Exhibit "A"

Amendment to InterGovernmental Agreement (DEQ NO. LQVC-NWR-06-01) Oversight of Columbia Slough Sediment Remedial Action City of Portland, by and through its Bureau of Environmental Services (BES) and Oregon Department of Environmental Quality (DEQ), Multnomah County, Oregon City # 36553

OPY 184139

Effective Data: July 1, 2010

Introduction and Purpose

The subject Agreement has been in effect since June 2006 and has been the vehicle for implementing important elements of the remedial action selected in the Record of Decision (July 2005) for Columbia Slough Sediment. These elements include the following:

- 1. Development and initial implementation of the Watershed Action Plan. That plan describes source control activities that are being and will be conducted throughout the Columbia Slough Watershed and prioritizes five areas where sediment and stormwater data indicate source control measures are critical.
- 2. Planning and implementing comprehensive sediment and fish tissue monitoring events that provide the mechanism for measuring progress in achieving remedial action objectives for the Slough. Data was evaluated and reports prepared.
- 3. Characterizing contamination, assessing risk, evaluating cleanup options, and implementing remedial actions at specific contaminant source and sediment hot spot areas in the Columbia Slough.
- 4. Issuing three annual reports documenting progress made in addressing contamination issues in the Columbia Slough.

Provision II.R of the Agreement indicates that the Agreement will be terminated June 30, 2010. Actions described in the original Scope of Work have evolved through mutual agreement, requiring the extension of associated schedules. Also long-term monitoring indicates that contamination remains in Slough sediment at levels of concern to human health and the environment. This amendment extends the time frame for the Agreement by three months, establishing a new termination date of September 30, 2010.

This additional time will be used to update the Scope of Work for the project. A second amendment will be issued once that has been accomplished.

Public Notice

A press release on this amendment will be provided to The Oregonian once the Scope of Work has been updated.

Signature

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Nina DeConcini, Administrator Northwest Region, DEQ

Consent

By: Dean Marriott, Director

Dean Marriott, Director () Portland Bureau of Environmental Services

110 6 Date

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Exhibit "B"

Second Amendment to Inter-Governmental Agreement (DEQ NO. LQVC-NWR-06-01) Oversight of Columbia Slough Sediment Remedial Action City of Portland, by and through its Bureau of Environmental Services (BES) and Oregon Department of Environmental Quality (DEQ), Multnomah County, Oregon $C_1 + \gamma = 36553$

Effective Data: October 1, 2010

Introduction and Purpose

The subject Agreement has been in effect since June 2006 and has been the vehicle for implementing important elements of the remedial action selected in the Record of Decision (July 2005) for Columbia Slough Sediment. These elements include the following:

- 1. Development and implementation of the Watershed Action Plan (WAP). That plan describes source control activities that are being and will be conducted throughout the Columbia Slough Watershed and prioritizes five areas where sediment and stormwater data indicate source control measures are critical.
- 2. Development and Implementation of the Long Term Monitoring Plan (LTMP). The LTMP describes the monitoring requirements for water quality, sediment and fish tissue, which provide the mechanism for measuring progress in achieving remedial action objectives for the Slough. Data was evaluated and reports prepared.
- 3. Characterizing contamination, assessing risk, evaluating cleanup options, and implementing remedial actions at specific contaminant source and sediment hot spot areas in the Columbia Slough.
- 4. Issuing three annual reports documenting progress made in addressing contamination issues in the Columbia Slough.

Actions described in the original Scope of Work have evolved through mutual agreement, requiring the extension of associated schedules. Also long-term monitoring indicates that contamination remains in Slough sediment at levels of concern to human health and the environment. The first amendment to the original 2006 agreement provided a time extension to allow further development of the revised Scope of Work under this second amendment. Revisions to the 2006 Agreement under this second amendment are provided below. All other sections of the 2006 Agreement remain in place.

Second Amendment to Intergovernmental Agreement for Oversight of Columbia Slough Sediment Remedial Action DEQ No. LQVC-NWR-06-01 City of Portland - Bureau of Environmental Services Page 1 of 5

Section II.A. (Work) is revised:

1. <u>Scope of Work</u>

(a) <u>General</u>. BES and DEQ shall perform all remedial work under this Agreement in accordance with all applicable Oregon statutes, rules, and guidance as determined by DEQ based on DEQ's review of site-specific information, and in consultation with BES. A detailed scope of work (SOW) and schedule is provided in Attachment A. BES and DEQ will adhere to the terms and schedule of the SOW. Any amendments to Attachment A will be mutually approved in writing.

(b) <u>Work Plans</u>. BES shall prepare plans for DEQ review and approval that describe the general procedures for completing necessary source control measures for each Slough segment and long-term monitoring of environmental conditions throughout the Slough. Such plans will include, as appropriate:

- (1) Sampling and Analysis Plans associated with Long Term Monitoring described in the Long-Term Monitoring Plan
- (2) Source Investigation and Control Plan as described in the Watershed Action Plan and amendments to the WAP as described in Attachment A.
- (3) Contaminant loading evaluation work plan as described in Attachment A.
- (4) Risk Assessment Work Plans if warranted based on long-term monitoring
- (5) Feasibility Study (FS) if warranted based on long-term monitoring
- (6) Remedial Action Work plans (associated with any FS completed)

(c) <u>Reports</u>. BES shall prepare reports that document site environmental conditions and potential risks to human health and the environment for DEQ review and approval. These reports may include, but are not limited to:

- (1) Long-Term Monitoring Reports as specified in Long-Term Monitoring Plan
- (2) Source Investigation and Control report as described in Attachment A
- (3) Contaminant Loading evaluation report.
- (4) Annual Reports as described in Attachment A (DEQ will provide input addressing their efforts to identify potential cleanup sites, and the status of cleanup site investigations and hazardous waste technical assistance activities.)
- (5) Risk Assessments as determined to be warranted
- (6) Feasibility Studies as determined to be warranted

DEQ shall prepare reports documenting Site Discovery and Cleanup efforts including:

- (1) Strategy Recommendations for sites identified as potentially contributing to Slough contamination.
- (2) Source Control proposals and decision documents for individual sites.
- (3) Sediment cleanup proposals and decision documents for individual sites.
- (4) Sediment investigation and cleanup reports for segments of the Slough subject to settlement agreements.
- (5) Annual Reports as described in Item (4) of the list of BES reports.

Section II. D. (Project Managers) is revised:

<u>Project Managers</u>. BES and DEQ will each identify a Project Manager for overseeing activities under this agreement. The project managers will be responsible for coordinating all technical aspects of the respective agency's work on Columbia Slough sediments. The Project Managers shall ensure that project tasks are completed expeditiously and economically. To the extent possible, all reports, notices, and other communications required under, or relating to this Agreement shall be directed to the Project Managers.

DEQ Project Manager:

Ms. Jennifer Sutter Northwest Cleanup Section Oregon DEQ 2020 SW Fourth Avenue, Suite 400 Portland, Oregon 97201-4987 Phone: (503) 229-6148 Fax: (503) 229-6899 Email: Sutter.Jennifer@deq.state.or.us **BES** Project Manager:

Ms. Mary Stephens City of Portland BES 1120 SW 5th Avenue, Room 1000 Portland, Oregon 97204-1912 Phone: (503) 823-7580

Fax: (503) 823-5344 email: Mary.Stephens@portlandoregon.gov

BES's and DEQ's Project Managers shall be available and have the authority to make day-to-day decisions necessary to complete the scope of work provided in Attachment A of this Agreement.

Intergovernmental Agreement for Oversight of Columbia Slough Sediment Remedial Action DEQ No. LQVC-NWR-10-XX City of Portland – Bureau of Environmental Services Page 3 of 5

184139

Section II. H. (Annual Reports) is revised:

Annual reports documenting the "State of the Slough" shall be prepared jointly by DEQ and BES and made available to the public on or before January 31st of each year. Reports shall summarize activities performed during the previous fiscal year and will include general conclusions relating to the environmental characteristics of the Slough, and activities planned for the upcoming year.

4. Section II. R. (Duration and Termination) is revised:

2. This Agreement shall terminate on June 30, 2015.

Signature

Nina DeConcini, Administrator Northwest Region, DEQ Date

Consent

By:

Dean Marriott, Director (Ju) Portland Bureau of Environmental Services

Date

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ATTACHMENT A

VOLUNTARY CLEANUP PROGRAM COLUMBIA SLOUGH REMEDIAL ACTION SCOPE OF WORK EXTENSION

July 2010 through June 2015

Background

In July 2005, the Oregon Department of Environmental Quality (DEQ) issued a Remedial Action Record of Decision (ROD) for the Columbia Slough to address contaminated sediments posing unacceptable risk to human health and various ecological receptors. The ROD identifies the selected remedial action approach for the Columbia Slough, as well as categories of remedial actions implemented by DEQ and the City of Portland (City) acting through the Bureau of Environmental Services (BES). The intergovernmental agreement (IGA) associated with this Scope of Work (SOW) includes specific tasks from the ROD that the City will continue to implement for its stormwater systems including:

- Institutional control measures to protect human health;
- Source investigation and control;
- Evaluation and implementation of feasible sediment hot spot removal actions at City outfalls;
- A near-term assessment framework to gauge the effectiveness of source control actions or identify the need for alternative strategies; and
- A long term monitoring effort to improve water quality, sediment quality, and provide data to guide adaptive management.

The ROD was developed in collaboration with the City who conducted the bulk of the Remedial Investigation (RI) work over a ten year period. Since the RI, the City has worked with DEQ to implement a number of actions to identify and reduce sources of contamination to the Slough, including:

- Extensive source investigation and control actions at commercial and industrial facilities that discharge stormwater to City pipes or directly to the Slough;
- Identification and reduction of pollutants entering the Slough from contaminated upland sites;
- Installation of pollution reduction facilities to filter stormwater from public roadways before it enters the Slough;
- Education and outreach for residents who consume fish caught in the Slough; and

• Monitoring and assessment of pollutants in sediment, fish-tissue, stormwater and surfacewater to evaluate effectiveness of actions and track overall improvement of watershed health related to sediments.

In 2006, DEQ and the City entered into the original IGA to implement elements of the DEQ ROD using a "watershed approach". The intent of this approach is to implement actions that address the source(s) of sediment contaminant problems as well as the symptoms within the context of the watershed as a whole. The IGA laid out the watershed-based actions that DEQ and the City will implement in collaboration to control pollutant sources associated with City infrastructure.

DEQ cleanup, water quality, and hazardous waste programs coordinate their activities to address ongoing loading of contaminants directly to the Slough and indirectly via the City's systems, and ensure that work completed addresses issues important to all programs. This coordination also supports the objective of improving watershed conditions by reducing pollutant loading to the Slough and by remediating existing contaminated sediments, as needed.

In October 2006, BES issued the Columbia Slough Sediment Program Watershed Action Plan (WAP). Section 4 of the WAP outlined priority actions to control sources of contamination in discrete segments of the Slough. It also identified five priority target areas where sediment and stormwater data indicate source control measures are critical. Section 5 outlined the schedule for completing the identified actions. The original schedule has lapsed and the WAP will be amended as described in this SOW.

The 2006 IGA covered a five-year period with the expectation that it would be amended and extended or reissued at the end of that period (June 30, 2010). Within the context of the original WAP, priorities have been reassessed and task schedules re-evaluated. This scope of work (SOW) extension documents those changes. This SOW also outlines remaining tasks and an associated schedule for their completion. The 2006 SOW should be consulted for detailed descriptions of particular deliverables.

In August 2007, BES and DEQ finalized the *Columbia Slough Watershed Long-Term Monitoring Plan* (LTMP). The LTMP establishes the water, sediment, fish tissue, and other monitoring that is being conducted on an on-going basis. Results from the monitoring are being used to track progress in reducing pollutant loads to the Slough, identify pollutant trends in sediments and biota of the Slough, and to modify programmatic actions to continue progress contributing to overall watershed health. Section 4 of the LTMP provides for stormwater monitoring. The objectives identified for stormwater monitoring include documenting pollutant loading to the Columbia Slough over time and providing the basis for re-evaluating methods

aimed at reducing this load if consistent reduction is not observed. Reports described in the LTMP are submitted for monitoring frequencies that extend beyond the IGA time frame (five and ten years for some monitoring).

Many source control measures have been conducted under the WAP, and many of the actions described in the WAP reflect on-going programs implemented as part of a set of best management practices. Long-term monitoring and resulting adaptive management recommendations will continue to be warranted for the foreseeable future.

I. OBJECTIVES

The overall objective of the Columbia Slough sediment project is to reduce contaminant concentrations in the sediment to levels that are protective of human health and the environment. This objective will be achieved via the following framework of actions:

A. Identify, evaluate, manage, eliminate and/or treat the two largest current and legacy sources of pollutants discharged to the City's MS4 stormwater system (stormwater system):

1) Stormwater runoff from public rights of way (mainly road surfaces), and

2) Stormwater discharges from commercial/industrial sites (indirect dischargers) that are conveyed to the Slough through the City's stormwater system.

- **B.** Develop a methodology to evaluate the effectiveness of source control actions, to determine when source control actions have been completed, to assess the potential for recontamination of an area once source control and/or remedial actions are implemented, and to identify the conditions under which natural attenuation will reduce sediment concentrations to protective levels.
- **C.** Monitor sediment quality and fish tissue in the Slough itself to assess progress in achieving remedial action objectives for the Slough over time.
- **D.** Implement actions that facilitate natural attenuation and overall watershed health, where such actions will reduce sediment contamination to Tier 1 or 2 levels over time as described in the Columbia Slough ROD, or achieve alternative levels of cleanup. Identify, characterize, and remediate as appropriate any remaining sediment "hot-spot" contamination associated with City outfalls that is preventing the achievement of protective levels in Slough sediment.

E. Provide on-going risk communication to the public on environmental conditions in the Slough and associated health advisories on consumption of fish caught from the Slough.

II. WORK ELEMENTS

The specific work elements as they relate to the objectives provided in "I. OBJECTIVES" above are as follows:

A. WATERSHED ACTION PLAN (WAP) UPDATE

The City will amend the WAP to reflect a revised priority action list, addressing stormwater management, contaminant loading, and priority areas for sediment characterization and remediation as described in II. B, C, and D below. A schedule for implementation and completion of these tasks will be specified in the Watershed Action Plan.

B. STORMWATER MANAGEMENT

1. **CITY ROADWAYS** (Objective A.1.) The City will treat stormwater runoff from City-owned roadways using green streets, planters, and other innovative stormwater treatment facilities, as described in the WAP.

Treatment of stormwater runoff from City roadways will be accomplished in two broad phases; pre-design, and design/construction. The pre-design phase will include identification of stormwater treatment priorities throughout the target areas, development of recommended alternatives to treat the identified priorities, and a budget, scope and schedule for design and construction of the recommended facilities. The goal of the stormwater treatment predesign is to identify stormwater facilities that will reduce pollutants entering the Slough from City roadways that have high traffic volumes, serve commercial/industrial land use, or for other reasons have elevated pollutant loads. It is not expected that all City roadways within the target areas will require treatment. Pre-design will begin in winter 2010. A report summarizing the findings of the pre-design effort will be submitted to DEQ upon completion of the pre-design.

Design and construction of the treatment systems will be phased over time to accommodate the scale, complexities and significant costs of these actions. The scope and schedule of work performed during the calendar year, and planned for the upcoming year will be described in the annual report submitted to DEQ by October 31 each year.

2. COMMERCIAL/INDUSTRIAL FACILITIES (Objective A.2.) Comprehensive, basin by basin inspections were performed by DEQ and the City in the I-5/MLK and other target areas over the last 5 years. Although this process yields a very thorough result, the timeline for completing this type of work is slower than originally anticipated, and may be unnecessary given the overt nature of the most significant sources. Focused efforts to control known significant sources throughout the Slough may yield greater benefits on shorter timelines than compared to the intensive, methodical basin-by-basin approach.

The City and DEQ will develop a prioritized, Slough-wide Source Investigation and Control Plan that identifies the actions and timelines needed to control the remaining significant pollutant sources (current sources and potential legacy sources).

Based on information related to identified or suspected upland sources, the Source Investigation and Control Plan may identify additional actions to address stormwater management practices at identified sites, and manage residual pollutants that may have been discharged to the City's stormwater system. These actions include:

- Stormwater Pathway Evaluations: DEQ and the City will work together to identify contaminated upland sites that require stormwater pathway evaluations to identify stormwater pollutants entering the City stormwater system. DEQ will implement the stormwater pathway evaluations in a timely manner and ensure that identified sources are controlled or eliminated. DEQ and the City will develop a Source Investigation/Source Control Workplan that details the scope and schedule of actions to be implemented at identified sites.
- Stormwater System Clean-out: City stormwater pipes are designed to limit sediment accumulation; it is unknown whether there are areas where the stormwater system (catchbasin and/or stormwater pipes) has accumulated sediment discharged from contaminated upland sites. The City will select one outfall basin or target area (based on the most likely conditions for finding accumulations), and develop a methodology to identify accumulated sediment that may contain elevated levels of contaminants (e.g., OF59 in the lower Slough and OF77A in the Whitaker Slough), and evaluate the need and feasibility of removing any accumulated sediment.

The City will develop a stormwater system clean-out pilot plan that details the methodology, scope, and schedule for evaluating the potential scope and effectiveness of this effort. Based on the results of the pilot effort, DEQ and the

City will determine whether to implement the pipe clean-out program on a full scale basis, or to develop another approach.

C. CONTAMINANT LOADING EVALUATION (Objective B.)

The purpose of the contaminant loading evaluation is to understand the effect that stormwater discharges have on sediment near stormwater outfalls. This information will be used to determine the stormwater quality necessary (i.e. the allowable concentration of contaminants in stormwater) to ensure that natural attenuation will be effective at reducing human health risk associated with contaminated sediment and eliminating the risk of recontamination. Specifically, BES and DEQ will;

- Identify stormwater concentrations that will facilitate natural attenuation of sediments and will not result in recontamination of sediments;
- Identify the conditions under which source control is complete and the stormwater concentrations determined under bullet #1 above can be achieved; and
- Identify whether a surrogate such as TSS can be substituted for contaminants of concern in these evaluations and if so, what level is appropriate.

This evaluation is intended to provide a method for DEQ to support Tier 1 or Tier 2, No Further Action (NFA) determinations for a particular Slough segment, or a determination that additional measures may be warranted to control contaminant sources.

Initially, this evaluation will be implemented as a pilot program. DEQ and the City will select one outfall basin or target area to develop and test the loading evaluation. The pilot effort will be used to determine the scope, feasibility, and applicability of the work. Based on the results of the pilot effort, DEQ and the City will determine whether to implement the loading evaluation on a full scale basis, or to develop another approach.

D. SEDIMENT CHARACTERIZATION AND REMEDIATION (Objective D.)

1. Lower Slough - Pollutant sources in the Lower Slough are complex and varied. Significant pollutant sources include heavy commercial/industrial land use, recycling, salvage and manufacturing, high-traffic roadways (including the I-5 freeway), and contaminated site cleanups. DEQ and the City have actively pursued source investigation and control work in this target area since 2005. Additional source control

and stormwater treatment measures are needed to control remaining sources in this area.

DEQ and the City will review existing data, evaluate current programmatic actions, and develop a watershed based strategy for reducing risk from sediment in the Lower Slough. DEQ and the City will implement any or all of the actions listed below as part of the watershed approach. Actions implemented in the reporting year, as well as actions and a schedule for the coming year will be described in the Annual report.

- Review Sediment Data In the fall of 2008, DEQ completed sediment hot spot delineation sampling for the upper segment of the Lower Slough, which included targeted characterization of sediment conditions adjacent to City Outfalls 59 through 64. DEQ and the City will evaluate the results of the recent DEQ sediment characterization, review the existing city sediment data, and use the combined data to the extent possible to identify where focused source control investigations or sediment cleanup actions are needed for this target area. DEQ and the City may also elect to use the available data to update established baseline sediment concentrations.
- **ii.** <u>Source Control and Stormwater Treatment -</u> Focused source investigation and control actions will be implemented to identify and control the most significant pollutant sources, as described in Section II.B.2. In-line sediment sampling and stormwater pathway evaluations may also be used to characterize discharges from contaminated sites.

The City will install green-street facilities to treat stormwater runoff from Cityowned roadways as necessary to facilitate natural attenuation and reduce the risk to human health and the environment from contaminated sediment. Pre-design of the recommended stormwater treatment alternatives will begin in winter 2010.

DEQ and the City may use the contaminant loading evaluation (Section II.C.) to analyze the effectiveness of current source control actions in achieving stormwater quality targets needed to allow natural attenuation, reduce risk from sediment contamination, and prevent recontamination of any future cleanup actions.

DEQ will determine the need for additional actions in this target area once the status and overall effectiveness of source control and stormwater treatment actions for the target area have been fully assessed.

iii. <u>Identify Solutions</u> - If elevated contaminant levels are detected in the vicinity of one or more City outfalls, DEQ and the City will determine whether to proceed with implementation of remedial actions based on the findings regarding the completeness of existing source control actions. Remedial actions may be considered for areas where: the extent and severity of contamination warrants remediation rather than natural attenuation, sources within the target area are controlled, and the potential for recontamination is low.

If DEQ and the City concur that remedial actions are an appropriate course of action, the City, with support from DEQ settlement funds, will conduct a streamlined risk assessment, or focused Feasibility Study (FS) to provide the basis for DEQ remedy selection. The FS would be a streamlined evaluation of options that would result in selection of a cleanup action to reduce sediment contamination to Tier 1 or 2 levels as described in the Columbia Slough ROD, or alternative levels of cleanup based on a site-specific risk assessment.

In lieu of the City implementation of sediment hot spot cleanup or preparation of a focused risk assessment or FS to modify the cleanup approach for the Slough segment, the City may negotiate a settlement with DEQ for those outfalls consistent with the settlement framework developed by DEQ in 2007-2008.

2. Buffalo Slough Target Area – Sediment sampling conducted from 1995-1997 and 2006 characterized sediment concentrations in Buffalo Slough sufficient to identify areas where baseline concentrations are exceeded. DEQ and the City have implemented actions to control and treat sources within this target area. The City will submit a report to DEQ summarizing the available data, and discussing the effectiveness of actions implemented to reduce risks to human health and the environment. DEQ will determine if a Tier 1 or 2 NFA can be issued for this area at this time, or if additional actions are needed to reduce risk from contaminated sediment.

3. Whitaker Slough

a. Marx-Whitaker Target Area

i. <u>Source Control and Stormwater Treatment</u> - The Marx-Whitaker target area was identified as a priority in the WAP due to elevated concentrations of pesticides. Stormwater runoff from this target area includes drainage from actively farmed agricultural land. Fifteen acres of farmland owned by the City was taken out of production, and a cover crop was established to eliminate

erosion originating from City property. Technical expertise related to erosion control on agricultural land and/or State enforcement actions are needed to control sources from the two remaining agricultural sites.

The ODA is the lead agency assigned to work with DEQ and landowners to ensure that runoff from agricultural land meets State water quality requirements. DEQ will work with ODA, landowners and the City to ensure that source control measures are implemented to control runoff from the two remaining farms. The City will identify any additional source control measures as needed subsequent to the development of water quality management plans.

ii. <u>Review Sediment Data and Identify Solutions</u>: DEQ and the City will review existing sediment data and identify locations where sediment concentrations exceed either baseline concentration and/or hot-spot criteria. If elevated contaminant levels are detected in the vicinity of one or more City outfalls (particularly OF104 and 104a), DEQ and the City will determine whether to proceed with implementation of remedial actions based on the findings regarding the completeness of existing source control actions.

DEQ and the City, with support from DEQ settlement funds, may decide to pursue maintenance dredging as a cleanup action provided that the extent and severity of contamination warrants remediation rather than natural attenuation, sources within the target area are controlled, and the potential for recontamination is low.

In-lieu of maintenance dredging, the City, with support from DEQ settlement funds as available, may conduct a contaminant loading evaluation, streamlined risk assessment, ora focused Feasibility Study (FS) to provide the basis for DEQ remedy selection for sediment in this area. The FS would be a streamlined evaluation of options that would result in selection of a cleanup action to reduce sediment contamination to Tier 2 levels as described in the Columbia Slough ROD, or alternative levels of cleanup based on a site-specific risk assessment.

b. **Cully Target Area -** The Cully neighborhood is identified as a target area because of the quantity of Total Suspended Solids (TSS) being discharged from City outfalls #77 and #77a. Likely sources of TSS in this Target area include unimproved public roads with dirt and gravel shoulders that serve local residential neighborhoods.

In 2009, DEQ reached a settlement with the Portland Willamette facility for contribution to sediment contamination in a Whitaker Slough "inlet," which also receives municipal stormwater discharge from City Outfall 77a. DEQ and the City, with support from DEQ settlement funds, will review existing sediment data near Outfall 77a, and identify locations where sediment concentrations exceed either baseline concentration and/or risk-based criteria. This information will be used to focus stormwater treatment and source control actions, and to provide information that can be used to frame potential cleanup actions.

- c. Remaining Whitaker Slough DEQ and the City will evaluate the existing sediment data, to identify where any additional focused source control investigations and/or cleanup actions are needed.
- 4. Remaining Slough Segments Evaluation of remaining Slough segments will be completed as possible during the performance of this SOW, but may not be completed until after results of the 2015 fish tissue and 2016 sediment sampling event.

E. LONG TERM MONITORING PLAN REVIEW/UPDATE (Objective C. & E.)

The Long Term Monitoring Plan (LTMP) describes the actions the City will implement to measure the long-term health of the Slough, and to assess the effectiveness of actions being implemented to reduce sediment contamination. The LTMP requires the City to perform comprehensive, long term monitoring of water quality, stormwater, fish tissue, and sediment quality. Data generated by this monitoring will provide the basis for adaptive management of the Slough. The City has implemented all required monitoring events in accordance with the LTMP.

The City will continue monitoring environmental conditions and sediment concentrations according to the LTMP to assess progress toward achieving protective levels in sediment, and will conduct risk assessment activities and cleanup actions as warranted to develop segment specific sediment cleanup goals. The last Slough-wide fish tissue sampling event was completed in 2005. Consequently, a work plan for the next 10 year event should be completed during the time frame of this SOW. The Columbia Slough Water Quality Report Update (as described in Columbia Slough Watershed Long-Term Monitoring Plan) will be completed in 2010.

In addition, a review of the adequacy of institutional controls (e.g., physical condition of the signs advising fishers of potential risks posed from consumption of fish caught from the

Slough) will be conducted (Objective E.). This evaluation will be performed and the results summarized in a brief report. The City will amend Section 9 – Human Receptors – of the LTMP to reflect the performance of this evaluation and any maintenance conducted.

F. SLOUGH NRD RESTORATION PROJECTS

To be determined in collaboration with DEQ

G. ANNUAL REPORTS

Annual reports documenting progress in achieving source control and protective sediment concentrations in the Columbia Slough will continue to submitted to DEQ by October 31^{st} every year.

III. SCHEDULE

BES will submit work plans and reports which address all elements of this SOW for DEQ review and approval. All work completed under this Agreement will proceed in accordance with the schedule below:

SUBMITTALS	SCHEDULE
Draft WAP update	To DEQ within 180 days of issuance of this
	Agreement
DEQ review	To City within 45 days of receipt of the draft WAP
Revised WAP update	To DEQ within 90 days of receipt of DEQ input
Stormwater Treatment Pre-design	According to schedule specified in the WAP
Report	-
Source Investigation/Source Control	According to schedule specified in the WAP
Workplan	
Contaminant Loading Evaluation Pilot	According to schedule specified in the WAP
Program Proposal	
Draft Long-Term Monitoring Plan	To DEQ within 120 days of issuance of this
Addendum including updated schedule	Agreement
DEQ review	To City within 30 days of receipt of draft addendum
Final Long-Term Monitoring Plan	To DEQ within 60 days of receipt of DEQ input

Addendum	
Draft Buffalo Slough NFA Report	According to schedule specified in the WAP
Draft Source Control and/or Cleanup Actions for Marx-Whitaker subbasin	According to schedule specified in the WAP
Draft Fish Tissue sampling plan	According to schedule specified in the Long-Term Monitoring Plan Addendum
Draft Sediment sampling workplan	According to schedule specified in the Long-Term Monitoring Plan Addendum
Annual Reports – City Sections	To DEQ on or before October 31 st of each year.
Annual Reports – DEQ Sections	To City on or before October 31 st of each year.
Review and Comment	To City/DEQ within 30 days of receipt of the
	Annual Report sections
Combined Annual Report	Issued by January 31, of each year.

The schedule for any additional deliverables determined to be appropriate for completion of the remedial action SOW (e.g. risk evaluation to modify established sediment cleanup levels, sediment cleanup actions for areas where natural recovery is ineffective) will be determined and specified based on the results of the long-term monitoring program. The City, in order to reflect or incorporate newly discovered information and/or environmental conditions, may amend all work plans as necessary. Additional work plans and work plan amendments are subject to DEQ review and approval and will be processed according to schedules negotiated between the parties at the time of each phase change or task addition. The City and DEQ will initiate and complete work according to the schedule specified in this SOW, individual task workplans, or amendments to this SOW. This adaptive management approach is expected to result in the most efficient and effective process for achieving remedial action objectives for Slough sediment. The criteria for achieving NFAs for Tier 1 and Tier 2 evaluations are specified in the ROD for the Columbia Slough Sediment (July 2005).