STATE OF WASHINGTON
THURSTON COUNTY SUPERIOR COURT

STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, Plaintiff, v. THE ESTATE OF KATHERINE BURLESON AND GJG, LLC, Defendants.	NO. 14-2-02104-3 CONSENT DECREE

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I. INTRODUCTION

A. The mutual objective of the State of Washington, Department of Ecology (Ecology) and the Estate of Katherine Burleson and GJG, LLC (Defendants) under this Decree is to provide for remedial action at a facility where there has been a release or threatened release of hazardous substances. This Decree requires Defendants to perform remedial actions at the Olympia Dry Cleaners Site in Olympia, Washington in accordance with the Cleanup Action Plan (CAP) attached as Exhibit B to this Decree.

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

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

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

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

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

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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), RCW 70.105D.

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

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

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

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

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

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

H. 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

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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.

A. Site: The Site is referred to as Olympia Dry Cleaners and is generally located at 606 East Union Avenue SE in Olympia, Washington. The Site is more particularly described in the Site Diagram (Exhibit A). The Site constitutes a facility under RCW 70.105D.020(8).

B. Parties: Refers to the State of Washington, Department of Ecology and the Estate of Katherine Burleson and GJG, LLC.

C. Defendants: Refers to the Estate of Katherine Burleson and GJC, LLC.

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

V. FINDINGS OF FACTS

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

A. The Site is located in Olympia, Washington, and consists of approximately 0.1 acres based on the extent of tetrachloroethylene (PCE), trichloroethylene (TCE), and associated chlorinated volatile organic compounds in affected soil, groundwater, and surface water. The Site includes portions of Thurston County Assessor's Parcel Numbers

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78204000800, 78204000700, and 78204000100. A diagram of the Site is attached as Exhibit A.

B. In approximately 1970, a corporation owned by Mr. Frank Burleson built the dry cleaners building at the Site and operated the dry cleaning business for approximately 11 years. Between approximately 1981 and 1995, the Site was leased by Mr. Gaylor Bolton for use as a full service dry cleaner. Mr. Howard McCullough leased the Former Olympia Dry Cleaners property from 1996 to approximately 2002 and operated a clothes washing and pressing service under the name Howard's Cleaners. Mr. McCullough reportedly did not operate the dry cleaning machine that was present in the building. From 2002 to approximately 2007, Mr. Tony Anderson leased the property to operate a full-service dry cleaner under the name TMC Cleaners. Use of PCE was discontinued in August 2004 when a new dry cleaning machine was installed that used unspecified aliphatic hydrocarbons. TCE was also used as a stain remover. In 2007, Mr. McCullough began leasing the property and operated a full service dry cleaner called Howard's Cleaners that continued to use the newer, non-PCE machine for a period of time. Currently, this business consists of a dry cleaning drop-off and pick-up facility. Contamination at the Site is related to historical releases of dry cleaning chemicals (PCE, TCE, and associated degradation products). Soil and groundwater contamination was first discovered in 1995 during an environmental assessment that was conducted by a potential purchaser. On July 17, 1998, the Site was listed on the State Hazardous Sites List.

C. On February 28, 2001, Ecology and Mr. Frank Burleson entered into Agreed Order No. DE 00TCPHQ-1408 that required Mr. Burleson to perform a Remedial Investigation/Feasibility Study (RI/FS) and produce a draft Cleanup Action Plan (CAP) for the Site. On November 7, 2007, Frank Burleson passed away and the obligations of the Agreed Order passed to the heir of his estate, Ms. Katherine Burleson. Katherine Burleson passed away on May 23, 2013, and the obligations of the Agreed Order have been maintained by her

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estate. The Estate of Katherine Burleson transferred title of the property to GJG, LLC, in February 2014. The Estate of Katherine Burleson is the sole owner of GJG, LLC. The following reports have been prepared:

1. Revised Draft Remedial Investigation Report, Former Olympia Dry Cleaners, October 9, 2009, prepared by Sound Environmental Strategies Corporation.

2. Draft Revised Feasibility Analysis Work Plan, Former Olympia Dry Cleaners, July 9, 2010, amended August 11, 2010, prepared by Sound Environmental Strategies.

3. Revised Draft Feasibility Study, Former Olympia Dry Cleaners, February 26, 2013, prepared by SoundEarth Strategies.

4. Feasibility Study Addendum, Former Olympia Dry Cleaners, January 3, 2014, prepared by FloydlSnider.

5. Draft Cleanup Action Plan, Former Olympia Dry Cleaners Site, June 5, 2014, prepared by FloydlSnider.

D. The contaminants of concern at the Site that exceed MTCA cleanup levels are PCE, TCE, and associated degradation products in soil, groundwater, and surface water (seep). These contaminants of concern also have the potential to affect indoor air within the dry cleaners building. Ecology has assigned the Site an overall priority ranking of "2" pursuant to MTCA.

E. As documented in the CAP (Exhibit B), the cleanup action to be implemented at the Site includes the limited excavation and off-site disposal of soil contamination; compliance soil sampling; treatment and disposal of dewatering and contaminated or potentially contaminated construction stormwater; backfill with controlled-density fill (CDF) to form a low-permeability barrier to groundwater flow; capping that consists of sidewalk replacement, repaving, and landscaping; quarterly groundwater monitoring (monitored natural attenuation); monitoring for the presence of seeps and sampling of all seeps; collection and treatment of

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seep discharge (if seep water concentrations are above surface water cleanup levels); vapor intrusion monitoring (and mitigation as needed if monitoring results exceed indoor air cleanup levels); and institutional controls in the form of Environmental (Restrictive) Covenants for each of the parcels that comprise the Former Olympia Dry Cleaners property. The Defendants shall also make a good faith effort to obtain an Environmental (Restrictive) Covenant for the Cherry Street Q-Tip Trust property portion of the Site before using other legal or administrative mechanisms (WAC 173-340-440(8)(c)).

VI. WORK TO BE PERFORMED

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

A. Based on the information in the RI/FS reports, a draft CAP was prepared that was reviewed, amended, and approved by Ecology for public comment (Exhibit B). The Defendants shall perform all tasks set forth in the CAP in accordance with the schedule in Exhibit C including, but not limited to, the following:

1. Excavation and off-site disposal of contaminated soil at two areas of the Site. The excavation areas are shown on Figure 7 of the CAP, and the estimated mass of soil to be excavated is approximately 400 tons. Compliance soil sampling and analysis shall be performed to confirm that all contaminated soil has been removed or to determine the remaining contaminant concentrations of soil locations that Ecology agrees shall be considered inaccessible. Details of compliance soil sampling requirements shall be provided in the Remedial Action Work Plan. This work plan shall be submitted to Ecology for review and approval according to the schedule in Exhibit C. Contaminated soil shall be characterized to determine appropriate transport and disposal requirements prior to transport. Excavation areas shall be backfilled with

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controlled density fill (CDF) to a depth of four feet below ground surface to help reduce or divert the flow of artesian groundwater up into or through the excavated area.

2. Contain, treat, and appropriately dispose of all dewatering effluent and all contaminated or potentially contaminated construction stormwater. Stormwater shall be managed as described in the Ecology-approved Erosion Control and Stormwater Pollution Prevention Plan.

3. Excavated and/or disturbed areas of Cherry Street pavement and the associated sidewalk and curb shall be restored to meet City of Olympia requirements. All other excavation areas within the Site shall be covered with pavement or landscaping.

4. The remedy for contaminated groundwater is monitored natural attenuation. Groundwater monitoring shall be conducted as described in the Compliance Monitoring Plan. A Compliance Monitoring Plan that meets the requirements of WAC 173-340-410 shall be submitted to Ecology for review and approval according to the schedule in Exhibit C. The Compliance Monitoring Plan shall be implemented upon Ecology approval. Initially, samples shall be collected on a quarterly basis for the first year following the cleanup action. At the end of the first year of monitoring, Ecology will review the results to determine if quarterly monitoring shall be continued or if the frequency can be reduced. The initial monitoring network shall include, at a minimum, existing wells MW-6, -9, -11, -13, and -14. The Defendants shall be required to install new groundwater monitoring wells if Ecology at any point determines that the initial groundwater monitoring network is inadequate.

5. The Compliance Monitoring Plan shall include the task of inspecting the Site and nearby adjacent areas for the presence of seeps. All seeps that are observed shall be sampled and analyzed for the Site contaminants of concern. Seeps with concentrations that exceed cleanup levels shall be captured and contained, treated as

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necessary, and then disposed of appropriately (such as an authorized discharge to the sanitary sewer). The Defendants shall conduct all necessary actions, as determined by Ecology, to control contaminated seeps. Uncontaminated seeps that appear as a result of the remedial action shall also be contained and controlled as necessary to protect structures and property.

6. The Compliance Monitoring Plan shall also include the task of collecting sub-slab, indoor air, ambient air samples, and determine short-term TCE exposure concentrations from within the dry cleaners building. If the indoor air or short-term TCE exposure concentrations exceed cleanup levels or short-term exposure limits or screening levels, then an Indoor Air Mitigation Plan shall be prepared for Ecology review and approval. This plan shall be implemented upon Ecology approval.

7. Following the remedial excavation and off-site disposal of contaminated soil, institutional controls shall be implemented to prevent exposure to remaining contaminated soil, groundwater, surface water (seeps), and indoor air. These institutional controls shall be primarily described in the Environmental (Restrictive) Covenants. Environmental (Restrictive) Covenants shall be recorded for Thurston County Assessor's Parcel Numbers 78204000800 and 78204000700. The Defendants shall also make a good faith effort to obtain an Environmental (Restrictive) Covenant for Thurston County Assessor's Parcel Number 78204000100 (the Cherry Street Q-Tip Trust property portion of the Site) before using other legal or administrative mechanisms (WAC 173-340-440(8)(c)).

B. Pursuant to WAC 173-340-840(5) and Ecology's Toxics Cleanup Program Policy 840 (Data Submittal Requirements), all data previously collected from the RI/FS investigation at the Site after August 1, 2005, shall be submitted to Ecology in electronic format. For additional information regarding electronic format requirements, see the website

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http://www.ecy.wa.gov/eim. Data submittal requirements also apply to data collected during the implementation of the CAP and Compliance Monitoring Plan (see Section XI).

C. Following the remedial action required by this Decree, some contaminated soils will remain beneath the Cherry Street roadway. These concentrations are expected to decline with time to below cleanup levels. However, in the event that contaminated soil and/or groundwater from the Site is encountered beneath Cherry Street during roadway or utility work done by the City of Olympia or others, the Defendants shall be responsible for all necessary containment, treatment, and disposal of all contaminated soil and groundwater from such work, as determined by Ecology.

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

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

VII. DESIGNATED PROJECT COORDINATORS

The project coordinator for Ecology is:

Steve Teel
Toxics Cleanup Program
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775
(360) 407-6247

The project coordinator for Defendants is:

Tom Colligan
Floyd|Snider, Inc.
601 Union St., Suite 600
Seattle, WA 98101
(206) 292-2078

Each project coordinator shall be responsible for overseeing the implementation of this Decree. Ecology's project coordinator will be Ecology's designated representative for the Site. To the maximum extent possible, communications between Ecology and 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. 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 RCW 18.43 and 18.220.

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 RCW 18.43 and 18.220.

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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 at the Site that Defendants either owns, controls, or has access rights to at all reasonable times for the purposes of, *inter alia*: inspecting records, operation logs, and contracts related to the work being performed pursuant to this Decree; reviewing 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 (for example, the Cherry Street Q-Tip Trust property). Ecology or any Ecology authorized representative shall give reasonable notice before entering any Site property owned or controlled by Defendants unless an emergency prevents such notice. All Parties who access the Site pursuant to this section shall comply with any applicable health and safety plan(s). Ecology employees and their representatives shall not be required to sign any liability release or waiver as a condition of Site property access.

X. SAMPLING, DATA SUBMITTAL, AND AVAILABILITY

With respect to the implementation of this Decree, 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),

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and/or any subsequent procedures specified by Ecology for data submittal. For additional information regarding electronic format requirements, see the website http://www.ecy.wa.gov/eim.

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.

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

XI. PROGRESS REPORTS

Upon commencing implementation of the CAP, Defendants shall submit to Ecology written monthly Progress Reports that describe the actions taken during the previous month to implement the requirements of this Decree until active soil removal and disposal is complete. Defendants shall submit quarterly progress reports thereafter for the ensuing twelve (12) months. The Progress Reports shall include the following:

A. A list of on-site activities that have taken place during the reporting period (month or quarter as applicable);

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

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C. Description of all deviations from the Schedule of Work and Deliverables (Exhibit C) during the reporting period and any planned deviations in the upcoming reporting period;

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 reporting period and an identification of the source of the sample; and

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

All Progress Reports shall be submitted by the tenth (10th) day of the month in which they are due after the effective date of this Decree. Progress Reports and any other documents submitted pursuant to this Decree shall be sent either electronically or by certified mail, return receipt requested, to Ecology's project coordinator.

XII. RETENTION OF RECORDS

During the pendency of this Decree, and for ten (10) years from the date this Decree is no longer in effect as provided in Section XXVIII (Duration of Decree), 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 Defendants withhold any requested records based on an assertion of privilege, Defendants shall provide Ecology with a privilege log

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specifying the records withheld and the applicable privilege. No Site-related data collected pursuant to this Decree shall be considered privileged.

XIII. TRANSFER OF INTEREST IN PROPERTY

No voluntary conveyance or relinquishment of title, easement, leasehold, or other interest in any portion of the Site shall be consummated by 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 Defendants' transfer of any interest in all or any portion of the Site, and during the effective period of this Decree, Defendants 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, Defendants shall notify Ecology of said transfer. Upon transfer of any interest, Defendants shall notify all transferees of the restrictions on the activities and uses of the property under this Decree and incorporate any such use restrictions into the transfer documents.

XIV. RESOLUTION OF DISPUTES

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

1. Upon the triggering event (receipt of Ecology's project coordinator's written decision or an itemized billing statement), Defendants have fourteen (14) calendar days within which to notify Ecology's project coordinator in writing of its dispute ("Informal Dispute Notice").

2. The Parties' project coordinators shall then confer in an effort to resolve the dispute informally. The parties shall informally confer for up to fourteen (14) calendar days from receipt of the Informal Dispute Notice. If the project coordinators cannot resolve the dispute within those 14 calendar days, then within seven (7) calendar days Ecology's project coordinator shall issue a written decision ("Informal Dispute

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Decision") stating: the nature of the dispute; the Defendants' position with regards to the dispute; Ecology's position with regards to the dispute; and the extent of resolution reached by informal discussion.

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

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

5. If Defendants find Ecology's Regional Section Manager's decision unacceptable, Defendants may then request final management review of the decision. This request ("Final Review Request") shall be submitted in writing to the Toxics Cleanup Program Manager within seven (7) calendar days of Defendants' receipt of the Decision on Dispute. The Final Review Request shall include a written statement of the dispute setting forth: the nature of the dispute; the disputing Party's position with respect to the dispute; and the information relied upon to support its position.

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

B. If Ecology's Final Decision on Dispute is unacceptable to Defendants, Defendants have 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 Defendants present an issue to the Court for review, the Court shall review the action or decision of Ecology on the basis of whether such action or decision was arbitrary and capricious and render a decision based on such standard of review.

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

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

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

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

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

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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 the Site under this Decree is creating or has the potential to create a danger to human health or the 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.

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In the event Defendants determine that any activity being performed at the Site under this Decree is creating or has the potential to create a danger to human health or the environment, 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.

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

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

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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 the Site and to pursue appropriate cost recovery, pursuant to RCW 70.105D.050 under the following circumstances:

1. Upon Defendants' failure to meet the requirements of this Decree;

2. Failure of the remedial action to meet the cleanup standards identified in the Cleanup Action Plan (CAP) (Exhibit B);

3. 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;

4. 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

5. 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.

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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 the Environmental (Restrictive) Covenants for each of the parcels that comprise the Olympia Dry Cleaners Site consistent with WAC 173-340-440 and RCW 64.70. After approval by Ecology, Defendants shall record the Environmental (Restrictive) Covenant with the office of the Thurston County Auditor within ten (10) days of receipt of validated compliance soil sample results or the completion of cleanup action soil excavation and contaminated soil transport and disposal (whichever is later). The Environmental (Restrictive) Covenants shall restrict future activities and uses of the Site as agreed to by Ecology and Defendants. Defendants shall provide Ecology with the original recorded Environmental (Restrictive) Covenants within thirty (30) days of the recording date. The Defendants shall also make a good faith effort to obtain an Environmental (Restrictive) Covenant for the Cherry Street Q-Tip Trust property portion of the Site before using other legal or administrative mechanisms (WAC 173-340-440(8)(c)).

XXI. FINANCIAL ASSURANCES

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

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

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

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

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

XXII. INDEMNIFICATION

Defendants agree 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

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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.

XXIII. 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 the CAP (Exhibit B).

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

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 determines that additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Decree, it shall promptly notify the other party of this determination. Ecology shall determine whether Ecology or 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

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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.

XXIV. 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 RCW 70.105D, including remedial actions and Decree preparation, negotiation, oversight, and administration. These costs shall include work performed both prior to and subsequent to the entry of this Decree. Ecology's costs shall include costs of direct activities and support costs of direct activities as defined in WAC 173-340-550(2). Ecology has accumulated $1,991.68 in remedial action costs related to this facility as of June 30, 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 June 30, 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. Pursuant to WAC 173-340-550(4), failure to pay Ecology's costs within

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

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

XXV. IMPLEMENTATION OF REMEDIAL ACTION

If Ecology determines that the Defendants have failed to make sufficient progress or failed 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 or at Ecology's discretion allow the Defendants opportunity to correct. The Defendants shall reimburse Ecology for the costs of doing such work in accordance with Section XXIV (Remedial Action Costs).

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

XXVI. PERIODIC REVIEW

As remedial action, including groundwater monitoring, continues at the Site, the Parties agree to review the progress of remedial action at the Site, and to review the data accumulated as a result of monitoring the Site as often as is necessary and appropriate under the circumstances. At least every five (5) years after the initiation of cleanup action at the Site the Parties shall meet to discuss the status of the Site and the need, if any, for further remedial action at the Site. At least ninety (90) days prior to each periodic review, 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). Under Section XVIII (Covenant Not to Sue), Ecology reserves the right to require further remedial action at the Site

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under appropriate circumstances. This provision shall remain in effect for the duration of this Decree.

XXVII. PUBLIC PARTICIPATION

A Public Participation Plan is required for this Site. Ecology shall review any existing Public Participation Plan to determine its continued appropriateness and whether it requires amendment, or if no plan exists, Ecology shall develop a Public Participation Plan alone or in 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, have a representative of Defendants 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.

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

1. Olympia Timberland Library
313 8th Avenue SE
Olympia, WA 98501
(360) 352-0595

2. Ecology's Southwest Regional Office
300 Desmond Drive
Lacey, WA 98503
(360) 407-6045

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 Southwest Regional Office in Lacey, Washington.

XXVIII. 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.

XXIX. 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; and further, that 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 reserves its right to seek to recover any costs incurred in implementing this Decree from any other PLP. This section does not limit or address funding that may be provided under WAC 173-322.

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XXX. EFFECTIVE DATE

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

XXXI. WITHDRAWAL OF CONSENT

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

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

JAMES PENDOWSKI
Program Manager
Toxics Cleanup Program

Date: 10/30/14

ROBERT W. FERGUSON
Attorney General

John A. Lovel for WSBA 20439

H. LEE OVERTON, WSBA #38055
Assistant Attorney General

Date: 10/31/14

THE ESTATE
OF KATHERINE BURLESON

GARY BURLESON
Personal Representative of the Estate

Date: 9/11/2014

GJG, LLC

GARY BURLESON
Manager

Date: 9/11/2014

ENTERED this _____ day of NOV - 5 2014 2014.

EX PARTE

ERIK D. PRICE

JUDGE
Thurston County Superior Court

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
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Olympia, WA 98504-0117
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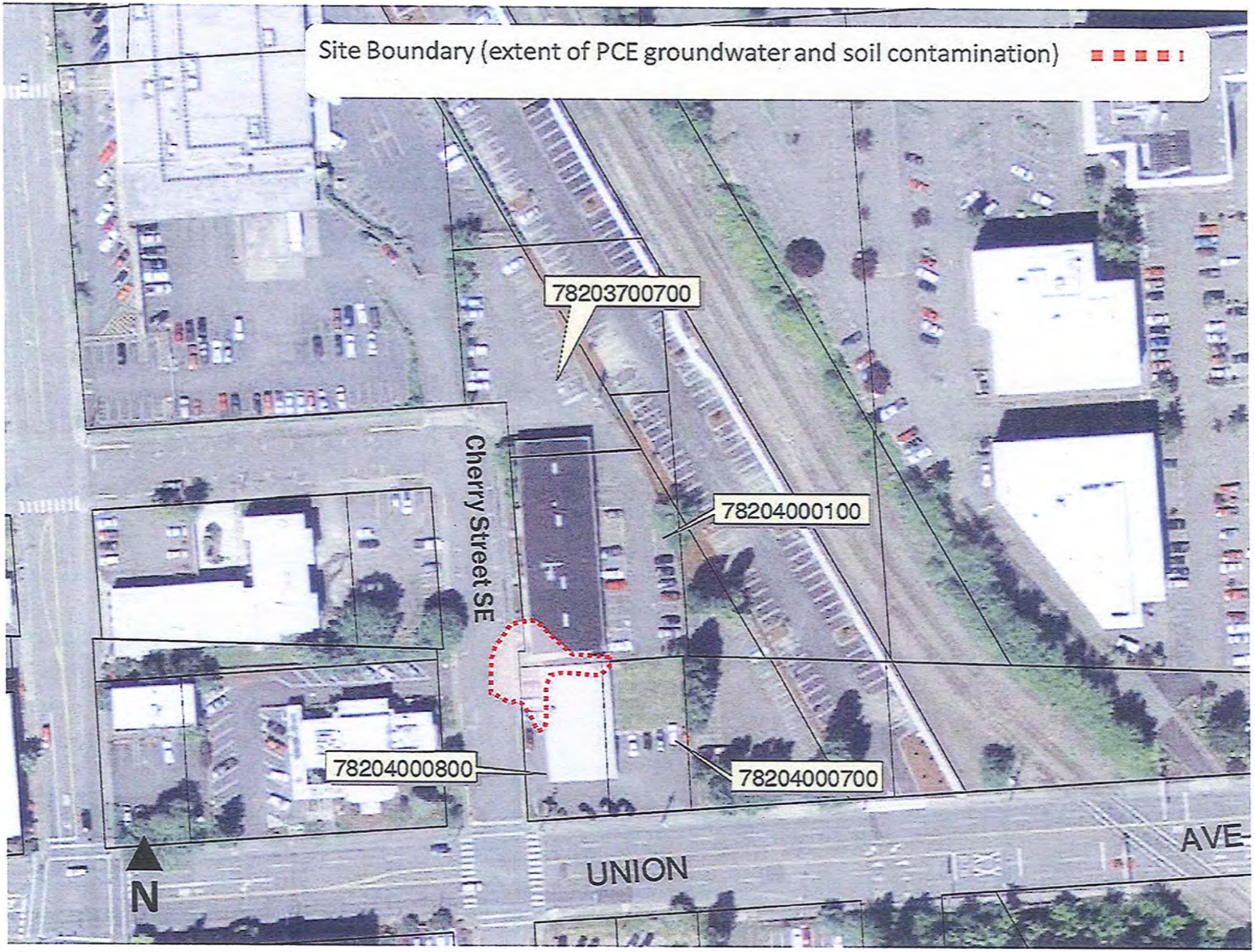
EXHIBIT A

SITE DIAGRAM AND LEGAL DESCRIPTION


Site Boundary (extent of PCE groundwater and soil contamination)
78203700700
78204000100
78204000800
78204000700
Cherry Street SE
UNION
AVE
N

LEGAL DESCRIPTION

GJG, LLC

APN 78204000700 –

LOT 7 OF BLOCK 40 OF SWANS ADDITION TO THE TOWN OF OLYMPIA AS RECORDED IN VOLUME 1 OF PLATS, PAGE 37, RECORDS OF THURSTON COUNTY, WASHINGTON.

APN 78204000800 –

LOT 8 OF BLOCK 40 OF SWANS ADDITION TO THE TOWN OF OLYMPIA AS RECORDED IN VOLUME 1 OF PLATS, PAGE 37, RECORDS OF THURSTON COUNTY, WASHINGTON.

Peggy M. Phillips and Richard G. Phillips, Jr., as Trustees of the Cherry Street Q-Tip Trust

LOTS 1 AND 2, BLOCK 40, SWANS ADDITION TO OLYMPIA, ACCORDING TO THE PLAT RECORDED IN VOLUME 1 OF PLATS, PAGE 37, TOGETHER WITH THE SOUTH HALF OF VACATED STREET ADJOINING ON THE NORTH; EXCEPT THE NORTHERN PACIFIC RAILROAD RIGHT-OF-WAY. SITUATE IN THE COUNTY OF THURSTON, STATE OF WASHINGTON.

EXHIBIT B

CLEANUP ACTION PLAN

Cleanup Action Plan

Olympia Dry Cleaners Site
606 Union Ave SE
Olympia, Washington

FS ID: 1446
Cleanup Site ID: 4722

Prepared by the
Washington State
Department of Ecology

October 29, 2014

Table of Contents

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List of Abbreviations/Acronyms

Acronym/ Abbreviation	Definition
ARAR	Applicable or relevant and appropriate requirements
bgs	Below ground surface
CDF	Controlled-density fill
cis-1,2-DCE	cis-1,2-dichloroethene
cm/sec	Centimeters per second
COC	Chemical of concern
DCA	Disproportionate cost analysis
CAP	Cleanup Action Plan
DRPH	Diesel-range petroleum hydrocarbons
Ecology	Washington State Department of Ecology
FS	Feasibility Study
FS Addendum	Feasibility Study Addendum
GRPH	Gasoline-range petroleum hydrocarbons
LOTT	LOTT Clean Water Alliance
mg/kg	Milligrams per kilogram
MNA	Monitored natural attenuation
MTCA	Model Toxics Control Act
NPDES	National Pollutant Discharge Elimination System
ORPH	Oil-range petroleum hydrocarbons
PCE	Tetrachloroethene
POC	Point of compliance
PQL	Practical quantitation limit
RAWP	Remedial Action Work Plan
RI	Remedial Investigation
ROW	Right-of-way
SEPA	State Environmental Policy Act
Site	Former Olympia Dry Cleaners Site
STEL	Short-Term Exposure Limits
TCE	Trichloroethene
trans-1,2-DCE	trans-1,2-dichloroethene
µg/L	Micrograms per liter
$\mu g/m^3$	Micrograms per cubic meter
WAC	Washington Administrative Code

1.0 Introduction

This Cleanup Action Plan (CAP) describes the proposed cleanup action selected by the Washington State Department of Ecology (Ecology) for the Former Olympia Dry Cleaners Site (Site). The Site is located at 606 Union Avenue Southeast in Olympia, Washington (refer to Figure 1). It is Ecology's determination that the proposed cleanup action described in this document, together with prior remedial actions, complies with Washington Administrative Code (WAC) 173-340-360 of the Model Toxics Control Act (MTCA).

This CAP was developed using information presented in the Revised Draft Remedial Investigation (RI) Report for the Site, prepared by Sound Environmental Strategies Corporation in 2009; the Revised Draft Feasibility Study (FS) Report for the Site, prepared by SoundEarth Strategies, Inc. in 2013; and in the Feasibility Study Addendum (FS Addendum) for the Site, prepared by Floyd|Snider in 2013.

The objective of this document is to satisfy the MTCA requirements for cleanup action plans set forth in WAC 173-340-380(1). Consistent with the requirement of that chapter, this CAP provides the following information:

- Site description, background, prior remedial actions, and environmental conditions
- Cleanup standards for each hazardous substance in each media of concern
- A brief summary of the cleanup action alternatives considered in the FS Report and the FS Addendum
- A description of the selected cleanup action, including justification for the selection
- Environmental covenants and site use restrictions
- Applicable state and federal laws for the selected cleanup action
- An implementation schedule for the selected cleanup action

Ecology held a public comment period on the draft CAP from September 18–October 17, 2014. The comments Ecology received during the comment period did not result in any changes to the draft CAP. This final CAP will be implemented under a consent decree.

2.0 Site Description, Background, and Environmental Conditions

2.1 SITE DESCRIPTION

The Site is defined by the lateral and vertical extent of contamination that has resulted from the operation of a former dry cleaning facility on the Former Olympia Dry Cleaners Property, in accordance with WAC Chapter 173-340. Based on the extent of contamination, the Site includes a portion of the Former Olympia Dry Cleaners Property, a portion of the property located adjacent to the north (the Cherry Street Q-Tip Trust Property), and a portion of the Cherry Street Southeast right-of-way (ROW; Figure 2). The Site covers approximately 3,700 square feet, based on the extent of tetrachloroethene (PCE) in affected soil and groundwater.

The Former Olympia Dry Cleaners Property is located at 606 Union Avenue Southeast in Olympia, Washington (Figure 2). The property is located at the intersection of Union Avenue Southeast and Cherry Street Southeast. Improvements to this property include the one-story, slab-on-grade Former Olympia Dry Cleaners Building (2,584 square feet in area) and asphalt-paved areas, which serve as parking, along the west and south perimeters (Figure 2). An unpaved alley (the North Alley), approximately 6 feet in width, borders the north side of the Former Olympia Dry Cleaners Building. A dry cleaning drop-off and pick-up facility currently operates in this building; however, it does not perform dry cleaning activities or use PCE as a cleaning solvent.

In addition, the Site encompasses a portion of the adjacent Cherry Street Q-Tip Trust Property, located at 1000 Cherry Street Southeast. This Cherry Street Q-Tip Trust Property is located north of the Former Olympia Dry Cleaners Property and across the North Alley (Figure 2). The western portion of this property is developed with a one-story building (Cherry Street Q-Tip Trust Building) that includes a basement beneath its northern portion. The building has historically been used as office space. The eastern and northern portions of this property are asphalt-paved and used as parking areas. The North Alley borders the south side of the Cherry Street Q-Tip Trust Building (Figure 2).

2.2 HISTORICAL PROPERTY LAND USE

Based on available records, Mr. Frank Burleson purchased the Former Olympia Dry Cleaners Property in 1970. Prior to construction of the building, imported fill was placed in the northern portion of the property to bring the property to its present grade (Stemen Environmental 2005). Mr. Burleson operated a full-service dry cleaner business from 1970 to 1981. A dry cleaning machine that used PCE was installed in 1970 at the north-central portion of the Former Olympia Dry Cleaners Building, approximately 1 foot north of the existing dry cleaning machine (Figure 2).

Mr. Gaylor Bolton began leasing the Former Olympia Dry Cleaners Property from Mr. Burleson in 1981 and continued to operate a full-service dry cleaner under the name Olympia Dry Cleaners. Mr. Bolton continued operating Olympia Dry Cleaners until 1995 (Stemen Environmental 2005). The cleaning methods and chemicals used during Mr. Bolton's operations are unknown. Mr. Howard McCullough subsequently leased the Former Olympia Dry Cleaners Property from 1996 to approximately 2002 and operated a clothes washing and pressing service under the name Howard's Cleaners. In addition, Mr. McCullough reportedly used the Former

Olympia Dry Cleaners Property as a drop shop for dry cleaning services to be performed at another location off the Former Olympia Dry Cleaners Property. Mr. McCullough reportedly did not operate the dry cleaning machine that was present in the Former Olympia Dry Cleaners Building (Stemen Environmental 2005).

Mr. Tony Anderson leased the Former Olympia Dry Cleaners Property in 2002 to operate a full-service dry cleaner under the name TMC Cleaners (Stemen Environmental 2005). In August 2004, Mr. Anderson reportedly discontinued use of PCE as the active dry cleaning agent on the Former Olympia Dry Cleaners Property and began using aliphatic hydrocarbons as part of his operations (Stemen Environmental 2005). The current dry cleaning machine is located approximately 1 foot south of the former dry cleaning machine. Trichloroethene (TCE) was reportedly used as a stain remover in conjunction with the new dry cleaning process (Stemen Environmental 2005). Mr. Anderson continued operating TMC Cleaners until approximately 2007. In 2007, Mr. McCullough began leasing the Former Olympia Dry Cleaners Property and operates a full-service dry cleaner called Howard's Cleaners. Howard's Cleaners uses the same PCE-free dry cleaning machine used by TMC Cleaners.

2.3 PHYSICAL SETTING AND HYDROGEOLOGY

A summary of the Site's physical setting and local geology and hydrology is provided below.

2.3.1 Physical Setting

The topography of the Site slopes downward toward the north. The slope is greater in the north-central and northwestern portions at the Former Olympia Dry Cleaners Property. Based on the survey performed during the RI, the ground surface elevation at the Site ranges from approximately 32 feet above mean sea level near Union Avenue Southeast down to approximately 26 feet above mean sea level near 10th Avenue Southeast.

2.3.2 Geology

The uppermost native soils in the local area consist of the Latest Vashon fine-grained sediments (Qgof) geologic unit (WSDNR 2003, Pacific Groundwater Group 2007). The Qgof unit consists predominantly of silt and clay with interbeds of silt, clay, clayey silt, and silty sand. These soil types generally have relatively low hydraulic conductivity ranges from 10^{-3} to 10^{-6} centimeters per second (cm/sec; Freeze and Cherry 1979). The maximum thickness of the Qgof unit in the region is approximately 95 feet (Pacific Groundwater Group 2007). Underlying the Qgof unit is a geologic unit referenced as the latest Vashon recessional sand and minor silt (Qgos). The Qgos unit consists predominantly of fine- to medium-grained sand with interbedded silt. These soil types generally have moderate hydraulic conductivity ranges from 10^{-1} to 10^{-5} cm/sec (Freeze and Cherry 1979). The thickness of the Qgos unit may exceed 400 feet (Pacific Groundwater Group 2007).

As noted in the RI Report (Sound Environmental Strategies, 2009), fill material at the Site consists of gravelly silt with clay to well-graded silty sand with gravel. Fill thickness is generally 0 to 4 feet except in the soil excavation area where backfill extends to a depth of approximately 9 feet below ground surface (bgs). The RI Report also noted that, based on the artesian conditions observed in groundwater monitoring wells, native deposits transition from the Qgof unit to the Qgos unit starting at the depth of 12 to 15 feet bgs.

2.3.3 Hydrology

The nearest surface water body to the Site is Capitol Lake, which is a freshwater lake located approximately 2,400 feet to the west (Figure 1). Regional deep (Qgos) groundwater flows toward Budd Inlet, which is a saltwater inlet located approximately 3,000 feet to the north (Pacific Groundwater Group 2007). Locally at the Site, a shallow groundwater-bearing zone is observed from approximately 0 to 15 feet bgs. The lithologies within the shallow groundwater zone generally consist of silt and clay, silty sand, and sandy silt. These soil types are characteristic of the Qgof unit, which is considered an aquitard based on its limited capacity to transmit groundwater (i.e., low hydraulic conductivity; Pacific Groundwater Group 2007). Based on aquifer test results, the estimated hydraulic conductivity of the excavation backfill area is 6.8 x 10^{-3} centimeters per second (SoundEarth Strategies 2013). The hydraulic conductivity of the shallow aquifer is likely lower due to its finer grain size. Potentiometric surface data indicate that shallow groundwater flows to the north and west with an average lateral hydraulic gradient of 0.04 feet per foot and there is an upward vertical hydraulic gradient of 0.15 feet per foot from the Qgos aquifer to the shallow (Qgof) aquifer, based on data from Wells MW-12 and MW-10 (SoundEarth Strategies 2013). A groundwater seep (referred to in this document as the Seep) is located approximately 13 feet west of the southwest corner of the Cherry Street Q-Tip Trust Building (Figure 2). In addition, artesian conditions have been observed in six monitoring wells (MW-07 through MW-09, MW-11, MW-12, and MW-14) located on or in the vicinity of the Site and in a private water supply well located along the west side of the Former Olympia Dry Cleaners Building (identified as the Artesian Supply Well on Figure 2). The artesian conditions are attributed to pressure applied by the Qgof unit that confines or partially confines groundwater in the underlying Qgos unit (Pacific Groundwater Group 2007). The Artesian Supply Well is not currently used as a potable water source, but instead is used for boiler water and other non-potable uses required by the current cleaning operation.

2.4 PRIOR REMEDIAL ACTIONS

In 2006, an interim remedial action, which involved the excavation of some of the accessible contaminated soil at the Site, was conducted near the northwest corner of the Former Olympia Dry Cleaners Property. The objective of this interim remedial action was to remove the primary source and predominant mass of PCE and its degradation compounds within this area. However, the limits of the interim action excavation were constrained by existing aboveground structures and Cherry Street Southeast and associated concerns related to the integrity of these structures. The location and approximate lateral extent of the 2006 interim action excavation is depicted on Figure 3. The depth of the excavation was reported to range from approximately 8 to 10 feet bgs. A total of 311 tons of soil was excavated from the site and disposed of in an approved treatment, storage, and disposal (TSD) facility. The excavation was backfilled with well-graded silty fine- to coarse-grained sand and gravel and restored to the surrounding surface grade.

Soil samples collected from the bottom and sidewalls of the excavation limits indicated that residual soil with elevated concentrations of PCE was left in place at the Site. The highest PCE concentration detected in these soil samples was 96 milligrams per kilogram (mg/kg) and was detected in a soil sample located along the western sidewall adjacent to Cherry Street Southeast.

Additionally, SoundEarth Strategies constructed a Seep Collection and Treatment System in 2007 and 2008 to collect and treat the water from the Seep that is contaminated by PCE and its

degradation compounds. The continuous operation of the treatment system prevents the contaminated seep water from flowing away from the Site and into nearby stormwater drains. In addition, temporary fencing is placed around the Seep and associated surface water to prevent direct contact until a cleanup action is completed at the Site.

2.5 CHEMICALS OF CONCERN AND AFFECTED MEDIA

Soil, groundwater, surface water, and air are the media of concern at the Site. The chemicals of concern (COCs) for the Site are the chemical compounds associated with dry cleaning activities that were detected in soil, groundwater, and surface water (i.e., the Seep) at concentrations exceeding the applicable MTCA cleanup levels. Air is also an affected media for the Site due to elevated soil vapor (soil gas) sample results from beneath the slab of the dry cleaners building (sub-slab sample).

The following COCs were identified for the Site:

Table 1 Chemicals of Concern

Chemical	Soil	Groundwater	Surface Water (Seep)	Air
PCE	✓	✓	✓	✓
TCE	✓	✓	✓	✓
cis-1,2-Dichloroethene (cis-1,2-DCE)	✓	✓	✓	✓
trans-1,2-Dichloroethene (trans-1,2-DCE)	✓	✓	✓	✓
1,1-Dichloroethene (1,1-DCE)	✓	✓	✓	✓
Vinyl Chloride	✓	✓	✓	✓

The suspected source of PCE and its degradation compounds (TCE, cis-1,2-DCE, and vinyl chloride) are associated with former dry cleaning operations in the Former Olympia Dry Cleaners Building and the possibility of historical unreported spills in the North Alley on the Former Olympia Dry Cleaners Property.

2.5.1 Soil

RI soil samples collected from the Site in 2008 had concentrations of PCE and TCE exceeding their MTCA Method A cleanup levels at multiple locations. Therefore, PCE, TCE, and their associated degradation products, including cis-1,2-DCE, trans-1,2-dichloroethene (trans-1,2-DCE), 1,1-dicloroethene (1,1-DCE), and vinyl chloride have been retained as soil COCs for the Site.

Oil-range petroleum hydrocarbons (ORPH) were detected in only one shallow soil sample (1 foot bgs) collected from the Site in 2001. Due to the age of this soil data and the frequency of detection for ORPH in soil at the Site, ORPH has not been retained as a soil COC.

2.5.2 Groundwater

PCE, TCE, cis-1,2-DCE, and vinyl chloride have been detected at levels greater than their applicable MTCA Method A or B groundwater cleanup levels in multiple wells during the last three rounds of groundwater sampling at the Site, conducted in 2008, 2010, and 2013. Therefore, PCE, TCE, cis-1,2-DCE, and vinyl chloride have been retained as groundwater COCs for the Site. The only other PCE degradation compound previously detected in groundwater at the Site was trans-1,2-DCE. It was detected in Well MW-02 in 2001 and 2002, but was not detected in the 2003 and 2004 groundwater samples collected from this well, and this well was later decommissioned due to the 2006 interim remedial action. However, trans-1,2-DCE and 1,1-DCE will continue to be retained as groundwater COCs because they are PCE degradation products.

Reconnaissance groundwater samples collected from three borings in 1995 had ORPH concentrations that exceeded the MTCA Method A cleanup level. The groundwater analytical results from two of these borings, along with the one detection of ORPH in soil noted above, indicate that a release of ORPH occurred to the surface and shallow subsurface within a limited area near the northeast corner of the Former Olympia Dry Cleaners Building and North Alley. The other boring had both ORPH and gasoline-range petroleum hydrocarbons (GRPH) detected at levels greater than the MTCA Method A cleanup level in 1995; however, this boring was located within the excavation area that was part of the 2006 interim remedial action. Similarly, diesel-range petroleum hydrocarbons (DRPH) was detected in one boring collected in 2001; however, this boring was also located within the 2006 interim remedial action excavation area. No other reconnaissance groundwater samples collected from the Site have had detections of ORPH, DRPH, or GRPH. Areas of DRPH- and GRPH-impacted groundwater have been addressed by the 2006 interim remedial action source removal and were not retained as groundwater COCs. Due to the age of the ORPH data and the limited area of impact in the northeast corner of the Former Olympia Dry Cleaners Building, ORHP was also not retained as a groundwater COC.

2.5.3 Surface Water

Seep concentrations for PCE, TCE, and vinyl chloride exceeded the applicable MCTA Method B cleanup levels in samples collected in 2007 and 2008. Therefore, these three chemicals were retained as surface water COCs for the Site. The associated PCE degradation products are also included as surface water COCs.

2.5.4 Air

June 2011 sub-slab soil vapor sample results from the Olympia Dry Cleaners building showed concentrations of PCE and TCE at levels greater than Ecology's guidance screening levels for protection of the vapor intrusion exposure pathway (SoundEarth Strategies 2013). Vapor intrusion occurs when volatile hazardous substances migrate from the subsurface to indoor air. Therefore, PCE, TCE, and the associated PCE degradation products are included as air COCs for the Olympia Dry Cleaners building portion of the Site.

Based on 2010 and previous indoor air sampling results, the vapor intrusion pathway for the Cherry Street Q-Tip Trust Building is considered to be incomplete (SoundEarth Strategies 2013).

2.6 CONTAMINANT DISTRIBUTION BY MEDIA

2.6.1 Soil

Soil on the Site is impacted by PCE and TCE. The soil analytical data collected from the RI, previous investigations, and the 2006 interim remedial action demonstrate that the concentrations of PCE and TCE in soil decrease with distance away from the confirmed and suspected source areas. Contours of the PCE concentrations in soil at the Site are shown on Figure 4. Elevated concentrations of PCE in soil are present at approximately 5 to 8 feet bgs along the western portion of the North Alley near the northwest corner of the Former Olympia Dry Cleaners Property; however, concentrations of PCE in soil attenuate to less than the practical quantitation limits (PQLs) at depths greater than 10 feet bgs in this area. In addition, concentrations of PCE in soil in excess of the cleanup level are also present in the eastern portion of the North Alley at depths of approximately 1 to 5 feet bgs. The concentrations of PCE exceeding the MTCA Method A cleanup level site-wide range from 0.062 to 96 mg/kg. As stated earlier, the highest PCE concentration was detected in a sidewall soil sample collected from the western wall of the 2006 interim remedial action excavation limits, adjacent to Cherry Street Southeast. TCE exceedances in the soil samples show a similar pattern to the PCE exceedances in soil but at much lower concentrations.

The lateral extent of soil with concentrations of PCE that exceed the MTCA Method A cleanup level covers an area of approximately 1,600 square feet (Figure 4). The vertical thickness of soil with concentrations of PCE in this area ranges from approximately 0 to 10 feet bgs. Based on the lateral extent of soil with elevated concentrations of PCE and the average thickness ranges of elevated PCE concentrations in soil, the estimated total volume of soil with concentrations of PCE that exceed the MTCA Method A cleanup level is 266 cubic yards.

2.6.2 Groundwater

The groundwater analytical data collected from reconnaissance borings and monitoring wells indicate that concentrations of PCE and its degradation compounds, TCE, cis-1,2-DCE, and vinyl chloride, decrease significantly both laterally and vertically with distance from the confirmed and suspected source areas. Any downward vertical migration of PCE from the source areas appears to be restricted by the upward vertical hydraulic gradient caused by artesian conditions at the Site. The highest concentrations of PCE in groundwater are present near the northwest corner of the Former Olympia Dry Cleaners Property in the suspected source area. The vertical extent of the dissolved-phase PCE plume is approximately 20 feet bgs. Contours of the PCE concentrations in groundwater at the Site based on groundwater monitoring data collected in 2008 and earlier are shown on Figure 5. More recent groundwater monitoring data from 2010 and 2013 are not shown on this figure, but this more recent data suggests that groundwater concentrations are decreasing.

2.6.3 Seep

Upward vertical flow of groundwater through the backfill material in the 2006 interim action soil excavation area is the result of the artesian conditions commonly observed in this area. This causes the Seep discharge located within the soil excavation area, approximately 13 feet west of the southwest corner of the Cherry Street Q-Tip Trust Building. The Seep has elevated concentrations of PCE, TCE, and vinyl chloride as expected, given that the Seep reflects contaminant conditions in groundwater within the suspected source area.

2.6.4 Air

As mentioned above, the Olympia Dry Cleaners building has the potential for vapor intrusion because of June 2011 sub-slab soil vapor sample results that showed concentrations of PCE and TCE above Ecology's guidance screening levels for protection of the vapor intrusion exposure pathway.

3.0 Cleanup Standards

Cleanup standards are established for the Site in this section. Two factors control designation of appropriate cleanup standards for specific sites: specification of cleanup levels (the chemical concentrations that are protective of human health and the environment) for each COC in each impacted media; and identification of the point of compliance (POC; the location on the Site where the cleanup levels must be attained). Table 3 identifies the site-specific numerical cleanup levels, based on the applicable cleanup levels by media for each specific COC identified in Section 2.4 above.

Table 2 Cleanup Levels[a]

Chemical	Soil	Groundwater	Surface Water (Seep)	Indoor Air-Residential[g]	Indoor Air-Commercial[h]
PCE	0.05 mg/kg	5 µg/L	3.3 µg/L[d]	9.6 µg/m^3	32 µg/m^3
TCE	0.03 mg/kg	5 µg/L	30 µg/L[d]	0.37 µg/m^3	2 µg/m^3
cis-1,2-DCE	0.03 mg/kg[b]	16 µg/L[c]	NA	NA	
trans-1,2-DCE	0.043 mg/kg[b]	100 µg/L[e]	10,000 µg/L[d]	27 µg/m^3	60 µg/m^3
1,1-DCE	0.03 mg/kg[b]	7 µg/L[e]	3.2 µg/L[f]	91 µg/m^3	670 µg/m^3
Vinyl Chloride	0.03 mg/kg[b]	0.2 µg/L	2.4 µg/L[d]	0.28 µg/m^3	0.9 µg/m^3

Notes:
- a Cleanup levels are MTCA Method A unless otherwise noted. Values taken from a query of Ecology's CLARC website on January 10, 2014 and CLARC Guidance documents for TCE, PCE, cis- and trans-1,2-DCE, 1,1-DCE, and vinyl chloride.
- b MTCA Method B calculated value for protection of the soil-to-groundwater pathway (adjusted up to the soil PQL as appropriate).
- c MTCA Method B non-carcinogen Standard Formula Value.
- d Surface Water ARAR – Human Health, Marine, Clean Water Act.
- e Ground Water ARAR – State and Federal Maximum Contaminant Level.
- f Surface Water ARAR – Human Health, Marine, National Toxics Rule.
- g MTCA Standard Method B Indoor Air Cleanup Level.
- h MTCA Modified Method B to account for current commercial land use. Refer to Appendix A.

Abbreviations:
- CLARC Cleanup Levels and Risk Calculation
- µg/L Micrograms per liter
- µg/m^3 Micrograms per cubic meter
- mg/kg Milligram per kilogram
- NA Not applicable or no cleanup level has been established

3.1 SOIL CLEANUP LEVELS

Soil Cleanup Levels for Unrestricted Land use were used for PCE and TCE. MTCA Method A concentrations are conservative and protective of all pathways of exposure. MTCA Method A concentrations are used at sites undergoing a routine cleanup action with relatively few hazardous substances as is the case at the Site. Because MTCA Method A cleanup levels are

not available for cis-1,2-DCE, trans-1,2-DCE, 1,1-DCE, and vinyl chloride, MTCA Method B cleanup levels were calculated for the protection of the soil-to-groundwater pathway. The calculated cleanup levels were adjusted upward to equal the laboratory PQL if the calculated value was less than the PQL.

3.2 GROUNDWATER CLEANUP LEVELS

Groundwater cleanup levels are based on MTCA Method A concentrations for PCE, TCE, and vinyl chloride. MTCA. Method A concentrations are conservative and protective of all pathways of exposure. MTCA Method A concentrations are used at sites undergoing a routine cleanup action with relatively few hazardous substances as is the case at the Site. For cis-1,2-DCE, trans-1,2-DCE, and 1,1-DCE, MTCA Method A concentrations are not available; therefore, the lowest (most conservative) published numerical values were selected from available state and federal criteria.

3.3 SURFACE WATER CLEANUP LEVELS

Given that the seep discharges to storm drains that lead to Budd Inlet, a salt water body (i.e., not used for drinking purposes), the cleanup levels are based on protection of marine aquatic life and human consumption of marine aquatic organisms that have bioaccumulated these compounds. In these cases, federal water quality criteria are applicable and have been chosen as protective cleanup levels.

3.4 AIR CLEANUP LEVELS

The current land use is commercial but future land use could be either commercial or residential. Therefore, cleanup levels are necessary to be developed for both land use scenarios. Ecology's Vapor Intrusion Guidance (Ecology 2009) allows for adjustment of the exposure assumptions in such situations (applied to Equation 750-2). Appendix A contains calculations that modify the standard MTCA Method B indoor air cleanup levels for the commercial use scenario. The exposure assumptions adjustments made to Equation 750-2 included a reduction in the exposure frequency to reflect a conservative commercial work exposure scenario (10 hours per day, for 5 days per week, for 52 weeks per year, for 30 years). These modified MTCA Method B concentrations will be applied as the cleanup levels for indoor air at the former Olympia Dry Cleaners building, as these concentrations take into account the current commercial use of the property. These adjustments result in the Modified MTCA Method B cleanup levels for the Site as shown in Table 2.

However, if the Site is converted to residential use, the Modified Method B Cleanup Level will be revised downward to standard MTCA Method B cleanup levels that are shown on Table 2.

3.5 POINTS OF COMPLIANCE

The Site qualifies for Terrestrial Ecological Evaluation exclusion in accordance with WAC 173-340-7491 (Sound Environmental Strategies 2009). Therefore, mitigating the potential human health risk associated with exposure to PCE and its degradation compounds in the affected media at the Site will be the primary objective of the cleanup action implemented.

Direct contact of soil with concentrations of PCE and its degradation compounds at levels greater than the applicable MTCA cleanup levels is limited to potential human receptors via

dermal contact or ingestion. The standard POC for the direct contact pathway for soil is all soils at the Site up to a depth of 15 feet bgs, which represents a reasonable depth that could be accessed during normal redevelopment activities (WAC 173-340-740(6)(d)). As noted above, contaminant concentrations are not thought to exist below 10 to 12 feet bgs.

Regional groundwater flows toward Budd Inlet, which is located approximately 3,000 feet to the north of the Site (Pacific Groundwater Group 2007). The groundwater to surface water pathway is considered incomplete for these surface water bodies, because the dissolved-phase PCE plume does not migrate to these surface water bodies. However, the Seep, should it discharge to nearby storm drains, can conceivably lead to a completed exposure pathway for surface water. Therefore, the discharge of contaminants from the Seep to stormwater drains should be controlled by the cleanup action. The POC for attaining the surface water cleanup levels will not exceed the property boundary where the Seep is currently located.

The potential exposure pathways for groundwater consist of direct exposure via dermal contact, ingestion, and/or inhalation of groundwater with concentrations of PCE and its degradation compounds exceeding the Site cleanup levels. The shallow groundwater-bearing zone at the Site is located within the Qgof geologic unit, which is characterized as an aquitard (Pacific Groundwater Group 2007). The shallow groundwater-bearing zone is not currently used as a drinking water source although it could represent a future drinking water source. The deeper Qgos geologic unit underlying the Qgof geologic unit also qualifies as a future potential source of potable water. The analytical results from groundwater samples collected from Monitoring Well MW-12 and the Artesian Supply Well screened in the Qgos geologic unit indicate groundwater quality has not been affected by the historical releases of PCE to the subsurface at the Site. The Artesian Supply Well is not currently used as a potable water source at the Site. However, the Artesian Supply Well may present a potential risk for future exposure if used as a potable water source prior to completion of the cleanup action at the Site.

Therefore, the groundwater to drinking water pathway for groundwater is considered to be potentially complete Under MTCA, the standard POC for groundwater is throughout the Site from the uppermost level of the saturated zone extending vertically to the lowest depth that could potentially be affected by the Site.

3.6 APPLICABLE REGULATORY REQUIREMENTS

MTCA requires that all cleanup actions shall comply with applicable state and federal laws and legally applicable technical and procedural requirements (WAC 173-340-710). These additional requirements as a group are referred to as “applicable or relevant and appropriate requirements” (ARARs). Table 3 presents the ARARs identified as being applicable at this Site.

4.0 Selected Cleanup Action

4.1 CLEANUP ACTION ALTERNATIVES CONSIDERED

Seven potential cleanup action alternatives for the Site, Cleanup Action Alternatives 1 through 5, and 6A and 6B, were evaluated in the Revised Draft FS Report (SoundEarth Strategies 2013). One additional cleanup action alternative, Modified Cleanup Action Alternative 6A, was also evaluated in the FS Addendum (Floyd|Snider 2014). A brief summary of each of the cleanup action alternatives considered for the Site is provided below.

- **Cleanup Action Alternative 1: Bioremediation—Edible Oil Injection.** This alternative involves the injection of edible oil into the subsurface to provide a substrate as a food source for the existing microbial population and to promote the bioremediation of COCs present within the source area and dissolved-phase plume.
- **Cleanup Action Alternative 2: Chemical Oxidation—Permanganate Injection.** This alternative involves the direct injection of sodium permanganate into the subsurface to oxidize the COCs present in the source area and the dissolved-phase plume.
- **Cleanup Action Alternative 3: Chemical Oxidation—Recirculation System.** This alternative involves the injection and subsequent recirculation of sodium permanganate in the subsurface to oxidize the COCs present in the source and the dissolved-phase plume. The tight nature of the soils where the source is present makes this alternative challenging for implementation.
- **Cleanup Action Alternative 4: Dual-Phase Extraction.** This alternative involves the installation of a dual-phase extraction remediation system to reduce concentrations of COCs in soil and groundwater to levels less than cleanup levels. The treatment area would be capped with asphalt to minimize surface water infiltration.
- **Cleanup Action Alternative 5: Permeable Reactive Barrier.** This alternative involves the installation of a permeable reactive barrier to intercept contaminated groundwater coming from the Site. As groundwater flows through the reactive material in the barrier, zerovalent iron, it acts as a strong reducing agent to dechlorinate the COCs. This is a passive treatment technology for dissolved-phase COCs and does not involve source control.
- **Cleanup Action Alternative 6A: Limited Excavation with Shoring.** This alternative involves a limited excavation to remove known and accessible soil contamination outside the footprints of the two existing buildings on the Site and within the public ROW using a shoring system near the existing building foundations and along the ROW.
- **Modified Cleanup Action Alternative 6A: Limited Excavation Using Slot Trenches.** This alternative involves the excavation of almost all of the known and accessible soil contamination from the Site using slot trenches to help provide the necessary shoring. Excavation would occur outside the footprints of the two existing buildings on the Site and would involve a limited amount of excavation within the public ROW. The slot trenches would be backfilled with controlled-density fill (CDF) to form a low-permeability barrier to groundwater flow.

- **Cleanup Action Alternative 6B: Extensive Excavation with Shoring.** This alternative involves an extensive excavation, removing accessible soil contamination outside the Cheery Street Q-Tip Trust Building footprint and within the public ROW and demolition of the Former Olympia Dry Cleaners Building. A shoring system would be required along the ROWs to the west of the Site, along the northern portion of the excavation near the existing building foundation and the southern limits of excavation.

Monitored natural attenuation (MNA) was retained as a component of each cleanup action alternative for final polishing after the alternative has been implemented. MNA parameters will be evaluated as part of the groundwater quality assessment following the cleanup action. Additionally, each of the cleanup action alternatives includes capping of the Seep.

Additional details on these cleanup action alternatives, including cost estimates, are provided in the Revised Draft FS Report (SoundEarth Strategies 2013) and the FS Addendum (Floyd|Snider 2014).

4.2 EVALUATION METHODOLOGY

The cleanup action alternatives developed in the Revised Draft FS Report and the FS Addendum were evaluated in accordance with the process outlined by MTCA for evaluating cleanup action alternatives. As a first step, the alternatives were evaluated with respect to the threshold requirements that must be met under MTCA. Cleanup action alternatives that do not comply with these criteria are not considered suitable cleanup actions under MTCA. As provided in WAC 173-340-360(2)(a), the four threshold requirements for cleanup actions are to:

- Protect human health and the environment.
- Comply with cleanup standards.
- Comply with applicable state and federal laws.
- Provide for compliance monitoring.

While these criteria represent the minimum standards for an acceptable cleanup action, WAC 173-340-360(2)(b) also requires that the cleanup action alternative satisfy the following criteria:

- Use permanent solutions to the maximum extent practicable
- Provide for a reasonable restoration time frame
- Consider public concerns on the proposed cleanup action alternative

To evaluate which of the cleanup action alternatives that meet the MTCA threshold requirements are permanent to the maximum extent practicable, the cleanup action alternatives are then evaluated in accordance with the MTCA disproportionate cost analysis (DCA). This analysis involves comparing the costs and benefits of alternatives and selecting the alternative with incremental costs that are not disproportionate to the incremental benefits. The criteria used to evaluate and compare the applicable cleanup action alternatives when conducting the DCA were derived from WAC 173-340-360(3)(f) and include the following:

- Protectiveness
- Permanence

- Effectiveness over the long-term
- Management of short-term risks
- Technical and administrative implementability
- Public concerns
- Cost

4.3 EVALUATION AND COMPARISON OF ALTERNATIVES

This section provides a brief summary of the evaluation of the cleanup action alternatives using the MTCA DCA evaluation criteria. Numerical values for the evaluation criteria for each of the cleanup action alternatives are shown in Table 4. Figure 6 also illustrates the total ranking score for each alternative along with cost.

All of the cleanup action alternatives provide a measure of protectiveness for human health and the environment. Alternative 6A, Modified Alternative 6A, and Alternative 6B exhibit a greater degree of protectiveness than Alternatives 1 through 5 due to the permanent removal and disposal of the contaminated media. Alternatives 1 through 5 rely on in-situ techniques to address COCs. Alternative 6B would provide an even greater degree of protectiveness in comparison to Alternative 6A and Modified Alternative 6A because it would remove more contaminated soil, and Alternative 6A would be more protective than Modified Alternative 6A as it would remove more soil in the public ROW.

All cleanup action alternatives provide a permanent reduction of toxicity, mobility, and volume of COCs through biological breakdown, chemical destruction, or physical removal. Alternative 6A, Modified Alternative 6A, and Alternative 6B would achieve the cleanup levels in soil more quickly than Alternatives 1 through 4. Alternative 6A, Modified Alternative 6A, and Alternative 6B address the remaining dissolved-phase groundwater plume through monitored natural attenuation. Alternatives 1 through 4 address soil and groundwater contamination, but require a longer period of time. Alternative 5 has the lowest score because it only addresses groundwater contamination. Alternative 6A, Modified Alternative 6A, and Alternative 6B score the highest because they each involve the physical removal of the soil source.

The long-term effectiveness of Alternatives 1 through 4 would be less than that of Alternative 6A, Modified Alternative 6A, and Alternative 6B. Alternatives 1 through 4 also score lower than the three excavation alternatives due to uncertainties in the subsurface conditions beneath the Site. Alternative 5 scores the lowest of the alternatives because it does not affect the source material in soil. Alternative 6A, Modified Alternative 6A, and Alternative 6B would be the most effective of the alternatives because they each include the physical removal of the contaminated source material.

Modified Alternative 6A has greater short-term risks to construction workers during cleanup work compared to Draft FS Alternatives 1 through 5 because it involves the use of trench boxes, excavation (including in the public ROW), and transport and handling of hazardous materials. However, it has fewer short-term risks to construction workers during cleanup work compared to Draft FS Alternatives 6A and 6B, which both excavate more soil and involve installation of sheetpile shoring. Sheetpile shoring installation is more complex and difficult than the installation of trench boxes.

Alternatives 1 and 3 are the most readily implementable technologies. Alternatives 6A and 6B are the most difficult to implement due to the complexity of shoring one or both of the buildings and working in the public ROW. Modified Alternative 6A, which uses the slot trench methodology, would be considerably easier to implement in comparison to Alternatives 6A and 6B where sheetpile shoring is involved. All of the cleanup action alternatives involve permitting, but both Alternatives 6A and 6B would have extensive engineering and geotechnical design activities. All cleanup action alternatives depend on access from the adjacent property owner for successful implementation.

The present worth cost of Modified Alternative 6A is estimated to be $335,000, whereas present worth costs for the other cleanup action alternatives were considerably higher, ranging from $737,000 for Alternative 3 to $2,530,000 for Alternative 6B. Costs are considered disproportionate to benefits if the incremental costs of one alternative versus a less expensive alternative exceed the incremental degree of benefit achieved by the more expensive alternative. The extra $402,000 cost for Alternative 3 compared to Modified Alternative 6A is disproportionate to the incremental degree of benefit.

4.4 SELECTED SITE CLEANUP ACTION AND JUSTIFICATION FOR SELECTION

Based on the comparative analysis and the ranking of the proposed alternatives in accordance with the MTCA evaluation criteria, Modified Alternative 6A is the selected cleanup action alternative for the Site. Modified Alternative 6A is comparable to many of the other alternatives in terms of its short-term risks and ease of implementation, and it would be considerably easier and less risky in the short-term than the shoring assumed for Alternatives 6A and 6B. It would provide greater protectiveness, permanence, and long-term effectiveness compared with many of these other alternatives and is comparable to Alternative 6A. A small amount of residual contamination would remain in the Cherry Street Southeast ROW and possibly under the two buildings at the Site with Modified Alternative 6A. However, the presence of soil exceeding the cleanup levels under the buildings has not been verified.

The selection of this cleanup action is also justified as it meets the following minimum requirements for selection of a cleanup action under MTCA WAC 173-340-360(2)(a):

- **Protect Human Health and the Environment.** The selected remedy will protect human health and the environment in both the short- and long-term. The remedy will permanently reduce the risks presently posed to human health (exposure to soil and the Seep) through the excavation of almost all known and accessible areas of PCE- and TCE-contaminated soil. It is anticipated that the Seep will be eliminated as its current location would be excavated and filled with CDF. Impacted groundwater will undergo monitoring following the soil excavation.
- **Comply with Cleanup Standards.** The selected remedy is expected to comply with the cleanup levels for soil, groundwater, and surface water.
- **Comply with Applicable State and Federal Laws.** The selected remedy is expected to comply with all state and federal laws and regulations.
- **Provide Compliance Monitoring.** The selected remedy will include compliance monitoring for soil, groundwater, and the Seep, if it reappears. Compliance monitoring is discussed in more detail in Section 5.1.3.

The selected remedy also meets the other requirements for selection under MTCA WAC 173-340-360(2)(b), which include the following:

- **Using Permanent Solutions to the Maximum Extent Practicable.** As discussed in Section 4.3, the selected remedy utilizes permanent solutions to the maximum degree practicable.
- **Providing for Reasonable Restoration Time Frame.** Excavation for the selected remedy will require less than a year to implement. Following excavation, cleanup levels in soil are expected to be attained in all accessible areas of the Site (outside of the two building footprints) with the exception of one location beneath Cherry Street Southeast. This will achieve restoration of soil for protection of human health (via direct contact to soil). Following removal of this source material, contaminant concentrations in groundwater at the Site are expected to continue to decline by natural attenuation to concentrations less than cleanup levels within 5- to- 10 years. During this time period, the attenuation in groundwater concentrations will be monitored by periodic analyses of groundwater samples from a network of wells (refer to Section 5.1.3). Management of institutional controls in the form of environmental covenants is required for the contaminated soil left in place beneath the buildings and beneath Cherry Street (refer to Section 5.1.4).
- **Considering Public Concerns.** This document will be presented to the public and stakeholders through a public comment process. A public meeting will be held if sufficient requests are received. Ecology may elect to prepare a responsiveness summary that documents how each of the public comments were considered and addressed.

5.0 Selected Cleanup Action Implementation

The general details of the selected cleanup action are presented below. Additional details will be provided in the Remedial Action Work Plan (RAWP), which will be prepared for Ecology review and approval prior to cleanup action implementation.

5.1 DESCRIPTION OF SELECTED CLEANUP ACTION

5.1.1 Soil Removal

The selected cleanup action would remove almost all of the known and reasonably accessible residual source mass soil from the Site. It would limit the extent of excavation to outside the footprints of the two existing buildings on the Site and would involve a limited amount of excavation within the public ROW. Excavation work would be performed in two areas. The approximate excavation footprints are shown on Figure 7. The estimated mass of soil to be excavated in these two areas would be approximately 400 tons.

The main excavation area is located near the northwest corner of the Former Olympia Dry Cleaners Property. This is the same area in which an excavation occurred as part of the 2006 interim remedial action; however, the area previously excavated did not cover as large of a footprint, nor was it as deep as the excavation that will occur as part of the selected cleanup action. The remaining soil at the limits of the 2006 interim remedial action contained PCE concentrations as high as 96 mg/kg, which indicates that a significant residual source mass of PCE was left in place. The existing soil data show that the bulk of the residual source mass soil in this area is located primarily at depths of 4 to 10 feet bgs within the sidewall limits of the prior excavation. Figure 8 shows a cross section of the selected cleanup action excavation areas, the interim remedial action excavation area, and PCE concentrations within the soil. The selected cleanup action would remove all the known and accessible soil in this area with residual PCE concentrations equal to or greater than the PCE MTCA Method A cleanup level of 0.05 mg/kg with a single exception. That exception lies well within Cherry Street Southeast at Boring B05, where a single soil sample from the boring at 7 feet bgs contained PCE at a concentration of 2.9 mg/kg. PCE was not detected in soil samples collected from this boring above and below that depth, at 3 feet, 11 feet, and 14 feet bgs. The soil data from Boring B05 indicate that at that distance from the source, the PCE has been constrained to soil stringers and represents very little source mass. Given this low concentration of PCE in Boring B05, the small amount of affected area and the difficulties associated with excavating into the public ROW, the proposed excavation limit for the selected cleanup action would extend approximately 5 feet into Cherry Street Southeast. This main excavation footprint would also include the Seep location. Soil would be removed up to a depth of approximately 10 to12 feet bgs.

The second excavation area for this alternative is located near the northeast corner of the Former Olympia Dry Cleaners Property. This shallow (5 feet bgs or less) excavation area would address an area of historical PCE concentrations in soil that slightly exceeded the MTCA Method A cleanup level.

Following abandonment of the monitoring wells in the excavation area, slot trenches would be used to remove the contaminated soil within the main excavation area, but are likely not necessary in the second smaller excavation area. The slot trench methodology involves the use of a trench box to dig a series of parallel 4-foot-wide trenches across the excavation area. The trench box would provide the necessary temporary shoring. A conceptual layout of these slot

trenches within this excavation area is shown in the inset on Figure 7. The conceptual layout of these slot trenches is shown with the trenches running perpendicular to Cherry Street Southeast, but these trenches could also be laid out parallel to Cherry Street Southeast. The actual slot trench layout would be determined during remedial design. Regardless of the layout, the edges of the slot trenches would be placed approximately a foot away from the edge of the current buildings to avoid any exposure of or damage to the foundation elements of these buildings. Because only one slot would be dug at a time with the use of the trench box for shoring, there would be no risk to adjacent building foundations.

The conceptual excavation sequencing using the slot trenches is shown in the inset on Figure 7. The slot trench areas shown in green would be excavated first by digging out soil within each of the trench boxes to a depth of up to 12 feet bgs. After each green trench is dug, the trench would be backfilled with CDF to within 4 feet of the ground surface. CDF is essentially lean concrete with a high proportion of sand. During the CDF hardening process, the trench box would be removed. Once the CDF cures, it leaves behind a solid low-permeability wall. After the backfilling of each of the green slot trench areas, the yellow slot trench areas would be excavated; however, use of the trench box would no longer be necessary because support would be provided by the adjacent cured CDF walls. Once excavated, these trenches would also be backfilled with CDF to within 4 feet of the ground surface. The final 4 feet of this entire excavation area would be backfilled with either site overburden soil that has tested as clean or with imported granular fill.

Dewatering is not expected to be required during excavation because saturated soil could be removed within the trench segment and the trench box would prevent the sidewall soil from collapsing. Additionally, the current Artesian Supply Well would be run at its maximum capacity to lower the artesian pressure in that area. Some amount of water control would be required to avoid displacement of groundwater outside the trench box while the trench is being filled with CDF. Soil draining would have to occur on-site to allow the wet soils to properly drain prior to offsite transport and disposal.

Following excavation, the properties would be restored to their original grades, then paved and landscaped. The sidewalk and a portion of Cherry Street Southeast would be repaved to City of Olympia standards.

The key advantages of the slot trench methodology are: (1) it allows work to be performed to depth near buildings without shoring, and (2) it leaves in place a large area of low-permeability CDF. The CDF backfill would greatly reduce or divert the flow of artesian groundwater up into or through the excavated area. This would greatly improve groundwater quality in this area compared to the current conditions.

The Seep would be eliminated because its location would be excavated and filled with CDF. However, there would still be a possibility of another seep emerging once groundwater flow is reestablished around the excavated area. As a contingency action, a French drain system will be installed around the perimeter of the excavated area to capture any further seepage around the excavation area. The French drain would be plumbed to the sanitary sewer. Prior to discharge, the effluent from the French drain will be sampled for the Site surface water COCs (refer to Table 1 in Section 2.5). If the discharge is determined to be contaminated, which is considered unlikely given that the soil source is going to be removed, it shall be captured, treated as necessary, and then disposed of appropriately (such as an authorized discharge to the sanitary sewer). Depending on the concentrations of volatile organic compounds (VOCs) in

the new seep, some form of pretreatment, such as granular activated carbon, may be required before discharge.

5.1.2 Soil Disposal

Contaminated soil would be drained, placed into roll-off boxes, and characterized for proper off-site disposal. Water drained from the soil shall not be allowed to drain into the excavation. Instead, all drainage liquids and dewatering effluent shall be contained, tested, pre-treated as necessary, and then sent to an appropriate disposal facility. To the degree possible, cleaner overburden (such as the soil placed after the interim action) would be segregated from soil coming from areas of known contamination and separately stockpiled.

5.1.3 Compliance Monitoring

Within the main excavation area on the Site, compliance soil sampling would be performed at up to two bottom locations within each trench segment to confirm that the contaminated soil has been removed from the bottom of the excavation. Additional compliance soil sampling would also be performed along the vertical ends of some of the slot trenches to confirm the removal of contaminated soil or to document the remaining PCE concentrations in soil that will be considered inaccessible; however, sidewall sampling along the length of each trench will not be possible due to the use of the trench boxes. Compliance soil sampling would also be performed in the second smaller excavation area to confirm the removal of contaminated soil. Details on the compliance soil sampling will be provided in the RAWP.

After the active remedy elements have been completed, a long-term groundwater monitoring plan and vapor intrusion monitoring plan will be submitted to Ecology for review and approval. The long-term groundwater monitoring plan will include monitoring for the presence of seeps during each groundwater sampling event and the sampling of all seeps. Quarterly groundwater monitoring will occur for the first year following the cleanup action. Depending on the results, Ecology may agree to reduce the frequency to semi-annual, and eventually to annual, groundwater monitoring in a network that, at a minimum, will include five downgradient wells (MW-6, MW-11, MW-13, MW-14, and MW-09). These wells are shown on Figure 7.

The vapor intrusion monitoring plan shall describe how indoor air, sub-slab soil vapor, and/or ambient air samples will be collected from the former Olympia Dry Cleaners building. Ecology is currently developing Short-Term Exposure Limits (STELs) for TCE. The vapor intrusion monitoring plan will also include sampling to determine mean short-term TCE indoor air concentrations.

Should the monitoring results for indoor air indicate an exceedance of the cleanup levels or STELs, the nature of any follow-on contingency actions at the Site will depend on the magnitude of the exceedance, and may include physical modification to ventilation systems, sealing of floors and foundation cracks, or installation of a passive or active building or sub-slab ventilation system.

5.1.4 Permission, Access, and Institutional Controls

Any utilities currently located within the excavation footprint, including the existing natural gas line, will be rerouted before excavation and replaced when the excavation is completed.

Cleanup action work performed on the Cherry Street Q-Tip Trust Property will require access from the Cherry Street Q-Tip Trust.

Following excavation of the accessible contaminated soil on the Site, institutional controls shall be implemented to prevent the exposure to remaining contaminated soil, groundwater, and soil vapor at the Site. For example, as shown in Figures 4 and 5, contaminated soil and groundwater will remain beneath a portion of the Cherry Street Q-Tip Trust and former Olympia Dry Cleaners buildings and beneath the Cherry Street Southeast roadway. These institutional controls shall be primarily described in the environmental covenants. Environmental covenants shall be recorded for the Cherry Street Q-Tip Trust parcel and the former Olympia Dry Cleaners parcels. Institutional controls (in the form of environmental covenants) shall include the following categories of restrictions and requirements:

- No activities shall take place that interfere with the remedial action and the operation, maintenance, inspection, or monitoring of the remedial action without prior written approval from Ecology.
- No activities shall occur that will affect the continued protection of human health and the environment. This includes the prohibiting of any activity that results in the release or exposure.
- Notifications to Ecology if the properties are sold or transferred.
- Notification to and approval by Ecology for any proposed use that is inconsistent with the covenant.
- Restriction on groundwater use.
- Restrictions on the handling of soil from beneath the two buildings during any future redevelopment.
- Consent to continued access to the properties for groundwater, soil vapor, and seep monitoring.

Prior to the establishment of environmental covenants on these properties, the local government (City of Olympia and/or Thurston County) will be notified and allowed to comment on the environmental covenants. The local government will also be provided a copy of the finalized environmental covenants.

5.2 PERMITS AND OTHER REQUIREMENTS

The cleanup action will be conducted under an Ecology Agreed Order or Consent Decree and thus will meet the permit exemption provisions of MTCA (WAC 173-340-710(9)). This means that, although the procedural requirements of most state and local laws are exempted, there remains the requirement that the cleanup action comply with the substantive requirements of these laws. Additionally, the exemption is not applicable if Ecology determines that the exemption would result in the loss of approval from a federal agency that may be necessary for the state to administer any federal law.

5.2.1 State Environmental Policy Act

The State Environmental Policy Act (SEPA) as authorized by the Revised Code of Washington (RCW) 43.21C and WAC 197-11 and other SEPA procedures (WAC 173-802) are intended to

ensure that State and local government considers environmental values when making decisions. A SEPA checklist shall be prepared by the PLP or consultant and reviewed by the lead agency (Ecology) as part of the permitting process for the cleanup action. Ecology will then issue a determination.

5.2.2 Effluent Discharge Authorization

A discharge authorization permit shall be requested from the LOTT Clean Water Alliance if groundwater seeps or other water effluent is to be discharged to the sanitary sewer. LOTT's Budd Inlet Treatment Plant and discharge of treated water to Budd Inlet are regulated under a National Pollutant Discharge Elimination System (NPDES) Permit. LOTT operates under an Ecology-issued NPDES Permit because treated effluent is released into Budd Inlet.

5.2.3 City of Olympia Requirements

Prior to excavating in the Cherry Street Southeast right-of-way, the substantive requirements of all applicable City of Olympia permits (such as Street Use Permit, Traffic Control Plan, Right-of-Way Obstruction, Excavation, and Grading Permits) shall be met. The City of Olympia also requires additional bonding and insurance requirements for contractors performing work in the street right-of-way. The sidewalk and pavement shall be restored to meet the Olympia Engineering Design and Development Standards Manual requirements listed in Chapter 4 (Transportation) Sections 4B.175 (Pavement Restoration) and 4C (Sidewalks and Curbs). The City of Olympia's Engineering Design and Development Standards Manual is available online at: http://www.codepublishing.com/wa/olympia/?edds/OlympiaEDDSNT.html. The City Engineer shall also be consulted to see if additional Site-specific requirements apply.

5.3 FIVE-YEAR REVIEW

Because the cleanup action outlined in this CAP will result in hazardous substances remaining at the Site at concentrations exceeding cleanup levels and because environmental covenants are included as part of the remedy, Ecology will review the selected cleanup action described in this CAP every 5 years to ensure protection of human health and the environment. Consistent with the requirements of WAC 173-340-420, the 5-year review shall include the following:

- A review of the title of the real property subject to the environmental covenant to verify that the covenant is properly recorded;
- A review of available monitoring data to verify the effectiveness of completed cleanup actions and institutional controls in limiting exposure to hazardous substances remaining at the Site;
- A review of new scientific information for individual hazardous substances or mixtures present at the Site;
- A review of new applicable state and federal laws for hazardous substances present at the Site;
- A review of current and projected future land and resource uses at the Site;
- A review of the availability and practicability of more permanent remedies; and
- A review of the availability of improved analytical techniques to evaluate compliance with cleanup levels.

Ecology will publish a notice of all periodic reviews in the Site Register and will provide an opportunity for review and comment by the potentially liable persons and the public. If Ecology determines that substantial changes in the cleanup action are necessary to protect human health and the environment at the Site, a revised CAP will be prepared and provided for public review and comment in accordance with WAC 173-340-380 and 173-340-600.

5.4 IMPLEMENTATION SCHEDULE AND REQUIRED FOLLOW-ON DOCUMENTATION

Ecology held a public comment period on the draft CAP from September 18–October 17, 2014. The comments Ecology received during the comment period did not result in any changes to the draft CAP. This final CAP will be implemented under a consent decree.

The Draft RAWP will be prepared and submitted within 30 days of Ecology's issuance of the Final CAP. The RAWP will include additional details on how the cleanup action will be performed, and will also include a soil handling plan, a traffic control plan, an erosion control and stormwater management plan, and a soil compliance monitoring plan.

Field work for the selected remedy will commence following final approval of the RAWP and once required construction permits are obtained. It is anticipated that construction activities will be completed within 3 weeks.

A Construction Completion Report, which will include drawings and a report documenting construction of the cleanup action, will be submitted to Ecology within 90 days of completion of activities. A long-term groundwater monitoring plan and vapor intrusion monitoring plan shall also be submitted to Ecology for review and approval within 30 days of the completion of construction activities.

6.0 References

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Former Olympia Dry Cleaners Site

Cleanup Action Plan

Tables 3 and 4

TABLE 3
SITE SPECIFIC ARARS
CLEANUP ACTION PLAN
OLYMPIA DRY CLEANERS SITE, OLYMPIA, WASHINGTON

Authorizing Statute	Implementing Regulation	Description	Rationale
Potential Chemical-Specific ARARs			
National Toxics Rule; 33 USC 1251	Water Quality Standards; 40 CFR 131.36(b)(1)	Establishes surface water quality standards that protect aquatic life and human health. Washington adopted these standards in Chapter 173-201A WAC.	Potentially applicable to surface water and potentially relevant and appropriate to groundwater that is likely to impact surface water quality.
WA Water Pollution Control Act; Chapter 90.48 RCW	Water Quality Standards for Surface Waters; Chapter 173-201A WAC	Establishes narrative and numeric surface water quality standards for waters of the state.	Potentially applicable to surface water and potentially relevant and appropriate to groundwater that is likely to impact surface water quality.
Clean Water Act; 33 USC 1251-1387	Section 304a of the Clean Water Act; WAC 173-340-730(2)(b)(i)(B)	Establishes surface water quality standards that protect aquatic life and human health. Washington adopted these standards in Chapter 173-201A WAC.	Potentially applicable to surface water and potentially relevant and appropriate to groundwater that is likely to impact surface water quality.
Hazardous Waste Management; Chapter 70.105D RCW	Washington Model Toxics Control Act Cleanup Regulation; Chapter 173-340 WAC	Establishes groundwater, surface water, and soil cleanup levels.	Potentially applicable to surface water and potentially relevant and appropriate to groundwater that is likely to impact surface water quality and to soils at the site.
Potential Action-Specific ARARs			
Hazardous Waste Management; Chapter 70.105D RCW	Selection of Cleanup Actions; WAC 173-340-350	Minimum requirements and procedures for conducting remedial investigation and feasibility studies.	Applicable to remedial action selection and implementation.
Hazardous Waste Management; Chapter 70.105D RCW	Institutional Controls; WAC 173-340-440	Institutional control requirements.	Potentially applicable to remedial action selection and implementation.
Hazardous Waste Management; Chapter 70.105D RCW	Compliance Monitoring Requirements; WAC 173-340-410, -720(9), -730(7), -740(7), and -745(8)	Compliance monitoring requirements for groundwater, surface water, and soil.	Potentially applicable to remedial action selection and implementation.
Potential Action-Specific ARARs			
Ecology Area of Contamination Policy	8/20/1991 Interprogram Policy	Allows movement/placement of excavated contaminated material within the regulated site without triggering dangerous waste designation.	Could be applicable for containment remedial alternatives.
Ecology Construction Stormwater General Permit	State of Washington Water Pollution Control Law; RCW Chapter 90.48	Applies to construction activities that disturb 1 or more acres.	Substantive requirements could be addressed through project stormwater pollution prevention plan.
Water Well Construction; Chapter 18.104 RCW	Minimum Standards for Construction and Maintenance of Wells; Chapter 173-160 WAC	Applies to the construction and maintenance of monitoring wells	Potentially applicable to wells constructed for groundwater withdrawal and monitoring and decommissioning of existing or future wells.

TABLE 3
SITE SPECIFIC ARARS
CLEANUP ACTION PLAN
OLYMPIA DRY CLEANERS SITE, OLYMPIA, WASHINGTON

Authorizing Statute	Implementing Regulation	Description	Rationale
Potential Action-Specific ARARs			
Hazardous Waste Management; Chapter 70.105 RCW	Dangerous Waste Regulations; Chapter 173-303 WAC	Applies if dangerous wastes are generated during remedial program	These regulations must be fully complied with for any off site disposal of waste determined to be dangerous waste.
WA Water Pollution Control; Chapter 90.48 RCW	NPDES Permit Program; Chapter 173-220 WAC	Applicable to the discharge of pollutants and other wastes and materials to the surface waters of the state	NPDES may be required for discharges related to ongoing remedial actions or discharge of stormwater/drainage.
State Environmental Policy Act (SEPA); Chapter 43.21C.110 RCW	SEPA Rules; Chapter 197-11 WAC	Applies if future construction/remedial action occurs at the site	Applies if future construction/ remedial action occurs at the site.
Solid Waste Management Chapter 43.21A RCW	Minimum Functional Standards for Solid Waste Handling WAC 173-304	Establishes minimum functional standards for the handling of solid waste.	Applies if non-dangerous wastes are generated during remedial program
Transportation of Hazardous Material; 49 USC 5101-5127	Hazardous Materials Regulations; 49 CFR Parts 171 through 180	Regulations that govern the transportation of hazardous materials.	Applies to any hazardous materials transported off-site as part of remediation.
Hazardous Waste-Land Disposal Restrictions; USEPA	40 CFR 268/22 CCR 66268	Establishes land disposal restrictions and treatment standards for hazardous wastes applicable to generators.	Any hazardous wastes generated as a result of on-site activities or by treatment systems must meet land disposal restriction requirements.
Washington Industrial Safety and Health Act, Chapter 49.17 RCW	Safety Standards for Construction Work, WAC 296-155	Safety requirements for construction work.	Applicable to all remedial alternatives. Part N - Excavation, Trenching, and Shoring is particularly applicable to Alternatives 5, 6A, Modified 6A, and 6B.
Underground Utilities, RCW 19.122.010	General Proteciton Requirements, WAC 296-155-655	Requirement to locate utilities prior to drilling or excavation.	Applicable to all remedial alternatives.
WA Water Pollution Control; Chapter 90.48 RCW	Federal Water Pollution Control Act Certification; Chapter 173-225 WAC	Applies to activities that may result in a discharge into navigable waters.	Substantive compliance with this requirement will be potentially applicable to alternatives where substantive compliance with NPDES or Section 404 permit is required.
Washington Clean Air Act; Chapter 70.94 RCW	General Requirements for Air Pollution Sources; Chapter 173-400 WAC. Controls for New Sources of Toxic Air Pollutants; Chapter 173-460 WAC	Establishes technically feasible and reasonably attainable standards and rules generally applicable to the control and/or prevention of the emission of air contaminants.	May apply to remedial alternatives that produce emissions to air.

Table 4
Cleanup Action Alternatives Screening Summary

Cleanup Action Alternatives	Alternative Details[1]	Washington State Department of Ecology Evaluation Criteria/Relative Ranking (1 = Low 10 = High)						Ranking Score[2]
		Weighting Factors for Evaluation Criteria						
		20%	20%	20%	20%	20%	0%	
		Protectiveness	Permanence	Effectiveness over the Long Term	Management of Short Term Risks	Technical and Administrative Implementability	Consideration of Public Concerns	
Alternative 1: Bioremediation - Edible Oil Injection	Injection of edible oil substrate to promote anaerobic biodegradation of the COCs in soil and groundwater. Cap and seal the seep.	7	8	7	6	8	NA	**7.2**
Alternative 2: Chemical Oxidation - Permanganate	Injection of permanganate to oxidize the COCs in saturated soil and groundwater. Cap and seal the seep.	6	8	7	7	7	NA	**7.0**
Alternative 3: Chemical Oxidation - Recirculation	Injection of permanganate to oxidize the COCs in saturated soil and groundwater. Cap and seal the seep.	6	8	7	8	8	NA	**7.4**
Alternative 4: Dual-Phase Extraction	Use of dual-phase extraction to recover contaminated vapor and groundwater. Asphalt cover over the treatment area to minimize surface water infiltration. Cap and seal the seep.	7	6	6	6	7	NA	**6.4**
Alternative 5: Permeable Reactive Barrier	Installation of an iron wall barrier to treat COCs in groundwater migrating from source area.	6	4	3	7	4	NA	**4.8**
Alternative 6A: Limited Excavation with Shoring	Excavate the soil with concentrations of COCs in excess of their cleanup levels outside the building footprints and within the adjacent ROW. Install shoring to protect building foundations and along the ROW.	9	9	8	3	2	NA	**6.2**
Modified Alternative 6A: Limited Excavation Using Slot Trenches	Excavate the soil with concentrations of COCs in excess of their cleanup levels outside the building footprints and within the adjacent ROW using slot trenches for shoring.	8	9	8	5	6	NA	**7.2**
Alternative 6B: Extensive Excavation with Shoring	Excavate the soil with concentrations of COCs in excess of their cleanup levels beneath the dry cleaner property (including demolition of the dry cleaner building) and the adjacent ROW. Install shoring to protect building foundations and along the ROW.	10	10	9	1	1	NA	**6.2**

Notes:

1 Monitored natural attenuation of COCs is retained for all cleanup action alternatives.

2 The ranking score for each alternative is the average of the weighted score for five of the six evaluation criteria. Consideration of Public Concerns in not included in the ranking score.

Abbreviations:

COCs Chemicals of Concern

NA Not Applicable

ROW Right-of-way

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Cleanup Action Plan

Figures

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GTH-Olympia Dry Cleaners
Cleanup Action Plan

Figure 1
Site Vicinity Map

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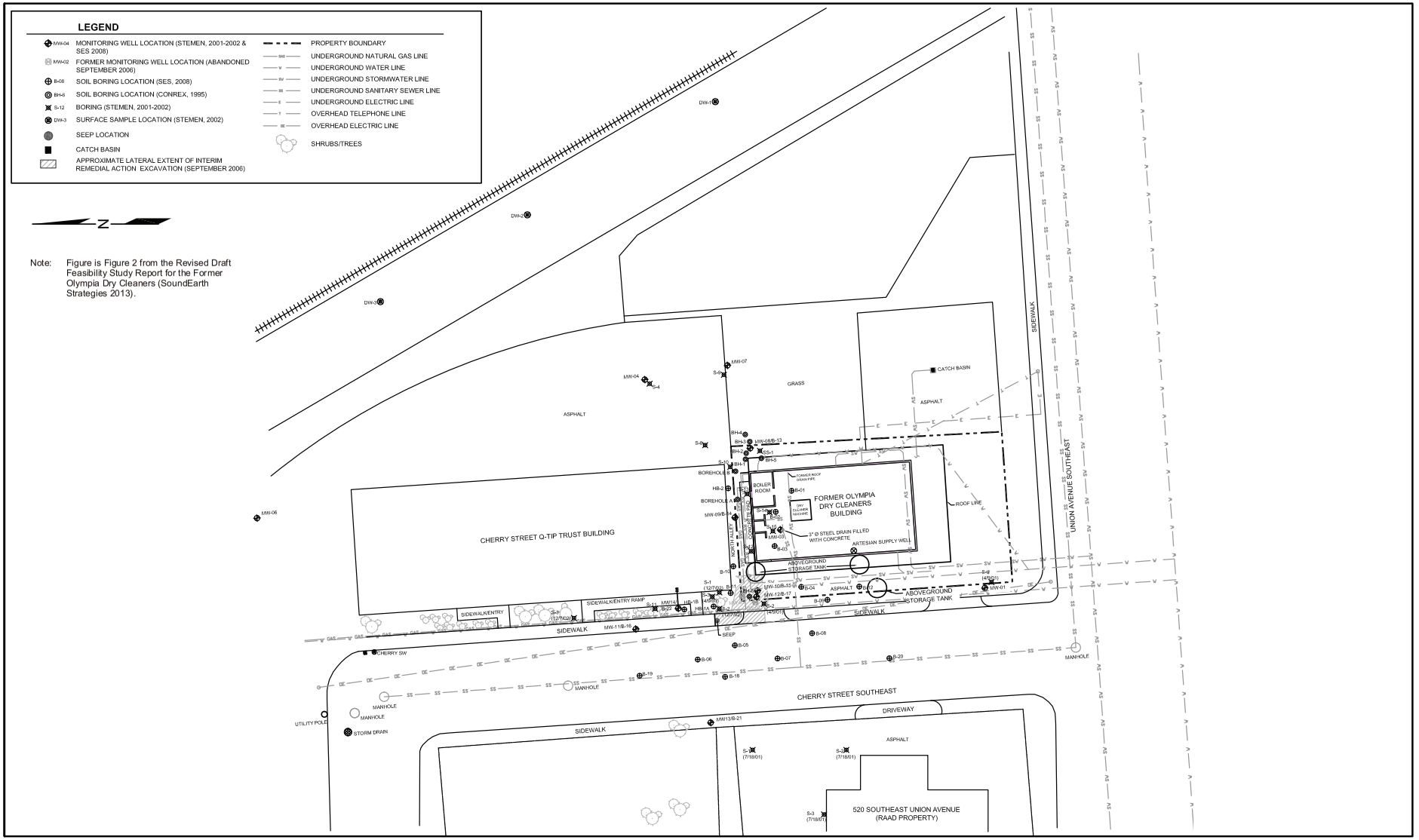
4/7/2014



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Former Olympia Dry Cleaners Site
Olympia, Washington

Figure 2
Site Features Map

G:Project\Clients\Floyd Snider\GTH Olympia/Cleanup Action Plan Figure 2

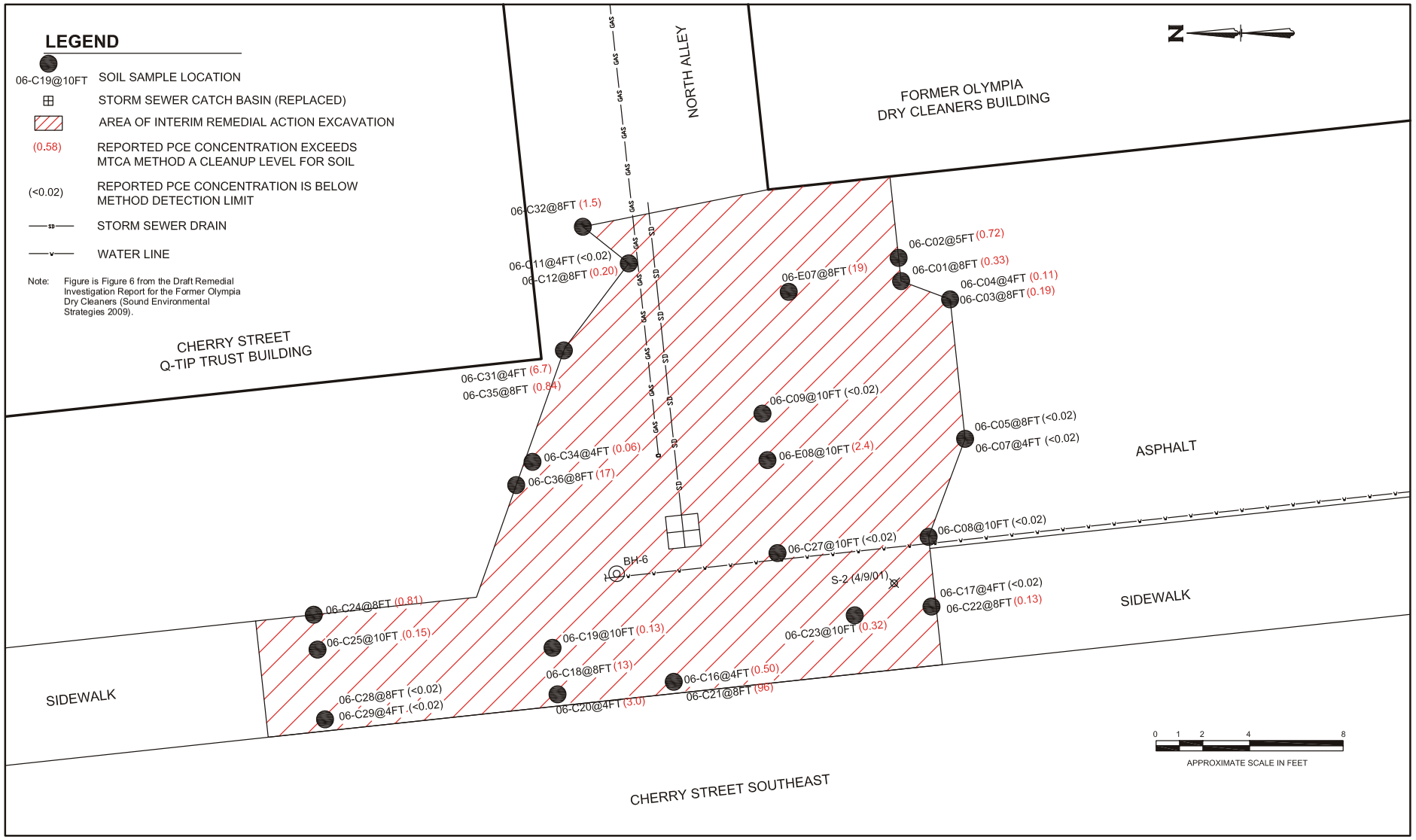

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Figure 3
Interim Action Excavation Area

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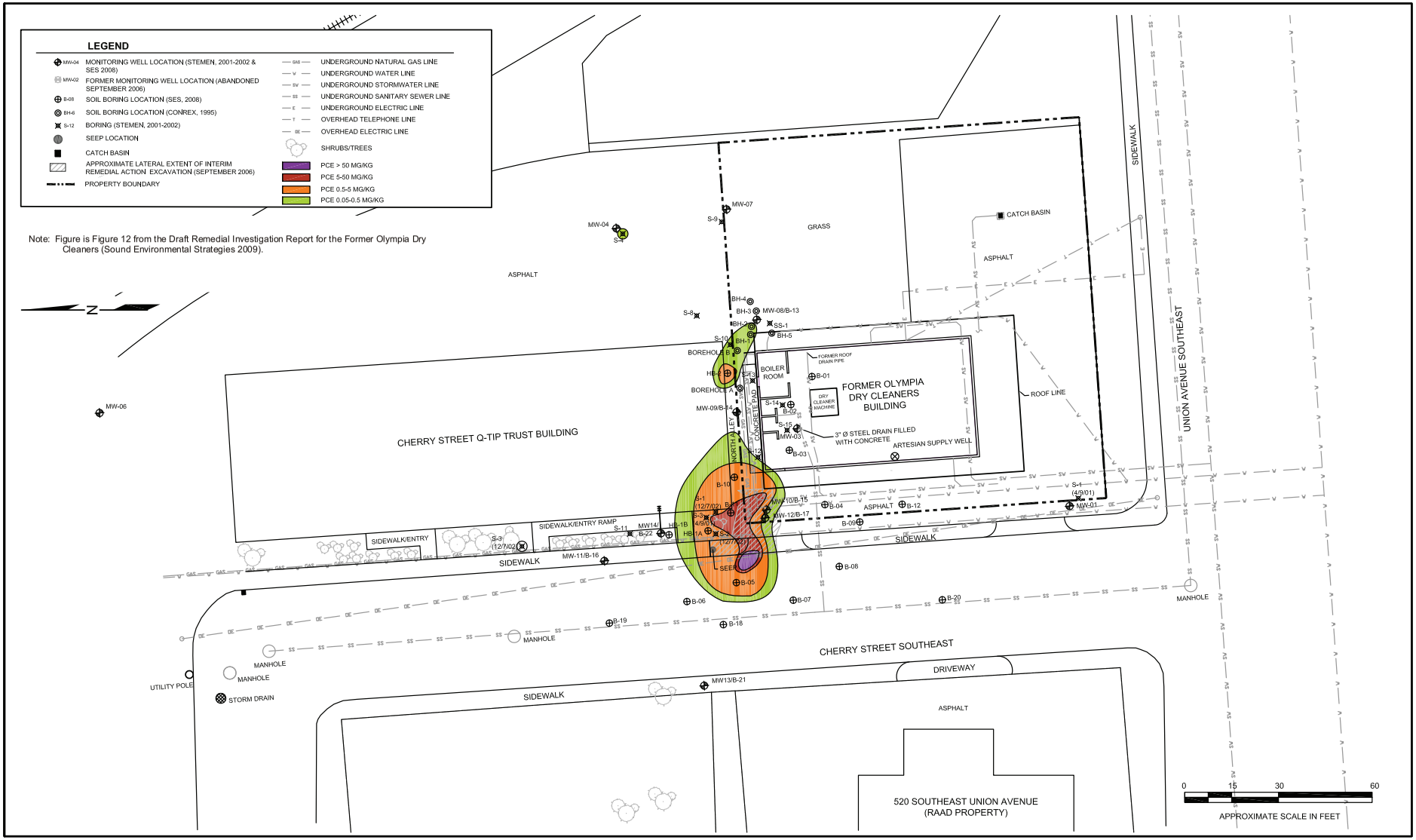

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Figure 4
PCE Concentrations in Soil

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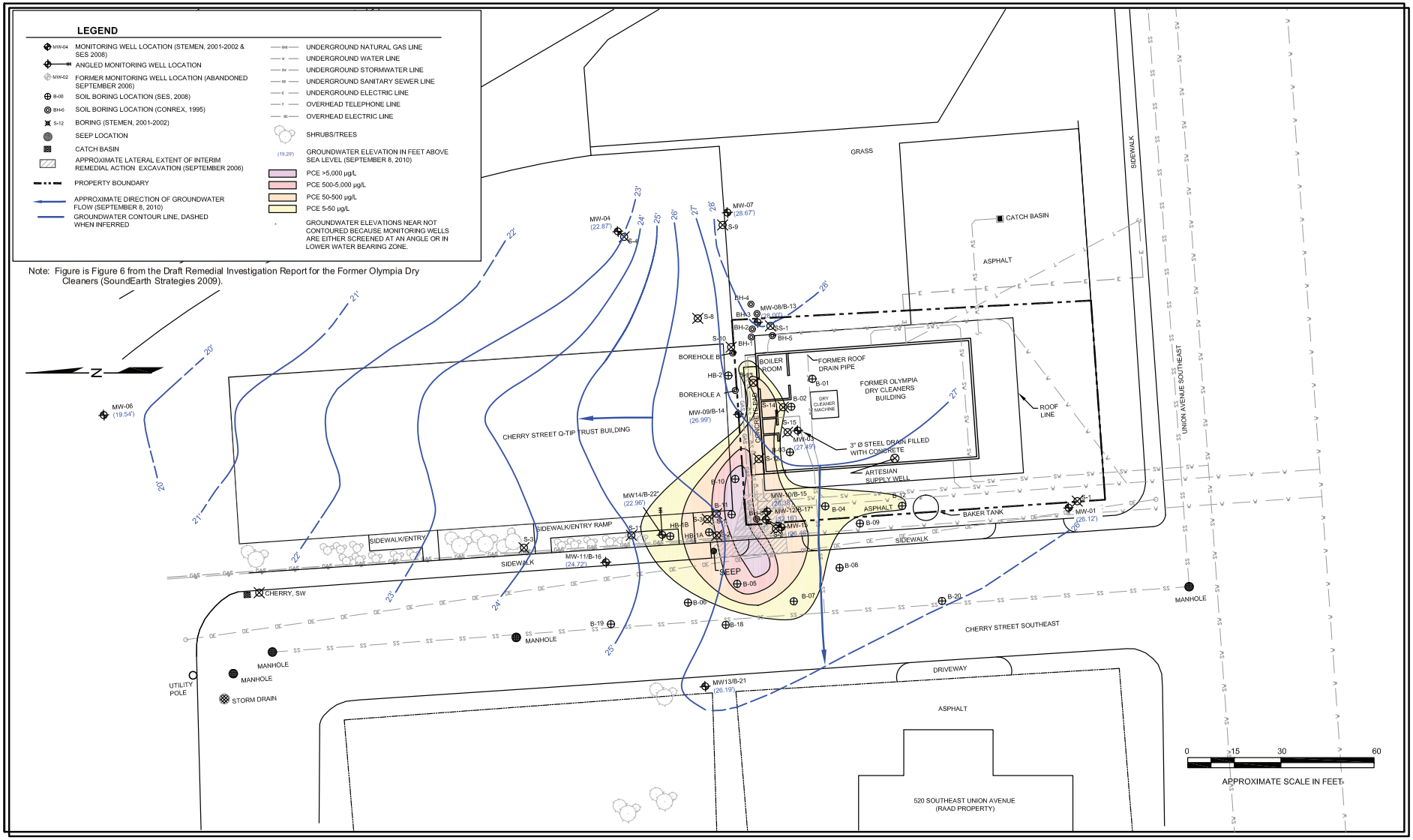

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Figure 5
PCE Isoconcentrations in Groundwater

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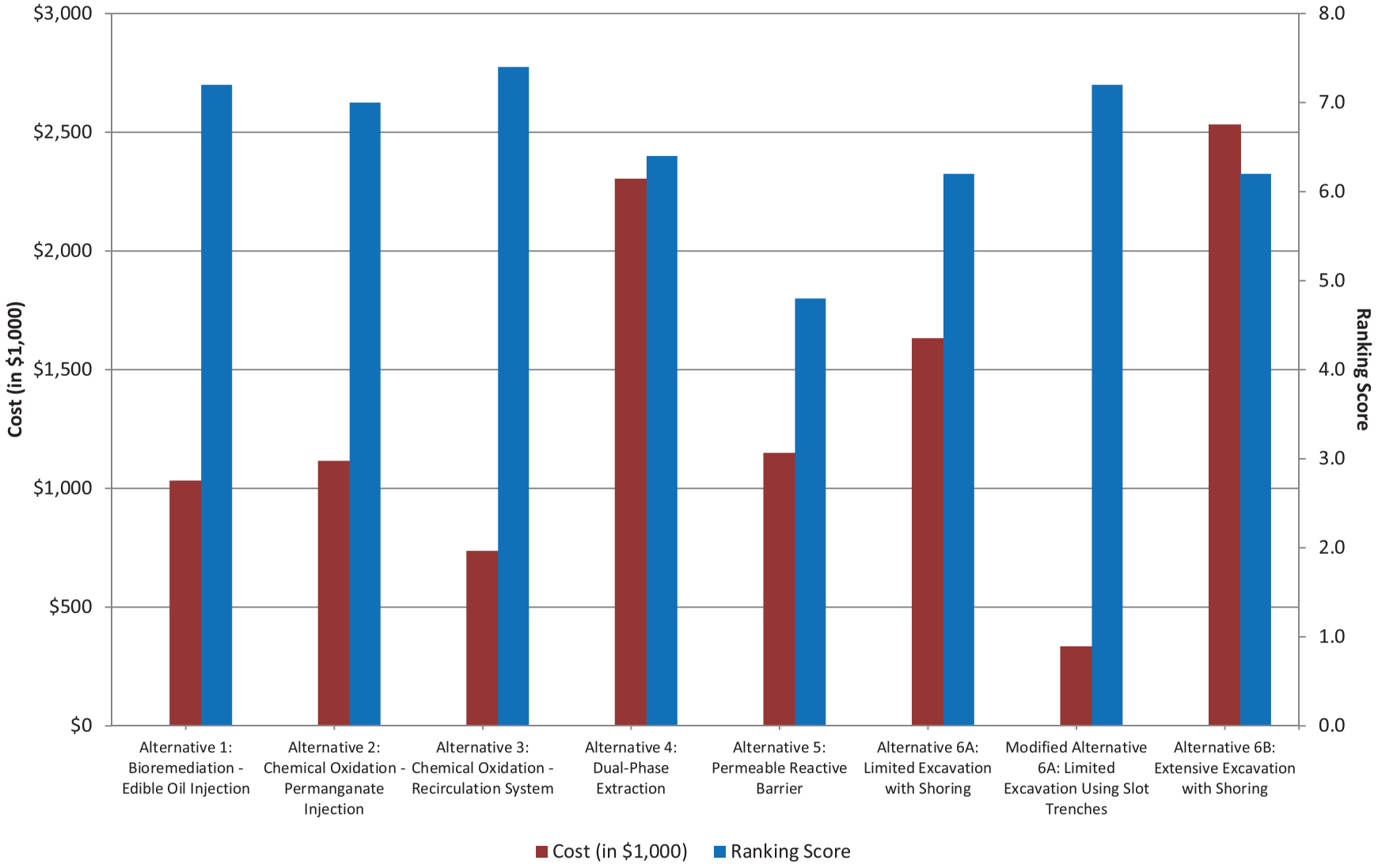

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Figure 6
Cost and Relative Ranking of Cleanup Action Alternatives

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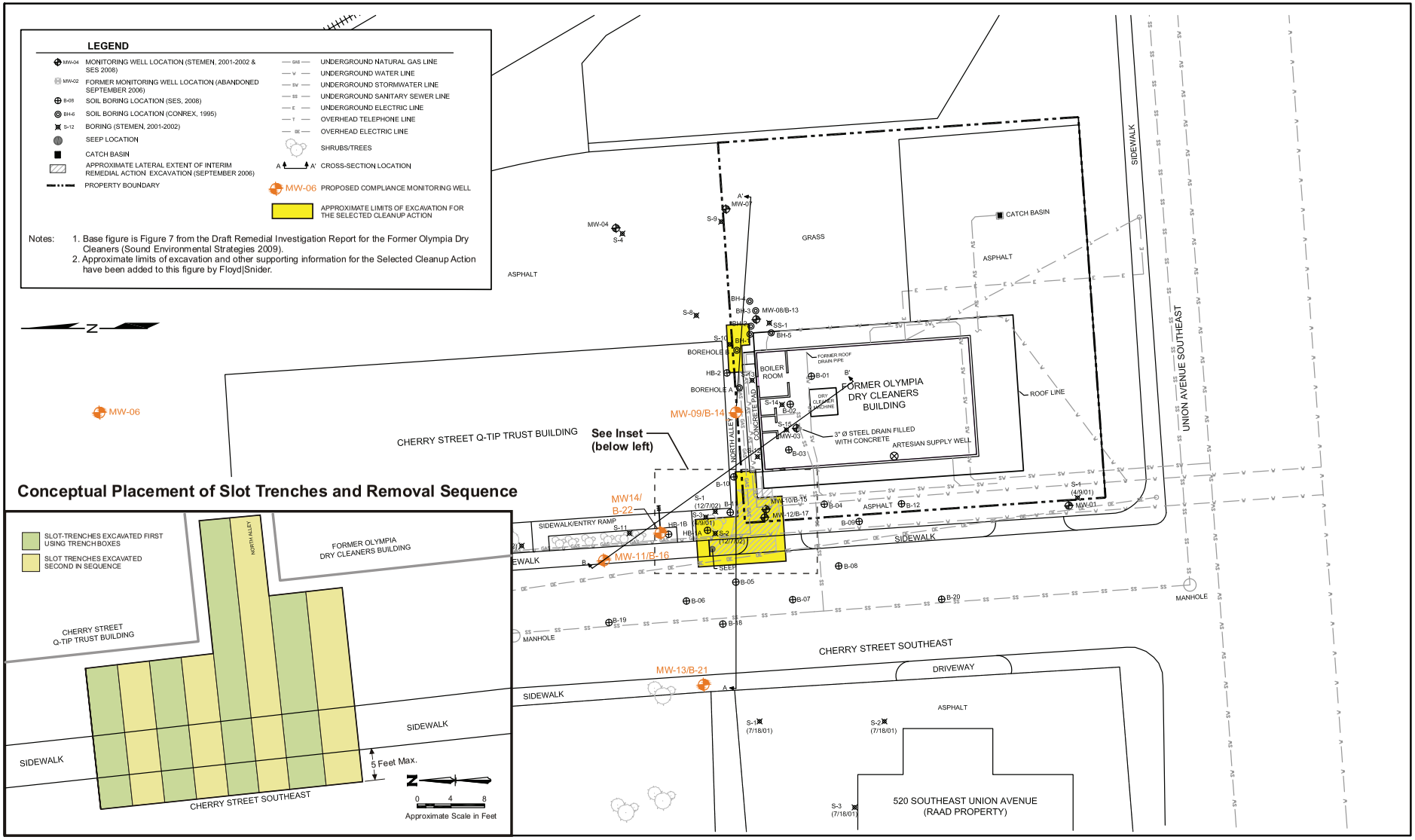

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Former Olympia Dry Cleaners Site
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Figure 7
Conceptual Site Plan
for the Selected Cleanup Action

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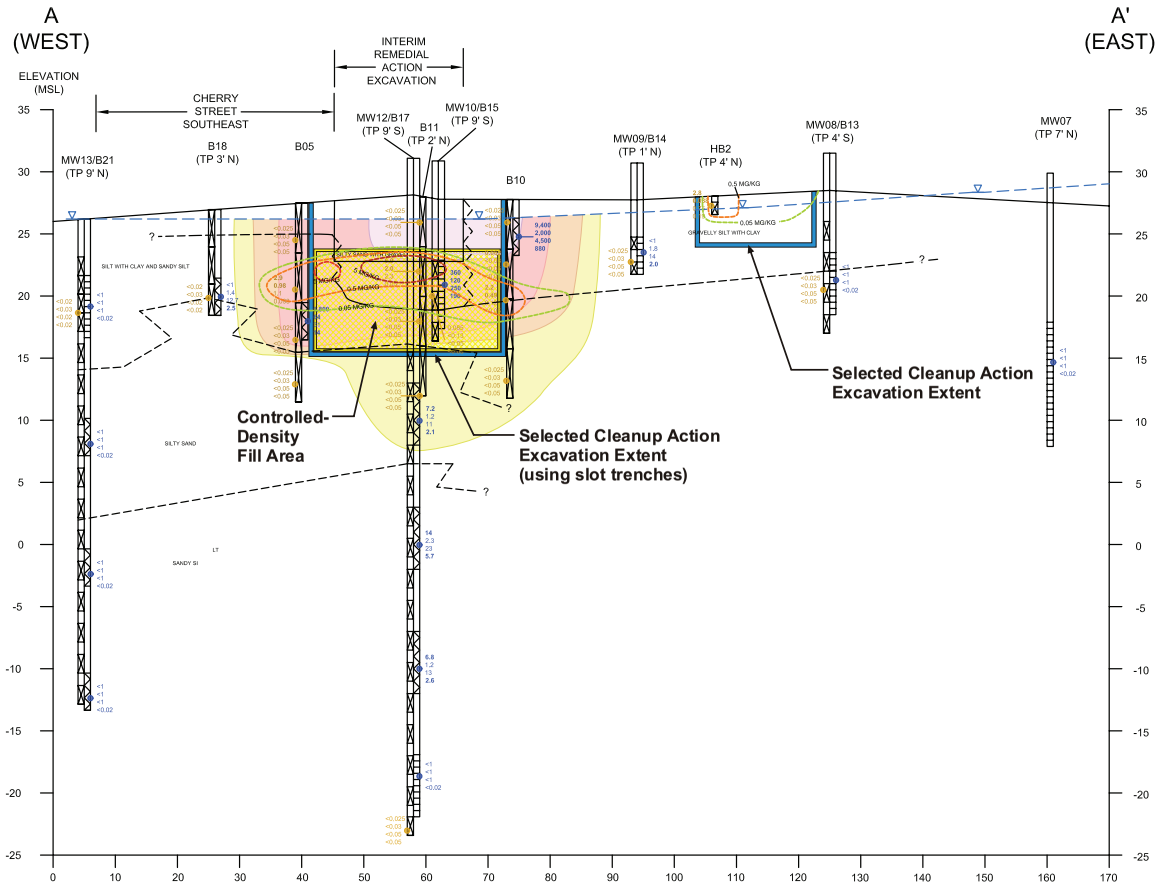

Notes:
1. Cross section is Figure 8 from the Draft Remedial Investigation Report for the Former Olympia Dry Cleaners (Sound Environmental Strategies 2009)
2. Approximate limits of excavation and the controlled-density fill area for the Selected Cleanup Action have been added to this cross section by Floyd|Snider.

LEGEND:

MW08/B13 (TP 4' S) MONITORING WELL/BORING LOCATION TRANSPOSED (TP) IN FEET, NORTH (N), SOUTH (S), EAST (E), OR WEST (W), OF CROSS SECTION LINE

BLANK CASING
SOIL SAMPLE INTERVAL
GROUNDWATER LEVEL (1/14/2009)
TEMPORARY WELL SCREEN INTERVAL
WELL SCREEN INTERVAL

PCE = TETRACHLOROETHENE

TCE = TRICHLOROETHENE

< = NON DETECT AT THE LABORATORY PRACTICAL QUANTITATION LIMIT

NA = EITHER NO GROUNDWATER ENCOUNTERED OR NO ANALYTICAL DATA AVAILABLE

MG/KG = MILLIGRAMS PER KILOGRAM

µg/L = MICROGRAMS PER LITER

MSL = FEET BELOW MEAN SEA LEVEL

SOIL CONCENTRATION IN MILLIGRAMS PER KILOGRAM (MG/KG)

6.0	PCE
2.0	TCE
2.3	CIS - 1,2 - DICHLOROETHENE
<0.05	VINYL CHLORIDE

GROUNDWATER CONCENTRATION IN MICROGRAMS PER LITER (µg/L)

<1	PCE
1.8	TCE
14	CIS - 1,2 - DICHLOROETHENE
2.0	VINYL CHLORIDE

14 BOLD INDICATES CONCENTRATION EXCEEDING MTCA CLEANUP LEVEL

PCE CONCENTRATION IN GROUNDWATER

- >5,000 µg/L
- 500-5,000 µg/L
- 50-500 µg/L
- 5-50 µg/L

PCE CONCENTRATION IN SOIL

- 5 MG/KG
- 0.5 MG/KG
- 0.05 MG/KG

VERTICAL SCALE IN FEET

HORIZONTAL SCALE IN FEET

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Olympia, Washington

Figure 8
Cross Section A-A'

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Former Olympia Dry Cleaners Site

Cleanup Action Plan

Appendix A
MTCA Method B Modified Indoor Air Cleanup Level Calculations

INDOOR AIR CLEANUP LEVELS

PCE Air Cleanup Levels from Cancer Risk

Equation 750-2 Cancer **Air Cleanup Level (ug/m^3) = (RISK x ABW x AT x UCF) / (CPF x BR x ABS x ED x EF)**

RISK = Acceptable excess individual lifetime cancer risk level (unitless)
ABW = Average body weight (kg) over the exposure duration
AT = Averaging time (years)
UCF = 1,000 mg/kg
CPF = Carcinogenic potency factor as specified in WAC 173-340-708(8), PCE is 0.00091 mg/kg/day
BR = Breathing rate (m^3/day)
ABS = Inhalation absorption fraction (unitless)
ED = Exposure duration (years)
EF = Exposure frequency (unitless fraction of full-time exposure, see below)

									Assumptions for Unitless EF Term			
Exposure Scenarios	**RISK** (unitless)	**ABW** (kg)	**AT** (years)	**CPF** (kg-day/mg)	**BR** (m^3/day)	**ABS** (unitless)	**ED** (years)	**EF** (unitless)	**hours/day** (unitless)	**days/week** (unitless)	**weeks/year** (unitless)	**RESULT** ug/m^3
DEFAULT MTCA Method B	1.00E-06	70	75	0.00091	20	1	30	1	24	7	52	**9.6**
MODIFIED MTCA Method B	1.00E-06	70	75	0.00091	20	1	30	0.30	10	5	52	**32**
DEFAULT MTCA Method C	1.00E-05	70	75	0.00091	20	1	30	1	24	7	52	**96**

PCE Air Cleanup Levels from Non-Cancer Risk

Equation 750-1 Non-Cancer **Air Cleanup Level = (RfD x ABW x UCF1 x HQ xAT) / (BR x ABS x ED x EF)**

RfD = Reference dose as specified in WAC 173-340-708(7), PCE is 0.0114 mg/kg-day
ABW = Average body weight (kg) over the exposure duration
UCF1 = 1,000 µg/mg
BR = Breathing rate (m^3/day)
ABS = Inhalation absorption fraction (unitless)
HQ = Hazard quotient (unitless)
AT = Averaging time (years)
ED = Exposure duration (years)
EF = Exposure frequency (unitless fraction of full-time exposure, see below)

										Assumptions for Unitless EF Term		
Exposure Scenarios	**RfD** (mg/kg-day)	**HQ** (unitless)	**ABW** (kg)	**AT** (years)	**BR** (m^3/day)	**ABS** (unitless)	**ED** (years)	**EF** (unitless)	**hours/day** (unitless)	**days/week** (unitless)	**weeks/year** (unitless)	**RESULT** ug/m^3
DEFAULT MTCA Method B	0.0114	1.00E+00	16	6	10	1	6	1	24	7	52	**18**
MODIFIED MTCA Method B	0.0114	1.00E+00	70	30	20	1	30	0.30	10	5	52	**134**
DEFAULT MTCA Method C	0.0114	1.00E+00	70	30	20	1	30	1	24	7	52	**40**

Notes:

Ecology MTCA Method B exposure was modified from full time residential exposure (365 days/year x 24 hours/day) to an adjusted industrial worker exposure (10 hours/day x 5 days/week x 52 weeks/year).

INDOOR AIR CLEANUP LEVELS

TCE Air Cleanup Levels from Cancer Risk

Equation 750-2 **Air Cleanup Level =** $\frac{\text{(RISK x ABW x AT x UCF)}}{\text{(CPF x BR x ABS x ED x EF}}$

Cancer **(ug/m^3)**

RISK = Acceptable excess individual lifetime cancer risk level (unitless)
ABW = Average body weight (kg) over the exposure duration
AT = Averaging time (years)
UCF = 1,000 mg/kg
CPF = Carcinogenic potency factor as specified in WAC 173-340-708(8), TCE is 0.014 mg/kg/day
BR = Breathing rate (m^3/day)
ABS = Inhalation absorption fraction (unitless)
ED = Exposure duration (years)
EF = Exposure frequency (unitless fraction of full-time exposure, see below)

										Assumptions for Unitless EF Term		
Exposure Scenarios	**RISK** (unitless)	**ABW** (kg)	**AT** (years)	**CPF** (kg-day/mg)	**BR** (m^3/day)	**ABS** (unitless)	**ED** (years)	**EF** (unitless)	**hours/day** (unitless)	**days/week** (unitless)	**weeks/year** (unitless)	**RESULT** ug/m^3
DEFAULT MTCA Method B	1.00E-06	70	75	see note	20	1	30	1	24	7	52	**0.37**
MODIFIED MTCA Method B	1.00E-06	70	75	0.014	20	1	30	0.30	10	5	52	**2.1**
DEFAULT MTCA Method C	1.00E-05	70	75	0.014	20	1	30	1	24	7	52	**6.3**

Notes:

Method B has been modified to assume worker exposure only. It is therefore calculated using equation 750-2 and a CPFi = 1.4E-02 (mg/kg-day)-1. (sum of 3 CPFi's with no ELE adjustment)--similar to the default MTCA Method C calculation.

Calculation of MTCA Method B for TCE is complicated by the fact than an early-life adjustment is required for cancer risk. Because of this, I have not included the slope factors here or completed calculations, but they can be viewed at https://fortress.wa.gov/ecy/clarc/focussheets/tce%20pce%20oct%202004%20final.pdf

TCE Air Cleanup Levels from Non-Cancer Risk

Equation 750-1 **Air Cleanup Level =** $\frac{\text{(RfD x ABW x UCF1 x HQ xAT)}}{\text{(BR x ABS x ED x EF)}}$

Non-Cancer

RfD = Reference dose as specified in WAC 173-340-708(7), TCE is 0.00057 mg/kg-day
ABW = Average body weight (kg) over the exposure duration
UCF1 = 1,000 µg/mg
BR = Breathing rate (m^3/day)
ABS = Inhalation absorption fraction (unitless)
HQ = Hazard quotient (unitless)
AT = Averaging time (years)
ED = Exposure duration (years)
EF = Exposure frequency (unitless fraction of full-time exposure, see below)

										Assumptions for Unitless EF Term		
Exposure Scenarios	**RfD** (mg/kg-day)	**HQ** (unitless)	**ABW** (kg)	**AT** (years)	**BR** (m^3/day)	**ABS** (unitless)	**ED** (years)	**EF** (unitless)	**hours/day** (unitless)	**days/week** (unitless)	**weeks/year** (unitless)	**RESULT** ug/m^3
DEFAULT MTCA Method B	0.00057	1.00E+00	16	6	10	1	6	1	24	7	52	**0.9**
MODIFIED MTCA Method B	0.00057	1.00E+00	70	30	20	1	30	0.30	10	5	52	**6.7**
DEFAULT MTCA Method C	0.00057	1.00E+00	70	30	20	1	30	1	24	7	52	**2.0**

Notes:

Ecology MTCA Method B exposure was modified from full time residential exposure (365 days/year x 24 hours/day) to an adjusted industrial worker exposure (10 hours/day x 5 days/week x 52 weeks/year).

INDOOR AIR CLEANUP LEVELS

VC Air Cleanup Levels from Cancer Risk

Equation 750-2 Cancer **Air Cleanup Level (ug/m^3) = (RISK x ABW x AT x UCF) / (CPF x BR x ABS x ED x EF)**

RISK = Acceptable excess individual lifetime cancer risk level (unitless)
ABW = Average body weight (kg) over the exposure duration
AT = Averaging time (years)
UCF = 1,000 mg/kg
CPF = Carcinogenic potency factor as specified in WAC 173-340-708(8), VC is 0.031 mg/kg/day
BR = Breathing rate (m^3/day)
ABS = Inhalation absorption fraction (unitless)
ED = Exposure duration (years)
EF = Exposure frequency (unitless fraction of full-time exposure, see below)

									Assumptions for Unitless EF Term			
Exposure Scenarios	**RISK** (unitless)	**ABW** (kg)	**AT** (years)	**CPF** (kg-day/mg)	**BR** (m^3/day)	**ABS** (unitless)	**ED** (years)	**EF** (unitless)	**hours/day** (unitless)	**days/week** (unitless)	**weeks/year** (unitless)	**RESULT** ug/m^3
DEFAULT MTCA Method B	1.00E-06	70	75	0.031	20	1	30	1	24	7	52	**0.28**
MODIFIED MTCA Method B	1.00E-06	70	75	0.031	20	1	30	0.30	10	5	52	**0.9**
DEFAULT MTCA Method C	1.00E-05	70	75	0.031	20	1	30	1	24	7	52	**2.8**

VC Air Cleanup Levels from Non-Cancer Risk

Equation 750-1 Non-Cancer **Air Cleanup Level = (RfD x ABW x UCF1 x HQ xAT) / (BR x ABS x ED x EF)**

RfD = Reference dose as specified in WAC 173-340-708(7), VC is 0.029 mg/kg-day
ABW = Average body weight (kg) over the exposure duration
UCF1 = 1,000 µg/mg
BR = Breathing rate (m^3/day)
ABS = Inhalation absorption fraction (unitless)
HQ = Hazard quotient (unitless)
AT = Averaging time (years)
ED = Exposure duration (years)
EF = Exposure frequency (unitless fraction of full-time exposure, see below)

										Assumptions for Unitless EF Term		
Exposure Scenarios	**RfD** (mg/kg-day)	**HQ** (unitless)	**ABW** (kg)	**AT** (years)	**BR** (m^3/day)	**ABS** (unitless)	**ED** (years)	**EF** (unitless)	**hours/day** (unitless)	**days/week** (unitless)	**weeks/year** (unitless)	**RESULT** ug/m^3
DEFAULT MTCA Method B	2.90E-02	1.00E+00	16	6	10	1	6	1	24	7	52	**46**
MODIFIED MTCA Method B	0.029	1.00E+00	70	30	20	1	30	0.30	10	5	52	**341**
DEFAULT MTCA Method C	0.029	1.00E+00	70	30	20	1	30	1	24	7	52	**102**

Notes:

Ecology MTCA Method B exposure was modified from full time residential exposure (365 days/year x 24 hours/day) to an adjusted industrial worker exposure (10 hours/day x 5 days/week x 52 weeks/year).

INDOOR AIR CLEANUP LEVELS

trans-1,2-DCE Air Cleanup Levels from Non-Cancer Risk

Equation 750-1 **Air Cleanup Level =** $\frac{\text{(RfD x ABW x UCF1 x HQ xAT)}}{\text{(BR x ABS x ED x EF)}}$

Non-Cancer

RfD = Reference dose as specified in WAC 173-340-708(7), trans-1,2-DCE is 0.017 mg/kg-day
ABW = Average body weight (kg) over the exposure duration
UCF1 = 1,000 µg/mg
BR = Breathing rate (m^3/day)
ABS = Inhalation absorption fraction (unitless)
HQ = Hazard quotient (unitless)
AT = Averaging time (years)
ED = Exposure duration (years)
EF = Exposure frequency (unitless fraction of full-time exposure, see below)

										Assumptions for Unitless EF Term		
Exposure Scenarios	**RfD** (mg/kg-day)	**HQ** (unitless)	**ABW** (kg)	**AT** (years)	**BR** (m^3/day)	**ABS** (unitless)	**ED** (years)	**EF** (unitless)	**hours/day** (unitless)	**days/week** (unitless)	**weeks/year** (unitless)	**RESULT** ug/m^3
DEFAULT MTCA Method B	1.70E-02	1.00E+00	16	6	10	1	6	1	24	7	52	**27**
MODIFIED MTCA Method B	0.017	1.00E+00	70	30	20	1	30	0.30	10	5	52	**200**
DEFAULT MTCA Method C	0.017	1.00E+00	70	30	20	1	30	1	24	7	52	**60**

Notes:

Ecology MTCA Method B exposure was modified from full time residential exposure (365 days/year x 24 hours/day) to an adjusted industrial worker exposure (10 hours/day x 5 days/week x 52 weeks/year).

INDOOR AIR CLEANUP LEVELS

1,1--DCE Air Cleanup Levels from Non-Cancer Risk

Equation 750-1 **Air Cleanup Level =** $\frac{\text{(RfD x ABW x UCF1 x HQ xAT)}}{\text{(BR x ABS x ED x EF)}}$

Non-Cancer

RfD = Reference dose as specified in WAC 173-340-708(7), 1,1-DCE is 0.057 mg/kg-day
ABW = Average body weight (kg) over the exposure duration
UCF1 = 1,000 µg/mg
BR = Breathing rate (m^3/day)
ABS = Inhalation absorption fraction (unitless)
HQ = Hazard quotient (unitless)
AT = Averaging time (years)
ED = Exposure duration (years)
EF = Exposure frequency (unitless fraction of full-time exposure, see below)

										Assumptions for Unitless EF Term		
Exposure Scenarios	**RfD** (mg/kg-day)	**HQ** (unitless)	**ABW** (kg)	**AT** (years)	**BR** (m^3/day)	**ABS** (unitless)	**ED** (years)	**EF** (unitless)	**hours/day** (unitless)	**days/week** (unitless)	**weeks/year** (unitless)	**RESULT** ug/m^3
DEFAULT MTCA Method B	0.057	1.00E+00	16	6	10	1	6	1	24	7	52	**91**
MODIFIED MTCA Method B	0.057	1.00E+00	70	30	20	1	30	0.30	10	5	52	**670**
DEFAULT MTCA Method C	0.057	1.00E+00	70	30	20	1	30	1	24	7	52	**200**

Notes:

Ecology MTCA Method B exposure was modified from full time residential exposure (365 days/year x 24 hours/day) to an adjusted industrial worker exposure (10 hours/day x 5 days/week x 52 weeks/year).

EXHIBIT C

SCHEDULE OF WORK AND DELIVERABLES

Schedule of Deliverables and Tasks (page 1 of 2)

Deliverable/Task	Schedule
Remedial Action Work Plan (RAWP). This plan shall also include the following plans in appendices: Erosion Control and Stormwater Pollution Prevention Plan, Spill Prevention, Control, and Countermeasure Plan, Soil Handling Plan, Soil Compliance Monitoring Plan, and a Traffic Control Plan.	Submitted to Ecology for review within 30 days of Ecology's issuance of the final CAP. Ecology's comments shall be incorporated and a revised plan shall be submitted to Ecology within 30 days of the date of Ecology's comment letter.
RAWP Implementation (remedial excavation field work).	Within 30 days after Ecology's approval of the RAWP and after city of Olympia required permits are obtained.
Construction Completion Report	Submitted for Ecology review within 90 days of completion of cleanup action excavation and contaminated soil transport and disposal (whichever is later). Ecology's comments shall be incorporated and a revised report shall be submitted to Ecology within 30 days of the date of Ecology's comment letter.
Compliance Monitoring Plan (Groundwater Monitoring Plan and Vapor Intrusion Monitoring Plan)	Submitted for Ecology review within 30 days of completion of cleanup action excavation and contaminated soil transport and disposal (whichever is later). Ecology's comments shall be incorporated and revised plan(s) shall be submitted to Ecology within 30 days of the date of Ecology's comment letter on the plan(s).
Indoor Air Mitigation Plan	To be submitted for review upon Ecology request if the indoor air or short-term trichloroethylene (TCE) exposure concentrations exceed cleanup levels or short-term exposure limits or screening levels. Ecology's comments shall be incorporated and revised plan shall be submitted to Ecology within 30 days of the date of Ecology's comment letter on the plan.

Deliverable/Task (continued)	Schedule
Groundwater Monitoring Reports	Following each groundwater monitoring event, within 30 days of receipt of validated groundwater sample results and no later than 90 days from the date of sampling.
Environmental Covenants, Olympia Dry Cleaners parcels and CherryStreet Q-Tip Trust parcel	After approval by Ecology, record the Environmental Covenants (ECs) for each of the parcels that comprise the Site with the office of the Thurston County Auditor within 10 days of receipt of validated compliance soil sample results or the completion of cleanup action soil excavation and contaminated soil transport and disposal (whichever is later). The original recorded ECs shall be provided to Ecology within 30 days of the recording date.
Financial Assurances	Cost estimate to Ecology within 60 days of the effective date of the Decree. Financial assurance coverage shall also be adjusted and reported to Ecology as required by Section XXI. of the Decree.