released credits from an ILF mitigation site reflect wetland functional lift the Sponsor has successfully generated. When released credits are available, those would be sold instead of advance credits.

Whereas advance credits may be likened to the spending balance on a credit card, pre-capitalized credits may be likened to a *pre-paid* credit card. Pre-capitalized credits may not necessarily be “released” by the time fees are collected for unavoidable, permitted impacts (i.e., the site may not be fully meeting all performance standards by that time). When performance standards *have* been met and credits released, pre-capitalized credits would be given the same priority with respect to meeting federal regulations as released mitigation bank credits. As pre-capitalized credits are released upon meeting performance standards, the balance of advance credits will be fulfilled, as described in Appendix E (Exhibit 15).

South Midland and Larchmont Wetland Reserves (See Exhibit 2) are expected to generate pre-capitalized wetland mitigation credits (Exhibit 6). At the inception of the PCILF Program a significant number of potential pre-capitalized credits are expected to be available (or soon to be available). As performance standards are met, these potential pre-capitalized credits will become “released” credits.

The wetland design reports and credit requests for these two initial pre-capitalized sites will be submitted as amendments to this Instrument and reviewed for approval by the Corps and Ecology, following IRT review and Public Notice. Upon approval, these reports will be added to Appendix W. Until the Instrument is thereby amended, all references to specific numbers of pre-capitalized credits that will be generated at Larchmont and South Midland Wetland Reserves (as in Exhibit 6) are hypothetical.

The PCILF Program intends to stay ahead of unavoidable, permitted impacts by continually re-investing funds earned through the sale of pre-capitalized credits to select, design, and implement future mitigation-receiving sites (keeping a positive balance on the pre-paid credit

card). PCSWM aims to minimize, but not eliminate, the use of advance credits. By doing so, the loss of functions typically associated with temporal loss and mitigation failures will be reduced.

Since some PCILF credits will be released in advance of impacts, some will be released concurrently with impacts, and some will be released after the impact (when advance credits are used), a *concurrent* temporal loss factor (See Appendix D, Section 3.4) normalizes debit calculations and is therefore recommended when compensatory mitigation is to be provided by purchasing PCILF credits. The recommended TLF will be reviewed annually, upon submittal and review of the annual tracking report. If it turns out that the PCILF Program fulfills credit sales prior to credit demand and continues to sell only released pre-capitalized credits, the Sponsor may request that the *advance* TLF be considered for use. Conversely, if the Sponsor has a balance of unfilled credits, the Sponsor should recommend a *delayed* TLF until the desired credit balance is again attained. In either case, the Sponsor only “recommends” the TLF because the regulatory agencies ultimately determine which TLF factor and how many PCILF credits will be needed for any particular debit project. Exhibit 15 illustrates this accounting and use of advance versus and released credits and where pre-capitalized credits fit in.

## APPENDIX F: PROGRAM ACCOUNT

This appendix describes how PCILF Program funds are invested, how fees are set, how funds are allocated within the Program Account, the process by which funds are disbursed, the reporting requirements, and the fee ledger, which will track income from PCILF Mitigation Fees and expenditures.

The Program Account is an account established by PCSWM to track fees accepted and disbursed. All funds collected from in-lieu fee permittees shall be deposited into the PCILF Program Account which shall be separate from any accounts that receive funds from entities other than permit applicants utilizing the PCILF Program for their compensatory mitigation requirements. The PCILF Program will maintain a fee ledger (Exhibit 8) which shall track the prescribed percent allocations to sub accounts (see section 4.0 below). The majority of funds in the account at any given time are allocated toward fulfillment of credits at mitigation projects, rather than administrative costs or other costs not associated with actual on the ground lift in wetlands functions and values. The Program Account will have sufficient funds to pay for ongoing monitoring, maintenance, and long-term management activities, as well as to implement any necessary contingency measures associated with implementation and ongoing management of ILF mitigation projects. No money shall be removed from the fund for any use other than the PCILF Program.

PCSWM shall ensure that the Program Account is established at a financial institution that is a member of the Federal Deposit Insurance Corporation (FDIC). All interests and earnings accruing to the Program Account shall remain in that account for use by the PCILF Program for the purposes of providing compensatory mitigation.

### 1.0 Investment of Funds

The PCILF Program Account funds will be within an established, interest-bearing Pierce County Account established solely for the use of the PCILF Program. All of Pierce County's cash—both receipts and disbursements, including fees collected through the PCILF Program—flows through Bank of America, which is a member of the FDIC.

Monies in the PCILF Program Account are invested according to the investment strategy managed by Pierce County. All interest earnings accrue back to the PCILF Program Account. The PCILF Accounts Manager (the Sponsor) will allocate interest earnings to Service Area Contingency and Long Term Management Accounts within the PCILF Program Account. The Sponsor will record interest accrued to the PCILF Program Account in the ledger. The Sponsor will split interest earnings proportionally between Service Area accounts in proportion to the balance of all moneys allocated to each Service Area in the program. For example, if 20 percent of the PCILF Account balance is allocated to the WRIA 11 Service Area, 20 percent of the

interest earnings for the PCILF Account will be allocated to the WRIA 11 Service Area, split evenly among Contingency and Long-Term Management Accounts.

The PCILF Program Account is auditable by the state of Washington. Additionally, the IRT will receive annual reports and audit the account as described in Section 6.0 of this Appendix (Program Account Reporting).

All fees collected from the sale of PCILF credits will be deposited into the PCILF Program Account, and allocated to specified sub-accounts according to the service area in which the impact occurred-- as described in Section 4.0 (Allocation and Use of PCILF Fees).

## 2.0 ILF Program Mitigation<sup>8</sup> Fees

Mitigation Fees will comprise two fees: a Credit Fee and a Land Fee. These fees will be consistent everywhere within a Service Area but will likely differ between Service Areas.

Credit Fees will be used to implement all aspects of mitigation projects undertaken by the PCILF Program, related to producing mitigation credit. Section 332.8(o)(5)(ii) of the Federal rule states that credit costs shall also be used for administration of the in-lieu fee program, as long as they are directly related to production of mitigation credit. Credit Fees *cannot* be used for activities such as trail maintenance, general litter patrol, and other types of routine public land stewardship or maintenance activities unrelated to management of a mitigation site.

The Service Area Credit Fee price will reflect average costs for implementing all components of all mitigation projects within each service area, based on cost analyses of recent applicable projects completed by Pierce County.

Land Fees will be used for acquisition of lands and/or land interests. The purpose of charging applicants Land Fees is to ensure that mitigation 'rights' on publicly owned land are not given away to private interests without reasonable compensation. Additionally, setting Land Fees aside in an account separate from the Mitigation Projects Account will help to ensure that construction cost overruns do not jeopardize the PCILF program's opportunity to purchase land or land interests for future receiving sites. As such, Land Fees are added to the Credit Fees; together, the Land Fees and Credit Fees constitute the Mitigation Fee.

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<sup>8</sup> In Pierce County Code, 18G.20, the "mitigation fee" is labeled the "credit fee". In this document, "mitigation fee" is the total of the land fee and the credit fee, but in Pierce County Code, the full cost to the developer is known as the "credit fee", and it includes that portion of the fee that will be deposited into the land fee account.

Service Area Land Fee prices are determined per credit (not per acre) and they are based on current market analyses of lands that were purchased, or that may be considered for purchase, for the purpose of wetland or aquatic habitat restoration within the Service Area.

### 3.0 Calculation of Mitigation Fees

Mitigation Fees (Credit Fees and Land Fees together) will be the same from one area to another within a Service Area. Although the costs to implement each receiving site will vary, the fees will be averaged over all receiving sites within each Service Area, so that Mitigation Fees will be consistent. Permittees will not specify which receiving site they wish to purchase credits from so it is irrelevant whether their credits ultimately come from a cheaper site or a site that was more costly to implement: Permittees simply purchase *Service Area Credits*. It is then the role of PCSWM and the IRT to designate (and PCSWM to record) the receiving site(s) to which debits will be applied. Individual credit purchases could even be allocated toward future, unknown receiving sites (by using advance credits; as would occur if released credits are unavailable).

According to the Federal rule, fees for ILF Program credits must represent full-cost accounting:

For in-lieu fee programs, the cost per unit of credit must include the expected costs associated with the restoration, establishment, enhancement and/or preservation of aquatic resources in that service area. These costs must include, as appropriate, expenses such as land acquisition, project planning and design, construction, plant materials, labor, legal fees, monitoring, and remediation or adaptive management activities, as well as administration of the in-lieu fee program. 33 CFR 332.8(o)(5)(ii).

The Mitigation Fee prices will thus reflect full-cost accounting for establishment and management of mitigation sites. It will include costs associated with site selection, permitting and design, construction, monitoring and maintenance, long term management, program administration, contingencies and property rights acquisition.

PCSWM's proposed mitigation fee (Credit Fee + Land Fee) is based on actual costs and expected costs of all aspects of implementation of the first two pre-capitalized mitigation receiving sites (Exhibit 6). As additional receiving sites are implemented, all known and projected costs will be recalculated and the mitigation fees adjusted (with Corps and Ecology Approval) such that the PCILF Program Account remains in balance.

### 3.1 Explanation of Credit Fee Determination for Wetland Mitigation

Service area credit prices will be based on all known information; the best of which is the actual cost to Pierce County to implement pre-capitalized receiving sites. The Credit price for each service area will be calculated by averaging costs per credit from all receiving sites within the service area.

The PCILF Program will use a four-step process to determine cost per credit for each receiving site. This involves:

1. Evaluating the number of credits generated by each mitigation project, as determined through the Credit/Debit Tool, plus any additional lift. Each analysis will calculate the number of water quality credits, hydrology credits, and habitat credits gained as a result of activities performed at each project.
2. Determining full costs for each project, including all expenditures to date and all future expenditures expected to complete the project (including achieving the desired performance standards). PCSWM will review and analyze project budgets to ensure that budgeted costs will be sufficient to cover all requirements of implementing a mitigation project according to the Federal rule.
3. Multiplying costs by the Consumer Price Index, as appropriate. Since projects typically require several years from property acquisition to implementation of mitigation measures, some of the initial costs may no longer reflect the true cost of implementation. The CPI factor is calculated by dividing the latest CPI index number provided by the US Department of Labor, Bureau of Labor Statistics for all Urban Consumers within the Seattle-Tacoma-Bremerton area (US Dept. of Labor 2014) by the annual average CPI of the year the costs were incurred. The initial cost is then multiplied by the resulting CPI factor to yield the CPI adjust costs for the current year.
4. Calculating the cost per credit by dividing the total (CPI adjusted) project costs by the total number of credits of lift associated with the project.

Given the difficulty determining which proportion of project costs may be associated with generating specific functional subtypes of credits (i.e., water quality, hydrology, and habitat), PCSWM will assume that the cost of each type of credit is the same as the next.

The prices of credit fees will be reviewed annually, to reflect costs associated with implementing mitigation projects through the PCILF Program. Credit fee adjustments will be reviewed and approved by The Corps and Ecology, in consultation with the IRT.

### 3.2 Explanation of Land Fee Determination

Per-credit Land Fees will be part of the total per-credit Mitigation Fee paid by the applicant and will be constant within each watershed Service Area. As stated above, the Service Area Land Fee prices are based on current market analyses of lands that were purchased or that may be considered for purchase (upon application of the compensation planning framework) for the purpose of wetland or aquatic habitat restoration.

## 4.0 Allocation and Use of Mitigation Fees

Upon receipt of Mitigation Fees, the Sponsor will allocate funds to an account specific for the Service Area in which the impact occurred, per the allocation percentages defined below. Credit Fees and Land Fees will be tracked by each Service Area and accounted for within that Service Area. As the Mitigation Fees are applied to projects the funds will be used in the proportions detailed below. If, upon several years of program administration, the funds become unbalanced, the Sponsor will consider and seek Corps and Ecology approval, in consultation with the IRT, regarding an amendment to these allocation percentages.

- Land Fees

100% of the Land Fees collected in the Service Area will be allocated to the Land Fee Account. These funds are exclusively for use in acquisition of property for use as roster sites or to secure Preservation Credits (Appendix I, Section 3.0).

- Program Administration: 15 percent of the Credit Fee<sup>9</sup>

Fifteen percent of Credit Fees will be used to pay for program administration duties, including but not limited to:

- Site selection and concept designs
- Fee and credit accounting
- Legal services
- Data management (e.g., maintaining spreadsheets and a database)
- Reporting
- Correspondence and meetings with the IRT and other permitting agencies
- Program development
- Other program administration duties as necessary, and coordinated with the Corps and Ecology

- Contingency: 10 percent of the Credit Fee

Ten percent of Credit Fees will be set aside for contingency, to be used to ensure financial resources for construction cost overruns, site repair, implementation of adaptive management plans, and site replacement during the establishment phase. This does not include routine maintenance during the establishment

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<sup>9</sup> It is expected that program administration costs will be greater in these first few years of program implementation. It is likely that a future amendment to the instrument would reduce the allocation of credit fees directed into the Program Administration Account.

phase or long-term maintenance and management. Any unused contingency funds will be transferred into the long-term management fund at the end of the establishment phase.

- Long-Term Management: 5 percent of the Credit Fee

Five percent of Credit Fees will be used for the sole purpose of long-term management, which shall include long-term monitoring, site protection enforcement, site management and maintenance (if needed), long-term reporting, and all other aspects involved in implementing the long-term management plans included in IRT-approved Mitigation Plans. Long-term management funds are not available for use on a project until the project enters the Long-Term Management Phase (i.e., after the establishment phase is complete and all credit associated with a project is released).

- Individual Mitigation Projects: 70 percent of the Credit Fee

Seventy percent of the Credit Fees will fund project implementation. This will include the following aspects of mitigation-receiving site development:

- Mitigation-receiving site engineering designs, Mitigation Plans, and project permitting
- Construction and implementation
- Establishment phase maintenance and monitoring

The process for planning and implementing mitigation projects is described in Appendix L.

In accordance with the Spending Authority and Disbursement of Funds within the Basic Agreement (Article IV. Item B.), the use of any portion of Mitigation Fees for land acquisition, project implementation, long term maintenance and management, or contingency implementation will only occur upon IRT review and co-chair approval. This is an explicit requirement of the Federal rule (33CFR 332.8(i)(2)):

The sponsor must submit proposed in-lieu fee projects to the district engineer for funding approval. Disbursements from the program account may only be made upon receipt of the written authorization from the district engineer, after the district engineer has consulted with the IRT. The terms of the program account must specify that the district engineer has the authority to direct those funds to alternative compensatory mitigation projects in cases where the sponsor does not provide compensatory mitigation in accordance with the time frame specified in paragraph (n)(4) of this section.



If advance credits are used, the PCILF Program will have three growing seasons (about 3 years) after fees are collected to submit and gain IRT approval of a compensatory Mitigation Plan and to complete the initial physical and biological improvements (refer to Appendix L, Credit Fulfillment, Section 4.0).

## 5.0 Spending Authorization

Expenditure of funds for implementation of projects subject to the terms of this Instrument may only occur after receipt of written authorization from the Corps and Ecology after consultation with the IRT, pursuant to 33 CFR 332.8(i)(2). The exception to this is that the Corps and Ecology have pre-authorized the Sponsor to spend up to 75 percent of funds from the Program Administration Accounts upon receipt of Credit Fees from the permittee; no additional authorization is required for that expenditure. This is also addressed in the Basic Agreement, Article IV, item B, and the Spending Agreement template provided as Exhibit 12 to these Appendices.

Beyond the initial release of administrative funds, the Sponsor must submit a draft Spending Agreement form (Exhibit 12) to the Corps and Ecology. This should occur during the ILF Program receiving site selection and conceptualization process (Appendix K). Following consultation with the IRT, the District Engineer or designee and Ecology may sign the Spending Agreement authorizing the subsequent release of funds to the Sponsor.

In cases of adaptive management, non-compliance, or default, the Corps and Ecology, after consultation with the IRT, may direct the use of ILF Program funds according to either an amended Spending Agreement or issue a corrective action letter to the Sponsor (Appendices S and T).

By signing this Instrument, the Sponsor has agreed to abide by the direction of the Corps and Ecology in authorization, release, and use of ILF Program funds. The Sponsor acknowledges that failure to abide by the Spending Agreement or written requests from the Corps and/or Ecology is a violation of the Program Instrument and may result in Program termination, among other penalties.

## 6.0 Program Account Reporting

The Sponsor will compile and submit annual reports to the Corps, Ecology, and the IRT that will include, at a minimum, all financial activity in the program account, the beginning and ending balance of available credits, permitted impacts for each resource type, all additions and subtractions of credits, and any other changes in credit availability (e.g., additional credits released or if credit sales are suspended).

This submittal of annual reports is subject to the requirements of 33CFR 332.8(i)(3):

The sponsor must provide annual reports to the district engineer and the IRT. The annual reports must include the following information:

- (i) All income received, disbursements, and interest earned by the program account
- (ii) A list of all permits for which in lieu fee program funds were accepted. This list shall include: The Corps permit number (or the state permit number if there is no corresponding Corps permit number, in cases of state programmatic general permits or other regional general permits), the service area in which the authorized impacts are located, the amount of authorized impacts, the amount of required compensatory mitigation, the amount paid to the in-lieu fee program, and the date the funds were received from the permittee
- (iii) A description of in-lieu fee program expenditures from the account, such as the costs of land acquisition, planning, construction, monitoring, maintenance, contingencies, adaptive management, and administration
- (iv) The balance of advance credits and released credits at the end of the report period for each service area
- (v) Any other information required by the district engineer

The following sections of the Federal rule describe reporting requirements:

33 CFR 332.8(q) *Reporting.*

- 1) *Ledger account.* The sponsor must compile an annual ledger report showing the beginning and ending balance of available credits and permitted impacts for each resource type, all additions and subtractions of credits, and any other changes in credit availability (e.g., additional credits released, credit sales suspended). The ledger report must be submitted to the district engineer, who will distribute copies to the IRT members. The ledger report is part of the administrative record for the mitigation bank or in-lieu fee program. The district engineer will make the ledger report available to the public upon request.
- 2) *Monitoring reports.* The sponsor is responsible for monitoring the mitigation bank site or the in-lieu fee project site in accordance with the approved monitoring requirements to determine the level of success and identify problems requiring remedial action or adaptive management measures. Monitoring must be conducted in accordance with the requirements in 33 CFR 332.6, and at time intervals appropriate for the particular project type and until such time that the district engineer, in consultation with the IRT, has determined that the performance

standards have been attained. The instrument must include requirements for periodic monitoring reports to be submitted to the district engineer, who will provide copies to other IRT members.

- 3) *Financial assurance and long-term management funding report.* The district engineer may require the sponsor to provide an annual report showing beginning and ending balances, including deposits into and any withdrawals from, the accounts providing funds for financial assurances and long-term management activities. The report should also include information on the amount of required financial assurances and the status of those assurances, including their potential expiration.

Finally, as provided in 33 CFR 332.8(i)(4), “the district engineer may audit the records pertaining to the program account. All books, accounts, reports, files, and other records relating to the in-lieu fee program account shall be available at reasonable times for inspection.”

## 7.0 Fee Ledger

The Sponsor will maintain two ledgers: (1) a non-financial ledger, which will track the exchange of debits and credits (this is known as the Credit/Debit Ledger, Exhibit 7); and (2) a financial ledger, which will track Mitigation Fees and expenditures (The Fee Ledger, Exhibit 8). Both ledgers will be organized by service area, and the two will be related to each other. The ledgers will be used to track the source of funding for mitigation projects as well as where and how Credit Fees are spent.

This section describes the fee ledger, and Appendix G describes the credit ledger.

The Fee Ledger (Exhibit 8) will track all income (Mitigation Fees) and expenditures within the program. The Fee Ledger will consist of separate “sub-ledgers” for each service area. Each service area fee ledger will clearly show the following:

For each impact project:

- Amount of credit fee collected
- Jurisdictional notation and impact project permit numbers (different regulatory jurisdictions have unique cataloging systems; they will all be included). Some projects involve federally jurisdictional wetlands, others non-federally jurisdictional wetlands (e.g., isolated wetlands), others locally-regulated critical area resources only, many, or a combination. The use of different permit numbers will indicate which jurisdictions are involved.
- Service Area of the impact project

For each service area:

- Deposits and Expenditures for the Land Fee Account:
  - Amount and origin of deposits (impact permit numbers)
  - Property and property rights acquisitions (parcel numbers and purchase prices)
- Deposits and Expenditures for the Program Administration Account:
  - Amount and origin of deposits (impact permit numbers)
  - Program administration expenditures
- Deposits and Expenditures for the Contingency Account:
  - Amount and origin of deposits (impact permit numbers)
  - Contingency expenditures (mitigation project name and description of expenditures)
- Deposits and Expenditures for the Long-Term Management Account:
  - Amount and origin of deposits (impact permit numbers)
  - Long Term Management expenditures (mitigation project name and description of expenditures)
- Deposits and Expenditures for each Individual Mitigation Projects Account:
  - Amount and origin of deposits (impact permit numbers)
  - List of expenditures covering all aspects of implementing individual mitigation-receiving projects within each service area, which are not part of general ILF Program administration. This will include site design, permitting, construction, maintenance and monitoring, etc. (see Appendix L for implementation tasks).

## APPENDIX G: CREDIT ACCOUNTING

The Pierce County ILF Program will compile and submit an annual credit ledger report for the Corps, Ecology, and IRT that will include the following information:

- Beginning and ending balances of available credits for each resource type and service area
- Beginning and ending balances of permitted impacts for each resource type and service area
- All additions and subtractions of credits
- Any other changes in credit availability (e.g., additional credits released, credit sales suspended)

The credit ledgers (Exhibit 7) will track credits that are sold, as well as fulfillment credits that will be released once mitigation projects achieve performance standards. From a credit accounting standpoint, the Sponsor will seek to maintain a surplus of credits available (released credits as well as advance credits) to sell. The PCILF Program aims to stay ahead of unavoidable, permitted impacts by continually generating credits through mitigation prior to drawing down the total amount of pre-capitalized credits (keeping a positive balance on the pre-paid credit card). The Sponsor aims to minimize the use of advance credits and thereby reduce the loss of functions typically associated with temporal loss and mitigation failures.

### 1.0 Tracking and Balancing Credits by Functional Type

#### 1.1 Tracking Functional Gains and Losses

Until the PCILF Program begins to sell credits to offset debits associated with unavoidable, permitted impacts, it is hard to predict how credits in each function category will balance with debits in each function category (see Appendix D, Section 2.0). Identifying mitigation-receiving sites and designing projects to earn habitat credits may prove easy, while implementing mitigation projects that will earn hydrology and water quality credits may be more difficult. Also, priorities in a watershed may indicate that an imbalance among function categories is desirable. In other cases, balancing debits and credits evenly across function types may be the goal.

As the program accrues Mitigation Fees and implements mitigation-receiving sites through time, the type and amounts of debits and credits, and the balance among them, will be tracked and reported to the Corps, Ecology, and the IRT (via the Credit/Debit Ledger, see below). The Sponsor will consult with the IRT to discuss whether the function categories of credits should evenly balance the function buckets of debits or if “trading” among function categories would better achieve no net loss or regional restoration priorities. It is likely that the desired balance

will vary by location, according to specific site and/or watershed needs. This consideration will be included during the development of each receiving site mitigation plan. Tracking each of the three function categories of debits and credits separately will allow these decisions to be made in an explicit and transparent way.

The sponsor shall be responsible for taking the following steps to ensure functional losses are mitigated through implementation of projects that achieve equivalent or greater functional gains within each service area:

1. When a mitigation credit is sold to offset an unavoidable impact in a given service area, the sponsor shall identify, quantify and record the debits of each functional type lost as a result of the impact.
2. The sponsor shall consider these functional losses during the process of selecting mitigation sites in the service area (see Appendix K) and strive to design and implement projects that fully compensate for functional losses in a manner that is consistent with addressing watershed needs.
3. The sponsor shall quantify the functional credit types earned through implementation of a mitigation project.
4. For each service area, the sponsor shall maintain a ledger of all debits and credits, including the functional type of each credit and debit (Exhibit 7).

## 1.2 Timing Considerations for Achieving Functional Balance

The following conditions apply with respect to fully offsetting functional losses with equivalent or greater functional gains within a particular service area.

1. When balancing functional types is necessary to meet science-based watershed needs and an imbalance appears on the credit/debit ledger, the Sponsor shall make it a priority to alleviate outstanding deficits in functional credit type with the next mitigation project implemented in the service area. This may mean, for instance, that the siting and design of the next mitigation receiving site within that service area shall maximize gains in water quality or habitat function, for instance, and minimize other function types.
2. If there is still a deficit in one or more functional credit types after two mitigation projects are implemented following a credit sale, and addressing the deficit is consistent with meeting science-based watershed needs, then the next mitigation project implemented must address the functional deficit.
3. If functional losses are not offset by the third implemented mitigation project subsequent to a given credit sale or if more than ten (10) years have passed since the

initial credit sale for which there is still a functional deficit, and addressing the deficit is consistent with meeting science-based watershed needs, then the conditions outlined in Section 1.3 below shall apply.

### 1.3 Functional Balance Compliance Measures

The goal of fully offsetting functional losses with equivalent or greater functional gains is consistent with the intent of the Federal Rule (See Preamble to Rule, 33 CFR Parts 325 and 332 pp. 19596 and 19601), but the text of the rule allows the district engineer discretion to approve out of kind mitigation when such mitigation occurs in a watershed context [33 CFR 332.3(e)]. Pierce County recognizes the importance of fully offsetting functional losses in cases where doing so addresses science-based watershed needs. For example, maintaining and increasing hydrologic functions within the landscape is an important watershed function region-wide; as such, watershed needs would require that any losses of hydrologic function would need to be replaced in-kind.

If the Sponsor fails to meet the requirements specified in Sections 1.1 and 1.2 above, PCSWM shall restrict operations of the PCILF in the affected watershed in the following ways:

1. If the third project implemented within a service area following a given credit sale in the same service area does not address outstanding functional deficits, or if more than ten (10) years have passed since an initial credit sale for which there is still a functional deficit, then no more credit sales of that functional type shall be allowed in that service area and the balance is rectified.
2. Money from future sales of credit types not restricted by measure 1.3.1 above shall be used to address the functional deficit(s) in the affected functional category(ies).
3. The restriction on sales of credits in functional categories restricted per 1.3.1 above shall continue until the sponsor implements a mitigation project that addresses the deficit (i.e., that the credit ledger reflects the deficit in a functional credit category has been eliminated).

## 2.0 Credit/Debit Ledger

The Sponsor will maintain a Credit/Debit Ledger (Exhibit 7) to account for all freshwater wetland credit transactions. This ledger will be used to track credits that are sold as well as credits that are released as mitigation projects meet performance standards (see Section 5.0, Credit Release Schedule, in Appendix L). Credits and debits will be tracked by function categories as stated above.

The PCILF Program will compile and submit an annual ledger report for the Corps, Ecology, and the IRT that will include the beginning and ending balance of available credits (released and advance credits), permitted impacts for each resource type, all additions and subtractions of

credits and any other changes in credit availability (e.g., additional credits released or if credit sales are suspended).

The Credit/Debit Ledger will contain basic information about each impact site and mitigation project. Upon PCILF Program authorization, the Credit/Debit Ledger will reflect the amount of “advance credits” and pre-capitalization released credits (if applicable) allocated by the Corps and Ecology (Appendices E and EE).

### 3.0 Aquatic Areas Ledger

The Sponsor will also maintain a ledger to track non-wetland aquatic area and aquatic area buffer impacts and lift. The Aquatic Areas Ledger is necessary for those infrequent circumstances when it is proposed to use wetland (and associated stream credits—as within the South Midland Wetland Reserve receiving site) to compensate for non-wetland aquatic resource impacts. The tool used to calculate wetland credits and debits (Appendix D, Section 2.0) is only designed to assess wetlands, not wetland buffers and other aquatic resources such as rivers and streams.

The template for the Aquatic Areas Ledger is included as a worksheet in Exhibit 7.

### 4.0 Credit Ledger Reporting

The Sponsor will submit annual Credit/Debit Ledger reports to the Corps and Ecology according to the requirements specified in the Federal rule, 33CFR 332.8(q)(1):

*Ledger account.* The sponsor must compile an annual ledger report showing the beginning and ending balance of available credits and permitted impacts for each resource type, all additions and subtractions of credits, and any other changes in credit availability (e.g., additional credits released, credit sales suspended). The ledger report must be submitted to the Corps and Ecology, who will distribute copies to the IRT members. The ledger report is part of the administrative record for the mitigation bank or in-lieu fee program. The Corps and Ecology will make the ledger report available to the public upon request.

The ledger report will include a review of the use of the concurrent TLF and any recommendations to amend it, as might occur if the PCILF Program either maintains a balance of released credits or, conversely, if the advance credit pool has been allocated at greater than 50 percent of the initial balance.

### 5.0 IRT Concerns with Use of Credits

If an IRT member has a concern with how PCILF Program credits are being used or whether use is consistent with the terms of the instrument, the concerned IRT member may notify the Corps and/or Ecology in writing of the concern per 33 CFR 332.8(s). This section of the Federal Rule



states: “Resolution of the concern is at the discretion of the district engineer consistent with applicable statutes, regulations, and policies regarding compensatory mitigation requirements for DA permits. Nothing in this section limits the authorities designated to IRT agencies under existing statutes or regulations.”

Further, IRT members with permitting authority retain their right to enforce permit conditions on any permits issued according to pertinent state or local regulations.



## APPENDIX H: INTRODUCTION TO THE COMPENSATION PLANNING FRAMEWORK

The requirement in the Federal Rule for a Compensation Planning Framework (CPF) is intended to address concerns regarding short-comings in past operation of ILF programs. The CPF sets ILF programs apart from mitigation banking and permittee-responsible mitigation. It details how the ILF program will select and secure project sites and implement mitigation projects in a watershed context. This framework is essentially a watershed plan designed to support resource restoration, and must include an analysis of historic freshwater wetland losses and current conditions, a description of the general amounts, types, and locations of freshwater wetland resources the program will seek to provide, and a prioritization strategy for selecting and implementing compensatory mitigation activities. This type of advanced planning will ensure that ILF programs are guided by a thorough understanding of the needs, opportunities, and challenges of the areas in which they operate, which will allow them to select and design more successful projects and better estimate full project costs (preamble to the Federal Rule, 33 CFR Parts 325 and 332). Unlike mitigation bank proposals where the mitigation bank site is a key component of the banking instrument, ILF programs can be approved without the identification of *any* site (specific sites can be added later, with amendments to the instrument). Therefore, the CPF is critical to the approvability and success of ILF program instruments.

Appendices I through R and V establish the CPF. These Appendices provide information about each of the service areas covered by the PCILF Program and outline the process by which mitigation projects will be implemented. The CPF includes descriptions of all steps involved in the mitigation process, including mitigation-receiving site selection, project planning and implementation, monitoring, and long-term maintenance and stewardship provisions. This CPF describes program elements designed to meet requirements of the Federal rule at 33 CFR 332.8(c). Table 2 shows the required elements of the Federal rule and the sections of this Instrument that address these requirements.

Table 2. Location of Required Elements of the CPF

<b>33 CFR Part 332 Section</b>	<b>Summary Description of Federal Rule Requirement</b>	<b>Relevant Section(s) of this Instrument</b>
<b>§332.8(c)(1)</b>	Compensation Planning Framework purpose; need for watershed approach	Appendix I: Watershed Approach to Mitigation
<b>§332.8(c)(2)(i)</b>	Service area descriptions	Appendix J, Sections 1.0 and 2.0 and Exhibits 1 to 3 (maps)
<b>§332.8(c)(2)(ii)</b>	Threats to aquatic resources <sup>10</sup>	<i>Threats</i> subsections in Appendix J, Sections 1.0 and 2.0
<b>§332.8(c)(2)(iii)</b>	Analysis of historic losses of aquatic resources	<i>Historic Losses</i> subsections in Appendix J, Sections 1.0 and 2.0
<b>§332.8(c)(2)(iv)</b>	Current aquatic resource conditions	<i>Physical Description and Current Conditions</i> subsections in Appendix J, Sections 1.0 and 2.0
<b>§332.8(c)(2)(v)</b>	Aquatic resources goals and objectives for each service area	<i>Aquatic Resource Goals and Objectives</i> subsections in Appendix J, Sections 1.0 and 2.0
<b>§332.8(c)(2)(vi)</b>	Prioritization strategy for implementing mitigation	Appendix K and Appendix L
<b>§332.8(c)(2)(vii)</b>	Preservation objectives	Appendix I, Section 3.0

<sup>10</sup> The term “aquatic resources” is used in the Federal Rule. The PCILF Compensation Planning Framework only addresses threats and historic losses to freshwater wetlands and not other freshwater aquatic resources.

<b>§332.8(c)(2)(viii)</b>	Description of public and private stakeholder involvement	Appendix K, Section 1.0
<b>§332.8(c)(2)(ix)</b>	Long-term protection and management strategies	Appendix Q
<b>§332.8(c)(2)(x)</b>	Program evaluation and reporting	Appendix O and Appendix V
<b>§332.8(c)(2)(xi)</b>	Other compensation planning information as required by the Corps and/or Ecology	Will address in amendments to this Instrument as necessary



# APPENDIX I: WATERSHED APPROACH TO MITIGATION

## 1.0 General Approach

Making mitigation decisions according to a “watershed approach” is an important requirement of the Federal rule, and is a guiding principle for the PCILF Program. The Federal rule states:

*Watershed approach* means an analytical process for making compensatory mitigation decisions that support the sustainability or improvement of aquatic resources in a watershed. It involves consideration of watershed needs, and how locations and types of compensatory mitigation projects address those needs. A landscape perspective is used to identify the types and locations of compensatory mitigation projects that will benefit the watershed and offset losses of aquatic resource functions and services caused by activities authorized by DA permits. The watershed approach may involve consideration of landscape scale, historic and potential aquatic resource conditions, past and projected aquatic resource impacts in the watershed, and terrestrial connections between aquatic resources when determining compensatory mitigation requirements for DA permits. [33 CFR 332.2]

This section provides an overview of how the PCILF Program Sponsor, in consultation with the Corps, Ecology, and IRT, will prioritize selection of mitigation-receiving sites to meet watershed needs.

The first two steps in the mitigation decision-making process apply to all impact projects as required by federal, state, and local rules:

1. AVOID and MINIMIZE impacts as required by Pierce County Code, the Federal Clean Water Act, state policies, etc.
2. Exhaust all ecologically-preferable and appropriate on-site mitigation options

When unavoidable impacts to aquatic areas are allowed and mitigation fees are collected to enable mitigation through the PCILF Program, decisions for selecting mitigation sites will be made according to the stepwise approach in each service area, as detailed below:

### 1. Document impacts

PCILF Program Manager enters impact description and data into the debit worksheet of the Credit/Debit Ledger (Exhibit 7)

### 2. Determination of sufficient credit balance

The Sponsor determines if a sufficient number and functional-type balance of “released” credits is available in the service area within which aquatic resource

impacts occurred. The number of released credits will need to equal or exceed the number of debits required to compensate for the wetland impact.

- a. **If YES**, the PCILF Program sells the required number of credits to the applicant and enters the transaction data into the Credit/Debit Ledger spreadsheet
- b. **If NO**, the PCILF Program sells advance credits, go to step 3<sup>11</sup>
- c. If selling available released or advance credits results in an unacceptable imbalance of functional credit types within the Service Area, follow Appendix G.1.1.3 to re-balance functional credit types

### **3. Determine ecological needs in service area where impact(s) occur(s)**

The Sponsor will review best available science and document ecological needs within the service area. The Sponsor will consider available watershed plans, analyses, watershed characterization efforts, staff expertise, etc. in a manner consistent with how watershed needs have been determined for each service area (see Appendix J). Any other special factors or attributes of a particular freshwater reach, sub-basin, and service area will be considered as well, including existing or planned major impact projects, further projected development impacts, existing or planned major restoration projects, etc.

Documentation of ecological and watershed needs will be presented to the IRT as supporting information for proposed mitigation receiving-sites.

### **4. Look for a mitigation site in the service area that meets ecological needs of the watershed**

Potential mitigation sites will be reviewed according to the criteria presented in *Selecting Wetland Mitigation Sites Using a Watershed Approach* (Hruby et al. 2009). In an urban environment, potential receiving sites may fail to meet the sustainability criteria of this approach. This does not mean, however, that receiving sites should not be located in these areas of the county—they provide important socioeconomic functions by being sited there, as well as other important functions. However, specific measures may be required to ensure that these wetlands will remain viable, such as specific long-term management tasks,

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<sup>11</sup> Steps 3 to 5 will be followed for the selection of future pre-capitalized receiving sites.



more strenuous site monitoring, and wider buffers. The site selection process (Appendix K) addresses sustainability of urban receiving sites.

**5. Consider type, amount, and location of impacts to functions and consider ecological needs of service area**

- a. Sponsor follows site selection process outlined in Appendix K.
- b. Sponsor selects one or more potential mitigation-receiving site(s) addressing watershed needs for recommendation to the IRT.
- c. Sponsor presents to the IRT the proposed mitigation-receiving site selection(s) and rationale for the site selection, including documentation of watershed needs.

Following review and approval by the IRT of the selected site(s) and associated concept plans (see Appendix L,) the PCILF Program will develop a Mitigation Plan for IRT review. Upon IRT approval of the Mitigation Plan, publication of a joint Corps/Ecology Public Notice, and obtaining required permits, the Sponsor will begin implementation of the mitigation project(s) according to the credit fulfillment steps outlined in Appendix L of this Instrument. In all cases, “Land acquisition and initial physical and biological improvements must be completed by the third full growing season after the first advance credit in that service area is secured by a permittee, unless the district engineer determines that more or less time is needed to plan and implement an in lieu fee project.” (33 CFR 332.8(n)(4)).

In the event of failure to meet this schedule, without appropriate justification and approval by the Corps and Ecology, and following consultation with the IRT, Pierce County shall be subject to non-compliance provisions outlined in the Basic Agreement, Article V, item R, and Appendix T of this instrument. Additionally, “if the sponsor fails to provide the required compensatory mitigation, the district engineer may pursue measures against the sponsor to ensure compliance.” (33 CFR 332.3(l)(3)). These measures will be discussed with the Sponsor and/or other responsible parties and, “may include site modifications, design changes, revisions to maintenance requirements, and revised monitoring requirements. The measures must be designed to ensure that the modified compensatory mitigation project provides aquatic resource functions comparable to those described in the mitigation plan objectives.” (33 CFR 332.7(c)(2),(3)).

## 2.0 Ecological Condition and Watershed Needs

Information regarding the ecological conditions of Pierce County’s watersheds is available to the PCILF Program to use in making decisions about implementing mitigation according to a watershed approach as required by the Federal rule (i.e., determining watershed needs). Some of these key resources are described below. A list of all known relevant scientific analyses,

reports and other planning documents to guide a watershed approach to mitigation decision-making in each service area will be maintained as Exhibit 13. This will include:

- Salmon Recovery Plans
- Pierce County Flood Hazard Management Plan (Pierce County Public Works and Utilities 2013)
- Chambers-Clover Creek Basin Plan
- Nisqually River Basin Plan
- Puget Sound Characterization results for Water flow and Water Quality within WRIAs 11 and 12 (Washington State Department of Ecology, 2014)
- Puget Sound Characterization – Volume 2 Habitat Assessments – results for Terrestrial and Freshwater (Washington State Department of Ecology, 2014)
- Other relevant plans

Additionally, there are numerous reconnaissance reports for many basins or regions of the County. Individually, these planning efforts may focus on a particular geographic area or a fairly narrow spectrum of ecological “services” within the landscape (e.g., flood risk reduction, water quality improvement, or salmon conservation). Collectively, these reports, plans, and analyses provide information about which ecological functions within a watershed are most important to protect and/or restore. This body of work provides a solid scientific basis for making decisions about how to implement mitigation that will have the greatest benefit to wetlands and other aquatic resources in Pierce County. It also provides information about societal value of these resources.

The information available to guide mitigation decisions is dynamic. Local, state, federal, and tribal scientists and planners continue to collect new data, perform new analyses and employ innovative methods in examining the ecological systems across the county landscape. As new reports and analyses become available, they will be added to the resources informing mitigation decisions through the ILF Program and incorporated by reference into Exhibit 13 of this Instrument.

Appendix J includes information about each of the PCILF Program service areas, including the following sections for each service area:

- Physical Description
- Historic Conditions

- Current Conditions
- Threats
- Aquatic Resource Goals and Objectives
- Advance Credits Requested

### 3.0 Preservation as Mitigation Strategy

Preservation of high-value aquatic resources that are under threat of destruction or adverse modification (such as conversion to residential development, commercial development, silviculture practices, or other activity that would significantly alter ecosystem functions and values) may be used to provide compensatory mitigation as part of the PCILF Program. These resources must be determined to meet the preservation criteria in the Federal Rule (33 CFR 332.3(h)) and must meet the site selection criteria outlined below.

Given the threats to and declining trajectory of wetlands within Pierce County, a precautionary strategy that includes preservation to ensure the continued viability of healthy wetlands is prudent. Preservation as a mitigation strategy will target those systems that are relatively undisturbed or the least disturbed within the service areas. Preservation will be considered an appropriate mitigation strategy when all of the following criteria are met (33 CFR 332.2(h)):

1. The resources to be preserved provide important physical, chemical, or biological functions for the watershed.
2. The resources to be preserved contribute significantly to the ecological sustainability of the watershed as demonstrated through the use of appropriate quantitative assessment tools.
3. Preservation is approved by the district engineer to be appropriate and practicable.
4. The resources to be preserved are under threat of destruction or adverse modifications.
5. The preserved site will be permanently protected through an appropriate site protection instrument.

To the extent appropriate and practicable, preservation shall be done in conjunction with aquatic resource restoration, creation, enhancement, or a combination of activities. In such cases, the preservation credit calculation methods described in the Credit/Debit Tool will be used to assess the amount of preservation credit earned by preserving a property. This

assessment considers the likelihood of impacts actually occurring and weights the assessment according to the following considerations:

1. The extent to which proposed management activities within the preserve area promote natural ecological conditions such as exclusion of invasive exotic species or human impacts.
2. The ecological and hydrological relationship between wetlands, aquatic areas and uplands to be preserved.
3. The scarcity of the habitat provided by the proposed preservation area and the degree to which listed and imperiled species use the area.
4. The proximity of the area to be preserved to areas of national, state or regional ecological significance, such as national or state parks, Shorelines of Statewide Significance and other regionally significant ecological resources or habitats, such as lands acquired or to be acquired through governmental or non-profit land acquisition programs for environmental conservation, and whether the areas to be preserved include corridors between these habitats.
5. Specific ecosystem services or processes that are provided by the preservation area and their value.

In cases when there is an existing easement over the property that meets the mitigation needs of the PCILF Program, credits cannot be derived through preservation; i.e., sites with existing conservation easements cannot generate credits through preservation as defined in the Federal Rule [33 CFR Part 332.3(h)]. In cases where an existing easement or other site protection instrument is insufficient to meet the mitigation needs of the PCILF Program, credits can be derived through additional preservation as determined on a case-by-case basis by the Corps and Ecology in consultation with the IRT.

Preservation sites may also serve as important reference sites, which can provide a template for replacing ecological functions at other mitigation sites within the service area. Such reference sites can also provide a benchmark for temporal and spatial trend analyses within the Pierce County service areas, which may inform performance standards and mitigation success criteria of the PCILF Program, as well as mitigation site success generally within the region.

Preservation may be particularly valuable as a mitigation strategy for protecting unique, rare, or difficult-to-replace aquatic resources, and may be the most appropriate form of compensatory mitigation for those resources. However, preservation alone will likely generate fewer credits than wetland creation or re-habilitation.

## 4.0 Other Resources for Decision-Making

The multi-stakeholder Mitigation that Works Forum recently completed a report, *Making Mitigation Work: The Report of the Mitigation that Works Forum* (Washington State Department of Ecology 2008), which provides an excellent overview of key strategies for implementing successful mitigation in Washington State. Recommendations of the Mitigation That Works Forum have been incorporated into this Instrument, and will guide mitigation decision-processes employed by the PCILF Program.

Also, Ecology has recently published guidance on assessing the potential for success and sustainability of mitigation projects. These documents provide a useful framework for considering watershed processes when making mitigation decisions:

- *Selecting Wetland Mitigation Sites Using A Watershed Approach* (Hruby et al. 2009)
- *Protecting Aquatic Ecosystems: A Guide for Puget Sound Planners to Understand Watershed Processes* (Stanley, S., J. Brown, and S. Grigsby 2005)

Through the course of program administration, Pierce County staff will seek new and innovative tools to guide decision-making processes for the PCILF Program with the overarching goal of implementing the best possible mitigation that most effectively meets watershed goals.



## APPENDIX J: SERVICE AREAS

For the purposes of the Pierce County ILF Program, service areas are defined by WRIA boundaries. Ecology and other state natural resource agencies developed the WRIs as a way to delineate the state's major watersheds. A watershed is the geographic region that drains water (and everything water carries) into a river, stream, or body of water. In the state of Washington, the WRIA provides a common denominator for local, state, federal, and tribal representatives to conduct natural resource planning. In Washington State, watershed goals and objectives and watershed plans for improving water quality and water quantity and recovering salmon are based on WRIs.

The PCILF Program proposes two initial service areas: WRIA 12 – the Chambers-Clover watershed (Exhibits 2A and 2B) – and those portions of WRIA 11 – the Nisqually watershed – that are within non-marine areas of Pierce County (Exhibits 3A and 3B). Service Areas include freshwater areas that are tidally influenced, within the lower reaches of streams and rivers. Impacts to tidally influenced freshwater wetlands or streams generally may only be mitigated through ILF credits if there are mitigation receiving sites that generate tidally influenced freshwater credits. Proposals to mitigate impacts to tidally influenced freshwater wetlands and streams through the ILF Program will be carefully reviewed by the IRT.

Sections 1.0 and 2.0 of this Appendix provide physical descriptions of the service areas, as well as descriptions of historic aquatic resource losses, current and future threats to aquatic resources, aquatic resource goals and objectives and the number of advance credits requested by service area. This information is summarized for the purposes of this Instrument. Plans, reports, and analyses from which information was drawn are cited in the text, and also listed in Exhibit 13. These plans were developed by natural resources professionals from Pierce County and other agencies, tribes, and institutions (e.g., WRIA Forum staff, University of Washington researchers). Information contained in the referenced plans was derived through a number of strategies, including field work as necessary to obtain valid, high quality data. In this way, information about service areas is based on an “appropriate level of field documentation” as required in CFR 33 332.8(c)(2)(iv).

### 1.0 The Chambers-Clover Creek Watershed - WRIA 12

#### 1.1 Physical Description

The Chambers-Clover Creek watershed (Exhibits 2A and 2B) extends from Puget Sound, east to the community of Graham and from Point Defiance on the north to the community of DuPont to the south. The watershed has a drainage basin of about 180 square miles. It includes the cities and towns of Fircrest, Ruston, University Place, Lakewood, DuPont, Steilacoom, and portions of Tacoma. The communities of Frederickson, Parkland, Spanaway, Midland and portions of Graham and South Hill lie within the watershed, as does a portion of Joint Base Lewis-McChord (JBLM).

Clover Creek is the main stream in WRIA 12. The headwaters for Clover Creek are near the community of Frederickson. The creek flows generally northwest for about 14 miles through the communities of Spanaway and Parkland and the city of Lakewood before flowing into Lake Steilacoom. Significant tributaries to Clover Creek include Morey Creek and the North Fork of Clover Creek. The largest lakes in the Clover Creek basin are Spanaway, Tule, and Lake Steilacoom. The American Lake system is also part of WRIA 12. This includes Murray Creek, which flows through JBLM, into American Lake. American Lake flows out through Sequelitchew Creek and thence to Puget Sound.

Chambers Creek flows out of the north end of Lake Steilacoom, and approximately 5 miles later discharges into Chambers Bay and Puget Sound. Most of the Chambers Creek basin falls into the jurisdiction of either the City of Tacoma or City of Lakewood.

Pierce County has divided this watershed into the following five sub-basins (see Exhibit 2B):

- Chambers Bay
- Clover Creek/Steilacoom
- American Lake (no surface water connection to Chambers or Clover Creek, but all lakes within the watershed have the same subsurface hydrology)
- Tacoma West (short watersheds that drain directly to Puget Sound)
- Islands (which consists, exclusively, of Ketron Island)

## 1.2 Historic Conditions

### *Geology and Human History*

The Chambers-Clover Creek watershed is entirely within the Puget Sound Basin, which is a north-south-trending depression situated between the Olympic mountain range on the west and the Cascade Range on the east (Schuster 2009, in Elder et al. 2011). This depression is the result of tectonic pressure, caused by the subduction of the Juan de Fuca plate under the North American plate (Haugerud 2004, in Elder et al. 2011). During the Pleistocene epoch (around 2.588 million to 12,000 years ago), Puget Sound was intermittently covered by thick sheets of glacial ice, which advanced southward from British Columbia (Troost and Booth 2008, in Elder et al. 2011). Each glacial event scoured and reshaped the topography created by the previous glacial event, and deposited abundant debris. This history of glaciations gave rise to alternating layers of permeable glacial outwash and impervious glacial till. The till restricts the vertical movement of water, causing groundwater to move horizontally through the outwash layers. The result of this geologic history is that many of the wetlands in the Clover-Chambers creek basin have hydrology that is driven by the shallow confined aquifer and expressed as seeps, springs, and artesian wells. Wetlands frequently occur along hillside seeps, where glacial till



restricts downward movement of water. These seeps, springs and artesian wells are also important in maintaining baseflow of stream networks in the basin. Other wetlands formed by glacial melt-water depositing over time in closed depressional basins as the glaciers receded (Elder et al. 2011).

In recent geologic time, but prior to European settlement and beaver trapping, beaver populations played a significant role in shaping aquatic ecosystem processes in the basin. Native American landscape-burning practices were likewise significant in shaping habitat mosaics and patch-networks of vegetation throughout the basin (Boyd 1999).

It has been estimated that five percent of the landscape within the Chambers-Clover watershed was wetland (5,414 acres of 101,042 acres) prior to European settlement (Washington State Dept. of Ecology 2014). This represents a loss of 871 acres, a 16 percent reduction in wetland area within the Chambers-Clover Creek watershed, from pre-settlement conditions. Urban expansion, forestry, agricultural practices, and infestations of invasive species of plants and animals have all contributed to the depletion of wetland resources over the past 200 years (Tacoma-Pierce County Health Department 2012).

According to the 2013 Pierce County Wetlands Inventory, Pierce County, as a whole, now contains roughly 39,030 acres of wetlands (4 percent of the County) and the Chambers-Clover Creek watershed contains 4,543 acres of wetlands (4.5 % of the service area; Exhibit 16).

#### *Groundwater Quality Affected by Close Surface-Groundwater*

Highly permeable outwash soils cover much of the watershed. This allows much of the precipitation that falls to readily infiltrate and recharge groundwater. This means that the groundwater quality is affected by the condition of the water runoff.

Contamination of shallow groundwater was reported as early as 1939, leading area residents to dig wells into the deeper groundwater system in the early 1940s (Pierce County Public Works and Utilities 2002).

Groundwater quality has continued to deteriorate over time, particularly since the 1960s. Between 1965 and 1985, the levels of nitrates and chlorides in the shallow groundwater system, throughout the entire watershed, rose by 67 and 400 to 500 percent, respectively. The contamination appears to be most closely linked to high-density residential areas using septic tanks and stormwater recharge systems (Brown and Caldwell 1991). Stormwater and septic systems continue to infiltrate and contribute to groundwater contamination.

The cumulative effects of water pollution and the desire to preserve as much of the current instream flow as possible for fish and wildlife habitat, recreation, and aesthetic purposes led to a review of consumptive appropriations of water from the Watershed. In 1980, the Washington State Department of Ecology closed to future out-of stream, non-exempt consumptive uses all

streams and all lakes in direct surface continuity with those streams (Washington State Department of Ecology 1979).

In 1988 the Tacoma-Pierce County Health Department submitted a petition for sole source aquifer designation of the Chambers-Clover Creek Watershed. This designation provides limited federal protection of drinking water supplies and is provided to areas in which ground water has been identified as serving a large population. Over 169,000 people within the Chambers-Clover Creek Watershed depended upon the Chambers-Clover Creek aquifer as their only source of drinking water at that time (Washington State Department of Ecology 1995). In 1993, the proposed sole source designation was approved by the US EPA, with the Sole Source Aquifer boundaries extending beyond WRIA 12 and including those portions of the Nisqually Watershed (WRIA 11) within Pierce County.

### *Rich Natural Resources*

Historically, the watershed provided an extensive shoreline connected to surface water drainages. This supported diverse populations of marine, freshwater, and anadromous fish. The Puyallup and Steilacoom Indian tribes have a long history of dependence upon fish and shellfish resources in this area as well as upon numerous plant resources (including wapato, camas, tule, and numerous other plant foods, fibers, and medicines) harvested from wetlands and other aquatic systems. The Clover Creek area was also known to support Western pond turtles and Western gray squirrels (Tobiason 2003).

Channel and flow modifications are blamed for the near extirpation of salmon from the middle reaches of Clover Creek.

### *Channel Reconfiguration and Drainage Modifications*

Interviews with early residents of the Clover Creek area repeatedly confirm that the entire reach of Clover Creek had consistent, year-round flow until 1939-1941 (Tobiason 2003). Over time, agricultural, residential and commercial activities have moved, modified, and channelized Clover Creek over most its length such that now portions of the middle-reach of the creek have only seasonal flow.

A mile-long segment of the creek, which is known as the middle-reach, was split into two channels in support of hop farming around 1895 (Tobiason 2003). An artifact of that is that the stream channels are now perched (at higher elevation) above the area between the channels--an area which is mostly seasonal wetland. The channel banks frequently fail and release flow to the middle area, where it disappears into the soils (Pierce County Public Works and Utilities 2002).

In the late 1930s Clover Creek was shunted into underground pipes to flow underneath McChord Air Force Base (now JBLM). Around the same time projects were implemented upstream to prevent flooding. It is believed that dredging and bulldozing activity may have broken through a layer of glacial till.

Sewage facilities constructed in the late 1970s were estimated to have the capacity to collect and transport 18,000 acre-feet per year of effluent out of the basin, and to thereby lower the underlying water table six to eight inches below its level at that time. This was thought to have exacerbated conditions that led to the creek drying up for extended periods during the summer months (Washington State Department of Ecology 1979).

One characteristic of the mid-reach of Clover Creek is the abundance of (mostly unpermitted) ponds. These ponds were created by diverting flows from creeks. They were generally unlined (which might have prevented surface water from infiltrating back to groundwater (Pierce County Public Works and Utilities 2002). Lake Steilacoom and Tule Lake were formed from such activities. Lake Steilacoom was once little more than a small pocket of standing water within a depressional wetland. It formed the headwaters for Chambers Creek. It became a lake (now 313 surface acres) when, in 1852, early settlers built a dam (at RM 4.1) on Chambers Creek. The dam at the outlet of Steilacoom Lake now controls the lake elevation. By 1975 the dam was found to be a total blockage to anadromous fish passage (Williams 1975). Since then, fish ladders have been installed at the dam to facilitate passage for spawning salmon (Runge et al. 2003).

From the outflow of Steilacoom Lake, Chambers Creek flows north for 1.5 miles and then west through a narrow, steep-sided ravine for 2.6 miles until it enters Chambers Bay. A dam spans the mouth of the creek and forms the head of Chambers Bay. This dam was constructed with a spillway and fish ladder and was probably intended as a diversion dam to provide water for the operation of the mill. It no longer serves its intended function but it does back up water, limit the extent of tidal influence within the estuary, blocks the downstream flow of sediment into Chambers Bay, and interferes with the natural upstream migration of salmonids.

The Clover/Chambers Creek network enters Puget Sound at Chambers Bay. This embayment has a long history of industrial use. The bay has been repeatedly dredged for navigation, used as a log storage facility, and has received industrial discharges from the nearby paper mill (last known as the Abitibi Mill). The former Abitibi Mill, at the mouth of Chambers Creek, operated from 1919 to 2000. Mill improvements in the 1940s and 1950s included leveling the lower portions of the site with the placement of fill adjacent to the mouth of Chambers Creek. The area was also reconfigured during a major road construction project in the mid-1980s. A railroad dike runs across the estuary mouth and a marina is now located in the southern portion of the inlet. The railroad dike constricts the outlet of Chambers Bay to Puget Sound; the ingress and egress of the tides is forced through a narrow railroad bridge.

All of these land uses dramatically reduced the quality and health of the bay for fish and wildlife. Tidal influence begins at the Chambers Creek Dam, which is approximately 0.75 miles upstream from the Northern Pacific Railroad dike across the mouth of the bay. But, the dam and the railroad dike block the free flow of tidal and fresh water, changing the natural qualities of the nearshore environment.

### 1.3 Current Conditions

The Chambers-Clover Creek watershed is predominantly urban. It currently has a population of about 390,000, which appears to be steadily increasing over time (Washington State Office of Financial Management 2011). Urban growth predictions assume that commercial and residential development will occur on much of the currently undeveloped land within this watershed. In fact, the majority of the watershed lies within existing urban growth boundaries. Of the areas in the watershed that are currently undeveloped, approximately 20 percent are located on the federally managed military reservation (JBLM).

National Wetlands Inventory (NWI) mapping, completed for Pierce County in 1985, identified 2,304 acres of wetlands in the Clover Creek basin. The NWI is a broad-brush inventory of wetland habitats interpreted from aerial photographs and it generally omits wetlands smaller than one-third of an acre and farmed wetlands. It also underestimates forested wetland areas. The wetlands mapped by the NWI were primarily palustrine emergent and scrub-shrub wetlands associated with creek channels and the headwaters of North Fork Clover, Clover and Spanaway Creeks. The Spanaway Creek area contained nearly 50 percent of the wetland area in the Clover Creek basin. Large tracts of forested and scrub-shrub wetland are located south and southwest of Spanaway Lake, that extend onto JBLM. These wetlands form the headwaters of Spanaway Creek (Pierce County Public Works and Utilities 2002).

The NOAA Coastal Services Center and Washington State agencies recently provided an updated inventory of wetland conditions, based on 2011 aerial/LANDSAT imagery (Washington State Department of Ecology 2011). Due to resolution of LANDSAT imagery it may not pick up wetlands smaller than one acre. That said, it does indicate that there are currently at least 3,077 acres of wetlands in WRIA 12 (including estuarine wetlands). Unlike NWI, the NOAA-CSC data set incorporates both soils data and topography. It is unlikely that wetland areas actually *increased* by 773 acres between 1985 and 2011 (from 3,077 acres to 2,304 acres). The apparent increase in wetlands is likely due to the inclusion of farmed wetlands, and better accuracy resulting from improved mapping methods.

The Pierce County Wetland Inventory is periodically updated from field delineation and reconnaissance surveys and while it does not provide a complete picture of wetland conditions, it does add detail and accuracy to the existing wetland inventory in certain areas. The 2013 Pierce County Wetland Inventory shows 39,030 acres of wetland in the entire county and 4,543 wetland acres within WRIA 12—*suggesting* another increase in wetland acreage, but most likely a result of more accurate mapping.

The latter two inventory methods are the latest and most accurate. From these data layers, we can safely say that wetlands currently comprise approximately 3,000 to 4,000 acres of WRIA 12.

Today, Clover Creek has perennial flow upstream of the Brookdale Golf Course where it is fed by the upper Clover Creek sub-basin. This upper sub-basin appears to be relatively unaltered

and still exhibits a wide and active floodplain. However, the middle reach of Clover Creek has intermittent flow as discussed in the previous section. Specifically, portions of the middle reach typically cease to have flow from the summer, well into December. Year-round flow begins again in Clover Creek downstream of the confluence with Spanaway Creek.

The headwaters of Clover Creek are fed primarily by groundwater discharge while the middle reach of the creek, in turn, recharges groundwater. Given the predominance of groundwater in determining the hydrology of the creek, rainfall events in the upper sub-basin have a minimal effect on creek level. Only after fall rains recharge groundwater levels do we see a return of flow to all reaches of the creek.

Pierce County SWM logs numerous complaints of flooding within the Clover Creek basin (Pierce County Public Works and Utilities 2002). Channelization of creeks, lack of floodplain connectivity, and accelerated flows of winter runoff from urbanized areas all contribute to flooding problems. Reed canarygrass and other invasive vegetation clog some creek segments, exacerbating this problem by reducing channel capacity. In addition, flood storage has been lost due to filling and grading in wetlands and floodplains. Flooding problems will intensify, surface water will disconnect from shallow aquifers, and groundwater discharge and recharge will be adversely affected as the watershed continues to develop and as impervious areas increase. Current permit requirements better address these issues than in years past, but past harm is slow to reverse.

The Chambers-Clover Creek System suffers from all manner of disturbed surface water flows. Low flows and intermittent flows, as described in the previous section, are a limiting factor for aquatic habitat within the basin. Among other unpermitted land and water uses, allocations of water rights contribute to low flows: over-allocations led to closure of the basin to all additional out-of stream consumptive uses of surface waters in 1980 (Washington State Department of Ecology 1979).

High flows that flush down the creek are also a concern. In early winter when the creek is transitioning from being dry or having ephemeral flow, the highly efficient, man-made storm system (i.e., concrete lining of the Clover Creek channel) responds quickly to storm events and sends a pulse of stormwater down the creek. This pulse (a false freshet) gives fish waiting in Lake Steilacoom a false indication to start upstream. But, as the pulse dies out and the creek rapidly dries again, salmonids can easily be stranded due to the lack of flow.

Poor water quality is a primary concern because drinking water in the Chambers-Clover watershed comes from a sole source aquifer. Water quality issues include fecal coliform bacteria, low dissolved oxygen, temperature, phosphorus, pH, turbidity, and toxic metals (such as arsenic, copper, and zinc) in surface waters (Table 3)(Washington Department of Ecology 2012). Groundwater contaminants include organic chemicals, nitrates, and chlorides. The water quality issues in this watershed impair drinking water, recreation, and fish/wildlife habitat, including reduced native salmon runs.

Table 3. Known Impaired Waters within WRIA 12

<b>Water Body</b>	<b>Water Quality Impairment</b>
<b>Unnamed tributary to Clover Creek at Bingham Avenue</b>	Bacteria
<b>Clover Creek, river mile 11.091 to 12.335</b>	Temperature , Bacteria
<b>Clover Creek, river mile 6.591 to 7.533</b>	Bacteria, pH
<b>Clover Creek, river mile 0.561 to 2.135</b>	Temperature, Bacteria, Dissolved Oxygen, Mercury, Lead, pH
<b>Morey Creek, river mile 0.312 to 1.44</b>	Dissolved Oxygen
<b>North Fork Clover Creek, river mile 1.088 to 2.851</b>	Bacteria
<b>Spanaway Lake</b>	Bacteria, Total Phosphorous
<b>Steilacoom Lake</b>	Total Phosphorus, Contaminated Sediment
<b>American Lake</b>	Total Phosphorus, Tissue Analyses

The dam at the mouth of Chambers Creek, initially constructed as part of the Abitibi-Consolidated paper mill operation, poses a barrier to migrating fish in the Chambers-Clover basin. With the removal of the Abitibi mill, the dam no longer serves the function for which it was historically intended and it now just backs up water. The Department of Fish and Wildlife (WDFW) operates a trap at the upper end of Chambers Bay for returning adult salmonids. Chinook are exclusively used for hatchery production. WDFW releases coho, chum, and other incidentally returning salmonids upstream of the dam. However, loss of feeding, spawning, and rearing habitat throughout all portions of the watershed has limited native anadromous fish populations. Water quality and flow conditions in the Chambers-Clover Creek watershed have also significantly deteriorated as the area has become urbanized over the past century. As a

result of these impairments, native runs have substantially declined. These issues have contributed to the extirpation of the Chambers-Clover early coho run (*O. kisutch*) and the Chambers-Leach summer chum run (*O. keta*).

Improvement of the beneficial uses, including drinking water, recreation, and wildlife habitat, within the watershed depends upon the protection and restoration of high functioning wetlands and other aquatic resources.

### 1.3.1 Surface Water Health Report Card

The Pierce County Surface Water Health 2011 Report Card (Pierce County Public Works and Utilities 2012) provides a system for rating and grading the health of Pierce County streams. The first report card was issued in 2008 and it included 32 streams. Water quality data are analyzed based on the water year (October 1 to September 30). The latest report card is based on sampling done in the 2011 water year. It describes 2011 monitoring results for 30 streams and six lakes. The report card is produced by PCSWM, Water Quality and Watersheds Section, using multiple methods to monitor stream health over time. The report card describes local water quality issues and steps people can take to improve the health of local waterways.

Data and associated grades can vary significantly from year to year, so collecting data over a long period is important. As data is collected over time, PCSWM is better able to analyze trends and measure progress.

Based on the 2011 Report Card, water quality in the Chambers-Clover Creek watershed has deteriorated as the area developed over the past century. While the bodies of water in this watershed are still important habitat for salmon, development has resulted in heavy recreational use of the lakes, increase in impervious surfaces, clearing of streamside plants and trees, pet waste, automobile leaks and emissions, pesticide and fertilizer use, leaks from underground storage tanks and septic systems, and untreated runoff.

Sewage in the eastern half of the Chambers-Clover Creek area is typically treated in septic tanks and drain fields. The sandy and gravelly soils in the area are known to insufficiently treat septic waste before that effluent moves into groundwater. This stratigraphy also makes it difficult to control leaching from landfills and underground storage tanks within the watershed.

The amount of hard surfaces in urban watersheds increases the flow of pollution into local streams and rivers. Removing hard surfaces where they are not needed and using alternatives such as pervious paving materials, pavers and decks, bioswales and other low-impact development (LID) measures can help slow the flow of runoff to local streams.

Of the major creeks within the watershed, Clover Creek and North Fork Clover Creek received a report card rating of D-, and Spanaway Creek received a C, indicating a significant decline in stream water quality and biotic integrity.

## 1.4 Threats

The Chambers-Clover watershed faces several major threats including:

### *Ongoing Development*

Urbanization disconnects aquifers from groundwater recharge processes while impervious surfaces alter water runoff rates (higher runoff flows in the winter scour and incise streams and lower flows in summer contribute to the drawdown of the creek). The Clover Creek basin currently experiences flooding over roadways and on private property. These problems will only be exacerbated as more development and greater densities occur.

Residential, commercial, and industrial development, as well as the construction of roads, transportation and utility infrastructure, and shoreline armoring will result in further alteration of terrestrial, freshwater, and marine habitats. Habitat forming processes and food webs will be adversely affected.

Development results in impacts that are often irreversible or prohibitively costly to restore, such as shoreline armoring and lakefront property ownership practices along Spanaway Lake, or the railroad dike along the marine shoreline and across the mouth of Chambers Bay. Development diminishes opportunities for restoration and habitat enhancement, while at the same time increasing dependency upon structural flood management measures.

### *Surface Water Loading and Runoff from the Built Environment*

As development pressures increase so do the threats posed by surface water loading and runoff. Existing laws and regulations govern the design of systems to manage surface water loading/runoff for new development. However, in a watershed with shallow groundwater and highly permeable soils, run-off and effluent must be carefully treated to prevent further contamination of groundwater. Studies indicate that septic systems from existing residential developments in the Clover Creek basin substantially contribute to increases in nitrates and chlorides in groundwater (Brown and Caldwell 1991).

In addition, water withdrawals and diversions may affect ground water fed aquatic systems, and diversion of surface water due to stormwater treatment could deprive some aquatic systems of hydrologic input.

### *Channelization and Impediments to Surface Flow*

The creeks within the Chambers/Clover watershed have been highly modified, with channel alterations, dikes, dams, levees, and culverts. This has resulted in rivers disconnected from their floodplains, habitats which do not support complex food webs, reduced biodiversity, and threatened survival of some species, such as salmon. Dams, weirs, and culverts restrict juvenile and adult salmonid migration. A dike, supporting the BNSF railroad, almost completely constricts Chambers Bay at its confluence with Puget Sound.



In 2013 Pierce County passed the Pierce County Rivers Flood Hazard Management Plan (Pierce County Public Works and Utilities 2013), a watershed-based comprehensive plan, which includes setback levees and other measures that reconnect the floodplains with the rivers and mitigate flood hazards. Reconnection of the floodplains to the rivers will provide access to side channels and streams necessary for salmonid migration. PCILF mitigation receiving site selection and design will dovetail with that effort, creating better salmon habitat throughout the watershed.

### *Floodplain Modifications*

In addition to threats to floodplain connectivity, modifications of floodplains themselves adversely affect salmonid migration, salmonid rearing and spawning, and other aquatic habitat and hydrologic functions. Pierce County is developing a comprehensive approach to addressing floodplain modifications (the Flood Hazard Management Plan addressed above) within this and other service areas within the county. Site selection and receiving site design will be able to collaborate with that effort.

### *Climate Change*

Increased temperatures, changes in volume and timing of precipitation and stream flows, as well as a reduction in snowpack will have major implications for in-stream flows. Instream flows are already so low in certain reaches that adult salmonids are unable to migrate further upstream and juveniles become stranded. Non-salmonid fishes, amphibians, and other and wildlife species and native plant communities as well as overall ecosystem health and agricultural practices are also likely to be affected. A rise in sea level would likely affect the BNSF railroad line, which runs along the Puget Sound shoreline from north of the Nisqually Reach to just south of Point Defiance. Probable effects could include increases in coastal erosion, landslides, inundation and flooding.

### *Invasive Species*

Whether they are introduced deliberately or inadvertently, invasive species may out-compete native species for resources, prey upon native species, reduce the resiliency of ecosystems, and change the character of habitat. Climate change may exacerbate the threats posed by invasive species within the Puget Sound Basin.

Clearly, some of the threats to this watershed are beyond the scope of the PCILF Program to address. For example, climate change is a global problem that mitigation through the PCILF Program will be unable to ameliorate. However, by understanding how climate change will affect the watershed and watershed processes, mitigation activities can be better planned in the context of this threat. This may be particularly important for estuarine and nearshore marine restoration projects, should those have a future role within the framework of the PCILF Program.

## 1.5 Aquatic Resource Goals and Objectives

The PCILF Program aims to improve the success of compensatory mitigation within Pierce County and is positioned to do that in part because of Corps, Ecology, and IRT oversight. Incorporating a strategic watershed-approach to mitigation receiving site selection, long term maintenance and monitoring, and site protection mechanisms are all essential sideboards inherent to ILF programs authorized under the federal rule.

Through improved compensatory mitigation, the PCILF Program in turn aims to address the following aquatic resource goals and objectives within the Chambers-Clover watershed. Appendix V discusses how attainment of these goals will be tracked.

1. Restore and protect the natural conveyance system and flow regimes, such as channel sinuosity and complexity, sediment delivery, connection to floodplains, wetland flood storage, and natural water quality purification processes.
2. Improve surface water quality by preventing excess nutrients, sediment, and pollutants from discharging into waters, particularly those waters that flow into Puget Sound. Similarly, improve groundwater quality by preventing excess nutrients and pollutants from infiltrating and contaminating groundwater supplies.
3. Restore and preserve wetlands within and in proximity to urban areas, retaining those ecological and socio-economic functions that ultimately enhance and enrich the lives of people. (See Exhibit 2 which shows the location of the Larchmont and South Midland Wetland Reserves—the two initial pre-capitalization sites-in proximity to the city of Tacoma).
4. Restore and protect the following habitats by adhering to the prioritization strategy in the Compensation Planning Framework:
  - a. Wetland—to provide flood storage, improve water quality, and enhance habitat for flora and fauna
  - b. Riparian—to buffer the effects of urbanization, improve water quality, reduce flood damage, and provide habitat improvement
  - c. In-stream—to allow safe passage for fish and wildlife, reduce erosion and flood damage, enhance habitat for flora and fauna, and recover salmon populations
  - d. Vegetated corridors—to provide connections for wildlife movement between upland, riverine, estuarine, and open water habitats
5. Reduce flood damage by restoring hydrologic processes, where possible, and restoring and creating additional wetland habitat.
6. Restore and maintain biodiversity and ecosystem resiliency.

## 1.6 Advance Credit Request

The PCILF Program requests (120) advance credits (40 for each function category) for the Chambers-Clover Creek service area. This request is based on the Sponsor's ability to identify, acquire, design, and implement a mitigation-receiving site within three growing seasons that will begin to fulfill the advanced credits that have been sold within this specific service area. This ability is demonstrated by the fact that the Sponsor has already identified, acquired, and designed two projects in this service area, which are proposed as mitigation-receiving sites for pre-capitalized credits (refer to Appendix EE and Appendix W). This request is also based on the anticipated demand within the Chambers-Clover Creek service area.

The Washington State Growth Management Act (RCW 36.70A), enacted in 1990, requires all counties with a population of 50,000 or more with a high rate of population growth to designate urban growth areas (UGAs). The Act requires that these UGAs be of sufficient size to accommodate the anticipated population growth during the 20-year period following the adoption of the UGA. In accordance with the Act, the Pierce County Council has adopted UGAs for Pierce County and its incorporated cities and towns (Pierce County Planning and Land Services 2014). The majority of the Chambers-Clover Creek watershed is within the UGA for Pierce County (Exhibit 2C). This UGA is expected to accommodate most of the county's future urban services and land uses.

An example of this is provided by the Frederickson Employment Center (AKA Frederickson Industrial/Manufacturing Center). This employment center comprises 2,248 acres of the basin (roughly 2% of the basin), along the southern extent of Canyon Road E. More than half of this area is undeveloped and this is one of the principal industrial centers in Pierce County. The County has made significant investments in the center's infrastructure and plans to continue this investment in the future.

Despite the expected build out in the Chambers-Clover Creek watershed, wetlands and other critical areas must still be protected; the build-out scenario would, theoretically, retain and protect critical areas. Pierce County updates their buildable lands inventory and capacity analysis every 8 years. The last buildable lands report was completed in 2007 and a 2014 draft report is currently under review (Pierce County Planning and Land Services 2014). The analysis of capacity makes use of an inventory of vacant and underutilized<sup>12</sup> land parcels to

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<sup>12</sup> "Underutilized lands" is an advance planning term used in the Pierce County Buildable Lands Inventory and in no way is intended to connote that these lands are underutilized by naturally occurring organisms or processes. Underutilized lands include parcels that have an existing structure(s) or land use activity and have the ability to accommodate additional employment (jobs) or housing units. These lands include parcels in which excess space is available to build a new structure(s), or it is assumed that an existing structure(s) will be demolished and replaced with a larger structure or more structures. Not all parcels that can theoretically accommodate additional growth are categorized as "Underutilized."

make assumptions about the location and rate of development for the next 20 years (Exhibit 2D). In the course of assessing buildable land area, Pierce County's wetland inventory and other GIS critical areas maps are consulted and critical areas are subtracted from the total area considered suitable for development<sup>13</sup>. The PCILF program is based on the acknowledgement that critical areas cannot always be avoided and on the assumption that compensating off-site at consolidated mitigation sites is often preferable to on-site, piece-meal compensatory mitigation. Through the PCILF program, the area measurements of wetland critical areas are therefore expected to remain constant (or to increase), even while development continues. The strategic siting of PCILF mitigation receiving sites will help us to achieve those Aquatic Resource Goals and Objectives articulated above, in spite of ongoing development within the basin.

It is expected that the demand for PCILF credits in the Chambers-Clover Creek watershed will be high. 120 advance credits (see Appendix E) are requested for this urban and urbanizing area in order to meet the demand for credits likely to result from development being directed into this urban growth area and its designated employment centers.

## 2.0 The Nisqually River Watershed - WRIA 11

### 2.1 Physical Description

The Nisqually River originates from the Nisqually Glacier on the south slope of Mount Rainier. It flows northwest approximately 78 miles to the Nisqually estuary, where it discharges into Puget Sound. The watershed encompasses about 768 square miles (see Exhibit 3). The La Grande Canyon provides a natural break between two physiographic areas in the watershed. Downstream of the canyon the Nisqually watershed consists of low hills and prairie plains of glacial outwash. Upstream of the canyon volcanic rock and steeper mountainous terrain dominate the area. The canyon itself contains 200-foot sheer cliffs. Major tributaries include Mineral Creek, Little Nisqually River, Mashel River, Ohop Creek, Tanwax Creek, and Muck Creek.

The Nisqually River straddles the Thurston-Pierce County line, while the southern portion of the watershed lies within Lewis County. The western portion of the watershed lies in Thurston County and encompasses the cities of Yelm, and portions of Lacey. The eastern portion lies in Pierce County and contains the cities of Roy, and Eatonville. The lower watershed is predominantly under federal management. The Nisqually National Wildlife Refuge manages the delta and estuary and the lower reaches are on the Fort Lewis Military

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<sup>13</sup> The identification of vacant and "underutilized" lands can be helpful, as well, in identifying the last vestiges of habitat where wetland preservation and restoration can effectively contribute to the maintenance of habitat and aquatic resource networks.

Installation (JBLM). The Nisqually Indian Tribe also manages a portion of the lower reaches of the Nisqually Valley as Reservation land. Much of the upper watershed is federally managed as either National Park or National Forest. Pierce County coordinates with these other entities through our involvement in Salmon Recovery (Lead entity) efforts and with various watershed councils, including the Chambers/Clover and Nisqually watershed councils.

PCSWM has divided the portion of the watershed that lies within Pierce County into the following six basins:

- Upper Nisqually
- Mashel River
- Ohop Creek
- Mid-Nisqually
- Muck Creek
- Lower Nisqually

## 2.2 Historic Conditions

Digital data from the Puget Sound Watershed Characterization indicates that 37,825 acres, or 7.7 percent of WRIA 11, may have been wetlands, historically. According to the 2013 Pierce County Wetlands Inventory, the portion of WRIA 11 within Pierce County now contains roughly 18,735 acres of wetlands (the Lewis County portion of WRIA 11 now has roughly 2,800 acres of wetlands and Pierce County was unable to get this data for the Thurston County portion of WRIA 11). Estimates of depleted wetlands over the past 200 years range from 20 to 100 percent (in some urbanized areas). Much of this historic wetland loss in the past 200 years was due to the expansion of agriculture. In current times, urban expansion, forestry, agricultural practices, and invasive species of plants and animals have all aided in continued depletion of wetland resources (Tacoma-Pierce County Health Department 2012).

The Nisqually River is the traditional territorial center, and contains Usual and Accustomed Tribal Treaty rights of the Nisqually Indian Tribe, and of other groups of Native Americans who have lived and fished within the watershed for thousands of years. Historically, the watershed contained heavily forested mountain slopes, oak woodlands, riparian corridors, patch networks, shrubs in the lowlands, and grasses in the prairie lands and meadows. Before European settlement, Nisqually people burned much of the prairie land each fall. Burning prevented the establishment and growth of trees into these areas and was a significant factor in shaping habitat mosaics and patch-networks of vegetation throughout the basin. Once burning practices came to an end, fir-dominated forests replaced most of the former prairie areas and oak woodlands (Pierce County Public Works and Utilities 2008a).

Also prior to European settlement, beaver populations played a significant role in shaping aquatic ecosystem processes in the basin. And, prior to extensive logging, mature trees with intact rootwads shaped riparian conditions and river processes (Collins, Montgomery and Sheikh 2003).

Three dams have been built on the Nisqually River for hydroelectric power production—the Centralia Diversion Dam for Yelm Hydroelectric Project, the Alder Dam, and the La Grande Dam. The dams have altered the river’s hydrologic flow through impoundment, diversion, or both. The Yelm Project was installed in the 1930s. It diverts a portion of the river through a 9-mile canal and a powerhouse before returning the flow to the Nisqually River nearly 14 miles downstream. A standard fish ladder was installed in the 1950s.

In the 1940s Alder Dam and La Grande Dam were built to impound the Nisqually River for hydroelectric power production. Tacoma Power manages these dams today. The La Grande Dam prevents anadromous fish from ascending further upstream. However, before the construction of the dams, an impassable waterfall in the La Grande canyon prevented salmon from migrating further upstream. Annual flooding of the Nisqually River, which is largely affected by the amount of water released from La Grande Dam, and in turn, by how much water is released from Alder Dam, creates and sustains riverine wetlands. Wood and debris transported by the glacially fed rivers provides additional natural damming of the rivers and flooding nearby lowlands. Water and fresh material (such as wood) is deposited in flood areas where habitat can thrive and pollutants are filtered out of water (Collins, Montgomery and Sheikh 2003).

Historically, the Nisqually River estuary was the largest in the South Sound. Estimates indicate it was greater than 5 square-miles, contained by steep bluffs on the sides and a steep drop-off at the outer edge of the delta. This area provided several types of habitat, including mudflat, emergent saltmarsh, a transition zone between salt and fresh water, and tidally influenced, freshwater riverine. The restoration and enhancement of wetlands near major bodies of water such as the Nisqually River can significantly increase water quality of local waterways and groundwater and decrease dangerous flooding. Portions of the Nisqually River are currently protected and maintained at natural, historic conditions by the Nisqually Indian Reservation and JBLM; however, upstream and downstream reaches of the Nisqually River and its wetlands have been restricted. Historically, the Nisqually River is an anastomosing river, maintained by the presence of large woody debris that is collected during flood events and acts in protecting and creating natural habitat (Collins, Montgomery, and Sheikh 2003).

Over time, a variety of development activities have significantly altered the Nisqually River estuary. The construction of dikes in the early 1900s converted most of the Nisqually River estuary into pasture. Beginning in 1912, railroad construction along the north end of the Nisqually Reach resulted in shoreline armoring to prevent erosion of the railroad bed. This armoring drastically reduced sediment contribution to the delta, thereby damaging nearshore

habitat. In the 1960s construction of Interstate 5 over the Nisqually River area not only filled but also hydrologically disconnected a portion of the historic estuary.

### 2.3 Current Conditions

The Nisqually watershed encompasses 790 square miles (490,241 acres according to NOAA's Coastal Services Center). The Nisqually River is considered much less altered and degraded than the majority of Puget Sound's lowland rivers. This can be attributed to the fact that the upper watershed is predominantly forested and managed for forestry and recreation. In addition, significant stretches of the river below the dams are in protected ownership. Public ownership includes the Nisqually National Wildlife Refuge, JBLM, Nisqually Tribal Reservation, Tacoma Power mitigation lands, Centralia City Light mitigation land, and Nisqually Mashel State Park. The Nisqually Land Trust also owns and protects land in this corridor. Currently, 77 percent of the river shoreline is in protected ownership. Many entities, including the Nisqually Land Trust, the Nisqually Tribe, the City of Tacoma (Thurston Talk 2014), and others, are doing active restoration work in the watershed or are taking steps to preserve intact natural areas. One such project is the Ohop Creek Restoration project undertaken by the South Puget Sound Salmon Enhancement Group in 2009. With funding and partnerships from the Salmon Recovery Funding Board, the USFWS, the Nisqually Land Trust, the Nisqually Tribe, and the Natural Resources Conservation Service, 80 acres of riparian habitat along a one mile reach of Lower Ohop Creek were restored (South Puget Sound Salmon Enhancement Group 2013). Also, the Nisqually Indian Tribe and the Nisqually National Wildlife Refuge have removed over 10,000 feet of dikes and restored more than 900 acres of estuary at the mouth of the Nisqually River.

The main stem of the river is a very productive habitat for all species of salmon that are currently found in the Nisqually. However, modifications such as dikes, levees, and riprap confine and simplify some segments of the rivers and streams in the Nisqually watershed. This prevents natural channel migration, disconnects rivers from their floodplains, and eliminates recruitment of large woody debris. All of these factors reduce aquatic habitat suitability and contribute to an increase in flooding problems. Losses of habitat result from declines in channel stability, habitat diversity, food availability, and key habitat features.

The relative distribution of land use in the western portion of the basin is approximately 50 percent rural residential (5-, 10-, 20-, and 40-acre parcels), about 30 percent open space/resource land, and about 10 percent agricultural. The eastern portion of the basin (generally to the east of Eatonville) is mountainous and less developed—approximately 75% forested and 25% rural residential. Less than 5 percent of the watershed is urbanized (residential, commercial, and industrial). The Nisqually Basin Plan estimates that urbanization will not dramatically increase (Pierce County Public Works and Utilities 2008a). However, the areas zoned rural residential account for about 45 percent of the forested area in the basin. Because of development of these lots into residences and hobby farms and clearing of land to improve views, it has been estimated that about a third of this forested cover could be lost in the near future.

In general, water quality in the Nisqually watershed is considered excellent. However, Ecology has identified some lakes and stream reaches as impaired (Washington Department of Ecology 2012). As illustrated in Table 4, the water quality impairments within this watershed are elevated phosphorus concentrations, elevated temperature, low dissolved oxygen, and the presence of fecal coliform bacteria and of invasive, exotic species.

Table 4. Known Impaired Waters within WRIA 11

<b>Water Body</b>	<b>Water Quality Impairment</b>
<b>Mashel River, river mile 12.362 to 17.227</b>	Temperature
<b>Mashel River, river mile 7.712 to 9.823</b>	Temperature
<b>Mashel River, river mile 0 to 0.823</b>	Temperature
<b>Clear Lake</b>	Invasive Species, Phosphorus
<b>Unnamed tributary to Ohop Creek, river mile 0-1.315</b>	Dissolved Oxygen
<b>Ohop Lake</b>	Invasive Species, Total Phosphorus
<b>RapJohn Lake</b>	Invasive Species, Total Phosphorus
<b>Ohop Creek, river mile 0 to 1.309</b>	Dissolved Oxygen, pH, Bacteria
<b>Harts Lake</b>	Invasive Species, Total Phosphorus

According to the 2013 Pierce County Wetlands Inventory, the portion of WRIA 11 within Pierce County now contains roughly 18,735 acres of wetlands. Landscape analyses of the Nisqually River Basin Plan Planning Area (a subset of WRIA 11) reveals that those areas of the Nisqually watershed within unincorporated Pierce County (i.e., excluding the National Park, Nisqually



Indian Reservation, JBLM, and the towns of DuPont, Roy, and Eatonville) and excluding the Muck Creek basin<sup>14</sup> are approximately 7 percent wetland (11,000 acres). Most of these wetlands are located in the northwestern half of the basin in areas where lakes are prevalent (Exhibit 3C)(Pierce County Public Works and Utilities 2008a).

## 2.4 Threats

The Nisqually watershed faces several major threats including:

### *Development*

The Nisqually watershed is the least developed in the South Puget Sound. Despite federal protection or management of large portions of the watershed, the cities and other urban areas are growing rapidly. Fort Lewis in particular is experiencing high levels of growth, with an estimated current population of 29,000 active duty soldiers, plus families and civilian personnel. Eatonville experienced a 36 percent population increase from 2000 to 2010. The UGA around Eatonville straddles the land between the two highest priority tributaries for protection and restoration in the Nisqually Salmon Recovery Plan—the Mashel River and Ohop Creek. Urbanization disconnects aquifers from groundwater recharge processes while impervious surfaces alter water runoff rates (higher runoff flows in the winter scour and incise streams and lower flows in summer contribute to the drawdown of the creek). Increased development in these basins will result in further alteration of terrestrial, freshwater, and marine habitats, habitat forming processes and food webs. The resulting impacts are often irreversible or prohibitively costly to restore.

Development also leads to impairment of surface waters as more nonpoint sources contribute contaminants. As illustrated in Table 4, several lakes and stream reaches have been identified as having impaired water quality. These include Clear Lake, Ohop Lake, RapJohn Lake, Harts Lake, portions of Ohop Creek and its tributaries, and the Mashel River.

### *Flooding*

Nisqually River main stem flooding is complex and has the potential to cause extensive damage. Areas of particular concern are the McKenna area and in the Nisqually Park community near the Mount Rainier National Park boundary. At Nisqually Park a county-maintained levee sustained extensive damage during a flood event in November 2006. Channel aggradation in the upper Nisqually Valley near the Mount Rainier National Park boundary has compounded flooding issues.

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<sup>14</sup> The Muck Creek basin was not included within this basin plan

### *Surface Water Loading and Runoff from the Built Environment*

As development increases, so do the threats posed by surface water loading and runoff. Existing laws and regulations govern the design of systems to manage surface water loading/runoff for new development. However, diversion of surface water due to mandated stormwater treatment could deprive some aquatic systems of hydrologic input.

### *Climate change*

Increased temperatures, changes in volume and timing of precipitation and stream flows, as well as a reduction in snowpack will have major implications for in-stream flows, ecosystem health, fish and wildlife, forests, and agricultural practices. A rise in sea level is likely, which would affect the railroad line along the east side of the Nisqually Reach. Probable effects could include increases in coastal erosion, landslides, inundation and flooding.

### *Dikes and levees*

The Nisqually River watershed contains dikes and levees, which result in the disconnection of rivers with their floodplains; habitats which do not support complex food webs; reduced biodiversity; and threatened survival of some species, such as salmon.

### *Invasive species*

Invasive species may out-compete native species for resources, prey upon native species, reduce the resiliency of ecosystems, and change the character of habitat. Japanese knotweed (*Polygonum cuspidatum*) has become a significant concern along river and stream corridors. Currently, there are large infestations of knotweed in the upper watershed with pockets of occurrence in the lower watershed. Reed canarygrass (*Phalaris arundinacea*) chokes many small channels and off-channel areas, which appears to have reduced potential spawning habitat for salmonids. Within the Nisqually River watershed, prairies are particularly vulnerable to the effects of invasive species colonization. Scotch broom (*Cytisus scoparius*) and tall oatgrass (*Arrhenatherum elatius*) are examples of plant species that have undermined the ability of prairie areas to support native species. Climate change may exacerbate the threats posed by invasive species.

## **2.5 Aquatic Resource Goals and Objectives**

The PCILF Program aims to improve the success of compensatory mitigation within Pierce County and is positioned to do that in part because of Corps, Ecology, and IRT oversight, strategic watershed-approach to site selection, long term maintenance and monitoring, and site protection mechanisms that are all essential sideboards inherent to ILF programs authorized under the federal rule.

Through improved compensatory mitigation, the PCILF Program in turn aims to address the following aquatic resource goals and objectives within the Nisqually River watershed. Appendix V discusses how attainment of these goals will be tracked.

1. Achieve no net loss of wetland functions from a watershed scale.
2. Restore and protect the natural conveyance system and flow regimes, such as channel sinuosity and complexity, sediment delivery, connection to floodplains, wetland flood storage, and natural water quality treatment.
3. Restore watershed and ecosystem processes including large woody debris routing and recruitment.
4. Reduce flood damage by restoring hydrologic processes, where possible, and restoring and creating additional wetland habitat.
5. Improve surface water quality by preventing excess nutrients, sediment, and pollutants from discharging into waters, particularly those waters that flow into Puget Sound. Similarly, improve groundwater quality by preventing excess nutrients and pollutants from infiltrating and contaminating groundwater supplies.
6. Restore and maintain biodiversity and ecosystem resiliency.
7. Preserve wetland, channel migration zone, and floodplain areas.
8. Protect and Restore at risk high quality wetlands (including bogs and fens, mature forested wetlands, and wet prairie remnants).
9. Restore wetland, in-stream, and riparian habitat.

The Nisqually Salmon Recovery Habitat Restoration and Protection Priorities from the *Nisqually 2011 Three-Year Work Program* (Nisqually Chinook Recovery Team 2011) identifies priorities for restoration and protection of non-wetland aquatic resources in the watershed. This output provides another resource for site selection, as there may be opportunities to select wetland mitigation receiving sites that are associated with prioritized riverine restoration sites thereby resulting in multiple benefits. PCILF Program receiving site selection and implementation will be considered in light of how the sites can help address salmon/river recovery goals.

## 2.6 Advance Credit Request

The PCILF Program requests 75 advance credits for the Nisqually Service Area. This request is based on the Sponsor's ability to identify, acquire, design and implement a mitigation-receiving site within three growing seasons of receipt of the advance credits that will begin to fulfill the advanced credits that have been sold within this specific service area.

Though the Nisqually watershed is a large service area, it is predominantly rural and relatively undeveloped. Aside from the municipalities of Eatonville and Roy and large areas of federal land, the service area is entirely unincorporated rural land.



## APPENDIX K: SITE SELECTION PROCESS

### 1.0 General Site Selection Process

At PCILF program inception, the program does not have a roster of potential ILF receiving sites. One of the first steps in site selection will be the development of checklists of desired site characteristics for each sub-basin of each watershed service area. The checklists will be used to identify, locate, and acquire future receiving sites. Site characteristics and subsequently identified sites will be prioritized according to their ability to meet aquatic resource goals and objectives, adequately mitigate impacts received into the program and ability to restore watershed processes.

The PCILF Program will use a tool developed by the Puget Sound Watershed Characterization Project as part of the initial screen for identifying site characteristics and potential mitigation receiving sites (Washington State Department of Ecology 2014). This characterization tool prioritizes sub-basins based on their overall importance for processes as well as their level of disturbance of those processes. It works by integrating information from several environmental assessments to provide an ecosystem view of the landscape. When linked with Ecology's guidance for selecting mitigation sites in a watershed context, this is a comprehensive method that looks at site scale as well as watershed scale stressors and impediments to sustainability and identifies priority areas for restoration and protection.

The characterization results prioritize general areas for restoration based on the following:

- The importance of the area for providing specific watershed processes related to water flow (e.g., surface water storage, delivery, recharge, and discharge) and water quality.
- The level of degradation the area has experienced which has reduced an area's ability to contribute to the performance of watershed processes and the improvement or maintenance of water quality.
- The most important areas for the conservation of fish and wildlife habitats (i.e., areas where new development should be avoided).

PCSWM plans to use the characterization results to prioritize the general areas (similar to sub-basins) within a service area where mitigation activities would provide the greatest potential improvement to watershed ecological processes (identified as those areas where processes are highly important but degraded). Characterization results can be considered in total, or for a specific watershed process. For example, if flooding is a major issue in a service area, the Sponsor would focus on the characterization results that prioritize the best areas to restore surface water storage processes.

In addition, as regulators approve the use of ILF credits as compensation for unavoidable, permitted impacts, the acreage and functions lost will be recorded as debits within general function categories (refer to Appendix D, Section 2). The site selection prioritization may change if there is an imbalance in the number of debits or credits across function categories (e.g., many more debits to a specific function category, such as water quality). For example, if impact projects have many more debits to the water quality function, this may use up all the water quality credits and result in a surplus of hydrologic and habitat function credits. For the next selection of a mitigation-receiving site, the Sponsor, in consultation with the IRT, may focus on the characterization results that prioritize the best areas to restore water quality processes. Note that emphasizing a particular wetland function category (such as water quality) does not imply that the Sponsor will be identifying opportunities to create treatment wetlands (constructed wetlands). Improving water quality functions in isolation of other ecological functions can be detrimental to overall biological functions. Wetland restoration projects will address driving ecological processes that sustain water quality, water quantity, and habitat/biological functions in a way that does not exchange physical/chemical processes at the expense of biological communities.

After sub-basins (general areas) and site characterization checklists have been prioritized, the Sponsor will review more detailed information to narrow the focus to a specific sub-basin or down to the level of potential sites within a couple of the prioritized sub-basins. The Sponsor will utilize the following existing plans, lists, and expertise that identify priority habitats needing particular attention, vulnerable locations within the watershed, and areas most likely to benefit from restoration, creation, enhancement, and preservation:

- Salmon Conservation and Recovery Plans and 3-year work plans
- Habitat Work Schedule
- Watershed Action Plans, developed through Chapter 400-12 WAC
- Watershed Plans, developed through RCW 90.82
- County Basin Plans
- County Rivers Flood Hazard Management Plan
- Ecoregional Assessments: Willamette Valley/Puget Trough/Georgia Basin (Nature Conservancy 2004)
- Pierce County Biodiversity Network Plans
- Staff resources: PSP Ecosystem Recovery Coordinators, Ecology Watershed leads; tribal biologists

In addition, the Sponsor will use existing WDFW—Priority Species Habitat data (<http://wdfw.wa.gov/conservation/phs/list/>) and WDNR—Natural Heritage Program data on element occurrences of rare plant species and communities, Natural Heritage Wetland sites, and other data (<http://www1.dnr.wa.gov/nhp/refdesk/datasearch/index.html>, <http://www1.dnr.wa.gov/nhp/refdesk/gis/wnhpgis.html>).

Further, the Sponsor will consult with tribes and local stakeholders such as watershed groups and LUACs (Land Use Planning Committees) to gain an understanding of recent local developments and opportunities.

At the site scale, the Sponsor will refer to *Selecting Wetland Mitigation Sites Using a Watershed Approach* (Hruby et al. 2010) to review the ecological suitability of potential sites. This review assesses the ability of a site to provide benefits at a watershed scale and determines to what degree mitigation activities will be able to remove constraints on a site, thereby restoring processes and providing a lift in functions.

The Sponsor will review and consider the following basic information to further refine the list of possible sites:

1. Watershed-scale characteristics, such as aquatic habitat diversity, habitat connectivity, surface water areas (wetlands and streams), ground water flow patterns (including recharge, discharge, and storage areas), other landscape scale functions, and the degree of impairment of these characteristics
2. Extent to which the site has potential to contribute to the restoration or protection of watershed processes
3. Potential of the site to contribute to habitat corridor connectivity, target species recovery and restoration, or meet other conservation targets established by WDFW, WDNR, and/or USFWS/NMFS, for state or federally listed sensitive, rare, threatened or endangered species, etc.
4. Potential of the site to successfully contribute to a gain in ecosystem services as a result of mitigation activities, where ecosystem services are ecological functions from which somebody or some entity perceives a benefit
5. Hydrologic conditions, soil characteristics, and other physical and chemical characteristics, including 303(d)-listed waters.
6. The size and adequacy of buffers necessary to protect the mitigation-receiving site from adjacent development or land use
7. Location and availability of hydrologic sources (including availability of water rights, presence of state-owned aquatic lands) and other ecological features

8. Compatibility with existing and future projected adjacent land uses
9. Reasonably foreseeable effects the compensatory mitigation project will have on ecologically important aquatic or terrestrial resources (e.g., rivers and streams, shallow sub-tidal habitat, remnant prairie, mature forests), cultural sites, or habitat for federally or state-listed threatened or endangered species
10. Other relevant factors including but not limited to:
  - a. Development trends
  - b. Anticipated land use changes
  - c. Habitat status and trends
  - d. Local or regional goals for the restoration or protection of particular habitat types or functions (e.g., re-establishment of habitat corridors or habitat for species of concern)
  - e. Water quality goals
  - f. Flood hazard areas and floodplain management goals
  - g. The relative potential for chemical contamination of the aquatic resources
  - h. The relative locations of the impact and mitigation receiving sites in the stream network
  - i. Overlays of Washington Department of Natural Resources Natural Heritage Program element occurrence data, WDFW priority habitats and species overlays, and salmonid species information
  - j. Costs of acquisition and implementation
  - k. Location with respect to urbanized areas

## 2.0 Special Considerations

### 2.1 Urban Wetlands

In urban areas specific stressors and other obstacles are more likely to be present than in more rural areas of the county. Such stressors may include (but are not limited to) the presence of structures encroaching into wetlands and buffers (such as homeless encampments), a history of unauthorized filling and dumping (Tacoma-Pierce County Health Department 2010), and alterations of natural hydroperiods and drainage patterns. These adversely impact wetland functions. Within urban environments obstacles to wetland rehabilitation and creation can include a surrounding built environment that would be sensitive to flooding if water levels within a wetland were not controlled; the fact that large sites are difficult or impossible to find; and the likelihood that land prices may be higher because of underlying zoning and development potential. Overcoming or compensating for these stressors and obstacles increases project costs. However, these additional project costs may be justified because removing these stressors can provide significant ecological lifts.



In many cases, however, the ecological lifts that might result from removing the types of stressors mentioned above are not captured within the Credit/Debit tool. But, rather than avoiding extra restoration measures because of the additional cost and effort (like removing buried garbage that could be capped and left in place, at less expense), the Sponsor is committed to creating the most viable, wholistic restoration sites which does mean addressing these stressors and obstacles. Accordingly, the Sponsor will request additional credits when ecological lift is likely to result from a specific restoration task that is not captured by the Credit/Debit tool. The additional credits may then offset the additional cost of the restoration, keeping the overall cost per credit from rising to accommodate such urban wetland restoration efforts. The decision to grant requested additional credits will be made on a case-by-case basis by the IRT. This approach is discussed in Appendix D, section 3.1, and is re-emphasized here in consideration of urban wetlands.

The Sponsor is, in fact, committed to locating receiving sites within urban areas of unincorporated Pierce County, when the site selection process highlights those locations as key to restoring ecological processes and functions of the watershed or sub-basin. The additional costs of wetland rehabilitation and enhancement in urban areas are less of a hindrance when there is a process whereby additional lift can be translated into additional earned credits.

Improving some functions in isolation of other ecological functions can be detrimental to overall biological functions. Wetland restoration projects (wherever they occur) will address ecological processes that sustain water quality, water quantity, and habitat/biological functions in a way that does not exchange physical/chemical processes at the expense of biological communities. The Sponsor will be intentional about not compromising biological communities and processes in order to gain “extra” credit; they desire to holistically restore wetlands in urban as well as rural portions of the service areas and to manage credits and costs so that this goal is practicable.

### *Typical Urban Stressors Encountered*

In the mid-1900s many neighborhoods had the “neighborhood dump” where undisclosed trash was disposed. Modern solid waste regulations were not enacted until 1985, with Chapter 173-304 WAC—also known as the Minimum Functional Standards or MFS. Prior to that date, the objective of solid waste management was simply to collect and dispose of waste as quickly, efficiently, and inexpensively as possible (Tacoma-Pierce County Health Department 2010). A common result was garbage disposal in what, at the time, were rural hillside dumps and gravel pits just outside individual communities. Most early dumps consisted of a dumping floor and an open face. The garbage was rarely covered and often burned. Occasionally, a tractor was brought in to push the garbage over the face and create additional dumping area. These sites commonly collected car bodies, tires, appliances, underground storage tanks, household garbage, landscaping debris, animal bodies, and other material of a similar nature (Tacoma-Pierce County Health Department 2010). These sites were typically ravines, lowlands, and often wetlands or other aquatic sites. Some notorious examples of these are the Montlake Landfill on

the University of Washington main campus, and the Magnuson Park, Sand Point Naval Air Station dump site within King County (Personal Communication, Dave Cook, GeoEngineers, October 7, 2013). The DeLong Wetlands Park (*now* a park), within the City of Tacoma, provides a local example of such a dumpsite.

This situation was encountered, as well, during the construction of the Larchmont Wetland Reserve proposed PCILF mitigation receiving site. Surface observations of asphalt debris and roofing tiles did not reveal the full of extent of buried trash found at this site during excavation: asphalt debris, tires, car parts, old furniture, piping, and household trash were discovered, along with soils containing measurable levels of organic and inorganic chemicals below state and federal cleanup standards. Removing this material, and re-locating it to an authorized landfill will result in site-scale as well as watershed scale ecological improvements: ground and surface water quality will improve when aged asphalt and PCP-laden materials are no longer leaching contaminants. Replacing this material with native soils will enable healthy microbial and plant communities to return. And yet, these ecological improvements are not reflected in the scoring of the Credit/Debit tool.

### *Socioeconomic Value*

Wetlands provide important socioeconomic services to human populations. Not only do they help to maintain clean, naturally flowing water, but they enrich the built environment, making communities more livable. They provide opportunities to hear frogs sing and to see birds fly in to rest, nest, and forage (just to name a few such values).

Although additional credits cannot be granted solely because an ILF mitigation receiving site is within an urban area of the county, there clearly is value to preserving and enhancing wetlands at such locations. Case by case justification for additional credits beyond what is determined through the credit/debit tool will be somewhat subjective (e.g., how much additional lift in water quality function is gained by removing 200 cubic yards of contaminated debris that is leaching into groundwater? or are additional credits merited—and how many—for restoring a wetland that urban school children can easily visit for educational trips?) and so these decisions will be carefully considered and well documented by the Sponsor and the Co-chairs of the IRT.

### *Sustainability of Urban Wetlands*

On-site mitigation in urban and urbanizing areas is not sustainable without continual monitoring and maintenance to counteract the effects of human disturbance (Hruby et al. 2009). And yet, this cannot be an argument for *not* providing wetland mitigation in these areas; rather, it is an argument for consolidated mitigation sites that are under the responsibility of a committed sponsor and for implementing long term monitoring, maintenance, adaptive management, and innovative solutions as necessary.

The nature of remnant wetlands within urbanized areas is that they frequently are surrounded with development; human intervention may be needed to manage water levels, to combat

invasive species, and similar actions, to achieve mitigation objectives without compromising the *built* environment.

The Sponsor is in a position to provide the long term site management and maintenance required of these urban wetland areas. Within the PCILF Program urban wetlands will be monitored through a perpetual stewardship agreement and third party oversight (Appendix Q), and maintained by an existing program that has experience maintaining 403 stormwater ponds and 3,500 acres of public property within Pierce County.

### *Cost of Restoring, Enhancing, and Preserving Wetlands in Urban Areas*

Urban wetlands are important for maintaining socioeconomic values and services as well as for maintaining wetland ecological functions that occur with respect to small spatial scales (e.g., habitats within migration distance of one another for amphibians, insects, and small mammals). And yet restoration, enhancement, preservation, and sustainability of urban wetlands is challenging because of numerous additional stressors and obstacles (discussed above).

The Sponsor will request additional credits at ILF receiving sites when a case can be made that additional lift occurred that was not captured by the credit/debit tool. Even so, it is understood that credit prices in urban service areas (as, for example, in most of the Chambers/Clover Creek watershed) will likely be higher than rural areas, because they will reflect the real cost of performing urban mitigation, with perpetual long term monitoring and maintenance.

## **2.2 Joint Base Lewis-McChord**

JBLM makes up large portions of WRIA 11 and 12. Significant natural resources, including prairie habitat, the wetland headwaters of Coffee Creek (a tributary to Clover Creek), and oak woodlands exist in a fairly intact condition on the Base. Because of this habitat, the Base is also home to several federally threatened or endangered species of animals and plants that are not known to occur elsewhere. However, since these natural areas are held in trust for national security and military training, their future protection is not guaranteed. There may be opportunities to restore and enhance wetlands on the Base; however, the above considerations of needs and opportunities will be part of the site selection decision matrix when considering sites within the Base. If sites are selected within the base, the handbook, *Conserving Biodiversity on Military Lands: A Handbook for Natural Resources Managers* (Leslie et al. 1996), will be referred to for guidance in site selection, prioritization, and design.

## **3.0 Stakeholder Involvement Strategy**

The PCILF Program anticipates working with the following stakeholders to help identify potential sites within the general areas prioritized for mitigation within each of the geographic service areas:

- Chambers-Clover Creek Watershed Council
- Nisqually Watershed Council
- Puyallup Tribe
- Nisqually Tribe
- Muckleshoot Tribe
- Squaxin Island Tribe
- Joint Base Lewis-McChord
- Landowners and the general public
- The cities of DuPont, Eatonville, Fircrest, Lakewood, Roy, Steilacoom, Tacoma, and University Place
- Pierce County Parks and Recreation
- Pierce County Planning and Land Services
- State and Federal resource agencies

The Sponsor anticipates holding focus group meetings with stakeholders to solicit input regarding local priorities, individual expertise, on-the-ground understanding of site feasibility, important ecological characteristics, and expected development pressures in order to narrow site selection to a specific sub-basin or potential sites within a couple of the prioritized sub-basins.

The PCILF Program will further coordinate with watershed councils, tribes, and resource agencies to gain an understanding of recent local developments, conditions, situations and opportunities within the prioritized areas.

#### **4.0 Site Approval and Conceptual Design**

When the Sponsor has identified an appropriate site, the Sponsor will formally submit the proposed site to the Corps and Ecology for approval, after consultation with the IRT. If approved, subsequent site visits will occur to collect additional data, such as:

- Wetland baseline data collection including wetland and stream mapping and wetland delineation

- Rating the aquatic resource using HGM criteria and the Washington State Wetland Rating System for Western Washington (Hruby 2004 (revised Annotated Version August 2006), or latest version) as appropriate
- Applying the Credit/Debit Tool (or another IRT-approved mitigation assessment tool) based on existing conditions
- Assessing whether existing conditions are conducive to generating the desired number and type of credits

The data collected will be used to create a mitigation plan specific to the selected site.

## 5.0 Pre-Capitalized Sites

As discussed in Appendix EE, prior to agreement on this PCILF Instrument, SWM funds were invested in parcel acquisition, design, and 2007 implementation of a “pre-capitalized” mitigation-receiving site known as the South Midland Wetland Reserve, and for parcel acquisition for a second receiving site, the Larchmont Wetland Reserve. Additional funds allocated by the state legislature were used to design the Larchmont Wetland Reserve site and construction was implemented August through October, 2013.

These sites were incorporated into the initial roster of sites prior to the establishment of this site selection process, but through the review of a site selection committee convened by the Puget Sound Partnership in 2010. The Partnership was intending to develop a Puget Sound-wide ILF program and they were seeking pilot pre-capitalized sites in Pierce and Thurston counties. The site selection committee included representatives from Puget Sound Partnership, the Corps, the EPA, Ecology, the Squaxin Island Tribe, and Cascade Land Conservancy (now Forterra).

In selecting these sites, the Puget Sound Partnership site selection committee determined that the sites together would provide great benefits to water quality, downstream flood reduction, and habitat in this urban watershed, within a system-wide approach. These proposed ILF receiving sites are at the edge of the city of Tacoma and within the City’s UGA boundary. They are surrounded by high-intensity urban residential and commercial development and yet some open space corridors remain--providing fragmented connection between the sites.



## APPENDIX L: CREDIT FULFILLMENT

Credit fulfillment refers to the process by which actual mitigation projects are planned and constructed to offset credits that have been sold. Subsections in this section describe the process for implementing mitigation projects.

### 1.0 Sponsor Qualification and Implementation

PCSWM will serve as Sponsor of the PCILF Program. As Sponsor, PCSWM will identify, fund, operate, maintain, and manage PCILF projects as described in this Instrument. PCSWM has extensive experience designing, permitting, and implementing restoration, aquatic resource mitigation, and water flow improvement projects and will use this experience to successfully develop and implement mitigation-receiving sites that will generate/fulfill wetland mitigation “credits” for use in the PCILF Program.

Sponsor roles, per 33 CFR Part 332.8, include (unless otherwise approved by the Corps and Ecology):

- Assuming responsibility for a permittee’s compensatory mitigation requirements
- Ensuring the success of compensatory mitigation for which fees have been collected
- Maintaining accounting ledgers, tracking all fees collected and expenditures
- Selecting and assessing mitigation sites, as well as their design and construction
- Monitoring and maintaining mitigation projects through their establishment period as well as implementing a Long-Term Management and Maintenance Plan
- Attaining approval for mitigation plans and expenditures from the appropriate PCILF account
- Maintaining sufficient funds for the long-term management of mitigation projects. Annually reporting on the progress and status of the PCILF Program and its projects including financial ledgers, credit ledgers, mitigation receiving site monitoring and progress toward success, amount of mitigation provided for authorized impacts/fees collected, and any other changes in land ownership or transfers of long term management responsibilities

PCSWM has staff with the expertise to develop mitigation plans and designs for proposed mitigation receiving sites to maximize sustainability and functional gain, developing performance standards that target the achievement of ecosystem function, and writing and

reviewing monitoring reports and contingency plans to correct poor site performance or address unforeseen circumstances.

The PCILF Program will design and complete the permitting process for mitigation-receiving sites. To meet the needs of each mitigation project, the best available science will be incorporated along with an appropriate monitoring program to evaluate the effectiveness of the implemented strategies and inform adaptive management (in accordance with Appendices M, O, P and Exhibit 10). The mitigation and monitoring plans will be approved by the Corps and Ecology, in consultation with the IRT, to ensure the greatest chance of success for each project and the overall PCILF Program.

Construction of mitigation-receiving sites is defined as a “Public Work” in compliance with RCW 39.04.010. Receiving sites will be constructed by qualified construction contractors selected through a standard competitive bidding process as governed by Pierce County regulations. PCSWM will provide contract management, inspection and oversight by the PCSWM Wetland Biologist. Once construction is complete, the Sponsor will monitor and maintain mitigation-receiving sites throughout the permitting establishment phase. PCSWM will provide long-term maintenance and management of its mitigation-receiving sites, and oversight of the conservation easement will be provided by a third party conservation steward. The Pierce Conservation District, a division of Washington State Government, has agreed to serve in the role of conservation steward for at least the two initial pre-capitalized receiving sites (Larchmont and South Midland Wetland Reserves).

## 2.0 Mitigation Plans

A key document guiding much of the credit fulfillment process will be site-specific mitigation plans. The requirements for site-specific mitigation plans are described in detail in the Federal rule [33 CFR Part 332.4(c)]. At a minimum, the Federal rule specifies that mitigation plans shall include the following sections:

1. Objectives
2. Site selection
3. Site protection instrument
4. Baseline information
5. Determination of credits
6. Mitigation work plan, including opportunities or need to phase projects
7. Maintenance plan



8. Performance standards
9. Monitoring requirements
10. Plans and specifications, including identification of necessary local, state and federal permits for proposed project
11. Affected stakeholders (a plan for stakeholder involvement may be required)
12. Adaptive management plan and contingencies plan
13. Long-term management plan
14. Financial assurances
15. Credit release schedule
16. Information such as nearby mitigation or restoration projects and how the mitigation project may compliment them
17. Adjacent land uses and potential effects of adjacent land uses on mitigation project
18. Other information as identified by the IRT

All mitigation plans for the PCILF Program will adhere to the requirements for mitigation plans outlined in the Federal rule, and all mitigation plans will be approved by the Corps and Ecology in consultation with the IRT.

Mitigation plans will also clearly delineate the areas of a site where mitigation activities can occur. For example, mitigation plans will identify features that would disallow creation of credits such as existing trail corridors, utility easements, previous mitigation projects without any available additional credit, and restoration projects funded through other means.

### 3.0 Credit Fulfillment Process

The credit fulfillment process will generally require the following steps, to be undertaken by PCSWM, as the PCILF Program Sponsor:

1. Review mitigation needs in the watershed. With pre-capitalized sites this will not be determined by the type and location of the known impacts for which the mitigation may serve, but rather by nature of the projected impacts, the current balance of function types within the watershed and by watershed needs as articulated in planning documents and from stakeholder input. The balance of function types is determined by an assessment of past impact projects that have

acquired pre-capitalized credits. Therefore, it will be necessary to collect and review basic site information of past impact sites as well as the number of debits associated with each impact and a complete list and description of any impacts to aquatic areas and/or buffers, as applicable.

2. Select a “preferred” mitigation-receiving site according to the process outlined in Appendix I (Watershed Approach to Mitigation) and K (Site Selection Process). Preliminary baseline information including acreage and type of existing wetlands and other waters at the site will be supplied at this stage. The preferred site proposal shall be reviewed and approved by the Corps and Ecology in consultation with the IRT.
3. Submit preferred site and preliminary concept plans to the Corps and Ecology for review and consultation with the IRT, including information about other restoration or mitigation activities in the vicinity of the preferred site to ensure the area proposed for mitigation is clearly defined and distinct from other projects and land-uses at the site. At a minimum, the concept plans should provide a simple graphic representation of baseline conditions at the site, key project elements and a short narrative description. Preliminary application of Credit/Debit Tool to determine the number of potential credits the mitigation project could be expected to generate will also be conducted at this stage. A site visit will be arranged with the IRT at this stage, if desired. These tasks all fall within Program Administration. If these tasks may require more than 75% of the funds from credit sales, an approved spending authorization (See numeral 8, below) will be needed to obligate the remaining 25%.
4. Corps and Ecology issue a joint public notice on the conceptual draft Mitigation Plan.
5. Pending Corps and Ecology approval to proceed, the Sponsor will collect detailed data and validate assumptions to confirm the suitability of the preferred mitigation-receiving site. This will include a wetland delineation, functions assessment, and application of the credit/debit tool, and assessment of streams when applicable.
6. Submit a draft Spending Agreement (Exhibit 12) for review and approval by the Corps and Ecology in consultation with the IRT.<sup>15</sup>

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<sup>15</sup> The spending agreement submittal may vary from this order and more than one spending agreement may be necessary for an ILF mitigation project depending on site specifics and baseline data needs.

7. Develop Draft Mitigation Plan, cost estimate, and credit generation proposal and submit for IRT review and approval.
8. Submit a copy of the draft Site Protection Instrument that would protect the land in perpetuity.
9. Acquire receiving site outright, or at least a controlling real estate interest in the site.
10. Complete the draft Final Mitigation Plan, and upon review and approval by the Corps and Ecology, in consultation with the IRT, incorporate this plan into the PCILF Program Instrument in the Mitigation Plans section (Appendix W). This will require amendments to the Instrument and public notice (Step 11).
11. Modify the PCILF Program Instrument to incorporate the Mitigation Plan and begin environmental permitting applications for construction.

The Federal rule [33 CFR 332.8(g)] describes the process by which the ILF Program Instrument is modified when a new mitigation plan is incorporated. The review process [332.8(g)(1)], which is similar to the review and approval process for new in-lieu fee instruments, is outlined in [332.8(d)(4)]:

For modifications of approved instruments, the public notice must... summarize, and make available to the public upon request, whatever documentation is appropriate for the modification (e.g., a new or revised mitigation plan). The comment period for public notice will be 30 days, unless the district engineer determines that a longer comment period is appropriate. The district engineer will notify the Sponsor if the comment period is extended beyond 30 days... If the construction of ...an in-lieu fee program project requires a DA permit, the public notice requirement may be satisfied through the public notice provisions of the permit processing procedures, provided all of the relevant information is provided.

12. Finalize and record the Site Protection Instrument (e.g., conservation easement or restrictive covenants) and Long-Term Management Plan.
13. Negotiate with and obtain approval by the Corps and Ecology, in consultation with the IRT, regarding monitoring periods and credit release schedules. The credit release schedule determines the points in the project at which credits will be considered “released” (i.e., the point at which the Sponsor has met the obligation for fulfilling the credit and demonstrated attainment of performance standards (Section 5.0)).

14. Obtain Corps and Ecology approval of Final Mitigation Plan, Final Site Protection Instrument, and Final Spending Agreement.
15. Complete permitting necessary to implement the Mitigation Plan.
16. Implement approved Mitigation Plan.
17. Monitor and report on progress towards meeting performance measures and credit release.
18. Upon meeting performance measures, release appropriate credits upon approval from the Co-Chairs, in consultation with the IRT (see Section 5.0 for role of IRT).

The steps outlined above have been distilled into a one-page Credit Fulfillment Checklist, which is included with this Instrument as Exhibit 9. This checklist shall guide the Sponsor and IRT members through the fulfillment steps. The checklist shall be jointly reviewed and amended by the Corps, Ecology, and the Sponsor, in consultation with the IRT, to ensure all relevant steps in the fulfillment process are captured in the checklist. This checklist may be amended as necessary to incorporate other necessary or desirable steps identified by the Corps, Ecology, and the Sponsor.

#### 4.0 Fulfillment of Advance Credits

For fulfillment of the sale of “advance credits,” a compensatory mitigation project plan will be submitted to and approved by the Corps and Ecology, in consultation with the IRT, and the initial physical and biological improvements will be initiated by the end of the third full growing season after the impact that generated the credit sale(s) as required by the Federal rule [33 CFR 332.8 (n)(4)]. The submittal of the Mitigation Plans to the IRT will include a credit release schedule. Generally, the Sponsor will request credit release consistent with target schedules identified in Section 5.0 of this Appendix (below).

In some cases, mitigation projects will require more detailed baseline data in order to reduce risk of project failure or to inform site specific on-the-ground implementation of projects. For instance, there may be a need to monitor ground and surface hydrology for more than one year. The collection of data will generally occur within one year of the unavoidable impact that generated the advance credit sale. For projects that require multiple years of baseline data collection, leaving it a challenge to construct those sites within three growing seasons, the Corps and Ecology may grant an extension beyond the three growing season time limit. These cases would be limited to those which require multiple years of baseline data collection and would be contingent on Corps and Ecology approval, following consultation with the IRT.

## 5.0 Credit Release Schedule

For each mitigation-receiving site, a credit release schedule will be negotiated with and approved by the Corps and Ecology, in consultation with the IRT. Generally, credit release will correspond with the achievement of specific performance standards as observed during official monitoring events identified in the monitoring schedule for each project.

Sections 33 CFR 332.8(o)(8)(i) and (iii) of the Federal rule describe details related to the credit release schedule for in-lieu fee programs:

(i) *General considerations.* Release of credits must be tied to performance-based milestones (e.g., construction, planting, establishment of specified plant and animal communities). The credit release schedule should reserve a significant share of the total credits for release only after full achievement of ecological performance standards. When determining the credit release schedule, factors to be considered may include, but are not limited to: The method of providing compensatory mitigation credits (e.g., restoration), the likelihood of success, the nature and amount of work needed to generate the credits, and the aquatic resource type(s) and function(s) to be provided by the ... in-lieu fee project. The district engineer will determine the credit release schedule, including the share to be released only after full achievement of performance standards, after consulting with the IRT. Once released, credits may only be used to satisfy compensatory mitigation requirements of a DA permit if the use of credits for a specific permit has been approved by the district engineer.

(iii) For in-lieu fee projects ...the terms of the credit release schedule must be specified in the approved mitigation plan. When an in-lieu fee project ... is implemented and is achieving the performance-based milestones specified in the credit release schedule, credits are generated in accordance with the credit release schedule for the approved mitigation plan. If the in-lieu fee project ... does not achieve those performance-based milestones, the district engineer may modify the credit release schedule, including reducing the number of credits.

The Corps and Ecology, following consultation with the IRT, will need to approve the credit release schedule which is to be based on documentation of meeting project performance milestones, and if necessary, a site visit (see Federal rule 33 CFR 332.8(o)(9)).

The credit release schedule will be negotiated for each Mitigation Plan, though generally these credit release schedules will conform to discrete project milestones identified in the monitoring plans and ecological performance standards established for each project and approved by the Corps and Ecology, in consultation with the IRT. Table 5 provides an example credit release schedule. Actual credit release schedules for each project may differ from the example below depending on site conditions, the duration of the required monitoring and other project variables.

Table 5. Example Credit Release Schedule

<b>Proposed Project Milestone</b>	<b>Portion of Credit Released</b>	<b>Cumulative Portion of Fulfillment</b>
Site acquisition by Sponsor and recording of site protection mechanism (mitigation-receiving site plan approved by IRT)	1/8	1/8
Installation (approval of as-built)	1/8	1/4
Year 1 performance standards achieved (primarily hydrologic)	1/8	3/8
Year 3 performance standards achieved	1/8	1/2
Year 5 performance standards achieved	1/8	5/8
Year 7 performance standards achieved	1/4	7/8
Year 10 performance standards achieved (including delineation, running credit debit tool) and transition to long-term stewardship (IRT sign-off on achievement of performance standards)	1/8	Credit fulfilled

Credit releases for in-lieu fee projects must be approved by the Corps and Ecology. In order for credits to be released, the Sponsor will submit documentation to the Corps and Ecology demonstrating that the appropriate milestones for credit release have been achieved and requesting the release. The Corps and Ecology will provide copies of this documentation to the IRT members for review. IRT members will provide comments on this document (see 33 CFR 332.8 (o)(9)).

The Corps and/or Ecology may determine that a site visit is necessary prior to the release of credits. Such a visit will be compliant with 33 CFR 332.8 (o)(9).

If the in-lieu fee project does not achieve the performance-based milestones, the Corps and Ecology, after consultation with the IRT, may modify the credit release schedule, including reducing the number of potentially available credits (see 33 CFR 332.8(o)(8)(iii)).

If at any step in the credit release schedule, it is determined through monitoring that performance standards are not being met, the IRT and the Sponsor shall identify appropriate adaptive management and contingency measures and devise a plan for implementation.





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## APPENDIX M: MITIGATION SITE MAINTENANCE

Active maintenance practices during the establishment phase will generally follow an annual program that may include repair/replacement of engineered structures, nuisance species control, and adaptive management measures, such as grade or hydrology modifications, species substitutions, replanting, replacement of habitat features, and temporary fencing. Projects requiring phased installation may specify maintenance and monitoring measures that promote the phased approach.

After the establishment phase has ended and all of the performance measures have been achieved, the long term management of the site begins. As necessary, the Sponsor will coordinate with land managers, the conservation steward and appropriate contractors to outline management, maintenance and monitoring protocols for each mitigation project. Due to the variability of projects at mitigation receiving sites, the Sponsor will develop long-term operation and management and maintenance plans for each mitigation-receiving site on a case-by-case basis (and reviewed and approved by the Corps and Ecology, in consultation with the IRT). Site management beyond the project establishment phase will be performed by the property owner or the long-term steward, depending on the specific provisions for long-term stewardship.

Site maintenance plans will be incorporated into the Mitigation Plans for each site, and as such, will be appended to the PCILF Program Instrument upon Corps and Ecology approval, after consultation with the IRT.



## APPENDIX N: ECOLOGICAL PERFORMANCE STANDARDS

Performance standards are observable or measurable physical (including hydrological), chemical, or biological attributes that are used to determine if a compensatory mitigation project meets its objectives. Performance standards included in PCILF Mitigation Plans submitted to the IRT will relate to the objectives of the compensatory mitigation project, so that the project can be evaluated through time to determine if it is developing into the desired resource type, providing the expected functions, and generating the anticipated functional lift.

Ecological performance standards will be based on the best available science that can be measured or assessed in a practicable manner. Performance standards may be based on variables or measures of functional capacity described in the mitigation assessment method, measurements of hydrology or other aquatic resource characteristics and/or comparisons to reference aquatic resources of similar type and landscape position.

Reference sites may be used to develop performance standards for mitigation sites. Performance standards based on measurements of hydrology will take into consideration the hydrologic variability exhibited by reference aquatic resources, especially wetlands. Performance standards will take into account the expected successional stages of the aquatic resource development process in order to allow early identification of potential problems and appropriate adaptive management.

Specific performance standards for a given mitigation project will depend in large part on the type, scale and scope of the proposed project and will be outlined in detail in the Mitigation Plans developed for each site. These plans must be reviewed and approved by the IRT prior to implementation, so specific performance standards for mitigation projects can be negotiated with the IRT. Performance standards for the PCILF mitigation projects will generally include the following components (excerpted from *Monitoring Plant and Animal Populations*, Elzinga et al. 1998):

### *Indicators*

Indicators identify what will be monitored, such as woody vegetation, invasive species (e.g., reed canarygrass), wetland area, or water regimes. The indicators to be monitored will vary from site to site, and will be listed in the Monitoring and Maintenance sections of the Mitigation Plans developed for each receiving site. These plans will be incorporated into the PCILF Program Instrument upon approval by the IRT.

### *Attributes*

Attributes identify what aspect of the indicator will be monitored, such as percent aerial cover (of vegetation), density (of stems of surviving vegetation), size (of wetland area), or percent area (of a water regime).

### Actions

Actions identify the “verb” of the attribute, such as “will not exceed X percent cover (of invasive species),” “establish X acres (of wetland area),” “maintain number (of surviving vegetation),” or “will have X-X percent area (of a water regime).”

### Quantities/Status

Quantities or Status identify the amount of change or the desired level the attribute should reach, such as achieving greater than 50 percent total aerial cover of trees and shrubs, establishing 2 acres of wetland, or having 25 to 50 percent area of a water regime.

### Time Frame

Time Frames identify when the quantity/status should be achieved or at what time the effectiveness of management of the site should be evaluated. For example, having X-X percent area of a water regime each year of monitoring, achieving X acres of wetland by the end of the monitoring period, or achieving X percent total aerial cover of trees and shrubs by the end of year 7. Performance standards should be included for interim years, not just the end of the monitoring period.

### Location

Location refers to the geographical area where the indicator will be monitored, such as a particular wetland mitigation site or a specific habitat type within a compensatory wetland. For example, the compensatory mitigation area at The South Midland Wetland Reserve, within Unincorporated Pierce County, Washington will achieve X acres of emergent wetland by the end of the monitoring period.

Most projects will also include standards to address the specific goals and objectives identified in the guidelines entitled *Wetland Mitigation in Washington State - Part 2, Version 1, p. 47, Chapter 3 “Considerations for Developing a Mitigation Project”*, including:

- Water, hydroperiod, and hydrology
- Hydroperiod associated with target functions
- Area of HGM classes/subclasses, Cowardin classes, aquatic area types, or upland community types
- Species richness and abundance
- Maximum percent cover of invasive vegetation species
- Specific target functions or physical characteristics

Finally, to the extent possible, performance standards will be developed to ascertain whether lift is being created in the context of the functions measured by the mitigation assessment method.



## APPENDIX O: MONITORING AND REPORTING

Monitoring and reporting requirements from the PCILF Program will meet requirements outlined in the Federal Rule. Section 1.0 of this Appendix describes monitoring and Section 2.0 describes PCILF reporting.

### 1.0 Monitoring

Pierce County is responsible for monitoring the in-lieu fee project sites, in accordance with the approved monitoring requirements for each project, to determine the level of success and identify problems requiring remedial action or adaptive management measures. Monitoring must be conducted in accordance with the requirements in 33 CFR 332.6, and at time intervals appropriate for the particular project type. Monitoring will continue until such time that the district engineer, in consultation with the IRT, has determined that the performance standards for the project have been attained (33 CFR 332.8(q)(2)).

Monitoring periods will span 7 to typically 10 years for most projects. Depending on the nature of the mitigation projects, monitoring periods may be shorter or longer. The IRT will review and approve all monitoring plans.

Monitoring periods will comply with the terms of 33 CFR 332.6(b), which states that the “mitigation plan must provide for a monitoring period that is sufficient to demonstrate that the compensatory mitigation project has met performance standards, but not less than five years. A longer monitoring period must be required for aquatic resources with slow development rates (e.g., forested wetlands).”

Performance monitoring will require qualitative and quantitative assessments of physical, chemical and /or biological characteristics of the project, using scientifically appropriate analytical methods. The purpose of monitoring is to determine the level of compliance with ecological performance standards established in the site-specific mitigation plan. In addition, monitoring data help to identify problems that may trigger maintenance activity, contingency plans, remedial action, or adaptive management measures.

Monitored parameters depend in large part on the type, scale and scope of a proposed project, but will generally include hydrologic conditions, vegetative cover, soil stability, and presence/extent of noxious weeds and nuisance species.

Monitoring requirements and specifications will vary from receiving site to receiving site and will be outlined in detail in the Mitigation Plan for each mitigation site; the IRT will have the opportunity to review and approve monitoring requirements during review of the Mitigation Plans.

The PCILF Program will formulate a monitoring plan for each project, which details and complies with all of the above. Specifically, the monitoring plan will “address the monitoring requirements for the compensatory mitigation project, including: 1) the parameters to be monitored, 2) the length of the monitoring period, 3) the party responsible for conducting the monitoring, 4) the frequency for submitting monitoring reports to the district engineer, and 5) the party responsible for submitting those monitoring reports to the district engineer.” (33 CFR 332.6). The Mitigation Plan will also include a detailed credit release schedule. The scheduled release of credits will correspond to the timeframe established for monitoring the mitigation sites to ensure ecological performance standards are being met.

The Corps and Ecology may conduct site inspections on a regular basis (e.g., annually) during the monitoring period to evaluate mitigation site performance. (33 CFR 332.6(a)(1)).

### 1.1 Long-Term Monitoring

Each Mitigation Plan will have details about the long-term maintenance and monitoring plan for each mitigation site. Appendix Q explains in more detail the roles and responsibilities of long-term maintenance and monitoring.

## 2.0 Reporting

Specific reporting guidelines will be negotiated with the IRT for each mitigation project. Generally, the monitoring reports should follow reporting guidelines set forth in a permitting regulatory guidance letter (RGL 08-03) issued by the Corps on October 10, 2008 which provides “Minimum Monitoring Requirements for Compensatory Mitigation Projects Involving the Restoration, Establishment, and/or Enhancement of Aquatic Resources”. (A copy of this RGL is included as Exhibit 10).

ILF Program monitoring reports will comply with 33 CFR 332.6(c), which states:

(1) The district engineer must determine the information to be included in monitoring reports. This information must be sufficient for the district engineer to determine how the compensatory mitigation project is progressing towards meeting its performance standards, and may include plans (such as as-built plans), maps, and photographs to illustrate site conditions. Monitoring reports may also include the results of functional, condition, or other assessments used to provide quantitative or qualitative measures of the functions provided by the compensatory mitigation project site.

(2) The permittee or Sponsor is responsible for submitting monitoring reports in accordance with the special conditions of the DA permit or the terms of the instrument. Failure to submit monitoring reports in a timely manner may result in compliance action by the district engineer.



(3) Monitoring reports must be provided by the district engineer to interested federal, tribal, state, and local resource agencies, and the public upon request.

In addition to annual monitoring reports, which describe how well individual sites are doing at achieving performance standards, objectives, and goals, the ILF Sponsor will annually review how the program as a whole is doing at meeting the goals and objectives within each service area (see Appendix V: Tracking Program Performance). Furthermore, the ILF Sponsor will review and update the goals and objectives for each service area based on new information, changing conditions, and the effects of restoration activities completed by other programs. The ILF Sponsor will submit an annual report to the IRT describing the progress the ILF program has made within each service area. This report will also identify any changes that may be needed in the CPF. If changes are needed, the report will include proposals for revisions. Revisions to the CPF will need to be approved by the Corps and Ecology, in consultation with the IRT, and are subject to the Instrument amendment processes identified in CFR 332.8(g).



## APPENDIX P: ADAPTIVE MANAGEMENT AND CONTINGENCIES PLANNING

Each Mitigation Plan (see Appendix L, Section 2.0) will include an *adaptive management plan*, which is defined in the Federal rule as a “management strategy to address unforeseen changes in site conditions or other components of the compensatory mitigation project, including the party or parties responsible for implementing adaptive management measures. The adaptive management plan will guide decisions for revising compensatory mitigation plans and implementing measures to address both foreseeable and unforeseen circumstances that adversely affect compensatory mitigation success.” (33 CFR 332.4(c)(12) Adaptive management plans included with mitigation plans will lack *specific* measures to address underperformance, since the type of underperformance that will occur will not be known at the time the Mitigation Plan is developed. Specific corrective measures will be developed if and when underperformance details become clear. Any and all adaptive management measures will be appended to the Mitigation Plan and the IRT will review and comment on any additions or amendments to Mitigation Plans in support of Corps and Ecology approval.

Contingency funds, incorporated into the credit fees and held in reserve in a separate account (see Appendix F, Section 3.1), would pay for development and implementation of adaptive management plans.

Section 33 CFR 332.7(c) of the Federal rule provides further guidance on adaptive management of mitigation projects:

- (2) If monitoring or other information indicates that the compensatory mitigation project is not progressing towards meeting its performance standards as anticipated, the responsible party must notify the district engineer as soon as possible. The district engineer will evaluate and pursue measures to address deficiencies in the compensatory mitigation project. The district engineer will consider whether the compensatory mitigation project is providing ecological benefits comparable to the original objectives of the compensatory mitigation project.
- (3) The district engineer, in consultation with the responsible party (and other federal, tribal, state, and local agencies, as appropriate), will determine the appropriate measures. The measures may include site modifications, design changes, revisions to maintenance requirements, and revised monitoring requirements. The measures must be designed to ensure that the modified compensatory mitigation project provides aquatic resource functions comparable to those described in the mitigation plan objectives.

- (4) Performance standards may be revised in accordance with adaptive management to account for measures taken to address deficiencies in the compensatory mitigation project. Performance standards may also be revised to reflect changes in management strategies and objectives if the new standards provide for ecological benefits that are comparable or superior to the approved compensatory mitigation project. No other revisions to performance standards will be allowed except in the case of natural disasters.

Once approved by the Corps and Ecology, in consultation with the IRT, the revised project elements identified in the adaptive management plan will be implemented. They will also be appended to the approved Mitigation Plan and incorporated into the program Instrument. The ecological performance standards, monitoring requirements and schedule, and credit release schedule will be amended accordingly to incorporate the terms of the project as revised in the adaptive management plan.

If an adaptive management plan identifies the need for significant modification of a compensatory mitigation project, the responsible party must get approval from the Corps and Ecology, in consultation with the IRT. A streamlined review process is available (see 33 CFR 332.8(g)(2)).

If the failure is substantial and would be difficult or impossible to correct on site (e.g., landscape conditions change such that hydrology is insufficient to support a wetland), Pierce County will, in consultation with the IRT, evaluate whether the project should be abandoned altogether in favor of pursuing alternative contingency measures, such as a new project. A failure of a project (in whole or in part) is considered “default” in which case provisions in the Basic Agreement Article V.N. and Appendix T of this Instrument would apply.

## APPENDIX Q: SITE PROTECTION AND LONG-TERM MANAGEMENT

Site protection and long-term management for PCILF mitigation-receiving sites will meet requirements outlined in the Federal rule [33 CFR 332.7(a) and (d)]. Section 1.0 describes site protection and Section 2.0 describes long-term management.

### 1.0 Mitigation-Receiving Site Protection

The Federal rule (33 CFR 332.7) requires permanent site protection to ensure mitigation-receiving sites continue to provide ecological functions in perpetuity. The rule provides for flexibility in how sites are protected. “Long-term protection may be provided through real estate instruments such as conservation easements held by entities such as federal, tribal, state, or local resource agencies, non-profit conservation organizations, or private land managers; the transfer of title to such entities; or by restrictive covenants” (33 CFR 332.7(a)(1)). All site protection mechanisms must be approved by the Corps and Ecology following consultation with the IRT.

Property owned in fee by the Sponsor or its approved third-party designee (the long-term steward) is not necessarily legally protected in perpetuity, and fee ownership will not constitute adequate site protection to meet the requirements in the Federal rule. Therefore, mitigation-receiving sites must be protected by an easement or other restrictive covenants prior to being used as a mitigation site. Mitigation-receiving sites in the PCILF Program will be protected in perpetuity, through the mechanism of a Conservation Easement.

Conservation easements will name a qualified entity, initially the Pierce Conservation District, as the third party steward. Conservation easements will restrict the use of the site to uses compatible with wetland (and other aquatic resources) mitigation. The PCILF Sponsor will be the entity responsible for maintenance of the sites in perpetuity. The third party easement holder is granted the right and responsibility to enforce terms of the easement in perpetuity, should the Sponsor fall short of their responsibilities. Although each easement will look basically the same there might be some site attributes that require specific language.

Long-term ownership (including responsibility for conservation easements), stewardship, or both may be passed to other qualified entities. If ownership or stewardship is transferred, the Sponsor will still be required to honor the conservation easements or other protection mechanisms. In all cases, legal responsibility for long-term site protection remains with the PCILF Program Sponsor. Where a real estate instrument, such as an easement, is used to protect the site, the protection mechanism will include a provision requiring 60-day advance notification to the Sponsor and Corps and Ecology before any action is taken to void or modify the Instrument, including transfer of title.

Conservation easements will include:

- A statement summarizing the conservation values of the site
- A statement of intent for the site to remain ecologically intact such that the site continues to provide ecological functions provided by the mitigation project
- A requirement to notify the Corps, or Ecology and/or other designated state or federal agency at least 60 days prior to transfer of title
- Clear listing of compatible uses
- Clear listing of incompatible uses
- Other restrictions as required/approved by IRT

Lands that are already encumbered with conservation easements may also be eligible as ILF mitigation-receiving sites so long as there are no restrictions on the site to implement mitigation activities such as restoration, establishment or enhancement. However, the site would not be eligible for preservation credit because it is already protected. In addition, credits generated by the site would be lower because it would not receive the credits associated with recording a site protection mechanism.

In these cases, the existing easements will be reviewed to ensure they are consistent with the provisions of the model conservation easement used by the ILF Program. If they are not, the landowner and the Sponsor will negotiate changes to the existing conservation easement to incorporate any additional protections and allowances required for the site to conform to the ILF Program mitigation-receiving site criteria.

In the event that a site is not adequately protected, and the landowner or Sponsor (which will typically be one in the same) intentionally or unintentionally fails to abide by the terms of the conservation easement or restrictive covenant, resulting in compromised functions of the mitigation project area, the conservation steward, instrument beneficiaries or holders, and/or the Corps and Ecology may take any or all of the following actions:

- Require the landowner to pay for restoration or enhancement necessary to return the site to conditions that meet the original mitigation project performance requirements and the terms of the conservation easement.
- File a civil suit against the landowner for failure to meet the terms of the conservation easement.
- If stewardship or ownership of a site has been transferred to another party, the Sponsor will regain stewardship or re-purchase that site, if necessary.

Following the signing and recording of the conservation easement or restrictive covenant, the Sponsor will complete project design and construction according to the steps described in Appendix L (Credit Fulfillment).

The site protection instruments set forth in this Appendix are guidelines. Depending on specific site conditions and land ownership, the Corps, Ecology and Pierce County, in consultation with the IRT, may negotiate alternative site protection measures so long as the alternate measures are consistent with the federal rule and reviewed and approved by the Corps and Ecology following consultation with the IRT.

## 2.0 Long-Term Management/Site Stewardship

Projects will be designed, to the maximum extent practicable, to be self-sustaining once performance standards have been achieved. The PCILF Sponsor will ensure that projects are maintained and managed to protect their long-term viability as functional aquatic resources.

Following the Establishment Phase and release of all credits, ILF mitigation projects will be managed in accordance with long-term management plans developed for each site. Long-term management and maintenance expenses will be covered, in perpetuity, by the portion of the credit fee allocated to the Long-Term Management account (per service area). ILF credit pricing will reflect the need to generate enough money in the Long-Term Management account so that, overall, the interest will cover the long-term management and maintenance expenses of every site within that Service Area, with the account being non-wasting.

Long-Term Management and Maintenance Actions are required in perpetuity. As the land owner, Pierce County will comply with the Long-Term Management Plan. The PCILF Program will ensure the long-term maintenance of mitigation-receiving site properties with the assistance of the PCSWM Land Manager and the PCSWM Operations and Maintenance Division. As noted above, the third party conservation steward will have oversight to ensure that PCSWM adequately complies with the Long Term Management Plan.

Activities that could require intervention/long-term maintenance from Pierce County include control of noxious weeds; removal of encroachments (e.g., homeless camps); clean-up of hazardous waste deposited on the property; maintenance of the vegetated swales; monitoring and management of beaver dams that threaten surrounding properties or infrastructure with flooding; repairing fencing; and similar activities.

The entity designated as the easement holder will monitor mitigation-receiving sites at regular intervals, beginning with the signing of the Conservation Easement. A Memorandum of Agreement between PCSWM and the holder of the Conservation Easement will clearly indicate which responsibilities fall upon the easement holder and which upon PCSWM. This MOA will also discuss how the easement holder will be compensated for the staff time and other

resources they invest in monitoring each mitigation receiving site. Monitoring tasks will be further specified in the Long Term Management Plan.

If monitoring reveals conditions that are not allowed under the terms of the easement or PCSWM fails to fully comply with the long-term management plan, the easement holder will report these infractions immediately to PCSWM and to the Corps and Ecology who will consult with the IRT. The PCILF Program will use funds from the Individual Mitigation Projects Account (if the project is still in the Establishment phase) or the Long-Term Management Account (if the project is in the Long-Term Management Phase) to return the site to compliance. If available funds are insufficient, the Corps and Ecology may direct use of financial assurances or other program accounts pursuant to Article IV, item E, of the Basic Agreement, and Appendix S (Financial Assurances), Section 1.0.

Table 6 provides an example of the types of activities anticipated to be addressed through Long-Term Management and Maintenance for each mitigation-receiving site and the estimated costs, over time, of those activities. It is anticipated that PCSWM will provide the long-term maintenance of PCILF mitigation properties and that it will be funded from the Long Term Management Account. Tables 6 and 7 were used to estimate the amount of the credit fee to be allocated to the LTM Account.

If PCSWM is unable to maintain sufficient financial assurances, the Corps and Ecology, in consultation with the IRT, could require the establishment of a non-wasting endowment. If that were to come to pass, Tables 6 and 7 could be used to determine the amount of that endowment.

Table 6 illustrates and estimates the costs of providing annual (or semi-annual) long-term management and maintenance activities. Table 7 calculates the total amount that would be needed per site to provide the annual costs (from Table 6), in perpetuity. The assumption used in Table 7 is that since Long Term Management activities will continue in perpetuity, the funds must last for perpetuity, so annual costs should be paid out of the interest earned by investing these funds and the funds themselves will be non-wasting. We further assume that the interest earned on these funds will be, on average, 2% (Pat Tobin, Pierce County Budget and Finance, Personal Communication). This table illustrates that approximately \$253,000 would be needed, for each site, to fund the LTM Account (or any endowment).



Table 6. Receiving Site Potential Long Term Management Activities and Estimated Long-Term Costs<sup>16</sup>

Activity	Hrs	Average Annual Costs
<b>Stewardship Costs</b>		
<b>Monitoring and Reporting</b>		
Site visits, mapping, photo-documentation, etc.	12	\$600.00
Travel costs	---	\$100.00
Cost of materials copies/postage/etc.	---	\$50.00
Report preparation	16	\$800.00
<b>Active Restoration</b>		
Staffing, WCC plus in-house biologists and engineers	---	\$1,000.00
Restoration materials	---	\$500.00
Bioswale Maintenance	---	\$200.00
<b>Emergency Stewardship Action (Assume 1 problem per 10 years)</b>		
Planning and design of major stewardship emergency actions and repairs (blow downs, surface water issues, fire, etc.)		\$1,000
Maintenance Division labor costs for emergency actions		\$200
Maintenance equipment costs (at \$100/hr)		\$160
<b>Enforcement (Assume 1 problem per 20 years)</b>		
Attorney, at \$350/hour	20	\$350
Staff hours	40	\$100
<b>TOTAL ANNUAL COSTS</b>		<b>\$5,060</b>

Table 7. Determination of LTM or Endowment Funds for Each Receiving Site

Total Annual Costs	\$5,060
Funds Necessary to Fulfill Annual Costs (cost/.02, then round up).	\$253,000
Total Due for Endowment, if required	\$253,000

<sup>16</sup> These costs are estimates and will change over time.



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## APPENDIX R: IMPLEMENTATION OF APPROVED PLANS

Once the IRT has approved a project plan and credit release schedule, the Sponsor will request spending authorization to initiate implementation of the mitigation project. The Sponsor will oversee contract development, select a qualified construction contractor following a competitive bidding process, and perform construction management and oversight. The construction process will include routine inspections, special inspections, pre-construction site review meetings, post-construction meetings, and compliance reporting as necessary.

According to RCW 36.32.235, municipalities are required to award services through a competitive bid process. Pierce County will be required to advertise the contract, and to accept bids from private contractors to perform the construction of the mitigation project per Pierce County Purchasing requirements.

Regardless of what entity performs the construction of the project, construction will follow construction plans contained in the IRT-approved Mitigation Plans, as well as any modifications as required through adaptive management plans (see Appendix P).



## APPENDIX S: FINANCIAL ASSURANCES

The Federal rule requires in-lieu fee program sponsors (e.g., Pierce County) to provide financial assurances “sufficient to ensure a high level of confidence that the compensatory mitigation project will be successfully completed, in accordance with its performance standards.” [33 CFR 332.4(c)(13)]

When an applicant buys mitigation credits from the ILF Program to meet a mitigation need for a permitted project, full responsibility for fulfilling the mitigation obligation is transferred from the applicant to Pierce County. Pierce County recognizes and fully accepts responsibility for meeting these mitigation obligations. To ensure adequate funding to meet mitigation obligations associated with any given permitted impact, there are several safeguards built in to the program to ensure Pierce County has adequate funds, including:

- Credit prices are based on actual project costs and adhere to full-cost accounting requirements in the Federal rule (33 CFR 332.8(o)(5))
- A percentage of each credit fee will be allocated to a contingency account for the service area in which the impact project occurs (Appendix F, Section 4.0)
- An interest-accruing, stand-alone mitigation program account, established by ordinance which is protected by code from being used for purposes other than PCILF program administration and implementation and management of mitigation receiving sites
- Even allocation of interest from the ILF fund to the contingency accounts and long term management accounts for each service area

Given these assurances incorporated into design of the program, the Corps and Ecology do not require additional financial assurances at this time. However, each Mitigation Plan for mitigation projects will address financial assurances (such as those program elements listed above), and the Corps and Ecology retain the right to reassess the need for additional financial assurances.

### 1.0 Direction of Funds/Use of Financial Assurances

If the Corps and Ecology choose to direct program account funds in cases of site default, service area default, or program default, options available to the Corps and Ecology shall include, but not be limited to:

1. Directing Pierce County to spend funds at an alternative site or sites to secure necessary credits

2. Directing Pierce County to provide funds to a third party to bring a mitigation project into compliance
3. Directing Pierce County to secure credits from another third party mitigation provider

The Corps and Ecology shall direct the use of funds through the issuance of a signed Corrective Action Letter to the Sponsor. The letter will specify what financial and responsive action the Sponsor must take. The letter will also specify a timeframe in which the Sponsor must complete the actions. The Sponsor's noncompliance with the letter may result in program closure and legal action.

If the Corps and Ecology direct Pierce County to spend funds from the Program Account, Pierce County shall spend funds in the following order until sufficient funds are provided:

1. Funds remaining in any Mitigation Project Accounts associated with mitigation projects found to be in default. In cases where a mitigation site fails early in its establishment phase, funds authorized for project implementation may remain. (See Appendix F for description of Accounts).
2. Financial Assurances (see Basic Agreement Article IV.F.). Utilization of financial assurances shall be appropriate to the phase of the project. For example, for projects in the establishment phase, the Contingency Account funds should be accessed first, and for projects in the Long-Term Management phase, funds from the Long-Term Management Account should be accessed first (see Appendix F for descriptions of accounts).

Should these sources of money be insufficient to secure the required number of credits, the PCILF Program will seek funding through the PCSWM funds to meet permit requirements that have been assumed by the program.

If the Sponsor has outstanding mitigation obligations at the time of default or closure, which it is unable to fulfill, the Corps and Ecology, in consultation with other members of the IRT, may direct the Sponsor to use remaining funds to secure credits from a third party source of mitigation (see Basic Agreement Article IV, item E). Examples of sources of third party include another in-lieu fee program, mitigation bank, or another entity such as a governmental or non-profit natural resource management entity willing to undertake the mitigation activities.

Remaining funds should be used, to the maximum extent practicable, to provide compensation for the amount and type of aquatic resource for which the fees were collected. The Corps and Ecology cannot, themselves, accept, retain, or draw upon such funds.

## APPENDIX T: NONCOMPLIANCE, FORCE MAJEURE, AND PROGRAM CLOSURE

This Section identifies the ways in which the PCILF Program may be in noncompliance under the terms of the ILF Program Instrument. It also identifies the corrective measures available to Pierce County, the IRT, and the Corps and/or Ecology if the PCILF Program is found to be in noncompliance.

Noncompliance may occur at individual sites, within a single service area or at the program scale. Corrective measures available to the Corps and Ecology should be commensurate with the category of noncompliance and the scale at which the noncompliance occurs. Such measures will ensure that Credit Fees collected from project applicants ultimately result in sufficient compensatory mitigation to offset the original impacts. Outlined below are the categories of noncompliance, the characteristics of each category of noncompliance, and the corrective measures that are available for each category of noncompliance.

This Section also addresses failures or underperformance at sites arising out of force majeure events or other conditions beyond Pierce County's reasonable control.

Finally, this Section contains program closure provisions.

### 1.0 Site Noncompliance

Site noncompliance may occur if the PCILF Program does not adhere to the terms of an approved Mitigation Plan developed for a mitigation site (see Appendix L, Section 2.0). For example, a site may be found to be in noncompliance if Pierce County fails to implement a project element called for in the Mitigation Plan, or if establishment phase monitoring (see Appendix O) reveals that a project is failing to meet performance standards outlined in the Mitigation Plan. There are several potential phases of site noncompliance, each with associated corrective measures available to the PCILF Program and/or the Corps and Ecology in consultation with the IRT. The potential phases of site noncompliance include (1) site performance failure, (2) site delinquency, and (3) site default.

Site noncompliance may apply to sites that are still in the establishment phase (i.e., before all credits from a mitigation site have been released) and to sites that have reached the end of their establishment phase (i.e., sites at which all credits have been released).

#### 1.1 Site Performance Failure

Site performance failure may occur if, for any reason, a mitigation project fails to comply with terms of an approved Mitigation Plan (see Appendix L, Section 2.0), including failure to meet performance standards after a project is constructed. If establishment phase site monitoring reveals a site performance failure, the PCILF Program and the IRT will first attempt to address

the failure through adaptive management (see Appendix P). If adaptive management efforts are successful, no further responses to site performance failure will be necessary.

## 1.2 Site Delinquency

If the adaptive management measures are not undertaken by Pierce County, or if Pierce County fails to adequately implement adaptive management measures, the Corps and Ecology may notify the PCILF Program of site delinquency by way of a letter sent to the Sponsor. This letter will identify the areas of site delinquency and request that Pierce County propose corrective measures or a process for determining appropriate corrective measures. The letter shall provide Pierce County with at least 60 days from the date of receipt of the letter to recommend corrective measures.

As soon as practicable after receipt of Pierce County's proposal for corrective measures, the IRT shall advise the Corps and Ecology on whether or not to authorize Pierce County to implement the proposed corrective measures. By way of a second letter to the Sponsor, the Corps and Ecology shall authorize implementation of the proposed corrective measures or request revisions. The second letter shall include a timeline for implementation or submittal of revisions, as well as provisions for subsequent review and approval of corrective measures, if necessary.

If corrective measures are implemented successfully, no further responses to site delinquency will be necessary.

## 1.3 Site Default

The Corps and/or Ecology may determine the PCILF Program to be in site default if (1) corrective measures undertaken by Pierce County after notification of site delinquency are unsuccessful, or (2) if Pierce County fails to comply with the terms of the determination and/or implementation of corrective actions specified in the site delinquency letter(s). Pierce County is to be notified of site default by way of a letter from the Corps and/or Ecology. In cases of site default, actions available to the Corps and/or Ecology shall include but are not limited to (Compensatory Mitigation Rule (2008) Preamble p. 19638 and 33 CFR §§ 332.6(c)(2), 332.8(i)(2), 332.8(o)(10)):

1. Decreasing the amount of available credits generated by a site
2. Directing Pierce County to utilize financial assurances to correct identified deficiencies (i.e., access contingency funds) (see Basic Agreement Article III, item E, and Appendix S)
3. Directing Pierce County to use the PCILF Program Account funds to secure necessary mitigation credits (see Basic Agreement Article IV, item E, and Section 4.0, below)



## 2.0 Service Area Noncompliance

If Pierce County fails to abide by the terms of this Instrument in ways that fundamentally prevent the overall successful operation of the program in a particular service area, the PCILF Program may be found to be in service area noncompliance. Service area noncompliance may have two phases: service area delinquency and service area default.

The PCILF Program may be found to be in service area noncompliance if any of the following occur:

1. Conditions at more than one site deteriorate to an extent where the sites are no longer providing ecological functions according to long-term projections in the sites' Mitigation Plans. Service area noncompliance provisions shall apply to sites that are in their Long-Term Management phase; sites that fail during their establishment phase shall be subject to site noncompliance provisions above (Section 1.0). Reasons for deterioration at multiple sites may include, but are not limited to Pierce County's failure to properly manage the sites, or other acts or omissions of Pierce County with regard to obligations contained in this instrument or approved Mitigation Plans applicable to the service area that do not qualify under the *force majeure* provisions (see Section 4.0, below).
2. The PCILF Program is improperly accounting for and reporting debits and credits in a service area.
3. The PCILF Program is improperly accounting for and reporting fees collected and expenditures within a service area.
4. The PCILF Program has improperly managed fees in a service area resulting in insufficient funds to pay for long-term management activities as required by the approved Mitigation Plan.

### 2.1 Service Area Delinquency

Should the IRT find the PCILF Program to be in service area noncompliance, the Corps and Ecology shall notify Pierce County of such noncompliance by way of a letter that informs the County of the service area delinquency. The letter will identify the reasons for service area delinquency and request that Pierce County propose corrective measures or a process for determining appropriate corrective measures. The letter shall provide Pierce County with at least 60 days from the date of receipt of the letter to recommend corrective measures.

As soon as practicable after receipt of Pierce County's proposal for corrective measures to correct causes of service area delinquency, the IRT shall advise the Corps and Ecology whether or not to authorize Pierce County to implement the proposed corrective measures. By way of a second letter to Pierce County, the Corps and Ecology shall authorize implementation of the

proposed corrective measures or request revisions. The second letter shall include a timeline for implementation or submittal of revisions, as well as provisions for subsequent review and approval of corrective measures, if necessary.

If corrective measures are implemented successfully, no further responses to service area delinquency will be necessary.

## 2.2 Service Area Default

The Corps and/or Ecology may determine the PCILF Program to be in service area default if (1) corrective measures undertaken by Pierce County after receipt of notification of service area delinquency are unsuccessful, or (2) if Pierce County fails to begin implementation of corrective actions within the timeline specified in the service area delinquency letter.

In cases of service area default, actions available to the Corps and/or Ecology shall include but not be limited to:

1. Suspending credit sales in the service area
2. Decreasing available credits
3. Directing Pierce County to utilize financial assurances to correct identified deficiencies (i.e., access contingency funds) (see Basic Agreement Article IV, item F, and Appendix S)
4. Directing Pierce County to use the PCILF Program Account funds to secure necessary mitigation credits (see Basic Agreement Article IV, item E, and Section 4.0, below)
5. Refer the noncompliance with the terms of this Instrument to the Department of Justice

## 3.0 Program Noncompliance

Program noncompliance may result from administrative failures relating to account management, failure to monitor and report, etc. Specifically, program noncompliance may result from:

1. Failure to establish and maintain an annual ledger report and individual ledgers for each project in accordance with the provisions in Appendix F, Section 7.0: Fee Ledger, and Appendix G, Sections 2.0, 3.0 and 4.0: Credit/Debit Ledgers and 33 CFR 332.8(q)
2. Failure to report approved credit transactions

3. Failure to submit monitoring reports in a timely manner
4. Failure to properly track and manage funds, maintain credit ledgers or provide timely reports
5. Failure to otherwise comply with the terms of this Instrument

Should the IRT determine the program to be in noncompliance, there are potentially two phases of such noncompliance: (1) program delinquency and (2) program default.

### 3.1 Program Delinquency

The PCILF Program can be found delinquent in cases where Pierce County fails to comply with the terms of this instrument in ways both that do not qualify as site noncompliance or service area noncompliance (see Sections 1.0 and 2.0 above) and that fundamentally prevent the overall successful operation of the program. Notification of program delinquency shall be by way of letter from the Corps and/or Ecology to Pierce County identifying the areas of delinquency. The letter will request that Pierce County propose corrective measures or a process for determining appropriate corrective measures. The letter shall provide Pierce County with at least 60 days from the date of receipt of the letter to recommend corrective measures.

As soon as practicable after receipt of Pierce County's proposal for corrective measures to address program delinquency, the IRT shall advise the Corps and Ecology on whether or not to authorize Pierce County to implement the proposed corrective measures. By way of a second letter to Pierce County, the Corps and Ecology shall authorize implementation of the proposed corrective measures or request revisions. The second letter shall include a timeline for implementation or submittal of revisions, as well as provisions for subsequent review and approval of corrective measures, if necessary.

If corrective measures are implemented successfully, no further responses to program delinquency will be necessary.

### 3.2 Program Default

If issues leading to program delinquency remain unresolved by the deadline given in the program delinquency letter, the Corps and/or Ecology may determine the PCILF Program to be in program default.

In case of PCILF Program default, remedies available to the Corps and/or Ecology include (Compensatory Mitigation Rule (2008) Preamble p. 19638 and 33 CFR §§ 332.6(c)(2), 332.8(i)(2), 332.8(o)(10)):

1. Suspending credit sales in one or more service areas

2. Decreasing available credits in one or more service areas
3. Directing Pierce County to utilize financial assurances to correct identified deficiencies (i.e., access contingency funds; see Basic Agreement Article IV, item F and Appendix S)
4. Directing Pierce County to use the PCILF Program Account funds to secure necessary mitigation credits (see Basic Agreement Article IV, item E and Section 4.0, below)
5. Terminating the ILF Program Instrument (see Basic Agreement Article V, item X) and Section 5.0, below)
6. Referring the noncompliance with the terms of this Instrument to the Department of Justice

## 4.0 Force Majeure

Any delay or failure of Pierce County to comply with the terms of this Instrument shall not constitute a noncompliance if and to the extent that such delay or failure is primarily caused by any force majeure or other conditions beyond Pierce County's reasonable control and the failure significantly adversely affects Pierce County's ability to perform its obligations under this instrument. Additional details about force majeure events are included in Article V, item Q, of the Basic Agreement.

## 5.0 Closure Provisions

*Closure* means termination of all PCILF Program operations. If the PCILF Program is closed, the agreed upon terms reflected by certification of this Instrument will be terminated.

Furthermore, the PCILF Program will no longer have the right to sell mitigation credits under the terms of this Instrument. In the event of closure, the program must either fulfill remaining mitigation obligations, or transfer all remaining mitigation obligations and site management responsibilities to an appropriate third party. This third party must be approved by the IRT.

Closure provisions are described in Article V, items W through AA of the Basic Agreement.

## APPENDIX U: PCILF PROGRAM INTERACTION WITH OTHER JURISDICTIONS

### 1.0 Partnerships with Other Jurisdictions

It will frequently be desirable to work in partnership with another jurisdiction to implement the best mitigation. The ability to implement mitigation according to a watershed approach, irrespective of political boundaries, will be a key component of the PCILF Program. However, due to the complexities of coordinating policies, code authority, and ecological management goals among multiple jurisdictions, establishing procedures and processes for agreements with other local municipalities will occur after the PCILF Program is certified by the Corps and Ecology.

Following initial program certification, as the need arises, the PCILF Program will propose guidelines and standards for working across jurisdictional lines (cities, tribal lands, and federal lands, and will amend this Instrument accordingly in consultation with the IRT. Arrangements for operation of the PCILF Program across jurisdictional lines will be enumerated in Inter-Governmental Agreements (IGAs) between Pierce County and other jurisdictions. These IGAs will be negotiated by Pierce County and the other jurisdictions on a case-by-case basis, and made available to the IRT for review, comment and approval.

Prior to initiating the process of developing an IGA, Pierce County and the other jurisdiction will estimate the time and cost associated with developing the IGA. The funding to cover costs associated with developing the IGA will be determined on a case-by-case basis. Pierce County must obtain approval from the Corps and Ecology, in consultation with the IRT prior to spending any funds from the PCILF program account for the development of an IGA.

Furthermore, it may be necessary to adjust the base credit price to cover costs for additional administrative duties that may result from working with another jurisdiction (e.g., the need to develop IGAs and meet the specific terms within the IGA).

There will be three basic scenarios for mitigation involving other jurisdictions:

1. The impacts occur in unincorporated Pierce County and are mitigated in another jurisdiction
2. The impacts occur in another jurisdiction and the impacts are mitigated in unincorporated Pierce County
3. A jurisdiction chooses to use the PCILF Program in cases where the impact and mitigation site are both within another jurisdiction

The choice or need to mitigate an impact across jurisdictional lines will be approached on a case-by-case basis to determine feasibility and suitability. All such agreements between Pierce County and the other jurisdiction will be subject to approval by the IRT and other regulating agencies.

Basic considerations and policy guidance are outlined below for each scenario.

### 1.1 Impacts in Pierce County, Mitigation in Another Jurisdiction

1. Review available PCILF mitigation receiving sites.
2. If a suitable option exists in Pierce County, pursue that option.
3. If sites within another jurisdiction appear to be preferable according to watershed needs and site selection criteria outlined in Appendix K, Section 1.0 of this instrument, initiate discussions with the other jurisdiction and the IRT.
4. If the other jurisdiction is amenable to receiving a mitigation project, then the following steps (at minimum) should be taken:
  - a. Review jurisdictional code, to ensure there are no limitations on receiving mitigation
  - b. Work with staff from the neighboring jurisdiction to identify potential sites meeting at least one (and preferably both) of the following criteria:
    - i. Determination that the site is of ecological importance in a watershed context
    - ii. The site is in close proximity, provides similar functions as the impact site
  - c. Examine deed and land-use restrictions to ensure potential receiving site(s) can be used for mitigation purposes
  - d. Identify options for permanent protection (conservation easement or similar legally-enforceable restrictive covenant)
5. If suitable sites are available, seek approval from PALS, the Corps and Ecology in consultation with the IRT, and federal/state regulating agencies.
6. After receiving permission from the Corps and Ecology to proceed, approach the project as with any other mitigation project.

Other considerations:

- Mitigation in other jurisdictions should be reserved for projects with enough money to make inter-jurisdictional negotiations worthwhile; however, large

impacts with substantial mitigation fees should be mitigated in Pierce County, unless there is an overriding reason (e.g. ecologically preferable site in another jurisdiction) to mitigate an impact or suite of impacts in another jurisdiction .

- There should be a 1-year time limit to identify and approve mitigation projects within a neighboring jurisdiction; this is necessary to ensure there is enough time remaining to fulfill mitigation within three growing seasons from the first credit sale in a Service Area, if the mitigation in the neighboring jurisdiction falls through.
- An Inter-local Agreement, contract, Memorandum of Understanding, etc. will be necessary for each project (or for multiple impacts in a given time period).
- The impact(s) should be quantified using the IRT-approved mitigation assessment method, or there must be adequate information about the impact(s) to apply the method retroactively to determine mitigation needs.
- Details of project planning and implementation worked out on a case-by-case basis.

## 1.2 Impacts in Another Jurisdiction, Mitigation in Pierce County

- The other jurisdiction and/or the proponent for the project creating the impact should initiate the process with Pierce County.
- Code of the jurisdiction where the impact occurs must allow off-site compensatory mitigation or environmental impacts, in-lieu-fee mitigation, and for mitigation to occur outside the jurisdiction.
- The impact(s) should be quantified using the IRT-approved mitigation assessment method, or there must be adequate information about the impact(s) to apply the method retroactively to determine mitigation needs.

## 1.3 Impacts and Mitigation Within Another Jurisdiction

In these cases, the other jurisdictions would essentially be contracting with the PCILF program to offer an in-lieu-fee mitigation “service”. Pierce County will approach situations in which the PCILF program will become a mitigation service for another jurisdiction case-by-case. This arrangement may be developed on a case-by-case, or single project basis or could be an ongoing agreement according to an established contract or other agreement. Agreements for Pierce County to handle all aspects of in-lieu-fee mitigation shall be limited to local governments within Pierce County or other local, state, tribal, or federal agencies with projects within Pierce County, and not available to other county governments or local jurisdictions in other counties.

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Other considerations:

- Any individual project or longstanding agreement shall be approved in writing by:
  - The other jurisdiction
  - Pierce County PALS
  - The IRT and other regulatory agencies with authority
- Roles and responsibilities shall be clearly stated in the terms of the contract, and should be approved by regulating agencies
- In this scenario, it is likely that the neighboring jurisdiction in question would be granted a seat on the IRT per the federal rule (33 CFR 332.8(b))
- Site protection will be required – either a conservation easement or similarly protective covenants ensuring permanent protection of the proposed project in its mitigated condition

## 2.0 Outreach and Education to Other Jurisdictions

Following program certification, the PCILF Program Manager will present details of the program, and specifically the notion of cross-jurisdictional mitigation, to local governments and tribes in Pierce County.

Methods of disseminating information will include, but not be limited to:

- Direct communication with staff and officials at local governments, tribes and other county governments
- A web page
- News releases
- Presentations at WRIA Forums



## APPENDIX V: TRACKING PROGRAM PERFORMANCE

Tracking performance of mitigation projects is a requirement of the Federal Rule and as such, guidelines for performance standards and project-scale monitoring plans are outlined in detail in Appendices N and O, respectively. Reporting the status of the PCILF program account (Appendix F) and the credit/debit ledger (Appendix G) are also required annually.

The additional tracking and reporting the performance of the PCILF *Program* is not required by the Federal Rule but is important to inform adaptive management of the program in order to enable implementation of the best possible mitigation and is a part of the PCILF program. This is apart from the other reports that are required annually from the Sponsor.

Program performance reporting involves responding to five questions related to tracking program performance:

1. Are the credit fees collected from applicants adequate to cover the costs of operating the PCILF Program?
2. Is the program meeting permitting requirements outlined in the Federal Rule in a timely and efficient manner? (e.g., is implementation of mitigation projects routinely occurring within three growing seasons from the time of impact?)
3. How is the program affecting permit processing times relative to historical norms?
4. In a given geographic area (e.g., service area or watershed), is the overall ecological function enhanced or degraded considering the balance of allowed impacts and resulting mitigation projects implemented by the PCILF Program?
5. Are we trending towards a reduction in particular wetland functions and an excess of others (i.e., are the buckets balanced?)? If so, is this imbalance still aligned with watershed goals?

To answer these questions, indicators for tracking program performance will relate to:

- Fiscal self-sustainability
- Permitting “performance” of the program
- Success of the program in maintaining or improving ecological conditions (i.e., aquatic resource functions and values) in service areas where impacts have been allowed and mitigation projects have been implemented to compensate for the impacts

Specific types of data will include, but not be limited to:

- Cost to permit applicants per credit versus cost to the PCILF Program to fulfill credits
- Contingency fund balance in the PCILF Program Account versus contingency funds spent on projects
- Predicted monitoring costs versus actual costs
- Timeframe for implementation of mitigation projects (from time of actual impact)
- Number and type of permitting infractions/corrective actions
- Volume of Impacts (e.g., debits, acreage, etc.)
- Volume of mitigation (credits, acreage, etc.)
- Predicted credits (e.g., from Mitigation Plans) versus actual credits determined at monitoring plan milestones
- Percentage of in-kind mitigation (e.g., same HGM class) versus percentage of out-of-kind mitigation.
- Location of mitigation projects (e.g., average distance from impact, percentage of mitigation occurring in same sub-basin as impacts)
- Success of mitigation receiving sites in attaining target ecological functions and compliance with performance standards

The PCILF Program will track these data through the course of the program and analyze and report results in a *Pierce County In-Lieu Fee Program Performance Report*, which will be submitted to the IRT every two years. This report shall examine the overall effectiveness of the PCILF Program and, if necessary, suggest revisions to improve the program. However, Pierce County and the IRT shall retain the right to make IRT-approved program revisions or amendments to the instrument at any time. These changes need not coincide with a *PCILF Program Performance Report*. This report will also be shared with PALS to enable a more comprehensive review of all mitigation activities (i.e., in-lieu fee mitigation through PCILF and permittee-responsible mitigation).

## APPENDIX W: MITIGATION PLANS

As mitigation plans are developed under this program and approved by the Corps and Ecology, in consultation with the IRT, each plan will be appended to this Instrument within this Appendix.



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## APPENDIX Y. SUMMARY OF EXHIBITS

### Exhibit 1. PCILF Service Areas Map

This is a map of Pierce County. WRIAs 11 and 12 are labeled and indicated with relief mapping. The remainder of Pierce County is shown in white. WRIA 11 and 12 are the two service areas to which the PCILF Program will initially apply.

### Exhibit 2. Maps of WRIA 12 Service Area

#### *Exhibit 2A*

This is a political map of WRIA 12, showing the cities and communities within WRIA 12, and Joint Base Lewis-McChord. This map also shows the two initial WRIA 12 mitigation receiving sites and illustrates that they are immediately outside of the boundary of the City of Tacoma.

#### *Exhibit 2B*

This is a hydrologic map of WRIA 12, showing and labeling major streams and lakes within the service area. The five hydrologic sub-basins are also shown, with different background colors.

#### *Exhibit 2C*

This map of WRIA 12 shows those portions of the service area that are within cities, on Federal lands, or within the Comprehensive Urban Growth Area (CUGA). It illustrates how little of this service area is not within Cities, on Federal land (JBLM) or within the CUGA.

#### *Exhibit 2D*

The Pierce County Buildable Lands Inventory for the east half of WRIA 12—that portion that is unincorporated Pierce County—is overlaid with water bodies and critical areas. Critical areas were considered during the inventory of buildable lands and there are underutilized and vacant areas with the service area where development can be expected. Such development has the potential to adversely impact critical areas (especially where these critical areas are incompletely mapped).

### Exhibit 3. Maps of WRIA 11 Service Area

#### *Exhibit 3A*

This is a political map of WRIA 11, showing the three cities (Dupont, Roy, and Eatonville) that are within this Service Area. This also shows those portions of WRIA 11 that area within Joint Base Lewis-McChord. Parts of WRIA 11 are within Pierce, Lewis, and Thurston Counties, though the majority of this watershed is within Pierce County. The map indicates that portion of WRIA 11 that is not within the Service Area because it is outside of Pierce County.

**Exhibit 3B**

This is a hydrologic map of WRIA 11, showing and labeling major streams and lakes within the service area and the La Grande Canyon which is noted as the division between the two topographically distinct halves of the WRIA. The hydrologic sub-basins are also shown, with different background colors.

**Exhibit 4. Credit/Debit Tool Focus Sheet**

Department of Ecology Focus Sheet introducing the Credit/Debit Method for Estimating Needs in Compensatory Wetland Mitigation. This is the assessment tool that will be used to determine credits and debits.

**Exhibit 5. Ecology's Credit/Debit Tool**

This exhibit consists of only the link and citation for Ecology's Credit/Debit Tool. The Credit/Debit tool is referenced but not materially included within the exhibits document as it is, itself, a lengthy document (118 pages plus appendices).

**Exhibit 6. Credit Pricing Analysis Table**

This excel table identifies credits expected to be earned at proposed ILF receiving sites and identifies all actual and/or anticipated expenditures to implement those sites, including administrative, long term management and maintenance, and contingency funds. This table is used to calculate the proposed credit price. This was also used to determine our initial fund allocations. With the addition of corrected (actual) expenditures and the addition of new sites, the credit price will change. This table will be necessary for future discussions about adjusting the price charged per credit.

**Exhibit 7. Credit/Debit Ledger**

The Sponsor will maintain this ledger to account for all credit transactions. This is not a financial ledger; it will be used to track credits that are sold as well as credits that are released as mitigation projects meet performance standards.

This exhibit consists of a series of worksheets used to track credits earned at mitigation receiving sites, debits accrued from impact sites, and the balance between the two. This is the Sponsor's means of ensuring that all impact projects are fully mitigated. When the Sponsor sells ILF credits, it assumes the obligation to sufficiently compensate for those impacts. This is the tracking mechanism on which that assumption is based.

Part 1 is the summary Balance Sheet. There will be a Balance Sheet for each Service Area served by the PCILF program.

Part 2 is the Credit Ledger. There will be a Credit Ledger for each Service Area served by the PCILF program. This worksheet tracks credits by function type, as well as universal credits that are available at each ILF receiving site. This worksheet includes details of impact sites (i.e., numbers of credits of different function types) that are purchasing credits and tracks which debit site the credits from each impact site will come from. This also shows the allocation of funds (from the purchase of credits) to the different program accounts. Finally, this worksheet identifies implementation costs for each ILF mitigation-receiving project.

Part 3 is the Debit Ledger. There will be a Debit Ledger for each Service Area served by the PCILF program. This ledger tracks debits accrued from impact sites within each service area and the fee paid to mitigate for those debits with PCILF credits.

Part 4 is the Aquatic Areas Ledger. There will be an Aquatic Areas Ledger for each Service Area served by the PCILF program, when impacts to non-wetland aquatic resources are compensated with the purchase of PCILF credits.

### **Exhibit 8. Fee Ledger**

The fee ledger will track all income (credit fees) and expenditures within the program. It will be comprised of separate “sub-ledgers” for each service area. Each service area fee ledger will clearly show the following:

#### For each Impact Project

- Credit fee collected
- Land Fee collected
- Permit notation for all environmental permits for each impact project

#### For each Service Area

- Deposits and expenditures for each account (Land Fee Account, Program Administration Account, Contingency Account, Long Term Management Account, Individual Mitigation Projects Account)

### **Exhibit 9. Credit Fulfillment Checklist**

This is a synopsis of the credit fulfillment steps discussed in Appendix L. The steps do not necessarily have to be completed in the order in which they appear on this checklist. The checklist includes the party responsible for fulfilling each step and includes cells for noting special conditions and completion dates. There will be a credit fulfillment checklist for each ILF receiving site.

## **Exhibit 10. Monitoring and Reporting Requirements**

U.S. Army Corps of Engineers Regulatory Guidance Letter (RGL NO. 08-03) regarding minimum monitoring requirements for compensatory mitigation projects involving the restoration, establishment, and/or enhancement of aquatic resources. This RGL provides guidance for what information is necessary and how it shall be reported when documenting achievement of performance standards at ILF receiving sites.

## **Exhibit 11. Statement of Sale Template**

Upon the Sponsor's receipt of mitigation fees from a permittee the Sponsor shall complete and issue to the permittee a copy of this Statement of Sale. The permittee is responsible for forwarding copies of the Statement of Sale to applicable permitting agencies; it is their means of demonstrating that they have met compensatory mitigation obligations.

## **Exhibit 12. Spending Agreement Template**

This is the form used to request disbursement of funds for project implementation, contingency, and long term maintenance and management. Fund disbursements can only be made upon receiving written authorization from the Corps and Ecology after consultation with the IRT.

## **Exhibit 13. Reports and Planning Documents**

Annotated list of all known relevant scientific analyses, reports and other planning documents to guide a watershed approach to mitigation decision-making in each service area.

## **Exhibit 14. Guidance on Submittal Contents for In-Lieu Fee Use Plans**

This paper, developed by the Washington State Interagency Review Team provides guidance to applicants in the preparation of In-Lieu Fee Use Plans. These plans will take the place of compensatory mitigation plans when a project will have unavoidable impacts to wetlands or other aquatic resources.

## **Exhibit 15. Hypothetical Credit Sales**

This spreadsheet illustrates the relationship between Pre-Capitalized Credits, Advance Credits, and Fulfilled Credits. It illustrates with descriptions and pie charts how Pre-Capitalized Credits will initially be unreleased and when they are released they will be used to recharge the ledger of Advance Credits. Prior to the availability of released Pre-Capitalized Credits, Advance Credits may still be sold. Sales of Advance Credits obligate PCSWM to fulfill those credits with the development of additional ILF receiving sites unless the release of Pre-Capitalized Credits is anticipated in the near future (within three growing seasons).

## Exhibit 16. Pierce County Wetland Inventory

This map series shows wetlands or potential wetlands mapped by the Pierce County Wetland Inventory for the PCILF Service Areas. This wetland inventory includes wetlands mapped by the Pierce County Wetland Inventory (CWI) and the Supplemental Wetland Inventory (SWI). It does not include wetlands mapped by the National Wetland Inventory (NWI) that are not also in the CWI. Furthermore, publicly available wetland inventories do not include JBLM, a U.S. military base for which aerial surveillance for wetland inventory purposes has not been allowed. Federal lands (Forest Service and Mt. Rainier National Park) also do not appear on the CWI. This does not mean that wetlands are absent or scarce in these areas; this simply illustrates one of the limitations of the CWI. Pierce County's PublicGIS Wetlands layer, available through the publicly accessible Pierce County website, includes the CWI, NWI, and SWI.