STATE OF WASHINGTON
WHATCOM COUNTY SUPERIOR COURT

STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, Plaintiff, v. CITY OF BELLINGHAM, a Washington municipal corporation; PORT OF BELLINGHAM, a Washington municipal corporation; WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES, Defendant.	NO. _____ CONSENT DECREE

TABLE OF CONTENTS

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

I. INTRODUCTION

A. The mutual objective of the State of Washington, Department of Ecology (Ecology) and the City of Bellingham (the City), the Port of Bellingham (the Port), and Washington State Department of Natural Resources (DNR) (Defendants) under this Decree is to provide for remedial action at a portion of the Cornwall Avenue Landfill Site (the Site), a facility where there has been a release or threatened release of hazardous substances. The Site consists of three separate Management Units (MUs): MU–1, MU–2, and MU–3. MU–1 is defined as the upland area of the Site as presented on the Site Diagram (Exhibit A). MU–2 is the approximate extent of refuse and wood debris in the aquatic area of the Site subject to active remediation and is shown on the Site Diagram (Exhibit A). MU–3 is the remainder of the aquatic portion of the Site and is described as the potential area of monitored natural recovery that will be further defined at a later date. This Decree requires Defendants to conduct a final cleanup action of the portion of Site that is the subject of this Decree (MU–1 and MU–2), by implementing the Cleanup Action Plan (CAP), attached hereto as Exhibit B. To the extent that further remedial actions are required at MU–3, such actions will be performed under an amendment to this Decree and CAP to address releases or threatened releases of hazardous substances in MU–3.

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.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

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 Defendants 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:

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), Chapter 70.105D RCW.

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.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

D. Ecology has given notice to Defendants of Ecology's determination that Defendants are PLPs 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 a portion of the Site described as MU–1 and MU–2 in compliance with the cleanup standards established under RCW 70.105D.030(2)(e) and Chapter 173-340 WAC.

H. Defendants have 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. Defendants agree to undertake all actions required by the terms and conditions of this Decree. No change in ownership or corporate status shall alter Defendants' responsibility under this Decree. Defendants 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.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

A. Site: The Site is referred to as the Cornwall Avenue Landfill and is generally located at the south end of Cornwall Avenue in Bellingham, Washington. The Site is more particularly described in the Site Diagram (Exhibit A). The Site is defined by the extent of contamination caused by the release of hazardous substances at the Site. The final in-water boundary has not been established for the Site pending the development of final bioaccumulative sediment cleanup levels. The final in-water Site boundary is expected to be located further out from shore than the MU–2 boundary shown on the Site Diagram, The Site constitutes a Facility under RCW 70.105D.020(8).

B. Parties: Refers to the Ecology and the City, the Port, and DNR.

C. Defendants: Refers to the Port, the City, and DNR.

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.

E. Site Management Unit (MU): Refers to separate portions of the Cornwall Avenue Landfill Site that are the subject of this Consent Decree. MU–1 and MU–2 are the only portions of the Site addressed by this Consent Decree.

F. MU–1: Refers to the upland area of the Site as presented on the Site Diagram (Exhibit A). MU-1 is subject to this Consent Decree.

G. MU–2: Refers to the approximate extent of refuse and wood debris in the aquatic area of the Site subject to active remediation and is shown on the Site Diagram (Exhibit A). MU–2 is subject to this Consent Decree.

H. MU–3: Refers to the remainder of the aquatic portion of the Site and is described as the potential area of monitored natural recovery that will be further defined at a later date.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

V. FINDINGS OF FACTS

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

A. The Site is located in Bellingham, Washington, and consists of approximately 25.8 acres. The Site is bounded by the Burlington Northern Santa Fe right-of-way to the east and in part by the RG Haley Site to the north. The Site also extends across state lands managed by DNR and into Bellingham Bay on the south and west, as specifically described in the CAP (Exhibit B). A diagram of the Site is attached as Exhibit A.

B. Historical Operations and Ownership. Between approximately 1900 and 1945, a portion of the Site was used by the Bellingham Bay Improvement Company and Bloedel Donovan Lumber Company for lumber milling and wood products manufacturing. Between approximately 1954 and 1965, a portion of the Site was used by the City for a city dump. The history of lease and subleases state-owned lands at the Site involve many different parties, leaseholds, and time periods. Relevant historical information includes, but is not limited to, the following:

1. The Port purchased the fee-owned portion of the Site from Bloedel Donovan Lumber Mill in 1947 and leased it to the City from 1953 to 1956 for use as a municipal landfill.

2. The Port leased state lands at the Site from DNR from 1946 to 1965. The City subleased that land from the Port from 1953 to 1962 for use as a municipal landfill.

3. In 1961 the Port sold a portion of the Site to American Fabricators, Inc. Ownership of this portion of the Site passed to Frank Brooks Manufacturing Co. in 1965.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

4. In 1962 the City entered into a sublease with American Fabricators (another Port tenant) and continued operations of the municipal landfill at the Site until 1965.

5. In April 1965, the Port assigned its lease of state harbor area to Frank Brooks Manufacturing Co.

6. Frank Brooks Manufacturing Company, Inc. leased state lands at the Site from 1965 to 1976.

7. From 1971 to 1985, the Port leased the Site to Georgia Pacific West (GP), including sublease of the DNR-owned land.

8. In July 1976 DNR executed harbor area lease no. 22-002353 to Brook-Richards, Inc. The lease area included 10.28 acres of harbor area fronting tideland blocks 240 ½ through 250 for a twenty year term.

9. In 1982, Georgia Pacific entered a sublease with Brooks-Richards, Inc. for use of the filled area for dry storage.

10. In January 1985, Brooks-Richards assigned harbor areas lease no. 22002353 to the Brooks Manufacturing Company, which, in turn, assigned the lease to Georgia Pacific Co.

11. In 1985, the Georgia Pacific Corporation (or its wholly owned subsidiary, Georgia Pacific West, Inc.) acquired the fee-owned portion of the Site.

12. DNR entered into a holdover agreement with Georgia Pacific Co. in July 2001 for an indefinite term.

13. DNR terminated the holdover of lease no. 22-002343 on January 5, 2005.

14. On January 8, 2005, the Port purchased Georgia Pacific's fee-owned portion of the Site.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

15. On December 14, 2005, the City purchased an ownership interest in the fee-owned portion of the Site from the Port.

16. In October of 2011, the Port placed fine-grained sediment on the Cornwall site as part of an interim action.

17. On October 24, 2012, the City acquired the remainder of the Port's fee-owned interest of the Site.

C. Contamination at MU–1 and MU–2 are related to the lumbering and landfilling operations. Wood waste fill, soil, and landfill refuse were placed into Bellingham Bay, resulting in the release of hazardous substances to soil, groundwater, marine sediment, and possibly air. Some of the hazardous substances were detected in landfill leachate and adjacent sediments (see contaminants of concern below). The hazardous substances are described in detail in the CAP. Methane and other volatile organic compounds may be detected at concentrations of concern in soil vapor during the design phase characterization.

D. A series of environmental investigations, beginning in 1993 and extending to 2013, confirmed contamination at the Site.

E. In 1993, Ecology sampled sediment and shoreline seeps at the Site.

F. In 1995, Ecology conducted a Site Hazard Assessment, assigned the Site an overall priority ranking of two on a scale of one to five, with one being considered the highest ranking pursuant to MTCA. The Site was added to the Hazardous Sites List that same year.

G. In 1996, the Port, in cooperation with the City and DNR, conducted an expanded site investigation including soil, sediment, and groundwater sampling.

H. Between 1996 and 2004 the Port, in cooperation with the City and DNR, performed three investigations of the Site under Ecology's Voluntary Cleanup Program. The results of these investigations are contained in the following documents:

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

(i) Landau Associates, 1996, Report, Expanded Site Investigation, Cornwall Avenue Landfill Investigation, Bellingham, Washington.

(ii) Landau Associates, 2000, Report, Focused Remedial Investigation/Feasibility Study, Cornwall Avenue Landfill, Bellingham, Washington, October 3, 2000.

I. The Port's investigation (listed above) confirmed the presence of hazardous substances in the Site groundwater, surface water, soil and/or sediments in quantities of hazardous substances above state standards that include arsenic, copper, lead, mercury, silver, zinc, cyanide, polychlorinated biphenyls, ("PCBs"), bis(2-ethylhexyl)phthalate, polycyclic aromatic hydrocarbon ("PAH") compounds and fecal coliform.

J. In October 2000, Ecology published the Bellingham Bay Comprehensive Strategy Final Environmental Impact Statement which included the Cornwall Site.

K. In 2000, the Port (in cooperation with the City and DNR) conducted a focused RI/FS to evaluate the nature and extent of contamination and cleanup alternatives.

L. Ecology named the City and Port as Potentially Liable Persons (PLPs) for the Cornwall Avenue Landfill Site on December 12, 2002, and named DNR as an additional PLP on April 29, 2004.

M. On February 10, 2005, the City and the Port entered into an Agreed Order with Ecology (No. 1778) to complete a Remedial Investigation/Feasibility Study (RI/FS) for Site groundwater, surface water, soil, and sediments.

N. In 2009, Ecology conducted sediment sampling at the Site and vicinity.

O. In 2011, the Port and the City entered into a First Amendment to Agreed Order No. 1778 with Ecology to perform an interim action to reduce stormwater infiltration through the Site by placing and contouring imported dredged sediments, and covering this material with a low-permeability liner. The interim action also reduced potential migration of landfill

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

gas to off-Site structures or utility lines through installation of a landfill gas and passive venting system.

P. In 2012, the Port and City developed a work plan for additional groundwater investigation, and conducted the investigation.

Q. In 2013, the Port, in cooperation with the City and DNR prepared a final RI/FS report summarizing all investigations completed at the Site. The RI identified the presence of hazardous substances in soil, sediment, and groundwater at concentrations potentially harmful to human health and the environment, and the FS developed a preferred alternative to clean up the Site.

R. The contaminants of concern at the Site that currently exceed MTCA cleanup levels are: 1) sediment: cadmium, copper, lead, silver, zinc, bis(2-ethylhexyl)phthalate, total PCBs, total cPAHs, wood waste; 2) groundwater: ammonia, manganese; and 3) soil: municipal refuse and interim action sediment are presumed to contain contaminants at concentrations exceeding MTCA cleanup levels. Methane and other volatile organic compounds may be detected at concentrations of concern in soil vapor during the design phase characterization.

S. As documented in the CAP (Exhibit B), the cleanup action to be implemented at the Site generally includes hazardous substance containment, monitoring, and institutional controls.

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 MU–1 and/or MU–2.

A. The Defendants shall perform all tasks set forth in the CAP (Exhibit B) and implement the CAP in accordance with the Schedule of Work and Deliverables (Exhibit C). The CAP requires:

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

1. Preparation of a draft Engineering Design Studies Work Plan (EDS Work Plan) for Ecology review and approval, followed by preparation of a final EDS Work Plan incorporating Ecology's review comments.

2. Completion of the work outlined in the EDS Work Plan

3. Preparation of a draft Engineering Design Report (EDR) for Ecology review and approval incorporating the results of the engineering design studies, followed by preparation of a final EDR incorporating Ecology's review comments.

4. Preparation of 90% design documents for the cleanup action (construction plans and specifications) for Ecology review and approval, followed by the preparation of 100% design documents incorporating Ecology's review comments and the requirements imposed by permitting agencies.

5. Construction of the cleanup action in accordance with the approved design documents. The cleanup action will consist generally of the following construction elements:

- An upland low-permeability soil cover, including fine-grained sediment stored at MU-1 as part of the interim action described below.
- An upland surface cap including various combinations of topsoil, drainage layers, flexible membranes, asphalt and concrete pavement, and buildings.
- An upland stormwater collection and discharge system.
- Improvements to the drainage ditch on the Burlington Northern Santa Fe (BNSF) right-of-way, contingent on approval from BNSF.
- An upland soil gas collection and discharge system. The collected gas will be treated, as needed, for MU-1 to meet air quality standards.
- A shoreline stabilization system.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

- A shoreline sand filter beneath the shoreline stabilization system.
- An in-water sediment cap beyond the shoreline stabilization system.
- Groundwater and soil gas monitoring wells

6. Preparation of a draft Construction Completion Report for Ecology review and approval, followed by preparation of a final Construction Completion report incorporating Ecology's review comments.

7. Preparation of a draft Confirmation Monitoring Plan (CMP) for Ecology review and approval, followed by preparation of a final CMP incorporating Ecology's review comments.

8. Implementation of the long-term Confirmation Monitoring Plan for monitoring of groundwater, sediment, gas discharge, and habitat replacement.

9. Preparation of a draft Operations and Maintenance Plan (O&M Plan – or Institutional Controls Plan) for Ecology review and approval, followed by preparation of a final O&M Plan incorporating Ecology's review comments.

10. Implementation of the long–term O&M Plan.

11. As described in more detail in Section XX, an environmental covenant will be recorded after completing the remedial construction that will, among other requirements: prohibit groundwater use and restrict any uses or practices that would damage or reduce the effectiveness of the cleanup action.

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

VII. DESIGNATED PROJECT COORDINATORS

The Project Coordinator for Ecology is:

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

Mark Adams
3190 160th Avenue SE
Bellevue, Washington 98005
425-649-7107

The Project Coordinator for Defendants is:

Brian Gouran
Port of Bellingham
1801 Roeder Avenue
Bellingham, Washington 98227
360-676-2500

Each project coordinator shall be responsible for overseeing the implementation of this Decree. Ecology's project coordinator will be Ecology's designated representative for MU–1 and MU–2. To the maximum extent possible, communications between Ecology and Defendants 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. It is the responsibility of the Port's project coordinator to distribute materials to DNR and the City. 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 by the State of Washington or under the direct supervision of an engineer registered by the State of Washington, except as otherwise provided for by Chapters 18.220 and 18.43 RCW.

All engineering work performed pursuant to this Decree shall be under the direct supervision of a professional engineer registered by 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 by 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 Chapters 18.220 and 18.43 RCW.

Defendants 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 MU–1 and MU–2 that Defendants either own, control, or have 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 Defendants' 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 Defendants. Defendants shall make all reasonable efforts to secure access rights for those properties within the Site not owned or controlled by Defendants 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

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

MU–1 or MU–2 property owned or controlled by Defendants unless an emergency prevents such notice. All Parties who access MU–1 or MU–2 pursuant to this section shall comply with any applicable health and safety plan(s). Ecology employees and their representatives shall not be required to sign any liability release or waiver as a condition of Site property access. The scope and terms of Ecology's right of access specified in this section extend to cleanup actions at the adjacent RG Haley and Whatcom Waterway Sites, should the Cleanup Action Plans for those Sites require access to MU–1 or MU–2.

X. SAMPLING, DATA SUBMITTAL, AND AVAILABILITY

With respect to the implementation of this Decree, Defendants shall make the results of all sampling, laboratory reports, and/or test results generated by them or on their behalf available to Ecology. Pursuant to WAC 173-340-840(5), all sampling 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, Defendants shall allow Ecology and/or its authorized representative to take split or duplicate samples of any samples collected by Defendants pursuant to the implementation of this Decree. Defendants shall notify Ecology seven (7) days in advance of any sample collection or work activity at the Site. Ecology shall, upon request, allow Defendants and/or their 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 Defendants prior to any sample collection activity unless an emergency prevents such notice.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

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

XI. PROGRESS REPORTS

Defendants shall submit to Ecology written quarterly Progress Reports that describe the actions taken during the previous quarter 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 quarter;

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

C. Description of significant deviations from scopes of work or schedules established for the various phases of work necessary to implement the cleanup action during the current quarter and any planned deviations in the upcoming quarter;

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) received by Defendants during the past quarter and an identification of the source of the sample; and

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

All Progress Reports shall be submitted by the tenth (10th) day of the month following the end of the quarter in which they are due starting after the first full quarter following the effective date of this Decree. Unless otherwise specified, Progress Reports and any other documents submitted pursuant to this Decree shall be sent by certified mail, return receipt requested, to Ecology's project coordinator.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

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 XXVII (Duration of Decree), Defendants 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, Defendants shall make all records available to Ecology and allow access for review within a reasonable time.

Nothing in this Decree is intended by Defendants to waive any right they may have under applicable law to limit disclosure of documents protected by the attorney work-product privilege and/or the attorney-client privilege. If a Defendant withholds any requested records based on an assertion of privilege, that Defendant shall provide Ecology with a privilege log specifying the records withheld and the applicable privilege. No MU–1 or MU–2 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 Defendants 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 a Defendant's transfer of any interest in all or any portion of MU–1 or MU–2, and during the effective period of this Decree, that 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, that Defendant shall notify Ecology of said transfer. Upon transfer of any interest, the transferring Defendant shall notify all

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

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 a dispute arises as to an approval, disapproval, proposed change, or other decision or action by Ecology's project coordinator, or an itemized billing statement under Section XXIII (Remedial Action Costs), the Parties shall utilize the dispute resolution procedure set forth below.

1. Upon receipt of Ecology's project coordinator's written decision, or the itemized billing statement, Defendants' project coordinator has fourteen (14) days within which to notify Ecology's project coordinator in writing of Defendants' objection to the decision or itemized statement.

2. The Parties' project coordinators shall then confer in an effort to resolve the dispute. If the project coordinators cannot resolve the dispute within fourteen (14) days, Ecology's project coordinator shall issue a written decision.

3. A Defendant may then request regional management review of the decision. This request shall be submitted in writing to the Northwest Regional Toxics Cleanup Program Section Manager within seven (7) days of receipt of Ecology's project coordinator's written decision.

4. Ecology's Regional Section Manager shall conduct a review of the dispute and shall endeavor to issue a written decision regarding the dispute within thirty (30) days of Defendant's request for review.

5. If a Defendant finds Ecology's Regional Section Manager's decision unacceptable, that Defendant may then request final management review of the decision. This request shall be submitted in writing to the Toxics Cleanup Program Manager within seven (7) days of receipt of the Regional Section Manager's decision.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

6. Ecology's Toxics Cleanup Program Manager shall conduct a review of the dispute and shall endeavor to issue a written decision regarding the dispute within thirty (30) days of a Defendant's request for review of the Regional Section Manager's decision. The Toxics Cleanup Program Manager's decision shall be Ecology's final decision on the disputed matter.

B. If Ecology's final written decision is unacceptable to a Defendant, that 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 a 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.

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

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

upon entry by the Court. Agreement to amend the Decree shall not be unreasonably withheld by any party.

Defendants 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.

B. The burden shall be on Defendants 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 Defendants including delays caused by unrelated third parties or Ecology,

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

such as (but not limited to) delays by Ecology in reviewing, approving, or modifying documents submitted by Defendants;

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 Defendants.

C. Ecology shall act upon any written request for extension in a timely fashion. Ecology shall give Defendants 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

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

XVII. ENDANGERMENT

In the event Ecology determines that any activity being performed at MU–1 or MU–2 under this Decree is creating or has the potential to create a danger to human health or the

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

environment, Ecology may direct Defendants to cease such activities for such period of time as it deems necessary to abate the danger. Defendants shall immediately comply with such direction.

In the event Defendants determine that any activity being performed at MU–1 or MU–2 under this Decree is creating or has the potential to create a danger to human health or the environment, Defendants may cease such activities. Defendants 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, Defendants shall provide Ecology with documentation of the basis for the determination or cessation of such activities. If Ecology disagrees with Defendants' cessation of activities, it may direct Defendants to resume such activities.

If Ecology concurs with or orders a work stoppage pursuant to this section, Defendants' 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 Defendants' compliance with the terms and conditions of this Decree, Ecology covenants not to institute legal or administrative actions against Defendants regarding the release or threatened release of hazardous substances covered by this Decree.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

This Decree covers only MU–1 or MU–2 specifically identified in the Site Diagram (Exhibit A) and those hazardous substances that Ecology knows are located at MU–1 or MU–2 as of the date of entry of this Decree, in addition to methane and other volatile organic compounds that may be detected at concentrations of concern in soil vapor during the design phase characterization. In the event of an amendment to this Decree or a reopener under Section XVIII(B), those areas of MU–2 subject to a sediment cap, sand filter, or cap pursuant to the CAP will not be required to be excavated, disturbed or otherwise modified to further address contamination unless that contamination originates from MU–1 and/or MU–2. This Decree does not cover any other hazardous substance or area. Ecology retains all of its authority relative to any substance or area, including but not limited to MU–3, 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 Defendants to require them to perform additional remedial actions at MU–1 or MU–2 and to pursue appropriate cost recovery, pursuant to RCW 70.105D.050 under the following circumstances:

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

1. Upon Defendants' 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 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.

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

XIX. CONTRIBUTION PROTECTION

With regard to claims for contribution against Defendants, the Parties agree that Defendants are 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 Defendants, Ecology will prepare an Environmental (Restrictive) Covenant consistent with WAC 173-340-440 and Chapter 64.70 RCW. After approval by Ecology, each Defendant shall record an Environmental (Restrictive) Covenant with the office of the Whatcom County Auditor within ninety (90) days of completing the cleanup action.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

Each Environmental (Restrictive) Covenant shall restrict future activities and uses of the Site as agreed to by Ecology and each Defendant. Defendants shall provide Ecology with each original recorded Environmental (Restrictive) Covenant within thirty (30) days of the recording date.

XXI. INDEMNIFICATION

Defendants agree, to the extent permitted by law, 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 Defendants, their officers, employees, agents, or contractors in entering into and implementing this Decree. However, Defendants shall not indemnify the State of Washington nor save nor hold its employees and agents harmless from any claims or causes of 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.

XXII. COMPLIANCE WITH APPLICABLE LAWS

A. All actions carried out by Defendants 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 Exhibit D.

B. Pursuant to RCW 70.105D.090(1), Defendants are exempt from the procedural requirements of Chapters 70.94, 70.95, 70.105, 77.55, 90.48, and 90.58 RCW and of any laws requiring or authorizing local government permits or approvals. However, Defendants shall comply with the substantive requirements of such permits or approvals. The exempt permits or

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

approvals and the applicable substantive requirements of those permits or approvals, as they are known at the time of entry of this Decree, have been identified in Exhibit E.

Defendants 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 this Decree. In the event either Ecology or Defendants determine 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 Defendants shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, Defendants 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 Defendants and on how Defendants must meet those requirements. Ecology shall inform Defendants in writing of these requirements. Once established by Ecology, the additional requirements shall be enforceable requirements of this Decree. Defendants 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 Defendants 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.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

XXIII. REMEDIAL ACTION COSTS

Defendants 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 Chapter 70.105D RCW, 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 $13,849.14 in remedial action costs related to this facility as of March 31, 2014. Payment for this amount shall be submitted within thirty (30) days of the effective date of this Decree. For all costs incurred subsequent to March 31, 2014 Defendants 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. 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, to the extent authorized by WAC 173-340-550(4).

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.

XXIV. IMPLEMENTATION OF REMEDIAL ACTION

If Ecology determines that Defendants have failed without good cause to implement the remedial action, in whole or in part, Ecology may, after notice to Defendants, perform any or all portions of the remedial action that remain incomplete. If Ecology performs all or portions

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

of the remedial action because of Defendant's failure to comply with their obligations under this Decree, Defendants shall reimburse Ecology for the costs of doing such work in accordance with Section XXIII (Remedial Action Costs), provided that Defendants are 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, Defendants shall not perform any remedial actions at MU–1 or MU–2 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).

XXV. PERIODIC REVIEW

As remedial action, including groundwater monitoring, continues at MU–1 or MU–2, the Parties agree to review the progress of remedial action at MU–1 or MU–2, and to review the data accumulated as a result of monitoring MU–1 or MU–2 as often as is necessary and appropriate under the circumstances. At least every five (5) years after the initiation of cleanup action at MU–1 or MU–2 the Parties shall meet to discuss the status of MU–1 or MU–2 and the need, if any, for further remedial action at MU–1 or MU–2. At least ninety (90) days prior to each periodic review, Defendants shall 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). Ecology reserves the right to require further remedial action at MU–1 or MU–2 under appropriate circumstances. This provision shall remain in effect for the duration of this Decree.

XXVI. 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, or if no plan exists, Ecology shall develop a Public Participation Plan alone or in

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

conjunction with Defendants. Ecology shall maintain the responsibility for public participation at the Site. However, Defendants 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 Defendants 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 Defendants that do not receive prior Ecology approval, Defendants shall clearly indicate to its audience that the press release, fact sheet, meeting, or other outreach effort was not sponsored or endorsed by Ecology.

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. Ecology's Bellingham Field Office
   1440 10th Street, Suite 102
   Bellingham, WA 98225-7028

2. Ecology's Northwest Regional Office
   3190 160th Ave. SE
   Bellevue, WA 98008-5452

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

3. Bellingham Public Library
210 Central Avenue
Bellingham, WA 98225

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.

XXVII. DURATION OF DECREE

The remedial program required pursuant to this Decree shall be maintained and continued until Defendants have 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.

XXVIII. CLAIMS AGAINST THE STATE

Defendants hereby agree that they 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. Defendants 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, Defendants expressly reserve their 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 Chapter 173-322 WAC. This section is not intended to limit the Legislature's authority to appropriate funds.

XXIX. EFFECTIVE DATE

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

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

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

Date Signed: _____

ROBERT W. FERGUSON
Attorney General

ANNE M. POWELL, #42934
Assistant Attorney General
(360) 586-4607

Date Signed: _____

STATE OF WASHINGTON
DEP'T OF NATURAL RESOURCES

PETER GOLDMARK
Commissioner of Public Lands
(360) 902-1004

Date Signed: _____

ROBERT W. FERGUSON
Attorney General

CHRISTA L. THOMPSON, #15431
Sr. Counsel for DNR
(360) 586-3511

Date Signed: _____

CITY OF BELLINGHAM

KELLI LINVILLE

PORT OF BELLINGHAM

ROBERT FIX

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

Mayor, City of Bellingham
(360) 778-8100

Date Signed: _____

Executive Director
(360) 676-2500

Date Signed: _____

APPROVED AS TO FORM:

_____
Office of the City Attorney

ATTEST: _____
Finance Director
Date Signed: _____

ENTERED this _____ day of _____ 2014.

_____
JUDGE
Whatcom County Superior Court

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

EXHIBIT A

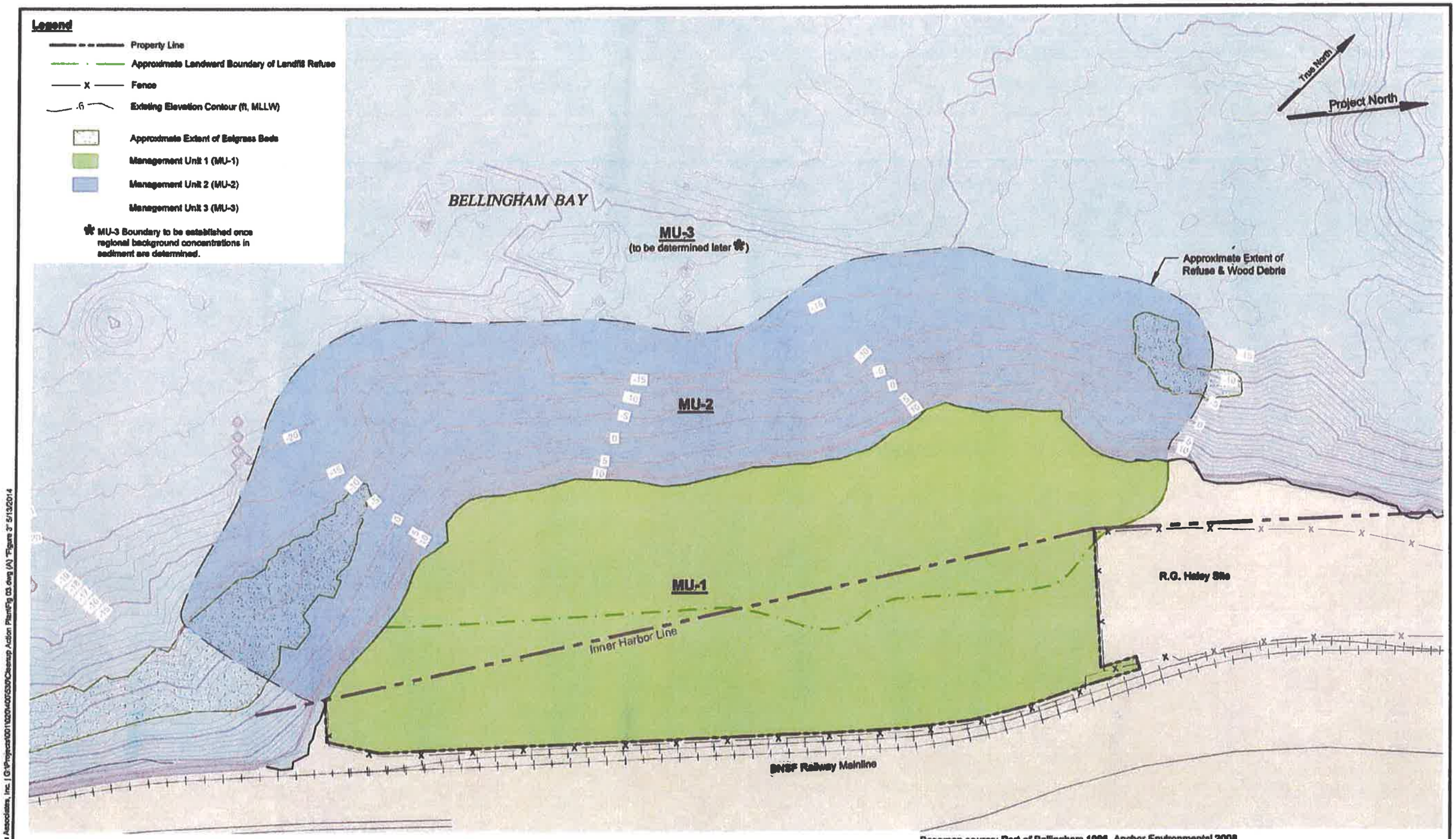

Legend
Property Line
Approximate Landward Boundary of Landfill Refuse
Fence
Existing Elevation Contour (ft, MLLW)
Approximate Extent of Eelgrass Beds
Management Unit 1 (MU-1)
Management Unit 2 (MU-2)
Management Unit 3 (MU-3)
MU-3 Boundary to be established once regional background concentrations in sediment are determined.
True North
Project North
BELLINGHAM BAY
MU-3
(to be determined later *)
Approximate Extent of Refuse & Wood Debris
MU-2
MU-1
Inner Harbor Line
R.G. Haley Site
BNSF Railway Mainline
Basemap source: Port of Bellingham 1998, Anchor Environmental 2008
0
150
300
Scale in Feet
Cornwall Avenue Landfill
Bellingham, Washington
Site Management Units
LANDAU ASSOCIATES
Landau Associates, Inc. | G:\Projects\001\020\400\530\Cleanup Action Plan\Fig 03.dwg (A) "Figure 3" 5/13/2014

Exhibit B

PUBLIC REVIEW DRAFT

CLEANUP ACTION PLAN

CORNWALL AVENUE LANDFILL

BELLINGHAM, WASHINGTON

Prepared by

Washington State Department of Ecology
3190 160th Avenue Southeast
Bellevue, Washington 98008-5452

5/20/14

TABLE OF CONTENTS

FIGURES

TABLES

LIST OF ABBREVIATIONS AND ACRONYMS

ARARs	applicable or relevant and appropriate requirements
BBP	butylbenzylphthalate
BEP	bis(2-Ethylhexyl)phthalate
BNSF	BNSF Railway Company
BSAF	biota-sediment accumulation factor
CAP	Cleanup Action Plan
CD	Consent Decree
CFR	Code of Federal Regulations
City	City of Bellingham
CL	cleanup level
cm	centimeter
cPAH	carcinogenic polycyclic aromatic hydrocarbon
CSL	Cleanup Screening Level
DCA	Disproportionate Cost Analysis
DNR	Washington State Department of Natural Resources
Ecology	Washington State Department of Ecology
EDR	Engineering Design Report
ESA	Endangered Species Act
ENR	Enhanced Natural Recovery
IHS	Indicator Hazardous Substance
IPA	interim placement area
ft	foot
FS	Feasibility Study
LFG	landfill gas
MU	Management Unit
µg/kg-dw	micrograms per kilogram dry weight
MFS	Minimum Functional Standards
MNR	Monitored Natural Recovery
MTCA	Model Toxics Control Act
NWCAA	Northwest Clean Air Authority
PAH	polycyclic aromatic hydrocarbon
PBT	persistent bioaccumulative toxin
PCB	polychlorinated biphenyl
PLP	Potentially Liable Party
Port	Port of Bellingham
PQL	practical quantitation limit
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study report
RCW	Revised Code of Washington
SCO	Sediment Cleanup Objectives
SCUM	Sediment Cleanup Users Manual
Site	Cornwall Avenue Landfill Site
SMS	Sediment Management Standards
SVOC	semivolatile organic compound
TEQ	toxicity equivalency
VOC	volatile organic compound
WAC	Washington Administrative Code
yd^3	cubic yard

PRELIMINARY DETERMINATION

Consistent with the Model Toxics Control Act Cleanup Regulation, Washington Administrative Code (WAC) 173-340-380(1)(a)(viii), the Washington State Department of Ecology has made a preliminary determination that the selected cleanup action will comply with WAC 173-340-360. That is, it will be protective of human health and the environment, attain federal and state requirements that are applicable or relevant and appropriate, comply with cleanup standards, provide for compliance monitoring, use permanent solutions to the maximum extent practicable, provide for a reasonable restoration time-frame, and consider public concerns raised during public comment.

_____

Mark Adams, LHG Date

Project Coordinator

Toxics Cleanup Program

Northwest Regional Office

_____

Robert W. Warren, P.Hg, MBA Date

Regional Section Manager

Toxics Cleanup Program

Northwest Regional Office

1.0 INTRODUCTION AND SITE BACKGROUND

This cleanup action plan (CAP) describes the cleanup action selected by the Washington State Department of Ecology (Ecology) for the Cornwall Avenue Landfill site (Site). The CAP is based on a Remedial Investigation/Feasibility Study (RI/FS, Landau Associates 2013) prepared in accordance with an agreed order between Ecology and other parties as follows:

Site Name:	Cornwall Avenue Landfill
Site Location:	South end of Cornwall Avenue, Bellingham, WA
Facility Site Identification No.:	2913
Agreed Order No.:	1778
Effective Date of Order:	February 10, 2005
Parties to the Order:	Ecology, City of Bellingham, Port of Bellingham
Current Property Owner:	City of Bellingham, Washington State

The 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), and the MTCA Cleanup Regulation, Chapter 173-340 of the Washington Administrative Code (WAC). The Site cleanup action will be conducted under a consent decree between Ecology, the Port of Bellingham (Port), the City of Bellingham (City), and the Washington State Department of Natural Resources (DNR). The Port, City, and DNR have been identified as potentially liable parties (PLPs) for the Site.

In December 2013, the Port and City completed the RI/FS for the Site in accordance with the referenced Agreed Order. The RI/FS identified a preferred cleanup action, which is the basis for the cleanup action presented in this CAP. As specified in WAC 173-340-380, this CAP:

- Identifies Site cleanup standards
- Describes the selected cleanup action
- Summarizes the rationale for selecting the cleanup alternative for the Site
- Briefly summarizes other cleanup action alternatives evaluated in the RI/FS (Landau Associates 2013)
- Identifies institutional controls required as part of the cleanup action, if applicable
- Identifies applicable state and federal laws
- Provides the schedule for implementation of the cleanup action
- Specifies the types, levels, and amounts of hazardous substances remaining on site, and the measures that will be used to prevent migration and contact with those substances.

The Site has been subdivided into three Management Units (MUs), which are discussed in Section 4.0. This CAP addresses MU-1 and MU-2. MU-3, the outermost MU in the aquatic portion of the Site, will be addressed following the establishment of regional background concentrations for Persistent Bioaccumulative Toxins (PBTs) in marine sediment, and the CAP will be amended at that time to address MU-3.

1.1 SITE LOCATION AND DESCRIPTION

The Site is located south of downtown Bellingham, at the terminus of Cornwall Avenue, adjacent to Bellingham Bay. The Site is bordered to the east by an active rail line owned by BNSF Railway Company (BNSF), and to the north by the R.G. Haley site. The Site's location and current conditions are presented on Figures 1 and 2, respectively.

The Site extends across two separate properties, one owned by the City and the other consisting of Washington state lands administered by DNR, as shown on Figure 2 (Note: project north established as the northeastern Cornwall property line). Property-related references in the CAP use the following conventions:

- DNR property or state land: The upland and in-water area owned by the State of Washington seaward of the Inner Harbor Line.
- Cornwall property: The upland area formerly owned jointly by the Port and the City, and now owned solely by the City landward of the Inner Harbor Line.
- BNSF railway mainline: The upland area owned by BNSF.
- The Cornwall landfill, Cornwall Avenue Landfill, or the landfill: The area containing municipal refuse.

The Site is defined as the area containing refuse, the area containing wood waste within Cornwall property boundaries, the stabilized sediment piles imported as part of the interim action (see Section 1.4), and the adjoining areas impacted by hazardous substance releases from the refuse or wood waste (see Figure 3). The Site's boundaries are described more specifically as follows:

- West and South Site Boundary: These boundaries will be set when MU-3 is defined based on regional background concentrations in sediment, as further described in Section 4.1.
- North Site Boundary: This boundary is set at the northern limit of refuse or impacts from refuse. Where refuse is absent, this boundary is established at the northern Cornwall property line.
- East Site Boundary: This boundary is set at the eastern edge of the wood waste fill, which generally coincides with the eastern Cornwall property line (i.e., where it adjoins the BNSF railway mainline).

The portion of the Site addressed by this CAP (MU-1 and MU-2) is approximately 25.8 acres in size, including about 12.6 acres of aquatic lands (MU-2) and 13.2 acres of uplands (MU-1). The aquatic lands and approximately 8.4 acres of the uplands are owned by Washington State and managed by DNR. The remaining 4.8 acres of the uplands are owned by the City. The inner harbor line represents the boundary

between City-owned land and state-owned land at the Site. Property to the north of the Site is also owned by the City, and is part of the R.G. Haley MTCA cleanup site[1]. BNSF owns the property east of the Site for the railway mainline.

Presently, the only significant features on the Site consist of a stormwater detention basin constructed in 2005 at the south end of the Site, and the interim placement areas (IPAs) located in the western portion of the Site that store stabilized sediment from the interim action conducted in 2011 and 2012 (see Section 1.4 and Figure 2). The Site is largely unpaved, with the exception of a section of asphalt road and discontinuous areas of unmaintained pavement in the northeastern portion of the Site.

1.2 ADJACENT PROPERTIES AND ASSOCIATED CLEANUP PROGRAMS

The R.G. Haley MTCA site is located adjacent to and north of the Site. Releases from the R.G. Haley site appear to have impacted soil and ground water conditions in the northern portion of the Site, in an area referred to herein as the overlap area (see Figure 4). Additionally, refuse from the Site is present in the southwestern portion of the R.G. Haley site uplands. Additional overlap also appears to exist between the sites with respect to sediment contamination. The City is currently conducting an RI/FS for the R.G. Haley site to address contamination originating from past wood treating operations. Information from the City's investigation as to the environmental conditions in the overlap area was considered in the Site FS to ensure that the alternatives evaluated did not interfere with or preclude cleanup alternatives for the neighboring R.G. Haley site (Landau Associates 2013).

Another MTCA site, the Whatcom Waterway sediment cleanup site, borders the Site on the west in Bellingham Bay; the site overlaps the sediment portion of the Cornwall Site. The primary contaminant of concern at the Whatcom Waterway sediment cleanup site is mercury and the required cleanup remedy [under Consent Decree (CD) No. 07-2-02257-7] in the area of the Cornwall Site is monitored natural recovery (MNR). Monitoring is expected to begin following Phase I implementation of active cleanup measures in other areas of the Whatcom Waterway sediment cleanup site.

As discussed in the Site RI/FS (Landau Associates 2013), the proposed remedial action for the Site will be planned and conducted in coordination with both the R.G. Haley site and Whatcom Waterway cleanup activities (see Section 6.0). It is expected that coordination with these other site cleanups could result in changes to the cleanup remedy in the areas where the Cornwall site cleanup is applied. If substantial, these changes will require an amendment to the CD.

[1] The R.G. Haley RI/FS is currently under preparation. Finalization of the documentation is scheduled for late 2014.

1.3 SITE HISTORY AND BACKGROUND

Prior to its original development, the majority of the Site consisted of tide flats and subtidal areas of Bellingham Bay. A summary of Site history, including ownership, development, and use, is provided in Table 1. Municipal landfill operations occurred at the Site from 1954 to 1965. The landfill was covered with a soil layer of variable thickness, and the shoreline was protected by various phases of informal slope armoring consisting of a variety of rock boulders and broken concrete. Since that time, significant shoreline erosion has occurred, resulting in exposure of landfill refuse at the shoreline surface and release and redistribution of landfill refuse onto the adjacent aquatic area. The toe of the refuse fill slope extends out into Bellingham Bay to some distance beyond the shoreline.

1.4 INTERIM ACTION

In 2011 and 2012, an interim action was conducted at the Site. The interim action included the placement of about 47,500 cubic yards (yd^3) of stabilized, fine-grained sediment from a nearby Port dredging project on the landfill surface. The sediment was placed into two piles and covered with a scrim-reinforced liner to prevent stormwater infiltration. Stormwater runoff from the piles was directed to a series of new drainage ditches connected to an existing stormwater detention basin which discharges to the bay. The effect of this action was to significantly reduce the amount of rainwater infiltrating into the solid waste, and thus reduce the flow of contaminated ground water into Bellingham Bay. The interim action also provides low permeability material that can be used as part of a cleanup capping system. This material will be an integral part of the cleanup action for the Site, as described in Section 4.0.

1.5 ENVIRONMENTAL INVESTIGATIONS AND CONCLUSIONS

The Site RI/FS identified the following constituents of potential concern and associated media:

- Refuse and wood debris in upland "soil" and in aquatic portions of the Site
- Metals, dioxins/furans, phthalates, and n-nitrosodiphenylamine in interim action sediment
- Metals, polychlorinated biphenyls (PCBs), fecal coliform, manganese, and ammonia in ground water
- Methane and possibly volatile organic compounds (VOCs) in soil gas
- Metals, PCBs, carcinogenic polycyclic aromatic hydrocarbons (cPAHs), bis(2-Ethylhexyl) phthalate (BEP), and butylbenzylphthalate (BBP) in sediment.

The extent of the refuse and wood debris and the overlap area discussed previously associated with the R.G. Haley site are shown on Figure 4.

These constituents of potential concern were further evaluated as part of the Site RI/FS process to eliminate those which did not exceed applicable cleanup levels or were not otherwise representative of Site

conditions. Those that remained from this elimination process were identified as Indicator Hazardous Substances (IHSs) for the Site. The identified Site IHSs and their associated media are as follows:

- Refuse and wood debris in upland and aquatic portions of the Site
- Manganese and ammonia in Site ground water
- Methane and possibly VOCs in soil gas
- Metals (cadmium, lead, copper, silver, zinc), PCBs, cPAHs, and BEP in sediment.

Cleanup standards for these identified IHSs are discussed further in Section 2.0.

Petroleum hydrocarbons, polycyclic aromatic hydrocarbons (PAHs), and semivolatile organic compounds (SVOCs) in the overlap area resulting from releases from the R.G. Haley site are not specifically addressed in this CAP. However, the cleanup action for the Site considered coordination of the cleanup activities for the two sites to ensure the selected Site cleanup action will not preclude future cleanup activities related to the R.G. Haley site releases (see Section 6.0).

2.0 CLEANUP STANDARDS

This section discusses Site cleanup standards for IHSs detected in affected Site media at concentrations above screening levels developed through the RI/FS process. These affected media include soil, ground water, and sediment. Cleanup standards consist of: 1) cleanup levels (CLs) defined by regulatory criteria that are adequately protective of human health and the environment and 2) the points of compliance at which the cleanup levels must be met.

2.1 CLEANUP LEVELS

2.1.1 SOIL

Because of its nature as a waste material and inherent heterogeneity, the refuse at the Site is presumed to be contaminated and was not characterized for soil quality for the purposes of the RI/FS. In addition, the existing Site cover soil and interim action sediment brought to the Site are also considered contaminated and were addressed in a similar manner as the refuse and wood waste in the FS. The selected cleanup action addresses the contaminated soil/refuse/wood waste by isolating it from the environment. Isolation is defined herein as preventing direct contact and keeping surface water out of the fill. As a result, soil CLs protective of direct contact, leaching to ground water, and/or erosion have not been established.

2.1.2 GROUND WATER

Site ground water CLs are based on ground water discharge to surface water (Bellingham Bay). MTCA allows for the application of ground water cleanup criteria based only on the protection of adjacent surface water, if releases of hazardous substances occur to ground water that is determined to be nonpotable [WAC 173-340-720(2)], and if discharge to sediment or chemical volatilization are not pathways of concern. As discussed in the RI, Ecology has determined that Site ground water is non-potable (Landau Associates 2013). Discharge to sediment and chemical volatilization are also not pathways of concern for this Site because the primary contaminants in ground water have low sediment toxicity (ammonia and manganese), and volatile chemicals, if present, will be captured in a landfill gas system. Therefore, ground water CLs protective of marine surface water are appropriate for the Site.

The ground water CLs for the Site are the most stringent of the following criteria adjusted to the practical quantitation limit (PQL) or background concentration (as appropriate): 1) federal (40 CFR 131.36) and state (i.e., MTCA) surface water criteria based on human consumption of fish, and 2) federal (40 CFR 131.36) and state (Chapter 173-201A WAC) acute and chronic water quality criteria. Based on the screening of detected constituents in ground water, manganese and ammonia were the only hazardous

substances carried forward as IHSs in ground water for the Site. The screening levels for manganese and ammonia were selected as the CLs, and are listed in Table 2.

2.1.3 SEDIMENT

The sediment CLs are based on the chemical criteria and Site-specific physical criteria for refuse and wood debris coverage considered protective of benthic organisms. Sediment CLs based on chemical criteria are established by Ecology's Sediment Management Standards (SMS; WAC 173-204, most recent rule update effective as of September 1, 2013). The SMS establishes a two-tiered framework for establishing the Sediment Cleanup Objective (SCO) and the Cleanup Screening Level (CSL). The CSL is used to identify sediment cleanup sites and is the maximum chemical concentration or level of biological effects allowed for a sediment CL (upper tier). The CSL is the higher of the regional background concentration, a risk-based level (10^{-5}), or the PQL. The SCO is the long-term sediment quality goal and is the lower end of the range of chemical concentrations or level of biological effects used to establish a sediment CL (lower tier). The SCO is the higher of the natural background concentration, a risk-based level (10^{-6}), or the PQL. Based on the screening of detected constituents in sediment in accordance with SMS, only certain metals (cadmium, lead, copper, silver, zinc), cPAHs, PCBs, and BEP were carried forward as IHSs for at the Site, as described in the following paragraphs. The sediment CLs for these IHSs are listed in Table 2.

The SMS screening criteria used to evaluate sediment data are considered protective of the direct contact pathway for both benthic species and human health. However, these criteria do not consider the bioaccumulative effects on humans and other higher trophic-level species. Based on the current SMS rule, compounds considered as persistent bioaccumulative toxins (PBTs) require the development of CLs that consider bioaccumulative effects if compounds are present at concentrations greater than the natural background concentrations.

Guidance for addressing PBTs in marine sediment is provided in the draft Sediment Cleanup Users Manual (SCUM) II (Ecology 2013). The draft SCUM II guidance is currently out for public review so guidance on developing CLs for PBTs may change in the future. As established under the current draft of SCUM II, CLs for PBTs can be based on the following:

- Natural background concentrations (WAC 173-340-200),
- The PQL for the PBT [WAC 173-204-560(3)(c)],
- Regional background concentrations, or
- A risk-based cleanup level based on the lowest of:
  - marine and freshwater benthic criteria (WAC 173-204-562 through 173-204-563),

- human health risk (10^{-6}) and Hazard Quotient ≤ 1 (for individual contaminants) [WAC 173-204-561(2)(a)],
- Ecological Risk Narrative (WAC 173-204-564), or
- Other state or federal regulations.

Draft values for natural background concentrations and PQLs for PBTs have been developed by Ecology and are included as part of the draft SCUM II guidance. Establishment of a Site-specific risk-based screening level would require determining a Site-specific biota-sediment accumulation factor (BSAF) based on bioaccumulation testing, which has not been conducted. Regional background concentrations for PBTs have not yet been developed by Ecology for the Site vicinity (i.e., Bellingham Bay), and will not be available before the Site CAP is finalized. Once regional background concentrations are established for PBTs, the Site CLs for PBTs in marine sediment will be modified if regional background concentrations are greater than the CLs established in this CAP, or if risk-based values are directly calculated. This modification is not expected to impact the use of a sediment cap as the remedy for MU-2. However, the revised sediment CLs will further inform the remedy selection for MU-3. Any revision of the CLs and the incorporation of the remedy for MU-3 will be addressed through amendments of the CAP and CD, and additional public comment sought pursuant to WAC 173-340-600(10)(e).

PBTs detected in Site sediment consist of lead, cadmium, PCBs, and cPAHs. Mercury is also a PBT detected in Site sediment, but elevated mercury concentrations in the Site vicinity appear to be related to releases from the Whatcom Waterway site, so mercury is not considered a Site IHS.

The PQL established for individual PCB Aroclors [i.e., 6 micrograms per kilogram dry weight (µg/kg-dw)] will be used as the CL for PCBs because the PQL is greater than the PCB natural background concentration. The natural background concentrations for cadmium and lead will be used as the CLs for these constituents because the natural background concentrations are higher than the PQLs. However, these CLs may be adjusted higher to an upper tier value if regional background concentrations for Bellingham Bay are established by Ecology at higher concentrations than natural background, or risk-based CLs are developed.

A natural background concentration of 16 µg/kg-dw has been established for cPAHs in sediment [based on the summation of the toxicity equivalency (TEQ)]. Because the natural background concentration is higher than three of the four median value PQLs available for benzo(a)pyrene in Appendix F of the SCUM II guidance, the cPAH natural background will be used as the CL. However, the R.G. Haley site is a significant source of cPAHs to marine sediment in the Site vicinity, and appears to affect cPAH concentrations in Site surface sediment. The Site marine sediment CL for cPAHs will be revised to the R.G. Haley CL, once it is established, if the R.G. Haley CL is higher than the cPAH PQL.

CLs for the IHSs identified in Site sediment are presented in Table 2. In summary:

- CLs for the non-bioaccumulative contaminants (copper, silver, zinc, BEP) are based on protection of the benthic direct contact pathway
- CLs for the bioaccumulative contaminants (cadmium, lead, cPAHs, PCBs) are based on either natural background or the PQL. The bioaccumulative CLs may be adjusted in the future as regional background concentrations become available or if mutually agreed upon Site specific risk-based values are directly calculated.

  Note that potential future adjustments to the sediment CLs for MU-3 would not change the thin layer cap remedy selected for the sediment portion of MU-2 (see Section 4.2.2.3). The MU-2 capping remedy provides for isolation and containment through thin layer capping and enhanced natural recovery as described below in Section 4.2.2.3. Thin layer capping is intended to attain cleanup levels at the point of compliance as soon as the cap is placed; therefore, the effectiveness of the selected MU-2 sediment remedy is independent of the actual numerical value of the cleanup level because it relies on capping. However, because thin layer capping aims to enhance and accelerate natural recovery, monitoring will be required to ensure cap performance and to document ongoing natural recovery.

The physical criteria for the sediment CLs consist of the following Site-specific criteria for refuse and wood debris in the aquatic environment that Ecology considers adequately protective of benthic organisms:

- No more than a 1 foot (ft) thickness of sediment where wood debris (e.g., sawdust or wood chips) constitutes greater than 50 percent of the sediment by volume
- No detectable refuse
- No less than 1 ft of clean sediment coverage over sediment that exceeds the above criteria for wood debris and refuse.

Additional testing (bioassays) will be conducted during design of the selected cleanup action to confirm the protectiveness of these criteria.

2.1.4 AIR

Air quality standards for the Site will be developed as additional data are gathered during design of the selected cleanup action. As noted in Section 4.2, a landfill gas (LFG) control system will be installed as part of the selected cleanup action. Any VOCs present in Site soil will be addressed by the LFG control system, which will eliminate this potential exposure pathway for the Site. LFG discharge permitting requirements, as established under the Northwest Clean Air Authority (NWCAA) and MTCA standards for air quality, will have to be met as a compliance requirement for long-term management of the Site post cleanup action. Explosivity guidance, especially in relation to the potential presence and discharge of methane upon completion of the cleanup action, will also have to be considered in the development of LFG compliance monitoring requirements. Air quality cleanup standards for individual

constituents in LFG may be incorporated into the long-term cleanup and compliance monitoring process if hazardous substances are detected in soil vapor during the design phase characterization activities at concentrations of concern.

2.2 POINTS OF COMPLIANCE

Points of compliance at which the CLs must be met for the affected media at the Site are discussed in the following sections.

2.2.1 SOIL

The point of compliance for soil, based on WAC 173-340-740(6), is throughout the Site. MTCA recognizes that for those cleanup actions that involve containment of hazardous substances, the soil cleanup levels will typically not be met throughout the Site [WAC 173-340-740(6)(f)]. However, MTCA also recognizes that such cleanup actions may still comply with cleanup standards. The determination of the adequacy of soil cleanup is based on the ability for the remedial action to comply with ground water cleanup standards for the Site, to meet performance standards designed to minimize human or environmental exposure, and to provide practicable treatment of affected soil. Performance standards to minimize human and environmental exposure to effected soil include institutional controls that limit activities that interfere with the protectiveness of the cleanup action, as well as compliance monitoring and periodic reviews to insure the long-term integrity of the containment system [WAC 173-340-740(6)(f)(i-vi)].

2.2.2 GROUND WATER

The point of compliance for ground water is typically throughout the Site when ground water is considered a potential source of potable drinking water. If ground water discharge to surface water represents the highest beneficial use, MTCA provides for a conditional point of compliance at the location of discharge of ground water to the surface water receiving body (i.e., the shoreline). The conditional point of compliance is acceptable under MTCA for properties abutting surface water if the conditions established under WAC 173-340-720(8)(d)(i) are satisfied. The Site meets the required MTCA conditions; therefore the downgradient edge of the Site, as close as technically possible to the point-of-entry of ground water to Bellingham Bay, will be established as the point of compliance for Site ground water. The achievement of ground water CLs will be measured at the shoreline using a network of angled ground water monitoring wells screened within the vertical range of the intertidal zone, as described further in Section 4.0.

2.2.3 SEDIMENT

The point of compliance for sediment chemical criteria is the predominantly biologically active zone, which is considered the upper 12 centimeters (cm) of sediment in Bellingham Bay. The point of compliance for the physical criteria, as discussed in Section 2.1.3, is the upper 1 ft (30.5 cm).

2.2.4 AIR

The point of compliance for concentrations of contaminants in air (i.e., LFG) is ambient air throughout the Site.

3.0 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

In accordance with MTCA, cleanup actions conducted under MTCA must comply with applicable state and federal laws [WAC 173-340-710(1)]. MTCA defines applicable state and federal laws to include legally applicable requirements and those requirements that are relevant and appropriate (collectively referred to as the ARARs).

The primary ARARs for the Site are cleanup standards under the SMS and MTCA along with the CLs and procedures for implementation of a cleanup under MTCA. Other potential ARARs identified to date include those in the bulleted list below. During the cleanup design and permitting process, additional ARARs may be identified.

- Washington Chemical Contaminants and Water Quality Act and Washington Water Pollution Control Act and the following implementing regulations: Water Quality for Surface Waters (Chapter 173-201A WAC) and SMS (Chapter 173-204 WAC).
- Minimum Functional Standards (MFS) for Solid Waste Handling (Chapter 173-304 WAC): these regulations contain typical closure requirements that are relevant based on the waste disposal history of the Site.
- Resource Conservation and Recovery Act (RCRA) and Subtitle C regulations, to the extent that any hazardous wastes are discovered during the cleanup action. RCRA regulations may be applied in the overlap area with the R.G. Haley cleanup site for any listed wastes that are present related to R.G. Haley operations.
- Washington Hazardous Waste Management Act and Dangerous Waste Regulations, to the extent that any dangerous wastes are discovered during implementation of the cleanup action.
- Clean Water Act, with respect to water quality criteria for surface water (Bellingham Bay) and in-water work associated with dredging or sediment capping.
- Shoreline Management Act, with respect to construction activities during the cleanup action.
- Dredge and fill requirements under Code of Federal Regulations (CFR) 320-330 and Hydraulic Code Rules under Chapter 220-110 WAC.
- Endangered Species Act (ESA), due to listing of Puget Sound Chinook and the potential listing of Coastal/Puget Sound bull trout.
- Critical Areas Ordinance of the City of Bellingham (Bellingham Municipal Code Chapter 16.55 Critical Areas).
- NWCAA Regulation 300 for point source emissions.

The current refuse regulations, Criteria for Municipal Solid Waste Landfills (Chapter 173-351 WAC), were determined to not be an ARAR for the Site because the current solid waste regulations specifically reference the MFS as the applicable regulations for landfills that did not accept waste after October 9, 1991 [WAC 173-351-010(2)(b)].

MTCA, Water Quality Standards for Surface Waters, SMS, and the Clean Water Act were considered in the development of cleanup standards (see Section 2.0). RCRA Subtitle C and Dangerous

Waste Regulations are not expected to apply unless dangerous wastes are discovered or generated during implementation of the cleanup action; dangerous wastes are not known to be present at the Site. The Shoreline Management Act, dredge and fill requirements, and Hydraulic Code Rules may apply during the implementation of the selected cleanup action but did not directly influence the evaluation of the cleanup alternatives conducted in the RI/FS.

The MFS landfill closure requirements (Chapter 173-304 WAC) were considered during evaluation of the cleanup alternatives; WAC 173-304-407 identifies closure and post-closure requirements for landfills. These requirements include the following:

- The facility shall be closed in a manner that minimizes the need for further maintenance, and controls, minimizes, or eliminates threats to human health and the environment from post-closure escape of solid waste constituents, leachate, landfill gases, contaminated rainfall, or waste decomposition products to the ground, ground water, surface water, and the atmosphere.
- Post-closure activities include ground water monitoring; surface water monitoring; gas monitoring; and maintenance of the facility, facility structures, and monitoring systems for their intended use for a period of 20 years or as long as necessary for the facility to stabilize (i.e., little or no settlement, gas production, or leachate generation) and to protect human health and the environment; and until monitoring of ground water, surface water, and gases can be safely discontinued.

In accordance with MTCA, the cleanup action will be exempt from the procedural requirements of Chapters 70.94, 70.95, 70.105, 77.55, 90.48, and 90.58 RCW, and of any laws requiring or authorizing local government permits or approvals. However, the substantive requirements of such permits or approvals (WAC 173-340-520) must be met.

4.0 SELECTED CLEANUP ACTION

4.1 INTRODUCTION

This section discusses the cleanup action alternatives evaluated in the FS and the preferred alternative identified in the FS, and provides an overview of the selected cleanup action. The FS subdivided the Site into the Upland Unit and the Marine Unit. However, because the CLs for PBTs in marine sediment are subject to change depending on regional background studies, the Site boundary in the Marine Unit cannot be definitively established at this time. As a result, the Site cleanup action has been subdivided into three Management Units (MUs) consisting of the upland area (MU-1), the marine portion of the Site where active remediation is planned (MU-2), and the marine area where MNR was proposed in the FS (MU-3). The Site MUs are shown on Figure 3.

As previously stated, MU-1 and MU-2 are addressed by this CAP, but the cleanup action will not be selected for MU-3 until regional background concentrations for PBTs in marine sediment are established. MU-3 is presented in the description of the FS cleanup alternatives to provide a complete description of the FS alternatives, but only MU-1 and MU-2 are addressed in the selected cleanup action.

4.1.1 PREFERRED ALTERNATIVE SELECTION

Four cleanup action alternatives were evaluated in the Site FS. The cleanup alternatives evaluated included three containment remedies and one removal remedy. Alternative 1 included containment through installation of an upland low-permeability soil cap (MU-1), shoreline stabilization (MU-2), and subtidal MNR (MU-3). Alternative 2 included containment with an upland two-layer cap (MU-1), shoreline stabilization with a sand filter and a thin-layer sediment cap (MU-2), and MNR (MU-3). Alternative 3 included containment with an upland two-layer cap and upgradient ground water interception system (MU-1), shoreline stabilization with a sand filter and an engineered sediment cap (MU-2), and MNR (MU-3). Alternative 4 consisted of complete removal of impacted media associated with the Site. Each of the alternatives included long-term compliance monitoring, except Alternative 4 (complete removal). Compliance monitoring is used to confirm that the Site meets cleanup standards within the identified restoration time frame and to confirm that the Site continues to meet cleanup standards over time.

Alternative 2 was identified as the preferred alternative in the FS and is the selected cleanup action for the Site MU-1 and MU-2 (see Section 5.0 for the selection rationale).

4.1.2 AREAS SUBJECT TO CLEANUP

The selected cleanup action consists primarily of an upland cap with stormwater controls for MU-1, and shoreline protection/stabilization and in-water enhanced natural recover (ENR) with a thin layer sediment cap to accelerate natural recovery for MU-2. Figure 5 shows where these various features are expected to be applied, and Figure 6 shows them in cross section.

The area of the MU-1 subject to the cleanup action is well defined, and includes all of the area shown in green on Figure 3. The area of the MU-2 subject to the cleanup action is defined for the shoreline protection/stabilization system and the sediment thin layer cap that extends to the outer extent of the refuse and wood debris related to Site releases.

4.1.3 CLEANUP ACTION OVERVIEW

For MU-1, the primary purposes of the upland cap with stormwater controls are to prevent direct contact with existing contaminated fill, and to keep surface water out of the contaminated fill. Standard construction methods and materials will be used to create this upper surface. Design details will be established in an Engineering Design Report (EDR), and construction plans and specifications will be developed on the basis of the EDR. The primary engineering criteria will be to achieve containment and isolation of affected soil, refuse and wood waste in perpetuity. Ecology has determined that the cleanup action in MU-1 complies with cleanup standards through containment, consistent with WAC 173-340-740(6)(f). Because the Cornwall Avenue Landfill and R.G. Haley sites partially overlap each other, it is expected that the construction plans for the overlap area will reflect the needs of both cleanups.

For MU-2, the primary purpose of the shoreline protection/stabilization system is to prevent direct contact with contaminated fill (refuse, wood waste), and protect the existing shoreline from erosion. Oceanographic engineering will be needed to design a system capable of meeting these needs. Primary engineering criteria to be met for this aspect of the cleanup include isolation of the contaminated fill, and design of a system capable of resisting waves and currents.

Also for MU-2, the primary purposes of the thin layer sediment cap and associated ENR are to cover the underlying refuse/wood waste and provide an upper 12 centimeters of sediment protective of benthic species, aquatic species, and human health. The general plan, as depicted on Figures 5 and 6, is to place a cap of clean material from the edge of the shoreline stabilization system out to the edge of refuse/wood waste fill.

Habitat benefit and function will result from the cleanup action itself. Specific habitat related actions will be developed in coordination with permitting agencies.

4.2 DESCRIPTION OF THE SELECTED CLEANUP ACTION

4.2.1 MANAGEMENT UNIT 1

4.2.1.1 Low Permeability Capping System

A low-permeability capping system, comprising a soil cap overlain by a scrim-reinforced polyethylene liner or equivalent material, will be installed throughout MU-1 as part of the cleanup action. The low-permeability capping system will provide containment of refuse and wood debris and reduce ground water recharge from stormwater at the Site, while the inclusion of the scrim-reinforced polyethylene or equivalent liner will further reduce infiltration and provide a more durable physical separation layer. Figures 5 and 6 present the area of coverage and a conceptual site profile of the capping system, respectively.

The actual details of the capping system, including layer thicknesses and materials, will be developed during the remedial design process. In general, the low-permeability containment capping system will include the following elements from ground surface to the depth of refuse and wood debris (see Figure 6):

- **Surface cover:** The surface of the MU-1 will consist of a layer of topsoil at least 1 ft thick, asphaltic pavement, or buildings, depending on Site use in a particular area. It is likely, under the current redevelopment plans, that the majority of the Site uplands surface cover would be topsoil vegetated to support property use as an open park (see Section 6.3). Paved areas will be limited and may include surface parking or paved sidewalks. Buildings will also be limited and may include small structures located at the Site to support potential park functions such as facilities maintenance or public restrooms.
- **Granular fill soil:** Clean fill soil will be imported and placed as needed to create adequate grades for stormwater surface drainage and future Site use. The amount of soil required to establish Site grades will be reduced through the use of the interim action sediment discussed in the previous bullet and Section 1.4.
- **Drainage layer:** A drainage layer will be located beneath the surface cover to provide drainage for water that infiltrates through topsoil or pavement. The drainage layer could be constructed from geocomposite materials or granular fill, as determined during the remedial design.
- **Scrim-reinforced polyethylene liner:** A scrim-reinforced polyethylene liner or equivalent liner material will be placed between the drainage layer and the underlying low-permeability soil layer to reduce infiltration and provide an additional layer of physical separation. The inclusion of the scrim-reinforced polyethylene (or equivalent) liner with the underlying low permeability soil (see next bullet) will result in a capping system that effectively eliminates infiltration.
- **Low permeability soil layer:** In areas not covered with buildings or pavement, an approximately two-foot thick layer of low-permeability soil will be installed beneath the scrim-reinforced liner to minimize stormwater infiltration into the underlying refuse and wood debris. The fine-grained sediment stored at the Site as part of the 2011/2012 interim

action will be used for this purpose. Additional low permeability soil may be imported for this purpose to achieve Site coverage, if necessary (see Section 1.4).

- **Gas control layer:** A gas control layer will be placed just below the low-permeability soil layer to provide a ventilation pathway for LFG and/or VOCs rising from the subsurface refuse and wood debris. This layer will be constructed from geocomposite materials or granular fill, as determined during the remedial design.

4.2.1.2 Stormwater Management System

The existing soil cover, low-permeability layer, and imported fill will be graded to provide adequate drainage and prevent stormwater ponding, and the surface cover will be re-vegetated where a soil capping system is used. These actions will significantly reduce surface water infiltration through improved stormwater interception and increased evapotranspiration from the vegetative cover. Stormwater management will consist of stormwater interception, treatment (as applicable), and conveyance to a surface water discharge to Bellingham Bay. Stormwater actions such as re-grading, lining of ditches and tight-line conveyance of stormwater will be made to intercept, convey, and discharge surface water that currently accumulates in ponds and ditches near the BNSF railroad tracks. The existing Site stormwater system will be decommissioned or rehabilitated as part of the redevelopment activities.

4.2.1.3 Landfill Gas Control

Based on the duration since the landfill's closure, it is expected that current LFG generation rates are minimal. However, placement of the low-permeability cap could result in the accumulation and possible migration of LFG. As a result, a LFG management system will be installed throughout the Site which provides for the collection of and passive ventilation of LFG and potentially other VOCs that may be in the soil gas. It is anticipated that LFG monitoring and generation-potential modeling will be conducted during the remedial design phase to evaluate LFG quality and whether active or passive gas control is needed to meet NWCAA guidelines and MTCA air quality standards. [WAC 173-340-350]

4.2.2 MANAGEMENT UNIT 2

4.2.2.1 Shoreline Stabilization

The cleanup action will include shoreline stabilization in the intertidal and shallow subtidal zone, as shown on Figures 5 and 6. Portions of the areas to be addressed by the cleanup action overlap with the R.G. Haley property. The manner in which cleanup for the two sites will be coordinated is discussed further in Section 6.0.

The shoreline stabilization system will be placed over the sand filter layer element described in Section 4.2.2.2 below. The shoreline stabilization system will prevent shoreline erosion, which could cause exposure to, or possibly the migration of, refuse and wood debris at the shoreline. The system will be constructed throughout the intertidal zone and into the shallow subtidal zone to ensure that the stabilization system will remain stable under high-wave action during extreme low tides. In addition to the sand filter layer, the stabilization system will also serve as a cap and biotic barrier over the sediment that is most impacted by Site releases due to shoreline erosion resulting from wave action.

It is assumed for conceptual design purposes that the shoreline stabilization system will consist of gravel and riprap approximately 3 ft thick, with a nominal 6-inch layer of gravel placed over the revetment rock to fill the rock interstices and enhance the habitat value of the stabilization system. However, additional engineering analysis of the stabilization system thickness, gradation, and elevation limits will be required during remedial design to ensure that the system will provide adequate protection from significant wave action during winter storms to effectively contain the sand filter layer and the underlying refuse and wood debris.

The stabilization system will be designed to balance the need for the rock size to be large enough to resist detachment from wave action while also meeting federal in-water permitting requirements. The use of soft bank technologies to enhance aquatic habitat will be considered during remedial design, particularly at the southern end of the Site where the shoreline is partially protected from winter storms. The use of soft bank technologies in this area could minimize the loss of eelgrass habitat and better support its re-establishment following construction.

4.2.2.2 Sand Filter Treatment Layer

A sand filter treatment layer will be installed along the shoreline and beneath the shoreline stabilization layer to provide filtration for ground water discharging to Bellingham Bay. The actual thickness, composition and gradation of the filter layer will be determined during remedial design, however for conceptual design purposes, the sand filter layer is assumed to consist of approximately 1 ft of clean, well-graded sand placed on the intertidal slope as a filtration layer beneath the shoreline stabilization system (discussed in Section 4.2.2). A non-woven geotextile layer will be placed atop the sand filter layer to provide separation between the sand filter and the overlying stabilization material to ensure that the filter media is not eroded through the large stabilization media pore spaces (see Figure 6).

The sand filter treatment layer will provide:

- Filtering of the ground water prior to entering Bellingham Bay to reduce suspended particles
- Increased hydrodynamic dispersion near the ground water/surface water interface by providing a higher permeability and more heterogeneous media for mixing of ground water and surface water

- Enhanced aeration of ground water prior to entry into surface water by increasing the intermixing of oxygen-rich surface water with the ground water.

Based on the ground water quality data and the anticipated effectiveness of the MU-1 low-permeability cap, a relatively thin and highly-permeable granular filter layer should be adequate to achieve cleanup standards (Section 2.0). Additionally, the ground water compliance monitoring system will be integrated into the sand filter treatment layer to provide more representative samples of ground water at the ground water/surface water interface (see Figure 6). A detailed compliance monitoring plan will be developed as part of remedial design. The compliance monitoring plan will present the locations of monitoring wells, and establish monitoring frequency, location-specific analytes, and analytical methods.

4.2.2.3 Thin Layer Cap

To meet the chemical cleanup standards and sediment physical criteria in the subtidal zone, the cleanup action will include constructing a thin layer sand cap over the area shown on Figures 5 and 6. The thin layer sand cap will extend from the boundary of the shoreline stabilization system to the outer limit of the extent of refuse and wood debris.

The purpose of a thin layer cap is primarily to accelerate and enhance natural recovery rather than to provide a stable, engineered cap that will isolate contaminated sediment from overlying biological activity and other natural or anthropogenic activities that could expose contaminated sediment to the predominantly biologically active zone (top 12 cm). The thin layer cap will consist of a nominal thickness of 6 inches of clean sand. In combination with the shoreline stabilization system, the thin layer cap will cap about 11.6 acres of intertidal and subtidal aquatic lands.

Similar to shoreline stabilization, subtidal capping will need to be coordinated with implementation of the R.G. Haley cleanup. Sediment dredging, if selected as a component of the RG Haley cleanup, will need to be implemented in advance of Site subtidal capping (see Section 6.0 for further discussion of the required coordination).

4.2.2.4 Enhanced Natural Recovery

The cleanup action for the MU-2 includes ENR in the area of the thin layer cap. Natural recovery in marine sediment primarily occurs through the natural deposition of clean sediment over contaminated sediment. Natural recovery in conjunction with the thin layer cap is expected to create a thick layer of clean sediment over MU-2. Sediment deposition meeting the sediment physical criteria (1 ft accumulation of clean sediment) has already occurred over approximately 5.8 acres of the deep subtidal

portion of the Site), and sediment accumulation at other locations in Bellingham Bay support the conclusion that natural recovery is occurring throughout Bellingham Bay (Landau Associates 2013).

4.3 INSTITUTIONAL CONTROLS

Institutional controls will apply to MU-1 and MU-2. These controls will include a detailed Institutional Control Plan (i.e., operations and maintenance plan) and an environmental covenant(s). The environmental covenant(s) will be filed as a deed restriction(s) with Whatcom County, will be binding on the owner's successors and assignees, and will impose limits on property conveyance. The Institutional Control Plan will be part of the Environmental Covenant(s) [WAC 173-340-440(9) and RCW 64.70].

Environmental covenant provisions applicable to MU-1 will prevent activities that could compromise the integrity of the cleanup action (i.e., containment system) or otherwise result in unacceptable risks to human health or the environment. The restrictive covenant will prevent the use of ground water for potable purposes and will place restrictions and management requirements on intrusive activities that could result in releases of hazardous substances or exposure of construction workers to contaminated media.

Environmental covenant provisions applicable to MU-2 will prevent damage to the shoreline stabilization system and the thin layer cap. Institutional controls will include prohibitions on activities that could damage or breach the shoreline stabilization system. Additionally, vessel activity within MU-2 will likely need to be managed to prevent damage by boat prop wash, anchoring, or similar activities to the shoreline stabilization system and the thin layer cap.

The Institutional Controls Plan will outline long-term care and maintenance of the elements comprising the cleanup action, establish protocols for disruptions to the cleanup action system, provide for record keeping and reporting, develop contingency measures for addressing extraordinary events (e.g., flooding due to extreme storm events), and describe any other activities necessary to maintain protection of human health and the environment.

4.4 TYPES, LEVELS, AND AMOUNTS OF HAZARDOUS SUBSTANCES TO REMAIN IN-PLACE

The extent of exposed refuse in the MU-1 was evaluated during the investigations conducted to support the RI/FS. The extent of *in situ* landfill refuse and wood waste in MU-1 was estimated from the interpretation of boring logs and test pits (Landau Associates 2013). Based on the estimated areal extent and thickness of refuse, the total volume of refuse in MU-1 is estimated to be about 215,000 yd^3. Approximately 80,000 yd^3 of refuse is estimated to be present within MU-2. The total volume of wood waste in MU-1 is estimated to be about 94,000 yd^3. The volume of wood waste within MU-2 was not

estimated because data regarding wood waste thickness in this area are limited and the difficulty in differentiating between wood waste originating from Site releases and other sources in the marine environment.

Based on these estimates, the total volume of waste at the Site is estimated to be about 390,000 yd^3 of combined refuse and wood waste, plus whatever volume of wood waste is present in MU-2. Because the cleanup action relies on containment, this volume of refuse and wood waste will remain in-place following implementation of the cleanup action.

4.5 RESTORATION TIME FRAME

The restoration time frame for the cleanup action following finalization of the CAP is expected to be as follows:

- 2-3 years: Complete upland soil isolation, landfill gas protection, storm water drainage improvements
- 2-3 years: Complete shoreline protection system
- 2-3 years: Achieve sediment cleanup standards in MU-2
- 3-4 years: Achieve ground water cleanup standards.

5.0 RATIONALE FOR SELECTING THE CLEANUP ACTION

The four cleanup alternatives presented in the FS were evaluated with respect to their ability to adequately achieve compliance with MTCA threshold criteria [WAC 173-340-360(2)(a)], including each alternative's ability to protect human health and the environment, comply with cleanup standards, comply with state and federal laws, and provide for compliance monitoring. Compliance with these requirements under MTCA (and SMS) is presumed by definition to be protective of human health and the environment and in compliance with applicable state and federal laws once cleanup standards have been met. The alternatives were further evaluated for their ability to satisfy these threshold criteria within a reasonable time frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)] and achieve the remedial action objectives (RAOs) identified for the Site. All four alternatives were determined to meet these requirements.

MTCA provides for the costs and benefits associated with alternatives to be evaluated through a disproportionate cost analysis (DCA), which compares the relative environmental benefits of each alternative against the most permanent alternative. Costs are disproportionate to benefits if the incremental cost of the most permanent alternative exceeds the incremental degree of benefits achieved over the lower cost alternative [WAC 173-340-360(3)(e)(i)]. Alternatives that exhibit disproportionate costs are considered "impracticable", and that alternative is eliminated from further consideration. The six evaluation criteria for the DCA are:

- Protectiveness
- Permanence
- Long-term effectiveness
- Short-term risk management
- Implementability
- Consideration of public concerns

Based on the results of the DCA, Alternative 2 was determined to be permanent to the maximum extent practicable. More detailed information on the alternative evaluation and the DCA process is included in the Site RI/FS (Landau Associates 2013).

The selected cleanup action complies with the provisions of WAC 173-340-360. It will be protective of human health and the environment, comply with cleanup standards and applicable state and federal laws, and provide for compliance monitoring. Refuse, wood waste, soil, and sediment with hazardous substance concentrations that exceed CLs will be contained. Institutional controls will provide notification regarding the presence of residual contaminated soils, regulate the disturbance/management of those soils/sediment and the cleanup action components, and provide for long-term monitoring and

stewardship of the cleanup action. As discussed above, the selected cleanup action is also considered to use permanent solutions to the maximum extent practicable, and to provide for a reasonable restoration time frame.

6.0 COMPATIBILITY WITH ADJACENT CLEANUP ACTIONS AND SITE REDEVELOPMENT

Effective implementation and compliance of the cleanup action for the Site will be coordinated with ongoing and planned cleanup actions at neighboring sites and with the longer-term redevelopment strategy the Site's vicinity. An overview of the elements involved in this coordination is provided in the following sections. Should coordination substantially change the cleanup action at this Site, the CAP and CD will be amended.

6.1 WHATCOM WATERWAY

The cleanup action for the Site has some overlap with the Whatcom Waterway site within MU-2. Because the selected remedy for the Whatcom Waterway cleanup site is MNR in the Site vicinity (under Consent Decree No. 07-2-02257-7), the select cleanup action for the area of overlap (MU-2) is compatible. Cleanup in MU-2 will include a thin layer sand cap and ENR, and as such, will not interfere with the Whatcom Waterway site and will result in a shorter restoration timeframe in the area where capping will be conducted.

6.2 R.G. HALEY

As mentioned previously, the R.G. Haley site is located at the northern end of the Site and some overlap exists between the two sites. Because of this overlap the cleanup actions implemented at the two sites will be coordinated to ensure successful remediation and long-term performance/compliance for both sites.

Although a final cleanup action has not yet been selected for the R.G. Haley site, it is anticipated that each site could utilize similar remedial technologies within much of the overlap area, including upland containment, stormwater management, shoreline erosion protection, and other engineering and institutional controls. Other cleanup actions such as ground water extraction, soil excavation/ consolidation, and/or sediment dredging will require proactive coordination and the potential phasing of the separate cleanup actions. Site remedial design will identify specific cleanup components that will require coordination, however examples of possible cleanup elements in the overlap area that will likely require coordination and/or sequencing include:

- Source control measures at the R.G. Haley site (including surface water management) will need to be completed before or in conjunction with the installation of the sand filter, shoreline erosion controls, and the thin layer sediment cap associated with the Site's cleanup action.
- Potential sediment dredging/removal linked to the final cleanup action for the R.G. Haley site will also need to be coordinated with placement of the sand filter, shoreline stabilization

system, and the thin layer sediment cap (especially with respect to how it may affect impacted sediment at the northern end of the Site's MU-2).

- Potential sediment capping methods (i.e., use of cap amendments for contaminant attenuation) that may be part of the final cleanup action for the R.G. Haley site will need to be coordinated with Site cleanup actions in MU-2. In particular, the remedies in the overlap area may differ between the two sites and will require design coordination and integration.
- The R.G. Haley site's ground water remediation strategy may need to be implemented in the overlap area at the north end of the Site prior to final construction of the Site's MU-1 containment system in this area.

6.3 SITE REDEVELOPMENT

The property associated with the Site is located at the southern boundary of the Waterfront District redevelopment area and the Site is included in the planning for redevelopment as a public park and open space. Development of the park could include construction of buildings where indoor air quality will need to be considered. Redevelopment may also include roadways, parking lots, and areas of vegetation whose design and construction will need to be integrated with the containment element (i.e., capping) of the selected cleanup action.

Redevelopment is still in the planning stages, and detailed design and construction of the selected Site cleanup action may or may not be performed concurrently with the design and construction of redevelopment components.

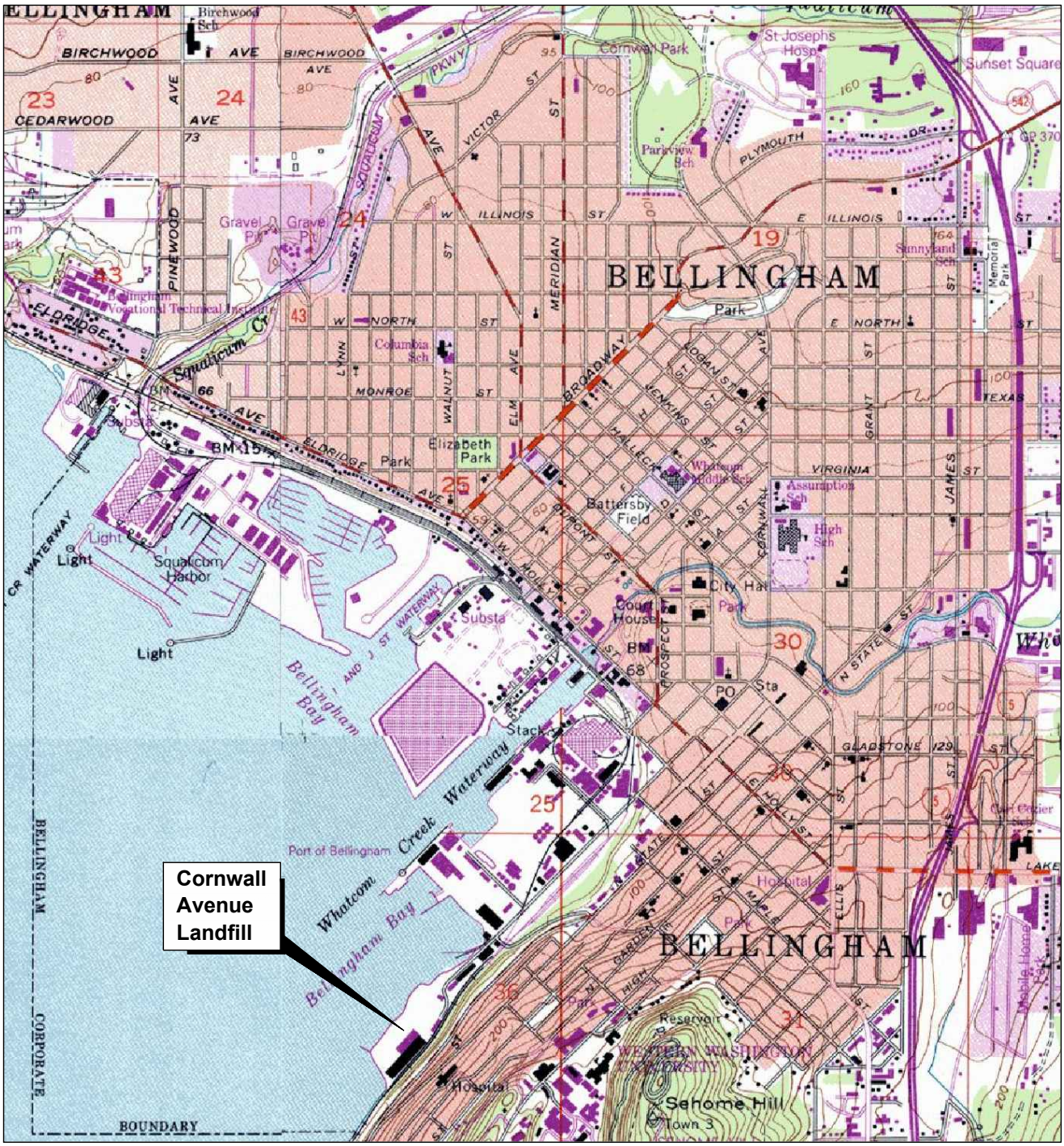
7.0 CLEANUP ACTION SCHEDULE

The Consent Decree (CD), Exhibit C, provides a Schedule of Work and Deliverables, which identifies the schedule for submitting design and construction documents to Ecology for review and approval. One of the first deliverables following entry of the CD with the court will be a detailed project schedule that identifies project deliverables and other major project elements through the design and construction of the cleanup action. Because many of the project deliverables and other project milestones are contingent on the completion, review, and approval of preceding project tasks, the project schedule will be a living document that will require periodic updating throughout the project.

8.0 REFERENCES

Ecology. 2013. *Draft Sediment Cleanup Users Manual II, Guidance for Implementing the Sediment Management Standards, Chapter 173-204 WAC.* Washington State Department of Ecology Publication No. 12-09-057. December.

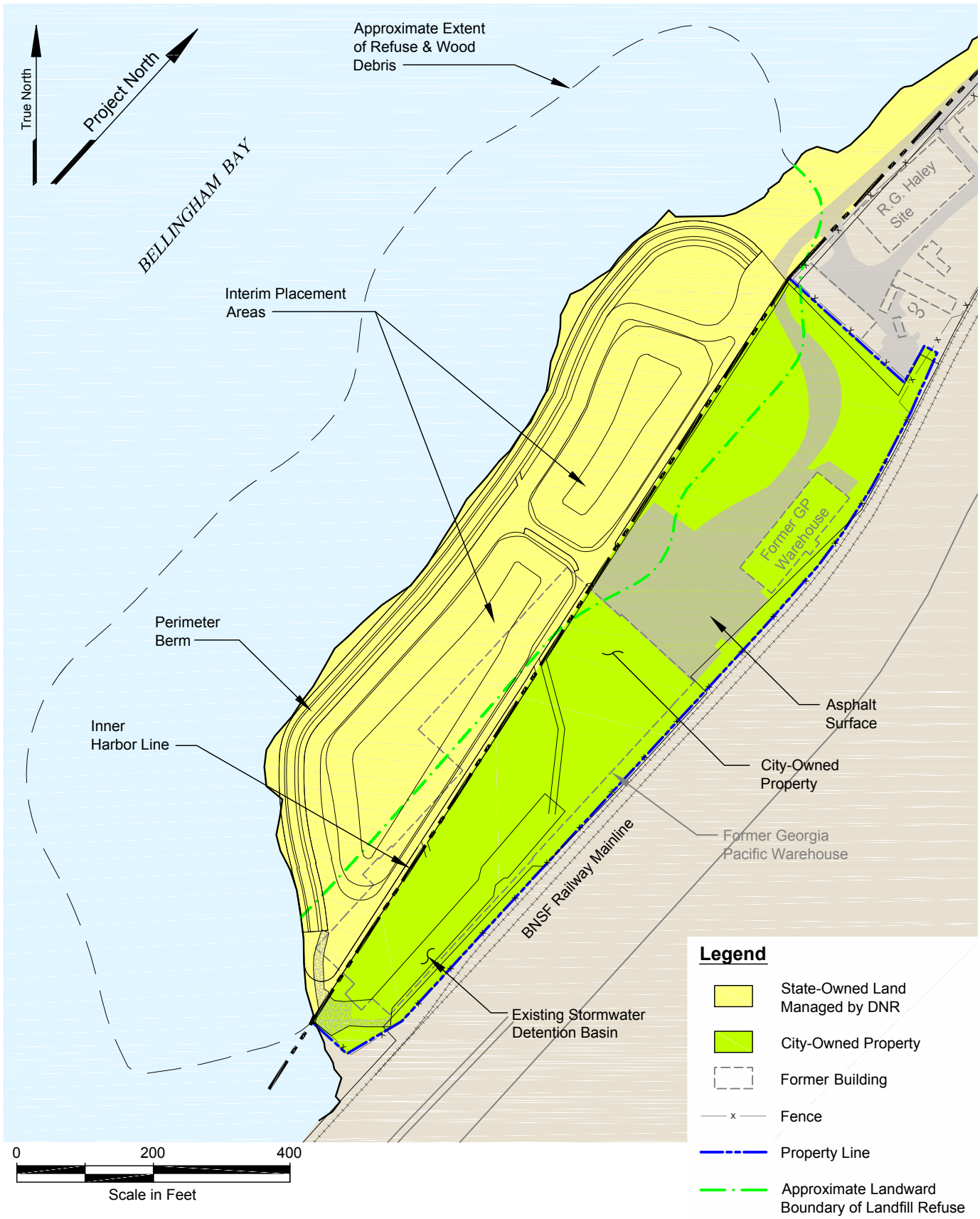
Landau Associates. 2013. *FINAL Remedial Investigation/Feasibility Study, Cornwall Avenue Landfill, Bellingham, Washington.* Prepared for the Port of Bellingham. December 17.



Port of Bellingham \ Cornwall Avenue Landfill \ RI/FS | G:\Projects\001\020\400\530\Cleanup Action Plan\Fig 01.dwg (A) "Figure 1" 5/12/2014

LANDAU ASSOCIATES

Cornwall Avenue Landfill Bellingham, Washington	**Vicinity Map**	Figure 1



Basemap source: Port of Bellingham 1996, Anchor Environmental 2008

Landau Associates, Inc. | G:\Projects\001\020\400\530\Cleanup Action Plan\Fig 02.dwg (A) "Figure 2" 5/20/2014

LANDAU ASSOCIATES

Cornwall Avenue Landfill
Bellingham, Washington

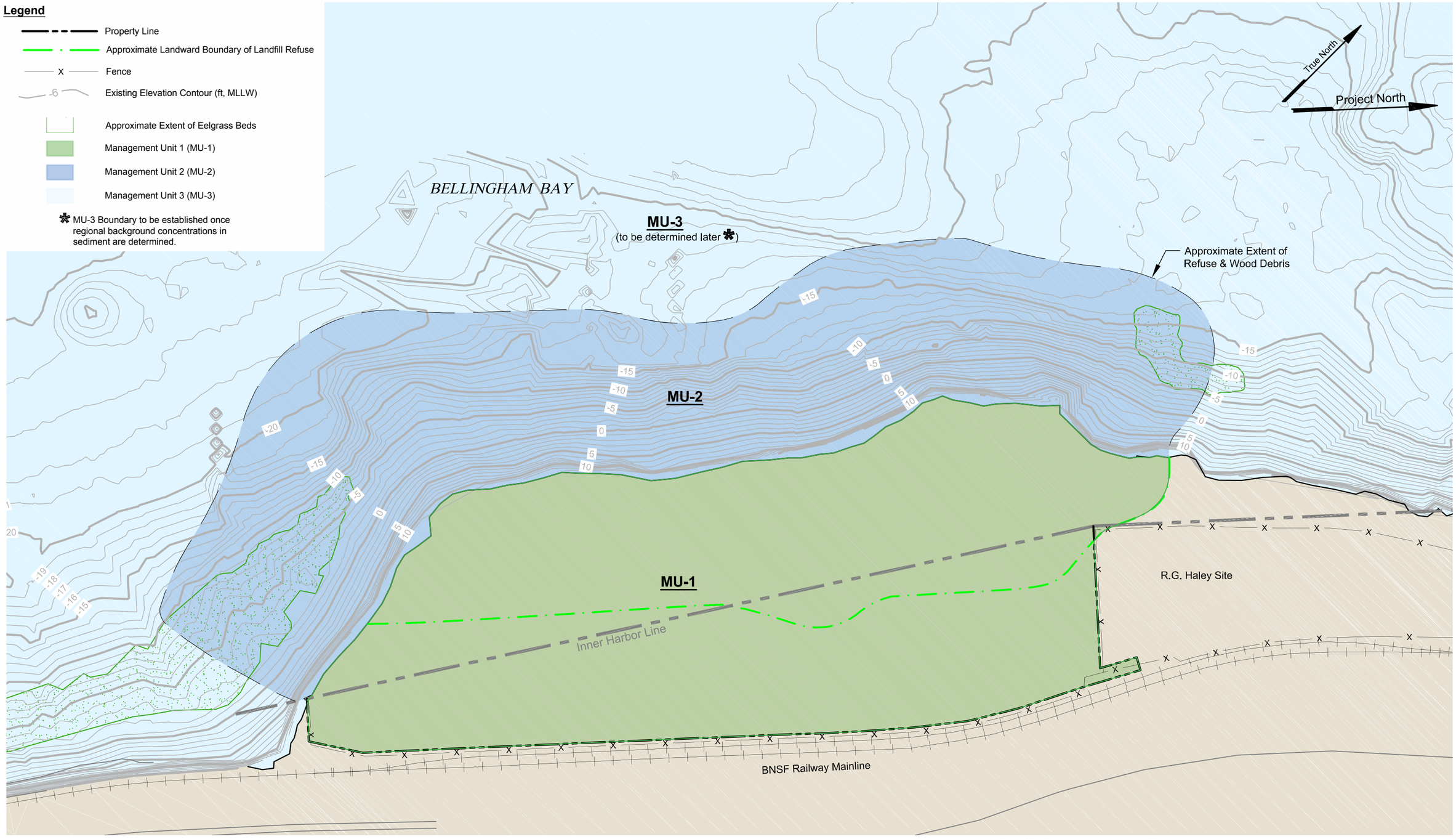
Property Conditions

Figure
2

Legend

- Property Line
- Approximate Landward Boundary of Landfill Refuse
- X Fence
- -6 Existing Elevation Contour (ft, MLLW)
- Approximate Extent of Eelgrass Beds
- Management Unit 1 (MU-1)
- Management Unit 2 (MU-2)
- Management Unit 3 (MU-3)

* MU-3 Boundary to be established once regional background concentrations in sediment are determined.



Basemap source: Port of Bellingham 1996, Anchor Environmental 2008

0 150 300
Scale in Feet

LANDAU ASSOCIATES

Cornwall Avenue Landfill Bellingham, Washington	**Site Management Units**	Figure 3

Legend

- Property Line
- Approximate Landward Boundary of Landfill Refuse
- Fence
- -6 Existing Elevation Contour (ft, MLLW)
- Former Building
- Approximate Extent of Contamination Originating from the R.G. Haley Site Evidenced by Petroleum Sheen during the RI and Previous Investigations

True North

Project North

BELLINGHAM BAY

Approximate Extent of Refuse & Wood Debris

-20 -19 -18 -17 -16 -15 -10 -5 0 5 10

R.G. Haley Site

Inner Harbor Line

Existing Stormwater Detention Basin

BNSF Railway Mainline

Basemap source: Port of Bellingham 1996, Anchor Environmental 2008

0 150 300

Scale in Feet

LANDAU ASSOCIATES

Cornwall Avenue Landfill Bellingham, Washington	**Extent of Refuse/Wood Waste and Upland Overlap Area**	Figure 4

Landau Associates, Inc. | G:\Projects\001\020\400\530\Cleanup Action Plan\Fig 04.dwg (A) "Figure 4" 5/20/2014

Legend

- Property Line
- Approximate Landward Boundary of Landfill Refuse
- X Fence
- -6 Existing Elevation Contour (ft, MLLW)
- Approximate Extent of Eelgrass Beds
- (MU-2) Management Unit
- (MU-1) Low Permeability Cap
  - Cap to be installed over the entire Upland Site Unit. The cap will integrate LFG control and be graded to facilitate drainage. Stormwater and erosion controls will be integrated to reduce infiltration and protect the integrity of the cap.
- (MU-2) Shoreline Stabilization System
- Includes Sand Filter in the Intertidal Zone
- (MU-2) Thin Layer Sediment Cap

BELLINGHAM BAY

MU-3

True North

Project North

Approximate Extent of Refuse & Wood Debris

Deep Subtidal Zone

Shallow Subtidal Zone

Intertidal Zone

Thin Layer Sediment Cap (MU-2)

Shoreline Stabilization System (MU-2)

Low-Permeability Cap with Scrim-Reinforced Liner (MU-1)

Inner Harbor Line

Extreme Low Water

R.G. Haley Site

BNSF Railway Mainline

Improve Drainage Near BNSF Railway to Reduce Infiltration

Basemap source: Port of Bellingham 1996, Anchor Environmental 2008

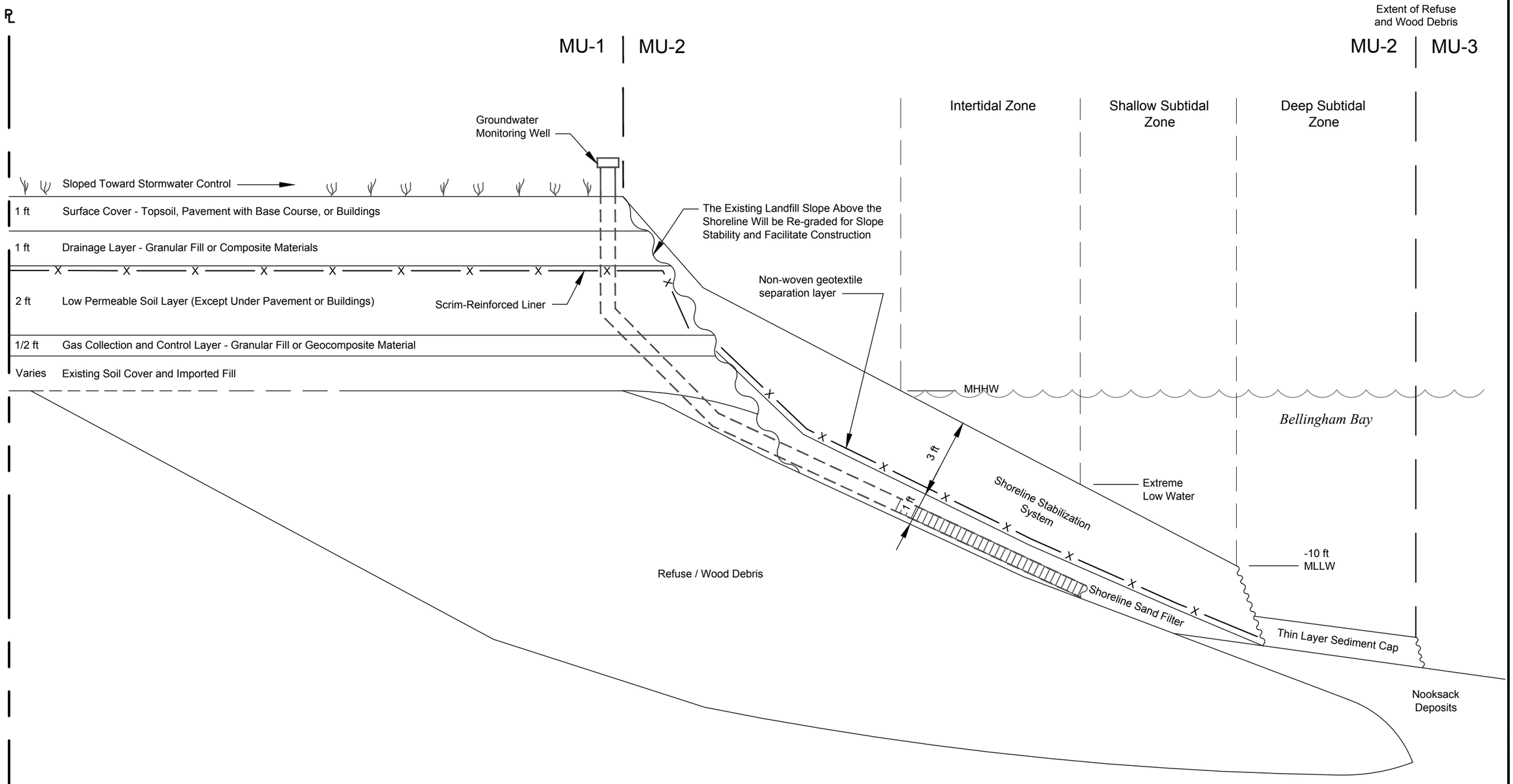
0 150 300

Scale in Feet

LANDAU ASSOCIATES

Cornwall Avenue Landfill Bellingham, Washington	**Selected Cleanup Action Conceptual Site Plan**	Figure 5

Landau Associates, Inc. | G:\Projects\001\020\400\530\Cleanup Action Plan\Fig 05 (No RG).dwg (A) "Figure 5" 5/20/2014



Note

1. The profiles presented on this figure provide conceptual-level design details. The final selection of materials, layer thickness, and details for transitioning between zones will be determined during the remedial design process.

Not to Scale

Cornwall Avenue Landfill Bellingham, Washington	**Selected Cleanup Action Conceptual Site Profile**	Figure 6

LANDAU ASSOCIATES

TABLE 1
SITE HISTORY
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Year	Owner	Historical Activity/Operations
1888-1946		Sawmill, log storage, wood debris disposal
1946-1965	Port of Bellingham (lease holder on state-owned portion)	See below
1954-1962	City of Bellingham (sublease on state-owned portion from Port)	Refuse disposal
1962-1965	American Fabricators (sublease on state-owned portion from Port)	Refuse disposal (leased land to the City for an extension of the landfill; landfill was closed in 1965)
1971-1985	Georgia Pacific West (leaseholder, including sublease on state-owned portion from Port)	
1985	Georgia Pacific West	Purchased portion of the Site from the Port (“fee-owned portion”)
2005	Port of Bellingham	Repurchased “fee-owned portion” from Georgia Pacific West
2005	City of Bellingham	Purchased an ownership interest in the “fee-owned portion” from the Port
2012	City of Bellingham	Acquired remaining “fee-owned portions” of the Site from the Port

TABLE 2
SITE CLEANUP LEVELS
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Indicator Hazardous Substances	Sediment (mg/kg - dry)	Groundwater (mg/L)	Basis for Cleanup Level
Groundwater			
Manganese	---	0.1	Surface Water ARAR - Human Health – Marine – Clean Water Act §304
NH_3-Ammonia (mg NH_3/L)	---	0.035	Surface Water ARAR - Aquatic Life - Marine/Chronic - Ch. 173-201A WAC
Sediment			
PBT IHSs			
Cadmium	1	---	Natural background (a)
Lead	21	---	Natural background (a)
cPAHs	0.016	---	Natural background (a)
PCBs	0.006	---	PQL for individual PCB Aroclor
Other IHSs			
Copper	390	---	SMS, dry weight
Silver	6.1	---	SMS, dry weight
Zinc	410	---	SMS, dry weight
Bis(2-ethylhexyl)phthalate	47 (c)	---	SMS, carbon normalized value

cPAHs - carcinogenic polycyclic aromatic hydrocarbons
IHS - Indicator Hazardous Substance
PBT - persistent bioaccumulative toxin
PQL - Practical Quantitation Limit
SCO - Sediment Cleanup Objective
SCUM - Sediment Cleanup Users Manual
SMS - Sediment Management Standards
WAC - Washington Administrative Code

(a) Cleanup levels currently based on natural background values as established by Ecology in the revised Sediment Cleanup Users Manual (SCUM); however, final cleanup levels may be adjusted accordingly upon completion of the regional background concentration study for Bellingham Bay (currently in progress).

(b) Cleanup level based on maximum value of the benzo(a)pyrene PQL established by Ecology in the revised SCUM II. The PQL is lower than the natural background value for the summation of the Toxicity Equivalency (TEQ) for carcinogenic polycyclic aromatic hydrocarbons (cPAHs) (i.e., 19 µg/kg dw sum TEQ). Final cleanup levels may be adjusted accordingly upon completion of the regional background concentration study for Bellingham Bay (currently in progress) and in conjunction with the selected cleanup action and compliance requirements for the R.G. Haley site.

(c) Sediment cleanup level is based on carbon-normalized SMS SCO.

Exhibit C
Cornwall Avenue Landfill Site Schedule of Work and Deliverables

Deliverables		Due[1]
A. Pre-design Activities		
A.1	Submit Detailed Project Schedule to Ecology	Within 90 days of the effective date of Consent Decree
A.2	Submit Draft SAP for Design-Phase Characterization to Ecology for Review	Within 120 days of Ecology's approval of Detailed Project Schedule
A.3	Submit Final SAP to Ecology	Within 45 days of receipt of Ecology's comments on Draft SAP (A.2)
A.4	Complete Pre-Design Field Investigation	Within 90 days of submittal of Final SAP to Ecology, or other date approved by Ecology (A.3). Results to be integrated into EDR.
B. Engineering Design Report (EDR) and Resource Agency Meeting		
B.1	Submit Draft EDR to Ecology for Review[2]	Within 180 days of completion of field investigations (MU-1 and MU-2) (A.4)
B.2	Submit Draft Final EDR to Ecology	Within 75 days of receipt of Ecology's comments of Draft EDR (B.1)
B.3	Submit Final EDR to Ecology	Within 30 days of receipt of Ecology's additional comments on Draft Final EDR (B.2)
C. Preparation of Construction Plans/Specification		
C.1	Submit 90 % Plans and Specs [per WAC 173-340-400(4)(b)] to Ecology for Review[2]	Within 150 days of receipt of Ecology comments on Draft Final EDR (B.2)
C.2	Submit 100 % Plans and Specs to Ecology	Within 90 days of receipt of Ecology comments on 90 % plans and specifications (C.1)
D. Field Construction		
D.1	Complete Construction Procurement[2]	Within 120 days of completion of the 100% plans and specifications (C.2) and 90 days of receipt of all required permits, whichever occurs later
D.2	Complete Marine Construction (MU-2)	Within the period authorized by the Nationwide 38 permit. (D.1)
D.3	Complete Upland Construction (MU-1)	Within one construction season (April – October) following completion of construction procurement (D.1)
E. Post Construction Work		
E.1	Submit Draft Institutional Control (IC) Plan to Ecology for review	Within 90 days of completion of Upland cleanup construction
E.2	Submit Final IC Plan to Ecology	Within 45 days of receipt of Ecology comments on Draft IC Plan
E.3	Submit Construction Documentation Report to Ecology	Within 120 days of completion of both upland and in-water cleanup construction
E.4	Submit Draft Long Term Confirmation Monitoring Plan to Ecology for review[3]	Within 90 days of completion of cleanup construction
E.5	Submit Final Long Term Confirmation Monitoring Plan to Ecology	Within 45 days of receipt of Ecology comments on Draft Plan

1) *Schedule is in calendar days. Deliverable due date may be modified with Ecology concurrence without amendment to the Consent Decree.*

2) *Cleanup action at MU-1 and MU-2 (D.2 and D.3) may be designed and constructed as separate projects or as a single project, depending on a number of factors. Deliverables will be modified as needed to reflect project definition, with Ecology concurrence, without amendment to the Consent Decree.*

3) *With Ecology concurrence, but without amendment to the Consent Decree, the confirmation monitoring plan may need to be developed in phases to match D.2 and D.3 construction that occurs separately or that partially overlap.*

EXHIBIT D

LIST OF REQUIRED PERMITS OR APPROVALS

APPLICABLE PERMITS OR APPROVALS & REQUIREMENTS

The cleanup action to be performed at the Site requires the following permit and environmental review process:

United States Army Corps of Engineers Nationwide Permit 38

Section 404 of the Clean Water Act, 33 U.S.C. § 1344 requires a permit prior to discharging dredged or fill material into the waters of the United States, including special aquatic sites such as wetlands. The Cleanup Action will be conducted under the conditions and requirements of a Nationwide Permit 38 which covers the Cleanup of Hazardous and Toxic Waste that are performed, ordered or sponsored by government agency with established legal or regulatory authority. The Nationwide Permit 38 will be applied for through a Joint Aquatic Resources Permit Application (JARPA).

NPDES Construction Stormwater General Permit

The cleanup action will require a National Pollution Discharge Elimination System (NPDES) Construction Stormwater General Permit. Ecology administers the federal NPDES regulations in Washington State. All construction permits that disturb more than 1 acre during construction must obtain a NPDES construction stormwater permit. The NPDES permit program is delegated to Washington State by the federal Environmental Protection Agency under the federal Clean Water Act, § 1251 et seq. Pursuant to RCW 70.105D.090(2), Ecology has determined that the procedural requirements of an NPDES permit are not exempt for MTCA actions. The Cleanup Action will be conducted under the requirements of an NPDES Construction Stormwater General Permit issued separately by Ecology.

State Environmental Policy Act Integrated Compliance (RCW 43.21C.036 and WAC 197-11-250 through 259)

Compliance with SEPA, Chapter 43.21C RCW, will be achieved by conducting SEPA review in accordance with applicable regulatory requirements, including WAC 197-11-268, and Ecology guidance as presented in Ecology Policy 130A (Ecology 2004). SEPA review will be conducted concurrent with public review of the Cleanup Action Plan. The Department of Ecology will act as the SEPA lead agency and will coordinate SEPA review.

Washington Department of Natural Resources Aquatic Land Use Authorization

Portions of the cleanup action occur within areas of State-owned aquatic lands managed by the Department of Natural Resources (DNR). DNR's Aquatic Resources Program manages State-owned aquatic lands and will determine the type of authorization required (e.g. license, lease, easement etc.) for the cleanup action. The Aquatic Land Use Authorization for the cleanup action will be initiated through the JARPA process.

EXHIBIT E

APPLICABLE SUBSTANTIVE REQUIREMENTS OF PROCEDURALLY EXEMPT PERMITS OR APPROVALS

APPLICABLE PERMITS OR APPROVALS & REQUIREMENTS

The cleanup action to be performed at the Site is exempt from the procedural requirements of the following permits and approvals but must meet the substantive requirements:

Washington Department of Fish & Wildlife Hydraulic Project Approval

Chapter 220-110 WAC (Hydraulic Code Rules) and Chapter 77.55 RCW (Construction Projects in State Waters) regulate work that uses, diverts, obstructs, or changes the natural flow or bed of any of the salt or fresh waters of state and includes bed reconfiguration, all construction or other work waterward, under and over the ordinary high water line, including dry channels, and may include projects landward of the ordinary high water line (e.g., activities outside the ordinary high water line that will directly impact fish life and habitat, falling trees into streams or lakes, bridge maintenance, dike construction, etc.). The Washington Department of Fish and Wildlife (WDFW) oversees the implementation of these laws and issues a Hydraulic Project Approval (HPA) with appropriate conditions to protect these resources. The Nationwide Permit 38 process will include completion and submittal of a Joint Aquatic Resources Permit Application (JARPA) that will also be provided to WDFW. The JARPA process will identify HPA substantive requirements that the Cleanup Action must comply with including coordinating closely with WDFW to ensure that the requirements of the HPA process are met.

Northwest Clean Air Agency Air Operating Permit

Title V of the federal Clean Air Act requires states to develop and implement an operating permit program in accordance with 40 CFR Part 70 for facilities that are the largest sources of air pollution. These Operating Permits are often referred to as Air Operating Permits (AOPs), Title V Permits, or Part 70 Permits. Washington's Operating Permit Regulation is in Chapter 173-401 Washington Administrative Code. It requires a facility to have an Operating Permit if it has the potential to emit specific types and volumes of air pollutants. The Cleanup Action will address landfill gas generation and will evaluate if potential post-cleanup action emissions will require an AOP.

City of Bellingham Shoreline Substantial Development Permit (Bellingham Municipal Code Title 22)

Pursuant to the City of Bellingham Shoreline Master Program (Bellingham Municipal Code [BMC] Title 22), the cleanup action must meet the requirements of a City Shoreline Substantial Development Permit (SMP). The cleanup action will occur within the regulated shoreline area designated by BMC Title 22 as Waterfront District – Recreational Uses. The substantive requirements include meeting the general conditions for a SMP, requirements and conditions of the Waterfront District – Recreational Uses shoreline designation, and applicable general regulations and use activity policies.

City of Bellingham Construction Stormwater Permit (BMC Title 15.42)

Pursuant to the City of Bellingham Stormwater Management ordinance (BMC 15.42), the cleanup action must meet the requirements of a City Stormwater Permit. The substantive requirements include preparation of a stormwater site plan, preparation of a construction stormwater pollution prevention plan, source control of pollution, preservation of natural drainage systems and outfalls, on-site stormwater management, run off treatment, flow control, and system operations and maintenance.