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DEPARTMENT OF
JUDICIAL ADMINISTRATION

EXP07

STATE OF WASHINGTON

KING COUNTY SUPERIOR COURT

STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, Plaintiff, v. Port of Seattle, Defendant.	NO. CONSENT DECREE RE: LORA LAKE APARTMENTS SITE, BURIEN, WASHINGTON

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I. INTRODUCTION

A. The mutual objective of the State of Washington, Department of Ecology (Ecology) and Port of Seattle (Defendant) under this Decree is to provide for remedial action at a facility where there has been a release or threatened release of hazardous substances. This Decree requires Defendant to perform a final cleanup of the Lora Lake Apartments Site in Burien, Washington.

B. Ecology has determined that these actions are necessary to protect human health and the environment.

C. The Complaint in this action is being filed simultaneously with this Decree. An Answer has not been filed, and there has not been a trial on any issue of fact or law in this case. However, the Parties wish to resolve the issues raised by Ecology's Complaint. In addition, the Parties agree that settlement of these matters without litigation is reasonable and in the public interest, and that entry of this Decree is the most appropriate means of resolving these matters.

D. By signing this Decree, the Parties agree to its entry and agree to be bound by its terms.

E. By entering into this Decree, the Parties do not intend to discharge non-settling parties from any liability they may have with respect to matters alleged in the Complaint. The Parties retain the right to seek reimbursement, in whole or in part, from any liable persons for sums expended under this Decree.

F. This Decree shall not be construed as proof of liability or responsibility for any releases of hazardous substances or cost for remedial action nor an admission of any facts; provided, however, that Defendant shall not challenge the authority of the Attorney General and Ecology to enforce this Decree.

G. The Court is fully advised of the reasons for entry of this Decree, and good cause having been shown:

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Now, therefore, it is HEREBY ORDERED, ADJUDGED, AND DECREED as follows:

II. JURISDICTION

A. This Court has jurisdiction over the subject matter and over the Parties pursuant to the Model Toxics Control Act (MTCA), RCW 70.105D.

B. Authority is conferred upon the Washington State Attorney General by RCW 70.105D.040(4)(a) to agree to a settlement with any potentially liable person (PLP) if, after public notice and any required hearing, Ecology finds the proposed settlement would lead to a more expeditious cleanup of hazardous substances. RCW 70.105D.040(4)(b) requires that such a settlement be entered as a consent decree issued by a court of competent jurisdiction.

C. Ecology has determined that a release or threatened release of hazardous substances has occurred at the Site that is the subject of this Decree.

D. Ecology has given notice to Defendant of Ecology's determination that Defendant is a PLP for the Site, as required by RCW 70.105D.020(26) and WAC 173-340-500.

E. The actions to be taken pursuant to this Decree are necessary to protect public health and the environment.

F. This Decree has been subject to public notice and comment.

G. Ecology finds that this Decree will lead to a more expeditious cleanup of hazardous substances at the Site in compliance with the cleanup standards established under RCW 70.105D.030(2)(e) and WAC 173-340.

H. Defendant has agreed to undertake the actions specified in this Decree and consents to the entry of this Decree under MTCA.

III. PARTIES BOUND

This Decree shall apply to and be binding upon the Parties to this Decree, their successors and assigns. The undersigned representative of each party hereby certifies that he or she is fully authorized to enter into this Decree and to execute and legally bind such party to comply with this Decree. Defendant agrees to undertake all actions required by the terms and

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conditions of this Decree. No change in ownership or corporate status shall alter Defendant's responsibility under this Decree. Defendant shall provide a copy of this Decree to all agents, contractors, and subcontractors retained to perform work required by this Decree, and shall ensure that all work undertaken by such agents, contractors, and subcontractors complies with this Decree.

IV. DEFINITIONS

Unless otherwise specified herein, all definitions in RCW 70.105D.020 and WAC 173-340-200 shall control the meanings of the terms in this Decree.

A. Site: The Site is referred to as the Lora Lake Apartments Site and is generally located at 15001 Des Moines Memorial Drive, Burien, Washington. The Site is generally as shown in the Site Diagram (Exhibit A), and more particularly as described in the Cleanup Action Plan (Exhibit B, *see* Section 2.1 and Figure 2.1). The Site constitutes a facility under RCW 70.105D.020(8).

B. Parties: Refers to the State of Washington, Department of Ecology and the Port of Seattle.

C. Defendant: Refers to the Port of Seattle.

D. Consent Decree or Decree: Refers to this Consent Decree and each of the exhibits to this Decree. All exhibits are integral and enforceable parts of this Consent Decree. The terms "Consent Decree" or "Decree" shall include all exhibits to this Consent Decree.

V. FINDINGS OF FACTS

Ecology makes the following findings of fact without any express or implied admissions of such facts by Defendant.

A. Defendant owns the Site.

B. Prior to 1940, the Lora Lake Apartments Parcel had both an orchard and a private residence. During the 1940s and 1950s, Novak Barrel Cleaning Company operated at the Lora Lake Apartments Parcel. From the mid-1950s to 1981, Burien Auto Wrecking

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operated at the Lora Lake Apartments Parcel. In the 1986 to 1987 timeframe, the Mueller Group, a building developer, purchased the Lora Lake Apartments Parcel, investigated and removed contaminated soil, and constructed an apartment complex. After constructing the apartment complex, the Mueller Group sold the property to Santa Anita Realty Enterprises, which transferred the property to a wholly-owned subsidiary, Pacific Gulf Properties, Inc., in 1993. In 1998, Defendant acquired the Lora Apartments Parcel from Pacific Gulf Properties, Inc. for conversion to airport support (industrial) use, and vacated the apartments. Ownership of the Lora Lake Apartments Parcel was temporarily transferred from Defendant to the King County Housing Authority (KCHA) in May 2000. On July 20, 2007, the Defendant reacquired ownership of the Lora Lake Apartments Parcel. Following reacquisition of the Lora Lake Apartments Parcel by Defendant, six of the apartment buildings were demolished to comply with Federal Aviation Administration (FAA) flight path requirements because of expansion at SeaTac International Airport.

C. Defendant notified Ecology of soil and ground water contamination at the Site on February 27, 2008.

D. Defendant and KCHA submitted a Voluntary Cleanup Program (VCP) application to Ecology on April 4, 2008. The Defendant subsequently entered the VCP. The Defendant filed a Modified VCP application on September 23, 2008, removing KCHA from the VCP application.

E. The modified VCP application listed polycyclic aromatic hydrocarbons, hydrocarbons (gasoline, diesel, and oil), and dioxins as confirmed soil contaminants and these same contaminants plus tetrachloroethene, trichloroethene, 1,2-dichloroethane, and arsenic as confirmed groundwater contaminants. This contaminant list was refined during the subsequent RI/FS.

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F. Ecology notified Defendant of their potential liability for the Site under the Model Toxics Control Act on February 3, 2009. Defendant accepted status as a Potentially Liable Person on March 5, 2009.

G. Defendant entered into Agreed Order DE 6703 with Ecology on July 10, 2009, requiring Defendant to complete interim remedial actions, prepare a Public Participation Plan, complete a Supplemental Data Gaps Report, and complete a Remedial Investigation/Feasibility Study (RI/FS) for all releases at the site. Agreed Order DE 6703 required Defendant to demolish all buildings and ancillary above-ground facilities of the Lora Lake Apartments (excluding foundations) as an interim remedial action. This interim remedial action was completed in the summer of 2009.

H. The RI/FS identified arsenic, lead, total petroleum hydrocarbons, pentachlorophenol, carcinogenic polycyclic aromatic hydrocarbons, ethylbenzene, toluene, and dioxins/furans as soil contaminants; arsenic, total petroleum hydrocarbons, pentachlorophenol, carcinogenic polycyclic aromatic hydrocarbons and dioxins/furans as groundwater contaminants; and lead, arsenic, pentachlorophenol, carcinogenic polycyclic aromatic hydrocarbons and dioxins/furans as sediment contaminants for all releases at the Site. During the RI/FS, the site was extended to include portions of airport property east of Des Moines Memorial Drive including Lora Lake and a former Dredged Material Containment Area.

I. An active City of Burien stormwater system now runs through the Lora Lake Apartments Parcel, connecting to the Des Moines Memorial Drive drainage system downstream of the property and discharging to Lora Lake.

J. A second, smaller sub-system exists on the Lora Lake Apartments Parcel. The sub-system currently drains the northeast portion of the parcel, conveying water to the Des Moines Memorial Drive drainage system upstream of Lora Lake.

K. The RI/FS assessed stormwater chemical quality at multiple locations within the interior of the Lora Lake Apartments Parcel as well as where the City of Burien main

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stormwater line enters and exits the Lora Lake Apartments Parcel, and where the secondary line exits the parcel. The assessment found that upon entry to the Lora Lake Apartments Parcel the City of Burien's stormwater contained multiple chemicals of concern, including dioxins/furans, and stormwater from the Lora Lake Apartments Parcel was not contributing to degradation of the stormwater conveyed from upstream across the property to Lora Lake.

L. The First Amendment to Agreed Order DE 6703 with Ecology was effective April 18, 2013, requiring Defendant to prepare a Draft Cleanup Action Plan. The Cleanup Action Plan is attached to this Decree as Exhibit B.

VI. WORK TO BE PERFORMED

This Decree contains a program designed to protect human health and the environment from the known release, or threatened release, of hazardous substances or contaminants at, on, or from the Site.

A. Defendant shall conduct a final cleanup action at the Site by implementing the Cleanup Action Plan (CAP) (Exhibit B) according to the Scope of Work and Schedule (Exhibit C) and all other requirements of this Decree. The cleanup action includes, but is not limited to, the following actions:

1. Remedial action design and confirmational data collection.
2. Excavation of soil from the Lora Lake Apartments Parcel containing greater than 100 picograms per gram (pg/g) Toxicity Equivalent (TEQ) dioxins/furans, with off-site disposal at a licensed disposal facility.
3. Soil from the Lora Lake Apartments Parcel containing greater than 13 pg/g, but less than 100 pg/g TEQ dioxins/furans, will either be excavated, or remain *in situ* beneath a constructed engineered surface. Excavated material will be consolidated beneath a constructed engineered surface, either within the Lora Lake Apartments Parcel or at the Dredged Material Containment Area.

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4. Excavation of soil from selected areas of the Lora Lake Shallow Soil Area sufficient to bring the average dioxins/furans concentrations TEQ of the remaining soil to less than the cleanup level cleanup level of 5.2 pg/g TEQ. Excavations will be backfilled and replanted. Excavated material will be consolidated at the Dredged Material Containment Area. It may also be sent off-site for disposal at a licensed disposal facility if that is more efficient for construction scheduling.
5. Filling of Lora Lake and conversion of the open-water lake to a rehabilitated wetland.
6. Modification of the stormwater conveyance system that crosses the Lora Lake Apartments Parcel to eliminate the potential for contamination associated with the Site to enter the stormwater system.

The Parties intend that the above list include any and all outstanding obligations under Agreed Order DE 6703. The Parties agree that Agreed Order DE 6703 no longer has any force or effect.

B. The Defendant will submit for Ecology's review and approval the following documents in accordance with the Schedule: engineering design report, the plans and specifications, compliance monitoring plan, as-built documentation, and operations and maintenance manual for any equipment or systems that are part of the remedy. The Scope of Work and Schedule (Exhibit C) details those deliverables that have been identified at the time of entry of this Decree.

C. Defendant agrees not to perform any remedial actions outside the scope of this Decree unless the Parties agree to modify the CAP (Exhibit B), the Scope of Work and Schedule (Exhibit C) to cover these actions. All work conducted by Defendant under this Decree shall be done in accordance with WAC 173-340 unless otherwise provided herein.

D. All plans or other deliverables submitted by the Port of Seattle for Ecology's review and approval under the Scope of Work and Schedule (Exhibit C) shall, upon Ecology's approval, become integral and enforceable parts of this Decree.

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VII. DESIGNATED PROJECT COORDINATORS

The project coordinator for Ecology is:

Sunny Becker
Toxics Cleanup Program
Department of Ecology, Northwest Regional Office
3190 160th Avenue
Bellevue, WA 98008-5452
(425) 649-7187
Sunny.becker@ecy.wa.gov

The project coordinator for Defendant is:

Don Robbins
Port of Seattle
Aviation/Environmental
P.O. Box 68727
Seattle, WA 98168
206-787-4918
Robbins.D@portseattle.org

Each project coordinator shall be responsible for overseeing the implementation of this Decree. Ecology's project coordinator will be Ecology's designated representative for the Site. To the maximum extent possible, communications between Ecology and Defendant and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Decree shall be directed through the project coordinators. The project coordinators may designate, in writing, working level staff contacts for all or portions of the implementation of the work to be performed required by this Decree.

Any party may change its respective project coordinator. Written notification shall be given to the other party at least ten (10) calendar days prior to the change.

VIII. PERFORMANCE

All geologic and hydrogeologic work performed pursuant to this Decree shall be under the supervision and direction of a geologist or hydrogeologist licensed in the State of Washington or under the direct supervision of an engineer registered in the State of Washington, except as otherwise provided for by RCW 18.220 and 18.43.

All engineering work performed pursuant to this Decree shall be under the direct supervision of a professional engineer registered in the State of Washington, except as otherwise provided for by RCW 18.43.130.

All construction work performed pursuant to this Decree shall be under the direct supervision of a professional engineer or a qualified technician under the direct supervision of a professional engineer. The professional engineer must be registered in the State of Washington, except as otherwise provided for by RCW 18.43.130.

Any documents submitted containing geologic, hydrologic or engineering work shall be under the seal of an appropriately licensed professional as required by RCW 18.220 and 18.43.

Defendant shall notify Ecology in writing of the identity of any engineer(s) and geologist(s), contractor(s) and subcontractor(s), and others to be used in carrying out the terms of this Decree, in advance of their involvement at the Site.

IX. ACCESS

Ecology or any Ecology authorized representative shall have access to enter and freely move about all property at the Site that Defendant either owns, controls, or has access rights to at all reasonable times for the purposes of, *inter alia*: inspecting records, operation logs, and contracts related to the work being performed pursuant to this Decree; reviewing Defendant's progress in carrying out the terms of this Decree; conducting such tests or collecting such samples as Ecology may deem necessary; using a camera, sound recording, or other documentary type equipment to record work done pursuant to this Decree; and verifying the data submitted to Ecology by Defendant. Defendant shall make all reasonable efforts to secure access rights for those properties within the Site not owned or controlled by Defendant where remedial activities or investigations will be performed pursuant to this Decree. Ecology or any Ecology authorized representative shall give reasonable notice before entering any Site property owned or controlled by Defendant unless an emergency prevents such notice. All Parties who access the Site pursuant to this Section shall comply with any applicable health and safety plan(s). Ecology employees and their representatives shall follow any appropriate

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safety and security precautions required by the Port as part of their established safety and security procedures that Ecology has consented to in advance of accessing the Site. Ecology employees and their representatives shall not be required to sign any liability release or waiver as a condition of Site property access.

X. SAMPLING, DATA SUBMITTAL, AND AVAILABILITY

With respect to the implementation of this Decree, Defendant shall make the results of all sampling, laboratory reports, and/or test results generated by it or on its behalf available to Ecology. Pursuant to WAC 173-340-840(5), all sampling data, including ground water elevation data, shall be submitted to Ecology in both printed and electronic formats in accordance with Section XI (Progress Reports), Ecology's Toxics Cleanup Program Policy 840 (Data Submittal Requirements), and/or any subsequent procedures specified by Ecology for data submittal.

If requested by Ecology, Defendant shall allow Ecology and/or its authorized representative to take split or duplicate samples of any samples collected by Defendant pursuant to the implementation of this Decree. Defendant shall notify Ecology seven (7) days in advance of any sample collection or work activity at the Site. Ecology shall, upon request, allow Defendant and/or its authorized representative to take split or duplicate samples of any samples collected by Ecology pursuant to the implementation of this Decree, provided that doing so does not interfere with Ecology's sampling. Without limitation on Ecology's rights under Section IX (Access), Ecology shall notify Defendant prior to any sample collection activity unless an emergency prevents such notice.

In accordance with WAC 173-340-830(2)(a), all hazardous substance analyses shall be conducted by a laboratory accredited under WAC 173-50 for the specific analyses to be conducted, unless otherwise approved by Ecology.

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XI. PROGRESS REPORTS

Defendant shall submit to Ecology written monthly Progress Reports that describe the actions taken during the previous month to implement the requirements of this Decree. The Progress Reports shall include the following:

A. A list of on-site activities that have taken place during the month;

B. Detailed description of any deviations from required tasks not otherwise documented in project plans or amendment requests;

C. Description of all deviations from the Scope of Work and Schedule (Exhibit C) during the current month and any planned deviations in the upcoming month;

D. For any deviations in schedule, a plan for recovering lost time and maintaining compliance with the schedule;

E. All raw data (including laboratory analyses and ground water elevation data) received by Defendant during the past month and an identification of the source of the sample in both printed and electronic formats; and

F. A list of deliverables for the upcoming month if different from the schedule.

All Progress Reports shall be submitted in electronic format by the fifteenth (15^{th}) day of the month in which they are due after the effective date of this Decree. Unless otherwise specified, documents submitted pursuant to this Decree shall be sent by certified mail, return receipt requested, to Ecology's project coordinator.

XII. RETENTION OF RECORDS

During the pendency of this Decree, and for ten (10) years from the date this Decree is no longer in effect as provided in Section XXVIII (Duration of Decree), Defendant shall preserve all records, reports, documents, and underlying data in its possession relevant to the implementation of this Decree and shall insert a similar record retention requirement into all contracts with project contractors and subcontractors. Upon request of Ecology, Defendant

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shall make all records available to Ecology and allow access for review within a reasonable time.

Nothing in this Decree is intended by Defendant to waive any right it may have under applicable law to limit disclosure of documents protected by the attorney work-product privilege and/or the attorney-client privilege. If Defendant withholds any requested records based on an assertion of privilege, Defendant shall provide Ecology with a privilege log specifying the records withheld and the applicable privilege. No Site-related data collected pursuant to this Decree shall be considered privileged.

XIII. TRANSFER OF INTEREST IN PROPERTY

No voluntary conveyance or relinquishment of title, easement, leasehold, or other interest in any portion of the Site shall be consummated by Defendant without provision for continued operation and maintenance of any containment system, treatment system, and/or monitoring system installed or implemented pursuant to this Decree.

Prior to Defendant's transfer of any interest in all or any portion of the Site, and during the effective period of this Decree, Defendant shall provide a copy of this Decree to any prospective purchaser, lessee, transferee, assignee, or other successor in said interest; and, at least thirty (30) days prior to any transfer, Defendant shall notify Ecology of said transfer. Upon transfer of any interest, Defendant shall notify all transferees of the restrictions on the activities and uses of the property under this Decree and incorporate any such use restrictions into the transfer documents.

XIV. RESOLUTION OF DISPUTES

A. In the event that Defendant elects to invoke dispute resolution, Defendant must utilize the procedure set forth below.

1. Upon the triggering event (receipt of Ecology's project coordinator's written decision or an itemized billing statement), Defendant has fourteen (14) calendar

days within which to notify Ecology's project coordinator in writing of its dispute ("Informal Dispute Notice").

2. The Parties' project coordinators shall then confer in an effort to resolve the dispute informally. The parties shall informally confer for up to fourteen (14) calendar days from receipt of the Informal Dispute Notice. If the project coordinators cannot resolve the dispute within those 14 calendar days, then within seven (7) calendar days Ecology's project coordinator shall issue a written decision ("Informal Dispute Decision") stating: the nature of the dispute; the Defendant's position with regards to the dispute; Ecology's position with regards to the dispute; and the extent of resolution reached by informal discussion.

3. Defendant may then request regional management review of the dispute. This request ("Formal Dispute Notice") must be submitted in writing to the Northwest Region Toxics Cleanup Section Manager within seven (7) calendar days of receipt of Ecology's Informal Dispute Decision. The Formal Dispute Notice shall include a written statement of dispute setting forth: the nature of the dispute; the disputing Party's position with respect to the dispute; and the information relied upon to support its position.

4. The Section Manager shall conduct a review of the dispute and shall issue a written decision regarding the dispute ("Decision on Dispute") within thirty (30) calendar days of receipt of the Formal Dispute Notice.

5. If Defendant finds Ecology's Regional Section Manager's decision unacceptable, Defendant may then request final management review of the decision. This request ("Final Review Request") shall be submitted in writing to the Toxics Cleanup Program Manager within seven (7) calendar days of Defendant's receipt of the Decision on Dispute. The Final Review Request shall include a written statement of

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dispute setting forth: the nature of the dispute; the disputing Party's position with respect to the dispute; and the information relied upon to support its position.

6. Ecology's Toxics Cleanup Program Manager shall conduct a review of the dispute and shall issue a written decision regarding the dispute ("Final Decision on Dispute") within thirty (30) calendar days of receipt of the Final Review Request. The Toxics Cleanup Program Manager's decision shall be Ecology's final decision on the disputed matter.

B. If Ecology's Final Decision on Dispute is unacceptable to Defendant, Defendant has the right to submit the dispute to the Court for resolution. The Parties agree that one judge should retain jurisdiction over this case and shall, as necessary, resolve any dispute arising under this Decree. In the event Defendant presents an issue to the Court for review, the Court shall review the action or decision of Ecology on the basis of whether such action or decision was arbitrary and capricious and render a decision based on such standard of review.

C. The Parties agree to only utilize the dispute resolution process in good faith and agree to expedite, to the extent possible, the dispute resolution process whenever it is used. Where either party utilizes the dispute resolution process in bad faith or for purposes of delay, the other party may seek sanctions.

D. Implementation of these dispute resolution procedures shall not provide a basis for delay of any activities required in this Decree, unless Ecology agrees in writing to a schedule extension or the Court so orders.

E. In case of a dispute, failure to either proceed with the work required by this Decree or timely invoke dispute resolution may result in Ecology's determination that insufficient progress is being made in preparation of a deliverable, and may result in Ecology undertaking the work under Section XXV (Implementation of Remedial Action).

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XV. AMENDMENT OF DECREE

The project coordinators may agree to minor changes to the work to be performed without formally amending this Decree. Minor changes will be documented in writing by Ecology.

Substantial changes to the work to be performed shall require formal amendment of this Decree. This Decree may only be formally amended by a written stipulation among the Parties that is entered by the Court, or by order of the Court. Such amendment shall become effective upon entry by the Court. Agreement to amend the Decree shall not be unreasonably withheld by any party.

Defendant shall submit a written request for amendment to Ecology for approval. Ecology shall indicate its approval or disapproval in writing and in a timely manner after the written request for amendment is received. If the amendment to the Decree is a substantial change, Ecology will provide public notice and opportunity for comment. Reasons for the disapproval of a proposed amendment to the Decree shall be stated in writing. If Ecology does not agree to a proposed amendment, the disagreement may be addressed through the dispute resolution procedures described in Section XIV (Resolution of Disputes).

XVI. EXTENSION OF SCHEDULE

A. An extension of schedule shall be granted only when a request for an extension is submitted in a timely fashion, generally at least thirty (30) days prior to expiration of the deadline for which the extension is requested, and good cause exists for granting the extension. All extensions shall be requested in writing. The request shall specify:

1. The deadline that is sought to be extended;
2. The length of the extension sought;
3. The reason(s) for the extension; and
4. Any related deadline or schedule that would be affected if the extension were granted.

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B. The burden shall be on Defendant to demonstrate to the satisfaction of Ecology that the request for such extension has been submitted in a timely fashion and that good cause exists for granting the extension. Good cause may include, but may not be limited to:

1. Circumstances beyond the reasonable control and despite the due diligence of Defendant including delays caused by unrelated third parties or Ecology, such as (but not limited to) delays by Ecology in reviewing, approving, or modifying documents submitted by Defendant;

2. Acts of God, including fire, flood, blizzard, extreme temperatures, storm, or other unavoidable casualty; or

3. Endangerment as described in Section XVII (Endangerment).

However, neither increased costs of performance of the terms of this Decree nor changed economic circumstances shall be considered circumstances beyond the reasonable control of Defendant.

C. Ecology shall act upon any written request for extension in a timely fashion. Ecology shall give Defendant written notification of any extensions granted pursuant to this Decree. A requested extension shall not be effective until approved by Ecology or, if required, by the Court. Unless the extension is a substantial change, it shall not be necessary to amend this Decree pursuant to Section XV (Amendment of Decree) when a schedule extension is granted.

D. An extension shall only be granted for such period of time as Ecology determines is reasonable under the circumstances. Ecology may grant schedule extensions exceeding ninety (90) days only as a result of:

1. Delays in the issuance of a necessary permit which was applied for in a timely manner;

2. Other circumstances deemed exceptional or extraordinary by Ecology; or

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3. Endangerment as described in Section XVII (Endangerment).

XVII. ENDANGERMENT

In the event Ecology determines that any activity being performed at the Site under this Decree is creating or has the potential to create a danger to human health or the environment, Ecology may direct Defendant to cease such activities for such period of time as it deems necessary to abate the danger. Defendant shall immediately comply with such direction.

In the event Defendant determines that any activity being performed at the Site under this Decree is creating or has the potential to create a danger to human health or the environment, Defendant may cease such activities. Defendant shall notify Ecology's project coordinator as soon as possible, but no later than twenty-four (24) hours after making such determination or ceasing such activities. Upon Ecology's direction, Defendant shall provide Ecology with documentation of the basis for the determination or cessation of such activities. If Ecology disagrees with Defendant's cessation of activities, it may direct Defendant to resume such activities.

If Ecology concurs with or orders a work stoppage pursuant to this Section, Defendant's obligations with respect to the ceased activities shall be suspended until Ecology determines the danger is abated, and the time for performance of such activities, as well as the time for any other work dependent upon such activities, shall be extended, in accordance with Section XVI (Extension of Schedule), for such period of time as Ecology determines is reasonable under the circumstances.

Nothing in this Decree shall limit the authority of Ecology, its employees, agents, or contractors to take or require appropriate action in the event of an emergency.

XVIII. COVENANT NOT TO SUE

A. Covenant Not to Sue: In consideration of Defendant's compliance with the terms and conditions of this Decree, Ecology covenants not to institute legal or administrative

actions against Defendant regarding the release or threatened release of hazardous substances covered by this Decree.

This Decree covers only the Site specifically identified in the Site Diagram (Exhibit A) and those hazardous substances that Ecology knows are located at the Site as of the date of entry of this Decree. This Decree does not cover any other hazardous substance or area. Ecology retains all of its authority relative to any substance or area not covered by this Decree.

This Covenant Not to Sue shall have no applicability whatsoever to:

1. Criminal liability;

2. Liability for damages to natural resources; and

3. Any Ecology action, including cost recovery, against PLPs not a party to this Decree.

If factors not known at the time of entry of this Decree are discovered and present a previously unknown threat to human health or the environment, the Court shall amend this Covenant Not to Sue.

B. Reopeners: Ecology specifically reserves the right to institute legal or administrative action against Defendant to require it to perform additional remedial actions at the Site and to pursue appropriate cost recovery, pursuant to RCW 70.105D.050 under the following circumstances:

1. Upon Defendant's failure to meet the requirements of this Decree, including, but not limited to, failure of the remedial action to meet the cleanup standards identified in the Cleanup Action Plan (CAP) (Exhibit B);

2. Upon Ecology's determination that remedial action beyond the terms of this Decree is necessary to abate an imminent and substantial endangerment to human health or the environment;

3. Upon the availability of new information regarding factors previously unknown to Ecology, including the nature or quantity of hazardous substances at the

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Site, and Ecology's determination, in light of this information, that further remedial action is necessary at the Site to protect human health or the environment; or

4. Upon Ecology's determination that additional remedial actions are necessary to achieve cleanup standards within the reasonable restoration time frame set forth in the CAP (Exhibit B).

C. Except in the case of an emergency, prior to instituting legal or administrative action against Defendant pursuant to this section, Ecology shall provide Defendant with fifteen (15) calendar days' notice of such action.

XIX. CONTRIBUTION PROTECTION

With regard to claims for contribution against Defendant, the Parties agree that Defendant is entitled to protection against claims for contribution for matters addressed in this Decree as provided by RCW 70.105D.040(4)(d).

XX. LAND USE RESTRICTIONS

In consultation with Defendant, Ecology will prepare the Environmental (Restrictive) Covenant consistent with WAC 173-340-440 and RCW 64.70. After approval by Ecology, Defendant shall record the Environmental (Restrictive) Covenant with the office of the King County Auditor within ten (10) days of the completion of the As-Built Report for each Parcel within the Site. The Environmental (Restrictive) Covenant shall restrict future activities and uses of the Site as agreed to by Ecology and Defendant. Defendant shall provide Ecology with the original recorded Environmental (Restrictive) Covenant within thirty (30) days of the recording date.

XXI. FINANCIAL ASSURANCES

Pursuant to WAC 173-340-440(11), Defendant shall maintain sufficient and adequate financial assurance mechanisms to cover all costs associated with the operation and maintenance of the remedial action at the Site, including institutional controls, compliance monitoring, and corrective measures.

Within sixty (60) days of the effective date of this Decree, Defendant shall submit to Ecology for review and approval an estimate of the costs that it will incur in carrying out the terms of this Decree, including operation and maintenance, and compliance monitoring. Within sixty (60) days after Ecology approves the aforementioned cost estimate, Defendant shall provide proof of financial assurances sufficient to cover all such costs in a form acceptable to Ecology.

Defendant shall adjust the financial assurance coverage and provide Ecology's project coordinator with documentation of the updated financial assurance for:

A. Inflation, annually, within thirty (30) days of the anniversary date of the entry of this Decree; or if applicable, the modified anniversary date established in accordance with this section, or if applicable, ninety (90) days after the close of Defendant's fiscal year if the financial test or corporate guarantee is used; and

B. Changes in cost estimates, within thirty (30) days of issuance of Ecology's approval of a modification or revision to the CAP that result in increases to the cost or expected duration of remedial actions. Any adjustments for inflation since the most recent preceding anniversary date shall be made concurrent with adjustments for changes in cost estimates. The issuance of Ecology's approval of a revised or modified CAP will revise the anniversary date established under this Section to become the date of issuance of such revised or modified CAP.

XXII. INDEMNIFICATION

Defendant agrees to indemnify and save and hold the State of Washington, its employees, and agents harmless from any and all claims or causes of action (1) for death or injuries to persons or (2) for loss or damage to property to the extent arising from or on account of acts or omissions of Defendant, its officers, employees, agents, or contractors in entering into and implementing this Decree. However, Defendant shall not indemnify the State of Washington nor save nor hold its employees and agents harmless from any claims or causes of

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action to the extent arising out of the negligent acts or omissions of the State of Washington, or the employees or agents of the State, in entering into or implementing this Decree.

XXIII. COMPLIANCE WITH APPLICABLE LAWS

A. All actions carried out by Defendant pursuant to this Decree shall be done in accordance with all applicable federal, state, and local requirements, including requirements to obtain necessary permits, except as provided in RCW 70.105D.090. The permits or other federal, state or local requirements that the agency has determined are applicable and that are known at the time of entry of this Decree have been identified in the Applicable or Relevant and Appropriate Requirements (Exhibit D).

B. Pursuant to RCW 70.105D.090(1), Defendant is exempt from the procedural requirements of RCW 70.94, 70.95, 70.105, 77.55, 90.48, and 90.58 and of any laws requiring or authorizing local government permits or approvals. However, Defendant shall comply with the substantive requirements of such permits or approvals. The exempt permits or approvals and the applicable substantive requirements of those permits or approvals, as they are known at the time of entry of this Decree, Procedurally Exempt Requirements (Exhibit E).

Defendant has a continuing obligation to determine whether additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Decree. In the event either Ecology or Defendant determines that additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Decree, it shall promptly notify the other party of this determination. Ecology shall determine whether Ecology or Defendant shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, Defendant shall promptly consult with the appropriate state and/or local agencies and provide Ecology with written documentation from those agencies of the substantive requirements those agencies believe are applicable to the remedial action. Ecology shall make the final determination on the additional substantive requirements that must be met by Defendant and on how Defendant must meet

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those requirements. Ecology shall inform Defendant in writing of these requirements. Once established by Ecology, the additional requirements shall be enforceable requirements of this Decree. Defendant shall not begin or continue the remedial action potentially subject to the additional requirements until Ecology makes its final determination.

C. Pursuant to RCW 70.105D.090(2), in the event Ecology determines that the exemption from complying with the procedural requirements of the laws referenced in RCW 70.105D.090(1) would result in the loss of approval from a federal agency that is necessary for the State to administer any federal law, the exemption shall not apply and Defendant shall comply with both the procedural and substantive requirements of the laws referenced in RCW 70.105D.090(1), including any requirements to obtain permits.

XXIV. REMEDIAL ACTION COSTS

Defendant shall pay to Ecology costs incurred by Ecology pursuant to this Decree and consistent with WAC 173-340-550(2). These costs shall include work performed by Ecology or its contractors for, or on, the Site under RCW 70.105D, including remedial actions and Decree preparation, negotiation, oversight and administration. These costs shall include work performed both prior to and subsequent to the entry of this Decree. Ecology's costs shall include costs of direct activities and support costs of direct activities as defined in WAC 173-340-550(2). Ecology has accumulated $11,078.12 in unpaid remedial action costs related to this facility incurred under Agreed Order No. DE 6703 as of March 31, 2015. Payment for this amount shall be submitted within thirty (30) days of the effective date of this Decree or by the due date of the invoice for those costs. For all costs incurred subsequent to March 31, 2015, Defendant shall pay the required amount within thirty (30) days of receiving from Ecology an itemized statement of costs that includes a summary of costs incurred, an identification of involved staff, and the amount of time spent by involved staff members on the project. A general statement of work performed will be provided upon request. Itemized statements shall be prepared quarterly. Pursuant to WAC 173-340-550(4), failure to pay

Ecology's costs within ninety (90) days of receipt of the itemized statement of costs will result in interest charges at the rate of twelve percent (12%) per annum, compounded monthly.

In addition to other available relief, pursuant to RCW 70.105D.055, Ecology has authority to recover unreimbursed remedial action costs by filing a lien against real property subject to the remedial actions.

XXV. IMPLEMENTATION OF REMEDIAL ACTION

If Ecology determines that Defendant has failed without good cause to make sufficient progress or failed to implement the remedial action, in whole or in part, Ecology may, after notice to Defendant, perform any or all portions of the remedial action or at Ecology's discretion allow the Defendant opportunity to correct. If Ecology performs all or portions of the remedial action because of Defendant's failure to comply with its obligations under this Decree, Defendant shall reimburse Ecology for the costs of doing such work in accordance with Section XXIV (Remedial Action Costs), provided that Defendant is not obligated under this section to reimburse Ecology for costs incurred for work inconsistent with or beyond the scope of this Decree.

Except where necessary to abate an emergency situation, Defendant shall not perform any remedial actions at the Site outside those remedial actions required by this Decree, unless Ecology concurs, in writing, with such additional remedial actions pursuant to Section XV (Amendment of Decree).

XXVI. PERIODIC REVIEW

As remedial action, including groundwater monitoring, continues at the Site, the Parties agree to review the progress of remedial action at the Site, and to review the data accumulated as a result of monitoring the Site as often as is necessary and appropriate under the circumstances. At least every five (5) years after the initiation of cleanup action at the Site the Parties shall meet to discuss the status of the Site and the need, if any, for further remedial action at the Site. At least ninety (90) days prior to each periodic review, Defendant shall

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submit a report to Ecology that documents whether human health and the environment are being protected based on the factors set forth in WAC 173-340-420(4). Under Section XVIII (Covenant Not to Sue), Ecology reserves the right to require further remedial action at the Site under appropriate circumstances. This provision shall remain in effect for the duration of this Decree.

XXVII. PUBLIC PARTICIPATION

A Public Participation Plan is required for this Site. Ecology shall review any existing Public Participation Plan to determine its continued appropriateness and whether it requires amendment.

Ecology shall maintain the responsibility for public participation at the Site. However, Defendant shall cooperate with Ecology, and shall:

A. If agreed to by Ecology, develop appropriate mailing lists, prepare drafts of public notices and fact sheets at important stages of the remedial action, such as the submission of work plans, remedial investigation/feasibility study reports, cleanup action plans, and engineering design reports. As appropriate, Ecology will edit, finalize, and distribute such fact sheets and prepare and distribute public notices of Ecology's presentations and meetings.

B. Notify Ecology's project coordinator prior to the preparation of all press releases and fact sheets, and before major meetings with the interested public and local governments. Likewise, Ecology shall notify Defendant prior to the issuance of all press releases and fact sheets, and before major meetings with the interested public and local governments. For all press releases, fact sheets, meetings, and other outreach efforts by Defendant that do not receive prior Ecology approval, Defendant shall clearly indicate to its audience that the press release, fact sheet, meeting, or other outreach effort was not sponsored or endorsed by Ecology.

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C. When requested by Ecology, participate in public presentations on the progress of the remedial action at the Site. Participation may be through attendance at public meetings to assist in answering questions, or as a presenter.

D. When requested by Ecology, arrange and/or continue information repositories at the following locations:

1. Burien Public Library
400 S.W. 152nd street
Burien, WA 98166
(206) 243-3490

2. Ecology's Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452
(425) 649-7190

At a minimum, copies of all public notices, fact sheets, and documents relating to public comment periods shall be promptly placed in these repositories. A copy of all documents related to this site shall be maintained in the repository at Ecology's Northwest Regional Office in Bellevue, Washington.

XXVIII. DURATION OF DECREE

The remedial program required pursuant to this Decree shall be maintained and continued until Defendant has received written notification from Ecology that the requirements of this Decree have been satisfactorily completed. This Decree shall remain in effect until dismissed by the Court. When dismissed, Section XVIII (Covenant Not to Sue) and Section XIX (Contribution Protection) shall survive.

XXIX. CLAIMS AGAINST THE STATE

Defendant hereby agrees that it will not seek to recover any costs accrued in implementing the remedial action required by this Decree from the State of Washington or any of its agencies; and further, that Defendant will make no claim against the State Toxics Control Account or any local Toxics Control Account for any costs incurred in implementing this Decree. Except as provided above, however, Defendant expressly reserves its right to seek to

recover any costs incurred in implementing this Decree from any other PLP. This Section does not limit or address funding that may be provided under WAC 173-322.

XXX. EFFECTIVE DATE

This Decree is effective upon the date it is entered by the Court.

XXXI. WITHDRAWAL OF CONSENT

If the Court withholds or withdraws its consent to this Decree, it shall be null and void at the option of any party and the accompanying Complaint shall be dismissed without costs and without prejudice. In such an event, no party shall be bound by the requirements of this Decree.

STATE OF WASHINGTON
Department of Ecology

JAMES J. PENDOWSKI
Program Manager
Toxics Cleanup Program
(360) 407-7177

Date: 7/20/15

ROBERT W. FERGUSON
Attorney General

ALEYSON C. BAZAN, WSBA #44221
Assistant Attorney General
(360) 586-3589

Date: 8/26/2015

PORT OF SEATTLE

THEODORE J. FICK
Chief Executive Officer
(206) 728-3000

Date: 7/22/2015

PORT OF SEATTLE

SUSAN RIDGLEY, WSBA #38086
Senior Port Counsel
(206) 787-3416

ENTERED this ____ day of 9/9/ 2015.

JUDGE
King County Superior Court

Exhibit A
Site Diagram

1,271,500 1,272,000 1,272,500 1,273,000 1,273,500

175,000 174,500 174,000

Legend

Lora Lake Apartments Site Extent

City Boundary

Notes:
- City boundary data provided by King County.
- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of Survey Feet.

SR 518

CITY OF BURIEN

CITY OF SEATAC

Lora Lake Apartments Parcel

Lora Lake Shallow Soil

1982 Dredged Material Containment Area

SOUTH 150TH STREET

8TH AVE SOUTH

DES MOINES MEMORIAL DRIVE

Lora Lake Shallow Soil

PORT OF SEATTLE PROPERTY

PORT OF SEATTLE PROPERTY

Lora Lake

STIA 3RD RUNWAY APPROACH LIGHTING SYSTEM

CITY OF BURIEN

CITY OF SEATAC

N

0 150 300

Scale in Feet

DEPARTMENT OF ECOLOGY
State of Washington

Consent Decree Exhibit A
Lora Lake Apartments Site
Burien, Washington

Figure 1
Site Diagram

I:\GIS\Projects\POS_LLA\MXD\CleanupActionPlan - T1140\Figure 1 Site Diagram.mxd
4/14/2015

FINAL

Exhibit B
Cleanup Action Plan

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List of Acronyms and Abbreviations

Acronym/ Abbreviation	Definition
AO	Agreed Order
bgs	Below ground surface
BMP	Best Management Practices
CAA	Controlled Activity Area

Acronym/ Abbreviation	Definition
CFR	Code of Federal Regulations
COC	Contaminant of concern
cPAH	Carcinogenic polycyclic aromatic hydrocarbon
DCAP	Draft Cleanup Action Plan
DMCA	1982 Dredged Material Containment Area
EIC	Ecological Indicator (soil) Concentration
Ecology	Washington State Department of Ecology
FAA	Federal Aviation Administration
LL Apartments Parcel	Lora Lake Apartments Parcel
LL Parcel	Lora Lake Parcel
µg/kg	Micrograms per kilogram
µg/L	Micrograms per liter
mg/kg	Milligrams per kilogram
MTCA	Model Toxics Control Act
NRMP	Natural Resource Management Plan
PCP	Pentachlorophenol
pg/g	Picograms per gram
pg/L	Picograms per liter
POC	Point of compliance
Port	Port of Seattle
RCW	Revised Code of Washington
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RPZ	Runway Protection Zone
SEPA	State Environmental Policy Act
Site	Lora Lake Apartments Site
SR 518	State Route 518
STIA	Seattle-Tacoma International Airport
TEE	Terrestrial Ecological Evaluation
TEQ	Toxicity equivalent
USACE	U.S. Army Corps of Engineers
WAC	Washington Administrative Code
WHMP	Wildlife Hazard Management Plan
XOFA	Extended Object Free Area

1.0 Introduction

This Draft Cleanup Action Plan (DCAP) describes the cleanup action selected by the Washington State Department of Ecology (Ecology) for the Lora Lake Apartments Site (LL Apartments Site, or Site). The Site is located at 15001 Des Moines Memorial Drive in Burien, Washington (Figure 1.1), near the northwest corner of Seattle-Tacoma International Airport (STIA).

This DCAP was developed using information presented in the Remedial Investigation/Feasibility Study (RI/FS) for the Site, which was prepared by Floyd|Snider in 2015 (Floyd|Snider 2015a) on behalf of the Port of Seattle (Port) in accordance with the Agreed Order (AO) for the Site. The Port and Ecology entered into AO No. DE 6703 for the LL Apartments Site on July 10, 2009 (Ecology 2009).

The Site consists of three parcels: (1) Lora Lake Apartments Parcel (LL Apartments Parcel), (2) Lora Lake Parcel (LL Parcel), and (3) 1982 Dredged Material Containment Area (DMCA). The site cleanup is expected to occur in phases, with remedial actions conducted consistent with the schedule provided in Exhibit C of the Consent Decree.

The Lora Lake Apartments Site is being cleaned up under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D of the Revised Code of Washington (RCW) (Ecology, 2007), and the MTCA Cleanup Regulation, Chapter 173-340 of the Washington Administrative Code (WAC).

2.0 Site Description, Background, and Characterization

The Site straddles the boundary between the Cities of Burien and SeaTac, Washington (refer to Figure 2.1). The LL Apartments Parcel is located within the City of Burien, at 15001 Des Moines Memorial Drive. The LL Parcel is located immediately across Des Moines Memorial Drive to the east, and the DMCA is located to the northeast of the LL Parcel, both within the City of SeaTac.

The Site, as defined by WAC 173-340-200, consists of the LL Apartments property, and areas within the LL Parcel and DMCA, where contamination has come to be located. Prior to the Remedial Investigation (RI) conducted in 2010, environmental investigations at the Site focused on the property referred to throughout this document as the LL Apartments Parcel. Investigations and historical research conducted as part of the RI determined that concentrations of contaminants identified at the LL Apartments Parcel were also present in soil and sediment on the LL Parcel and the DMCA.

A portion of the LL Apartments Parcel and all of the LL Parcel and the DMCA are within designated safety zones established for operation of the STIA 3rd Runway (Figure 2.1). Collectively these zones are called Runway Protection Zones (RPZs). Two subzones cover the Site, the Extended Object Free Area (XOFA) and the Controlled Activity Area (CAA). The XOFA must be kept clear of objects (including structures, equipment, and terrain), with the exception of objects necessary for air navigation or aircraft ground-maneuvering purposes. The CAA is farther from the runway; however, construction of residences and public gathering places, such as shopping centers, offices, or hospitals may not be constructed in the CAA. The Port will own the land within the RPZs in perpetuity. Residential land use is not a potential future use within the RPZs.

2.1 SITE DESCRIPTION

2.1.1 Lora Lake Apartments Parcel

The LL Apartments Parcel occupies approximately 8.3 acres of currently vacant land that is bounded to the north by State Route 518 (SR 518), to the east and southeast by Des Moines Memorial Drive, to the west by 8th Avenue South, and to the south by an open area that was formerly the site of a grocery store, bowling alley, small office complex, and the former Seattle City Light Sunnydale Substation (shown on Figure 2.1 as the Former Seattle City Light Property), purchased by the Port in 2011. Land use to the west of the LL Apartments Parcel is primarily residential. The area of the STIA located just southeast of Des Moines Memorial Drive is reserved for habitat mitigation associated with development of the STIA 3rd Runway and for the eastbound onramp to SR 518. The LL Apartments Parcel vacant land is currently covered by asphalt parking areas, concrete building foundations, and landscaping areas remaining from the previous LL Apartments complex. The apartment buildings were demolished by the Port in 2009. The existing LL Apartments Parcel topography was created during construction of the apartment buildings in 1987. The LL Apartments Parcel topography slopes gradually to the

southeast, with steeper slopes located adjacent to Des Moines Memorial Drive to the east and from the SR 518 embankment to the north, as shown on Figure 2.2. To the southeast of the existing property boundary, the topography continues to slope gradually to the east towards Lora Lake.

An active City of Burien stormwater system currently runs through the LL Apartments Parcel, including a main stormwater line that conveys stormwater drainage from the upstream City of Burien drainage network (the Main Line). This main stormwater line enters on the west side of the LL Apartments Parcel and exits on the east side of the parcel. A second, smaller sub-system drains the northeast portion of the LL Apartments Parcel and conveys water through smaller pipes (the Secondary Line). The two systems connect to the adjacent Des Moines Memorial Drive drainage system downstream of the property and discharge, with the additional stormwater from Des Moines Memorial Drive, to Lora Lake through an outfall located at the northwestern edge of the lake.

Stormwater chemical quality was assessed during the RI at multiple locations within the interior of the LL Apartments Parcel as well as where the City of Burien main stormwater line enters and exits the parcel (i.e., the Main Line Inlet and Outlet), and where the secondary line exits the parcel (the Secondary Line Outlet). The assessment found that (1) upon entry to the LL Apartments Parcel, the City of Burien's stormwater contained multiple Contaminants of Concern (COCs), including dioxins/furans, and (2) stormwater from the LL Apartments Parcel was not contributing to degradation of the stormwater conveyed from upstream across the property (refer to Appendix E of the RI/FS).

2.1.2 Lora Lake Parcel

The LL Parcel is located to the southeast of the LL Apartments Parcel, on the east side of Des Moines Memorial Drive. The LL Parcel consists of approximately 7.1 acres of land, including the approximately 3-acre Lora Lake and a STIA-constructed wetland aquatic habitat mitigation area. The LL Parcel is bounded to the north by the SR 518 highway interchange, to the east and south by Port-owned habitat mitigation area and the northern boundary of the STIA air operations area, and to the west and northwest by Des Moines Memorial Drive (Figure 2.1). The LL Parcel and surrounding areas are located within the Miller Creek Watershed. Headwaters of Miller Creek flow south (from north of STIA) along the west side of the airport, through a series of Port-owned habitat mitigation properties (including the LL Parcel), before turning west, crossing below Highway 509, and eventually draining to Puget Sound. Figure 2.3 shows the location of Lora Lake in relation to Miller Creek and the Miller Creek Watershed.

The LL Parcel lies within a series of habitat mitigation areas developed and enhanced by the Port in compliance with requirements of the Clean Water Act Section 404 Permit #1996-4-02325 issued by the U.S. Army Corps of Engineers (USACE) to support aquatic, amphibian, and wetland habitat as part of the mitigation requirements associated with development of the STIA 3rd Runway in 1997 (Port of Seattle 2011). The mitigation area is designated in the Natural Resource Management Plan (NRMP) as the Miller Creek/Lora Lake/Vacca Farm Wetland and Floodplain Mitigation Area (Parametrix 2001).

The LL Parcel is densely vegetated and contains a mixture of grasses, forbs, emergent wetland plants, and a canopy of mixed deciduous trees. Surface water bodies associated with the LL Parcel consist of Lora Lake and Miller Creek, which runs past the southeast margin of Lora Lake.

The operation and maintenance requirements for the Miller Creek/Lora Lake/Vacca Farm Wetland and Floodplain Mitigation Area are described in the NRMP (Parametrix 2001). The mitigation plan requirements support specific ecological functions, but these are managed within the context of the Port's Wildlife Hazard Management Plan (WHMP; Port of Seattle 2005), the controlling authority for this special-use area. The WHMP provisions require, and result in, careful control of birds, mammals, and plants within the area to minimize aircraft navigation dangers associated with bird strikes and wildlife in the runway area.

Lora Lake currently receives stormwater runoff from the LL Apartments Parcel, the City of Burien residential and commercial drainage areas upstream of the LL Apartments Parcel, and the surrounding roadways downstream of the LL Apartments Parcel (e.g., Des Moines Memorial Drive, SR 518 interchange, City of SeaTac) through a single outfall located near the northwestern edge of Lora Lake and via non-point source overland flow from the LL Parcel.

2.1.3 1982 Dredged Material Containment Area

The DMCA, presented on Figure 2.1, is located adjacent to the LL Parcel, to the northeast, on Port property. The DMCA is located within the secured airport area, the RPZ-XOFA, within security fencing and is monitored and access-controlled by Port security. Entry by the public is prohibited.

The City of Burien stormwater system that currently crosses the LL Apartments Parcel discharges from an outfall in the northwest corner of Lora Lake, as described above. In 1982, in response to complaints from residents around the lake regarding excessive siltation caused by this stormwater discharge, the then-current owner of the system, King County, agreed to dredge approximately 4 feet of sediment from the lake bottom. King County arranged with the Port to place the dredge material in a specifically constructed facility on Port-owned property to the northeast of Lora Lake. The historical project plans for the dredging work indicate that a total of 16,000 cubic yards of material would be dredged, then placed and dewatered inside an approximately 120,000-square-foot area surrounded by a constructed soil berm. The dredging project was implemented in 1982. The dredge spoil containment area is now referred to as the DMCA.

The DMCA has an area of approximately 2.75 acres, based on review of aerial photographs. The eastern half of the DMCA is an approximately 1.5-acre vegetated area covered by a few trees and a mix of grasses and invasive and pioneering plant species, including scotch broom, alder saplings, Himalayan blackberry, and butterfly bush. The remaining approximately 1.25 acres of land is the location of the Approach Lighting

System for the STIA 3rd Runway, which was constructed in 2006. This area has been regraded and covered with gravel and is maintained by the Port to be free of vegetation. The DMCA is located outside of the Miller Creek/Lora Lake/Vacca Farm Wetland and Floodplain Mitigation Area. It is subject to the WHMP.

2.2 HISTORICAL PROPERTY OWNERSHIP AND LAND USE

Through the 1930s, the area was primarily agricultural, containing family farms, suburban development, and supporting commercial businesses. Des Moines Memorial Drive has been a primary thoroughfare since this time. To the east of Des Moines Memorial Drive, a peat bog was excavated in the 1940s and 1950s to mine the peat, resulting in the creation of Lora Lake. Houses were built around the lake, which were present through the late 1990s.

The LL Apartments Parcel property was farmland until the mid-1940s, when the Novak Barrel Cleaning Company was established. Metal drums and other containers were brought to the company for washing in order to prepare the containers for reuse. It is suspected that barrel drainage and washing activities took place in an operations area located near the center of the LL Apartments Parcel, where barrel contents appear to have been released, given the current presence of a clearly defined zone of substantial contamination. Barrel-washing operations were conducted on the property until the early 1950s, when the property was sold for use as an auto-wrecking yard. The property was used for auto-wrecking and auto storage until the mid-1980s.

In 1987, apartment buildings were constructed on the property. During development, a small excavation to remove metals and petroleum-contaminated material was completed in the area of assumed barrel-washing operations. This excavation and associated cleanup were reported to and approved by Ecology at the time. Figure 2.4 presents locations of these known historical site uses and operations at, and directly adjacent to, the LL Apartments Parcel.

The Port purchased the LL Apartments Parcel property in 1998, as part of the STIA 3rd Runway Project. Concurrently, the Port purchased properties east of Des Moines Memorial Drive, which also were within the expansion area for the new runway and the Federal Aviation Administration (FAA) RPZs. These properties included Lora Lake and its abutting residences. The residences and apartments were demolished by the Port between approximately 2005 and 2009.

2.3 REGIONAL AND SITE GEOLOGY

Substantial investigations of the regional geology in the area of the Site have been conducted, including a Port-commissioned STIA Groundwater Study (Aspect Consulting and S.S. Papadopulos 2008), and were used in the development of the following geology summary.

In general, the Puget Lowland is underlain at depth by volcanic and sedimentary bedrock and is filled to the present-day land surface with both glacial and interglacial sediments (interglacial sediments are those derived between periods of glaciation) deposited during the Quaternary Period (within the last 2 million years; Aspect Consulting 2010).

At the LL Apartments Parcel, glacial recessional outwash deposits are present at the surface in areas where no fill is present. These recessional outwash deposits are part of a relatively large southwest-northeast trending channel feature. With the exception of the northern portion of the LL Apartments Parcel, the surface topography across the remainder of the LL Apartments Parcel reflects substantial regrading that was performed during construction of the apartment complex.

Data collected from soil borings and monitoring well installations indicate that the subsurface geology at the LL Apartments Parcel consists of a discontinuous fill layer that overlays glacial recessional outwash deposits. At the bottom of the recessional outwash deposits a silt unit about 10 feet thick was encountered in the eastern portion of the LL Apartments Parcel. Based on the STIA Groundwater Study, this silt unit is likely indicative of a transition from recessional outwash deposits into glacial till deposits (Aspect Consulting and S.S. Papadopulos 2008). The fill unit in the vicinity of the LL Apartments Parcel is observed to have a variable thickness of up to 15 feet but is absent in the northern portion of the property. The fill is composed of medium dense-to-dense, fine-to-coarse grained sand with rounded gravel.

To the southeast of the LL Apartments Parcel, the LL Parcel is also underlain by recessional outwash deposits, which are exposed at the surface. Beneath the recessional outwash deposits, it is inferred that the till deposits are also present and create a perching layer on which Lora Lake and the surrounding wetlands are formed. Three subsurface sediment cores were collected in Lora Lake to depths of 5.5 feet in two locations, and a depth of approximately 2 feet in the third location. Sediment types were observed to be variable between the three sampling locations. Sediment types included sandy silts with gravels, silts, and a thick reddish-brown peat layer in one of the cores beneath a layer of silt.

Data collected from test pits advanced to 6 feet below ground surface (bgs) at the DMCA indicate a similar fill layer to that of the LL Apartments Parcel (i.e., fine-to-coarse grained sand with some silty sands and gravels). The assumed dredge material horizon was dark brown silty sand with peaty material.

2.4 REGIONAL AND SITE GROUNDWATER

The uppermost groundwater aquifer in the vicinity of the Site is the recessional outwash aquifer. Groundwater flow in the recessional outwash aquifer in the vicinity of the LL Apartments Parcel is to the southeast, towards Lora Lake. Because of the absence of any confining units within the recessional outwash deposits that prevent groundwater flow between the recessional outwash aquifer and Lora Lake, and based on the calculated vertical groundwater gradients, the recessional outwash aquifer is likely in hydraulic

continuity with Lora Lake. Lora Lake and the predecessor peat-dominated wetland formation likely formed on top of glacial till deposits that act as a confining unit (aquitard) beneath the recessional outwash aquifer in the eastern portion of the LL Apartments Parcel. This aquitard acts as a low-permeability barrier to groundwater flow and limits downward flow into the deeper glacial advance outwash deposits and regional aquifers.

Groundwater at the LL Apartments Parcel was observed at depths ranging from approximately 5 to 22 feet bgs in wells within the native recessional outwash deposits and some fill materials. Groundwater in downgradient wells located just east of Des Moines Memorial Drive was observed at depths ranging from approximately 10 to 15 feet bgs. Groundwater levels generally responded to an increase in precipitation, with lower groundwater levels observed in August and higher groundwater levels observed in January (with the difference ranging between 1 foot and 6 feet). Groundwater levels in all of the monitoring wells were substantially higher than surface water levels in Lora Lake and Miller Creek. These data suggest that the surface water bodies may be "gaining" water from groundwater discharge. Based on both groundwater elevation contour maps, groundwater flow in the vicinity of the LL Apartments Parcel is primarily to the southeast, towards Lora Lake, with slightly lower horizontal groundwater gradients (between 0.008 and 0.017 feet per foot) across the western portion of the LL Apartments Parcel, compared to the eastern portion of the LL Apartments Parcel (between 0.044 and 0.051 feet per foot).

The drinking water supply for residences and businesses surrounding the Site is provided primarily by the Highline Water District's municipal drinking water system. The closest groundwater supply/extraction wells are located approximately 1 to 2 miles downgradient and cross-gradient to the Site. These wells are screened in the deeper regional aquifer units (more than 100 feet bgs) and are unlikely to have hydrologic connection to the near-surface shallow aquifer (recessional outwash aquifer) because of the presence of underlying aquitards, including till deposits and, potentially, the fine-grained units of the transition beds.

3.0 Contaminants of Concern, Cleanup Standards, and Contaminant Distribution

COCs, their distribution, and applicable cleanup standards for the LL Apartments Parcel and the LL Parcel are presented below.

3.1 CONTAMINANTS OF CONCERN

The following COCs were identified in the RI/FS for the Site:

Contaminant	Soil	Groundwater	Lora Lake Sediment[1]
Arsenic	✓	✓	✓
Carcinogenic polyaromatic hydrocarbons	✓	✓	✓
Pentachlorophenol	✓	✓	✓
Dioxins/furans	✓	✓	✓
Total Petroleum Hydrocarbons (Gasoline, Diesel, and Heavy Oil Ranges)	✓	✓	
Lead	✓		✓
Toluene	✓		
Ethylbenzene	✓		

These contaminants are consistent with the past site uses, assuming that barrel-washing residue would contain a variety of chemicals comprising wood-treating compounds, solvents, and petroleum products.

Dioxins/furans are the most widespread COC at the Site, exceeding the applicable cleanup level in shallow soil throughout the LL Apartments Parcel, deeper soil within the

[1] As described in Section 4.2, the LL Parcel is divided into two clean up areas: the Shallow Soil Cleanup Area and the Sediment Cleanup Area. The Lora Lake Sediment Cleanup Area encompasses sediments within the lake and extends to the lake shoreline (approximately 3 acres), and is the only sediment area at the Site. The remedial action to be implemented to address Lora Lake sediment contamination includes capping and the filling of the open water to rehabilitate the lake to a palustrine scrub-shrub wetland. Thus, remedy implementation results in the conversion of existing lake sediment and open water to wetland soil. The wetland will be designed so that water is not present for more than 6 consecutive weeks. Hence, the wetland surface will not be classified as sediment because it will not meet the definition of sediment in the Sediment Management Standards (refer to WAC 173-204-505(22)).

central and eastern source areas of the LL Apartments Parcel, and shallow soil at the LL Parcel.

The historical releases and operations within the central and eastern source areas of the LL Apartments Parcel have impacted the shallow groundwater with arsenic, pentachlorophenol (PCP), and dioxins/furans. Deeper groundwater beneath the LL Apartments Parcel has not been impacted by contamination.

Shallow groundwater contamination is limited to the LL Apartments Parcel. Groundwater downgradient of the LL Apartments Parcel, beneath the LL Parcel, and beneath and downgradient of the DMCA, has not been impacted.

Lora Lake sediment has been impacted by elevated levels of dioxins/furans. Detected concentrations of arsenic and lead in Lora Lake sediments were greater than Sediment Cleanup Objective levels, but less than Cleanup Screening Levels as evaluated in the RI/FS. Biological toxicity testing demonstrated that the sediments would not cause adverse impacts to benthic organisms.

At the DMCA, reported concentrations of site COCs were less than the applicable Industrial Cleanup Standards. The Port plans to use the DMCA for equipment storage and temporary construction laydown. The DMCA surface will be improved by placing a compacted gravel or an equivalent engineered surface. This will eliminate potential wildlife exposure pathways and allow for an exclusion from the Terrestrial Ecological Evaluation (TEE).[2]

3.2 CLEANUP STANDARDS

Cleanup standards have been established for this Site. Two factors control designation of appropriate cleanup standards for specific sites: specification of cleanup levels (the chemical concentrations that are protective of human health and the environment for the applicable exposure pathways) for each COC in each impacted media; and identification of the point of compliance (POC; the location on the Site where the cleanup levels must be attained). Current and future uses and associated exposure pathways are different for each of the three parcels at the LL Apartments Site, resulting in different soil cleanup levels for each parcel. Groundwater cleanup levels apply site-wide as demonstrated in the RI/FS and the Demonstration of Groundwater Protection of Surface Water Beneficial Uses technical memorandum (Floyd Snider 2015b).

As described in Section 5.2, the remedial action to be implemented to address Lora Lake sediment contamination includes capping and the filling of the open water to rehabilitate Lora Lake to a wetland system. This action will result in the conversion of the existing lake sediment and open water conditions to a palustrine scrub-shrub wetland (as defined

[2] The TEE COCs are dioxins/furans. Dioxins/furans do not have cleanup levels applicable to plants or soil biota. There are cleanup standards for wildlife. Hence, the barrier needs to prevent exposure of wildlife to soil.

in Cowardin et al. 1979). The scope of the Lora Lake sediment remedy will be based on the current extent of open water and lake sediments. Once implemented, the remedy will result in a contiguous wetland on the LL Parcel. The wetland will be designed so that open water does not occur more than 6 consecutive weeks per year, and, hence, the wetland surface will be classified as soil as it will not meet the definition of sediment in the Sediment Management Standards (refer to WAC 173-204-505(22)). Following remedy implementation, soil and groundwater cleanup levels and associated MTCA regulations will be applicable to the entire LL Parcel, rather than sediment-based cleanup levels.

Applicable cleanup standards for each parcel in each media have been identified in the RI/FS and technical memorandum (Floyd Snider 2015b) and are described below.

In overview, the primary cleanup regulation and guidance that applies to this Site is the MTCA Cleanup Regulation (Chapter 173-340 WAC). Surface water quality criteria (National Toxics Rule, 40 Code of Federal Regulations [CFR] 131.36 and Clean Water Act Section 304) were also considered in determination of groundwater cleanup levels, evaluating the leaching potential of Lora Lake and Miller Creek sediments, and conceptual design of the sediment remedial action.

In developing cleanup levels, the following site-specific land use information is relevant:

- The Port's current objective for the Site is to redevelop the city block that the LL Apartments Parcel is a part of for airport-compatible commercial or light industrial use.
- The LL Apartments Parcel, the majority of the LL Parcel, and the DMCA are all Port-owned properties currently located within security fencing and monitored and access-controlled by Port security procedures and personnel. Public access is not allowed. A small portion of the LL Parcel adjacent to Des Moines Memorial Drive is outside of the secured fencing, is potentially accessible by the public, and is located on City of SeaTac right-of-way.
- The FAA defines restrictions on allowable development and structures for runway and runway approach safety areas (AC/150 5300-13; USDOT FAA 1989). Figure 2.1 shows where the FAA's Runway Protection and Approach Transition Zones overlay the Site. The restrictions are given in the legend.
- The LL Parcel is part of the Miller Creek/Lora Lake Upland Buffer and Flood Plain Zone Mitigation Area required by the NRMP for STIA 3rd Runway construction (Parametrix 2001). Lora Lake and Miller Creek are both currently freshwater environments with public access prohibited in the area surrounding Lora Lake and the adjacent portions of Miller Creek. Restrictive covenants prohibit any future development on the LL Parcel, which, following remedy implementation, will be maintained as a protected wetland habitat area in perpetuity.

- WAC 173-201A-600(1), a section of the Water Quality Standards for Surface Waters of the State of Washington, requires that water quality in Miller Creek be protected for the following: salmonid spawning, rearing, and migration; primary contact recreation; domestic, industrial, and agricultural water supply; stock watering; wildlife habitat; harvesting; commerce and navigation; boating; and aesthetic values. In addition, Miller Creek, to which Lora Lake discharges, has been closed to consumptive use since 1946 in order to protect flows for aquatic habitat (Water Resource Inventory Area 9, WAC 173-509-040).
- The DMCA meets the MTCA criteria for establishing soil cleanup levels for industrial land use. COC soil concentrations measured at the DMCA were less than the soil cleanup standards for industrial properties (WAC 173-340-745). Groundwater downgradient from the DMCA was not impacted by COCs. The DMCA qualifies for an exclusion from the TEE due to the Port's planned future land use. An institutional control will be placed on the DMCA to require that surface improvements provide a barrier to wildlife and to keep the area in industrial use.

Table 3.1 summarizes the cleanup levels applicable to the LL Apartments Parcel, the LL Parcel, and the DMCA following evaluation of the pathways for each media. Table 3.1 also identifies the specific numerical cleanup levels, based on the applicable cleanup levels by media for each specific COC.

3.2.1 Soil Cleanup Levels

As stated above, each of the three parcels at the LL Apartments Site have different current and future uses and associated exposure pathways, resulting in differing applicability of soil cleanup levels, as described below.

3.2.1.1 Lora Lake Apartments Parcel

The following soil exposure pathways and associated cleanup level regulations are applicable to the LL Apartments Parcel:

- Protection of human health via direct contact with soil: MTCA Method B (or Method A where Method B is not available) soil cleanup levels. MTCA Method B soil cleanup levels are protective for airport workers and possible public direct contact exposure.
- Soil leaching to groundwater: MTCA Equation 747-1 calculation of soil cleanup levels for the protection of groundwater resources from contaminants leaching from soil, unless empirical site data demonstrate that this is not a pathway of concern.
- Protection of ecological receptors: The LL Apartments Parcel meets the criteria for an exclusion from the TEE because future land use is planned to be airport-compatible commercial or light industrial use within 4 years of completion of cleanup construction, thus creating a barrier to wildlife. An institutional control

will be placed on the LL Apartments Parcel to require that surface improvements provide a barrier to wildlife and to keep the area in commercial use.

As shown in Table 3.1, the numeric cleanup levels selected for soil at the LL Apartments Parcel are:

- Dioxins/furans toxicity equivalent (TEQ) = 13 picograms per gram (pg/g)
- Arsenic = 20 milligrams per kilogram (mg/kg)
- Lead = 250 mg/kg
- Gasoline-range hydrocarbons = 100 mg/kg
- Sum of diesel and heavy oil range hydrocarbons = 2,000 mg/kg
- Pentachlorophenol = 2,500 micrograms per kilogram (µg/kg)
- Carcinogenic polycyclic aromatic hydrocarbons (cPAHs) TEQ = 137 µg/kg
- Ethylbenzene = 8,000 mg/kg
- Toluene = 6,400 mg/kg

3.2.1.2 Lora Lake Parcel

The following soil exposure pathways and associated cleanup level regulations are applicable to the LL Parcel:

- Protection of human health via direct contact with soil: MTCA Method B (or Method A where Method B is not available) soil cleanup levels. MTCA Method B soil cleanup levels are protective for airport workers and possible public direct contact exposure.
- Soil leaching to groundwater: MTCA Equation 747-1 calculation of soil cleanup levels for the protection of groundwater resources from contaminants leaching from soil, unless empirical site data demonstrate that this is not a pathway of concern.
- Protection of terrestrial plants and animals: The LL Parcel does not qualify for an exclusion from the TEE process, and site-specific ecological indicator soil concentrations (EICs) for plants, avian and mammalian wildlife (WAC 173-340-900, Table 749-3) are applicable as soil cleanup levels for the ecological COCs.

  TEE EICs for wildlife exposure for dioxins and furans (2 pg/g TEQ and 2 pg/g TEQ, separately) are less than the Ecology-determined State of Washington natural background soil concentration of 5.2 pg/g TEQ for dioxins/furans (Ecology 2010). Because MTCA WAC 173-340-900 Table 749-3 states that "Natural background concentrations may be substituted for ecological indicator concentrations provided in this table," natural background is applicable as a soil cleanup level at the LL Parcel for dioxins/furans.

As shown in Table 3.1, the numeric cleanup levels selected for soil at the LL Parcel are:

- Dioxins/furans TEQ = 5.2 pg/g
- Arsenic = 20 mg/kg
- Lead = 50 mg/kg
- Gasoline-range hydrocarbons = 100 mg/kg
- Sum of diesel and heavy oil range hydrocarbons = 200 mg/kg
- Pentachlorophenol = 2,500 µg/kg
- cPAHs TEQ = 137 µg/kg
- Ethylbenzene = 8,000 mg/kg
- Toluene = 6,400 mg/kg

3.2.1.3 1982 Dredged Material Containment Area

The following soil exposure pathways and associated cleanup levels are applicable to the DMCA:

- Protection of human health via direct contact with soil: MTCA Method C soil cleanup levels. MTCA Method C soil cleanup levels are protective for industrial use and airport worker direct contact exposure.
- Soil leaching to groundwater: MTCA Equation 747-1 calculation of soil cleanup levels for the protection of groundwater resources from contaminants leaching from soil, unless empirical site data demonstrate that this is not a pathway of concern.
- Protection of terrestrial plants and animals: Future land uses at the DMCA will be airport-compatible uses in compliance with the FAA RPZs, such as temporary construction laydown or equipment storage. Land use improvements to allow for this future use will consist of surface improvements (e.g., placement of a compacted gravel or engineered surface), which eliminate potential wildlife exposure pathways and allow for an exclusion from the TEE and application of cleanup standards for terrestrial and ecological protection at the DMCA. Institutional controls will be placed on the DMCA to ensure barriers to wildlife are maintained in the future and to keep the area in industrial use.

As shown in Table 3.1, the numeric cleanup levels selected for soil at the DMCA are:

- Dioxins/furans TEQ = 1,700 pg/g
- Arsenic = 88 mg/kg
- Lead = 1,000 mg/kg
- Gasoline-range hydrocarbons = 100 mg/kg

- Sum of diesel and heavy oil range hydrocarbons = 2,000 mg/kg
- Pentachlorophenol = 330,000 µg/kg
- cPAHs TEQ = 18,000 µg/kg
- Ethylbenzene = 350,000 mg/kg
- Toluene = 280,000 mg/kg

3.2.2 Groundwater Cleanup Levels

The following groundwater exposure pathways and associated cleanup level regulations were evaluated for applicability to groundwater throughout the Site:

- Protection of human health via drinking water consumption: MTCA Method B (or Method A where Method B is not available) groundwater cleanup levels.
- Protection of human health via drinking water consumption: state and federal drinking water Maximum Contaminant Levels.
- Protection of surface water beneficial uses.

Applicability of surface water quality criteria was evaluated in the RI/FS and in a technical memorandum (Floyd Snider 2015b). Surface water quality criteria are based on protection of human health via consumption of aquatic organisms. For all site COCs, except dioxins/furans, groundwater cleanup levels based on drinking water consumption are more stringent than these surface water criteria. Therefore, evaluation of the applicability of surface water quality criteria was limited to dioxins/furans.

Assessment of dioxins/furans concentrations in groundwater at the LL Apartments Parcel is discussed in Section 5.2.2.2 of the RI/FS. Assessment of dioxins/furans in groundwater at the LL Parcel is discussed in a technical memorandum (Floyd|Snider 2015b). These assessments demonstrate dioxins/furans present in groundwater at the Site are not likely to reach surface water. WAC 173-340-720(4)(b)(ii) states that,

> "Where the groundwater cleanup level is based on a drinking water beneficial use, standard MTCA Method B cleanup levels shall be at least as stringent as concentrations established in accordance with the methods specified in WAC 173-340-730 for protecting surface water beneficial uses unless it can be demonstrated that the hazardous substances are not likely to reach surface water. This demonstration must be based on factors other than the implementation of a cleanup action at the site."

Hence, the applicable groundwater cleanup level for dioxins/furans throughout the Site is based on protection of human health via drinking water consumption.

As shown in Table 3.1, the numeric cleanup levels for groundwater throughout the Site are:

- Dioxins/furans TEQ = 6.7 picograms per liter (pg/L)
- Arsenic = 5 micrograms per liter (µg/L)
- Gasoline-range hydrocarbons = 1,000 µg/L
- Sum of diesel and heavy oil range hydrocarbons = 500 µg/L
- Pentachlorophenol = 1 µg/L
- cPAHs TEQ = 0.12 µg/L

3.2.3 Points of Compliance

The POCs are the point or points where cleanup levels are attained. POCs for soil, groundwater, and sediment are shown on Figure 3.1.

3.2.3.1 Soil Points of Compliance

Lora Lake Apartments Parcel

- **Soil direct contact.** The POC for the soil cleanup level is based on the direct contact exposure pathway. The MTCA standard POC for soil direct contact is throughout the LL Apartments Parcel, from the ground surface to a depth of 15 feet bgs (WAC 173-340-740(6)(d); Ecology 2007). However, Ecology recognizes that soil cleanup levels for direct contact to a depth of 15 feet bgs will not typically be met in portions of sites that use containment. In these cases, the cleanup action may be determined to comply with cleanup standards provided the selected remedy is permanent to the maximum extent practicable and is protective of human health. All soil with dioxins/furans concentrations exceeding 13 pg/g TEQ within the POC must be contained or excavated. The POC is the LL Apartments property boundary, and a zone of the former Seattle City Light Property, as shown in Figure 3.1. This POC also establishes the area that must be covered by a barrier to wildlife.
- **Protection of groundwater.** The POC for soil to protect groundwater is throughout the Site. Groundwater sampling has empirically demonstrated that groundwater contamination is limited to areas where soil dioxins/furans TEQ exceedances are greater than 100 times the cleanup level (1,000 pg/g TEQ). The soil POC for protecting groundwater will be the limits of soil with dioxins/furans TEQ concentrations exceeding about 10 times the cleanup level. This is the area where soil exceeds 100 pg/g TEQ, the remediation level set above. All soil exceeding the 100 pg/g TEQ dioxins/furans remediation level must be excavated and disposed of off-site at a properly permitted facility.
- **Protection of wildlife.** The LL Apartments Parcel qualifies for an exclusion from TEE assessment because its future use is commercial and it has a barrier to wildlife exposure. This exclusion requires an institutional control to ensure the excluded area

is covered by barriers that will prevent wildlife from being exposed to the soil contamination. We anticipate that the institutional control will apply to the LL Apartments Parcel property boundary.

Lora Lake Parcel

The soil POC bounds the areas of soil in the LL Parcel where some soil dioxins/furans TEQ concentrations exceed the TEE cleanup level of 5.2 pg/g TEQ. This POC is shown on Figure 3.1. The POC for current sediment that will be converted to soil in the future by implementation of the remedy is discussed below as sediment.

1982 Dredged Material Containment Area

The DMCA is an industrial area. Hence, industrial soil cleanup levels were used for comparison to COC detected concentrations. The POC is the extent of the DMCA. An institutional control is required when industrial cleanup levels are used (WAC 173-340-440(4)(c)) to maintain the area covered by the institutional control in industrial use. An environmental covenant will be placed on the area within the DMCA POC, requiring it be kept in industrial use.

3.2.3.2 Groundwater Point of Compliance

The standard POC for groundwater under MTCA is "throughout the site from the uppermost level of the saturated zone extending vertically to the lowest depth which could potentially be affected by the site" (WAC 173-340-720(8)(b)). At the LL Apartments Site, the standard POC for groundwater applies and cleanup levels will be met by the proposed cleanup action. The groundwater POC is shown on Figure 3.1.

3.2.3.3 Lora Lake Sediment Point of Compliance

Modeling has indicated surface sediment COC concentrations in Lora Lake may cause exceedances of surface water quality standards for dioxins/furans unless a remedial action is performed. The POC for the existing sediment, the area exceeding sediment cleanup standards within Lora Lake, is shown on Figure 3.1. This area must be remediated in a manner to address surface sediment COC concentrations and prevent leaching of COCs to surface water.

3.3 CONTAMINANT DISTRIBUTION

The following sections summarize the current extent of Site COCs in impacted media as identified by the RI/FS, including soil, groundwater, and sediment. As previously discussed, following remedy implementation, sediments at the LL Parcel will no longer meet the regulatory definition of sediment, and, therefore, will be compared to soil cleanup standards; however, the following sections describe the current contaminant distribution, and discuss lake sediment separate from soil. Figure 3.2 summarizes the distribution of the COCs in soil at the three areas of the Site compared to their cleanup levels. The

values presented show the degree of cleanup level exceedance by the maximum detected COC concentration in units of "times greater than the cleanup level."

This section also discusses establishment of a dioxins/furans remediation level for soil.

3.3.1 Soil

3.3.1.1 Lora Lake Apartments Parcel Contaminant Distribution

Soil contamination on the LL Apartments Parcel reflects the history of use of the Site. Contamination is highest and deepest in the area of the concrete sump where barrel-washing operations occurred (refer to Figure 2.4). During development of the land for apartment construction, soil was pushed downslope to the east for grading; high concentrations of COCs occur here. Exceedances of cleanup levels for COCs other than dioxins/furans are associated with higher concentrations of dioxins/furans. Over much of the rest of the LL Apartments Parcel, dioxins/furans contamination is shallow and dioxins/furans concentrations are less than 10 times the cleanup level.

The distribution of dioxins/furans contaminant concentrations is such that most of the mass of dioxins/furans is in the areas that exceed 10 times the dioxins/furans cleanup level. Figure 3.3 shows the relationship between soil volume and dioxins/furans TEQ concentrations. The figure shows that the soil volume with dioxins/furans TEQ less than 10 times the cleanup level (30,000 cubic yards) is approximately 1.6 times greater than the soil with dioxins/furans TEQ greater than 10 times the cleanup level (19,000 cubic yards).

Approximately 88 percent of the mass of dioxins/furans in the soil is in the areas where dioxins/furans exceed 100 times the cleanup level. Approximately 96 percent of the mass of dioxins/furans is in the areas where dioxins/furans exceed 10 times the cleanup level. Approximately 4 percent of the mass of dioxins/furans is in areas where dioxins/furans are less than 10 times the cleanup level.

3.3.1.2 Dioxins/Furans Remediation Level

A remediation level is a contaminant concentration greater than which a more aggressive cleanup action will be taken. Remediation levels are greater than cleanup levels.

A remediation level of 100 pg/g TEQ (about 10 times the cleanup level) for dioxins/furans has been selected at the LL Apartments Parcel. This level was determined by considering the relationship between soil volume excavation and reduction in site-wide dioxins/furans TEQ mass concentration shown on Figure 3.3. If the remediation level was set at less than 100 pg/g TEQ, a disproportionate increase in excavation volume, and hence in cost, is required to achieve a lower dioxins/furans TEQ concentration of soil left on-site (refer to WAC 173-340-360(e) and discussion in Section 5.0).

In the context of the Site, soil present on the LL Apartments Parcel with dioxins/furans TEQ concentrations exceeding the remediation level will be excavated and sent to an off-site disposal facility. Soil with dioxins/furans TEQ concentrations less than the remediation level will be contained on-site to prevent exposure. Institutional controls to provide for maintenance of the containment will be included in an environmental covenant.

3.3.1.3 Lora Lake Parcel

Only dioxins/furans and lead concentrations in soil on the LL Parcel exceed their cleanup levels. The other COC concentrations are less than their cleanup levels. A technical memorandum describing dioxins/furans TEQ concentrations in LL Parcel soil was submitted to Ecology in August 2013 (Floyd|Snider 2013). Refer to RI/FS Figure 4.2 for maximum lead concentrations measured in soil at the LL Parcel.

Lead exceeded its cleanup level of 50 mg/kg in 2 of the 19 soil samples collected in which lead was measured, at concentrations of 58 and 64 mg/kg. These concentrations were in the surface soil.

Dioxins/furans exceeded the cleanup level of 5.2 pg/g TEQ in 10 of the 29 soil samples collected. It exceeded twice the cleanup level in 5 of 10 exceeding soil samples.

Whether the dioxins/furans concentrations detected in the soil sampled from the LL Parcel are related to historical industrial operations or to general urban background concentrations cannot be determined.

3.3.1.4 1982 Dredged Material Containment Area

Soil COC concentrations at the DMCA were all less than their cleanup levels, which are based on industrial land use. Soil within the DMCA was dredged from Lora Lake in 1982.

3.3.2 Groundwater

The only well on-site that had an exceedance of the dioxins/furans cleanup level is located in the concrete sump area (Well MW-1) where barrel-washing activities occurred and dioxins/furans TEQ soil concentrations are highest. The highest dioxins/furans TEQ groundwater concentration was approximately 5.7 times its cleanup level. Arsenic was almost 3 times its cleanup level at this location (refer to Figure 3.2).

Dioxins/furans TEQ concentrations in groundwater attenuate rapidly due to their strong tendency to sorb to soil. The wells downgradient of the historical industrial operations area do not have dioxins/furans TEQ concentrations exceeding their cleanup level.

Arsenic and PCP exceeded their cleanup levels in one well on the eastern boundary of the LL Apartments Parcel. This is downgradient of the concrete sump area where barrel-washing activities occurred.

3.3.3 Lora Lake Sediment

Bioassay results found that surface sediment quality was protective of benthic organisms. To evaluate the extent of contamination for the existing lake sediments and assess remedial alternatives, COC surface sediment concentrations were compared to the sediment cleanup levels as presented in the RI/FS. Dioxins/furans TEQ concentrations ranged from 7.55 pg/g TEQ to 217 pg/g TEQ. While dioxins/furans strongly sorb to soil/sediment and have very low solubility in water, the National Recommended Water Quality Standard for surface water to protect human health is very low (0.005 pg/L). The standard is low because dioxins/furans are highly bioaccumulative in fish. All other COCs were not detected at concentrations greater than the respective Cleanup Screening Levels as presented in the RI/FS. The extent of sediment contamination in Lora Lake was identified in the RI/FS as the entire footprint of the lake.

Additionally, a numerical cap modeling evaluation was conducted as part of the RI/FS for all surface sediment COCs (i.e., arsenic, dioxins/furans, PCP, and cPAHs) to (1) further assess the potential for sediment COCs in Lora Lake to leach from sediments to surface water at concentrations greater than those permitted by applicable surface water standards, and (2) to assess remedial alternatives. The Lora Lake numerical cap modeling evaluation and the resulting remedial alternative is discussed in Section 5.2.

4.0 Cleanup Areas

The LL Apartments Parcel and LL Parcel have been divided into Cleanup Areas for application of remedial technologies. Remedial alternatives were developed and evaluated for each cleanup area in the RI/FS (refer to Section 5.0). Descriptions of the Cleanup Areas for the LL Apartments Parcel and LL Parcel are presented below.

The DMCA did not require division into Cleanup Areas.

4.1 LORA LAKE APARTMENTS PARCEL CLEANUP AREAS

Because the application of remedial technologies to a given area of the LL Apartments Parcel is based primarily on the nature and extent of the contamination, Cleanup Areas have been determined so that a single remedial component may be conducted in areas with similar nature and extent of contamination conditions.

Based on nature and extent of contamination, the LL Apartments Parcel has been divided into three Cleanup Areas (illustrated on Figure 4.1): Cleanup Areas A, B, and C. The extent of each Cleanup Area is defined by soil cleanup levels based on protection of human health by direct contact (assuming unrestricted land use) and the soil remediation level for dioxins/furans (refer to Section 3.3.1.2). Cleanup Areas A, B, and C are described below.

4.1.1 Cleanup Area A

Cleanup Area A designates two separate locations at the LL Apartments Parcel where the maximum detected dioxins/furans TEQ concentration in soil at any depth is greater than 1,000 pg/g TEQ. Concentrations of dioxins/furans identified during the RI in Cleanup Area A range from 1,000 to 21,165 pg/g TEQ dioxins/furans. Additional COCs present, and their associated maximum concentrations, include: cPAHs (880 µg/kg), PCP (15,000 µg/kg), total petroleum hydrocarbons (1,900 mg/kg, 8,900 mg/kg, and 17,000 mg/kg for gasoline range, diesel range, and heavy oil range, respectively) and lead (2,880 mg/kg). Cleanup Area A is presented on Figure 4.1. The total acreage of Cleanup Area A is approximately 0.7 acre, comprising two different locations:

- The Central Source Area, which is the location of the historical barrel-washing drum cleanout pond.
- The Eastern Source Area along the eastern property line in the vicinity of Monitoring Wells MW-4 and MW-5.

The soil in Cleanup Area A is contaminated from the ground surface to a maximum depth of approximately 15 to 20 feet bgs from past releases associated with historical barrel-washing operations, auto-wrecking operations, and soil relocation during apartment construction and site grading. Cleanup Area A also encompasses the area with currently contaminated groundwater. Groundwater in Area A is expected be in compliance with cleanup levels within 5 years of removing the source of contaminants to groundwater.

Maximum concentrations of COCs in groundwater samples collected between 2010 and 2011 include: arsenic (14.2 micrograms per liter [µg/L]), cPAHs (0.028 µg/L), PCP (1.4 µg/L), and dioxins/furans (38.3 µg/L).

4.1.2 Cleanup Area B

Cleanup Area B includes all locations within the LL Apartments Parcel where the maximum detected dioxins/furans TEQ concentration in soil at any depth is between 100 pg/g TEQ and 1,000 pg/g TEQ. Cleanup Area B is adjacent to the source areas within Cleanup Area A. Substantial site regrading activities during construction of the apartment complex in the mid-1980s are likely responsible for the widespread presence of dioxins/furans across the shallow surface soil at the LL Apartments Parcel. Based on existing data, Cleanup Areas A and B (in combination) are believed to contain all soil on the LL Apartments Parcel where dioxins/furans TEQ concentrations are greater than 100 pg/g TEQ. Cleanup Area B is presented on Figure 4.1. The total acreage of Cleanup Area B is approximately 2.2 acres and consists of the following locations:

- The west-central portion of the LL Apartments Parcel. This location encompasses dioxins/furans contamination observed in surface soils (0 to 0.5 feet bgs) from Boring PSB-04 at a concentration of 194 pg/g TEQ.
- The Western Source Area near the LL Apartments Parcel property boundary with the former Seattle City Light Property. This area encompasses dioxins/furans contamination observed in soil from 0 to 2 feet bgs at concentrations ranging from 56 pg/g TEQ to 702 pg/g TEQ. This area also contains cPAH contamination observed from 2 to 4 feet bgs at a maximum concentration of 160 µg/kg.
- A zone between and north of the Central Source Area and the Eastern Source Area. This area encompasses dioxins/furans contamination observed in soil from 0 to 2 feet bgs at concentrations ranging from 132 to 187 pg/g TEQ.
- A zone along the southeastern property line, primarily east of the Eastern Source Area. Much of this area is outside the property fence, along Des Moines Memorial Drive at the foot of the topographic slope. This area encompasses dioxins/furans contamination observed in surface soils (0 to 0.5 feet bgs) with concentrations ranging from 107 to 209 pg/g TEQ.

4.1.3 Cleanup Area C

Cleanup Area C includes all locations within the LL Apartments Parcel property boundary where the maximum detected dioxins/furans TEQ concentration at any depth is between 13 and 100 pg/g TEQ. In the limited areas where data indicate dioxins/furans TEQ concentrations are present outside the property boundary, the dioxins/furans concentrations are within the range of typical urban background (refer to Appendix M and Figure 4.9 of the RI/FS for more information) and cannot be attributed to the industrial operations on the LL Apartments Parcel. Cleanup Area C is presented on Figure 4.1. The

total acreage of Cleanup Area C is approximately 3.3 acres and consists of the following locations:

- In the western portion of the property dioxins/furans contamination was detected in soil between 0 and 2 feet bgs, at concentrations ranging from 11.5 to 33.8 pg/g TEQ.
- In the northeast corner of the property exceedances of the cleanup level are present in shallow soil (0 to 2 feet bgs) at concentrations ranging from 16.6 to 26.2 pg/g TEQ.
- The central portion of the property between Cleanup Areas A and B, directly south of the Central and Eastern Source Areas, at concentrations ranging from 11.6 to 57 pg/g TEQ detected in surface soil between 0 and 0.5 feet bgs.

4.2 LORA LAKE PARCEL CLEANUP AREAS

This section identifies Cleanup Areas for the LL Parcel. The application of technologies to the LL Parcel is based primarily on the ecological characteristics of the cleanup area (i.e., soil or sediment), the nature and extent of the contamination, its physical location, and institutional considerations. The existing LL Parcel includes both soil- and sediment-contaminated zones, and zone-specific remedies. The LL Parcel has been divided into two Cleanup Areas, illustrated on Figure 4.2: the LL Parcel Shallow Soil Cleanup Area and the LL Parcel Sediment Cleanup Area. The extents of the Cleanup Areas are defined by soil cleanup levels based on protection of terrestrial ecological receptors for the LL Parcel Shallow Soil Cleanup Area, and protection of surface water via sediment leaching for the LL Parcel Sediment Cleanup Area (refer to Section 3.0). The LL Parcel Shallow Soil Cleanup Area and the LL Parcel Sediment Cleanup Area are described below.

4.2.1 Shallow Soil Cleanup Area

Shallow soil at the LL Parcel is contaminated with dioxins/furans at concentrations greater than the natural background-based cleanup level of 5.2 pg/g TEQ for protection of ecological receptors. Soil contamination exists along the western property boundary at depths ranging from 0 to 5 feet bgs. The Cleanup Area extent identified in the RI/FS has been refined based on additional data collected in February 2013 (Floyd|Snider 2013). Figure 4.2 presents the revised LL Parcel Shallow Soil Cleanup Area. The additional data confirmed dioxins/furans concentrations in shallow soils do not extend past the STIA security fencing to the north and do not extend as far to the east as was conservatively estimated in the RI/FS. Soil concentrations from the additional 2013 sample locations ranged from 0.177 pg/g TEQ dioxins/furans to 6.12 pg/g TEQ dioxins/furans. The updated Cleanup Area is composed of two areas, one approximately 25 feet by 90 feet, and the other approximately 25 to 65 feet wide, and approximately 155 feet long. Both areas extend to the paved sidewalk along Des Moines Memorial Drive, and together are approximately 0.2 acre.

The LL Parcel Shallow Soil Cleanup Area is within area covered by the NRMP. Its current and future use will be as a habitat mitigation area.

4.2.2 Sediment Cleanup Area

The LL Parcel Sediment Cleanup Area encompasses sediments within the lake and extending to the lake shoreline. The lake surface is approximately 3 acres. All Lora Lake sediments are encompassed by the LL Parcel Sediment Cleanup Area, which is shown on Figure 4.2.As described in Appendix P of the RI/FS and below in Section 5.2, the results of the numerical modeling evaluation indicated that the necessary sand cap thickness to effectively attenuate and isolate the surface sediment COC concentrations of 18-inches with a 0.06 percent organic carbon content is driven by arsenic and dioxins/furans. Dioxins/furans are present at concentrations ranging from 7.55 pg/g TEQ to 217 pg/g TEQ in surface sediments. Arsenic is present at concentrations ranging from 7 mg/kg to 70 mg/kg in surface sediments.

5.0 Selected Remedy

The RI/FS evaluated five cleanup alternatives for the LL Apartments Parcel and four cleanup alternatives for the LL Parcel.

The DMCA is within the City of SeaTac's Aviation Operations zone. The area of the DMCA qualifies as an industrial area pursuant to WAC 173-340-745(1). Soil COCs do not exceed industrial direct contact cleanup levels within the DMCA and are not impacting groundwater. The DMCA qualifies for an exclusion from a TEE because future use will include an engineered surface that is a barrier to wildlife. An institutional control will be placed on the DMCA to keep it in industrial use and maintain a barrier to wildlife.

The cleanup remedies for the Site were selected in accordance with and comply with the requirements of WAC 173-340-360 for selection of cleanup actions.

5.1 LORA LAKE APARTMENTS PARCEL

The cleanup alternatives considered in the RI/FS for the LL Apartments Parcel are summarized in Table 5.1. The alternatives use varying degrees of excavation and off-site disposal of contaminated soil and containment of remaining contaminated soil. Groundwater cleanup alternatives range from monitoring and management to source removal. All but Alternative 5 require environmental covenants. All alternatives include storm drain system improvements to prevent entry of contaminated groundwater or soil, which are described in Section 6.1.3. Conceptual costs for LL Apartments Parcel alternatives range from $4.7 million to $9.2 million.

Ecology's selected remedy for the LL Apartments Parcel is Alternative 3. Alternative 3 provides for excavation and off-site disposal of soil containing dioxins/furans concentrations greater than 100 pg/g TEQ. Soil with concentrations less than 100 pg/g TEQ will be capped with a barrier to wildlife. A barrier to wildlife will be a sufficient barrier to unintentional human intrusion, as required if the Port opts to contain soil with dioxins/furans TEQ concentrations on the LL Apartments Parcel.

The Port has indicated they may prefer to consolidate soil with dioxins/furans TEQ concentrations equal to or less than 100 pg/g TEQ within the DMCA to facilitate development of the LL Apartments Parcel. This is Alternative 4. The Port may opt to implement LL Apartments Parcel Alternative 4 if it so chooses. Consolidating soil with dioxins/furans TEQ concentrations equal to or less than 100 pg/g TEQ at the DMCA better meets Ecology's expectation to consolidate contaminated soil to the maximum extent practicable (WAC 173-340-370(5)); however, the increased cost offsets the environmental benefit.

The RI/FS provides a detailed discussion of the remedy selection process (refer to Sections 12.0 and 13.0). The primary reasons for selecting Alternative 3 are as follows:

- **Alternatives 1 and 2** leave substantial amounts of contamination on-site to be managed with institutional controls. Institutional controls do not have the same long-term effectiveness as other cleanup actions, such as excavation and removal. Moreover, the cost of excavation and removal of additional soil with dioxins/furans TEQ concentrations greater than the 100 pg/g TEQ concentration is proportionate to the incremental environmental benefit gained from removing this high-concentration material from the Site. Because Alternatives 1 and 2 leave soil with higher contaminant concentrations on-site more than the other alternatives, there is greater uncertainty as to whether the source removal will be protective of groundwater throughout the Site. Alternatives 1 and 2 also would result in a higher risk to human health if a cap over the higher concentration soil were to be penetrated.
- **Alternative 4** requires excavation and on-site consolidation at the DMCA of an additional 30,000 cubic yards of soil compared to Alternative 3, with an accompanying import of clean backfill and transport of the excavated soil to the nearby DMCA. The Port has indicated to Ecology that they may prefer this more expensive cleanup alternative for business reasons. The Port may implement Alternative 4 instead of Alternative 3 at its option.
- **Alternative 5** requires excavation and off-site disposal of an additional 30,000 cubic yards of soil compared to Alternative 3, also with accompanying import of clean backfill and transport of the excavated soil to a distant properly permitted facility. The additional soil has dioxins/furans concentrations between 11 and 100 pg/g TEQ. This concentration range is within the range that may be encountered in the urban Seattle area (Ecology 2011). Capping and institutional controls are more suitable for addressing this high volume of soil with relatively low dioxins/furans TEQ concentrations.
- **Alternative 3** has been chosen as the action that best balances the protection of human health and the environment with the cost of cleanup. Removing soil with dioxins/furans concentrations exceeding 100 pg/g TEQ is expected to remove the source of groundwater contamination. This will be verified by groundwater monitoring. The primary considerations in choosing Alternative 3 include the following:
    - Figure 5.1 shows the alternative cost versus the percent of dioxins/furans mass in the soil removed. The figure shows that soil excavation is cost effective in removing dioxins/furans mass at concentrations greater than 100 pg/g TEQ. When the soil dioxins/furans concentrations become less than 100 pg/g TEQ the amount of soil to be removed, and hence the cost, to further reduce soil dioxins/furans TEQ concentrations by excavation and off-site disposal increases rapidly as the mass of dioxins/furans in a cubic yard of soil is much less at concentrations less than 100 pg/g TEQ than concentrations greater than 100 pg/g TEQ. The regulation requires that

cleanups be permanent to the maximum extent practicable and that where incremental costs substantially exceed incremental benefits, a lower cost alternative will be chosen (WAC 173-340-360(2)(b)(i) and (3)(e)(i)) Figure 5.1 shows the increased cost of excavation and off-site disposal rises disproportionally to the increased environmental benefit of excavation of large volumes of soil with lower concentrations of dioxins/furans. Capping of soil with dioxins/furans TEQ concentrations less than 100 pg/g TEQ will achieve protection human health and the environment more cost effectively than excavation.

- The soil to be capped on the LL Apartments Parcel (or consolidated within the DMCA and capped, if the Port chooses that option) has dioxins/furans TEQ concentrations within the range found within urban areas of Seattle (refer to Figure 5.2). Alternative 3 recognizes Ecology's expectation of the need to use engineering controls, such as containment, for sites or portions of sites that contain large volumes of materials with relatively low levels of hazardous substances where treatment is impracticable (WAC 173-340-370(3)).

5.2 LORA LAKE PARCEL

The cleanup alternatives considered in the RI/FS for the LL Parcel are summarized in Table 5.2. Alternatives for Lora Lake include (1) controlling sediment and fish movement from Lora Lake to Miller Creek, (2) thin capping, (3) capping then filling the lake to restore the wetland that existed prior to peat mining, (4) and dredging and off-site disposal of contaminated sediment. Alternatives for the LL Parcel Shallow Soil Cleanup Area include controlling risk with institutional controls, capping, and excavation and off-site disposal. Alternatives 1, 2, and 3 include environmental covenants to maintain restoration and keep the land in its current use. Conceptual costs for LL Parcel alternatives range from $0.4 million to $7.3 million.

Ecology's selected remedy for the LL Parcel is Alternative 3.

A numerical cap modeling evaluation was conducted as part of the RI/FS for all surface sediment COCs (i.e., arsenic, dioxins/furans, PCP, and cPAHs) to (1) further assess the potential for sediment COCs in Lora Lake to leach from sediments to surface water at concentrations greater than those permitted by surface water Applicable or Relevant and Appropriate Requirement, and (2) to assess remedial alternatives. The results of the numerical modeling evaluation indicated that capping is a viable technology and remedial alternative in terms of the effectiveness of isolating contaminants (Appendix P of the RI/FS). The results of this evaluation indicate that a sand cap thickness of 6 inches with a 0.06 percent organic carbon content would effectively isolate the surface sediment concentrations of lead, cPAHs, and PCP and attenuate their concentrations in pore water to protect surface water. The results also indicated that a thicker sand cap of 18 inches and 0.06 percent organic carbon content would be needed to effectively attenuate and isolate the surface sediment concentrations of arsenic and dioxins/furans. Therefore,

based on the modeling results, the placement of an cap with the isolation capacity of an 18-inch sand cap with a minimum 0.06 percent organic carbon content on top of the Lora Lake sediments would be protective of the surface water human health pathway via fish and water consumption for all COCs.

Alternative 3 for the lake portion of the parcel provides for restoring Lora Lake to a palustrine scrub-shrub wetland system (Figure 6.1). This alternative results in the conversion of the existing open water and benthic sediment conditions of the lake to a palustrine scrub-shrub wetland with wetland soils. Contaminated lake sediment will be contained in place using a sand cap that will be designed to immobilize COCs in the sediment. This will prevent leaching of COCs to surface water. The wetland will be designed so that it does not adversely impact the functioning of the Port's mitigation areas covered by the NRMP. This includes not adversely impacting flood frequencies in Miller Creek. The wetland design and construction will also comply with all applicable permits and resource agency requirements.

Alternative 3 for the soil portion of the parcel provides for excavation of contaminated soil and restoration and replanting of the excavated area in accordance with the NRMP.

The RI/FS provides a detailed discussion of the remedy selection process (refer to Sections 12.0 and 13.0). The primary reasons for selecting Alternative 3 for the lake and soil portions of the parcel are as follows:

With regard to the lake:

- Alternative 1 will not prevent interchange of water between Lora Lake and Miller Creek; hence, it is not sufficiently protective if dioxins/furans leach from sediment to the lake water.
- Alternative 2 proposes a single layer thin (1.5 foot) sand cap. A thin cap with sufficient carbon content would be effective at immobilizing the COCs in the sediment. However, a thin cap is more easily disturbed; therefore, its long-term effectiveness is less certain than a cap that is used in combination with a thick fill layer and converts the lake to a palustrine scrub-shrub wetland. In addition, a thin cap would further shallow this already shallow lake. Lora Lake is currently a source of low-oxygen, high-temperature water to Miller Creek in the summer. A shallow cap would exacerbate this condition. Ecology expects that cleanup actions conducted under this chapter will not result in a substantially greater overall threat to human health and the environment than other alternatives (WAC 173-340-370(8)). Alternative 2 could result in a greater environmental damage to Miller Creek than the environmental benefit achieved.
- Alternative 4 presents short-term risks of spreading contamination on the land or having it enter the water during dredging of the lake. In addition, it is substantially more expensive than Alternative 3 and would not achieve substantially greater environmental protection than immobilizing the COCs by

installing a sand cap over the contaminated sediments, covering the cap with a fill layer and wetland soil, and restoring the lake to wetland conditions.

- Alternative 3 will provide a sand cap designed to immobilize the current sediment COCs in place. This will prevent leaching of COCs to surface water. Ecology recognizes immobilization as having good long-term effectiveness (WAC 173-340-360(3)(f)(iv)). Alternative 3 includes placement of a fill layer and wetland soil over the isolated sediment contamination, restoring the lake to wetland conditions. This has the added benefit of converting the open-water lake to an upland wetland, thereby eliminating a source of low-oxygen, high-temperature water to Miller Creek in the summer.[3]

- With regard to the soil at the LL Parcel, the soil is located within a special purpose wetland landscape and habitat mitigation area. The plant communities were planted in 2005 and 2006. Necessary infill planting to keep density numbers high has been completed intermittently since then, with the last planting effort completed in 2010. Currently, the area of concern is mature enough to meet its desired goals. The buffer has grown to provide a dense break between the nearby road and the adjacent wetland and lake. Grading and floodplain connection have been completed. The wetland vegetation has undergone minor corrective actions that have allowed the area to reach cover and density performance levels that either meet, or are rapidly approaching, the final performance standards for the area. The Port continues the management of the plant coverage and diversity that exists within the potential extent of soil excavation to support the targeted ecological functions.

- Excavation and containment at the DMCA or off-site disposal of soil from the LL Parcel Shallow Soil Cleanup Area will result in compliance with the applicable Lora Lake Parcel soil cleanup level of 5.2 pg/g dioxins/furans. This cleanup level is protective of terrestrial exposure at the Lora Lake Parcel.

- Excavation will destroy established high-value mitigation plantings. The excavation design will reduce this impact by reducing the extent of excavation as much as possible while excavating sufficient soil to comply with the cleanup standards and restoring the excavated portion of the Mitigation Area to the condition specified in the NRMP. This accords with provisions of the Restrictive

[3] As part of the Port's mitigation for Master Plan Update improvement impacts, a portion of Miller Creek was relocated. The relocated section of Miller Creek was designed to provide a salmonid spawning habitat; however, the relocation resulted in areas of standing water and limited flow velocity. The Port implemented corrective actions to limit areas of standing water and improve stream flow. In addition to standing water and limited flow, assessments of the original relocation reach identified stream temperatures greater than, and dissolved oxygen levels less than, the water quality standards. These deficiencies during the summer months were partially attributed to upstream influences, including discharges from Lora Lake. To further improve water quality in Miller Creek, the resource agencies overseeing the mitigation area have recommended that surface flows from Lora Lake be prevented from entering Miller Creek during late spring, summer, and early fall.

Covenant on the property that any activity in the Mitigation Area shall use methods that minimize damage to the Mitigation Area (Port of Seattle 2003).

- The chosen remedy of excavating selected areas of the LL Parcel Shallow Soil Cleanup Area will bring the average dioxins/furans TEQ concentrations remaining on-site to less than the cleanup level while minimizing destruction of established plantings. Following excavation, the area will be backfilled and replanted, and managed in accordance with the requirements and management goals of the NRMP.

5.3 1982 DREDGED MATERIAL CONTAINMENT AREA

As noted above, Ecology's selected remedy for the DMCA is placing institutional controls on the area. Institutional controls are required when soil cleanup levels are based on industrial land use. As the future land use will have a barrier to wildlife, the DMCA also qualifies from an exclusion from a TEE. This exclusion also requires an institutional control.

The Port plans to make land use improvements at the DMCA to allow for its future use as a temporary construction laydown or as equipment storage. The improvements will consist of surface improvements (e.g., placement of a compacted gravel or engineered surface) that will prevent plant and wildlife exposure pathways. Soil from the Lora Lake Apartments Parcel and the LL Parcel Shallow Soil Cleanup Area with dioxins/furans concentrations less than 100 pg/g TEQ may be consolidated at the DMCA (Figure 6.1). If this occurs, the consolidation area and surface improvements will be designed considering potential erosion from flood events, and constructed accordingly. Construction requirements will include Temporary Erosion and Sedimentation Control Best Management Practices (BMPs), as is standard practice at construction sites. According to current maps, approximately 1,000 square feet (0.7 percent) of the DMCA along its southern boundary may lie within the 100-year floodplain. Prior to consolidation, the boundary of the 100-year floodplain will be surveyed, and no material will be consolidated in this area.

Material consolidation at the DMCA will raise the elevation of the area by approximately 6 to 8 feet. Design of the DMCA consolidation area and engineered surface will consider this, and will be constructed to prevent contaminant migration, including migration during flood events. Filled areas will be constructed, and protected from erosion with slope stabilization construction techniques.

The method for erosion protection of the wildlife barrier will be determined in design, and may consist of a geotextile (a woven plastic fabric) or similar reinforcement layers, crushed rock, or riprap, or other durable materials. The DMCA will be inspected regularly to assess its integrity, and any necessary repairs made. Repairs also will be made whenever damage is observed. The inspection schedule will depend upon the nature of the final surface of the DMCA.

Institutional controls will be placed on the DMCA by recording an environmental covenant to require that it remains an industrial use area and to ensure a barrier to wildlife is maintained in the future.

6.0 Selected Remedy Implementation

6.1 LORA LAKE APARTMENTS PARCEL REMEDY IMPLEMENTATION

6.1.1 Soil

The Port will excavate all contaminated soil with dioxins/furans TEQ concentrations greater than 100 pg/g TEQ (about 19,000 cubic yards) for off-site disposal at a properly permitted facility. The remaining contaminated soil, containing dioxins/furans TEQ concentrations between 13 pg/g TEQ and 100 pg/g TEQ (about 30,000 cubic yards) will either be contained beneath a barrier to wildlife within the LL Apartments Parcel or, at the Port's option, transported to the DMCA and contained beneath an engineered surface that is a barrier to wildlife.

Excavations will be backfilled to final grade with imported soil or with soil from within the LL Apartments Parcel boundary with dioxins/furans TEQ concentrations less than 100 pg/g TEQ. Imported backfill will be sourced from a facility or location in which an assessment has been conducted to confirm that there are no impacts to fill material based on historical operations. The contractor selected to complete the work will be required to provide confirmation that backfill meets the requirements outlined in the project specifications. This will include sourcing from an area with no industrial history and testing the material to ensure the material meets the requirements of the project specifications.

A barrier to wildlife will be established within 4 years of the completion of excavation and backfilling. This allows the Port time to identify the commercial use of the property and integrate the barrier to wildlife with property development. The barrier design requires Ecology approval. Excavation will be considered complete when excavation has extended to the pre-determined and approved survey coordinates based on the results of compliance monitoring conducted prior to excavation (refer to Section 6.5). Backfilling will be considered complete when excavations have been backfilled to design grade as specified in the project plans and specifications.

After excavation and backfilling have been completed stormwater and erosion control measures will be implemented and maintained. The measures will control dust generation as well.

Any existing groundwater monitoring wells within the limits of excavations and deeper than anticipated excavation depths must be abandoned in accordance with regulations prior to the start of excavation.

6.1.2 Groundwater

The excavation of Cleanup Area A is expected to remove the contaminant mass above, and in contact with, groundwater in Cleanup Area A, which may contribute to the elevated dioxins/furans concentrations in groundwater at Monitoring Well MW-1. Following removal of this saturated soil source, compliance groundwater sampling will be conducted

until groundwater concentrations are in compliance with cleanup levels. It is anticipated that groundwater will be in compliance with cleanup levels within 5 years from completion of excavation and backfilling. Until groundwater concentrations are less than cleanup levels, institutional controls will be required to prevent groundwater withdrawal. Groundwater encountered during excavation and removed from the subsurface for excavation dewatering will be either treated as needed and discharged to the sanitary sewer under a discharge permit, or collected for off-site disposal at a properly permitted facility. Dewatering methods will be determined by the Contractor and approved by the Port prior to implementation.

The final monitoring well network will be determined in the Compliance Monitoring Plan (refer to Section 6.5). New wells may be required at locations where wells were abandoned as part of cleanup construction.

6.1.3 Stormwater Conveyance System Improvements

A City of Burien storm drain currently traverses the LL Apartments Parcel and conveys stormwater from upstream across the property to Lora Lake (the Main Line). The City of Burien is planning a stormwater project that would entail constructing a new stormwater pipe that would redirect the upstream stormwater down 8th Avenue South to a new stormwater facility. The stormwater facility would be located south of the LL Apartments Parcel and would provide infiltration treatment of the water quality design storm volume for current land use consistent with Ecology's *Stormwater Management Manual for Western Washington* (Ecology 2012).

If the City of Burien implements the project to redirect the upstream water down 8th Avenue South to a new stormwater facility prior to Site remedy construction, the existing Main Line will be abandoned in place or removed entirely from the LL Apartments Parcel during the site excavation.

If the City of Burien redirects the upstream stormwater down 8th Avenue South following Site remedy construction, the main line will be temporarily diverted around the Site during construction to discharge temporarily to Miller Creek or another area of the Port-managed mitigation area wetlands downgradient of construction until the City of Burien work is complete. If the City of Burien work is not conducted, following Site remedy construction the Main Line will convey the upstream stormwater to the rehabilitated wetland on the LL Parcel and be infiltrated (refer to Section 6.2.2 for discussion of wetland design). If the Main Line continues to traverse the Site, the utility would be lined in a manner that prohibits groundwater infiltration and penetration of soils into the pipe.

There is a small segment of Des Moines Memorial Drive from which runoff may continue to drain to the Lora Lake Parcel following construction of this project, or may be redirected as part of City utility improvements. This will be determined during the design process for this work, and will comply with all applicable regulations.

6.1.4 Environmental Covenants

Environmental covenants will be placed on the LL Apartments Parcel to implement institutional controls. The covenants will require institutional controls to maintain the barrier to wildlife, to prevent groundwater withdrawal during the restoration time frame it will take for the groundwater to achieve compliance after cleanup construction is complete (estimated to be 5 years), and to require that the area remains in commercial use.

The environmental covenant shall describe the nature and extent of contamination remaining on-site after completion of cleanup construction.

Two draft environmental covenants will be submitted to Ecology for review and approval with the draft As-built Reports for the work (Refer to Section 6.6.4). One covenant will be for maintenance of long-term institutional controls for the barrier to wildlife and to keep the area in commercial use. The other will prevent groundwater withdrawal. It is anticipated that this covenant will be removed once compliance monitoring indicates groundwater meets cleanup standards.

Separate environmental covenants may be needed for the former Seattle City Light Property (now owned by the Port) and a small area east of the Lora Lake Apartments Parcel property boundary within the City of Burien right-of-way. The need for environmental covenants for these areas will be determined after compliance monitoring data have been collected and the concentrations remaining in these areas are known.

6.2 LORA LAKE PARCEL REMEDY IMPLEMENTATION

6.2.1 Shallow Soil Cleanup Area

The areas surrounding LL-SB6, LL-SB5, LL-SB5B, and LL-SB2 have dioxins/furans TEQ concentrations exceeding the natural background concentration of 5.2 pg/g TEQ. These areas will be excavated, backfilled with clean soil, and replanted. Excavated material will be consolidated at the Dredged Material Containment Area. It may also be sent off-site for disposal at a licensed disposal facility if that is more efficient for construction scheduling.

The areas to be excavated are shown on Figure 4.2. Excavations will extend to the sidewalk. Excavation of these areas will bring the average dioxins/furans TEQ concentration to levels less than the required standard of 5.2 pg/g TEQ in the LL Parcel Shallow Soil Cleanup Area. The average concentration is the value that is compared to the required standard in order to demonstrate remedy compliance with cleanup standards.

Sidewall samples will be collected from the west side of each excavation to assess dioxins/furans concentrations beneath the City of SeaTac's sidewalk. An environmental covenant will be placed on the area beneath the sidewalk, if necessary, depending upon sampling results.

One of the areas to be excavated, defined by boring LL-SB5 and LL-SB-5B, will be excavated to a depth of 6 feet, as prior sampling did not vertically bound contamination in this area. A soil sample will be collected from the bottom of the excavation. If the dioxins/furans concentrations exceed 5.2 pg/g TEQ, a conditional POC will be established at a depth of 6 feet. An environmental covenant will be established that regulates any disturbance of deeper soil (refer to WAC 173-340-7490(4)(a)).

6.2.2 Sediment Cleanup Area (Future Wetland)

Lora Lake sediments will be isolated through capping and open-water filling of Lora Lake to rehabilitate the area to wetland conditions. A clean sand cap with a minimum thickness of 18 inches and a minimum organic carbon content of 0.1 percent will be placed in Lora Lake. The sand cap will be placed to extend a minimum of 18 inches beyond the existing lake footprint and current extent of contaminated sediment to provide containment at the contaminated sediment margin. This specification provides a margin of safety over the 18-inch thickness with 0.06 percent organic carbon content sand cap found to be sufficient by the Reible and Lampert computer model (Floyd|Snider 2015a, Appendix P). This will eliminate the potential for aquatic exposure or transport of COC-contaminated sediments. The sand cap will provide a physical and chemical barrier between the contaminated sediments and water flowing into Miller Creek, addressing the human exposure pathways.

The Engineering Design Report will include acceptance criteria for the fill material to ensure it is uncontaminated, contains adequate organic carbon to immobilize COCs (particularly arsenic and dioxins/furans), and meets any other specifications developed during engineering design. Carbon amendments will be added if necessary. An appropriate sampling and analysis plan will be developed when a potential fill source is identified.

The capping of lake sediments and filling of Lora Lake will consist of placing sand in the lake to an elevation that converts all of the open-water area to a palustrine scrub-shrub wetland system. The lake will be filled over its entire footprint to depths between approximately 2 and 13 feet, based on existing bathymetry.

Top soil suitable for the establishment of wetland plantings will be placed over the sand fill material. Wetland design will include consideration of the potential for contaminant migration by gas ebullition and bioturbation. The design will also maintain the Miller Creek channel stability and will minimize erosion potential, as well as requiring placement of high conductivity fill material (relative to the adjacent wetland soils) to maintain the current upward groundwater flow path beneath Lora Lake.

The rehabilitated wetland will be capable of supporting emergent and woody vegetation and will create habitat that is consistent with the goals of the NRMP. This wetland rehabilitation is considered a preferred form of compensatory mitigation for ecological impacts (Ecology et al. 2006) and, of all the remedial alternatives evaluated, will provide

the maximum ecological benefit to the Miller Creek Basin (as described in detail in RI/FS Section 20.0).

6.2.3 Environmental Covenants

An environmental covenant will be placed on the LL Parcel Sediment Cleanup Area. It will require the rehabilitated wetland to continue to be managed in accordance with recorded restrictive covenants already in place as part of the NRMP. This will ensure that Ecology must agree to removing or changing these restrictive covenants with regard to this area.

The environmental covenant will describe the nature and extent of contamination remaining on-site after completion of cleanup construction.

A draft environmental covenant for the LL Parcel Sediment Cleanup Area will be submitted to Ecology for consideration with the As-built Reports for the LL Parcel work (refer to Section 6.6.4).

6.3 1982 DREDGED MATERIAL CONTAINMENT AREA REMEDY IMPLEMENTATION

If implemented, material consolidation at the DMCA will raise the elevation of the area by approximately 6 to 8 feet. Design of the DMCA consolidation area and engineered surface will consider this, and will be constructed in a manner that protects against contaminant migration, including during flood events. According to existing maps, approximately 1,000 square feet (0.7 percent) of the DMCA along its southern boundary may lie within the 100-year floodplain. The boundary of the 100-year floodplain will be surveyed as part of the design process. Fill will not be placed in the 100-year floodplain, and the construction of filled areas will protect the material from erosion with slope stabilization construction techniques. The method for erosion protection of the containment barrier will be determined in design, and may consist of a geotextile or similar reinforcement layers, crushed rock, riprap, or other durable materials.

6.3.1 Environmental Covenants

An environmental covenant will be placed on the DMCA to implement institutional controls. The institutional controls will require that surface improvements provide a barrier to wildlife and that the area remain in industrial use. The design of the surface improvements will be included in the Engineering Design Report (refer to Section 6.6.2). If soil from the LL Apartments Parcel with dioxins/furans TEQ concentrations less than 100 pg/g TEQ is consolidated within the DMCA, the environmental covenant shall describe the nature, volume, and location of that soil.

A draft environmental covenant will be submitted to Ecology for consideration with the As-built Reports for the work (refer to Section 6.6.4).

6.4 ENVIRONMENTAL ANALYSIS OF REMEDY IMPLEMENTATION

The State Environmental Policy Act (SEPA), Chapter 43.21C RCW is a State of Washington law that is intended to ensure that project proponents consider the effects of the project on the natural and human environment prior to taking action. SEPA compliance is required for any state or local agency action. Per the SEPA process, SEPA documents to evaluate possible effects of the project on the environment have been completed and are presented in Appendix A.

The SEPA checklist provides a summary of the project description or remedial actions; describes the site, environmental, and ecological conditions; site and adjacent land uses; and describes the proposed measures to reduce or control erosion, to reduce or control air emissions of construction equipment, and measures used during construction to ensure that remedial actions do not adversely impact downgradient water quality.

Ecology review of the SEPA checklist and information presented in the RI/FS and in this Cleanup Action Plan indicates a Mitigated Determination of Nonsignificance is warranted for this site. The mitigation required is to minimize disturbance of plants on the Lora Lake Parcel to the degree possible. Where plants are disturbed by excavation, the environmental damage will be mitigated by replanting the excavated areas in accordance with the NRMP.

6.5 COMPLIANCE MONITORING

In accordance with WAC 173-340-410, compliance monitoring will be conducted to confirm that (1) human health and the environment are adequately protected, (2) the remedial action has achieved the cleanup standards, and (3) the cleanup action remains protective after cleanup standards have been met. The following sections describe the methods for compliance monitoring for the three site parcels. Additional detail of the proposed compliance monitoring will be included in a Compliance Monitoring Plan that will be submitted by the Port to Ecology for approval prior to implementation of cleanup actions to which the compliance monitoring requirements apply. The Compliance Monitoring Plan may be submitted in phases if that is more appropriate to the schedule for completion of the work.

6.5.1 Lora Lake Apartments Parcel Soil Excavation and DMCA Consolidation

Protection monitoring will be conducted during soil excavation at the LL Apartments Parcel through implementation of an Ecology-reviewed Health and Safety Plan. The Health and Safety Plan will describe personal protective equipment to be used by site workers, required soil and air monitoring (including dust monitoring) to document worker and public safety, and site controls to restrict contact with contaminated material. Protection monitoring will also include site controls and inspections to monitor that pollution prevention measures are implemented during remedial construction to ensure compliance with the NPDES discharge requirements, and includes erosion and sediment control and stormwater management BMPs.

Performance monitoring will be conducted prior to implementation of soil excavation at the LL Apartments Parcel, and will consist of the collection of confirmation soil samples to delineate the vertical and horizontal extent of soil excavation. Soil sample locations will be surveyed by a licensed surveyor, and excavation will be conducted to the extents determined by this soil sampling and surveying. This pre-excavation monitoring approach will be used to avoid open excavations during the multi-week laboratory turnaround time required for dioxins/furans analysis.

Confirmational monitoring at the LL Apartments Parcel and DMCA will be performed to verify wildlife barrier integrity and performance (through effective isolation of the underlying soils). Wildlife barrier inspections will be performed to verify the physical integrity of the barriers. Monitoring activities and objectives will include visual inspection of barrier conditions to ensure that the barrier is intact and coverage has been maintained (i.e., underlying existing soil is not exposed).

LL Apartments Parcel and DMCA wildlife barrier physical integrity inspections or confirmational monitoring will be conducted annually, or as otherwise directed by Ecology. Additional barrier physical integrity inspections may be completed if one of the following occurs and is thought to have potentially adversely impacted the integrity of the barrier: a storm event that may have led to a barrier failure, such as erosion or a landslide; a site use accident, such as a substantial barrier penetration or spill; a seismic event where structural damages have been realized within the Port; or as otherwise determined necessary by Ecology.

6.5.2 Lora Lake Parcel Shallow Soil Cleanup Area Excavation

Protection monitoring will be conducted during soil excavation at the LL Parcel consistent with the methods described above for soil excavation at the LL Apartments Parcel.

The true mean remaining soil concentration will be calculated and compared to cleanup levels per WAC 173-340-740(7)(d) and (e) and the *Statistical Guidance for Ecology Site Managers* (Ecology 1992). The Statistical Guidance provides that for relatively small compliance monitoring sample sizes (number of samples less than 30), not more than 20 percent of the samples should exceed a cleanup level based on the 90th percentile value, which is the relevant value for cleanup levels based on background data sets. The current available sample locations are considered adequate to identify the areas that are required to be excavated to bring the true mean soil dioxins/furans TEQ concentration in this area to concentrations less than 5.2 pg/g. The areas will be excavated to the extent shown in Figure 4.2, and confirmed by survey. Following excavation, soil samples will be collected from the excavation base at 6 feet bgs and at the western sidewall abutting the Des Moines Memorial Drive paved sidewalk to document any concentrations of dioxins/furans remaining in place at the conditional POC, or beneath the right-of-way. Environmental covenants will be necessary if the soil samples collected at 6 feet bgs contain COCs in excess of cleanup levels. Environmental convenants will be placed, if needed, that require excavation of soil in the right-of-way or deeper than 6 feet be properly managed to protect ecological receptors against exposure to excavated soil.

Confirmational monitoring at the LL Parcel Shallow Soil Cleanup Area will consist of long-term monitoring to ensure soil stability of the area, and compliance with environmental covenants and institutional controls. This monitoring will be conducted as part of the Ecology periodic review process.

6.5.3 Groundwater

Performance monitoring to confirm that the remedial action has attained groundwater cleanup levels will be conducted through quarterly groundwater monitoring of wells located upgradient, downgradient, and within the current extent of the contaminated groundwater plume at the Site (limited to the LL Apartments Parcel central source area). Groundwater at the LL Parcel and DMCA do not exceed groundwater cleanup levels; therefore, monitoring of these parcels is not required for groundwater remedy performance monitoring. Groundwater sampling conducted for sediment remedy performance monitoring is described in the next section. Well locations, analytes, sample methodology, and other details will be described in the Compliance Monitoring Plan. Groundwater remedy performance monitoring will be discontinued when four consecutive sampling events comply with the groundwater cleanup standards for all groundwater COCs.

6.5.4 Lora Lake Parcel Sediment Cleanup Area (Future Wetland Soils)

During remedy construction, Protection monitoring will be conducted consistent with that described above for the LL Apartments Parcel and LL Parcel Shallow Soil Cleanup Area excavations.

Performance monitoring during cap placement and wetland filling will be conducted to document that the required fill extent and thickness have been achieved. Sampling of the fill material as placed will also be required to document that the organic carbon content of the sand cap is in compliance with the remedial design.

Following remedy implementation, compliance monitoring of the sediment remedy will be performed to assess whether contamination from the isolated and immobilized Lora Lake sediment is migrating through the sediment cap. Groundwater samples will be collected just above the sediment cap and between the former lake footprint and Miller Creek to assess whether contaminants are moving from the isolated Lora Lake sediment.

Confirmational monitoring data for dioxins/furans and arsenic will be evaluated for statistical difference from a set of upgradient site vicinity background samples collected from within Port-owned property, or the public right-of-way. The sediment cap is designed to achieve compliance with surface water quality criteria at the cap surface. The surface water quality criteria of 0.005 pg/L dioxins/furans TEQ is significantly less than laboratory practical quantitation limits of approximately 3.5 pg/L dioxins/furans TEQ. Data from upgradient and cross-gradient groundwater wells indicate that the background groundwater concentrations of dioxins/furans in the vicinity of the Site currently exceed the practical quantitation limit. Similarly, arsenic is a known regional background

contaminant and has been detected in upgradient and cross-gradient groundwater wells. This statistical comparison method for confirmational monitoring samples provides a measurable method to determine if samples collected immediately above the sediment cap are different than samples collected from upgradient locations. This would be a direct indication of cap performance. The upgradient site vicinity background data set will contain a minimum of 20 samples, collected from 4 upgradient site vicinity wells during each 5-year periodic review period, sampled concurrently with the confirmational monitoring wells discussed below. Confirmational monitoring data will be statistically compared to this site vicinity background data set.

Confirmational monitoring will be conducted annually for the first 5 years after wetland construction, and concurrent with quarterly groundwater monitoring events if possible. The first 5-year periodic review will assess the appropriate monitoring frequency for the next 5 years, and subsequent 5-year periodic reviews will set the frequency for the following five-year period. Confirmational monitoring samples will be collected from four locations across the sediment cap, and from no more than four additional locations between the former lake footprint and Miller Creek to be determined after the wetland has been designed. The sampling locations, and the sample depth will depend upon the final cap design, and will be determined by Ecology in conjunction with wetland design, and specified in the Compliance Monitoring Plan. The chemicals to be analyzed for will be the sediment contaminants the cap design addresses: arsenic and dioxins/furans.

The Compliance Monitoring Plan will include contingency actions to be taken if sediment cap breakthrough from the isolated Lora Lake sediment occurs as identified by the statistical evaluation or other information made known to Ecology. The Compliance Monitoring Plan will include conditions under which a contingency action will occur. If elevated COC concentrations are detected, the Port, in coordination with, and at the direction of, Ecology, will determine what contingency actions may be necessary and appropriate. Although not used for evaluation of sediment cap performance, the Site groundwater cleanup level of 6.7 pg/L is applicable throughout the Site, including at the LL Parcel. Detections of dioxins/furans in confirmational monitoring locations that exceed the Site groundwater cleanup level would require contingency action regardless of the results of the statistical comparison to the site vicinity background data set.

Contingency actions that will be considered for inclusion in the Compliance Monitoring Plan include the following:

- Resampling of the site vicinity background and confirmational monitoring points to increase the size of the data set and, therefore, the power of the statistical comparison.
- More frequent monitoring to assess whether potential impacts rise to a level that requires a further contingency response.
- Adding sample locations to better assess the occurrence of cap breakthrough.

- Addition of more organic carbon to the subsurface through appropriate means such as injection through borings or other methods identified when the nature of the breakthrough is known.
- Other contingency actions identified during Compliance Monitoring Plan development.
- Contingency actions identified at the time cap breakthrough is identified, as approved by Ecology.

Ecology will consider the net environmental benefit of any proposed response action that involves significant disturbance of the mitigation area. Implementation of any proposed response actions that involve significant disturbance of the mitigation area must be authorized by the USACE and Ecology as required by the Restrictive Covenant that applies to the Miller Creek/Lora Lake/Vacca Farm Wetland and Floodplain Mitigation Area (Port of Seattle 2003).

More frequent monitoring using techniques in the approved Compliance Monitoring Plan (to be developed) will not be considered to involve significant disturbance of the mitigation area. Adding sample locations using techniques that do not involve significant vegetation disturbance also will not be considered to involve significant disturbance of the mitigation area. Approved techniques are to be included in the Compliance Monitoring Plan and may depend upon the final design of the wetland.

6.6 REQUIRED FOLLOW-ON DOCUMENTATION

6.6.1 Financial Assurances

The Port will provide Ecology with a cost estimate for implementation of the Consent Decree and will provide proof of financial assurances that the Port has sufficient financial resources available and in place of the sufficient amount to cover all costs associated with the operation and maintenance of the cleanup action, including institutional controls, compliance monitoring, and corrective measures (refer to WAC 173-340-440(11)).

6.6.2 Plans Describing the Cleanup Action

Plans describing Ecology's selected remedy will be prepared as required by WAC 173-340-400(4). The plans to be prepared are an Engineering Design Report, Construction Plans and Specifications, and an Operation and Maintenance Plan. These plans may be prepared in phases as appropriate and as approved by Ecology.

Once approved by Ecology, these plans become integral and enforceable parts of the Consent Decree.

The Operations and Maintenance Plan is to include an inspection schedule for the barriers to wildlife, pre-approved means of repair, and pre-approved procedures for removing the barrier for needed subsurface work and replacing it when the work is done.

It is also to include pre-approved designs for future work such as landscaping units and subsurface infrastructure, such as storm drains and underground utilities that may be installed subsequent to the completion of cleanup construction. Use of pre-approved procedures requires Ecology be notified 30 days in advance of work, and submittal of As-built Reports at the completion of work. Work that does not follow pre-approved procedures requires prior approval from Ecology.

If future work is proposed that does not follow a pre-approved plan, Ecology should be contacted as early as possible to discuss the work and the time frame for review and approval.

The Operations and Maintenance Plan is to include a description of the minimum scope of Periodic Reviews required for the Site, a template for the Periodic Review report, and a description of the Port submittal of a 5-year report of post-cleanup site conditions and monitoring data. All work performed during the 5-year review period must be summarized in the Periodic Review.

6.6.3 Permits, Approvals, and Substantive Requirements

Permits and approvals and any substantive requirements for exempted permits, if required for construction or to otherwise implement the cleanup action, shall be identified and, where possible, be resolved before or during the design phase to avoid delays during construction and implementation of the cleanup action (WAC 173-340-400(5)).

The permits, approvals, and substantive requirements that are known at this time to apply to the selected cleanup action are listed in Exhibit D of the Consent Decree. Ecology and the Port have a continuing obligation to determine whether additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under the Consent Decree. In the event that either Ecology or the Port determines that additional permits or approvals are required for the remedial action, they shall promptly notify the other party of the determination. The substantive requirements and necessary permits will be identified and included in the Engineering Design Report or obtained by the cleanup construction contractor prior to the beginning of any work that requires them. Once approved by Ecology, these requirements become integral and enforceable parts of the Consent Decree.

The USACE has approval authority regarding activities in the Lora Lake Parcel since it is within the habitat mitigation area. The USACE has advised Ecology that it agrees in concept with remediation of Lora Lake sediment through filling and subsequent rehabilitation of the former wetland, and remediation of Lora Lake shallow soil by excavation, backfilling, and habitat restoration. The USACE has also advised Ecology that it can only formally approve such actions after conducting a full review of the project design and its potential effect on aquatic resources and the mitigation area. USACE anticipates simultaneously making a Nationwide Permit 38 decision and approving implementation of the remediation at the Lora Lake Third Runway mitigation area.

6.6.4 Construction Documentation

Construction documentation will be prepared as required by WAC 173-340-400(6). Project As-built Reports will be prepared, meeting the requirements of WAC 173-340-400(6)(ii). As-built Reports may be prepared in phases, as approved by Ecology.

A draft environmental covenant for the area in which work was conducted will be submitted for Ecology review and approval with the As-built Reports.

6.6.5 Compliance Monitoring Plan

A Compliance Monitoring Plan will be prepared as required by WAC 173-340-410. The Compliance Monitoring Plan shall include contingency actions to be taken if monitoring indicates cleanup standards have not been attained.

Once approved by Ecology, the Compliance Monitoring Plan becomes an integral and enforceable part of this Consent Decree.

7.0 Schedule

7.1 IMPLEMENTATION SCHEDULE

The schedule for major deliverables and work tasks associated with remedial actions at the Site is included as Exhibit C to the Consent Decree. The schedule provides anticipated submittal dates or task durations for deliverables and actions associated with site cleanup, including monthly progress reports, financial assurances, remedial design and engineering documents, and As-built Reports. The schedule included in Exhibit C may be amended in the future at the Port's request with approval from Ecology to coordinate cleanup activities with other construction work anticipated in the Site vicinity, such as City of Burien stormwater infrastructure improvement projects, SR-518 off ramp construction, or STIA-related construction. Refer to Exhibit C for details on project deliverables and schedule.

In addition to the tasks detailed in the project schedule in Exhibit C, the following schedule requirements apply to work at the Site:

- All analytical data collected at the Site must be submitted to Ecology's Environmental Information Management (EIM) System within 30 days of receipt of validated data.
- Health and Safety Plans for all on-site activities must be developed prior to mobilization to the field. The Health and Safety Plans will be submitted to Ecology for review and comment. Ecology does not approve Health and Safety Plans. The Health and Safety Plans must be consistent with Chapter 49.17 RCW and regulations adopted under that authority (refer to WAC 173-340-810(2))

7.2 CONSTRUCTION PHASING AND SEQUENCING

Remedy implementation at the Site may be conducted as a single project or as phased construction, dependent on Port development decisions and schedule. Any phasing will be conducted within the schedule presented in Exhibit C of this Consent Decree. Any projects planned for completion within the LL Apartments Site will require coordination and approval from Ecology prior to implementation.

8.0 References

Aspect Consulting. 2010. *Geology/Hydrogeology Technical Memorandum-Lora Lake Apartment Parcel Remedial Investigation/FS Work Plan Addendum*. July.

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Tables

Table 3.1
Soil and Groundwater Cleanup Levels

	Contaminant of Concern	Pathway	Cleanup Level Source/Reference[1]	Cleanup Level Value	Remediation Level	Unit	Cleanup/Remediation Level Applies
Soils	**Metals**						
	Arsenic	Human health—direct contact and protection of groundwater, adjusted for natural background for soil	MTCA Method A—Unrestricted Land Use	20	NA	mg/kg	Lora Lake Apartments Parcel and Lora Lake Parcel
		Human health—direct contact (ingestion only)	MTCA Method C—Standard, Carcinogen—Industrial Land Use	88	NA	mg/kg	DMCA
	Lead	Terrestrial Plants and Animals	MTCA Ecological Indicator Soil Concentrations	50	NA	mg/kg	Lora Lake Parcel
		Human health—direct contact, prevention of unacceptable blood lead levels	MTCA Method A—Unrestricted Land Use	250	NA	mg/kg	Lora Lake Apartments Parcel
		Human health—direct contact (ingestion only)	MTCA Method A— Industrial Land Use	1,000	NA	mg/kg	DMCA
	Total Petroleum Hydrocarbons						
	Gasoline Range Hydrocarbons	Human health—protection of groundwater for non-carcinogenic effects during drinking water use and Protection of Terrestrial Plants and Animals	MTCA Method A—Unrestricted Land Use	100 [2]	NA	mg/kg	Site-wide
	Sum of Diesel and Heavy Oil Range Hydrocarbons	Prevention of accumulation of free product in groundwater	MTCA Method A—Unrestricted Land Use	2,000	NA	mg/kg	Lora Lake Apartments Parcel and DMCA[5]
		Terrestrial Plants and Animals	MTCA Ecological Indicator Soil Concentrations	200	NA	mg/kg	Lora Lake Parcel
	Semivolatile Organic Compounds						
	Pentachlorophenol	Human health—direct contact (ingestion only)	MTCA Method B—Standard, Carcinogen	2,500	NA	µg/kg	Lora Lake Apartments Parcel and Lora Lake Parcel
			MTCA Method C—Standard, Carcinogen—Industrial Land Use	330,000	NA	µg/kg	DMCA
	cPAHs TEQ	Human health—direct contact (ingestion only)	MTCA Method B—Standard, Carcinogen	137	NA	µg/kg	Lora Lake Apartments Parcel and Lora Lake Parcel
			MTCA Method C—Standard, Carcinogen—Industrial Land Use	18,000	NA	µg/kg	DMCA
	Volatile Organic Compounds						
	Ethylbenzene	Human health—direct contact (ingestion only)	MTCA Method B—Standard, Non-carcinogen	8,000	NA	mg/kg	Lora Lake Apartments Parcel and Lora Lake Parcel
			MTCA Method C—Standard, Carcinogen—Industrial Land Use	350,000	NA	mg/kg	DMCA
	Toluene	Human health—direct contact (ingestion only)	MTCA Method B—Standard, Non-carcinogen	6,400	NA	mg/kg	Lora Lake Apartments Parcel and Lora Lake Parcel
			MTCA Method C—Standard, Carcinogen—Industrial Land Use	280,000	NA	mg/kg	DMCA
	Dioxins/Furans						
	Dioxins/Furans TEQ	Human health—direct contact (ingestion only)	MTCA Method B—Standard, Carcinogen	13	100	pg/g	Lora Lake Apartments Parcel
		Human health—direct contact (ingestion only)	MTCA Method C—Standard, Carcinogen—Industrial Land Use	1,700	NA	pg/g	DMCA
		Terrestrial Plants and Animals	*Natural Background for Dioxins/Furans in Washington Soils Technical Memorandum* (WSDOE 2010)[3]	5.2	NA	pg/g	Lora Lake Parcel

Table 3.1
Soil and Groundwater Cleanup Levels

	Contaminant of Concern	Pathway	Cleanup Level Source/Reference[1]	Cleanup Level Value	Remediation Level	Unit	Cleanup/Remediation Level Applies
Groundwater	**Metals**						
	Arsenic	Washington state background	MTCA Method A	5	NA	µg/L	Site-wide
	Total Petroleum Hydrocarbons						
	Gasoline Range Hydrocarbons	Human health—protection of groundwater for non-carcinogenic effects during drinking water use	MTCA Method A—Unrestricted Land Use	1,000 [2]	NA	µg/L	Site-wide
	Sum of Diesel and Heavy Oil Range Hydrocarbons		MTCA Method A—Unrestricted Land Use	500	NA	µg/L	Site-wide
	Semivolatile Organic Compounds						
	Pentachlorophenol	Human health—drinking water beneficial use	State and Federal MCL	1	NA	µg/L	Site-wide
	cPAHs TEQ	Human health—drinking water beneficial use	MTCA Method B—Standard, Carcinogen	0.12	NA	µg/L	Site-wide
	Dioxins/Furans						
	Dioxins/Furans TEQ	Human health—drinking water beneficial use	MTCA Method B—Adjusted, Carcinogen[4]	6.7	NA	pg/L	Site-wide

Notes:

1 The most stringent applicable cleanup levels for the complete human health pathways are identified for the Lora Lake Apartments Site.

2 Gasoline range hydrocarbons cleanup levels for soil and groundwater are based on the higher cleanup level as testing indicated that benzene was not present.

3 As presented in the WSDOE 2010 technical memorandum, the Washington state natural background concentration of 5.2 pg/g TEQ is calculated as the lower of the 90th percentile and 4 × 50 percentile (per WAC 173-340-709). Refer to Appendix M of the Lora Lake Apartments Site Remedial Investigation/Feasibility Study for more details.

4 Cleanup level is Adjusted MTCA Method B value for Protection of Human Health for Consumption of Drinking Water calculated using adjusted MTCA Method B per MTCA Equation 720-2 (with a risk level of 10^{-5}).

5 The MTCA Method A Unrestricted Land Use cleanup level is applied to the DMCA because no MTCA Method C Industrial cleanup level is available for use.

Abbreviations:

CPOC	Conditional Point of Compliance
cPAH	Carcinogenic polycyclic aromatic hydrocarbon
DMCA	Dredged Material Containment Area
MCL	Maximum Contaminant Level
µg/kg	Micrograms per kilogram
µg/L	Micrograms per liter
mg/kg	Milligrams per kilogram
MTCA	Model Toxics Control Act
NA	Not available
pg/g	Picograms per gram
pg/L	Picograms per liter
TEQ	Toxicity Equivalent
WAC	Washington Administrative Code
WSDOE	Washington State Department of Ecology

Table 5.1
Cleanup Alternatives Considered for the Lora Lake Apartments Parcel

Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
$4.7 million	$6.1 million	**$7.1 million**	$7.7 million	$9.2 million
No excavation	Excavation and off-site disposal of soil > 1,000 pg/g dioxins/furans	**Excavation and off-site disposal of soil > 100 pg/g dioxins/furans**	Excavation and off-site disposal of soil > 100 pg/g dioxins/furans. Consolidation of soil 13 – 100 pg/g dioxins/furans at DMCA	Excavation and off-site disposal of soil > 13 pg/g dioxins/furans
Capping all	Capping < 1,000 pg/g dioxins/furans	**Capping < 100 pg/g dioxins/furans**	Capping of consolidation area with soil < 100 pg/g dioxins/furans	Barrier to wildlife
Groundwater monitoring and management	Groundwater treatment by source removal; Groundwater monitoring			Groundwater treatment by source removal
Environmental Covenants to restrict to commercial land use and require cap maintenance				Environmental Covenants for barrier to wildlife
All alternatives include drain system improvements to prevent entry of contaminated groundwater or soil				

Note:
Bold Selected for implementation (refer to Figure 5.2).

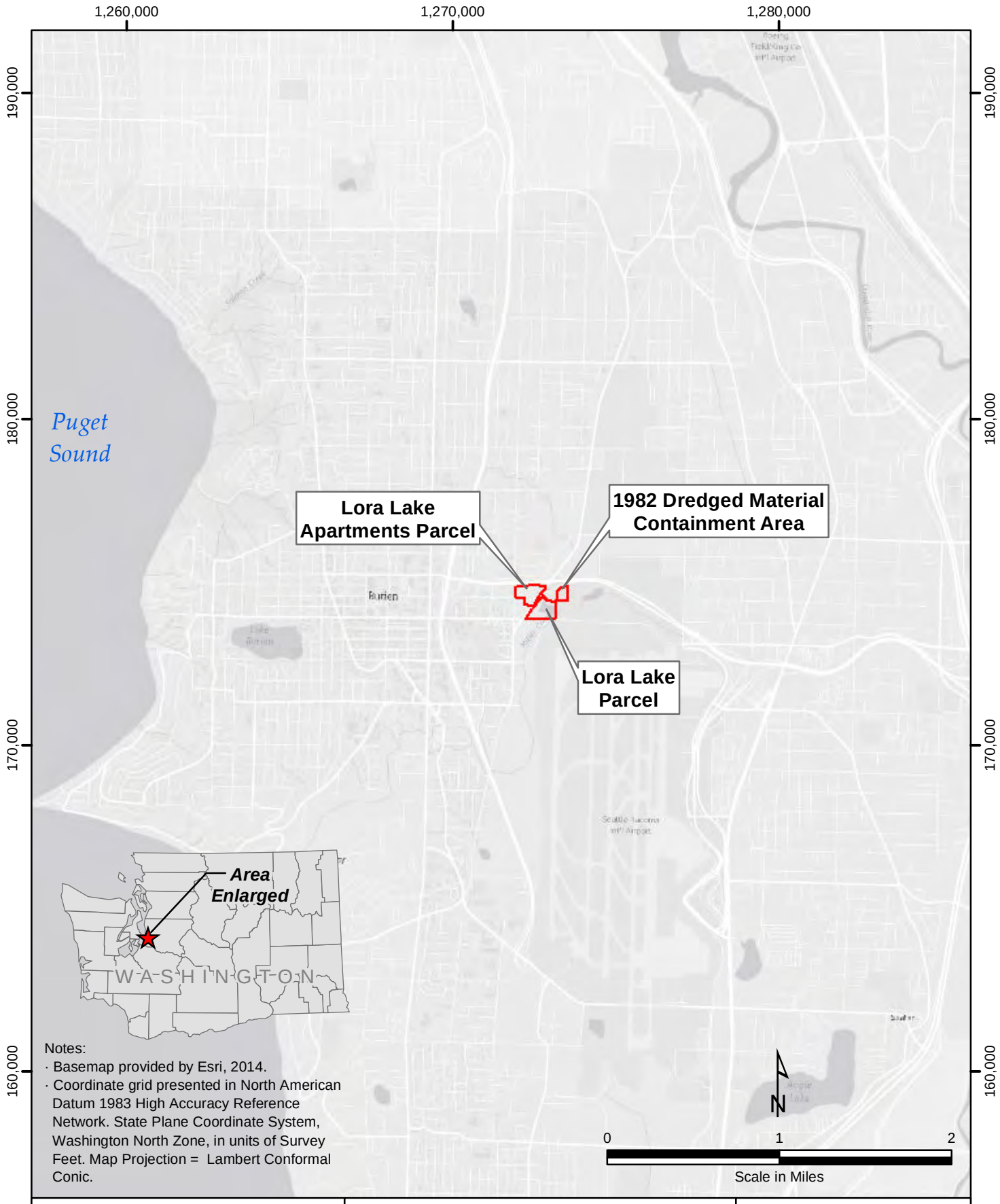
Abbreviations:
pg/g picograms per gram
RPZ Runway Protection Zone

Table 5.2
Cleanup Alternatives Considered for the Lora Lake Parcel

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
	$0.4 million	$3.3 million	**$4.3 million**	$7.3 million
LAKE	Engineering controls to control sediment and fish movement from Lora Lake to Miller Creek.	1.5-foot sand cap with 0.06% organic carbon content to contain contaminated sediment in place and provide a clean surface for benthic biota.	**Fill the lake to rehabilitate it to a wetland system. This action will result in the conversion of the existing lake sediment and open water conditions to a palustrine scrub-shrub wetland.**	Dredging and off-site disposal of contaminated sediment.
SOIL	Control risk to workers with institutional controls.	Capping.	**Soil excavation. Excavation extent will consider resource mitigation area harm.**	Excavation and off-site disposal.
	Environmental Covenants to maintain engineering controls and keep in current land use.	Environmental Covenants to maintain cap and keep in current land use.	**Environmental covenants to maintain restoration and keep in current land use.**	

Note:
Bold Selected for implementation.

Figures



Notes:
- Basemap provided by Esri, 2014.
- Coordinate grid presented in North American Datum 1983 High Accuracy Reference Network. State Plane Coordinate System, Washington North Zone, in units of Survey Feet. Map Projection = Lambert Conformal Conic.

DEPARTMENT OF ECOLOGY
State of Washington

Cleanup Action Plan
Lora Lake Apartments Site
Burien, Washington

Figure 1.1
Site Vicinity Map

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12/1/2014

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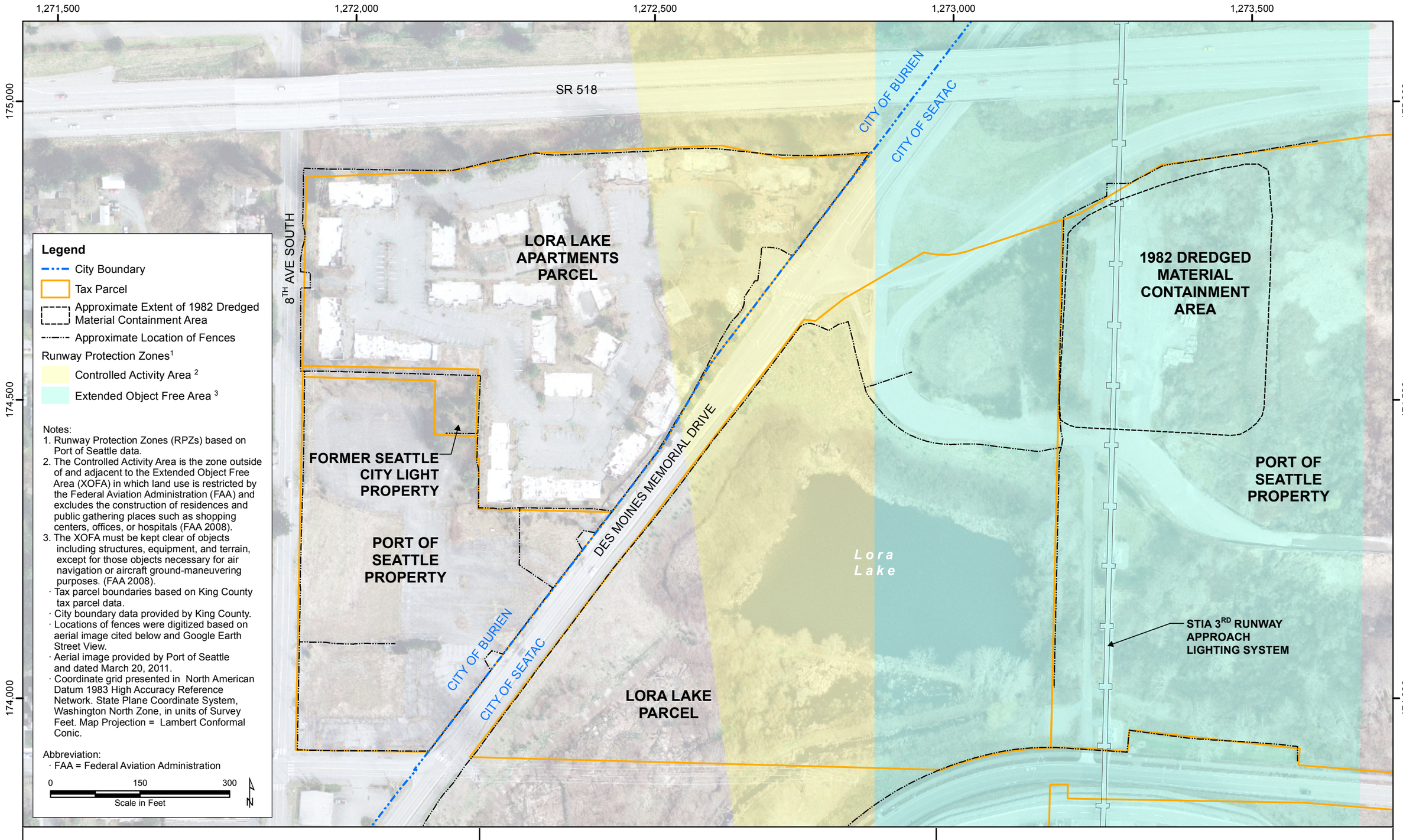

DEPARTMENT OF ECOLOGY
State of Washington

Cleanup Action Plan
Lora Lake Apartments Site
Burien, Washington

Figure 2.1
Site Area Map

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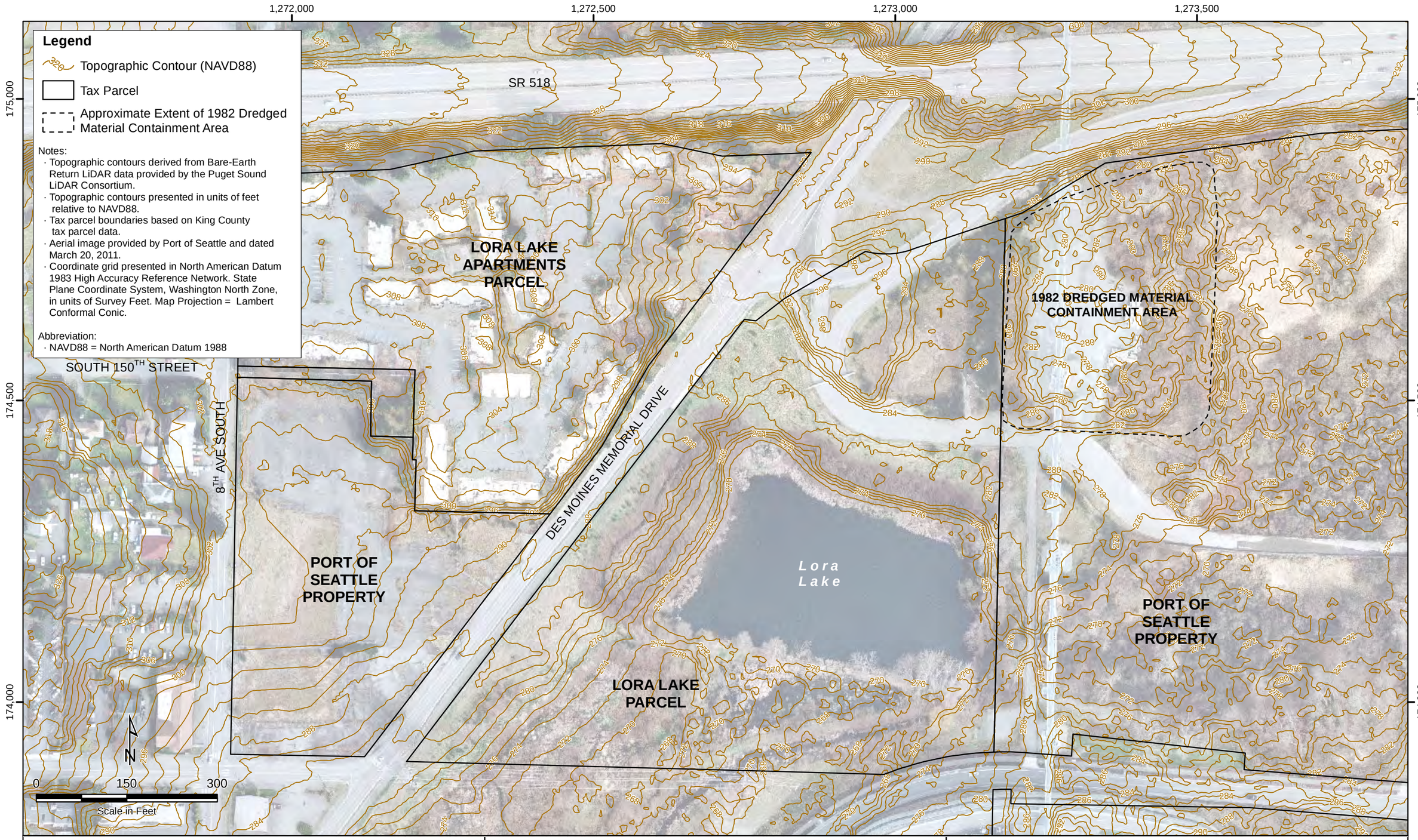

DEPARTMENT OF ECOLOGY
State of Washington

Cleanup Action Plan
Lora Lake Apartments Site
Burien, Washington

Figure 2.2
Site Topography

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12/1/2014

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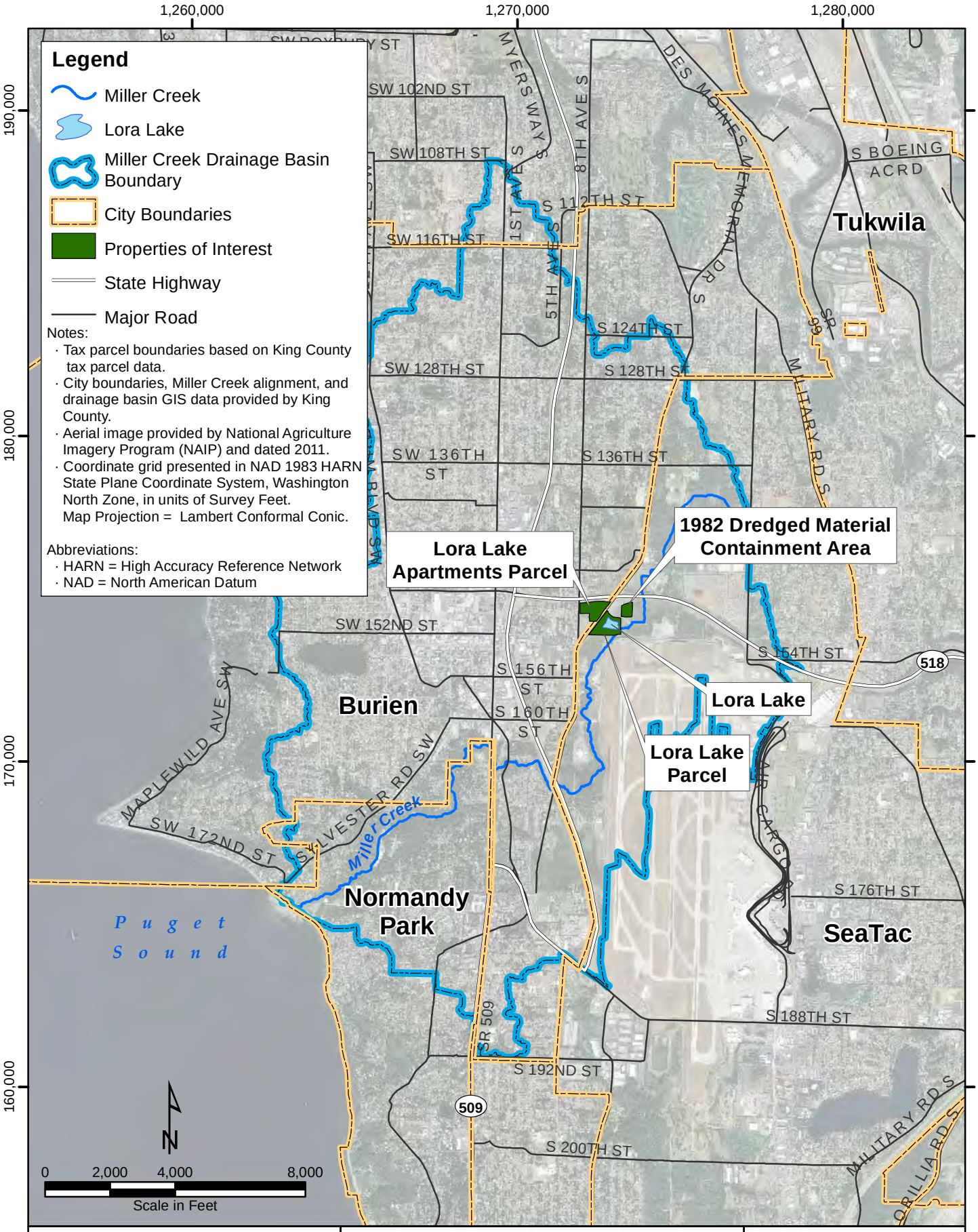

DEPARTMENT OF ECOLOGY
State of Washington

Cleanup Action Plan
Lora Lake Apartments Site
Burien, Washington

Figure 2.3
Miller Creek
Watershed Map

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12/1/2014

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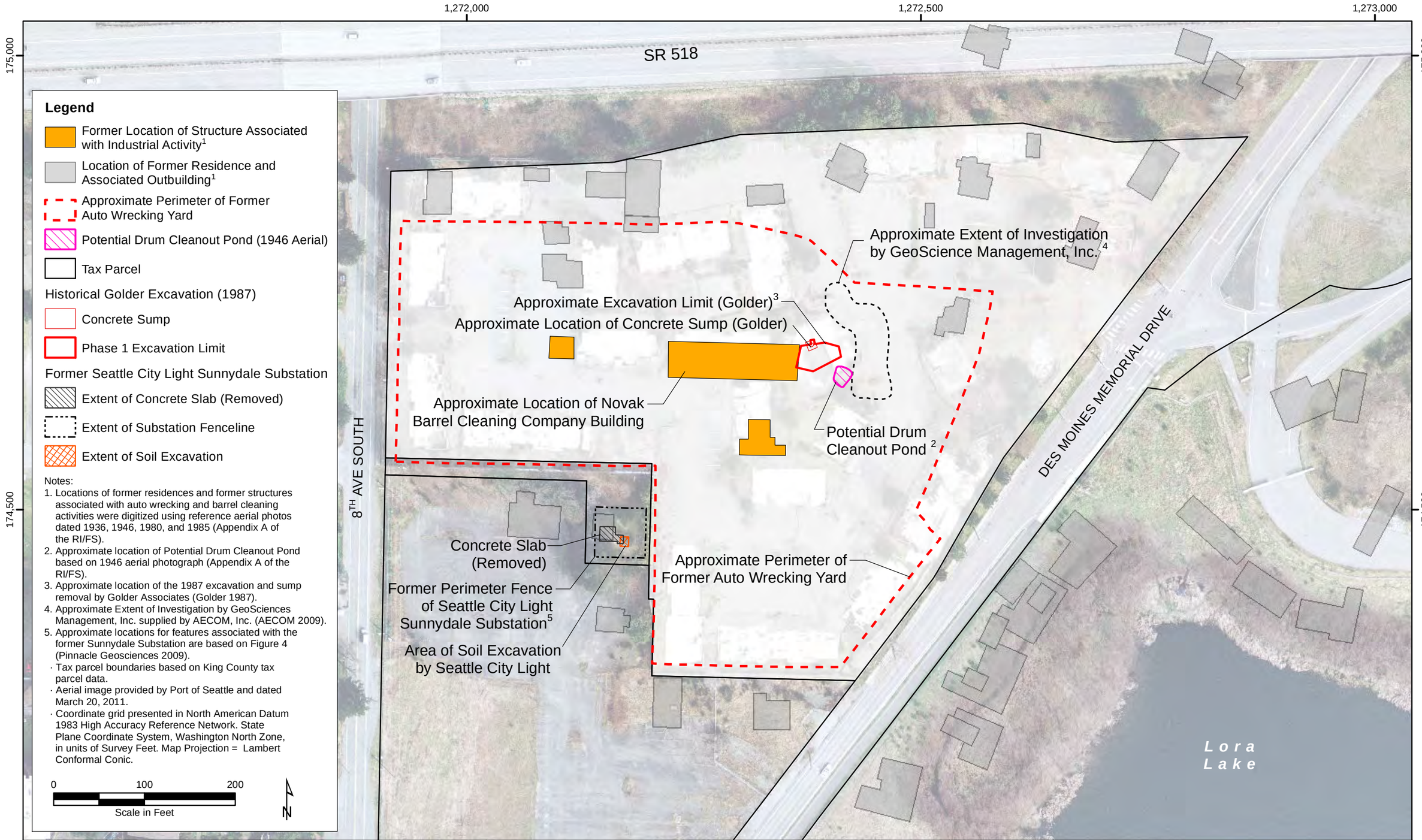

DEPARTMENT OF ECOLOGY
State of Washington

Cleanup Action Plan
Lora Lake Apartments Site
Burien, Washington

Figure 2.4
Historical Site Uses and Operations

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DEPARTMENT OF ECOLOGY
State of Washington

Cleanup Action Plan
Lora Lake Apartments Site
Burien, Washington

Figure 3.1
Points of Compliance

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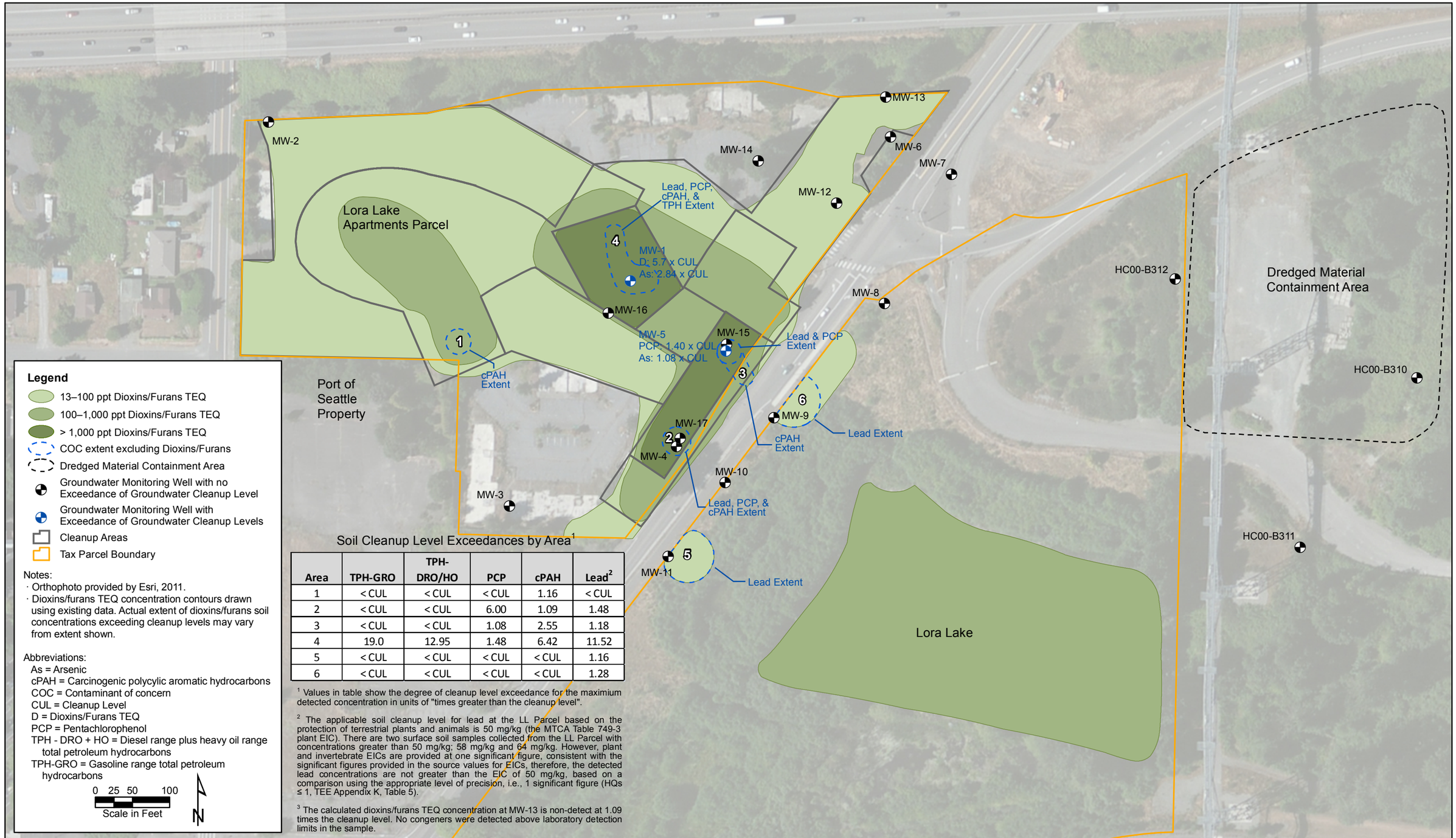

Legend

- 13–100 ppt Dioxins/Furans TEQ
- 100–1,000 ppt Dioxins/Furans TEQ
- > 1,000 ppt Dioxins/Furans TEQ
- COC extent excluding Dioxins/Furans
- Dredged Material Containment Area
- Groundwater Monitoring Well with no Exceedance of Groundwater Cleanup Level
- Groundwater Monitoring Well with Exceedance of Groundwater Cleanup Levels
- Cleanup Areas
- Tax Parcel Boundary

Notes:
- Orthophoto provided by Esri, 2011.
- Dioxins/furans TEQ concentration contours drawn using existing data. Actual extent of dioxins/furans soil concentrations exceeding cleanup levels may vary from extent shown.

Abbreviations:
As = Arsenic
cPAH = Carcinogenic polycylic aromatic hydrocarbons
COC = Contaminant of concern
CUL = Cleanup Level
D = Dioxins/Furans TEQ
PCP = Pentachlorophenol
TPH - DRO + HO = Diesel range plus heavy oil range total petroleum hydrocarbons
TPH-GRO = Gasoline range total petroleum hydrocarbons

0 25 50 100
Scale in Feet

Soil Cleanup Level Exceedances by Area[1]

Area	TPH-GRO	TPH-DRO/HO	PCP	cPAH	Lead[2]
1	< CUL	< CUL	< CUL	1.16	< CUL
2	< CUL	< CUL	6.00	1.09	1.48
3	< CUL	< CUL	1.08	2.55	1.18
4	19.0	12.95	1.48	6.42	11.52
5	< CUL	< CUL	< CUL	< CUL	1.16
6	< CUL	< CUL	< CUL	< CUL	1.28

[1] Values in table show the degree of cleanup level exceedance for the maximium detected concentration in units of "times greater than the cleanup level".

[2] The applicable soil cleanup level for lead at the LL Parcel based on the protection of terrestrial plants and animals is 50 mg/kg (the MTCA Table 749-3 plant EIC). There are two surface soil samples collected from the LL Parcel with concentrations greater than 50 mg/kg; 58 mg/kg and 64 mg/kg. However, plant and invertebrate EICs are provided at one significant figure, consistent with the significant figures provided in the source values for EICs, therefore, the detected lead concentrations are not greater than the EIC of 50 mg/kg, based on a comparison using the appropriate level of precision, i.e., 1 significant figure (HQs ≤ 1, TEE Appendix K, Table 5).

[3] The calculated dioxins/furans TEQ concentration at MW-13 is non-detect at 1.09 times the cleanup level. No congeners were detected above laboratory detection limits in the sample.

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Cleanup Action Plan
Lora Lake Apartments Site
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Figure 3.2
Summary of Contaminant Distribution

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4/9/2015

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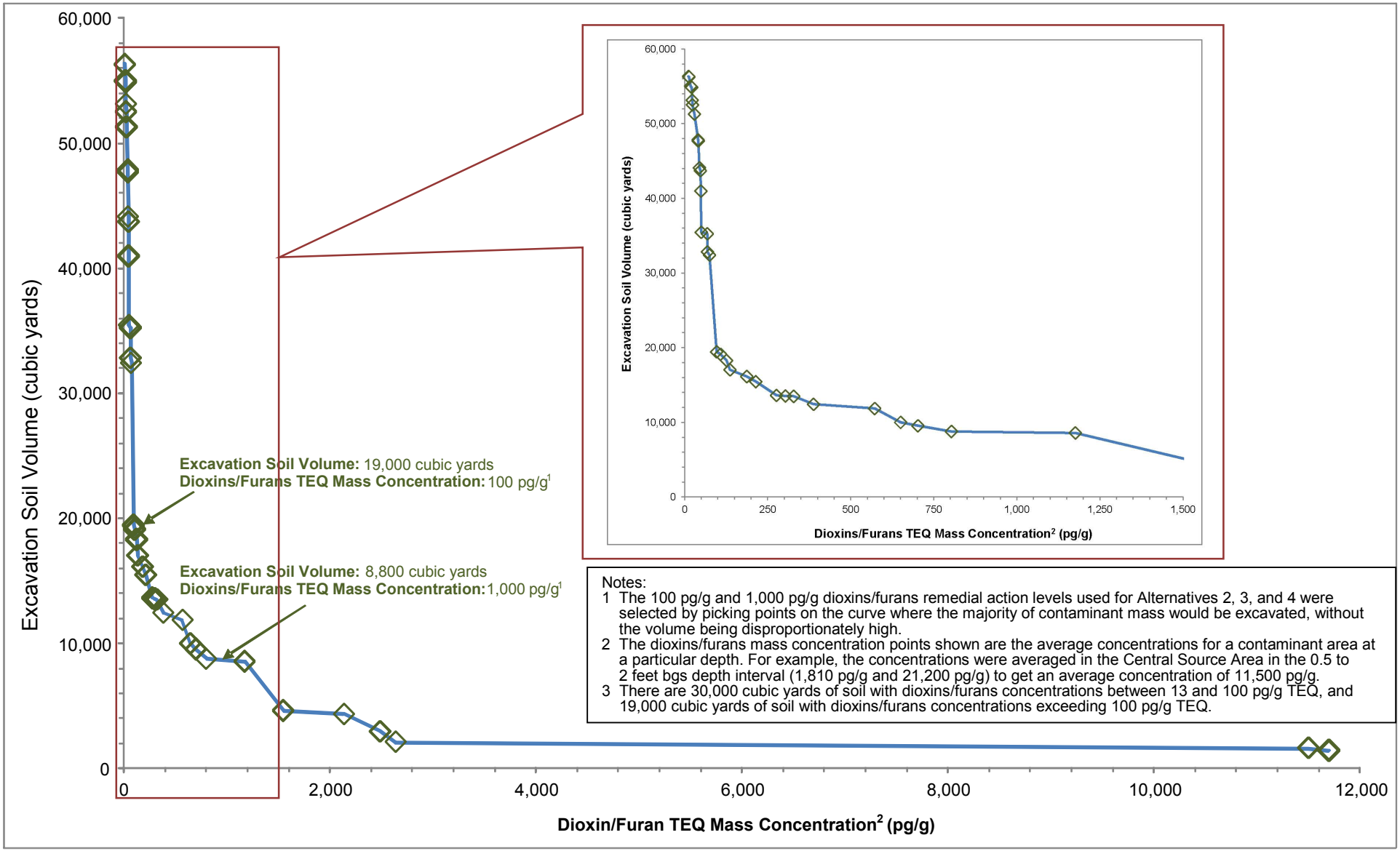

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Lora Lake Apartments Site
Burien, Washington

Figure 3.3
Excavation Volume by Soil Concentration

Legend

Lora Lake Apartments Cleanup Areas

- Cleanup Area A
- Cleanup Area B
- Cleanup Area C
- Cleanup Area Boundary
- Source Area
- Tax Parcel
- Approximate Location of Fences

Notes:

- Cleanup Area A encompasses areas with a maximum dioxins/furans TEQ concentration greater than 1,000 pg/g at any depth.
- Cleanup Area B encompasses areas with a maximum dioxins/furans TEQ concentration greater than 100 pg/g, but less than 1,000 pg/g at any depth.
- Cleanup Area C encompasses areas with a maximum dioxins/furans TEQ concentration greater than 13 pg/g, but less than 100 pg/g at any depth.
- Locations of fences were digitized based on aerial image cited below and Google Earth Street View.
- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Tax parcel boundaries based on King County tax parcel data.
- Coordinate grid presented in North American Datum 1983 High Accuracy Reference Network. State Plane Coordinate System, Washington North Zone, in units of Survey Feet. Map Projection = Lambert Conformal Conic.

Abbreviations:

- pg/g = Picograms Per Gram
- TEQ = Toxic Equvalent Quotient

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Cleanup Action Plan
Lora Lake Apartments Site
Burien, Washington

Figure 4.1
Lora Lake Apartments Parcel
Cleanup Areas

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1,272,500
1,273,000
1,273,500
174,500
174,000

LL APARTMENTS PARCEL

LL Parcel Shallow Soil Cleanup Area

DES MOINES MEMORIAL DRIVE

LL Parcel Shallow Soil Cleanup Area

Lora Lake

LL Parcel Sediment Cleanup Area

LL PARCEL

PORT OF SEATTLE PROPERTY

Legend

- LL Parcel Sediment Cleanup Area
- LL Parcel Shallow Soil Cleanup Area
- Approximate Location of Fences
- Tax Parcel

Notes:

- Tax parcel boundaries based on King County tax parcel data.
- Locations of fences were digitized based on aerial image cited below and Google Earth Street View.
- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Coordinate grid presented in North American Datum 1983 High Accuracy Reference Network. State Plane Coordinate System, Washington North Zone, in units of Survey Feet. Map Projection = Lambert Conformal Conic.

Abbreviation:

- LL = Lora Lake.

N

0 100 200

Scale in Feet

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State of Washington

Cleanup Action Plan
Lora Lake Apartments Site
Burien, Washington

Figure 4.2
Lora Lake Parcel Cleanup Areas

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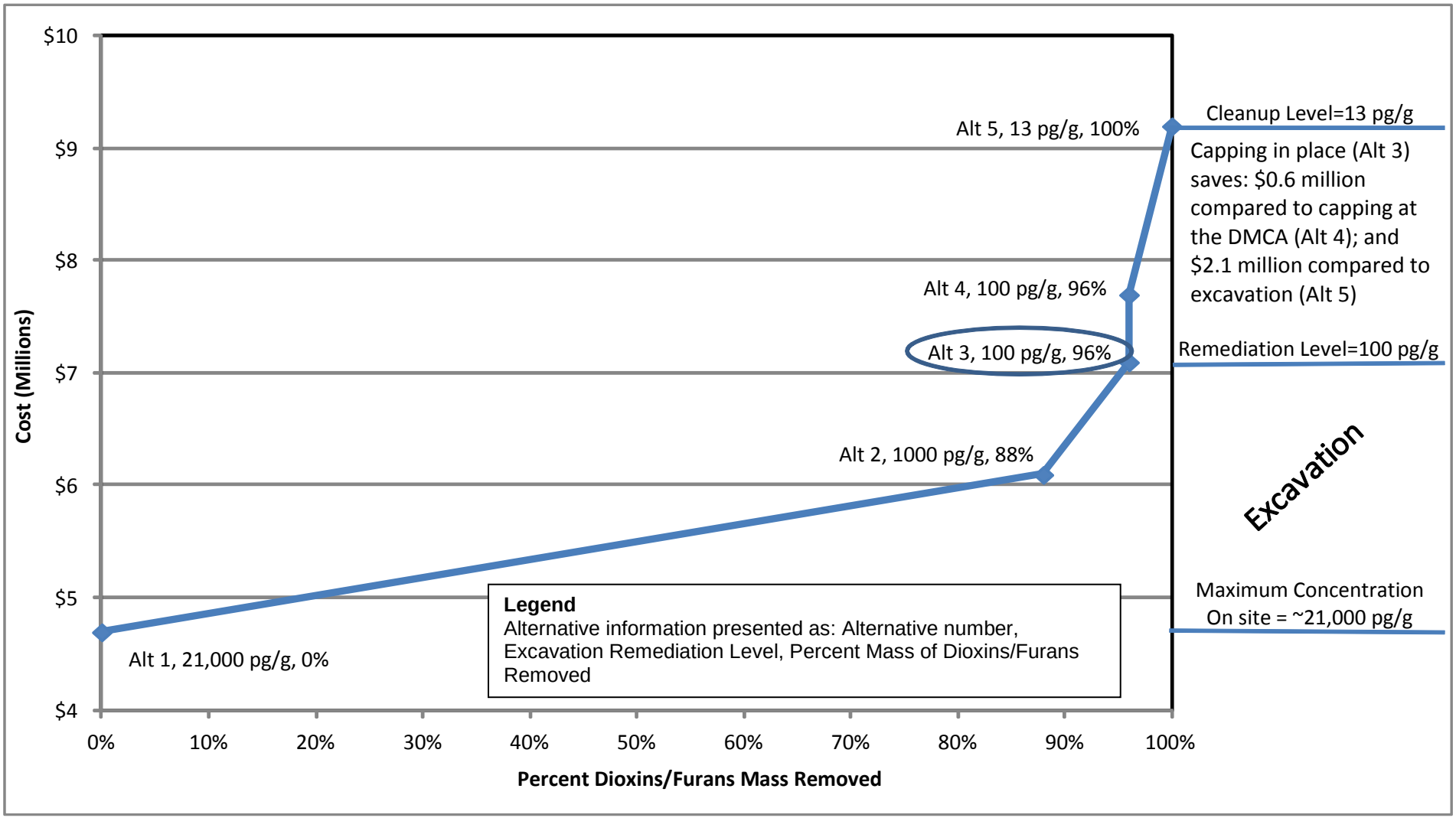

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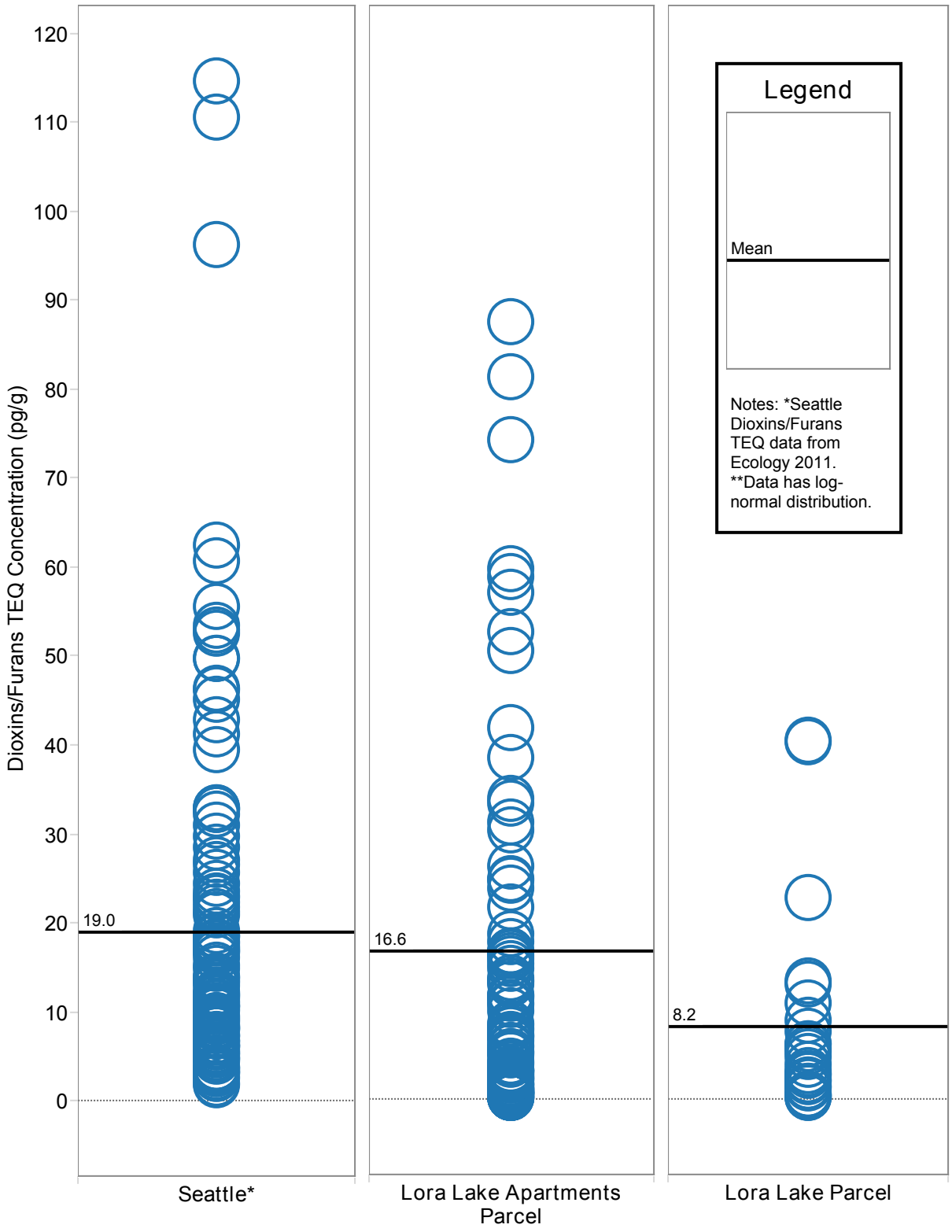
Cleanup Action Plan
Lora Lake Apartments Site
Burien, Washington

Figure 5.1
Lora Lake Apartments Parcel Alternative Cost vs. Percent Dioxins/Furans Mass Removed



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Lora Lake Apartments Site
Burien, Washington

Figure 5.2
Lora Lake Apartments Parcel and Lora Lake Parcel Soil Dioxins/Furans TEQ Concentrations to Remain On-site Compared to Dioxins/Furans TEQ Concentrations in Seattle Urban Soil

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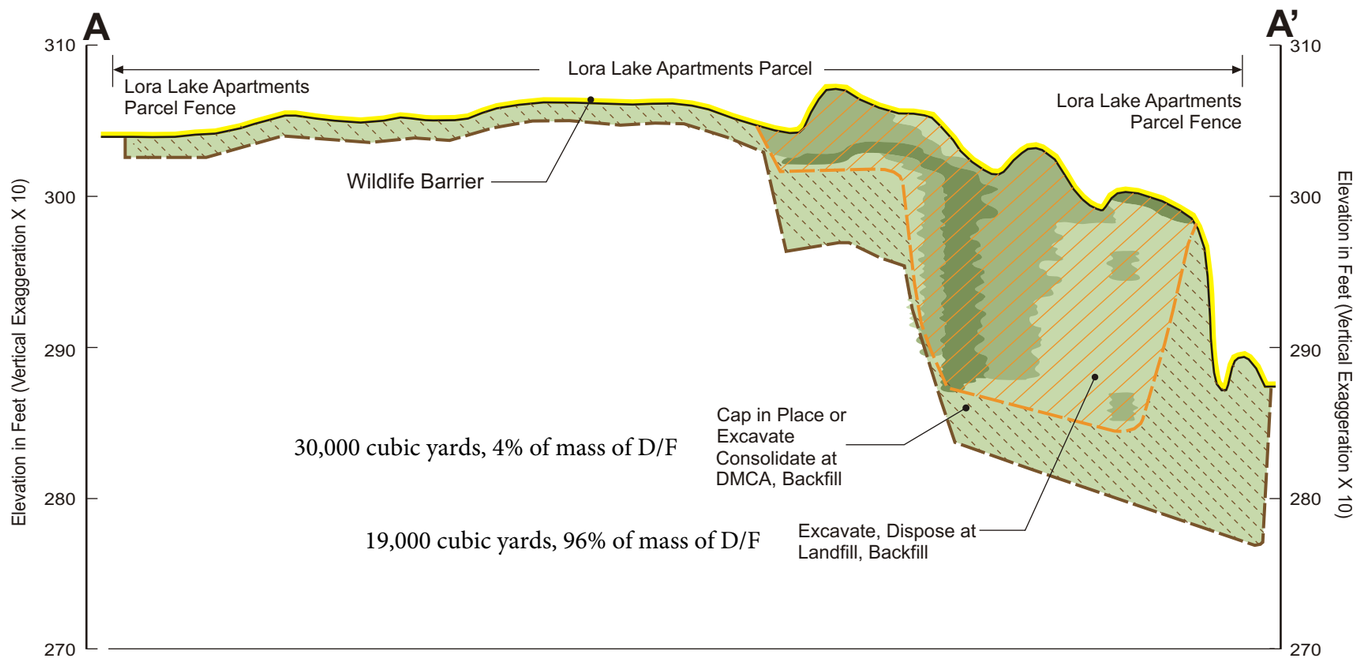

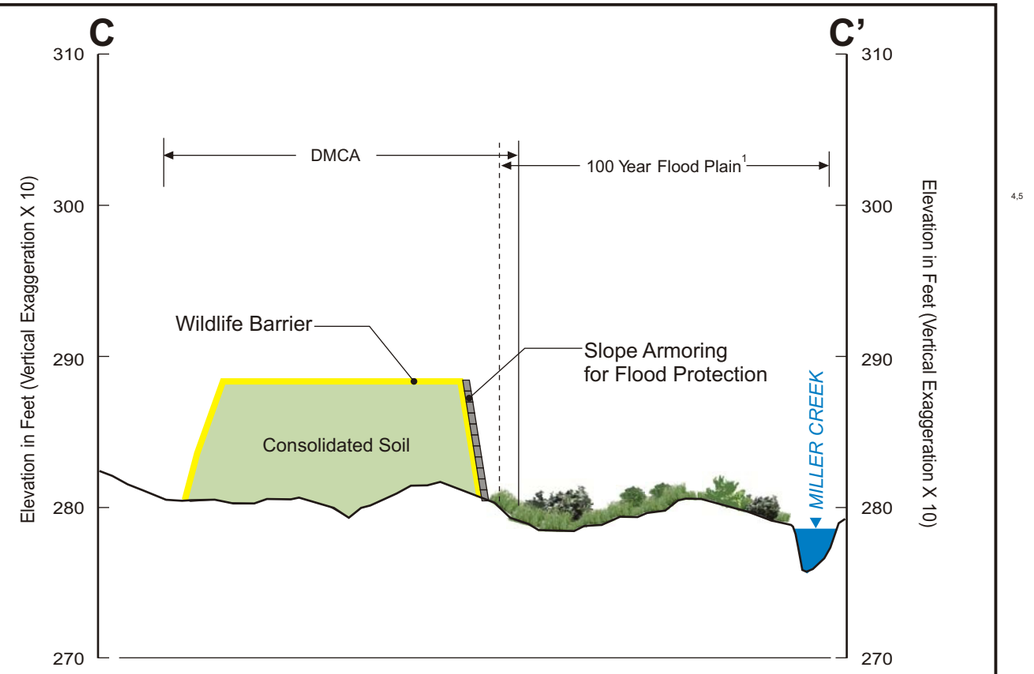

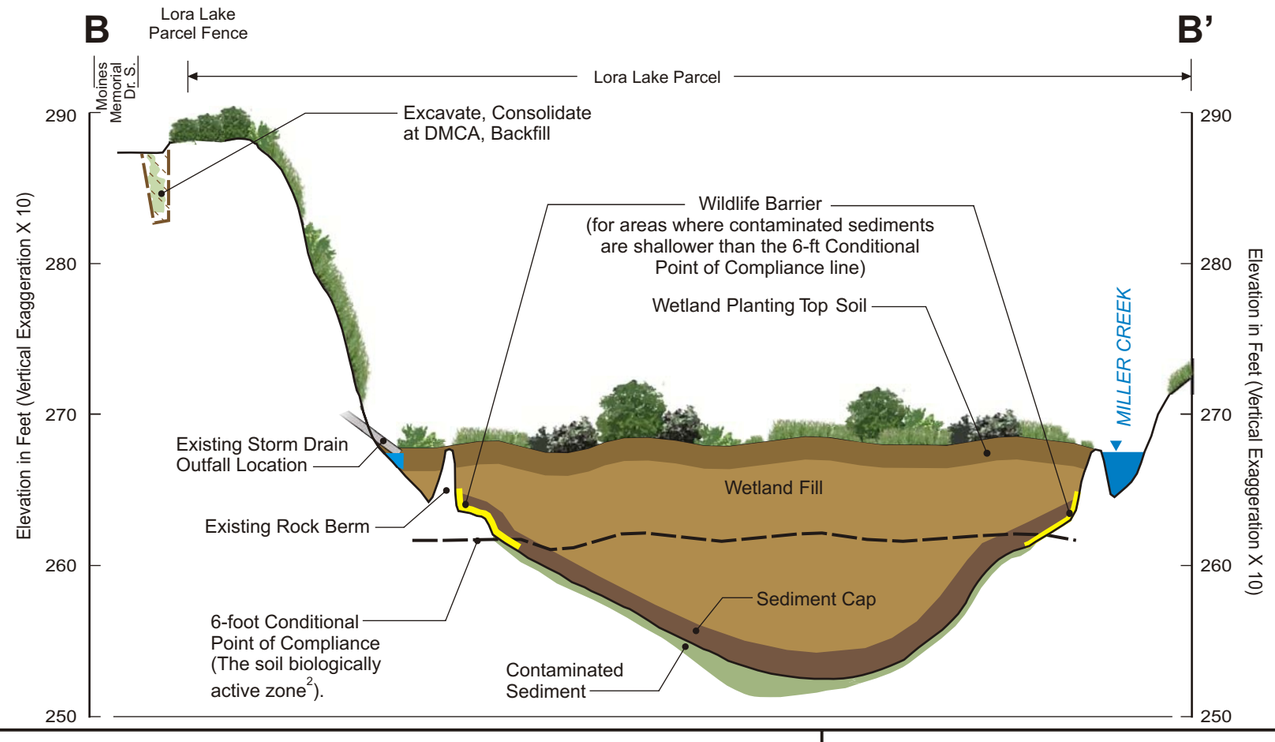

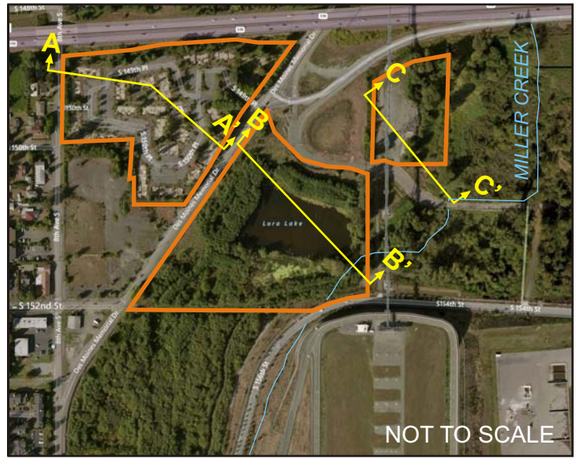

Cross Section Locations

Notes:
1. Approximately 1000 sq. ft (0.7%) of the DMCA along its southern boundary lies within the 100-year flood-plain. Prior to consolidation, the boundary of the 100-year flood-plain will be surveyed, and no material will be consolidated in this area.
2. The depth of the biologically active zone (6 ft below ground surface) is established as the conditional point of compliance protective of ecological receptors. This is consistent with WAC 173-340-7490(4)(a) and with the existence of institutional controls to prevent excavation of deeper soil in the areas per the RIFS.
3. Green shading of soils and sediment indicates material contaminated with dioxins/furans. Darker green shading indicates higher concentrations of dioxins/furans.

0 100 200
Cross Sections Scale i Feet

DEPARTMENT OF ECOLOGY
State of Washington

Cleanup Action Plan
Lora Lake Apartments Site
Burien, Washington

Figure 6.1
Conceptual Remedy Cross Section

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Appendix A
SEPA Documents

Withdrawal of Mitigated Determination of Nonsignificance
Issued August 28, 2013

Mitigated Determination of Nonsignificance
Dated April 14, 2015

SEPA Checklist
Dated April 7, 2015

NOTICE OF WITHDRAWAL OF MITIGATED DETERMINATION OF NONSIGNIFICANCE

Name of Proposal: Lora Lake Apartments Site Cleanup Plan

Environmental Document Being Withdrawn: Mitigated Determination of Nonsignificance for Lora Lake Apartments Site Cleanup Plan issued August 28, 2013.

This MDNS is being withdrawn and will be re-issued with a revised cleanup action plan, SEPA checklist, and mitigation measures.

Description of Proposal: This proposal is for the cleanup of the Lora Lake Apartments Site as required by the Model Toxics Control Act Cleanup Regulation, Chapter 173-340 WAC. An area of shallow soil with dioxins/furans contamination slightly exceeding the dioxins/furans cleanup level is located within a habitat mitigation area managed according to a Natural Resources Management Plan. Environmental covenants on the area require that any activity in the Mitigation Area shall use methods that minimize damage to the Mitigation Area, and that following the activity the Mitigation Area will be restored to the condition contemplated in the Corps/Ecology-approved Natural Resource Mitigation Plan.

The original proposal to address shallow soil with dioxins/furans contamination slightly exceeding the dioxins/furans cleanup level was to leave it in place, consistent with Ecology's expectation that cleanup actions do not result in a significantly greater overall threat to human health and the environment than other alternatives. Comments received during the public comment period indicated that excavation of the slightly contaminated soil was preferred.

The proposed cleanup action has been revised to excavate shallow soil to bring shallow soil dioxins/furans concentrations into compliance with dioxins/furans cleanup levels.

Location of Proposal: 15001 Des Moines Memorial Drive, Burien Washington. The proposed cleanup action is located immediately northwest of the Third Runway at the Seattle-Tacoma International Airport.

Lead Agency: Washington State Department of Ecology

Responsible Official: Robert W. Warren

Position/Title: Section Manager, Toxics Cleanup Program, Northwest Regional Office

Address: Washington State Dept. of Ecology, 3190 160th Avenue SE, Bellevue, WA 98008

Phone: 425-649-7054

Date: 4-14-15

Signature: _____

Robert W. Warren

STATE ENVIRONMENTAL POLICY ACT (SEPA)
MITIGATED DETERMINATION OF NONSIGNIFICANCE (MDNS)
FOR THE LORA LAKE APARTMENTS SITE CLEANUP PLAN

Description of Proposal: Lora Lake Apartments Site Cleanup Plan

The proposed cleanup action at the Lora Lake Apartments site is described in the SEPA Environmental Checklist. The proposed cleanup action plan was prepared by the Department of Ecology (Ecology) acting in accordance with the Model Toxics Control Act, Chapter 70.105D RCW, and the regulation promulgated there under at Chapter 173-340 WAC, the Model Toxics Control Act Cleanup Regulation. The proposed cleanup action will be implemented by the Port of Seattle.

The proposed cleanup action will involve excavation of more highly contaminated soil, capping of less highly contaminated soil, and rehabilitation of Lora Lake, which occupies a former peat mine, by converting it to a scrub-shrub wetland habitat consistent with the surrounding aquatic wetland mitigation area. The cleanup will be conducted under a Consent Decree between the Washington State Department of Ecology and the Port of Seattle.

Proponent: Port of Seattle

Location of proposal, including street address, if any: 15001 Des Moines Memorial Drive, Burien, Washington. The proposed cleanup action is located immediately northwest of the Third Runway at the Seattle-Tacoma International Airport.

The Proposal consists of three areas: (1) Lora Lake Apartments Parcel (LL Apartments Parcel), (2) Lora Lake Parcel (LL Parcel), and (3) 1982 Dredged Material Containment Area (DMCA). The Proposal straddles the boundary between the Cities of Burien and SeaTac, Washington.

The LL Apartments Parcel occupies approximately 8.3 acres of currently vacant land in the City of Burien that is bounded to the north by State Route 518 (SR 518), to the east and southeast by Des Moines Memorial Drive, to the West by 8th Avenue South, and to the south by an open area. The LL Parcel is located to the southeast of the LL Apartments Parcel, on the east side of Des Moines Memorial Drive. The LL Parcel consists of approximately 7.1 acres of land, including the approximately 3-acre Lora Lake and a Port-constructed aquatic habitat mitigation area, and to the west and northwest by Des Moines Memorial Drive. The DMCA is located adjacent to the LL Parcel, to the northeast, on Port property. The DMCA is located within the secured airport area, within security fencing. The DMCA has an area of approximately 2.75 acres. The eastern half of the DMCA is an approximately 1.5-acre vegetated area covered by a mixture of grasses and invasive and pioneering plant species. The remaining approximately 1.25 acres of land is the location of the Approach Lighting System for SeaTac International Airport.

Description of mitigation: The Lora Lake Parcel lies within a Port-constructed aquatic habitat mitigation area. Restrictive covenants on this area require that following any activity in the mitigation area, the Port shall restore the mitigation area to the conditions contemplated in the Natural Resource Mitigation (NRMP) Plan governing the area. This Plan was approved by the U.S. Army Corps of Engineers and Ecology.

A small area of contaminated soil on the western margin of the Lora Lake Parcel will be excavated and backfilled. Lora Lake will be filled to restore it to a scrub-shrub wetland.

The environmental damage caused by the excavation will be mitigated by replanting the areas in accordance with the NRMP. The environmental damage caused by filling Lora Lake will be mitigated by grading and planting the area with wetland terrestrial species consistent with the NRMP for the area. The wetland will be designed so that it does not adversely impact the functioning of the Port's mitigation areas. This includes not adversely impacting flood frequencies in Miller Creek. The wetland design and construction will also comply with all applicable permits and resource agency requirements. All disturbed areas will be restored to the conditions contemplated in the NRMP which governs the area.

Lead Agency: Washington State Department of Ecology

The lead agency has determined that this proposal, with mitigation described, will not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request. The most relevant documents may be accessed from Ecology's Lora Lake Apartments website, https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=2008 (click on View Electronic Documents).

☐ There is no comment period for this DNS.

☐ This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS

☒ This MDNS is issued under WAC 197-11-340 and WAC 197-11-350. The lead agency will not act on this proposal for 30 days from the date below. Comments must be submitted by 30 days from the date below.

Responsible official: Robert W. Warren

Position/Title: Section Manager, Toxics Cleanup Program, Northwest Regional Office

Address: Washington State Dept. of Ecology, 3190 160th Avenue SE, Bellevue, WA 98008

Phone: 425-649-7054

Date: 4-14-15 Signature: _____

Robert W. Warren

☐ You may appeal this determination to (name): _____
at (location) _____ no later than _____ by (method) _____

☒ There is no agency appeal.

SEPA ENVIRONMENTAL CHECKLIST

UPDATED 2014

Purpose of checklist:

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

***Instructions for applicants*:** [help]

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals: [help]

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

The Port of Seattle has completed an environmental analysis, including review of pertinent and available environmental information and preparation of an Environmental Checklist for the proposed project. This environmental checklist provides specific analysis and proposed mitigation for the Lora Lake Apartments Site Remedial Action.

A. Background

1. Name of proposed project, if applicable

Lora Lake Apartments Site Remedial Action

2. Name of applicant:

Port of Seattle

3. Address and phone number of applicant and contact person:

Port of Seattle
Aviation/Environmental
PO Box 68727
Seattle, WA 98168
Phone: (206) 787-4918
Contact: Don Robbins

SEPA Checklist prepared by:
Floyd|Snider
601 Union Street, Suite 600
Seattle, WA 98106
Contact: Megan McCullough, Project Engineer
Phone: (206) 292-2078

4. Date checklist prepared:

March 2015

5. Agency requesting checklist:

Washington State Department of Ecology

6. Proposed timing or schedule (including phasing, if applicable):

The site cleanup is expected to occur in a phased approach, with remedial actions conducted at the Lora Lake Apartments Site (LL Apartments Parcel) and Dredged Material Containment Area (DMCA) in 2017 and remedial actions conducted at the Lora Lake Parcel (LL Parcel) in 2017 or 2018.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

Following completion of remedial actions at the LL Apartments Parcel, the property is anticipated to be redeveloped into a commercial/light-industrial airport-compatible use facility. Future site development at the LL Apartments Parcel is not associated with this cleanup action, and will be conducted under a separate process by the Port and future owners or tenants. However, any future work will comply with environmental covenants placed on the property as part of this cleanup action.

Restrictive covenants and local zoning designations prohibit any future development on the LL Parcel, which will be maintained in perpetuity as a protected wetland aquatic habitat area.

Federal Aviation Administration (FAA) restrictions prohibit any future development on the DMCA, which will be maintained as a FAA-defined Runway Protection Zone (RPZ)-Extended Object Free Area as long as Seattle-Tacoma International Airport (STIA) is an operating airport. The Port's planned future use of the DMCA is for airport-compatible uses such as equipment storage and temporary construction laydown that comply with the FAA RPZ restrictions.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

The following documents have been prepared in support of this project, and are available on the Department of Ecology's project document repository (https://fortress.wa.gov/ecy/gsp/CleanupSiteDocuments.aspx?csid=2008):

- Lora Lake Apartments Agreed Order No. DE6703
- Summary Report – 2008 Investigations and Data Gap Evaluation, Lora Lakes Apartments, AECOM, September 2009
- Final Remedial Investigation/Feasibility Study, F|S, January 16, 2015
- Revised Draft Cleanup Action Plan, F|S, January 2015

These documents also support the project and are available from the Port of Seattle:

- Natural Resource Mitigation Plan (NRMP), Seattle-Tacoma International Airport, Master Plan Update Improvements, Parametrix, 2001
- Sea-Tac International Airport Master Plan Archaeological Assessment, King County, Washington. Report on file at the Department of Archaeology and Historic Preservation, Olympia, Washington, Iversen, David R., Leonard A. Forsman, Dennis E. Lewarch, and Lynn L. Larson, 2000.
- Wetland Mitigation Monitoring Report, Port of Seattle, 2010

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain. [help]

No.

10. List any government approvals or permits that will be needed for your proposal, if known. [help]

Local Approvals/Permits:

- City of Burien Clearing and Grading Permit (Project is exempt from the procedural requirements, but must comply with the substantive requirements of this law. WAC 173-340-710)
- City of SeaTac Clearing and Grading Permit (Project is exempt from the procedural requirements, but must comply with the substantive requirements of this law. WAC 173-340-710)
- City of SeaTac Critical Area Review (Project is exempt from the procedural requirements, but must comply with the substantive requirements of this law. WAC 173-340-710)
- King County Industrial Discharge Authorization

Federal Approvals/Permits:

- USACE Clean Water Act Section 404 Nationwide Permit No. 38 (Required for the LL Parcel remedial action)

State Approvals/Permits:

- Department of Ecology Approval of Engineering Design Report, Plans and Specifications, Compliance Monitoring Plan, and Operations and Maintenance Plan
- Department of Ecology SEPA Checklist
- Department of Ecology NPDES Construction General Permit
- Washington State Department of Fish and Wildlife (WDFW) Hydraulic Project Approval (Required for the LL Parcel remedial action)

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.) [help]

The cleanup action selected by the Washington State Department of Ecology (Ecology) for the LL Apartments Site will occur in three areas: LL Apartments Parcel, the DMCA, and the LL Parcel.

The LL Apartments Parcel occupies approximately 8.3 acres of currently vacant land. The LL Apartments Parcel is covered by asphalt parking areas, concrete building foundations, and landscaping areas remaining from the previous LL Apartments complex that was demolished in 2009. The remedy includes excavation and off-site landfill disposal of 19,000 cubic yards (CY) of soil with dioxins/furans toxicity equivalent (TEQ) concentrations greater than 100 picograms per gram (pg/g). Up to approximately 30,000 CY of additional soil will either by capped or will be excavated and consolidated within the Site to minimize the need for capping and institutional controls on the LL Apartments Parcel. The portion of the LL Apartments Parcel not within the RPZ may be sold for commercial or light industrial redevelopment after construction. It is anticipated that the

30,000 CY of material will be contained within the LL Apartments Parcel or consolidated at the DMCA. Groundwater encountered during excavation, and removed for dewatering purposes will be collected and treated as needed prior to disposal either at an off-site facility, or to the sanitary sewer under applicable authorizations.

The existing on-site stormwater conveyance system will be abandoned and relocated in coordination with remedial actions at the LL Apartments Parcel. The storm drain main line that carries stormwater from upgradient City of Burien is planned for relocation by the City in conjunction with the City's stormwater improvements for the Northeast Redevelopment Area (NERA) plan. NERA is a 135-acre area that is planned for transformation into uses compatible with airport operations and includes stormwater management facilities. It is anticipated that this stormwater work will occur prior to remedial actions at the LL Apartments Parcel. If this work is not conducted, the existing stormwater conveyance system will be replaced, and will discharge to the constructed wetland at the LL Parcel, and infiltrate.

The LL Parcel is located to the southeast of the LL Apartments Parcel, across Des Moines Memorial Drive. The LL Parcel consists of approximately 7.1 acres of land, including the approximately 3-acre Lora Lake and a STIA constructed wetland aquatic habitat mitigation area. Areas of contamination in shallow soil on the west side of the LL Parcel will be excavated. Excavated material will be consolidated at the Dredged Material Containment Area. It may also be sent off-site for disposal at a licensed disposal facility if that is more efficient for construction scheduling. The excavation volume will be approximately 2,300 CY, and will extend outside of the security fence to the edge of the paved sidewalk along Des Moines Memorial Drive. The environmental damage caused by the excavation will be mitigated by replanting the areas in accordance with the NRMP that covers the area. Lora Lake sediments will be isolated through open water filling to convert the area to a scrub-shrub wetland. This action will require filling the lake over the entire lake footprint to depths between approximately 2 to 13 feet, based on existing bathymetry. Following filling, the former lake area will be graded and planted with wetland terrestrial species consistent with the Natural Resources Mitigation Plan for the area. The wetland will be designed so that it does not adversely impact the functioning of the Port's mitigation areas covered by the NRMP. This includes not adversely impacting flood frequencies in Miller Creek. The wetland design and construction will also comply with all applicable permits and resource agency requirements.

The DMCA is located adjacent to the LL Parcel, to the northeast, on Port property. The DMCA is located within the secured airport security fencing and is monitored and access-controlled by Port security as STIA property. The DMCA is approximately 2.75 acres, based on review of aerial photographs, and the known site historical operations. The eastern half of the DMCA is an approximately 1.5-acre vegetated area covered by a mixture of grasses and invasive and pioneering plant species. The remaining approximately 1.25 acres of land is the location of the Approach Lighting System for the STIA 3rd Runway, which was constructed in 2006. This area has been regraded and covered with gravel and is maintained by the Port to be free of vegetation. Future land uses at the DMCA will be airport-compatible uses in compliance with the FAA RPZs, such as temporary construction laydown, or equipment storage. Land use improvements to allow for this future use will consist of surface improvements (placement of a compacted gravel or engineered surface).

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

The LL Apartments Site is located at 15001 Des Moines Memorial Drive in Burien, Washington, near the northwest corner of STIA. The Site straddles the boundary between the Cities of Burien and SeaTac, Washington. The LL Parcel is located immediately across Des Moines Memorial Drive to the east, and the DMCA is located to the northeast of the LL Parcel, both within the City of SeaTac. The Site Township/Range/Section is 23N/04E/20SW. The three site parcels are shown in Figure 2.1 of the Cleanup Action Plan.

B. Environmental Elements [help]

1. Earth

a. General description of the site [help]

(circle one): Flat, rolling, hilly, steep slopes, mountainous,
other: flat surfaces at different elevations separated by steep slopes

The LL Apartments Parcel ground surface gradually slopes to the southeast across the main portion of the property with steeper slopes located adjacent to Des Moines Memorial Drive and the Highway 518 embankment. To the southeast of the existing property boundary, the topography continues to gradually slope to the east towards Lora Lake. A steep slope bounds Lora Lake to the north and west.

The DMCA is relatively flat, with steeper slopes along the western boundary. Elevation across the DMCA varies by approximately 6-feet across the area.

Topography at the LL Parcel slopes from the western and northern property boundaries toward Lora Lake. Elevation drops approximately 18-feet between Des Moines Memorial Drive and the shore of Lora Lake on the west, and approximately 12-feet from the north side of the parcel to the north shore of the lake.

b. What is the steepest slope on the site (approximate percent slope)? [help]

The steepest slopes on the Site are found along the eastern boundary of the LL Apartments Parcel, where there is an approximate 65 percent slope from the property down to Des Moines Memorial Drive, and on the north and west sides of the Lora Lake Parcel adjacent to the Lake, where there is an approximate 65 percent slope.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils. [help]

Subsurface geology at the LL Apartments Parcel consists of a discontinuous fill layer that overlays glacial recessional outwash deposits. At the bottom of the recessional outwash deposits a silt unit about 10 feet thick was encountered in the eastern portion of the LL Apartments Parcel.

The fill unit in the vicinity of the LL Apartments Parcel is observed to have a variable thickness of up to 15 feet, but is absent in the northern portion of the property. The fill is composed of medium dense to dense, fine to coarse grained sand with rounded gravel. The underlying native glacial recessional outwash deposits are variable in thickness, but can be as much as 45 feet thick in the vicinity of the LL Apartments Parcel. The recessional outwash deposits are characterized as dense to very dense, fine to coarse grained sand, with gravels up to 2 inches in diameter and occasional silt lenses. There is a stiff to very stiff clayey silt unit found near the bottom of the recessional outwash deposits (about 10 feet thick), which is likely indicative of a transition into the glacial till deposits. The till deposits typically consist of very dense silty, gravelly sand. The silt unit and the underlying till deposits together provide a confining unit (aquitard) beneath the eastern portion of the LL Apartments Parcel.

To the southeast of the LL Apartments Parcel, the LL Parcel is also underlain by recessional outwash deposits, which are exposed at the surface. Beneath the recessional outwash deposits, it is inferred, based on boring data collected during Site investigations, that the till deposits are also present and create a perched layer on which Lora Lake and the surrounding wetlands are formed. Lora Lake was formed by peat mining activities, so the presence of peat in the subsurface is also expected, although only one sediment core advanced in Lora Lake encountered peat material.

The project does not result in the removal of soil from agricultural land.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe. [help]

There are no known surface indications or history of unstable soils within the project area.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill. [help]

Approximately 19,000 CY of soil will be excavated and disposed of off-site at an appropriate licensed disposal facility from the LL Apartments Parcel. An additional approximate 30,000 CY of soil from the LL Apartments Parcel will either be capped on the LL Apartments Parcel or excavated and consolidated at the DMCA. The excavation will be backfilled and compacted with material from an Ecology-approved fill source, then capped to provide a barrier to wildlife exposure. Excavation at the LL Apartments Parcel covers an area approximately 6 acres.

Approximately 2,300 CY will be excavated from the LL Parcel and consolidated at the DMCA. It may also be sent off-site for disposal at a licensed disposal facility if that is more efficient for construction scheduling. The excavation will be backfilled and compacted to existing grade with material from an Ecology-approved fill source that meets the specifications for fill, included in the NRMP for the mitigation area. Excavation at the LL Parcel will cover an area of approximately 0.2 acres.

Consolidation of soil at the DMCA could include excavation of material from the LL Apartments Parcel and LL Parcel. Material would be transported across the street to the DMCA, where the material will be placed, graded and compacted, and surfaced with compacted gravel, asphalt, or an equivalent engineered surface that would provide a barrier to wildlife. Material may be placed over an area of approximately 2.75 acres. This consolidation may be conducted to reduce the footprint of the Site where contaminants in soil exceed the Site cleanup level. All excavated areas will be graded and backfilled as necessary to stabilize the Site for future redevelopment.

Open water filling of Lora Lake is described below in Section 3.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe. [help]

Erosion control measures will be installed prior to start of any ground-disturbing work at the Site. Erosion and sediment controls will be utilized throughout the work to mitigate potential erosion during excavation and grading. Following completion of the work, the site will be stabilized to prevent erosion while the Site awaits redevelopment.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? [help]

Impervious surfaces (asphalt, concrete, or compacted gravel) currently cover approximately 50 percent of the Site. This project involves remedial excavation and backfilling. At project completion, impervious surfaces will cover the same or less percentage of the site than existing conditions.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any: [help]

Temporary erosion and sediment controls (TESC), such as silt fences, straw bales or waddles, etc., will be used during construction to prevent erosion or transport of soil from the property. Limitations on vehicles and equipment operation on unpaved areas, wheel-washes, and similar controls will be implemented to control migration of soil from the project site. Appropriate construction BMPs will be in place for erosion control in all areas subject to earth disturbance (including clearing, grading, stockpiling, and materials or equipment storage). Stormwater will also be collected and treated on-site as needed to comply with applicable permits and regulations. A Storm Water Pollution Prevention Plan will also be prepared as part of the Engineering Design Report for the project.

Stormwater management required during and following filling of Lora Lake and consolidation of material at the DMCA will be determined and evaluated in the design process, including an evaluation of the potential for an increase in temperature of groundwater, and flows into Miller Creek from the DMCA area. Construction at the LL

Parcel and DMCA will comply with applicable stormwater management regulations, including Ecology's Stormwater Management Manual for Western Washington (2012), and the airport's individual NPDES permit. Additionally, in 2013 and 2014, the Port collected hydrogeologic data from the Lora Lake Parcel, DMCA groundwater wells, and Miller Creek to evaluate hydrogeologic conditions and determine the design controls required to ensure no negative impact to Miller Creek from implementation of the Lora Lake and DMCA remedies.

2. Air

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known. [help]

Operation of construction equipment will result in exhaust emissions within the project vicinity during construction only. Dust control measures such as wetting exposed soil will be implemented during construction, as necessary, to protect workers and the public. No visible dust will be allowed. Dust monitoring will be conducted at appropriate locations upwind, within and at the periphery of the Site, to assess the effectiveness of dust control measures. Additional dust control measures will be implemented as necessary.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. [help]

There are no known off-site sources of emissions or odor that may affect the proposal.

c. Proposed measures to reduce or control emissions or other impacts to air, if any: [help]

During construction, dust suppression BMPs will be implemented, including: watering of exposed soil surfaces, cleaning of construction vehicles to prevent track-out, and street cleaning, as may be necessary.

3. Water

a. Surface Water: [help]

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into. [help]

Yes, Lora Lake is located in the Miller Creek watershed and receives stormwater runoff from the LL Apartments Parcel, City of Burien residential and commercial drainage areas upgradient of the LL Apartments Parcel, and surrounding roadways downgradient of the LL Apartments Parcel (e.g., Des Moines Memorial Drive, SR 518 interchange, City of SeaTac) through a single outfall located near the northwestern edge of the lake and via non-point source overland flow from the LL Parcel. Water was also observed entering Lora Lake from the nearby wetlands to the south, indicating surface water connectivity between the wetlands and lake. Water from a drainage channel flowing into Lora Lake in the southwest corner of

the lake has also been observed. An overflow discharge culvert and overflow berm is present at the southeast end of the lake. Seasonally, when Lora Lake surface water levels are elevated, lake water discharges to Miller Creek through the discharge culvert and by overtopping the overflow berm. When Miller Creek surface water elevations are elevated (i.e., during periods of heavy rainfall), Miller Creek surface water discharges to Lora Lake via the same culvert and overflow berm.

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans. [help]

Open water filling of Lora Lake will occur on the LL Parcel to rehabilitate the wetland and isolate the contaminated sediments beneath clean backfill. Following filling of the lake, the area will be graded and planted to establish a scrub-shrub wetland consistent with the surrounding aquatic wetland mitigation area. Figure 4.2 of the Cleanup Action Plan shows the area of Lora Lake to be filled, and the surrounding wetland mitigation area.

Excavation of shallow soils located approximately 150 feet west of Lora Lake will occur on the LL Parcel to remove soil contaminated with dioxins/furans TEQ concentrations greater than 5.2 pg/g. Following excavation, the area will be backfilled and replanted in accordance with the NRMP that covers the area. Figure 4.2 of the Cleanup Action Plan shows the area of the LL Parcel to be excavated.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material. [help]

Filling of Lora Lake would consist of the placement of approximately 39,000 CY of fill material over the open water area of Lora Lake (approximately 120,000 square feet). Fill depth will range from approximately 2 feet to 13 feet based on existing bathymetry. This will convert all open water areas of the property to a scrub-shrub wetland. The source of the fill is not known at this time, but the source will be provided to Ecology for approval once determined.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known. [help]

Stormwater from the storm drain traversing the Lora Lake Apartments Site that enters Lora Lake in the northwest corner of the lake, as described above in 3(a)(1), is expected to be diverted to a new infiltration facility by the City of Burien off of the LL Apartments Site. This work is expected to be completed prior to start of remediation work. After this stormwater work is completed, there will not be surface water requiring diversion.

If the City of Burien redirects the upstream stormwater down 8th Avenue South following site remedy construction, the stormwater will be temporarily diverted around the Site during construction to discharge temporarily to Miller Creek or another area of the Port-managed mitigation area wetlands downgradient of construction until the City of Burien work is complete. If the City of Burien work is not conducted, following site remedy construction, the upstream stormwater will

be conveyed to the rehabilitated wetland on the LL Parcel and be infiltrated. If the stormwater continues to traverse the Site, the utility would be lined in a manner that prohibits groundwater infiltration and penetration of soils into the pipe. There is a small segment of Des Moines Memorial Drive from which runoff may continue to drain to the Lora Lake Parcel following construction of this project, or may be redirected as part of City utility improvements. This will be determined during the design process for this work, and will comply with all applicable regulations.

On-site stormwater management will be included in the remedial design, and will comply with all applicable regulations. The quantity of stormwater is unknown, as it is dependent on the construction season, which has not been determined.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan. [help]

The Lora Lake open water area to be filled and rehabilitated as wetland, and a portion of the DMCA along its southern boundary, may be located within the Miller Creek 100-year floodplain delineated by the King County Shoreline Master Program. The preliminary 100-year floodplain extents are shown on Figure A.1 (attached). The Miller Creek 100-year floodplain is located in the stream reach between South 156th Way and South 160th Street, and is relatively confined to the channel ravine and is approximately 60 to 100 ft wide. In the stream reach south of South 160th Street, the floodplain is approximately 80 to 150 ft wide in the upper reaches. However, farther downstream, it widens to approximately 200 to 250 ft. Urbanization and agriculture have significantly altered the floodplains associated with Miller Creek. The 100-year floodplain in the vicinity of the Vacca Farm Site is several acres in size. The wetland area and poor drainage that existed prior to agricultural drainage activities are evident from the 100-year floodplain estimated by the Federal Emergency Management Agency (FEMA).

The approximate 100-year flood elevations, vary from 266 ft at the Miller Creek detention facility outlet to approximately 265 ft at the downstream end of the Vacca Farm site. A floodway has also been delineated and mapped in a portion of the floodplain (Figure A.1).

Prior to construction at the LL Parcel and DMCA, a survey will be conducted to delineate the location of the 100-year floodplain based on elevation. Soil with dioxins/furans concentrations between 13 and 100 pg/g TEQ will not be consolidated within the portion of the DMCA that lies within the 100-year floodplain. The consolidation area will be armored to protect against erosion at the 100-year floodplain boundary. Stormwater at the DMCA will be managed as described above in Section B(1)(h).

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge. [help]

Temporary silt control and BMPs will be used during construction to ensure that fill operations do not adversely impact downstream water quality. For locations with soft, unconsolidated sediments, lake filling will likely be completed in two phases. The first layers of sand would be placed in a manner to minimize disruption/resuspension and gradually strengthen the underlying sediments. The remainder of the fill will then be placed with a more efficient and more cost-effective methodology. Following the placement of fill material, topsoil would be placed, and final grading conducted on the converted surface for wetland creation and vegetation plantings.

b. Ground Water:

1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known. [help]

Groundwater remediation will occur through soil source removal. Because soil remedial actions include excavation and consolidation of deep soil contamination, soil located below the water table will be removed during construction only. Dewatering will be required to manage groundwater in the excavation during soil excavation. Dewatered groundwater during subsurface excavation (an approximate less than 1 month period), will be contained on-site until tested or treated as needed to remove solids and chemical contaminants to comply with discharge requirements. Water will then be discharged to the sanitary sewer under a permit approval, or hauled off-site for disposal.

Groundwater will be withdrawn from wells on the site for laboratory analytical testing as part of long-term compliance monitoring. Water will be withdrawn from the shallow aquifer four times per year from multiple 2-inch PVC wells installed on the site for testing. The volume of water to be withdrawn is approximately 2 gallons per well. Water will not be withdrawn for drinking water purposes.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve. [help]

Waste materials will not be discharged into the ground from a septic system or other source.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe. [help]

Stormwater runoff is currently collected onsite by an existing catch basin conveyance system connected to the storm water mainline crossing the Site. During construction, stormwater runoff that has not been in contact with contaminated soil will be managed as general construction stormwater. Stormwater that has come in contact with contaminated soil will be collected, treated as necessary, and either discharged to the sanitary sewer or hauled off-site for disposal. Following completion of construction, on-site stormwater will be collected and managed in accordance with applicable regulations. The stormwater collection system will be determined during design and in coordination with redevelopment plans, as appropriate.

2) Could waste materials enter ground or surface waters? If so, generally describe. [help]

The property is a cleanup site with soils containing concentrations of constituents of concern greater than Washington State Department of Ecology's MTCA cleanup levels. These constituents have impacted soils, sediments, and ground water at the Site. This project is not expected to result in any further impacts to ground or surface waters, and will improve the environmental quality of the property and parcels.

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

Drainage patterns will be modified in the vicinity of the project site by other projects not included in this work. Drainage patterns associated with this work will be restricted to the project site. Drainage at the LL Apartments Parcel will be redirected to discharge to an infiltration facility south of the property rather than discharging into Lora Lake. Drainage at the DMCA will be determined during the design process. Drainage at the LL Parcel will flow through the constructed wetland at the property prior to discharge to Miller Creek, rather than flowing to Lora Lake (which will be filled).

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

Construction stormwater BMPs, such as silt fencing, geotextiles, stormwater collection, straw bales or wattles, etc. will be used during construction. Stormwater management systems to address surface runoff will be included in the design for areas of the Site where impervious surfaces are constructed, and the design process will evaluate and address impacts from drainage pattern changes.

4. Plants [help]

a. Check the types of vegetation found on the site: [help]

__x__deciduous tree: alder, maple, aspen, other

__x__evergreen tree: fir, cedar, pine, other

__x__shrubs

__x__grass

____pasture

____crop or grain

____Orchards, vineyards or other permanent crops.

__x__wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other

__x__water plants: water lily, eelgrass, milfoil, other

____other types of vegetation

b. What kind and amount of vegetation will be removed or altered? [help]

The majority of the LL Apartments Parcel is covered with paved parking areas and apartment building foundations. The parcel is vacant and is surrounded by a fence. Vegetation located on the LL Apartments Parcel is present along the parcel margins, on median strips and dividers in the parking lots, or are in areas where plants have colonized breaks in the pavement. The majority of vegetation within these areas will be removed by construction.

The LL Parcel is currently a constructed wetland aquatic habitat mitigation area, part of the Miller Creek/Lora Lake/Vacca Farm Wetland and Floodplain Mitigation Area. The LL Parcel is densely vegetated and contains a mixture of grasses, forbs, emergent wetland plants, and a canopy of mixed deciduous trees. The Miller Creek/Lora Lake/Vacca Farm Wetland and Floodplain Mitigation Area was enhanced by the Port to support aquatic, amphibian, and wetland habitat as part of the mitigation requirements associated with development of the STIA 3rd Runway (Port of Seattle 2010). The operation and maintenance requirements for the Miller Creek/Lora Lake/Vacca Farm Wetland and Floodplain Mitigation Area are described in the NRMP (Parametrix 2001). Soil removal in the aquatic habitat mitigation area will remove plant communities. The environmental damage caused by the excavation will be mitigated by replanting the areas at the completion of construction activities in accordance with the NRMP that covers the approximately 31,000-square-foot area. It is estimated that another approximately 10,000 square feet of vegetation will be removed for access to the Lake during lake filling activities, and will be replanted at the completion of construction activities.

The eastern half of the DMCA is currently a vegetated area covered by a mixture of grasses and invasive and pioneering plant species, while the western half of the DMCA lies underneath the Approach Lighting System for the STIA 3rd Runway, is covered in gravel, and is maintained by the Port to be free of vegetation. The DMCA is located outside of the Miller Creek/Lora Lake/Vacca Farm Wetland and Floodplain Mitigation Area, but remains subject to the WHMP as it is located within the FAA RPZ-Extended Object Free

Area. The full DMCA area will be cleared of vegetation as part of this action (except for any area located within the 100-year floodplain, as material consolidation will not be conducted in this area).

c. List threatened and endangered species known to be on or near the site. [help]

No threatened or endangered plant species are known to be on or near the Site.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any: [help]

The LL Apartments Parcel and DMCA will not be landscaped as part of this project. Landscaping at the LL Parcel will be consistent with the requirements of the NRMP for the site, which uses native plants.

e. List all noxious weeds and invasive species known to be on or near the site.

LL Apartments Parcel is currently vegetated with ruderal groundcover including grasses, blackberries, scotch broom, and a mixture of ornamental and native trees; ornamental plantings located on median strips and dividers in the parking lots; and forbs and grasses that have opportunistically colonized breaks in the pavement.

The eastern portion of the DMCA is currently covered by a mix of grasses and invasive and pioneering plant species including scotch broom, alder saplings, Himalayan blackberry, and butterfly bush.

The LL Parcel is densely vegetated and contains a mixture of grasses, forbs, emergent wetland plants, and a canopy of mixed deciduous trees.

5. Animals

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. Examples include: [help]

BIRDS: Ducks, geese, grebes, cormorants, herons, coots, plovers, hawks, eagles, falcons, owls, swifts, hummingbirds, kingfishers, tyrant flycatchers, crows, jays, swallows, chickadees, nuthatches, wrens, kinglets, thrushes, starlings (introduced), waxwings, warblers, sparrows, toehees, blackbirds, finches, old world sparrows (introduced), pigeons, doves, woodpeckers

MAMMALS: moles, mice, voles, muskrat, beaver, squirrels (introduced), bats, rabbits (introduced), opossum, weasels, skunks, raccoons, coyote, bobcat, deer

REPTILES: snakes, lizards;

AMPHIBIANS: salamanders, ensatinas, frogs

FISH: bass, chum and coho salmon, trout, herring, bullhead trout

OTHER: shellfish, aquatic and terrestrial invertebrates

b. List any threatened and endangered species known to be on or near the site. [help]

A biological assessment was prepared to evaluate impacts on threatened and endangered species and essential fish habitat associated with The Final Seattle-Tacoma International Airport Comprehensive Development Plan (POS SEPA No. 07-09) (2009). This assessment included the area associated with this project and found no significant impact.

Subsequently, on October 3, 2013, the Streaked Horned Lark was listed as a threatened species under the US Endangered Species Act. This listed subspecies is in documented decline in Washington State and is currently only found on a few large open grassland sites in Washington such as the Olympia Airport and Joint Base Lewis-McCord, coastal foredunes in southern Washington, and islands in the lower Columbia River. Between May and July of 2014, the Port conducted three presence and absence surveys. The Streaked Horned Lark was not detected at Seattle-Tacoma International Airport (Center for Natural Lands Management, 2014).

c. Is the site part of a migration route? If so, explain. [help]

The airport is within the Pacific Flyway, the primary avian migration route on the Pacific Coast; migratory birds stop-over during spring and fall migrations, but may not choose to breed or over-winter on airport property. Year-round or resident birds may migrate short distances to and from the Site within their local range.

d. Proposed measures to preserve or enhance wildlife, if any: [help]

The LL Parcel is located within a monitored and managed mitigation area, and will continue to be following project completion. The projects to be completed at the LL Apartments Parcel and DMCA are not expected to preserve wildlife, and the projects are not expected to enhance wildlife in the future.

e. List any invasive animal species known to be on or near the site.

BIRDS: European starlings, English house sparrows

MAMMALS: Eastern grey squirrel; Eastern cottontail

REPTILES: none

AMPHIBIANS: American bullfrog

FISH: unknown

OTHER: unknown

6. Energy and natural resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc. [help]

There are no energy needs for the completed project.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe. [help]

No.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any: [help]

The proposed project is a short-term construction project, without long term equipment operation, and there will be negligible energy impacts during remediation activities. Low fuel consumption equipment will be used where possible, and construction activities will be conducted during daylight hours to avoid the requirement for sight lighting.

7. Environmental health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe. [help]

1) Describe any known or possible contamination at the site from present or past uses.

The property is a cleanup site with soils containing concentrations of contaminants of concern greater than Washington State Department of Ecology's MTCA cleanup levels. These contaminants have impacted soil, sediments, and groundwater at the Site. Project environmental field staff and contractors may come into contact with the Site soil, sediment, or groundwater. Field staff will be required to have appropriate health and safety training, be enrolled in a medical monitoring program, and have current hazardous waste operations and emergency response training. Protection monitoring during remedy construction will be conducted to provide protection of human health and the environment during the construction and operation and maintenance activities required at the Site. Protection monitoring requirements will be described in Health and Safety Plans covering the activities both during construction, and during any future operations and maintenance of the constructed remedy. Any activities conducted at the Site following remedy implementation that disturb areas where contamination has been contained on-site will require following an appropriate Health and Safety Plan, and any environmental covenants placed on the area. The Health and Safety Plans will include provisions for protecting human health and the environment beyond the property boundary.

2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

This project is an environmental cleanup. Existing hazardous chemicals and conditions at the Site are well known and documented. Existing site utilities are also known, and mapped. There are no major utilities located within the project site that will impact project development or design. At the DMCA, the 3rd Runway approach lighting system foundations will require soil consolidation to be designed in a manner that does not impact the structural integrity of the foundations.

3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

During construction, fuels for vehicle operation may be temporarily stored on-site. Any fuel storage will require secondary containment, and on-site absorbent materials for use if needed to respond to an accidental release. No other hazardous or toxic chemicals will be stored or used on-site. No toxic or hazardous chemicals will be produced at any time during the operating life of the project.

Spill kits will be kept on-site to respond to fuel or hydraulic oil leaks from construction equipment.

4) Describe special emergency services that might be required.

No special emergency services are expected to be required as a result of implementing the project. Construction-related accidents or injuries may require response from local fire, police, air units, or ambulances. The Port maintains its own police force and firefighting and rescue units that would be called upon for these types of incidents. The Port also maintains a trained response team available to respond at all times to any spill or loss of contaminated or hazardous materials.

5) Proposed measures to reduce or control environmental health hazards, if any:

Safe work practices and protection monitoring requirements will be described in worker Health and Safety Plans covering the worker activities both during construction, and during any future operations and maintenance of the constructed remedy. The Health and Safety Plans will also include descriptions of the appropriate Personal Protective Equipment to be used during site activities.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)? [help]

The Site is bordered by a freeway, and an airport. Noise associated with roadway and air traffic at STIA is not expected to affect this project.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site. [help]

Construction of the proposed project will involve temporary short-term increase in noise associated with the use of construction equipment and/or heavy truck traffic. There are no long-term contributions to area noise levels.

3) Proposed measures to reduce or control noise impacts, if any: [help]

Short-term noise from construction activities will be mitigated by the use of Best Management Practices (BMPs) and adhere to the City of Burien's and the City of SeaTac's noise ordinances. There are no long-term noise mitigation measures proposed because the project will not change existing use.

8. Land and shoreline use

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe. [help]

The LL Apartments Parcel is currently vacant, and fenced. All above-ground structures including buildings, parking covers, and play areas were removed in 2009. Slab on grade building foundations, landscaping, curbs, and pavement remain in place.

The majority of the LL Parcel is currently located within security fencing for the STIA, and is monitored and access-controlled by Port security as STIA property. The Port constructed a habitat mitigation area, the "Miller Creek/Lora Lake/Vacca Farm Wetland and Floodplain Mitigation Area," which includes the LL Parcel and other properties located adjacent to the STIA to the north, east, and south of the LL Parcel following completion of the STIA 3rd Runway in 2008. Restrictive covenants and local zoning designations prohibit future development on the LL Parcel to assure permanent use of the property as a protected wetland aquatic habitat area.

The DMCA is completely located within the security fencing for the STIA, and is monitored and access-controlled by Port of Seattle security as STIA property. The western portion of the DMCA is located beneath the 3rd Runway approach lighting system, and is a gravel surface. The eastern portion of the DMCA is vegetated, and vacant.

The proposed project will not affect land uses on nearby or adjacent properties. Land uses of the project properties will also remain as airport, and airport-compatible commercial use.

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use? [help]

Through the 1930s, the project area was primarily agricultural, containing family farms, suburban development, and supporting commercial businesses. The Lora Lake Apartments property was farmland until the mid-1940s. Since that time, none of the project property has been used as agricultural or forest land.

1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

No.

c. Describe any structures on the site. [help]

There are no structures present within the LL Apartments Parcel or LL Parcel. There are building foundations remaining at the LL Apartments Parcel.

The third runway approach lighting system crosses the DMCA, and two support structures are present on the DMCA. These structures are metal truss structures, with a concrete foundations that are approximately 15-20 feet square.

d. Will any structures be demolished? If so, what? [help]

Removal of the remaining apartments buildings foundations.

e. What is the current zoning classification of the site? [help]

The project area is currently zoned within the boundary of City of Burien as "Airport Industrial 1" (LL Apartments Parcel) and within the boundary of City of SeaTac as "Aviation Commercial (AVC)" (LL Parcel) and Aviation Operations (AVO)" (DMCA).

f. What is the current comprehensive plan designation of the site? [help]

Based on the City of Burien and City of SeaTac Comprehensive Plan Future Land Use Map, the property is designated as Airport Industrial. The City of SeaTac land use map utilizes a single designation ("Airport") for all properties owned or to be owned by the Port of Seattle under the Airport Master Plan as updated August 1, 1996.

g. If applicable, what is the current shoreline master program designation of the site? [help]

The project site is not in a shoreline area.

h. Has any part of the site been classified as a critical area by the city or county? If so, specify. [help]

There are no critical areas within the LL Apartments Parcel or the DMCA; however the LL Parcel includes Lora Lake and a constructed wetland aquatic habitat mitigation area, which is part of the Miller Creek/Lora Lake/Vacca Farm Wetland and Floodplain Mitigation Area.

i. Approximately how many people would reside or work in the completed project? [help]

No one would reside in the project area. If the site or a portion of the site is redeveloped for airport compatible commercial or industrial uses there is the potential that people will work within the completed project area in the future following redevelopment, which is outside the scope of this project.

j. Approximately how many people would the completed project displace? [help]

There will be no displacement impacts expected as a result of this project.

k. Proposed measures to avoid or reduce displacement impacts, if any: [help]

There will be no persons displaced as a result of this project.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any: [help]

No measures are proposed because there will be no changes to existing or projected land use as a result of this project.

m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:

There are no agricultural or forested lands of long-term commercial significance nearby.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing. [help]

There will be no housing units provided by this project.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing. [help]

There will be no housing units eliminated by this project.

c. Proposed measures to reduce or control housing impacts, if any: [help]

There will be no housing impacts as a result of this project. Therefore, measures to reduce or control housing impacts are not proposed.

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed? [help]

No structures will be constructed as part of this project, and all existing structures will be removed. If soil is consolidated at the DMCA, the land elevation may be raised as much as 6 to 8 feet.

b. What views in the immediate vicinity would be altered or obstructed? [help]

No views in the immediate vicinity are expected to be altered or obstructed.

c. Proposed measures to reduce or control aesthetic impacts, if any: [help]

There are no measures to reduce or control aesthetic impacts of the proposed project.

11. Light and glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur? [help]

Light and glare will not be produced by the project, as no permanent structures or lighting are included.

b. Could light or glare from the finished project be a safety hazard or interfere with views? [help]

The finished project will not produce light or glare.

c. What existing off-site sources of light or glare may affect your proposal? [help]

There are no known existing off-site sources of light or glare that may affect the proposal.

d. Proposed measures to reduce or control light and glare impacts, if any: [help]

There are no proposed measures to reduce or control light and glare impacts.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity? [help]

There are no designated or informal recreational opportunities in the immediate vicinity of the project.

b. Would the proposed project displace any existing recreational uses? If so, describe. [help]

The project will not displace any existing recreational uses.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any: [help]

There will be no measures to reduce or control impacts on recreation.

13. Historic and cultural preservation

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe. [help]

There are no places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site. A search of the Washington State System for Architectural and Archaeological Records (WISAARD) revealed no archaeological sites or historic (or potentially historic) structures in the project area. The nearest archaeological site is 45KI1040, a precontact lithic isolate recovered from a disturbed context, located about 1,500 feet southwest of the Site. An historic site, 45KI772, is located just under a mile north of the Site.

There are several historic property inventories that have been completed for a residential area located to the west of 8th Avenue South between S 150th Street and S 152nd Street. One historic property inventory (residence) was located at 15060 Des Moines Memorial Drive, located adjacent to both the LL Apartments Parcel and LL Parcel. While these resources are considered historic resources (greater than 50 years old), they are not registered or listed properties.

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources. [help]

There are no structures in or near the project area (other than those associated with the active airport), so there are no potential impacts to the built environment.

The area was assessed for archaeological potential in 2000 (Iversen et al. 2000:32). The review concluded that:

Water features in the project area at Miller Creek, Des Moines Creek, Lora Lake, and Lake Reba have a moderate probability for hunter- fisher-gatherer archaeological deposits as these areas would have been utilized for procuring fish and potable water. However, Lora Lake and Lake Reba are not represented on historic maps and may be man-made. If Lora Lake and Lake Reba are not natural water features, they have a low probability for hunter-fisher-gatherer archaeological deposits.

Historical documentation has confirmed that Lora Lake was created by peat mining processes in the mid-1930s. Therefore, it is an artificial lake, and has a fairly low potential for archaeological resources. The project area has been disturbed by farming, peat mining, industrial activities, and construction of apartments in the northern portion of the project area.

Additionally, review of the following studies identified no known historical, architectural, and/or cultural resources that were determined eligible to affect historic properties:

- Final Environmental Impact Statement for the Proposed Master Plan Update Development Actions, Seattle-Tacoma International Airport (FAA and Port of Seattle, 1996);
- Final Supplemental Environmental Impact Statement for the Proposed Master Plan Update Development Actions, Seattle-Tacoma International Airport (FAA and Port of Seattle, 1997); and
- Final Sea-Tac International Airport Comprehensive Development Plan, Sea-Tac International Airport (FAA and Port of Seattle, 2007).

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc. [help]

No impacts to archaeological/cultural resources are anticipated; therefore, no measures are proposed. An Inadvertent Discovery Plan (IDP) would be prepared to address the potential discovery of archaeological materials during construction activities.

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

Because there are no areas of importance, no measures are necessary to control impacts.

14. Transportation

a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any. [help]

The LL Apartments Parcel is accessed by Des Moines Memorial Drive and 8th Avenue South. The LL Parcel and DMCA are accessed by Des Moines Memorial Drive.

b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop? [help]

The nearest King County Metro bus stops are located 0.5 miles NE of the Site on S. 144th Street, and 0.2 miles SW of the Site on 8th Ave. S and S. 152nd St.

c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate? [help]

There will be no additional parking spaces created and none will be eliminated by this project.

d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private). [help]

The proposal will not require any new or improved existing roads, streets, pedestrian, bicycle, or state transportation facilities.

e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe. [help]

The project is located in the vicinity of the Seattle-Tacoma International Airport. The project will not use water, rail, or air transportation in the immediate vicinity of the Site.

f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates? [help]

There will be no additional vehicular trips generated as a result of the completed project. Construction will result in a temporary increase in traffic volumes due to haul trucks importing and removing soil from the Site. During construction, approximately 19,000 CY of contaminated soil will be transported from the Site by truck and trailer to a licensed Subtitle D landfill. This will generate approximately 1,000 truck trips during an approximate 6-month construction season.

Approximately 30,000 CY of contaminated soil from the LL Apartments Parcel and approximately 2,300 CY of contaminated soil from the LL Parcel will be transported by truck from the LL Apartments Parcel to the DMCA for consolidation. This will generate approximately 1,600 truck trips from the LL Apartments Parcel to the DMCA during the same 6-month construction season.

Approximately 46,000 CY of material will be imported to the LL Parcel to fill Lora Lake. This will generate approximately 2,400 truck trips to the LL Parcel during the approximate 6-month construction season at the LL Parcel.

The scheduling of vehicular trips is unknown, and will consider impacts to the surrounding neighborhood. These estimated vehicle trips assume a truck and trailer capacity of 20 CY per truck and trailer, and each truck trip includes to and from the Site.

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

No.

h. Proposed measures to reduce or control transportation impacts, if any: [help]

Use of larger vehicles that transport more material, reducing the total number of trips required will be implemented as possible. Trips may also be scheduled during the lowest traffic times of the day to reduce impact on the surrounding roadways.

15. Public services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe. [help]

The project will not require an increased need for public services.

b. Proposed measures to reduce or control direct impacts on public services, if any. [help]

There are no expected direct impacts on public services.

16. Utilities

a. Circle utilities currently available at the site: [help]

electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other _____

All utilities previously serving the Site have been disconnected. Active sanitary sewer lines are located in the right-of-way.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed. [help]

Sanitary sewer may be required during the project for discharge of dewatering water, or collected stormwater. Sanitary service would be provided by the Southwest Suburban Sewer District, through a connection in the adjacent right-of-way.

C. Signature [HELP]

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: Donald A. Robbins

Name of signee Donald A. Robbins

Position and Agency/Organization Sr. Env. Prog. Mgr Port of Seattle

Date Submitted: 4/7/2015

DEPARTMENT OF ECOLOGY
State of Washington

Port of Seattle
Lora Lake Apartments Site
Burien, Washington

Figure A.1
Miller Creek 100–Year Floodplain

I:\GIS\Projects\POS_LLA\MXD\Task6110\Figure A.1 (Floodplain).mxd
3/3/2014

Exhibit C
Scope of Work and Schedule

Exhibit C: Scope of Work and Schedule

Deliverable/Milestone	Completion/Due Date
Progress Reports	Monthly on the 15th of the month beginning after effective date of Consent Decree
Cost Estimate for Consent Decree Implementation (per Consent Decree Section XXI)	60 days after effective date of Consent Decree
Proof of Financial Assurances (per Consent Decree Section XXI)	60 days following Ecology approval of the Cost Estimate for Consent Decree Implementation
Annual Financial Assurance Report (per Consent Decree Section XXI)	Annually, within 30 days of the anniversary date of Consent Decree
Draft Compliance Monitoring Plan for the LL Apartments Parcel and DMCA	Submitted to Ecology within 60 days of effective date of Consent Decree
Final Compliance Monitoring Plan for the LL Apartments Parcel and DMCA	Submitted to Ecology within 30 days following receipt of Ecology comments
Final Data from Compliance Monitoring Event	Submitted to Ecology within 120 days of submittal of Final Compliance Monitoring Plan
Draft 60% LL Apartments Parcel and DMCA Engineering Design Report (EDR)	Submitted to Ecology within 6 months of receipt of final data from the Compliance Monitoring Event
Draft 100% LL Apartments Parcel and DMCA EDR, Project Plans and Specifications, and O&M Plan	Submitted to Ecology within 6 months of Ecology review of the Draft 60% LL Apartments Parcel and DMCA EDR
Final 100% LL Apartments Parcel and DMCA EDR, Project Plans and Specifications, and O&M Plan	Submitted to Ecology within 30 days following receipt of Ecology comments
Completion of LL Apartments Parcel and DMCA Cleanup Construction	Within 2 years of Ecology approval of the 100% LL Apartments Parcel and DMCA Project Plans and Specifications
Draft LL Apartments Parcel and DMCA As-Built Report (includes Environmental Covenants for LL Apartments Parcel and DMCA)	Submitted to Ecology within 90 days of completion of LL Apartments Parcel Cleanup Construction
Final LL Apartments Parcel and DMCA As-Built Report (includes Environmental Covenants for LL Apartments Parcel and DMCA)	Submitted to Ecology within 30 days of receipt of Ecology comments on the Draft As-Built Report
Submit proof of recording of LL Apartments Parcel and DMCA Environmental Covenants to Ecology	Submitted to Ecology within 90 days of Final LL Apartments and DMCA As-Built Report
Groundwater Compliance with Cleanup Levels Achieved throughout the Site	Within 5 years of construction completion at the LL Apartments Parcel and DMCA
Installation of Final Barrier to Wildlife on the LL Apartments Parcel	Within 4 years of construction completion at the LL Apartments Parcel
As-Built Report for Final Barrier to Wildlife on the LL Apartments Parcel	Submitted to Ecology within 90 days of completion of construction
Draft 60% LL Parcel EDR (includes Compliance Monitoring Plan and O&M Plan)	Within 1 year of submittal of the Final 100% LL Apartments and DMCA Project Plans and Specifications
Draft 100% LL Parcel EDR, Project Plans and Specifications, Compliance Monitoring Plan, and O&M Plan	Submitted to Ecology within 6 months of Ecology review of the Draft 60% LL Parcel EDR
Final 100% LL Parcel EDR, Project Plans and Specifications, Compliance Monitoring Plan, and O&M Plan	Submitted to Ecology within 30 days following receipt of Ecology comments on Draft 100% LL Parcel EDR
Completion of LL Parcel Cleanup Construction	Within 2 years of Ecology approval of the 100% LL Parcel Project Plans and Specifications
Draft LL Parcel As-Built Report (includes Environmental Covenant for LL Parcel)	Submitted to Ecology within 90 days of completion of LL Parcel Cleanup Construction
Final LL Parcel As-Built Report (includes Environmental Covenant for LL Parcel)	Submitted to Ecology within 30 days of receipt of Ecology comments on the Draft As-Built Report
Submit Proof of Recording of LLA Parcel Environmental Covenants to Ecology	Submitted to Ecology within 90 days of Final LL Parcel As-Built Report
Periodic Reviews Conducted by Ecology	At least every 5 years from the effective date of Consent Decree

Exhibit D
Applicable or Relevant and Appropriate Requirements

EXHIBIT D:
Applicable or Relevant and Appropriate Requirements

Approvals/permits required:

Local Approvals/Permits:

- King County Industrial Discharge Authorization

Federal Approvals/Permits:

- US Army Corps of Engineers (USACE) Clean Water Act Section 404 Nationwide Permit No. 38
  (Required for the Lora Lake (LL) Parcel remedial action)

State Approvals/Permits:

- Washington State Department of Ecology (Ecology) State Environmental Policy Act (SEPA) Checklist
- Ecology National Pollutant Discharge Elimination System (NPDES) Construction General Permit
- Washington State Department of Fish and Wildlife (WDFW) Hydraulic Project Approval (Required for the LL Parcel remedial action)

Exhibit E
Procedurally Exempt Requirements

EXHIBIT E:
Procedurally Exempt Requirements

Approvals/Permits Required:

- City of Burien Clearing and Grading Permit (Project is exempt from the procedural requirements, but must comply with the substantive requirements of this law. WAC 173-340-710)
- City of SeaTac Clearing and Grading Permit (Project is exempt from the procedural requirements, but must comply with the substantive requirements of this law. WAC 173-340-710)
- City of SeaTac Critical Area Review (Project is exempt from the procedural requirements, but must comply with the substantive requirements of this law. WAC 173-340-710)
- City of SeaTac Haul Permit (Project is exempt from the procedural requirements, but must comply with the substantive requirements of this law. WAC 173-340-710)
- City of SeaTac Maintenance of Traffic Plan (Project is exempt from the procedural requirements, but must comply with the substantive requirements of this law. WAC 173-340-710)