STATE OF WASHINGTON
WHATCOM COUNTY SUPERIOR COURT

STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, Plaintiff, v. TRANS MOUNTAIN PIPELINE (PUGET SOUND) LLC, Defendant.	NO. _____ CONSENT DECREE RE: LAUREL STATION SITE

TABLE OF CONTENTS

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I. INTRODUCTION

A. The mutual objective of the State of Washington, Department of Ecology (Ecology) and Trans Mountain Pipeline (Puget Sound) LLC (Trans Mountain) 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 Trans Mountain to implement the activities described in the Cleanup Action Plan (CAP), attached as Exhibit A 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 Trans Mountain shall not challenge the authority of the Attorney General and Ecology to enforce this Decree.

ATTORNEY GENERAL OF WASHINGTON
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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 Trans Mountain of Ecology's determination that it 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. Trans Mountain has agreed to undertake the actions specified in this Decree and consents to the entry of this Decree under MTCA.

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III. PARTIES BOUND

This Decree shall apply to and be binding upon the Parties to this Decree, their successors and assigns. The undersigned representative of each party hereby certifies that he or she is fully authorized to enter into this Decree and to execute and legally bind such party to comply with this Decree. Trans Mountain agrees to undertake all actions required by the terms and conditions of this Decree. No change in ownership or corporate status shall alter Trans Mountain's responsibility under this Decree. Trans Mountain 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 Laurel Station and is generally located at 1009 East Smith Road, approximately four miles north of Bellingham, Washington. The Site is more particularly described in the Site Diagram (Exhibit B). The Site constitutes a Facility under RCW 70.105D.020(8).

B. Parties: Refers to the State of Washington, Department of Ecology and Trans Mountain Pipeline (Puget Sound) LLC.

C. 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 FACT

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

ATTORNEY GENERAL OF WASHINGTON
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A. The Site is located in Whatcom County, Washington, approximately four miles north of Bellingham at 1009 East Smith Road and consists of approximately 15 developed acres. The Site is bounded on three sides by 135 acres of undeveloped or agricultural land owned by Trans Mountain. A diagram of the Site is attached as Exhibit B.

B. Since 1956, the Site has been used by Trans Mountain and its predecessors for supplying crude oil to refineries in Ferndale and Anacortes, Washington. Contamination at the Site is related to historical releases of crude oil and natural gas condensate.

C. In October 1991, Ecology issued Enforcement Order No. DE 91-N192 (Order), which directed Trans Mountain to assess and clean up releases at the Site. Ecology amended the Order in 1992. The amended Order superseded the original order and has governed remedial activities at the site since 1992. Pursuant to the amended Order, Trans Mountain completed a Remedial Investigation/Feasibility Study (RI/FS) in 1992, soil assessment of the containment areas associated with Tank Nos. 170 and 180 (2008), and a Supplemental RI/FS (2013). Trans Mountain has also completed interim cleanup actions that removed soil exceeding MTCA cleanup levels in certain areas of the Site.

D. The contaminants of concern at the Site that exceed MTCA cleanup levels in soil are total petroleum hydrocarbons (TPH) (gasoline-, diesel-, and oil-range) and for perched shallow groundwater contaminants of concern are TPH (gasoline-, diesel-, and oil-range) and polycyclic aromatic hydrocarbons (PAHs). Contaminants of concern are discussed in greater detail in the CAP, Exhibit A to this Decree.

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. Trans Mountain will implement the following remedial actions at the Site, which are documented in detail in the CAP (Exhibit A):

ATTORNEY GENERAL OF WASHINGTON
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- Record and maintain Institutional Controls and an Environmental Restrictive Covenant for soil at Tank 180 Area;

- Excavate and dispose of contaminated soil at Material Storage Area (SU-B7), perform confirmation sampling and backfill with clean fill;

- At the Former Oily Water Sump and Pump Station Area (collectively called Pump Station Area):

    - Install/renovate surface features to restrict stormwater infiltration;
    - Excavate and dispose of accessible contaminated soil, backfill;
    - Install Dual Phase Extraction system to treat inaccessible soil;
    - Monitor groundwater quality during system operation;
    - Collect confirmation soil and groundwater samples at completion of treatment; and
    - Record and maintain Institutional Controls and an Environmental Restrictive Covenant for soil remaining above cleanup levels.

Trans Mountain agrees not to perform any remedial actions outside the scope of this Decree unless the Parties agree to modify the CAP to cover these actions. All work conducted by Trans Mountain under this Decree shall be done in accordance with WAC 173-340 unless otherwise provided herein.

VII. DESIGNATED PROJECT COORDINATORS

The project coordinator for Ecology is:

David L. South
Senior Engineer
Washington State Department of Ecology
Toxics Cleanup Program, Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452
(425) 649-7200

The project coordinator for Trans Mountain is:

Michael L. Droppo
Manager, Environment
Kinder Morgan Canada, Inc.
Suite 2700, 300 5th Ave SW
Calgary, AB T2P 5J2
(403) 514-6537

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 Trans Mountain 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 as required by this Decree.

Any party may change its respective project coordinator. Written notification shall be given to the other party at least 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 18.220 and RCW 18.43.

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 18.220 and RCW 18.43.

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

Trans Mountain 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 Trans Mountain either owns, controls, or has access rights to at all reasonable times while escorted by Trans Mountain staff or its designates for the purposes of, *inter alia*: inspecting records, operation logs, and contracts related to the work being performed pursuant to this Decree; reviewing Trans Mountain's progress in carrying out the terms of this Decree; conducting such tests or collecting such samples as Ecology may deem necessary; using a camera, sound recording, or other documentary type equipment to record work done pursuant to this Decree; and verifying the data submitted to Ecology by Trans Mountain. Ecology or any Ecology authorized representative shall give reasonable notice before entering any Site property owned or controlled by Trans Mountain 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 but will be required to comply with Trans Mountain's safety procedures.

X. SAMPLING, DATA SUBMITTAL, AND AVAILABILITY

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

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

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

Trans Mountain shall submit to Ecology written monthly Progress Reports during the time period that it constructs and installs the remedial actions. For one year following the construction and installation of the remedial actions, Trans Mountain shall submit to Ecology quarterly written progress reports. Thereafter, Trans Mountain shall submit to Ecology semi-annual written progress reports. Ecology may direct Trans Mountain to change the reporting frequency to monthly if site activities warrant. The Progress Reports shall include the following, unless otherwise directed by Ecology:

A. A list of on-site activities that have taken place during the preceding applicable time period;

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

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
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C. Description of all deviations from the Scope of Work and Schedule (Exhibit A, Table 3) during the current month and any planned deviations in the upcoming applicable time 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, with concomitant submittal to Ecology's Environmental Information Management System) received by Trans Mountain during the preceding applicable time period and an identification of the source of the sample; and

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

All Progress Reports shall be submitted by the 10th day of the month in which they are due after the effective date of this Decree. Progress reports shall be submitted electronically via email as Adobe Acrobat files.

XII. RETENTION OF RECORDS

During the pendency of this Decree, and for 10 years from the date this Decree is no longer in effect as provided in Section XXVIII (Duration of Decree), Trans Mountain 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, Trans Mountain shall make all records available to Ecology and allow access for review within a reasonable time.

Nothing in this Decree waives any right Trans Mountain may have under applicable law to limit disclosure of documents protected by the attorney work-product privilege and/or the attorney-client privilege. If Trans Mountain withholds any requested records based on an

ATTORNEY GENERAL OF WASHINGTON
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Olympia, WA 98504-0117
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assertion of privilege, Trans Mountain shall provide Ecology with a privilege log specifying the records withheld and the applicable privilege. No Site-related data collected pursuant to this Decree shall be considered privileged.

XIII. TRANSFER OF INTEREST IN PROPERTY

No voluntary conveyance or relinquishment of title, easement, leasehold, or other interest in any portion of the Site shall be consummated by Trans Mountain without provision for continued operation and maintenance of the remedial actions installed or implemented pursuant to this Decree.

Prior to Trans Mountain's transfer of any interest in all or any portion of the Site, and during the effective period of this Decree, Trans Mountain shall provide a copy of this Decree to any prospective purchaser, lessee, transferee, assignee, or other successor in said interest; and, at least 30 days prior to any transfer, Trans Mountain shall notify Ecology of said transfer. Upon transfer of any interest, Trans Mountain 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 a dispute arises as to an approval, disapproval, proposed change, or other decision or action by Ecology's project coordinator, or an itemized billing statement under Section XXIV (Remedial Action Costs), the Parties shall utilize the dispute resolution procedure set forth below.

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

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

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

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

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

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

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

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

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

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

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

XV. AMENDMENT OF DECREE

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

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

Trans Mountain 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).

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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 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 Trans Mountain 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 Trans Mountain 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 Trans Mountain;

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 Trans Mountain.

ATTORNEY GENERAL OF WASHINGTON
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Olympia, WA 98504-0117
(360) 586-6770

C. Ecology shall act upon any written request for extension in a timely fashion. Ecology shall give Trans Mountain 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 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 Trans Mountain to cease such activities for such period of time as it deems necessary to abate the danger. Trans Mountain shall immediately comply with such direction.

In the event Trans Mountain 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, Trans Mountain may cease such activities. Trans Mountain shall notify Ecology's project coordinator as soon as possible, but no later than 24 hours after making such determination or ceasing such activities. Upon Ecology's direction, Trans Mountain shall provide Ecology with documentation of the basis for the determination or cessation of such

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activities. If Ecology disagrees with Trans Mountain's cessation of activities, it may direct Trans Mountain to resume such activities.

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

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

XVIII. COVENANT NOT TO SUE

A. Covenant Not to Sue: In consideration of Trans Mountain's compliance with the terms and conditions of this Decree, Ecology covenants not to institute legal or administrative actions against Trans Mountain 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 B) and those hazardous substances that Ecology knows are located at the Site as of the date of entry of this Decree. This Decree does not cover any other hazardous substance or area. Ecology retains all of its authority relative to any substance or area not covered by this Decree.

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

1. Criminal liability;

2. Liability for damages to natural resources; and

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

ATTORNEY GENERAL OF WASHINGTON
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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 Trans Mountain to require it to perform additional remedial actions at the Site and to pursue appropriate cost recovery, pursuant to RCW 70.105D.050 under the following circumstances:

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

2. Upon failure of the remedial action to meet the cleanup standards identified in the Cleanup Action Plan (CAP), Exhibit A;

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.

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

ATTORNEY GENERAL OF WASHINGTON
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XIX. CONTRIBUTION PROTECTION

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

XX. LAND USE RESTRICTIONS

In consultation with Trans Mountain, Ecology will prepare the Environmental (Restrictive) Covenant consistent with WAC 173-340-440 and RCW 64.70. After approval by Ecology, Trans Mountain shall record the Environmental (Restrictive) Covenant with the office of the Whatcom County Auditor within 10 days of Ecology's approval of the Final Completion Report. The Environmental (Restrictive) Covenant shall restrict future activities and uses of the Site as agreed to by Ecology and Trans Mountain. Trans Mountain shall provide Ecology with the original recorded Environmental (Restrictive) Covenant within 30 days of the recording date.

XXI. FINANCIAL ASSURANCES

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

Within 60 days of the effective date of this Decree, Trans Mountain 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 60 days after Ecology approves the aforementioned cost estimate, Trans Mountain shall provide proof of financial assurances sufficient to cover all such costs in a form acceptable to Ecology.

ATTORNEY GENERAL OF WASHINGTON
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Olympia, WA 98504-0117
(360) 586-6770

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

A. Inflation, annually, within 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, 90 days after the close of Trans Mountain's fiscal year if the financial test or corporate guarantee is used.

B. Changes in cost estimates, within 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

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

XXIII. COMPLIANCE WITH APPLICABLE LAWS

A. All actions carried out by Trans Mountain pursuant to this Decree shall be done in accordance with all applicable federal, state, and local requirements, including requirements

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
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(360) 586-6770

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 (Exhibits D, E).

B. Pursuant to RCW 70.105D.090(1), Trans Mountain is exempt from the procedural requirements of RCW 70.94, RCW 70.95, RCW 70.105, RCW 77.55, RCW 90.48, and RCW 90.58 and of any laws requiring or authorizing local government permits or approvals. However, Trans Mountain 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 Exhibit D. A List of Permits is identified in Exhibit E.

Trans Mountain has a continuing obligation to determine whether additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Decree. In the event either Ecology or Trans Mountain 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 Trans Mountain shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, Trans Mountain 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 Trans Mountain and on how it must meet those requirements. Ecology shall inform Trans Mountain in writing of these requirements. Once established by Ecology, the additional requirements shall be enforceable requirements of this Decree. Trans Mountain shall not begin or continue the

ATTORNEY GENERAL OF WASHINGTON
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Olympia, WA 98504-0117
(360) 586-6770

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 Trans Mountain 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

Trans Mountain shall pay to Ecology costs incurred by Ecology pursuant to this Decree and consistent with WAC 173-340-550(2). These costs shall include work performed by Ecology or its contractors for, or on, the Site under Chapter 70.105D RCW, including remedial actions and Decree preparation, negotiation, oversight, and administration. These costs shall include work performed both prior to and subsequent to the entry of this Decree. Ecology's costs shall include costs of direct activities and support costs of direct activities as defined in WAC 173-340-550(2). Ecology has accumulated $4,672.20 in outstanding remedial action costs related to this facility as of February 28, 2014. Payment for this amount shall be submitted within 30 days of the effective date of this Decree. For all costs incurred subsequent to February 28, 2014, Trans Mountain shall pay the required amount within 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 90 days of receipt of the itemized statement of costs will result in interest charges at the rate of 12 percent per annum, compounded monthly.

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Olympia, WA 98504-0117
(360) 586-6770

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

Except where necessary to abate an emergency situation, Trans Mountain 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 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 90 days prior to each periodic review, Trans Mountain shall submit a report to Ecology that documents whether human health and the environment are being protected based on the factors set forth in WAC 173-340-420(4). Ecology reserves the right to

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require further remedial action at the Site under appropriate circumstances. This provision shall remain in effect for the duration of this Decree.

XXVII. PUBLIC PARTICIPATION

A Public Participation Plan is required for this Site. Trans Mountain and Ecology have developed a Public Participation Plan for the Site. Ecology shall maintain the responsibility for public participation at the Site. However, Trans Mountain 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 Trans Mountain 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 Trans Mountain that do not receive prior Ecology approval, Trans Mountain shall clearly indicate to its audience that the press release, fact sheet, meeting, or other outreach effort was not sponsored or endorsed by Ecology.

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

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

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1. Bellingham Public Library Central
210 Central Avenue
CS-9701
Bellingham, WA 98227-9719

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

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

XXVIII. DURATION OF DECREE

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

XXIX. CLAIMS AGAINST THE STATE

Trans Mountain hereby agrees that it will not seek to recover any costs accrued in implementing the remedial action required by this Decree from the State of Washington or any of its agencies; and further, that Trans Mountain 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, Trans Mountain 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 WAC.

XXX. EFFECTIVE DATE

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

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XXXI. WITHDRAWAL OF CONSENT

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

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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

Date: _____

ROBERT W. FERGUSON
Attorney General

VALERIE K. RICKMAN WSBA #46812
Assistant Attorney General
(360) 586-6762

Date: _____

TRANS MOUNTAIN PIPELINE (PUGET SOUND) LLC

HUGH HARDEN
Vice President, Operations & Engineering
Trans Mountain Pipeline (Puget Sound) LLC
(403) 514-6424

Date: 9 APRIL 2014

ENTERED this _____ day of _____ 2014.

JUDGE
Whatcom County Superior Court

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EXHIBIT A
CLEANUP ACTION PLAN

Exhibit A

CLEANUP ACTION PLAN

for

Trans Mountain Pipeline (Puget Sound) LLC
Laurel Station
Bellingham, Washington

By
Washington State Department of Ecology

June 2014

Table of Contents

List of Tables

List of Figures

List of Acronyms and Abbreviations

ARAR	applicable or relevant and appropriate requirement
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAP	cleanup action plan
COC	chemical of concern
DPE	dual-phase extraction
Ecology	Washington State Department of Ecology
EPH	extractable petroleum hydrocarbons
FS	feasibility study
ISTD	in situ thermal desorption
µg/kg	microgram per kilogram
µg/L	microgram per liter
mg/kg	milligram per kilogram
mg/L	milligram per liter
MTCA	Model Toxics Control Act
NWCAA	Northwest Clean Air Agency
PAHs	polycyclic aromatic hydrocarbons
PCS	petroleum-contaminated soil
RCW	Revised Code of Washington
RI	remedial investigation
SEPA	State Environmental Policy Act
SVE	soil vapor extraction
TPH	total petroleum hydrocarbons
Trans Mountain	Trans Mountain Pipeline (Puget Sound) LLC
URS	URS Corporation
VPH	volatile petroleum hydrocarbons
WAC	Washington Administrative Code

CHAPTER 1. INTRODUCTION

This cleanup action plan (CAP) presents the cleanup action to be conducted at the Trans Mountain Pipeline (Puget Sound) LLC (Trans Mountain) Laurel Station facility in Bellingham, Washington (Site).

The facility is a cleanup site being addressed under the Model Toxics Control Act (Chapter 70.105D of the Revised Code of Washington). The cleanup is being overseen by the Washington State Department of Ecology (Ecology). It is in Ecology's Integrated Site Information System under the following:

- Facility Site Name: Laurel Station (Alternate Names: Laurel Pump Station and Trans Mountain Oil Pipe Line)
- Facility Address: 1009 E. Smith Road Bellingham, WA 98226-9765, Whatcom County
- Facility Site Identification Number (FSID): 2893
- Cleanup Site Identification Number (CSID): 102

The CAP was developed using information obtained from previous site investigations, monitoring, and interim cleanup actions conducted from 1991 through 2013. Site investigations and interim cleanup actions performed at the Laurel Station facility during this time frame are summarized in two documents:

- *Final Supplemental Remedial Investigation/Feasibility Study Work Plan* (Work Plan) dated May 28, 2010 (URS 2010), and
- *Final Remedial Investigation/Feasibility Study Report* (final RI/FS Report) dated June 2, 2014 (URS 2014).

The Work Plan was developed to summarize and compile data generated during investigations and cleanup actions performed at the site prior to 2009 and to identify data gaps necessary to complete remedial investigations and evaluate alternative cleanup actions prior to determining a final cleanup action for the Site. The final RI/FS Report documents the data collection activities and engineering evaluations performed between June 2010 and December 2013, development and analysis of site cleanup levels and cleanup alternatives, and identification of the preferred cleanup actions.

The CAP provides a summary of site conditions, cleanup standards, cleanup alternatives considered, rationale and selection of a cleanup action for the Site, and a description of the selected cleanup action.

CHAPTER 2. SUMMARY OF SITE CONDITIONS

2.1 Site Description and Operational History

The site is located at 1009 East Smith Road, approximately 4 miles north of the City of Bellingham in Whatcom County, Washington (**Figure 1**). The site is zoned as R5A (Rural 1 Unit/5 Acres) with a Conditional Use Permit for industrial development. It is situated in an area of mixed agricultural and residential land use.

The developed site covers approximately 15 acres and is bounded by an additional 135 acres of Trans Mountain Pipeline (Puget Sound) LLC-owned undeveloped or agriculture land on three sides. Current facility improvements include 20- and 16-inch pipelines, a pump station and associated valve manifolds, secondary containment systems, two 96,000-barrel (1 barrel equivalent to 42 gallons) aboveground tanks, and auxiliary facilities that support facility operations. Current site features are shown on **Figure 2**.

Laurel Station was constructed in 1956 and pumping commenced at the site in December 1956. The site is used to transport crude oil via pipeline from Edmonton, Alberta to refineries in Ferndale and Anacortes, Washington. The pipeline splits into the Ferndale and Anacortes branches at Laurel Station. In 1972, crude oil delivery from Canada was significantly reduced and the use of the pumping station was virtually discontinued with only one to two deliveries of crude oil per year. In late 1977, deliveries of crude oil and natural gas condensate increased to frequencies of 2 to 3 deliveries per month. In 1982, the storage tanks at the site were used to store natural gas condensate which was shipped via the pipeline to a refinery located in Ferndale.

In the early 1990s, a number of site integrity upgrades were initiated. In 2000, the station valve manifold was reconfigured and covered by a building with spill containment.

Oil deliveries remained consistent into the early 2000s. Demand by local refineries increased in the later part of the decade. The Trans Mountain system was expanded in 2008 in conjunction with a system upgrade of the Canadian Trans Mountain Pipeline system. The 2008 upgrade included replacement of the former pump station, decommissioning of the relief tank (Tank No. 120), installation of the stormwater retention pond, and reactivation of Tanks No. 170 and No. 180, as well as upgraded oil/water separators and oil detection systems in the tank containment areas.

2.2 Release History

The principal contaminants at the site are crude oil and natural gas condensate (low molecular weight hydrocarbons) from releases at the facility. These petroleum products have been the primary materials conveyed through the pipeline and stored in tanks at the site. Gasoline or other refined petroleum products reportedly have not been conveyed through the pipeline or stored at the site. Releases that are known or may have occurred at the site include historical oil

spills previously reported to Ecology, a January 15, 1991 natural gas condensate release, petroleum contaminated soil (PCS) encountered during facility upgrades, and the December 11, 1991, March 7, 1992, and October 26, 2000 crude oil releases. The release locations are shown on **Figure 2**. No releases have been reported at the facility since the October 26, 2000 release. The known spills and releases are discussed in more detail in the Work Plan (URS 2010) and final RI/FS Report (URS 2014). The information collected from numerous site investigations, interim actions, and feasibility studies following releases or discovery of contamination at the Site is sufficient for the Washington State Department of Ecology (Ecology) to select a cleanup action.

2.3 Summary of Environmental Conditions

The chemicals of concern (COCs) at the Site are total petroleum hydrocarbons (TPH) in the gasoline, diesel and heavy oil ranges in soil and TPH (gasoline-, diesel-, and heavy-oil ranges) and polycyclic aromatic hydrocarbons (PAHs) in shallow perched groundwater. The Site was divided into multiple study units to simplify investigations conducted from 1991 through the RI/FS in 2013. The RI completed in 2013 identified areas of contamination within three of the study units (Study Units 1, 2, and 3). As the areas of contamination are limited, the boundaries of areas designated for remediation were further refined and will be referred to as Pump Station Area, Tank 180 Area, and Material Storage Area – SU3-B7 (located within Study Units 1, 2, and 3 respectively, **Figure 2**). The areas and media that require cleanup at the Site are:

- Soil under the pump station building (Pump Station Area, Item 8),
- Soil in proximity of the piping manifold (Pump Station Area, designated with symbol for Approximate Extent of Soil Contamination Exceeding Soil PCLs) referred to as the former oily water sump area,
- A limited area of non-potable shallow perched groundwater that extends beneath, to the west and slightly east of the pump station and former oily water sump areas (Pump Station Area, area designated with symbol for Approximate Extent of Impacted Shallow Perched Groundwater),
- Soil beneath Tank No. 180 (Tank 180 Area, designated with symbol for Approximate Extent of Soil Contamination Exceeding Soil PCLs), and
- Soil within the Material Storage Area (SU3-B7) (designated with symbol for Approximate Extent of Soil Contamination Exceeding Soil PCLs).

In addition, field verification of shallow soil contamination previously found in an area located in the southwest corner of the Pump Station Area associated with the former drain tile will be conducted and a determination made as to whether cleanup is necessary in this area (**Figures 2 and 3**).

The areas of contamination found at the Site are limited in size and within the facility property boundary. Facility access is limited to authorized personnel. Human exposure via direct contact to the soil or groundwater is associated only with intrusive work such as construction-related activities or when subsurface investigations, including groundwater sampling, are conducted in these areas. Terrestrial ecological receptors (wildlife, plant and soil biota) may come in contact

with contaminated soil where the surface is not capped. Contaminants present in the shallow perched groundwater are the result of direct contact of the groundwater with contaminated soil present beneath the pump station building and the former oily water sump area. There is no groundwater/surface water body interface with respect to the shallow perched groundwater. Groundwater samples collected between 1992 and 2006 from wells completed in the deep aquifer beneath the site indicated that even after several years, petroleum constituents present in soil had not impacted the deep aquifer.

The areas that remain on the Site were split into two cleanup zones to simplify the creation and evaluation of remedial alternatives. The primary cleanup zones developed are defined as follows:

- Former oily water sump area and pump station building (Pump Station Area): Soil and shallow perched groundwater immediately adjacent to the current piping manifold shelter and the pump station building within Study Unit 1
- Isolated areas—smaller discontinuous areas with relatively shallow soil contamination located outside of the current piping manifold shelter and the pump station building area: Isolated areas with shallow soil contamination are located within Tank 180 Area (soil beneath a portion of Tank No. 180) and Material Storage Area – SU3-B7 (an area adjacent to the access road). As noted previously, verification of previous data collected at locations TP-9 and TM-B11 (**Figure 3**) southwest of the former drain tile and north of the 16-inch pipeline is pending.

Figure 3 shows the remediation areas within the Pump Station Area, including the soil associated with the former oily water sump and the pump station building and the limits of the affected perched groundwater. A site plan showing the existing conditions of the Pump Station Area is shown in **Figure 4**. The surface at and surrounding the pump station building and former oily water sump area is capped with gravel or asphalt. Soil contamination above cleanup levels is present from approximately 4 feet to 15 feet below ground surface (bgs) beneath the pump station building and approximately 7 feet to 24 feet bgs in the former oily water sump area. As described in the final RI/FS Report (URS 2014), impacted shallow perched groundwater in the vicinity of the former oily water sump and pump station appears to be the result of surface water runoff infiltrating directly into the ground in this area due to removal of the Bellingham Drift, a layer of low permeability soil present across most of the site that restricts infiltration of surface water runoff over most of the Site. Contaminants present in the shallow perched groundwater are the result of direct contact of the groundwater with contaminated soil present beneath the pump station building and the former oily water sump area. This shallow perched groundwater does not appear to be contiguous across the site, is directly affected by precipitation events, and was determined to be a non-potable water source.

A limited area of TPH-affected soil is present under Tank No. 180 (**Figure 5**) and the contamination does not extend beyond the footprint of the tank. The tank is permanent infrastructure and will be operational for the foreseeable future. The structure is sitting on top of fill, which is on top of the Bellingham Drift. The TPH in the soil is not in direct contact with water, and any migration will be greatly retarded through the Bellingham Drift.

An isolated area of soil with elevated TPH was identified south of the Relief Tank (Tank 120) along the access road at boring SU3-B7 (historical boring TP-3-2, shown in **Figure 6**). This area currently has no surface capping. The lateral extent was not delimited, but the vertical extent is between 5 and 7 feet bgs. This area was used to store PCS encountered during facility upgrades and releases on the site. The boring (SU3-B7) indicates that the soil in this area is Bellingham Drift, which will limit vertical and lateral migration.

CHAPTER 3. CLEANUP REQUIREMENTS

The Model Toxics Control Act Cleanup Regulation, Chapter 173-340 WAC describes the manner in which cleanup actions are to be selected. The following sections discuss the regulatory considerations that are most pertinent to the Site and specify performance standards that the cleanup must meet. The selected cleanup action must meet all the regulatory requirements whether specifically discussed in the CAP or not.

3.1 Ecology Expectations for Cleanup Action

Ecology has certain expectations for the types of cleanup actions selected for cleanup sites, as presented in WAC 173-340-370. The expectations most applicable to the Laurel Station site are discussed below.

Ecology expects that treatment technologies will be emphasized at sites containing liquid wastes, areas contaminated with high concentrations of hazardous substances, highly mobile materials, and/or discrete areas of hazardous substances that lend themselves to treatment (WAC 173-340-370[1]). Petroleum hydrocarbon contamination is present in soil in portions of the Site and shallow perched groundwater that has been in contact with impacted soil. Excavation and active treatment are expected to be used to address contaminated soil where accessible. Shallow perched groundwater will be monitored to confirm that the soil cleanup actions reduce concentrations in the perched groundwater to below groundwater cleanup levels.

To minimize the need for long-term management of contaminated materials, Ecology expects that all hazardous substances will be destroyed, detoxified, and/or removed to concentrations below cleanup levels throughout sites containing small volumes of hazardous substances (WAC 173-340-370[2]). Excavation of TPH-contaminated soil is expected to be used to address contaminated soil in areas with relatively shallow contamination and where groundwater has not been encountered. The soil under Tank No. 180 is not accessible as the tank is currently used in the facility operation. Active remediation beneath the tank while operational is not deemed appropriate; however, the contaminated soil is beneath the tank footprint, protected from precipitation, and is in the Bellingham Drift such that migration beyond its current limits is expected to be minimal. The soil will remain in place, under institutional controls, until the tank is removed. Upon removal, the contaminated soil will be sampled and analyzed to assess if soil contamination has decreased due to natural attenuation. If the soil is above cleanup levels, it will be removed by excavation.

In order to minimize the potential for migration of hazardous substances, Ecology expects that active measures will be taken to prevent precipitation and subsequent runoff from coming into contact with contaminated soils and waste materials. When such measures are impracticable, such as during active cleanup, Ecology expects that site runoff will be contained and treated prior to release from the site (WAC 173-340-370[4]). A significant portion of the shallow perched groundwater present beneath the former oily water sump and pump station area is a result of

surface water infiltration. Infiltration occurs because the natural capping material (Bellingham Drift) originally present in the area was removed when the facility was constructed. Soil remediation is expected to result in remediation of COCs in the groundwater. Reduction of surface water infiltration by capping and/or diverting water from the area to restore the hydrogeology to similar conditions present before the facility construction will augment the remediation of COCs in perched groundwater.

Ecology expects that natural attenuation of hazardous substances may be appropriate at sites where: (a) source control (including removal and/or treatment of hazardous substances) has been conducted to the maximum extent practicable; (b) leaving contaminants on-site during the restoration time frame does not pose an unacceptable threat to human health or the environment; (c) there is evidence that natural biodegradation or chemical degradation is occurring and will continue to occur at a reasonable rate at the site; and (d) appropriate monitoring requirements are conducted to ensure that the natural attenuation process is taking place and that human health and the environment are protected. The selected cleanup action is focused on active remediation of soil due to the limited volume of shallow perched groundwater present beneath the former oily water sump area. Engineering controls to reduce infiltration of stormwater to the subsurface will reduce water volume. Removal of accessible soil in this area followed by dual-phase extraction (DPE) treatment will reduce the soil contaminants further. Site conditions indicate that biodegradation of the COCs can occur. It is expected that natural attenuation will occur and assist in reducing both groundwater and soil concentrations during the active cleanup implementation.

3.2 Minimum Requirements for Cleanup Action

The MTCA regulation specifies minimum requirements for cleanup actions (WAC 173-340-360). All cleanup actions must:

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

Cleanup actions that achieve cleanup levels at the applicable point of compliance under MTCA Methods A or B and comply with applicable state and federal laws are presumed to be protective of human health and the environment (WAC 173-340-702[5]). Cleanup levels were developed for soil and groundwater for the Site following the process described in MTCA and are considered protective of human health and the environment. The selected cleanup action for the Site is intended to achieve the Site cleanup levels.

Cleanup standards are those standards adopted under RCW 70.105D.030 (2)(e) and Chapter 173-340 WAC. WAC 173-340-700(3) states that *"cleanup standards shall consist of the following":*

- Cleanup levels for hazardous substances present at the site
- The location where these cleanup levels must be met (point of compliance)

- Other regulatory requirements that apply to the site because of the type of action and/or location of the site ("applicable state and federal laws")

Cleanup standards including cleanup levels for each COC and affected media, points of compliance and applicable state and federal laws are presented in Sections 3.3 and 3.4.

Compliance monitoring requirements are specified in WAC 173-340-410. Monitoring is intended to ensure adequate protection of human health and the environment during construction and operation and maintenance periods of the cleanup action; confirm that the cleanup action has attained the cleanup standard, and confirm the long-term effectiveness of the cleanup action once the cleanup standards have been attained.

Cleanup actions must also meet the following additional requirements. Those most pertinent to Laurel Station are:

- Use permanent solutions to the maximum extent practicable. WAC 173-340-360(b)(i)
- Provide for reasonable restoration time frame. WAC 173-340-360(b)(ii)
- Consider public concerns. WAC 173-340-360(b)(iii)

3.3 Cleanup Standards - Cleanup Levels and Points of Compliance

The cleanup levels have been established for TPH and PAHs in soil and shallow perched groundwater at the Site. The development of the cleanup levels is discussed in Section 3.0 of the final RI/FS Report (URS 2014).

The point of compliance element of cleanup standards developed under MTCA identifies where on the site the numeric cleanup level must be met for each environmental medium. The points of compliance for soil and groundwater at the site are the standard points of compliance established in WAC 173-340-720, -740, and -7490. The site conditions do not currently warrant alternative points of compliance. The standard points of compliance are the following:

- **Soil:** For soil cleanup levels based on human exposure via direct contact or ecological considerations, soil throughout the site from ground surface to 15 feet bgs (WAC 173-340-740[6][d] and WAC 173-340-7490[4][b])
- **Groundwater:** Throughout the site from the uppermost level of the saturated zone (shallow perched groundwater) extending vertically to the lowest depth (deep aquifer) that could potentially be affected by the site (WAC 173-340-720[8][b])

The cleanup levels and points of compliance for this cleanup action are summarized in **Table 1**. Cleanup levels were developed for TPH and PAHs as these are the COCs identified at the Site. Cleanup levels were developed also for benzene, toluene, ethylbenzene, and xylenes (BTEX) as they have been detected at the Site and are primary constituents of petroleum products.

3.4 Applicable Local, State, and Federal Laws

Under WAC 173-340-710, MTCA requires that cleanup actions comply with all legally applicable state and federal laws and regulations and those requirements identified and determined to be relevant and appropriate (hereinafter "ARARs") for the site.

In accordance with WAC 173-340-710(9)(b), cleanup actions conducted under a consent decree are exempt from the procedural requirements of certain state and local laws. The cleanup action must still comply with the substantive requirements of the laws in accordance with WAC 173-340-710(9)(c). It is part of Ecology's role under a consent decree to ensure compliance with the substantive requirements and to provide an opportunity for comment by the public, state agencies, and local governments (WAC 173-340-710[9][d]). Persons conducting remedial actions have a continuing obligation to determine whether additional permits or approvals or substantive requirements are required. In the event that Ecology or Trans Mountain becomes aware of additional permits or approvals or substantive requirements, they shall promptly notify the other party of this knowledge (WAC 173-340-710[9][e]).

3.4.1 Substantive Requirements

The applicable substantive requirements of the following regulations (as identified at the time of entry of the Consent Decree) will be reviewed as necessary during each phase of the cleanup action. This information is also included as Exhibit D of the Consent Decree.

- ***Regulation and Licensing of Well Contractors and Operators, Chapter 18.104 RCW; WAC 173-162.*** These regulations apply to all water well contractors and operators who are providing well installation, maintenance, or decommissioning services in Washington State. These regulations are potentially applicable to any well contractor or operator who installs, maintains, or decommissions wells at the site. Only licensed water well contractors and operators will be permitted to install, maintain, or decommission wells at Laurel Station.

- ***Washington Clean Air Act and Implementing Regulations, Chapter 70.94 RCW; WAC 173-400-040(9); WAC 173-460; Northwest Clean Air Agency (NWCAA) Sections 300, 320, 321, and 550***. WAC 173-400-040(9) and NWCAA Section 550 require owners and operators of a fugitive dust source to take reasonable precautions to prevent fugitive dust from becoming airborne and to maintain and operate the source to minimize emissions. These requirements are applicable to controlling fugitive dust emissions during implementation of the cleanup action.

  In addition, NWCAA Sections 300, 320, and 321 identify requirements for the exemption from and permitting of air pollution sources. The substantive requirements of this regulation are potentially applicable to cleanup action alternatives involving the extraction and treatment of soil vapor and groundwater and will be identified by NWCAA. NWCAA Section 320.5 lists soil and groundwater remediation projects and active soil vapor extraction, thermal soil

desorption, and groundwater air stripping remediation projects as source categories requiring registration with the NWCAA. A Notice of Construction application including applicable fees will be required from the NWCAA.

- **Washington Solid Waste Management Act and Solid Waste Management Handling Standards Regulations, Chapter 70.95 RCW; Chapter 173-350 WAC.** The solid waste requirements are potentially applicable to the off-site disposal of solid nonhazardous wastes and contaminated media that may be generated as part of the cleanup action. For off-site disposal activities related to the cleanup action alternatives, these requirements will be complied with to the fullest extent. Waste materials will be sent to facilities licensed and permitted to accept the specific waste material, and documentation will be obtained of such disposition.

- ***Whatcom County Code Chapter 20.80.634 Stormwater Conformance.*** All development must conform to the stormwater requirements provided in this chapter, including best management practices to control erosion and sediment during construction, to permanently stabilize soil exposed during construction, and to protect adjacent properties and water bodies from stormwater effects caused by development. The substantive requirements of this local code are potentially applicable for cleanup action alternatives involving ground disturbance. The proposed action will result in the creation or addition of greater than 5,000 square feet of impervious surface area, a temporary erosion and sediment control plan is required (Whatcom County Code 20.80.634(2)(b)) and will be reviewed by Whatcom County.

- ***Whatcom County Code Chapter 16.16 Critical Areas.*** Whatcom County's critical areas are environmentally sensitive natural resources that have been designated for protection and management, including geologically hazardous areas, frequently flooded areas, critical aquifer recharge areas, wetlands, and habitat conservation areas. Wetlands are located in the vicinity of the site but not within the area designated for remediation; no other critical areas are on-site. The substantive requirements of this local code are potentially applicable if a cleanup action impacts a critical area – the action as proposed will not impact a critical area. A critical area review may be initiated through the land disturbance permit application.

3.4.2 Required Permits

Cleanup actions at the site require the following permits. These are also listed in Exhibit E of the Consent Decree.

- SEPA Environmental Checklist pursuant to RCW 43.21C.036 and WAC 197-11-250 through 268.

- Notice of Intent for installment of DPE wells and decommissioning of monitoring wells pursuant to Chapter 18.104 RCW and WAC 173-160.

- Notice of Construction from the NWCAA pursuant to NWCAA Sections 300, 320, and 321.

- Land Disturbance Permit pursuant to Whatcom County Code 20.80.734 – General Review Thresholds. A critical review pursuant to ***Whatcom County Code Chapter 16.16 Critical Areas*** may be initiated through the land disturbance permit application. The action as proposed will not impact a critical area, so it is not anticipated that any substantive requirements of the Critical Area Ordinance will be identified.

- Groundwater extracted by the DPE system will be treated, monitored, and discharged to the facility stormwater system pursuant to the facility's National Pollutant Discharge Elimination System (NPDES) permit.

- Electrical permits and inspections from the Washington State Department of Labor & Industries.

CHAPTER 4. ALTERNATIVES CONSIDERED AND BASIS FOR CLEANUP ACTION SELECTED

As discussed in Section 2.3, three areas remain at the Site with soil and/or perched shallow groundwater above cleanup levels – Pump Station Area, Tank 180 Area, and Material Storage Area – SU3-B7. The areas were split into two cleanup zones to simplify the remedial action alternatives analysis.

The contamination associated with the isolated areas Tank 180 Area and Material Storage Area – SU3-B7 is limited to soil, is small in volume, and at shallow depths. These areas are most effectively addressed by excavation, if soil is accessible. As excavation of contaminated soil is an aggressive and permanent solution, soil excavation and off-site disposal is proposed to address COCs in both of these areas so no additional alternatives were considered for these areas. Because the soil beneath Tank No. 180 is inaccessible at this time and this tank will continue to be operational for the foreseeable future, Trans Mountain will implement long-term institutional controls in this area until soil is remediated through natural attenuation or by excavation upon tank removal. Confirmation samples will be collected at each excavation area and submitted for laboratory analysis by Ecology methods for extractable petroleum hydrocarbons (EPH)/volatile petroleum hydrocarbons (VPH) to confirm that impacted soil above cleanup levels was removed. If confirmation sample results indicate that contamination still exists at concentrations above applicable cleanup levels, additional soil will be removed with additional confirmation samples collected. The actions identified for the isolated areas are considered a part of each site wide alternative evaluated.

The contaminated soil identified near the former oily water sump and beneath the pump station building in the Pump Station Area is more complicated to clean up than the soil in the isolated areas, because it has higher concentrations, a seasonal presence of shallow perched groundwater, and obstructed access from site infrastructure. Therefore, six remedial alternatives were developed and considered for the former oily water sump area and beneath the Pump Station building. The alternatives that were developed and evaluated in the feasibility study are discussed in detail in the final RI/FS Report (URS 2014). Summaries of each alternative are presented in the following sections.

4.1 Alternatives Considered for Former Oily Water Sump and Pump Station Areas

4.1.1 Common Elements to Alternatives

The remedial objective for the former oily water sump and pump station areas is to clean up soil exceeding 3,300 mg/kg TPH. Each alternative presented uses a different method to achieve the remedial objectives, but some tasks are common to each alternative. The excavation of contaminated soil in the Tank 180 Area and Material Storage Area – SU3-B7 is considered a

common element to each of the six alternatives evaluated. In addition, each alternative includes reducing the infiltration of surface water to the shallow perched groundwater zone. Multiple strategies will be implemented to reduce surface water infiltration (**Figure 7**) including the following:

- Install asphalt cap over the existing gravel surface surrounding the piping manifold shelter. Approximately 10,000 square feet of asphalt approximately 3 inches thick will be installed and sloped to drain to existing or new catch basins.

- Expand the existing storm drain system to include four new catch basins to route surface water retained by the new asphalt cap away from the former oily water sump area. Two of the new catch basins will connect to existing piping northeast of the piping manifold shelter, and the other two will be routed through new underground piping west of the main pipeline.

- Install a new drainage ditch on the surface above the retaining wall to direct surface water away from the former oily water sump area. This new ditch will be lined with geosynthetic clay liner or other impermeable material to reduce downward seepage of water. This ditch will be keyed into the native Bellingham Drift material present on the hill southeast of the piping manifold shelter. It will be connected to the existing storm drain system piping.

- Install a new French drain system at the base of the retaining wall to capture and divert water not captured by the surface ditch. The French drain will be connected to the existing storm drain system piping.

Common elements to each alternative which do not involve reducing surface water infiltration include abandonment of existing monitoring wells and establishing institutional controls. Five existing monitoring wells (MW-3, MW-8, MW-12, MW-13, and MW-14) will be abandoned, because they are historically dry and no longer serve a purpose. They will be abandoned with bentonite and the casing near the surface removed in accordance with current Ecology requirements.

Implementation of alternative components will be conducted under a site health and safety plan and in compliance with Washington State regulations, federal regulations, and Trans Mountain facility requirements for worker safety and protection of the public. For some alternatives, institutional controls may be in put in place for periods of time following the alternative implementation if necessary for long-term protection for personnel and the public.

4.1.2 Alternative 1 (Baseline), Comprehensive Excavation

The baseline alternative (Alternative 1) for soil cleanup consists of complete excavation of all soil exceeding cleanup levels and is the most permanent soil cleanup alternative. It is used when comparing alternatives to one another in the disproportionate cost analysis to assess whether other alternatives are permanent to the maximum extent practicable pursuant to WAC 173-340-360(3)(e). This alternative consists of excavation and off-site landfill disposal or recycling of all soil containing COCs at concentrations exceeding cleanup levels. To complete the excavation,

site operations would have to temporarily stop to access soil beneath the piping manifold shelter and the pump station building. Groundwater (if present) would be removed from the treatment area during excavation and surface water controls implemented following excavation to minimize the future volume of shallow perched water.

4.1.3 Alternative 2, Dual-Phase Extraction

This alternative consists of in situ soil treatment by DPE throughout the soil and perched groundwater that exceeds cleanup levels (including beneath the piping manifold shelter and the pump station building). This alternative allows for continued site operation throughout treatment. DPE systems combine soil vapor extraction (SVE) technology with simultaneous removal of water from the extraction wells. Multiple DPE wells and extraction equipment would volatilize and remove contaminants from the subsurface, and vapors would be treated on the surface prior to being discharged to the atmosphere. Extracted groundwater would be treated using an air stripper and the treated water discharged to the facility stormwater system pursuant to the facility NPDES permit. DPE technology uses high vacuum and specialized down-well equipment to extract vapors and liquids concurrently. This approach has the advantage of depressing the groundwater level, which exposes contaminated soils to vapor extraction that would otherwise be under water. During the dry season when perched water is absent, the system would not extract water, essentially becoming a high-vacuum SVE system.

4.1.4 Alternative 3, Thermal Remediation

This alternative consists of soil treatment by in situ thermal desorption (ISTD) heating throughout the source area. ISTD is based on the thermal conductivity of soils where a low variability of the thermal conductivity exists so that very uniform heating is achieved. This technology has the ability to heat over the largest temperature range because the heat is generated by an electrical element in each heater point. This alternative would entail installation of an array of heating points throughout the treatment area and passing electricity into the array. The heating element in each ISTD point is heated and the conduction of the soil transmits heat radially. This results in heating of the soil and perched groundwater, causing transfer of soil contaminants with boiling points below that of the soil temperature into the vapor phase and boiling of the groundwater.

A DPE system (similar to Alternative 2) would remove the vaporized contaminants, and the vapor phase would be treated prior to exhaust. The DPE system would be connected to a combination of independent DPE wells and ISTD heater points that are also designed to remove vapors. Steam/liquids would be condensed and treated prior to discharge. Treatment of the vapor and liquid phases would be accomplished using thermal processes that destroy the contaminants.

4.1.5 Alternative 4, Hot Spot Excavation and Dual-Phase Extraction

This alternative removes the majority of source area soil by excavation and treats the remaining soil and perched groundwater by in situ treatment using DPE. Excavation would be completed to 20 feet bgs outside the limits of the piping manifold concrete secondary containment pad through a temporary slurry backfill. The slurry would be used to support the excavation

sidewalls and adjacent structures instead of conventional shoring. This innovative method would increase the amount of soil that can be removed at a decreased cost. It may also be necessary to temporarily remove or support the southeast support column of the piping manifold shelter during the work. Contaminated soil beneath the piping manifold shelter and the pump station building (currently inaccessible), soil below 20 feet bgs, and perched groundwater would be treated using DPE technology. This strategy allows for continued site operation throughout the treatment period and reduces the DPE treatment time, because nearly 90 percent of the contaminant mass near the former oily water sump is removed by excavation.

The DPE system used to treat the inaccessible soil and perched water combines SVE technology with simultaneous removal of water from extraction wells. DPE wells focused on the inaccessible portions of the treatment area would be connected to extraction equipment to volatilize contaminants and remove them from the subsurface. The vapor-laden air extracted will be treated on the surface to remove contaminants prior to being discharged to the atmosphere under permit from the Northwest Clean Air Agency. Extracted groundwater will be treated using an air stripper to remove contaminants prior to discharge to the facility stormwater system pursuant to the facility's existing NPDES permit.

4.1.6 Alternative 5, Soil Vapor Extraction: SVE Technology With Vapor Treatment

This alternative for source area soil consists of in situ soil treatment by SVE throughout the soil where TPH concentrations exceed cleanup levels (including beneath the piping manifold shelter and the pump building). This alternative allows for continued site operation throughout treatment. SVE technology removes vapors from vadose zone soils using extraction wells. Multiple SVE wells and extraction equipment would volatilize and remove contaminants from the subsurface, and vapor-laden air will be treated on the surface prior to being discharged to the atmosphere. Groundwater is not directly treated with SVE. Therefore, during the wet season, the portion of the well submerged would not be treated. However, during the dry season, the full well-screen interval would be treated. It is assumed that once the soil concentrations decrease to below cleanup levels combined with reduced surface water infiltration, groundwater will also meet cleanup levels. SVE technology uses low to medium vacuum applied to wells that are screened across the contaminated zone and relatively simple blowers to extract vapors.

4.1.7 Alternative 6, Capping, Institutional Controls, and Monitored Natural Attenuation

This alternative includes monitoring natural attenuation of COCs in groundwater until cleanup levels are achieved. Alternative 6 assumes that soil exceeding cleanup levels in the source area remains in place, but is effectively isolated from continued infiltration of surface water by capping and other surface water controls described under common elements (Section 4.1.1). Site conditions appear to be favorable for unenhanced natural biodegradation as long as the volume of perched water decreases over time and future surface water is prevented from mixing with contaminated soil. This will allow groundwater that currently exceeds cleanup levels to be treated through natural processes, if given enough time. Biodegradation is a treatment process that detoxifies COCs through biological processes that chemically alter the COCs to less toxic or nontoxic chemicals.

4.2 Evaluation of Alternatives

Cleanup actions selected under MTCA must meet requirements that address multiple factors, in addition to the overarching goal of protecting human health and the environment. These requirements include threshold requirements and "other requirements" per WAC 173-340-360(2)(a) and (b). Minimum requirements of WAC 173-340-360(2)(c) through (h) were considered in developing the alternatives. The remedial alternatives were evaluated against these requirements in the final RI/FS Report (URS 2014, reference Sections 12 and 13) and then a comparative analysis of the alternatives was performed.

WAC 173-340-360 requires first that all alternatives evaluated meet the following four threshold requirements:

- Protect human health and the environment.
- Comply with cleanup standards (WAC 173-340-700 through 760).
- Comply with applicable local, state, and federal laws (WAC 173-340-710).
- Provide for compliance monitoring (WAC 173-340-410 and 720 through 760).

MTCA then requires that cleanup action alternatives that fulfill the threshold requirements also be evaluated against the following "other requirements" (WAC 173-340-360[2][b]):

- Use permanent solutions to the maximum extent practicable by evaluating specific elements described in WAC 173-340-360(3).
- Provide for a reasonable restoration time frame (WAC 173-340-360[4]).
- Consider public concerns (WAC 173-340-600).

MTCA requires that the cleanup alternative for a site use permanent solutions to the maximum extent practicable, as evaluated by performing a disproportionate cost analysis (WAC 173-340-360[3][e][ii][A]). In this analysis, the alternatives are to be ranked from most to least permanent, based on the evaluation of the alternatives using the following specific criteria (WAC 173-340-360[3][f]):

- Protectiveness (WAC 173-340-360[3][f][i])
- Permanence (WAC 173-340-360[3][f][ii])
- Cost (WAC 173-340-360[3][f][iii])
- Effectiveness over the long term (WAC 173-340-360[3][f][iv])
- Management of short-term risks (WAC 173-340-360[3][f][v])
- Technical and administrative implementability (WAC 173-340-360[3][f][vi])
- Consideration of public concerns (WAC 173-340-360[3][f][vii])

The test used to evaluate the ranked alternatives is given in MTCA as follows:

> *Costs are disproportionate to benefits if the incremental costs of the alternative over that of a lower cost alternative exceed the incremental degree of benefits achieved by the alternative over that of the lower cost alternative (WAC 173-340-360[3][e][i]).*

The term "disproportionate" implies that the degree of exceedance of incremental costs to incremental benefits must be substantial. MTCA further clarifies the disproportionate cost analysis as follows:

> *The comparison of benefits and costs may be quantitative, but will often be qualitative and require the use of best professional judgment. In particular, the department has the discretion to favor or disfavor qualitative benefits and use that information in selecting a cleanup action. Where two or more alternatives are equal in benefits, the department shall select the less costly alternative provided the requirements of subsection (2) of this section are met (WAC 173-340-360[3][e][ii][C]).*

The summary of the evaluation performed in the final RI/FS Report is provided on **Table 2**. The alternatives evaluation was performed as prescribed in MTCA. The ranking of alternatives indicate that Alternative 4, Hot Spot Excavation and DPE, is the best alternative to meet cleanup objectives for Laurel Station.

4.3 Alternative 4 Components

Alternative 4 includes the following elements:

- Hot spot removal by excavation of all accessible soil exceeding cleanup levels down to 20 feet bgs
- Capture of contaminated water and vapors (SVE) from the inaccessible areas of the site using DPE
- Ex situ treatment of water collected by DPE wells using an air stripper
- Ex situ treatment of vapors collected by DPE wells using oxidizer, if determined necessary, and carbon
- Monitoring and discharge of treated water from the DPE system air stripper to the facility's stormwater treatment system pursuant to the facility's NPDES permit
- Natural attenuation
- Monitoring
- Institutional controls

General Alternative Description

The general description of this alternative is presented in Section 4.1.5. The alternative removes the majority of source area soil by excavation and treats the remaining soil and perched groundwater by in situ treatment using DPE. The conceptual view of the implementation is shown on **Figure 8**.

The DPE system is expected to meet cleanup levels in approximately 3 years. This alternative includes in situ treatment of inaccessible soil below the hot spot excavation and under the piping manifold shelter and pump station building (**Figures 9 and 10**) with DPE wells to maximize contaminant removal without destruction of site structures. Access limitations prevent ideal

placement of DPE wells under the structures and cause difficulty collecting confirmation samples to verify that all soil exceeding cleanup levels has been treated. These areas will be relatively small; institutional controls will be placed on the inaccessible locations to prevent unrestricted future use of these areas until they are confirmed to be below cleanup levels by additional confirmation sampling when the areas are accessible. Institutional controls are anticipated to be maintenance of a clean cover and proper handling of contaminated soil and replacement of the clean cover if subsurface work in the area is necessary. The final determination of appropriate covenants will be determined when cleanup has been completed.

Groundwater compliance monitoring will be conducted for a minimum of 2 years following implementation.

Hot Spot Excavation

Excavation will be used to remove the majority of contaminated soil exceeding cleanup levels adjacent to the former oily water sump. To facilitate the work, it will be necessary to abandon five existing monitoring wells (MW-1, MW-9, MW-10, SW-4, and SW-5) and move the existing retaining wall approximately 15 feet to the southeast. This will be completed by removing eight fir trees and reshaping the hillside. The soil on the hill is below cleanup levels so excess soil could be removed and transported to another portion of the site if needed. Once the retaining wall move is completed, the existing column supporting the equipment crane will be temporarily removed or supported. Excavation activities will be completed through slurry, which is mixed specifically to support the excavation without traditional shoring. The slurry will allow the removal of contaminated soil and sampling of the excavation limits through the slurry. Once the maximum limits of excavation are achieved, the slurry will be amended with additional materials and hardened in place. The mix will be designed to be structurally sound, but allow future excavation and or drilling to occur.

Soil and Perched Groundwater Treatment

DPE wells and extraction equipment will be used to volatilize and remove contaminants from the inaccessible portions of the subsurface. Pilot test data indicate that DPE was effective at removing fluids (both liquids and vapor) from the subsurface at the site. This alternative specifies a total of eight DPE wells with a spacing of 20 to 25 feet will be installed in inaccessible portions of the source area. Two of the eight DPE wells will be located near the former pump station location, but connected to the same system header pipe and equipment. Four DPE wells will be installed through the hot spot excavation to treat soil below the excavation limits and two of the DPE wells will be directed underneath the piping manifold shelter. Four of the eight DPE wells will be drilled at a 30-degree angle to maximize access to contaminated soils under existing structures. To further encourage air flow across contaminated soil under existing structures, two passive vent wells will be installed at the pump station building.

The DPE wells will be completed to a depth of approximately 25 feet bgs below the piping manifold shelter to 15 feet bgs below the pump station and screened between 20 and 25 feet bgs where the hot spot excavation occurred. Vacuum piping will consist of one main header pipe and nine laterals, which will all be installed underground between the treatment enclosure and

the DPE wells. Extracted water and vapors will flow to a treatment building for processing. An air stripper unit will be used to strip COCs from water.

Monitoring

Monitoring will include periodic collection of groundwater samples from five existing monitoring well locations (MW-2, MW-4, MW-5, MW-6, and MW-7). DPE wells will also be monitored to assess water quality in the area where soil was excavated. Water elevations will be monitored to assess the effectiveness of the surface feature changes to reduce surface water infiltration. Treated water from the DPE system will be monitored to confirm site COCs were removed during treatment and that the water meets the facility NPDES permit requirements prior to discharge to the facility stormwater system.

Vapor concentrations will be monitored from implementation of the DPE system until vapor concentrations are no longer decreasing, at which time a decision will be made as to whether soil samples will be collected to assess the degree to which soil TPH concentrations have decreased, or other actions should be taken. Monitoring of air discharged from the treatment system will also be conducted as required by the Northwest Clean Air Agency.

Environmental media (soil, groundwater, and air), sample locations, and analytical testing will be identified in a Compliance Monitoring Plan approved by Ecology. Monitoring will allow assessment of the remediation effectiveness and changes in COC concentrations throughout the source area. Monitoring will also include collection of remediation system operational data as part of ongoing operation and maintenance procedures.

Construction

Tasks necessary to implement Alternative 4 include the following components:

- Mobilization
- Contractor design and work plans
- Specialty subcontractors (surveyor and utility locates)
- Abandonment of five existing wells MW-1, MW-9, MW-10, SW-4 and SW-5
- Removal of eight fir trees and regrading of the hill
- Creation of a new retaining wall 15 feet to the southeast to facilitate hot spot excavation activities
- Protection and temporarily rerouting of the existing storm sewer and fire water lines
- Temporary support of southeast column of the piping manifold shelter
- Hot spot excavation through slurry to 20 feet bgs
- Transporting and disposing of excavated soil off site that exceeds cleanup levels
- Analytical testing of soil from excavation limits
- DPE well installation (eight wells total, four drilled at angle)
- DPE wellhead equipment and connection
- Passive vent well installation (two, both drilled at angle)
- Analytical testing of soil during drilling

- Trench for process pipe and backfill
- Header pipe material and installation
- DPE-specific equipment
- Aboveground treatment equipment portable storage container
- Air stripper for combined pump effluent
- Vapor-phase GAC vessels
- Construction of treated effluent water discharge structure
- DPE system startup testing and monitoring
- System installation reporting
- Sampling of DPE and monitoring wells during startup
- Waste management and disposal
- Collection of confirmation soil samples at the end of treatment
- General site restoration work
- Demobilization
- Contractor reporting and closeout submittals (e.g., as-built drawings)

Contamination Removal Summary

This alternative is estimated to recover approximately 90 percent of the contaminants from soil. The hot spot excavation removes the majority of COCs, but DPE effectiveness is limited by access restrictions beneath existing site structures and low removal rates for heavy-end COCs. It is assumed that 100 percent of the soil in accessible areas will be treated to below cleanup levels, but only approximately 75 percent of the inaccessible will be treated. In this alternative, part of the piping shelter structure is temporarily supported for excavation access so the inaccessible portion of the site is decreased. Under this alternative, the estimated quantity of contaminated media and contaminants listed below will be remediated from the site:

- 1,250 cubic yards (93 percent) of soil containing COCs exceeding the cleanup levels
- 26,500 pounds (90 percent) of TPH from soil

After treatment, approximately 100 cubic yards of soil exceeding cleanup levels could remain in place under the existing structures.

CHAPTER 5. SELECTED CLEANUP ACTION

The selected cleanup action for this Site addresses the soil in the isolated areas Tank 180 Area and Material Storage Area – SU3-B7 as well as the soil and shallow perched groundwater in the former oily water sump area and beneath the pump station building in Pump Station Area (**Figure 2**).

5.1 Selected Isolated Areas Cleanup Action

The following preferred cleanup action for the isolated areas that remain at the site consist of:

- Tank 180 Area - implement institutional controls and conduct removal by excavation if soil is still above cleanup levels when the tank is removed, and
- Material Storage Area – SU3-B7 - remove soil above cleanup levels by excavation.
- Field verification of shallow soil contamination previously found in an area located in the southwest corner of the Pump Station Area associated with the former drain tile. Based on verification, determine if a cleanup action is necessary in this area, and clean up if necessary.

Following excavation, soil samples will be collected from sidewalls and base of excavations and tested for TPH and BTEX using appropriate analytical methods as indicated in the compliance monitoring plan. If soil is above cleanup levels following initial excavation, additional excavation will be conducted until cleanup levels are achieved as determined by analytical testing.

5.2 Selected Cleanup Action Alternative for the Former Oily Water Sump Treatment Area

The selected soil cleanup action alternative for the former oily water sump treatment area (former oily water sump and pump station building) is **Alternative 4, Hot Spot Excavation and DPE**. This alternative includes the elements to reduce surface water infiltration described in Section 4.1.1. Under this alternative, approximately 60 percent of soil exceeding the direct contact cleanup levels and with the highest concentrations of COCs is removed from the accessible portion of the soil plume near the piping manifold shelter. Soil in inaccessible locations under the piping manifold shelter secondary containment unit and the pump station building will be treated in situ using DPE. The anticipated maximum excavation depth is 20 feet bgs. This will remove approximately 800 cubic yards of soil exceeding cleanup levels. Impacted soil below 20 feet bgs and under site structures will be treated in approximately 30 months using DPE. A low-permeability backfill will be used in the excavation to enhance the DPE system efficiency. Institutional controls will be placed on the portion of the site where

residual COCs may remain in place above cleanup levels because of accessibility restrictions. This alternative exhibits several substantial advantages over the other alternatives evaluated:

- The other alternatives are disproportionately costly compared to **Alternative 4**, when relative benefits and costs are compared.
- **Alternative 4** removes the highest amount of mass compared to other alternatives, with the exception of comprehensive excavation, which would require temporary shutdown of the facility.
- **Alternative 4** allows the facility to continue to operate, eliminating significant economic losses to Trans Mountain, and prevents even greater economic loss to the region because of reduced flow of crude oil to local refineries.
- **Alternative 4** has the second lowest present-worth cost at $2.6 million.
- **Alternative 4** reduces the short-term risks associated with comprehensive excavation below structures and the increased handling and off-site transport and disposal of soil containing COCs.
- **Alternative 4** has the second highest permanence with regard to completeness of treatment by removing 60 percent of the soil and using DPE for the remaining. Removing the bulk of the COCs using excavation will also increase the effectiveness of DPE. Any residual soil that may remain above cleanup levels will be small.
- **Alternative 4** has high expected effectiveness over the long term and favorable technical and administrative implementability.
- **Alternative 4** has a relatively low restoration time frame at approximately 3 years (5 years with compliance monitoring) so has a corresponding reduced impact on site operations. Only **Alternatives 1 and 3** could be completed in a shorter time period.

Compliance monitoring will be addressed in an Ecology-approved plan. The plan will include sampling and analytical requirements and sampling frequency for:

- post-excavation soil,
- groundwater and air during and post-DPE operation,
- discharge monitoring of treated water and air during DPE operation, and
- groundwater levels following surface feature revisions.

Sampling and analytical testing methods for each media will be based on COCs addressed in soil (TPH) and groundwater (TPH and PAHs), permit requirements (Northwest Clean Air Agency and NPDES), and cleanup levels defined for each media and location (direct contact or terrestrial ecological consideration).

5.3 Types, Levels, and Amounts of Contamination Remaining On-Site

Following implementation of the CAP, most TPH-contaminated soil will have been removed or concentrations significantly reduced. Exceptions will be those areas with TPH below 3,300 mg/kg (direct contact) but greater than terrestrial ecological protection (460 mg/kg for diesel and heavy oil range TPH and 200 mg/kg for gasoline range TPH) that are currently capped and less than 15 feet deep. An Environmental Covenant will be recorded that identifies the locations of these areas, estimates the types, levels, and amounts of contaminants remaining, and requires the cap be maintained. If the cap is removed, these areas will require soil above the lower cleanup level be removed. Potential locations on the site where this could occur include the Pump Station Area in the vicinity of boring SU1-B11 (**Figure 3**).

5.4 Institutional Controls

For areas where contamination may remain, such as noted under Section 5.3, and Tank No. 180, institutional controls will be put in place to prevent exposure to the soil. Institutional controls are anticipated to be maintenance of a clean cover and proper handling of contaminated soil and replacement of the clean cover if subsurface work in the area is necessary. The final determination of appropriate covenants will be determined when cleanup has been completed.

CHAPTER 6. IMPLEMENTATION OF CLEANUP ACTION

6.1 Public Participation Plan

A Public Participation Plan has been prepared and describes how public participation will be accomplished for this Site.

6.2 Schedule

The cleanup action is expected to be initiated in late summer 2014 to capture the best weather for excavation and installation of the DPE and surface features to reduce surface water infiltration. A schedule for due dates for the documents necessary to control the work components of the cleanup action is provided on **Table 3**. Excavation of soil in the Material Storage Area – SU3-B7 and soil in the former oily water sump area (Pump Station Area) will be conducted in August/September 2014 during dry weather. Installation of the DPE system and surface features to reduce surface water infiltration will be done after excavation, in September/October 2014 but no later than November 30, 2014.

Draft reports shall be submitted electronically as Word, Excel, AutoCAD, ArcGIS, Adobe Acrobat, or other native formats, as specified by Ecology. Final reports shall be submitted as paper copies, in the number specified by Ecology, and as an Adobe Acrobat file. The paper copies will include a disk with the report on it in Adobe Acrobat. All reports shall follow the general submittal requirements of WAC 173-340-840, including requirements for legibility. Particular attention should be paid that font sizes are legible in paper copy.

6.3 Financial Assurances

Financial Assurances shall be provided in accordance with Section XXI, Financial Assurances, of the Consent Decree.

6.4 Follow-on Documents

Documents which will be prepared to implement the Cleanup Action Plan include:

- Engineering Design Report, including substantive requirements and permits for the cleanup action.
- Construction Plans and Specifications.
- Compliance Monitoring Plan (including specification of the minimum scope of Periodic Reviews).
- Operation and Maintenance Plan.

- Completion Report (includes As-Built Report).
- Environmental Covenant specifying institutional controls to limit or prohibit activities that may interfere with the integrity of an interim action or a cleanup action or result in exposure to hazardous substances at the site.

These documents, once approved by Ecology, become integral and enforceable parts of this Consent Decree.

In addition, a health and safety plan shall be prepared when required by chapter 296-62 WAC. Plans prepared under an order or decree shall be submitted for the department's review and comment. The health and safety plan must be consistent with chapter 49.17 RCW and regulations adopted under that authority.

CHAPTER 7. REFERENCES

URS Corporation. 2010. Supplemental Remedial Investigation/Feasibility Study Work Plan, Laurel Station, 1009 East Smith Road, Bellingham, Washington. May 2010.

———. 2014. *Final Remedial Investigation/Feasibility Study Report, Laurel Station, 1009 East Smith Road, Bellingham, Washington.* June 2014.

TABLES

Table 1
Summary of Cleanup Levels and Points of Compliance
Laurel Station
Bellingham, Washington

Chemical of Concern	Soil	Groundwater
Total Petroleum Hydrocarbons	***mg/kg***	***mg/L***
TPH - gasoline range	200[a]	0.8/1.0[b]
TPH - diesel range	460[a]	0.5
TPH - oil range		
TPH Direct Contact (by VPH/EPH Calc)	3,300	NA
VOCs	***µg/kg***	***µg/L***
Benzene	18,182	5
Toluene	6,400,000	640
Ethylbenzene	8,000,000	700
m,p-Xylene	16,000,000	1,600
o-Xylene	16,000,000	1,600
Total xylenes	16,000,000	1,600
PAHs	***µg/kg***	***µg/L***
1-Methylnaphthalene	34,500	1.51
2-Methylnaphthalene	320,000	32
Acenaphthene	4,800,000	960
Acenaphthylene	NE	NE
Anthracene	24,000,000	4,800
Benzo(g,h,i)perylene	NE	NE
Dibenzofuran	80,000	16
Fluoranthene	3,200,000	640
Fluorene	3,200,000	640
Naphthalene	1,600,000	160
Phenanthrene	NE	NE
Pyrene	2,400,000	480
cPAHs	***µg/kg***	***µg/L***
Benzo(a)pyrene	137	0.12
Benzo(a)anthracene	1,370	0.12
Benzo(b)fluoranthene	1,370	0.12
Benzo(k)fluoranthene	13,700	1.2
Dibenzo(a,h)anthracene	137	0.012
Chrysene	137,000	12
Indeno(1,2,3-c,d)pyrene	1,370	0.12
TTEC cPAHs[c]	137	0.12

Soil Point of Compliance: Soil cleanup levels based on human exposure via direct contact or ecological considerations, soil throughout the site from ground surface to 15 feet bgs (WAC 173-340-740[6][d] and WAC 173-340-7490[4][b])

Groundwater Point of Compliance: Throughout the site from the uppermost level of the saturated zone (shallow perched groundwater) extending vertically to the lowest depth (deep aquifer) that could potentially be affected by the site (WAC 173-340-720[8][b])

[a] MTCA TEE levels are from MTCA Table 749-2. These levels are used in areas where the surface is not capped and the depth is less than 15 feet below ground surface. Gasoline-range TPH is evaluated separately from diesel- and heavy oil-range TPH. Diesel- and heavy oil-range TPH measured by NWTPH-Dx are summed and compared to 460 mg/kg.
[b] Gasoline with benzene present/without benzene present

[c] cPAH cleanup levels under MTCA are based on the calculated total toxicity of the mixture using the Toxicity Equivalency Methodology in WAC 173-340-708(8). The mixture of cPAHs shall be considered a single hazardous substance and compared to the applicable MTCA Method B cleanup level for benzo(a)pyrene.

Notes:

cPAHs - carcinogenic PAHs
EPH - extractable petroleum hydrocarbon
µg/kg - microgram per kilogram
µg/L - microgram per liter
mg/kg - milligram per kilogram
mg/L - milligram per liter
MTCA - Model Toxics Control Act
NE - not established
PAHs - polycyclic aromatic hydrocarbons
PQL - practical quantitation limit
TEE - terrestrial ecological evaluation
TPH - total petroleum hydrocarbons
TTEC - total toxicity equivalent concentration
VOCs - volatile organic compounds
VPH - volatile petroleum hydrocarbon

Table 2
MTCA Criteria Rankings Summary
Laurel Station
Bellingham, Washington

Alternative	Protectiveness Rank	Permanence Rank	Cost Rank	Long-Term Effectiveness Rank	Short-Term Risk Rank	Implementability Rank	Public Concerns Rank	Cumulative Rank	Combined Rank
1: Comprehensive Excavation	1	1	6	3	6	6	--	23	5
2: Dual-Phase Extraction	4	4	4	4	3	3	--	22	4
3: Thermal Remediation	3	3	3	1	5	5	--	20	2
4: Hot Spot Excavation and Dual-Phase Extraction	2	2	2	2	4	4	--	16	1
5: Soil Vapor Extraction	5	5	5	5	2	2	--	24	6
6: Capping, Institutional Controls, and Monitored Natural Attenuation	6	6	1	6	1	1	--	21	3

Note: -- - to be determined

Table 3
Documents Schedule
Laurel Station
Bellingham, Washington

Date	Deliverable
Late May 2014	Draft Engineering Design Report (with Construction Plans and Specifications)
Late May 2014	Draft Compliance Monitoring Plan
July 2014	Final Engineering Design Report (with Construction Plans and Specifications)
July 2014	Final Compliance Monitoring Plan
October 2014	Draft Operation and Maintenance Plan
January 2015	Draft Completion Report (includes As-Builts)
December 2014	Final Operation and Maintenance Plan
March 2015	Final Completion Report (includes As-Builts)

FIGURES

Source: USGS 7.5-minute topographic quadrangle, Bellingham North, Washington, 2014

N

0 0.5 1.0

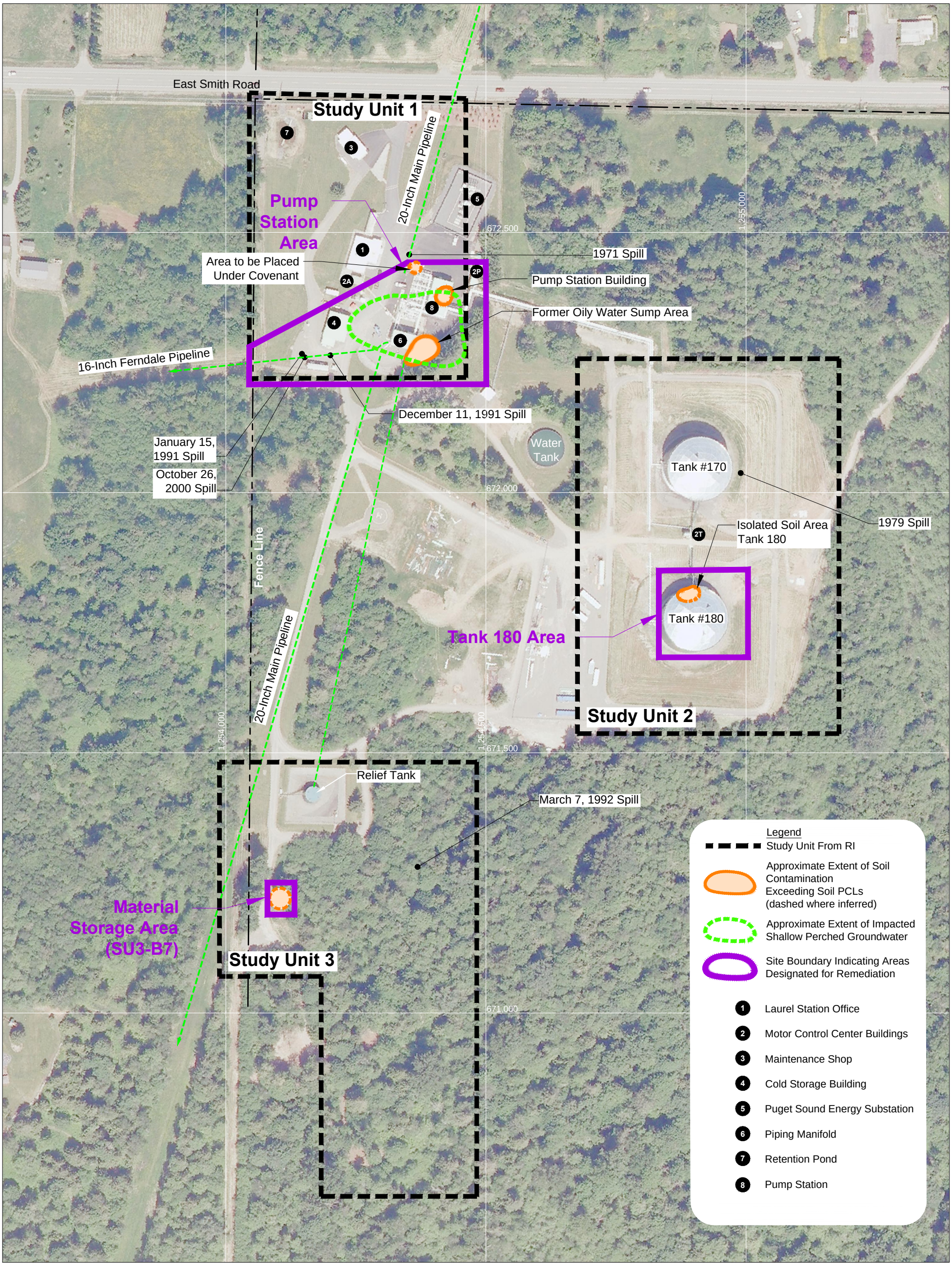
Scale in Miles

Figure 1

Site Location Map

URS

Laurel Station
Bellingham, Washington



Aerial Source: I-Cubed nformation Integration & Imaging LLC May 15, 2009

Coordinate grid based on Washington State Plane, North Zone, NAD83

0 90 180
SCALE IN FEET

J:\GIS\Projects\Kinder Morgan\Laurel Pump Station\SubTasks\Remediation\CAP\NEW Figure 2 (Site Plan).DWG
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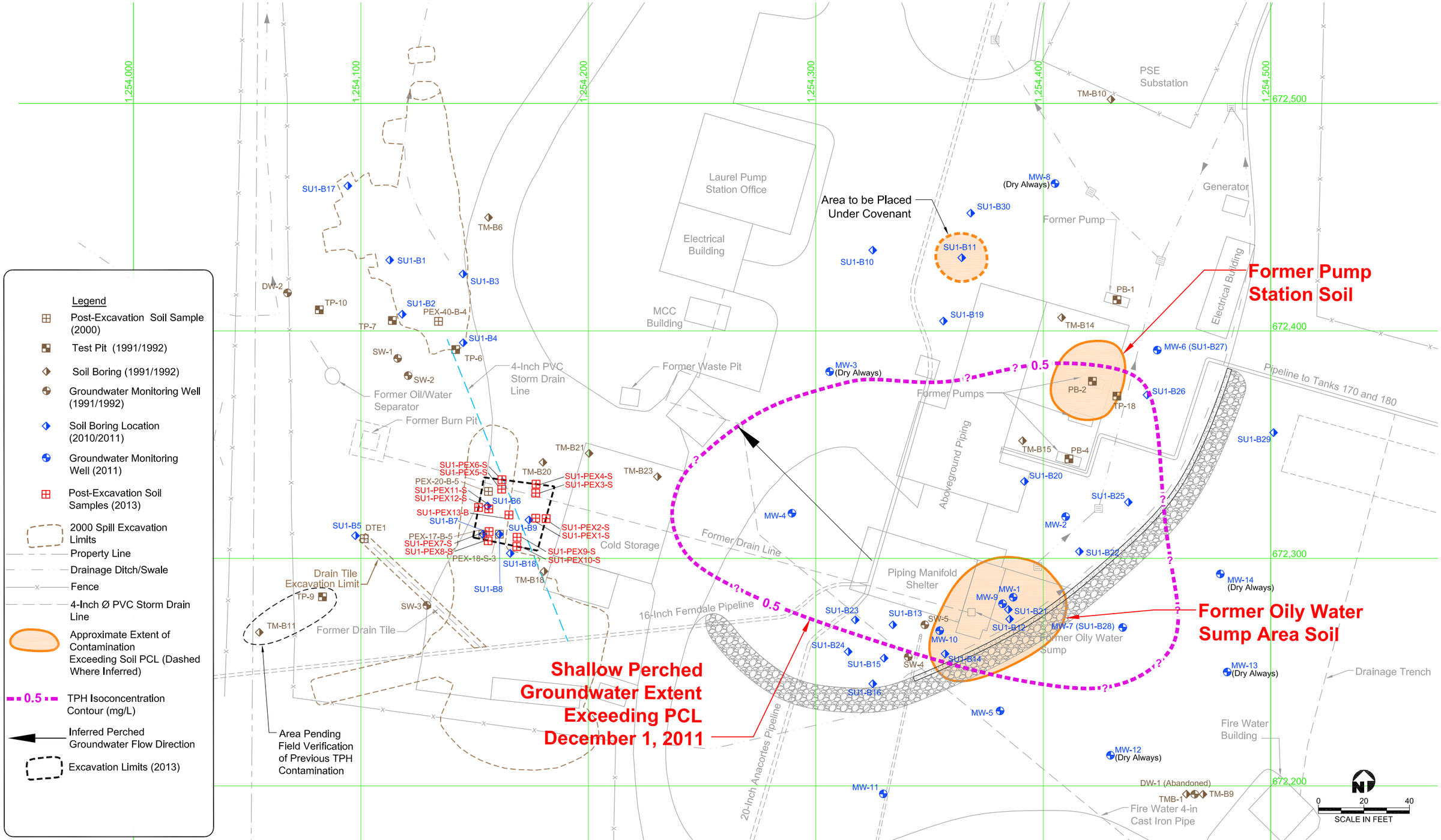
Figure 2
Site Plan
Laurel Station
Bellingham, Washington



Coordinate grid based on Washington State Plane, North Zone, NAD83

J:\GIS\Projects\Kinder Morgan\Laurel Pump Station\SubTasks\Remediation\CAP\Figure 3 Remediation Areas.dwg
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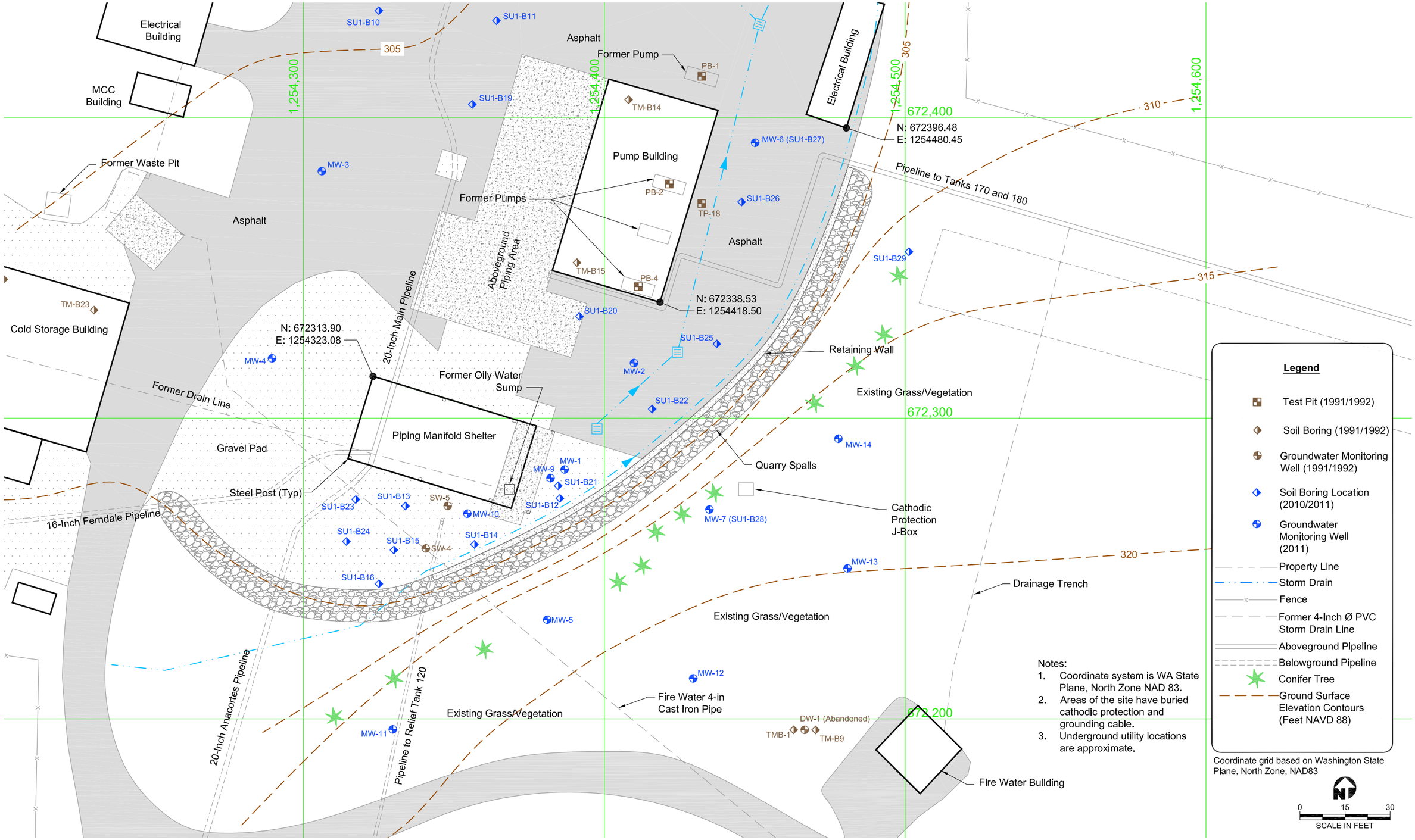
Figure 3
Pump Station Area

Laurel Station
Bellingham, Washington



J:\GIS\Projects\Kinder Morgan\Laurel Pump Station\SubTasks\Remediation\CAP\Figure 4 Existing Conditions.dwg
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Figure 4

Existing Conditions Plan View
Former Oily Water Sump Area, Pump Station Area

Laurel Station
Bellingham, Washington

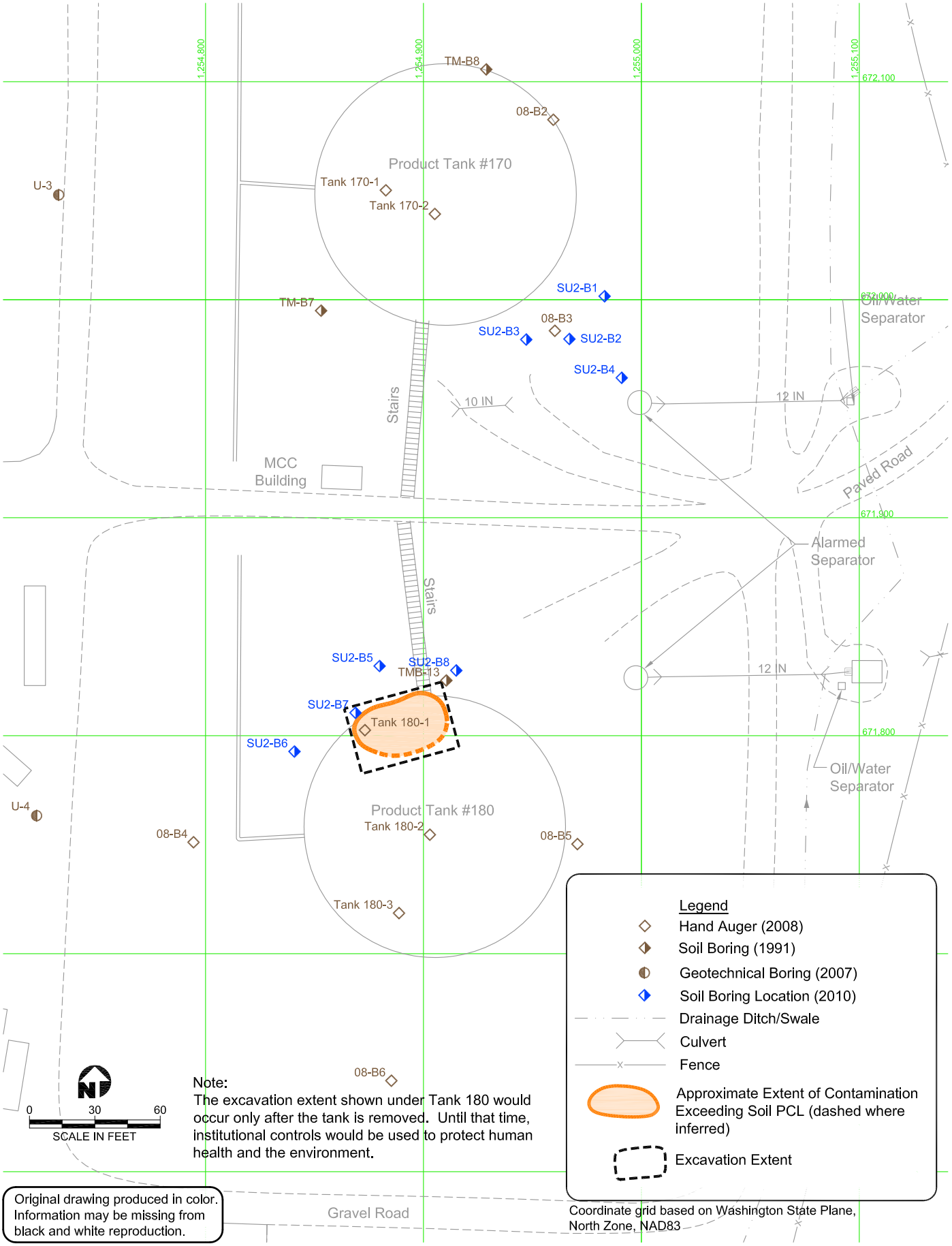

Figure 5

Institutional Controls and Future Excavation Tank 180 Area

Laurel Station
Bellingham, Washington

J:\GIS\Projects\Kinder Morgan\Laurel Pump Station\SubTasks\Remediation\CAP\Figure 5 (Excav Unit 2).dwg
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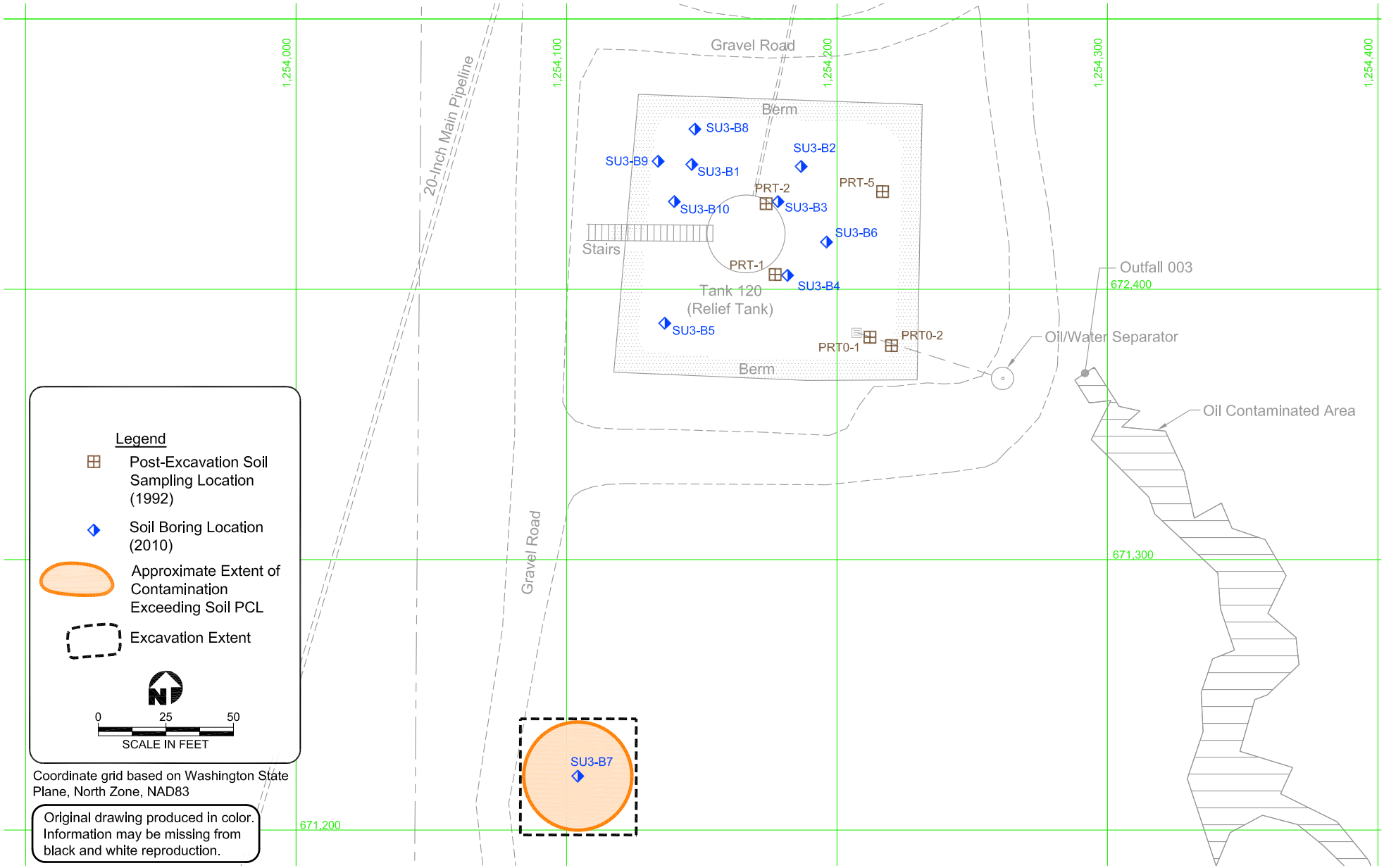

J:\GIS\Projects\Kinder Morgan\Laurel Pump Station\SubTasks\Remediation\CAP\Figure 6 (Excav Unit 3).dwg
Mod: 03/24/2014, 15:50 | Plotted: 03/24/2014, 16:07 | john_knobbs

URS

Figure 6

Excavation Extent for Material Storage Area (SU3-B7)

Laurel Station
Bellingham, Washington

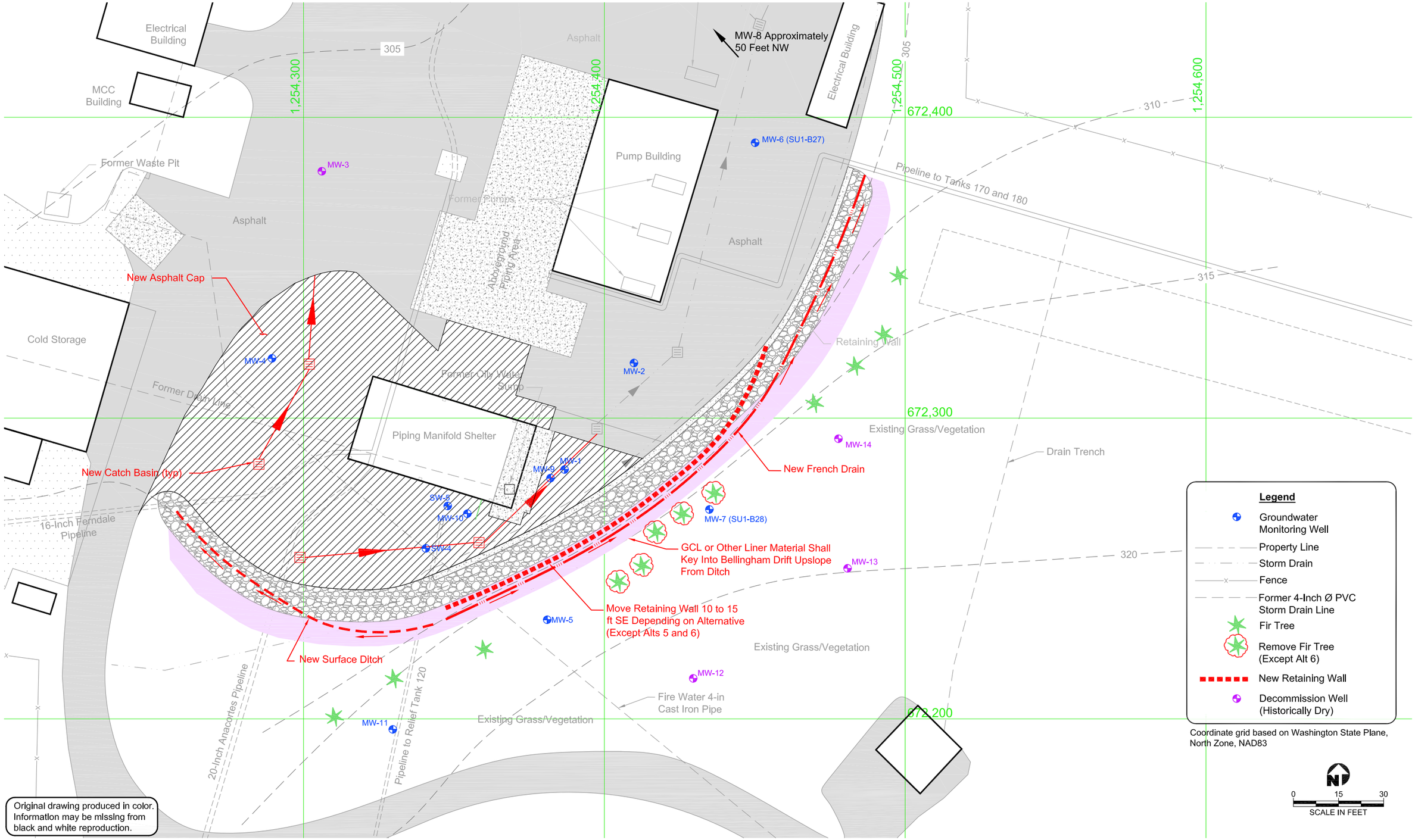

Figure 7

Common Elements - Surface Water Drainage Plan View Surface Ditch, French Drain, and Asphalt Cap Concepts

J:\GIS\Projects\Kinder Morgan\Laurel Pump Station\SubTasks\Remediation\CAP\Figure 7 Common Elements.dwg
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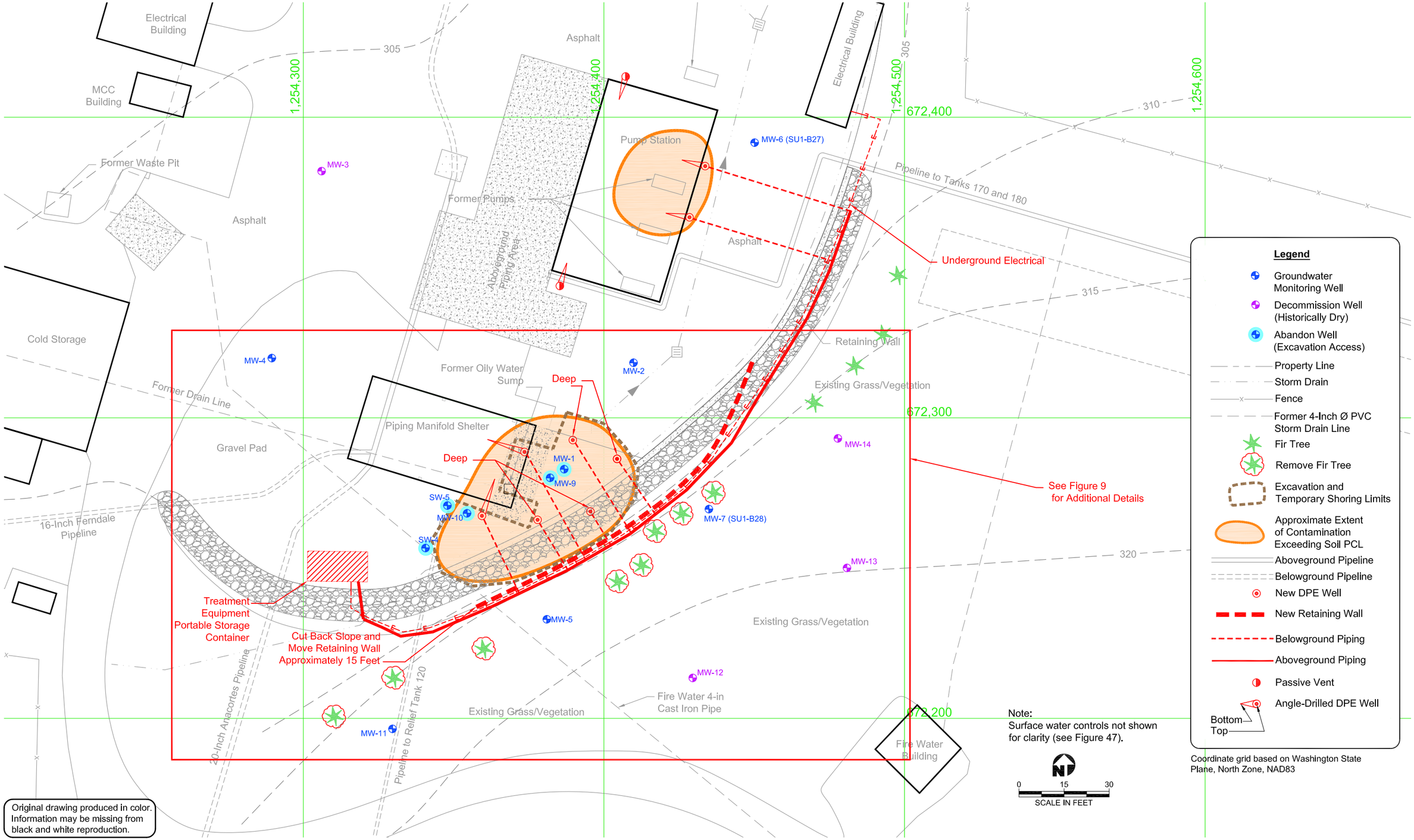
Laurel Station
Bellingham, Washington



Legend

- Groundwater Monitoring Well
- Decommission Well (Historically Dry)
- Abandon Well (Excavation Access)
- Property Line
- Storm Drain
- Fence
- Former 4-Inch Ø PVC Storm Drain Line
- Fir Tree
- Remove Fir Tree
- Excavation and Temporary Shoring Limits
- Approximate Extent of Contamination Exceeding Soil PCL
- Aboveground Pipeline
- Belowground Pipeline
- New DPE Well
- New Retaining Wall
- Belowground Piping
- Aboveground Piping
- Passive Vent
- Angle-Drilled DPE Well (Bottom / Top)

Note:
Surface water controls not shown for clarity (see Figure 47).

0 15 30
SCALE IN FEET

Coordinate grid based on Washington State Plane, North Zone, NAD83

Original drawing produced in color. Information may be missing from black and white reproduction.

J:\GIS\Projects\Kinder Morgan\Laurel Pump Station\SubTasks\Remediation\CAP\Figure 8 Alt 4 Hot Spot Excav.dwg
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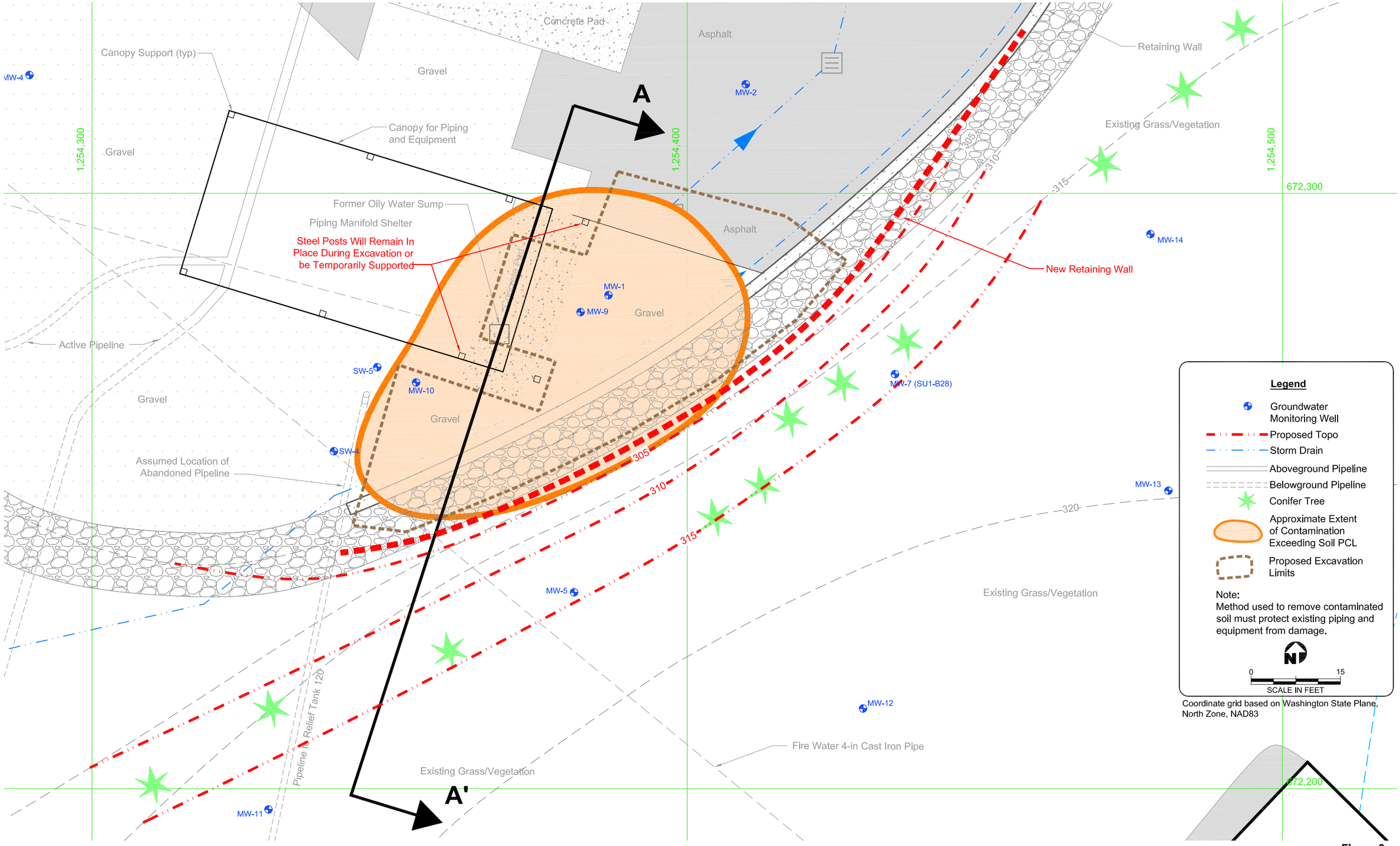
Figure 8
Alternative 4
Hot Spot Excavation and Dual-Phase Extraction Plan View

Laurel Station
Bellingham, Washington



J:\GIS\Projects\Kinder Morgan\Laurel Pump Station\SubTasks\Remediation\CAP\Figure 9 Alt 4 Hot Excav Limits.dwg
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URS

Figure 9

Alternative 4

Close-Up of Conceptual Hot Spot Excavation Limits

Laurel Station
Bellingham, Washington

33764322_02.ai

A

A′

Looking East

Piping Manifold Shelter

Former Oily Water Sump

Concrete Secondary Containment

Proposed Asphalt Surface Cap

Retaining Wall

Proposed French Drain or Ditch

Bellingham Drift

Fill

Proposed GCL Geosynthetic Clay Liner

Glacial Outwash Deposits

New DPE Well Drilled at 30° Angle Targeting Under Secondary Containment Structure

Proposed Hot Spot Excavation Depth: 20 feet bgs
Approximate Surface Area: 1,250 square feet

New DPE Wells Targeting Below Excavation Depth

Projected Excavation Limits
(No Excavation proposed under Secondary Containment Structure

Elevation (Feet NAVD 88)

330
320
310
300
290
280
270
260
250

0 10 20
Approximate Scale in Feet

LEGEND

SM — USCS classification
Geologic unit boundary
Approximate perched groundwater elevation
Proposed excavation limits
Soil exceeding 3,300 mg/kg
Fill
Bellingham Drift
Glacial outwash deposits
DPE well

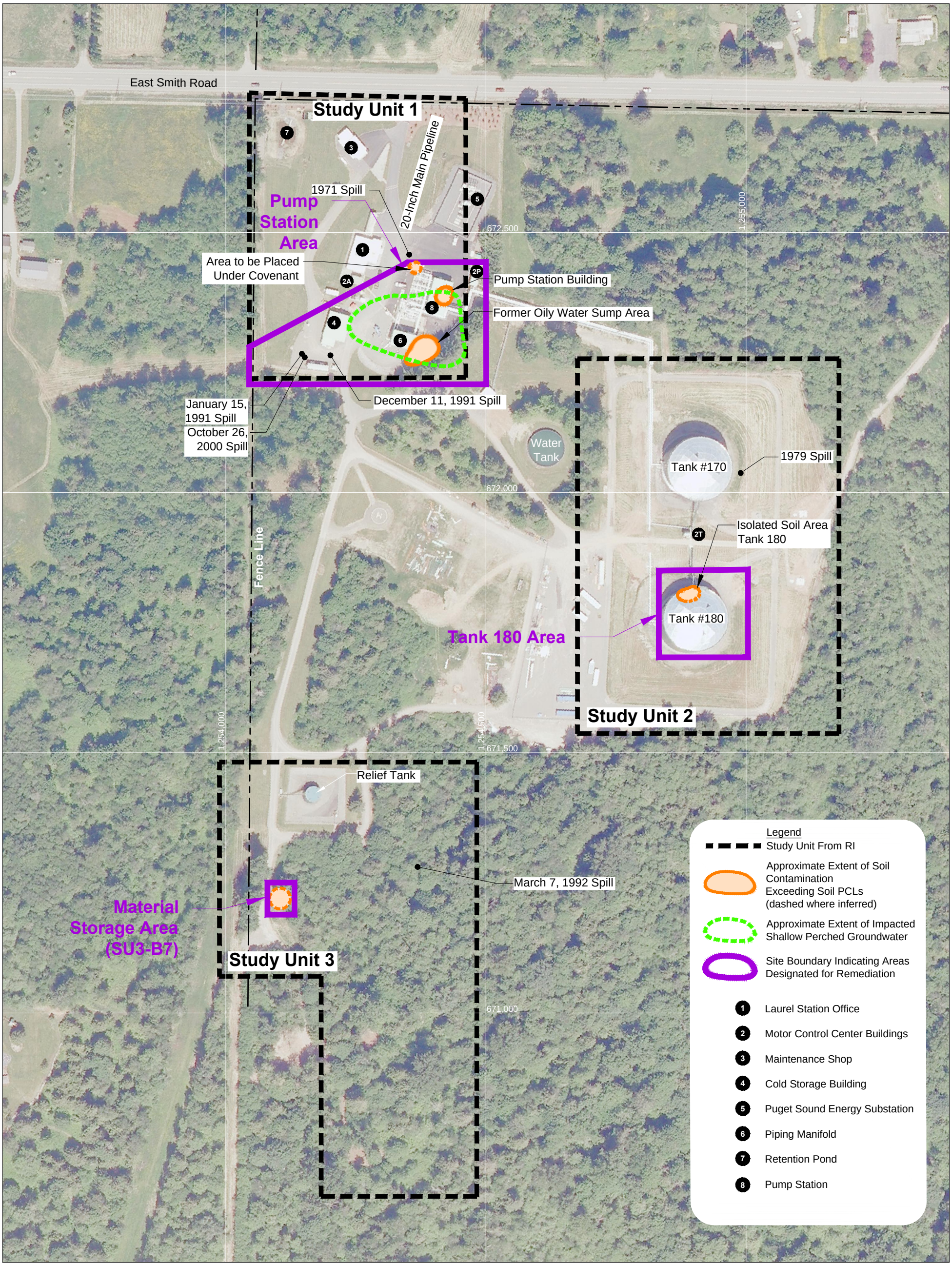
Figure 10

Alternative 4

Cross Section A Conceptual Hot Spot Excavation Limits and DPE Wells

EXHIBIT B

SITE DIAGRAM



Aerial Source: I-Cubed nformation Integration & Imaging LLC May 15, 2009

Coordinate grid based on Washington State Plane, North Zone, NAD83

0 90 180
SCALE IN FEET

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URS

Site Diagram

Laurel Station
Bellingham, Washington

EXHIBIT C

SEPA CHECKLIST

Revised Introduction and New On-line Guidance
March 2012

SEPA ENVIRONMENTAL CHECKLIST

Purpose of checklist:

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

***Instructions for applicants*:**

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

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

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

Use of checklist for nonproject proposals:

Please complete all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. ADDITION, complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D). For nonproject actions.

A. BACKGROUND

1. Name of proposed project, if applicable:

   Cleanup Action Plan – Laurel Station (Washington State Department of Ecology [Ecology] Facility Site Identification Number 2893, Cleanup Site Identification Number 102)

2. Name of applicant:

   Trans Mountain Pipeline (Puget Sound) LLC (Operated by Kinder Morgan Canada, Inc.)

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

Mike Droppo, Environmental Manager
Kinder Morgan Canada
1009 East Smith Road
Bellingham, Washington 98226-9765
403-514-6537

4. Date checklist prepared:

March 25, 2014

5. Agency requesting checklist:

Washington State Department of Ecology

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

The excavation and backfill work is proposed for 2014 in the driest part of the year (August to September). The dual phase extraction (DPE) system will be installed in 2014 and is expected to operate for up to 3 years. Groundwater compliance monitoring will be performed for a number of years following cessation of DPE.

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

At this time there are no plans for future additions, expansion, or further activity related to or connected with this proposal.

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

Pursuant to Ecology oversight under the Model Toxics Control Act (MTCA), a remedial investigation and feasibility study (RI/FS) report was completed for the project and includes extensive environmental information. A Cleanup Action Plan as described under MTCA has been prepared and submitted to Ecology.

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

Necessary approvals will be obtained after entry of the Consent Decree with the Cleanup Action Plan by Whatcom County Superior Court and prior to beginning any work that requires the approval.

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

Under MTCA, many requirements to obtain permits are waived. However, MTCA requires that Trans Mountain comply with the substantive requirements where a permit would otherwise be required. The following government approvals or permits will be needed for this proposal that Trans Mountain will obtain or will comply with the substantive requirements:

- Approval of the Draft Remedial Investigation/ Feasibility Study Report and Cleanup Action Plan, Ecology
- SEPA Determination, Ecology
- Notice of Intent (build/decommission wells), Ecology
- Land Disturbance Permit, Whatcom County
- Notice of Construction, Northwest Clean Air Agency
- Electrical Permits and inspections, Washington State Department of Labor & Industries

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

The proposal is to complete the clean-up of contamination resulting from past releases of oil and of natural gas condensate at the facility pursuant to the Model Toxics Control Act (Chapter 70.105D of the Revised Code of Washington) with Ecology oversight. The clean-up includes excavation of a limited volume of contaminated soil in one isolated area (Material Storage Area [SU3-B7), Figure 2). The contaminated soil will be shipped offsite to an appropriately licensed treatment or landfill facility. The excavation will be backfilled with clean material. A second, larger, area will be addressed by excavating accessible contaminated soil and use of DPE technology to treat inaccessible soil with vapor/liquid treatment (Pump Station Area, Figure 2 – Former Oily Water Sump Area and Pump Station Building). The remedy at this location will also include a combination of surface capping, expansion of the existing storm drain system, and new drainage features to reduce the infiltration of stormwater to the perched shallow groundwater zone. "Institutional controls via an Environmental Restrictive Covenant" will provide the remedy for a smaller area located in the north portion of the Pump Station Area (Figure 2). At a third location, beneath Tank 180, institutional controls via an Environmental Restrictive Covenant will provide the remedy (Tank 180 Area, Figure 2). Details are provided in the RI/FS Report and in the Cleanup Action Plan, Exhibit A of the Consent Decree.

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

The project area is located at Laurel Station, 1009 East Smith Road, Bellingham, WA in Section 33, Township 39 North, Range 3 East. The proposal is shown on the vicinity map (Figure 1) and on the site plans (Figure 2 and Figure 3). The legal description of the site (Property ID 105381) is as follows:

BEG 30 FT S-1336.81 FT E OF NW SEC COR-TH ELY ALG SLY LI OF SMITH RD 664.69 FT M/L TO W LI OF E 1/2 NE NW-TH SLY ALG W LI OF E 1/2 NE NW 970 FT-TH WLY PAR TO SLY LI OF SMITH RD 664.82 FT-TH NLY TO POB-EXC PTN TO WHATCOM CO FOR RD DESC AF 1970903244

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site
(circle one): Flat, rolling, hilly, steep slopes, mountainous, other _____

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

The steepest slope on the site is approximately 3 percent.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

Soils on site include Whatcom silt loam and Labounty silt loam.

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

There are no surface indications or history of unstable soils in the immediate vicinity.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

Contaminated soil would be removed in two locations, anticipated to total approximately 1,750 cubic yards. One excavation would be backfilled with imported clean fill material from local commercial sources. The other would be filled with clean controlled-density fill, also from commercial sources.

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

The work would be conducted in compliance with approved temporary erosion and sediment control plans. Because best management practices (BMPs) will be applied, erosion is not anticipated.

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

Approximately 12,500 square feet of new impervious surface would be added, resulting in a small percent increase above existing levels in the Pump Station Area only (see Figure 2).

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

A temporary erosion and sediment control plan will be prepared for the project, and BMPs will be applied.

2. Air

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

Equipment exhaust and dust would be emitted during construction from equipment and vehicles. Vapors would be extracted from the use of DPE technology.

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

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

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

A Notice of Construction will be submitted to the Northwest Clean Air Agency (NWCAA) for approval; vapors extracted from the use of DPE technology will be treated per the NWCAA on the surface prior to being discharged into the atmosphere. Dust will be controlled with a water mist or other standard construction means.

3. Water

a. Surface Water:

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

There are no surface water bodies on or in the immediate vicinity of the site.

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

Not applicable; there are no surface water bodies within 200 feet of the project.

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

No fill and dredge material would be placed in or removed from surface water or wetlands.

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

The proposal would not require surface water withdrawals or diversions.

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

The proposal is not within a 100-year floodplain.

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

The proposal does not involve any discharges of waste materials to surface waters.

b. Ground Water:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

Groundwater extracted by the DPE system will be treated using an air stripper prior to discharge. Treated groundwater will be discharged to the facility's stormwater system pursuant to the facility's National Pollutant Discharge Elimination System permit. Extracted vapors will be treated as described in Item 2c (Air), above.

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

No waste material would be discharged into the ground.

c. Water runoff (including stormwater):

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

Work will be conducted under tight controls within the facility's Stormwater Pollution Prevention Plan.

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

No, the object of the proposal is to remove contamination from the soil and ground water. Waste materials will be handled to prevent contamination from entering ground or surface waters.

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

Work will be conducted during driest part of the year.

4. Plants

a. Check or circle types of vegetation found on the site:

____deciduous tree: alder, maple, aspen, other
_✓__evergreen tree: (fir), cedar, pine, other
____shrubs
_✓__grass
____pasture
____crop or grain
____ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other

____water plants: water lily, eelgrass, milfoil, other
____other types of vegetation

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

Eight (8) fir trees would be removed for site excavation and regrading.

c. List threatened or endangered species known to be on or near the site.

There are no threatened or endangered species known to be on or near the site.

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

None required.

5. Animals

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

birds: (hawk), heron, eagle, (songbirds), other:
mammals: (deer), bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other _____

b. List any threatened or endangered species known to be on or near the site.

There are no threatened or endangered species known to be on or near the site.

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

The site is located within the Pacific Flyway, which is a flight corridor for waterfowl and other avian fauna migration. The Pacific Flyway extends from Alaska south to Mexico and South America. The project would not affect use of the Pacific Flyway by migratory birds.

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

None required.

6. Energy and natural resources

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

Electricity would be used to run the pumps and treatment system for the DPE. The electrical needs for this project can be supplied by existing electrical service to the facility.

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

No, the project would not affect the potential use of solar energy by adjacent properties.

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

None proposed.

7. Environmental health

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

As this is a cleanup action, risks will be carefully managed and as a result of the cleanup, there would be much lower environmental health hazards.

1) Describe special emergency services that might be required.

None.

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

The Cleanup Action Plan provides details of measures to be applied. The work will be performed under a Health and Safety Plan. All work will be conducted in accordance with the Occupational Safety and Health Administration's Hazardous Waste Operations and Emergency Response Standard and any other applicable health and safety regulations.

b. Noise

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

Pumps, vehicles, and equipment create noise in the project area; the project would not be affected by such noises.

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

Construction equipment would be used for the project (excavators, trucks); construction would occur during daylight hours. The cleanup project is anticipated to last 4-8 weeks.

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

In addition to only conducting cleanup activities during daylight hours, equipment will be fitted with appropriate mufflers.

8. Land and shoreline use

a. What is the current use of the site and adjacent properties?

The site is currently in use as industrial (a pump station associated with an oil pipeline). Adjacent uses include low-density residential and agricultural.

b. Has the site been used for agriculture? If so, describe.

The site has not been used for agriculture.

c. Describe any structures on the site.

The site contains control buildings, equipment shelters, an office, storage buildings, pumps, pipes, and tanks.

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

No.

e. What is the current zoning classification of the site?

The site is zoned R5A (Rural 1 Unit/5 Acres).

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

The site is designated Rural.

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

Not applicable; the project area is not regulated under the shoreline master program.

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

The Laurel Station property contains wetlands but proposed activities would occur well outside of these areas (more than 200 feet away).

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

No new workers are anticipated.

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

None.

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

Not applicable; displacement impacts would not occur.

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

None required; Laurel Station is a long-established industrial use site in Whatcom County.

9. Housing

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

No housing units would be provided.

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

No housing units would be eliminated.

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

None required.

10. Aesthetics

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

No structures are proposed.

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

No views in the immediate vicinity would be altered or obstructed by the project.

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

None required.

11. Light and glare

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

No light or glare would be produced by the proposal.

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

Not applicable; no light or glare would be produced by the project.

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

No existing off-site sources of light or glare will affect this proposal.

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

None required.

12. Recreation

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

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

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

No existing recreational uses would be displaced.

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

None required.

13. Historic and cultural preservation

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

There are no known places or objects listed or proposed on or next to the site.

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

There are no known landmarks or evidence of historic, archaeological, scientific or cultural importance on or next to the site.

c. Proposed measures to reduce or control impacts, if any:

None required; disturbance activities will occur in previously-disturbed areas.

14. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

East Smith Road is located north of the site and provides access to Laurel Station via an existing entrance.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

No. The nearest transit stop is at East Smith Road and Guide Meridian Road, approximately 2.3 miles west of the site (served by Whatcom Transit Authority Routes 25X, 26, and 71X).

c. How many parking spaces would the completed project have? How many would the project eliminate?

The project would not provide nor eliminate any parking spaces.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

New roads or streets or improvements would not be required by the proposal.

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

The project would not use or occur in the immediate vicinity of water, rail, or air transportation.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

No vehicular trips per day would be generated by the completed project.

g. Proposed measures to reduce or control transportation impacts, if any:

None required.

15. Public services

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

The project would not result in an increased need for public services.

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

None required.

16. Utilities

a. Circle utilities currently available at the site:
electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other _____

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

None required.

C. SIGNATURE

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

Signature: _____

Name of signee Michael L Drappo

Position and Agency/Organization Environment Manager / Kinder Morgan Canada Inc

Date Submitted: March 26, 2014

Source: USGS 7.5-minute topographic quadrangle, Bellingham North, Washington, 2014

N

0 0.5 1.0

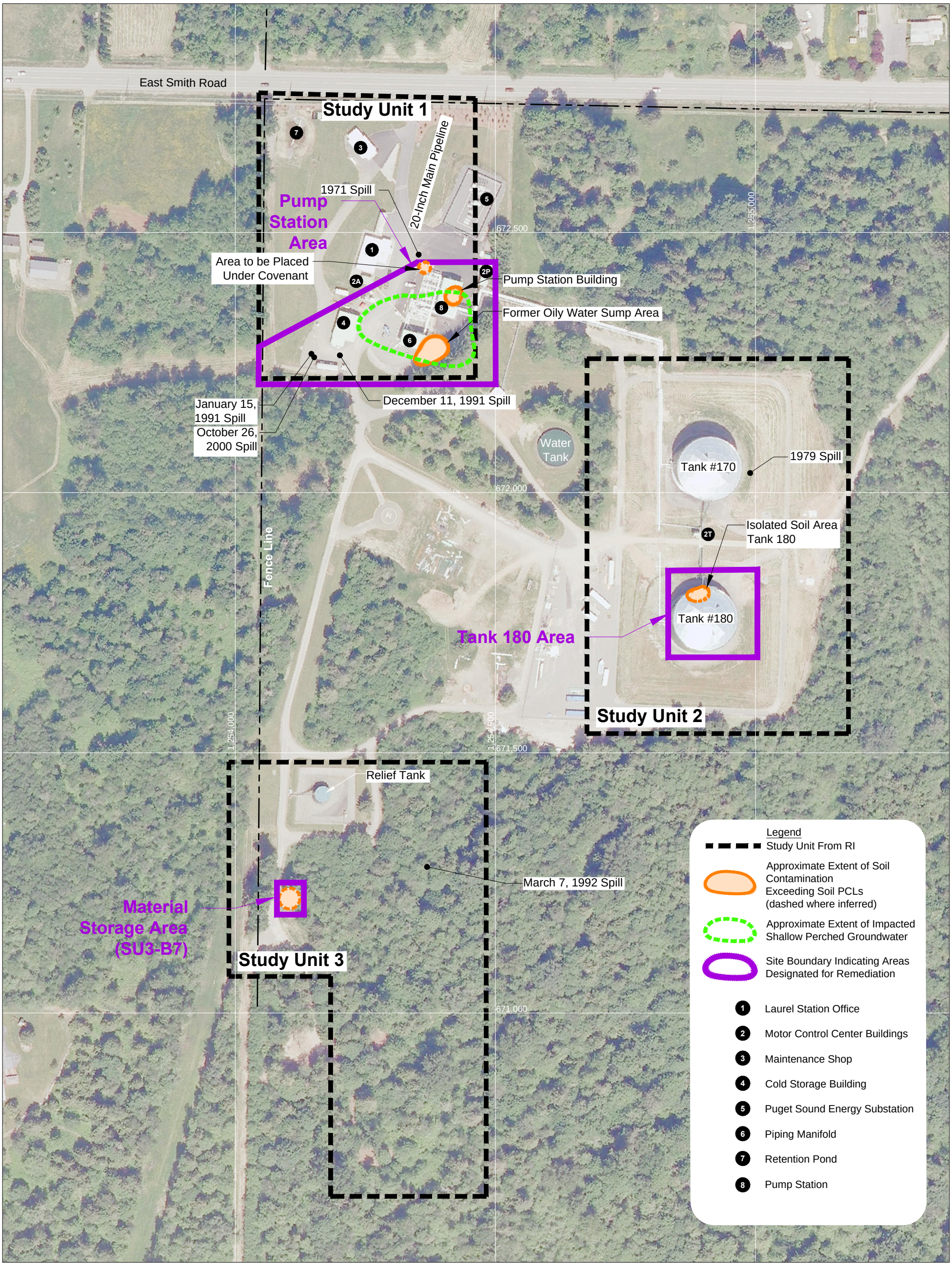
Scale in Miles

Figure 1

Site Location Map

URS

Laurel Station
Bellingham, Washington



Aerial Source: I-Cubed nformation Integration & Imaging LLC May 15, 2009

Coordinate grid based on Washington State Plane, North Zone, NAD83

0 90 180
SCALE IN FEET

J:\GIS\Projects\Kinder Morgan\Laurel Pump Station\SubTasks\Remediation\SEPA\Figure 2 Site Diagram.dwg
Mod: 03/24/2014, 14:34 | Plotted: 03/24/2014, 16:06 | john_knobbs

URS

Figure 2
Site Diagram
Laurel Station
Bellingham, Washington

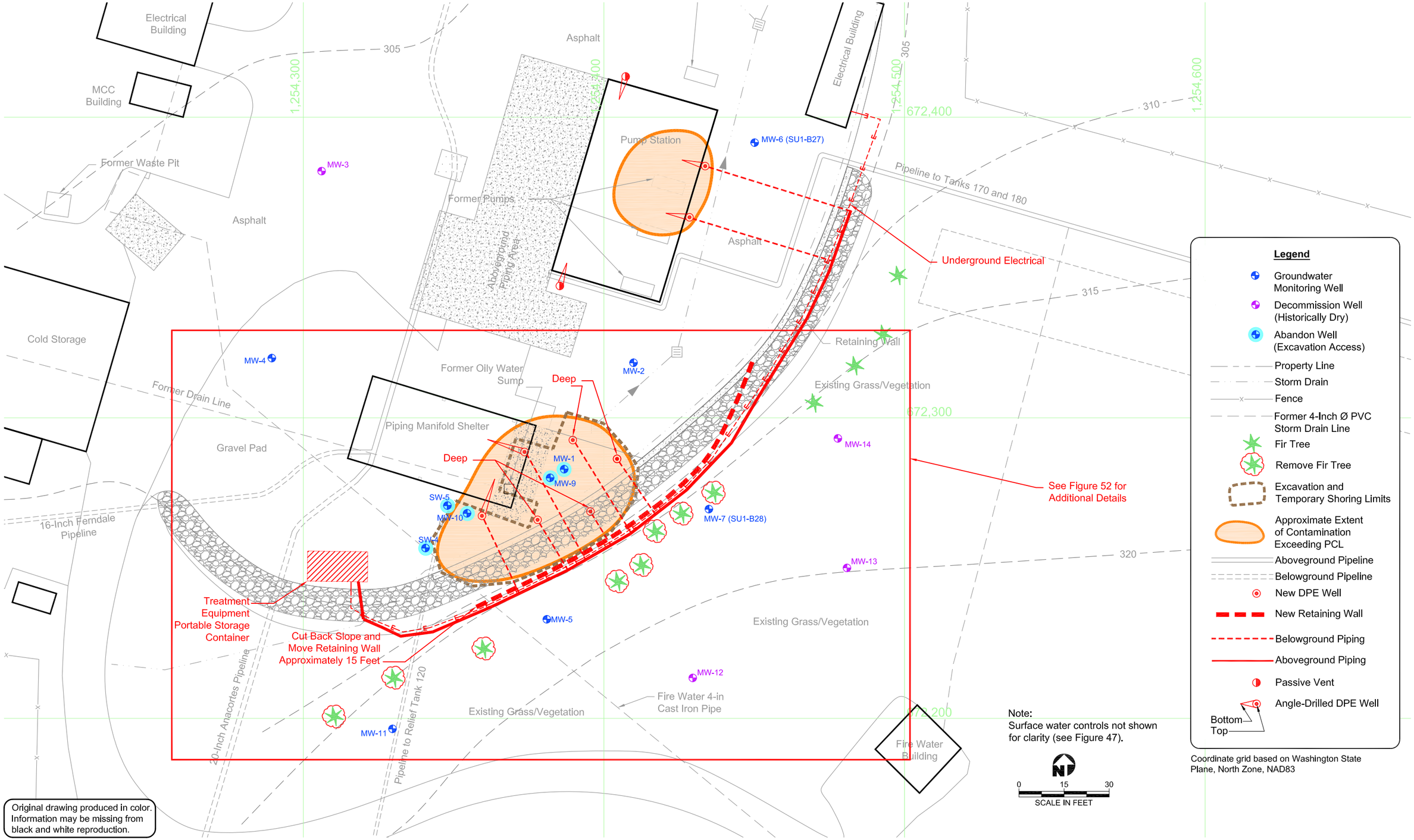


Figure 3
Alternative 4
Hot Spot Excavation and Dual-Phase Extraction Plan View

Laurel Station
Bellingham, Washington

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URS

DETERMINATION OF NONSIGNIFICANCE (DNS)

WAC 197-11-970 Determination of nonsignificance (DNS).

DETERMINATION OF NONSIGNIFICANCE

Description of proposal: The proposal is to complete the clean-up of contamination resulting from past releases of oil and of natural gas condensate at Trans Mountain Pipeline's Laurel Station pursuant to the Model Toxics Control Act (Chapter 70.105D of the Revised Code of Washington) with Ecology oversight. For further description of the proposal, See Item A.11 of the SEPA Checklist.

Proponent: Trans Mountain Pipeline (Puget Sound) LLC (Operated by Kinder Morgan Canada, Inc.)

Location of proposal, including street address, if any: 1009 East Smith Road, Belling ham, WA 98226-9765

Lead agency: Washington State Department of Ecology

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030 (2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

☐ There is no comment period for this DNS.

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

☑ This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for 14 days from May 19, 2014. Comments must be submitted by May 19, 2014

Responsible official: Robert W. Warren

Position/title: Section Manager, Toxics Cleanup Program, Northwest Regional Office Regional Phone: 425-649-7054

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

Date. 4-4-14 Signature _____

(OPTIONAL)

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

You should be prepared to make specific factual objections.
Contact _____to read or ask about the procedures for SEPA appeals.

☑ There is no agency appeal.

EXHIBIT D

LIST OF SUBSTANTIVE REQUIREMENTS

EXHIBIT D

APPLICABLE SUBSTANTIVE REQUIREMENTS

The applicable substantive requirements of the following permits or approvals (as identified at the time of entry of this Decree) will be more particularly identified as necessary during each phase of the cleanup action.

- ***Regulation and Licensing of Well Contractors and Operators, Chapter 18.104 RCW; WAC 173-162.*** These regulations apply to all water well contractors and operators who are providing well installation, maintenance, or decommissioning services in Washington State. These regulations are potentially applicable to any well contractor or operator who installs wells at the site. Only licensed water well contractors and operators will be permitted to install, maintain, or decommission wells at Laurel Station.

- ***Washington Clean Air Act and Implementing Regulations, Chapter 70.94 RCW; WAC 173-400-040(9); WAC 173-460; Northwest Clean Air Agency (NWCAA) Sections 300, 320, 321, and 550.*** WAC 173-400-040(9) and NWCAA Section 550 require owners and operators of a fugitive dust source to take reasonable precautions to prevent fugitive dust from becoming airborne and to maintain and operate the source to minimize emissions. These requirements are applicable to controlling fugitive dust emissions during implementation of the cleanup action.

  In addition, NWCAA Sections 300, 320, and 321 identify requirements for the exemption from and permitting of air pollution sources. The substantive requirements of this regulation are potentially applicable to cleanup action alternatives involving the extraction and treatment of soil vapor and groundwater and will be identified by NWCAA. NWCAA Section 320.5 lists soil and groundwater remediation projects and active soil vapor extraction, thermal soil desorption, and groundwater air stripping remediation projects as source categories requiring registration with the NWCAA. A Notice of Construction application including applicable fees would be required from the NWCAA.

- ***Washington Solid Waste Management Act and Solid Waste Management Handling Standards Regulations, Chapter 70.95 RCW; Chapter 173-350 WAC.*** The solid waste requirements are potentially applicable to the off-site disposal of solid nonhazardous wastes and contaminated media that may be generated as part of the cleanup action. For off-site disposal activities related to the cleanup action alternatives, these requirements will be complied with to the fullest extent. Waste materials will be sent to facilities licensed and permitted to accept the specific waste material, and documentation will be obtained of such disposition.

- ***Whatcom County Code Chapter 20.80.634 Stormwater Conformance.*** All development must conform to the stormwater requirements provided in this chapter, including best management practices to control erosion and sediment during construction, to permanently stabilize soil exposed during construction, and to protect adjacent properties and water bodies from stormwater effects caused by development. The substantive

requirements of this local code are potentially applicable for cleanup action alternatives involving ground disturbance. As the action as proposed would result in the creation or addition of greater than 5,000 square feet of impervious surface area, a temporary erosion and sediment control plan is required (Whatcom County Code 20.80.634(2)(b)) and will be reviewed by Whatcom County.

EXHIBIT E

LIST OF PERMITS

EXHIBIT E

LIST OF REQUIRED PERMITS

Cleanup actions at the site require the following permits:

- SEPA Environmental Checklist pursuant to RCW 43.21C.036 and WAC 197-11-250 through 268. See Exhibit C.
- Notice of Intent for installation of Dual-Phase Extraction (DPE) wells and decommissioning of monitoring wells pursuant to Chapter 18.104 RCW and WAC 173-160.
- Groundwater extracted by the DPE system will be treated and discharged to the facility's stormwater system pursuant to the facility's National Pollutant Discharge Elimination System (NPDES) permit.
- Notice of Construction from the NWCAA pursuant to NWCAA Sections 300, 320, and 321.
- Land Disturbance Permit pursuant to Whatcom County Code 20.80.734 – General Review Thresholds. A critical area review pursuant to ***Whatcom County Code Chapter 16.16 Critical Areas*** may be initiated through the land disturbance permit application. The action as proposed will not impact a critical area, so it is not anticipated that any substantive requirements of the Critical Area Ordinance will be identified. If any are identified, they will be incorporated into the Engineering Design Report.
- Electrical permits and inspections from the Washington State Department of Labor & Industries.