

AMENDMENT NO. 11

GUARANTEED MAXIMUM PRICE AMENDMENT TO CM/GC CONTRACT 4400001553

MULTNOMAH COUNTY HEALTH DEPARTMENT HEADQUARTERS BUILDING

This Guaranteed Maximum Price Amendment (the “**GMP Amendment**”) is dated June 15, 2017, and amends the AIA Document A102 – 2007 Standard Form of Agreement Between Owner and Contractor, dated July 16, 2013, and previously amended by Change Order #1 dated June 10, 2015; by a Second Amendment dated December 22, 2015; by Amendment No. 3 dated May 3, 2016; by Amendment No. 4 dated October 10, 2016; by Amendment No. 5 – First Early Work Amendment dated November 1, 2016; by Amendment No. 6 dated November 23, 2016; by Amendment No. 7 – Second Early Work Amendment dated December 13, 2016; by Amendment No. 8 – Third Early Work Amendment dated January 4, 2017; by Amendment No. 9 dated February 22, 2017; and by Amendment No. 10 – Fourth Early Work Amendment dated April 24, 2017; and AIA Document A201 – 2007 General Conditions of the Contract for Construction Between Owner and Contractor, previously amended by a First Amendment dated November 12, 2015 (collectively, the “**Contract**”); between **MULTNOMAH COUNTY**, an Oregon political subdivision, 501 SE Hawthorne Blvd, Portland, OR 97214 (the “**Owner**”) and **JE DUNN CONSTRUCTION COMPANY**, a Missouri corporation, 424 NW 14th Ave, Portland, OR 97209 (the “**Contractor**”).

RECITALS:

- A.** The Owner and the Contractor desire to amend the Contract.
- B.** AIA Document A102 Section 2.4 provides for certain provisions to be modified and supplemented in a “GMP Amendment” setting out the agreed remaining terms and conditions of the Contract. This Amendment is that GMP Amendment.
- C.** The Plans and Specifications for the Work have been completed.
- D.** The Owner and the Contractor have reached agreement regarding the remaining terms and conditions of the Contract and have agreed to amend the Contract as follows.

AMENDMENTS:

The Owner and the Contractor hereby agree to amend the Contract as follows:

- 1. Work Commencement Date.** The date of commencement of the Work shall be February 17, 2017.
- 2. Substantial & Final Completion.** The Contractor shall achieve Substantial Completion of the entire Work not later than November 13, 2018, and Final Completion of the entire Work not later than February 19, 2019.

3. GMP. The sum of the Cost of the Work (as defined in Articles 7 and 8 of the Contract) the Contractor's Fee, the Contractor's Contingency, and the Contractor's bonds and insurance (the "**Guaranteed Maximum Price**" or "**GMP**") is guaranteed by the Contractor not to exceed sixty-four million, eight hundred and thirty-eight thousand, two hundred and sixty-nine Dollars (\$64,838,269.00), comprised of the following, subject to additions and deductions by Change Order as provided in the Contract Documents:

Cost of the Work ("CW")	
Including Early Work Amendments:	\$ <u>59,876,522.00</u>
Contractor's Contingency:	\$ <u>1,596,296.00</u>
Contractor's Fee (2.15% of CW):	\$ <u>1,335,340.00</u>
Bonds and Insurance	\$ <u>2,030,111.00</u>
GMP (Total of above categories):	\$ <u>64,838,269.00</u>

For purposes of determining the GMP, the CW includes the Contractor's Contingency, the Fixed Cost for General Requirements ("GRs" - defined as the clearinghouse for items that do not apply directly to construction, the cost of which is spread out over the entire Project, also known as Project overhead), and the costs of all components and systems set forth in the Contract Documents.

4. Basis of GMP. The GMP is based on the GMP Supporting Documents attached or summarized as Attachments 1-11 to this GMP Amendment including the Allowances, assumptions, exclusions, unit prices, and alternates designated therein.

5. Plans and Specifications. The Plans, Specifications, and Addenda for the Project are as listed and described in **Attachment 1**, which is incorporated herein by this reference. The Contractor has delivered to the Owner a detailed, 41-page list of Plans, Specifications, and Addenda. This detailed list and all of the referenced sheets of Plans, Specifications, and Addenda are included in the GMP Supporting Documents, are incorporated by reference in the GMP Amendment and made a part hereof. The Contractor shall perform Construction Phase Services in accordance with the Plans, Specifications, Addenda and the other Contract Documents. In the event of any conflict or inconsistency, the Plans and Specifications, and Addenda referenced in Attachment 1 to the GMP Amendment take precedence over the Plans and Specifications in any previously executed amendment to the Contract.

6. Allowances. The Guaranteed Maximum Price is based on the allowances, if any, set forth on **Attachment 2**, which is incorporated herein by this reference.

7. Clarifications, Inclusions and Exclusions. The Contractor's Clarifications, Inclusions and Exclusions are set forth on **Attachment 3**, which is incorporated herein by this reference.

8. Construction Schedule. A summary of the Contractor's Construction Schedule is set forth on **Attachment 4**, which is incorporated herein by this reference. The detailed, 35-page GMP Final Construction Schedule, prepared by the Contractor and dated May

30, 2017, is included in the GMP Supporting Documents, incorporated by reference in the GMP Amendment and made a part hereof.

9. Alternates. The Guaranteed Maximum Price is based on the alternates, if any, set forth on **Attachment 5**, which is incorporated herein by this reference.

10. Unit Prices. The Owner and the Contractor agree upon the unit prices, if any, set forth on **Attachment 6**, which is incorporated herein by this reference.

11. Subcontractors. The list of design-build Subcontractors is set forth on **Attachment 7**, which is incorporated herein by this reference.

12. Schedule of Values. The Contractor's initial Schedule of Values is set forth on **Attachment 8**, which is incorporated herein by this reference.

13. CMMP for Block "U." The Contaminated Media Management Plan for Block "U," approved by the Oregon Department of Environmental Quality, is set forth on **Attachment 9**, which is incorporated herein by this reference.

14. CMMP for Block "R." The Contaminated Media Management Plan for Block "R," approved by the Oregon Department of Environmental Quality, is set forth on **Attachment 10**, which is incorporated herein by this reference.

15. AIA Document A102 – 2007 Standard Form of Agreement Between Owner and Contractor. The Parties agree to amend the Contract as follows, by adding the underlined text and deleting the struck-through text:

15.1 Section 5.1.1 is modified, to read:

"§ 5.1.1 The Contractor's Fee. The Contractor's Fee shall be an amount equal to two and fifteen hundredths percent (2.15%) of the Cost of the Work, (including General Requirements) and the Contractor Contingency, at the time of the GMP Amendment, as outlined in Section 7.6. Contractor's Fee shall be inclusive of all overhead, other than the costs that are expressly reimbursable hereunder, and profit to be paid to Contractor on the Project. The Contractor's Fee shall not be applied to the Preconstruction Services Costs set forth in Section 5.0.1."

15.2 Section 5.1.2 is modified, to read:

"§ 5.1.2 The method of adjustment of the Contractor's Fee for changes in the Work shall be as set forth in Article 7 of the General Conditions. The Contractor's Fee shall be adjusted for changes in the Cost of the Work at the rate of Two and Fifteen Hundredths percent (2.15%) times the Cost of the Work associated with the scope change (be it additive or deductive to the GMP)."

15.3 Section 5.1.3 is modified, to read:

"§ 5.1.3 Limitations, if any, on a Subcontractor's overhead and profit for increases in the cost of its portion of the Work: A ~~5%~~ fifteen percent (15%) limit of any individual cost

~~increase for any individual Subcontractor.~~ for direct Work performed by the Subcontractor and no more than five percent (5%) markup on Work performed by a Subcontractor's lower-tier Subcontractor."

15.4 Sections 5.2.1.1 and 5.2.1.2 are modified, to read:

"§ **5.2.1.1** The Owner and Contractor agree to negotiate in good faith regarding a GMP, based on the proposed final Drawings and Specifications. Upon completion of the final Drawings and Specifications and subcontractor bidding, Contractor shall prepare and submit to Owner a GMP proposal using an "open book process," which shall include but is not limited to Contractor's comprehensive detailed cost estimate with supporting documents including but not limited to books, calculations, take-offs, productivity assumptions, internal equipment rates, cost data in support of estimated General Requirements costs, material and equipment supply quotations, allowances, bids from prospective subcontractors, and any other supporting documents requested by Owner to substantiate the GMP estimate. In addition, Contractor shall submit to Owner its revised CPM schedule. If the parties reach agreement regarding the GMP, as well as other terms and conditions not determined when this Agreement is executed, the parties shall execute the GMP Amendment referenced in Section 2.4. If the parties are unable to reach agreement regarding the GMP, Section 5.2.5 shall govern."

"§ **5.2.1.2** In the event the sum of the final Cost of the Work plus the Contractor's Fee is less than the final GMP, the savings ~~in Cost of Work~~ shall devolve to Shared Savings in accordance with Section 7.8 ~~one hundred percent (100%) to the Owner, but the final Contractor's Fee shall remain based on the estimated Cost of Work in the GMP.~~"

15.5 Section 7.1.1 is modified, to read:

"§ **7.1.1** The term Cost of the Work (CW) shall mean costs necessarily incurred by the Contractor in the proper performance of the Work. Such costs shall be at rates not higher than the standard paid at the place of the Project except with prior written consent of the Owner. The Cost of the Work shall include only the items set forth in this Article 7."

15.6 Sections 7.5.1 and 7.5.2 are modified, to read:

"§ 7.5 COSTS OF OTHER MATERIALS AND EQUIPMENT, TEMPORARY FACILITIES, EQUIPMENT RENTAL CHARGES AND RELATED ITEMS

§ **7.5.1** Costs of transportation, storage, installation, maintenance, dismantling and removal of materials, supplies, temporary facilities, machinery, equipment and hand tools not customarily owned by construction workers that are provided by the Contractor at the site and fully consumed in the performance of the Work. Costs of materials, supplies, temporary facilities, machinery, equipment and tools that are not fully consumed shall be based on the cost or value of the item at the time it is first used on the Project site ~~less the value of the item when it is no longer used at the Project site.~~ Costs for items not fully consumed by the Contractor shall mean fair market value; whether sold to others or retained by the Contractor; provided that the Owner at Owner's option may require that the Contractor deliver to the Owner (at no charge) at the end of the Project any of such items procured for this Project. Costs for items previously used or not fully consumed by the Contractor shall mean fair market value. The Contractor shall charge no additional administrative or other mark-up for purchased items (other than Contractor's Fee). The

Contractor shall document all small tools purchased for the Project via invoices in monthly billing, and shall document the disposition of small tools which have an individual price that exceeds \$500. A copy of such disposition log shall accompany the payment application whenever these items are included in the application.

§ 7.5.2 Rental charges for temporary facilities, machinery, equipment and hand tools not customarily owned by construction workers that are provided by the Contractor at the site, whether rented from the Contractor or others, and costs of transportation, installation, minor repairs, dismantling and removal thereof. Rates and quantities of equipment rented shall be according to industry standards, shall not exceed the rental rates published from time to time in the Rental Rate Blue Book for Construction Equipment, prepared by Machinery Information Division of Primedia at the time of rental. Equipment rented from the Contractor shall not exceed 85% of Blue Book rates. Rental rates shall not exceed acquisition costs without the Owner's prior approval, and, individual items exceeding \$500.00, shall be subject to the Owner's prior approval. The Contractor shall deliver to the Owner a list of published rates from time to time at the Owner's request. For all items rented or leased, the Contractor shall charge the Owner only the rental charge incurred by the Contractor with no additional administrative or other mark-up (other than Contractor's Fee). The Contractor shall make efforts and use its best skills and judgment to procure equipment in the most expeditious and economical manner consistent with the interest of the Owner. Efforts shall include, but not be limited to, providing the Owner with a rent/buy analysis so that the Owner may elect for the Contractor to procure the item in lieu of rental if the facility, machinery or equipment at issue is expected to be rented for six months or longer. Such rent/buy analysis shall include, where available, a leasing rate commensurate with the expected term of rental of the facility, machinery or equipment at issue. The total rental cost of any Contractor-owned item may not exceed the purchase price of any comparable item. Rates of Contractor-owned equipment and quantities of equipment shall be subject to the Owner's prior approval."

15.7 A new Section 7.5.6 is added, to read:

"§ 7.5.6 All equipment utilized, whether rented or purchased, as a part of Amendment 10, Fourth Early Work Amendment to the CM/GC Contract, for the Hoisting Scope of Work shall not be subject to Section 7.5.1 and 7.5.2 and instead shall be subject to the following:

Costs of transportation, storage, installation, maintenance, dismantling and removal of materials, supplies, temporary facilities, machinery, equipment and hand tools not customarily owned by construction workers that are provided by the Contractor at the site and fully consumed in the performance of the Work. Costs of materials, supplies, temporary facilities, machinery, equipment and tools that are not fully consumed shall be based on the cost or value of the item at the time it is first used on the Project site less the value of the item when it is no longer used at the Project site. Costs for items not fully consumed by the Contractor shall mean fair market value.

Rental charges for temporary facilities, machinery, equipment and hand tools not customarily owned by construction workers that are provided by the Contractor at the site and costs of transportation, installation, minor repairs, dismantling and removal. The total rental cost of any Contractor-owned item may not exceed the purchase price of any

comparable item. Rates of Contractor-owned equipment and quantities of equipment shall be subject to the Owner's prior approval."

15.8 Section 7.6.1 is modified, to read:

"§ 7.6 MISCELLANEOUS COSTS

§ 7.6.1 With the Owner's prior written approval before such costs are incurred, premiums for that portion of insurance and bonds required by the Contract Documents that can be directly attributed to this Contract. Self-insurance for either full or partial amounts of the coverages required by the Contract documents, with the Owner's prior written approval. The Owner hereby approves the following rates for the following bond and insurance premiums: (1) ~~Contractor's subcontractor Subguard program~~ Subcontractor Default Insurance at the rate of one and ten hundredths of a percent (1.10%) of the value of all the subcontracts and permanent material ~~supplier agreements for permanent material~~; (2) ~~Contractor's pollution and excess liability at the rate of twenty one hundredths of one percent (0.21%) of the Cost of the Work excluding insurance costs described in this Section;~~ and (3) Contractor's payment and performance bonds at the rate of eighty-five hundredths of a percent (0.85%) of the Cost of the Work plus the Contractor's Fee (provided, however, that the Contractor's Fee shall not be applied to such payment and performance bond premium costs); ~~and (3) The premium rate for the CCIP will be determined when it is acquired; this premium rate and the timing of any payments shall be subject to owner's prior written approval. The CCIP and GL Insurance and pollution and excess liability are at the rate of one and three hundred and thirty-six thousandths of one percent (1.336%) of the Contract Sum excluding the costs of the payment and performance bonds.~~

Following is an *example calculation* using an assumed values for ~~the value of the subcontract and supplier agreements for permanent material (\$24,000,000); the estimated Cost of the Work (\$30,000,000) (\$20,000,000); Guaranteed Maximum Price (\$31,576,313) and CCIP rate (1.35%).~~

~~Guaranteed Maximum Price (\$31,576,131) and CCIP rate (1.35%):~~

~~Cost of the Work excluding insurance costs \$30,000,000~~

~~Subguard Premium ————— \$264,000 (\$24,000,000 x 0.0110)~~

~~CCIP Premium ————— \$324,000 (\$24,000,000 x 0.0135)~~

~~Pollution and Excess Premium — \$63,000 (\$30,000,000 x 0.0021)~~

~~Subtotal ————— \$30,651,000 (\$30,000,000 + \$324,000 + \$264,000 + \$63,000)~~

~~Contractor's Fee ————— \$658,997 (\$30,651,000 x 0.0215)~~

~~Payment and Performance Bond Premium — \$266,134~~
~~(((\$30,651,000 + \$658,997) x 0.0085) Contract Sum \$31,576,~~
~~131 (\$30,651,000 + \$658,997 + \$266,134)~~

Rates	M/U %	Amount	Calculation
Cost of the Work [CW] (including GR's*)	--	\$20,000,000.00	
Contractor Contingency [CC]	3%	\$400,000	CW x CC M/U% - \$200,000
Subcontractor Default Insurance [SD]	1.1%	\$211,200	(CW – GR + CC) x SD M/U %
CCIP, GL Insurance, Pollution and Excess Liability [CGPEL]	1.336%	\$275,366	(CW + CC + SD) x CGPEL M/U %
Contractor's Fee [Fee]	2.15%	\$449,061	(CW + CC + SD + CGPEL) x Fee M/U %
Subtotal Contract Sum w/o Insurance [SCS1]	--	\$21,335,627	CW + CC + SD + CGPEL + Fee
Performance Bond [PB]	.85%	\$181,353	SCS1 x PB M/U %
Contract Sum [CS]	--	\$21,516,980	SCS1 + PB

* General Requirements (GRs) = \$1,200,000

Note: Dollar values are for example only."

15.9 Section 7.7 is modified, to read:

“§ 7.7 CONTRACTOR'S CONTINGENCY; OTHER COSTS AND EMERGENCIES

§ 7.7.1 The Contractor's Contingency is defined as 3% of the Cost of the Work less \$200,000 (excluding Pre-Construction Services, the Contractor's Fee, bonds, and insurance) at the time of the GMP Amendment (the **“Contractor's Contingency”**). The Contractor's Contingency is a sum established for the Contractor's use to cover unanticipated costs which are properly reimbursable as a Cost of the Work but which are not the basis for a Change Order. The Contractor shall provide the Owner's Authorized Representative monthly Project cost updates that include each use made of the Contractor's Contingency (including the dollar value and purpose for each such use). The Contractor shall obtain the Owner's prior approval of individual Contractor's Contingency expenditures exceeding \$25,000.

§ 7.7.2 Other costs incurred in the performance of the Work if, and to the extent, approved in advance in writing as a Cost of the Work by the Owner.

§ 7.7.3 Costs incurred in taking action to prevent threatened damage, injury or loss in case of an emergency affecting the safety of persons and property, as provided in the General Conditions.

~~§ 7.7.3~~ 7.7.4 Costs of repairing or correcting damaged, defective, or nonconforming Work executed by the Contractor or Subcontractors, provided that such damaged, defective or nonconforming Work was not caused by negligence or failure to fulfill a specific responsibility of the Contractor or a Subcontractor and then only to the extent that the cost of repair or correction is not recovered by the Contractor from insurance, sureties or Subcontractors.”

15.10 A new Section 7.8 is added, to read:

“§ 7.8 SHARED SAVINGS

§ 7.8.1 Buyout Savings

§ 7.8.1.1 As soon as possible after the awarding of the Work to all prime tier Subcontractors, the Contractor shall review projected costs and provide the Owner with a buy-out status report showing any projected cost underruns, reconciling accepted offers and other reasonably anticipated costs, to the cost estimate used by the Contractor to establish the GMP (“Buyout Savings”). The Contractor shall include with its report any underlying documentation reasonably requested by the Owner and used to develop or support such report. The Contractor shall also consider the reduced risk associated with known subcontracting costs.

§ 7.8.1.2 The Parties shall execute a Zero-Dollar Change Order allocating to Owner seventy-five percent (75%) of the Buyout Savings, such funds to be held within the GMP in an Owner-controlled savings account (“Owner Buyout Savings Account”). Owner may then utilize the Owner Buyout Savings Account, until exhausted, to pay for additional costs arising from (a) any Owner-directed or approved change to the Work, (b) schedule changes that would otherwise entitle the Contractor to an increase in the GMP, (c) Allowance items after exhaustion of all Allowances, (d) selection by the Owner of more expensive alternates than those used for calculation of the GMP, (e) Owner selection of substitutions that increase the Cost of the Work, or (f) any other costs which otherwise would entitle the Contractor to an increase in the GMP.

§ 7.8.1.3 When the Parties allocate the Owner’s portion of the Buyout Savings to the Owner Buyout Savings Account, at the same time, the Parties shall transfer to Contractor twenty-five percent (25%) of the Buyout Savings to a Contractor-controlled savings fund (“Contractor Buyout Savings Account”) for Contractor’s exclusive use during the Project.

§ 7.8.1.4 Any transfer of Buyout Savings as contemplated in this Section 7.8 will not affect the Contractor’s obligation to furnish the Owner with a Project satisfying the Contract Documents and within the GMP.

§ 7.8.2 Other Savings

§ 7.8.2.1 Upon completion of the Project, in the event the Contract Sum is less than the final GMP minus the total Buyout Savings and minus any unspent portion of Allowances as outlined in Attachment 2, the resultant savings (“Other Savings”) shall be shared between Owner and Contractor with Seventy-Five percent (75%) accruing to Owner and Twenty-Five percent (25%) accruing to Contractor.

Other Savings = (GMP – total Buyout Savings – unspent Allowances) – Contract Sum

§ 7.8.3 Total Shared Savings

§ 7.8.3.1 Contractor's total Shared Savings, to be paid at Project close-out, shall be twenty-five percent (25%) of the Other Savings, if any, plus any unused portion of the Contractor Buyout Savings Account.

§ 7.8.3.2 Owner's total Shared Savings shall be seventy-five percent (75%) of the Other Savings plus any unused portion of the Owner Buyout Savings Account.

§ 7.8.3.3 Contractor's Fee shall not be reduced by the Owner's Buyout Savings Account amount in the GMP but shall be reduced by the unused Contractor's Buyout Savings Account amount."

15.11 The former Section 7.8 is renumbered Section 7.9 and is modified, to read:

“§ ~~7.8~~ 7.9 RELATED PARTY TRANSACTIONS

~~§ 7.8.1~~ **7.9.1** For purposes of Section ~~7.8~~ 7.9, the term "related party" shall mean a parent, subsidiary, affiliate or other entity having common ownership or management with the Contractor; any entity in which any stockholder in, or management employee of, the Contractor owns any interest in excess of ten percent in the aggregate; or any person or entity which has the right to control the business or affairs of the Contractor. The term "related party" includes any member of the immediate family of any person identified above.

~~§ 7.8.2~~ **7.9.2** If any of the costs to be reimbursed arise from a transaction between the Contractor and a related party, the Contractor shall notify the Owner of the specific nature of the contemplated transaction, including the identity of the related party and the anticipated cost to be incurred, before any such transaction is consummated or cost incurred. If the Owner, after such notification, authorizes the proposed transaction, then the cost incurred shall be included as a cost to be reimbursed, and the Contractor shall procure the Work, equipment, goods or service from the related party, as a Subcontractor, according to the terms of Article 10. If the Owner fails to authorize the transaction, the Contractor shall procure the Work, equipment, goods or service from some person or entity other than a related party according to the terms of Article 10."

15.12 Section 10.1.1 is modified, to read:

“§ 10.1.1 All Work shall be competitively bid, unless otherwise approved in writing in advance by Owner. For all portions of the Work, whose contract value is expected to exceed \$10,000, Contractor shall obtain (not only solicit) bids from no fewer than three (3) qualified, independent Subcontractor bidders, unless the Owner agrees in advance to fewer than three (3) bids, for particular subcontracted or supplied Work. The Contractor shall also obtain (not only solicit) bids from no fewer than three (3) qualified, independent Subcontractor bidders, unless the Owner agrees in advance to fewer than three (3) bids, for portions of the Work that the Contractor desires to self-perform with its own personnel. In the event the Contractor makes all good faith efforts to obtain three (3) bids and is unable to obtain three (3) bids due to market conditions, the specificity of the Work, or other reasonable conditions, the Contractor shall request a written exception from the Owner to be approved or denied at the Owner's discretion. In the event the Contractor provides bids

for desired self-performed Work, such bids shall be prepared and submitted to Owner one day in advance of receipt of competitor's bids and considered in the same manner as if they were bids from Subcontractors. For the purposes of this Section 10.1.1 references to the Contractor's "own personnel" shall be construed to mean both (1) the Contractor's own personnel per se and (2) the Contractor's affiliated or associated firms or companies, including but not limited to firms or companies owned or controlled by officers of the Contractor. For Subcontracts whose value is expected to be less than ~~\$25,000~~ \$500,000, Contractor shall be entitled to negotiate them directly with certified MWESB Subcontractors."

15.13 A new Section 10.1.2 is added, to read:

"§ 10.1.2 At the point in the Work when all Subcontract bids are in place, the Contractor shall provide the Owner with a comprehensive Bidding Summary Report on Subcontractor bidding efforts, including bid packages, the Contractor's self-performed Work packages, subcontractors who were notified, subcontractors who responded, bids submitted, bids chosen and final results. The report shall include a detailed explanation of all instances when the Contractor was unable to obtain three (3) bids for particular subcontracted or supplied Work."

15.14 A new Section 10.5 is added, to read:

"§ 10.5 The Owner and the Contractor, together with the labor unions representing trades working on the Project and equity stakeholders promoting equity and diversity in the skilled building trades, have negotiated and entered into a Project Labor Agreement, effective February 17, 2017, a summary of which is attached to this GMP Amendment as **Attachment 11** and which incorporates Owner's Workforce Training and Hiring program and establishes uniform, standard working conditions and diverse community participation for the efficient performance of construction work on the Project."

15.15 The last sentence of Section 11.1 is amended, to read:

"Contractor shall require all Subcontractors of all tiers to retain similar records for a period of six years after final payment by the Owner to the Contractor, or, if any part of the Contract is involved in litigation, until the litigation is resolved, or for such period as may be required by law, and to provide equivalent access to the Owner as the Contractor is required to provide by this Article 11."

15.16 A new Section 11.3 is added, to read:

"§ 11.3 The Contractor shall maintain a daily log containing a record of weather, Subcontractors working on the site, the number of workers, Work accomplished, problems encountered, safety violations and incidents of personal injury and property damage, and other similar relevant data as the Owner may reasonably require. The daily log shall be available to the Owner and the Architect on request."

15.17 EXHIBIT C-2 PDC Equity Policy January 9, 2013, attached to the Second Amendment to the Contract, is deleted in its entirety and replaced by **EXHIBIT C-2 PDC's Administrative Procedures on Equity**, dated May 1, 2015, attached hereto and incorporated herein by reference.

15.18 EXHIBIT F, Section (A), as amended by the Second Amendment to the A102 dated December 22, 2015, add Subsection (iv) as follows:

“(iv) Owner has entered into various third-party agreements relating to site access. Arising therefrom, Contractor shall name the following parties as additional insured on the CCIP:

Home Forward, formerly known as the Housing Authority of Portland, an Oregon municipal corporation;

Bud Clark Commons Condominium Owners’ Association, a nonprofit corporation organized under the laws of the State of Oregon;

RAC Housing LP, an Oregon limited partnership;

Greyhound Lines, Inc, a Delaware Corporation Partnership; and

Transportation Realty Income Partners LP a Delaware Limited Partnership.”

16. AIA Document A201 – 2007 General Conditions of the Contract for Construction Between Owner and Contractor. The Parties agree to amend the General Conditions of the Contract as follows, by adding the underlined text and deleting the struck-through text:

16.1 Section 3.1.1.1, as amended by the First Amendment to the A201 dated December 22, 2015, shall be further amended as follows:

“§ 3.1.1.1 The Contractor’s Senior Project Manager(s) shall be Ann-Young Kyle Boehnlein. The Contractor’s Project Superintendent(s) shall be Jeff White Butch Fiedler. Unless they leave the employ of the Contractor these individuals shall not be replaced without the prior written approval of the Owner. The Owner shall have the right to approve individuals proposed to replace those named above.”

16.2 Section 9.3.2 of the General Conditions is amended, to read:

“§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance and in writing by the Owner, at Owner’s sole discretion, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with the following procedures: satisfactory to the Owner to establish the Owner’s title to such materials and equipment or otherwise protect the Owner’s interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

(a) The Contractor shall submit applications for payment showing the quantity and cost of the material stored.

(b) The material shall be stored in a bonded warehouse and Owner's Authorized Representative shall be granted the right to access the material for the purpose of removal or inspection at any time during the Contract Period.

(c) The Contractor or Subcontractor shall name the Owner as co-insured on the insurance policy covering the full value of the property while in the care and custody of that party until it is installed. A certificate noting this coverage shall be issued to the Owner.

(d) Payments shall be made for materials only.

(e) Within sixty (60) days of the application for payment, the Contractor shall submit evidence of payment covering the material stored.

(f) Payment for stored materials shall in no way indicate acceptance of the materials or waive any rights under this Contract for the rejection of the Work or materials not in conformance with the Contract Documents.

(g) All required documentation must be submitted with the respective application for payment.”

17. Tax Compliance Certification. The individual signing on behalf of the Contractor hereby certifies and swears under penalty of perjury that s/he is authorized to act on behalf of the Contractor, s/he has authority and knowledge regarding the Contractor’s payment of taxes, and to the best of her/his knowledge, the Contractor is not in violation of any Oregon tax laws. For purposes of this certification, "Oregon tax laws" means a state tax imposed by ORS 401.792 to 401.816, ORS 320.005 to 320.150 and 403.200 to 403.250, and ORS chapters 118, 314, 316, 317, 318, 320, 321 and 323; the elderly rental assistance program under ORS 310.630 to 310.706, and local taxes administered by the Department of Revenue under ORS 305.620.

18. Capitalized terms used but not defined herein shall have the meanings given in the Contract Documents. Except as otherwise stated above, the terms, conditions and provisions of the Contract remain unaltered by this Amendment.

CONTRACTOR:

JE DUNN CONSTRUCTION COMPANY,
a Missouri corporation

By: _____

Signature of Authorized Representative of Contractor

Name and Title: Darin Stegemoller, Vice President

Construction Contractor's Board Registration No.: _____

OWNER:
MULTNOMAH COUNTY,
an Oregon political subdivision

By: _____
Signature of Deborah Kafoury, Chair
Date_____

APPROVED AS TO LEGAL SUFFICIENCY
Jenny M. Madkour, Multnomah County Attorney

Signature of Assistant County Attorney
Date_____

**ATTACHMENTS TO GMP AMENDMENT
TO CM/GC CONTRACT NO. 4400001553**

Attachment 1	Summary List of Plans and Specifications of the Contract, on which the Guaranteed Maximum Price is based.
Attachment 2	List of Allowance items.
Attachment 3	List of Contractor's Clarifications, Inclusions and Exclusions used in preparing the Guaranteed Maximum Price.
Attachment 4	Summary Construction Schedule.
Attachment 5	Alternates.
Attachment 6	Unit prices.
Attachment 7	List of Subcontractors.
Attachment 8	Schedule of Values.
Attachment 9	Contaminated Media Management Plan for Block "U," dated February 2016, REV. 1 – November 2016.
Attachment 10	Contaminated Media Management Plan for Block "R," dated December 2016 REVISED January 2017.
Attachment 11	Summary of Project Labor Agreement, dated February 17, 2017.

ATTACHMENT 1 TO GMP AMENDMENT TO CM/GC CONTRACT NO. 4400001553

Summary List of Plans and Specifications

Project Documentation. This GMP Amendment is based on the following Project Documents:

1. Elevator Package.
 - a. Drawings entitled "Multnomah County Health Department Headquarters 50% Construction Documents" from ZGF dated August 15, 2016.
 - b. Specifications entitled "Section 142010 - Passenger Elevators (Machine Room Less - MRL)" from ZGF dated August 3, 2016.
2. MEP Trade Partner GMP & Structural Steel.
 - a. Drawings entitled "Multnomah County Health Department Headquarters 95% Construction Documents" from ZGF dated October 12, 2016.
 - b. Specifications entitled "Multnomah County Health Department Headquarters Building Specifications 95%" from ZGF dated October 10, 2016.
3. Early Work Package.
 - a. Drawings entitled "Multnomah County Health Department Headquarters Early Foundation - Permit Package" from ZGF dated September 8, 2016.
 - b. Tower Crane Foundation Drawing Set from ZGF dated October 27, 2016.
 - c. Specifications entitled "Foundation Package Project Manual" from ZGF dated September 8, 2016.
 - d. Addendum # 1 to the Early Work Package from JE Dunn and ZGF dated October 13, 2016.
 - e. Addendum # 2 to the Early Work Package from JE Dunn and ZGF dated October 17, 2016.
4. 100% Construction Documents.
 - a. Drawings entitled "Multnomah County Health Department Headquarters Construction Documents" from ZGF dated January 12, 2017.
 - b. Specifications entitled "Multnomah County Health Department Headquarters Building Specifications Construction Documents" from ZGF dated January 12, 2017.
 - c. Addendum # 1 to the Final Bid Package from JE Dunn and ZGF dated January 10, 2017.
 - d. Addendum # 2 to the Final Bid Package from JE Dunn and ZGF dated February 23, 2017.

**ATTACHMENT 2 TO GMP AMENDMENT
TO CM/GC CONTRACT NO. 4400001553**

List of Allowance Items

1.	Concrete moisture mitigation for flooring.	\$90,000.00
2.	Temporary protection for exterior waterproofing and roof.	\$75,000.00
3.	Civil, site work, hardscape and landscaping.	\$163,875.00
4.	Signage Scope of Work, including code required signage, wayfinding and graphics.	\$77,322.00
5.	Loading Dock Equipment.	\$27,855.00
6.	Overhead and Sectional Doors.	\$76,000.00
7.	Overhead Protection and lighting associated with the Bud Clark Commons courtyards and roof areas.	\$79,000.00
8.	Management of Owner-furnished/Contractor-installed (OFCI) Items.	\$60,000.00
9.	Management of Furniture, Fixtures and Equipment (FF&E) Items.	\$70,000.00
Total:		\$719,052.00

ATTACHMENT 3 TO GMP AMENDMENT TO CM/GC CONTRACT NO. 4400001553

List of Contractor's Clarifications, Inclusions and Exclusions

CLARIFICATIONS

1. Work hours are 7:00am to 3:30pm Monday through Friday.
2. Building permit(s) to be issued prior to commencement of construction activities.
3. It's assumed that all art including tile, glass coverings, lighting, etc. will be designed, funded, and installed as part of a future package and therefore is not included.
4. Costs associated with change documents such as Architect's Supplemental Information (ASI's) or Requests for Information (RFI's) issued to date are not included as they will follow the pricing process outlined in the construction administration plan.
5. Elevator pricing is based on ThyssenKrupp (TKE) Synergy 300E pre-engineered machine room less (MRL) traction elevators including all standard TKE equipment including:
 - a. Standard TAC31 user interface tools.
 - b. Stainless steel to be type 441 in lieu of specified.
 - c. 16 gauge hoist way fascia, cab shell, toe guard, and dust covers in lieu of specified.
 - d. TKE solid state drive in lieu of specified.
6. Contractor's cost for or an allowance to cover drilling piles through obstructions, man-made or otherwise is not included in GMP price.
7. General Requirements costs are included for a 21 month construction duration. Reference Attachment #4 – Summary Construction Schedule.
8. GMP price assumes a continuous construction operation. This includes assuming sidewalk closures on NW Hoyt, NW Irving, and NW 6th St. will be allowed continuously for the duration of the project (i.e. will be exempt for the holiday and Rose Festival moratorium).
9. Coordination and management of Owner-furnished / Contractor-installed (OFCI) and Furniture, Fixtures, and Equipment (FF&E) materials / equipment is included as an allowance to be reconciled once specific scope is identified. Reference Attachment #2 – Allowances

INCLUSIONS

1. Labor and equipment to supply the Project with a tower crane for 16 months, a personnel hoist including landing deck for 7.5 months, two loading platforms for 17 months, a forklift for 18 months and an operator for temporary use of elevator 4 for 5.5 months.
2. Regular maintenance of tower crane, forklift, and material hoist included.
3. Final cleaning one time of the building prior to the installation of furniture to be installed by others.

EXCLUSIONS

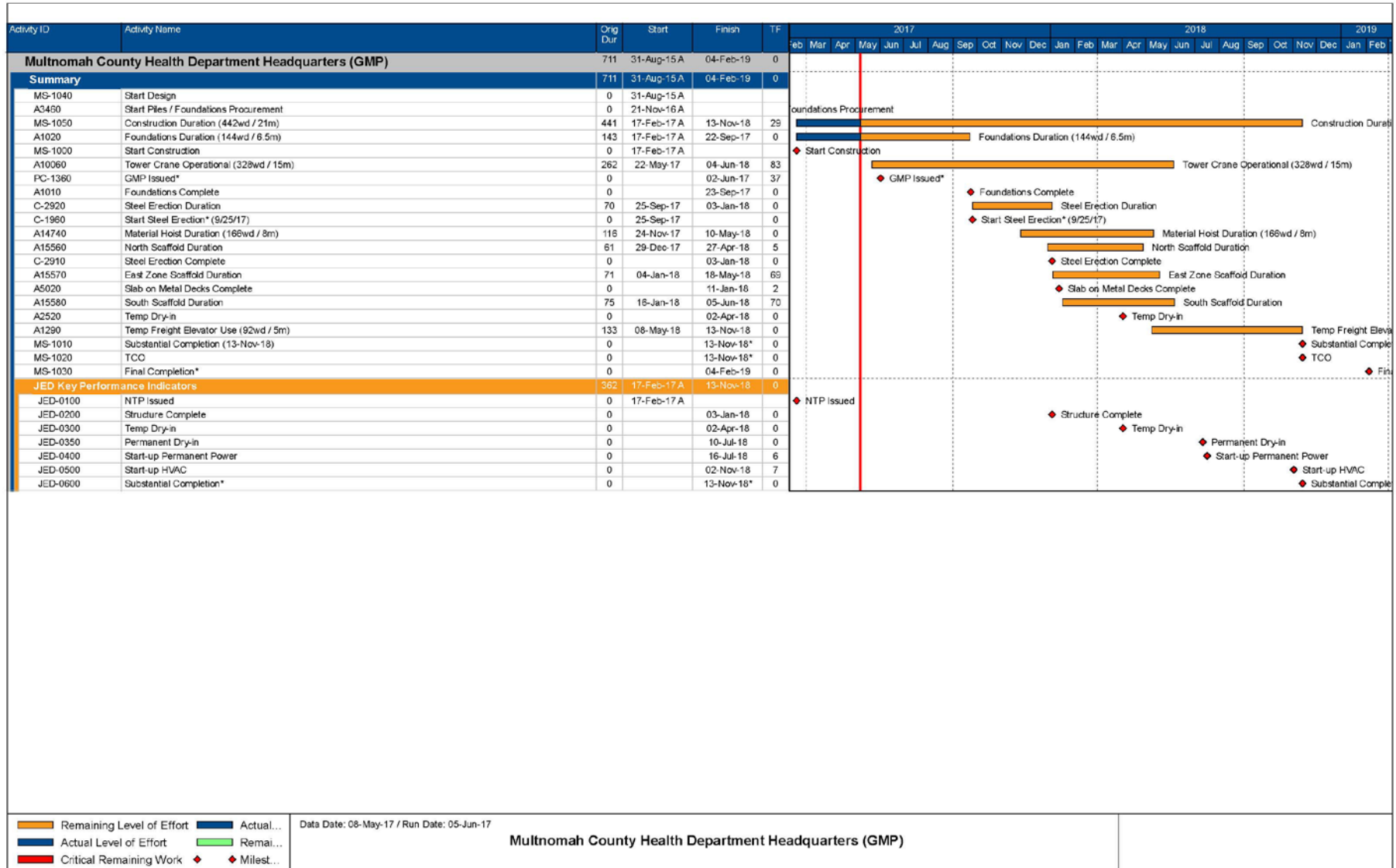
1. All system development fees, state, and local surcharges.
2. The cost of general building permits and Portland Bureau of Transportation (PBOT) permit for public right-of-way.
3. Builder's Risk insurance is to be provided by Owner.
4. All third party testing and inspections.
5. Utility connection fees and utility billings for power, water, gas, propane, etc.

consumption use.

6. Negotiation of any easements requirements.
7. Block R lease costs, including lease, performance guarantee, and taxes.
8. Handling or removal of contaminated soil or water.
9. Furnish monitor wall brackets.
10. Replacement of plantings in the Bud Clark Commons (BCC) courtyards that may die or be damaged during construction.
11. Cost associated with management of the pre-apprenticeship program, including fees to Construction Apprenticeship & Workplace Solutions, Inc. (CAWS). This will be transferred from soft costs in a future change order.

ATTACHMENT 4 TO GMP AMENDMENT TO CM/GC CONTRACT NO. 4400001553

Summary Construction Schedule



ATTACHMENT 5 TO GMP AMENDMENT TO CM/GC CONTRACT NO. 4400001553

Alternates

9th Floor Build-out: The 9th Floor Build-out Alternate (“Alternate 1”) is based on changes outlined in the 100% Construction Documents identified as “Plan, 9th Floor Alternate 1.” Alternate 1 is included in the GMP.

The full value of Alternate 1 can be deducted from the GMP if the Owner makes the decision not to invoke Alternate 1 by or on August 15, 2017.

\$697,581.02 may be deducted from the GMP if the Owner makes the decision not to invoke Alternate 1 by or on October 15, 2017.

\$645,581.02 may be deducted from the GMP if the Owner makes the decision not to invoke Alternate 1 by or on January 15, 2018.

9th Floor Alternate		
Cost		SOW
\$ 19,224.00		Rough Carpentry and Specialties
\$ 39,398.00		Millwork & Finish Carpentry
\$ 57,300.00		Drywall, Framing
\$ 12,379.00		Doors, Frames, Hardware
\$ 9,900.00		Paint
\$ 4,514.00		Tile
\$ 45,375.00		Flooring
\$ 1,119.00		Roller Window Shades
\$ 484,900.00		Mechanical, Electrical, Plumbing
\$ 674,109.00		Cost of Work Subtotal
\$ 7,415.20		Subcontractor Default (1.1%)
\$ 14,652.77		Fee (2.15%)
\$ 9,300.92		GL Insurance (CCIP, GL, Excess, Pollution (1.336%))
\$ 5,996.56		Performance Bond (0.85%)
\$ 711,474.46		Total with Markups

ATTACHMENT 6 TO GMP AMENDMENT TO CM/GC CONTRACT NO. 4400001553

Unit Prices

All Unit Prices are CW and therefore do not include Contractor's mark-ups.

Item No.	Description	Amount	Unit
1	Temporary use of elevator 4	\$75.00	Day
2	Operator elevator car (not for temp use)	\$166.00	Hour
3	Engineered fill	\$40.00	CY
4	Haul off	\$22.00	CY
5	Excavation	\$6.00	CY
6	Contaminated Fill Removal (Forthcoming)	TBD	TBD
7	Wall Unit Costs		
7a	Wall Type B/0/3	\$4.84	SF
7b	Wall Type B/0/3 Furred Basement Wall With Sprayfoam	\$11.38	SF
7c	Wall Type B/2/2 Shaftwall	\$6.69	SF
7d	Wall Type B/A/3	\$4.89	SF
7e	Wall Type BA/0/3	\$5.80	SF
7f	Wall Type BA/0/3 Columns	\$9.16	SF
7g	Wall Type F/0/3	\$7.40	SF
7h	Wall Type F/0/6	\$7.57	SF
7i	Wall Type F/1/3	\$8.66	SF
7j	Wall Type F/1/8	\$9.24	SF
7k	Wall Type FA/0/2	\$8.92	SF
7l	Wall Type FA/0/3	\$9.42	SF
7m	Wall Type FA/2/8	\$13.59	SF
7n	Wall Type FA/A/2	\$8.27	SF
7o	Wall Type FA/A/3	\$8.35	SF
7p	Wall Type FA/T/3	\$11.88	SF
7q	Wall Type FA1/0/3	\$14.80	SF
7r	Wall Type FA1/0/6	\$14.97	SF
7s	Wall Type FA2/0/3	\$9.03	SF
7t	Wall Type FA2/0/6	\$9.59	SF
7u	Wall Type FA3/0/3	\$6.13	SF
7v	Wall Type FA3/0/6	\$7.74	SF
7w	Wall Type FA3/A/3	\$9.08	SF
7x	Wall Type FA4/0/3	\$8.08	SF
7y	Wall Type FA4/0/6	\$8.25	SF
7z	Wall Type H/2/3	\$12.91	SF
7aa	Wall Type HA/2/3	\$13.55	SF
7bb	Wall Type HX/3/4	\$16.63	SF
7cc	Wall Type N/0/3	\$4.80	SF
7dd	Wall Type P/2/3	\$7.88	SF
7ee	Wall Type T/2/2 Shaftwall	\$11.09	SF
7ff	Wall Type T/2/4 Shaftwall	\$12.07	SF
7gg	Wall Type T/2/6 Shaftwall	\$12.24	SF
7hh	Wall Type TA/2/2 Shaftwall	\$12.36	SF

ATTACHMENT 7 TO GMP AMENDMENT TO CM/GC CONTRACT NO. 4400001553

List of Subcontractors

Item No.	Description	Scope
1	AKS ENGINEERING & FORESTRY LLC	Survey Services
2	ALARM & ACCESS CONTROL TECHNOLOGIES INC	Trailer Security System
3	CASH'S DRAPERY INC	Roller Window Shades
4	CATENA CONSULTING ENGINEERS INC	Structural Peer Review
5	CHARTER MECHANICAL CONTRACTORS INC	Plumbing, Heating, Ventilation, and Air Conditioning
6	CITY OF ROSES DISPOSAL & RECYCLING INC	Construction Disposal and Recycling
7	CULVER GLASS COMPANY	Glass
8	ECOREAL LLC	LEED Consultant
9	FLOOR FACTORS INC	Resilient Flooring, Carpet and Entry Floor Mat
10	GENERAL SHEET METAL WORKS INC	Metal Panels
11	J & S MASONRY INC	Masonry and Precast Install
12	JE DUNN CONSTRUCTION COMPANY SELF PERFORM	Concrete Structure, Rough Capentry and Specialties
13	KITTELSON & ASSOCIATES INC	Traffic Analysis
14	KLEINFELDER CENTRAL INC	Geotechnical Peer Review
15	KPFF INC DBA KPFF CONSULTING ENGINEERS	Tower Crane Foundation Design
16	MARCH ENTERPRISES INC DBA NORTHWEST TREE	Jobsite Tree Trimming
17	MCDERMOTT FENCE & CONSTRUCTION INC	Block R South Fence Single Gate Opening
18	MOORE EXCAVATION INC	Demolition, Excavation
19	NORKOTE INC	Applied Fireproofing
20	NORTHWEST ENFORCEMENT INC	Site Security & Flagging
21	NORTHWEST MASONRY RESTORATION LLC	Joint Sealants
22	NORTHWEST PRECAST	Precast Supply Only
23	ON ELECTRIC GROUP INC	Electrical
24	PACIFIC FOUNDATION INC	Pile Foundations and Shoring
25	PRESTIGE TILE & STONE INC	Tiling
26	RF STEARNS INC	Structural Steel
27	SIEMENS INDUSTRY INC	BAS
28	SNYDER ROOFING OF OREGON LLC	Dampproofing and waterproofing, Rubberized Asphalt and Vegetated Roof Assemblies
29	STORIE BARRIERS CORP	Site Fencing
30	STRUCTURAL DETAILING LLC	Tower Crane Peer Review
31	THYSSENKRUPP ELEVATOR CORPORATION	Passenger and service elevators
32	TURTLE MOUNTAIN	Doors, Frames and Hardware, Automatic Door Operators, Millwork and Finish Carpentry
33	VINCE BUILDING MAINTENANCE LLC	Trailer Cleaning
34	WESTERN PARTITIONS INC	Drywall, Framing, Stucco
35	WESTERN STATES FIRE PROTECTION COMPANY	Fire Suppression
36	WILLIAMSEN & BLEID INC	Painting and Coatings
37	WORKSYSTEMS INC	Pre-Apprentice Training

**ATTACHMENT 8 TO GMP AMENDMENT
TO CM/GC CONTRACT NO. 4400001553**

Schedule of Values

A	B	C			D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE			WORK COMPLETED (D+E)		MATERIAL PRESENTLY STORED	TOTAL COMPLETED AND STORED TO DATE	PER % (G/C)	BALANCE TO FINISH	RETAINAGE
		ORIGINAL	CHANGE ORDERS	CURRENT	FROM PREVIOUS APPLICATION	THIS PERIOD					
GENERAL REQUIREMENTS											
1101	Field Supervision	\$ 1,133,669.00	\$ -	\$ 1,133,669.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 1,133,669.00	\$ -
1109	Northwest Enforcement - Flagging & Security	\$ 341,850.00	\$ -	\$ 341,850.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 341,850.00	\$ -
1120	Project Management	\$ 1,365,274.00	\$ -	\$ 1,365,274.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 1,365,274.00	\$ -
1122	Administrative Personnel	\$ 213,578.00	\$ -	\$ 213,578.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 213,578.00	\$ -
1124	Site Office	\$ 193,585.00	\$ -	\$ 193,585.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 193,585.00	\$ -
1140	Support Personnel	\$ 362,839.00	\$ -	\$ 362,839.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 362,839.00	\$ -
1202	Storie Barriers - Fence	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -
12045	Traffic Control	\$ 218,821.00	\$ -	\$ 218,821.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 218,821.00	\$ -
1206	Project Maintenance	\$ 581,424.00	\$ -	\$ 581,424.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 581,424.00	\$ -
1223	AKS - Layout	\$ 39,750.00	\$ -	\$ 39,750.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 39,750.00	\$ -
1235	Safety	\$ 66,435.00	\$ -	\$ 66,435.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 66,435.00	\$ -
1243	Clean Up	\$ 91,312.00	\$ -	\$ 91,312.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 91,312.00	\$ -
1501	Equipment Rental	\$ 97,586.00	\$ -	\$ 97,586.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 97,586.00	\$ -
1601	Permits	\$ 480,741.50	\$ -	\$ 480,741.50	\$ -	\$ -	\$ -	\$ -	0%	\$ 480,741.50	\$ -
1614	Insurance & SDI	\$ 1,483,631.00	\$ -	\$ 1,483,631.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 1,483,631.00	\$ -
01888801	KLEINFELDER - PEER REVIEW	\$ 3,111.50	\$ -	\$ 3,111.50	\$ -	\$ -	\$ -	\$ -	0%	\$ 3,111.50	\$ -
01888802	STRUCTURAL DETAILING - PEER REVIEW	\$ 2,000.00	\$ -	\$ 2,000.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 2,000.00	\$ -
01888803	CATENA - PEER REVIEW	\$ 10,000.00	\$ -	\$ 10,000.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 10,000.00	\$ -
EXISTING CONDITIONS											
02310	MOORE EXCAVATION - EXCAVATION	\$ 543,036.00	\$ -	\$ 543,036.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 543,036.00	\$ -
024551	PACIFIC FOUNDATION - PILES	\$ 1,094,486.00	\$ -	\$ 1,094,486.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 1,094,486.00	\$ -
CONCRETE								\$ -			
03399901	JE DUNN CONSTRUCTION - CONCRETE	\$ 3,176,020.00	\$ -	\$ 3,176,020.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 3,176,020.00	\$ -
034500	NW PRECAST - PRECAST CONCRETE SUPPLIER	\$ 638,616.00	\$ -	\$ 638,616.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 638,616.00	\$ -
HOISTING								\$ -			
03899	HOISTING	\$ 2,006,501.00	\$ -	\$ 2,006,501.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 2,006,501.00	\$ -
MASONRY								\$ -			
04210	J&S - MASONRY	\$ 2,318,130.00	\$ -	\$ 2,318,130.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 2,318,130.00	\$ -
METALS								\$ -			
05500	RF STEARNS - STRUCTURAL STEEL	\$ 5,358,685.00	\$ -	\$ 5,358,685.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 5,358,685.00	\$ -
CASEWORK & CARPENTRY								\$ -			
06223	TURTLE MOUNTAIN - CASEWORK	\$ 693,143.00	\$ -	\$ 693,143.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 693,143.00	\$ -
CASEWORK & CARPENTRY								\$ -			
06226	JE DUNN CONSTRUCTION - ROUGH CARP/SPECIALTIES	\$ 644,706.00	\$ -	\$ 644,706.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 644,706.00	\$ -
THERMAL AND MOISTURE PROTECTION								\$ -			
078100	SNYDER - WATERPROOFING	\$ 364,573.00	\$ -	\$ 364,573.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 364,573.00	\$ -
07300	SNYDER - ROOFING	\$ 1,084,359.00	\$ -	\$ 1,084,359.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 1,084,359.00	\$ -
076000	GENERAL SHEET METAL - METAL WALL PANELS	\$ 1,726,239.00	\$ -	\$ 1,726,239.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 1,726,239.00	\$ -
078100	NORKOTE - APPLIED FIREPROOFING	\$ 437,981.00	\$ -	\$ 437,981.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 437,981.00	\$ -
07900	NW MASONRY - JOINT SEALANTS	\$ 137,820.00	\$ -	\$ 137,820.00	\$ -	\$ -	\$ -	\$ -	0%	\$ 137,820.00	\$ -

**ATTACHMENT 8 TO GMP AMENDMENT
TO CM/GC CONTRACT NO. 4400001553**

Schedule of Values

OPENINGS														\$	-					
08100	TURTLE MOUNTAIN - DOORS, FRAMES AND HARDWARE	\$	543,272.00	\$	-	\$	543,272.00	\$	-	\$	-	\$	-	\$	-	0%	\$	543,272.00	\$	-
08360	OVERHEAD AND SECTIONAL DOORS	\$	76,000.00	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	0%	\$	-	\$	-
08800	CULVER GLASS - GLASS	\$	2,194,270.00	\$	-	\$	2,194,270.00	\$	-	\$	-	\$	-	\$	-	0%	\$	2,194,270.00	\$	-
FINISHES														\$	-					
09250	WPI - GYPSUM DRYWALL	\$	7,168,373.00	\$	-	\$	7,168,373.00	\$	-	\$	-	\$	-	\$	-	0%	\$	7,168,373.00	\$	-
09300	PRESTIGE - TILING	\$	220,135.00	\$	-	\$	220,135.00	\$	-	\$	-	\$	-	\$	-	0%	\$	220,135.00	\$	-
09600	FLOOR FACTORS - FLOORING	\$	659,305.00	\$	-	\$	659,305.00	\$	-	\$	-	\$	-	\$	-	0%	\$	659,305.00	\$	-
09900	WILLIAMSEN & BLEID - PAINTINGS AND COATINGS	\$	409,630.00	\$	-	\$	409,630.00	\$	-	\$	-	\$	-	\$	-	0%	\$	409,630.00	\$	-
FURNISHINGS														\$	-					
12510	CASH'S DRAPERY - BLINDS AND SHADES	\$	37,524.00	\$	-	\$	37,524.00	\$	-	\$	-	\$	-	\$	-	0%	\$	37,524.00	\$	-
CONVEYING EQUIPMENT														\$	-					
14200	THYSSEN-KRUPP - ELEVATORS	\$	1,464,061.00	\$	-	\$	1,464,061.00	\$	-	\$	-	\$	-	\$	-	0%	\$	1,464,061.00	\$	-
FIRE SUPPRESSION														\$	-					
15300	WSFP - FIRE SPRINKLER	\$	638,550.00	\$	-	\$	638,550.00	\$	-	\$	-	\$	-	\$	-	0%	\$	638,550.00	\$	-
PLUMBING														\$	-					
15500	CHARTER - WET & DRY MECHANICAL	\$	11,613,578.00	\$	-	\$	11,613,578.00	\$	-	\$	-	\$	-	\$	-	0%	\$	11,613,578.00	\$	-
ELECTRICAL														\$	-					
16000	ON ELECTRIC - ELECTRICAL	\$	7,305,306.00	\$	-	\$	7,305,306.00	\$	-	\$	-	\$	-	\$	-	0%	\$	7,305,306.00	\$	-
COMMUNICATIONS														\$	-					
161995	SIEMENS - CONTROLS	\$	1,059,195.00	\$	-	\$	1,059,195.00	\$	-	\$	-	\$	-	\$	-	0%	\$	1,059,195.00	\$	-
ALLOWANCES, CONTINGENCY, FEE, P&P BOND																				
34000	Soft Cost Transfers	\$	418,000.00	\$	-	\$	418,000.00	\$	-	\$	-	\$	-	\$	-	0%	\$	418,000.00		
35000	Allowances	\$	719,052.00	\$	-	\$	719,052.00	\$	-	\$	-	\$	-	\$	-	0%	\$	719,052.00		
35100	CONTRACTOR CONTINGENCY	\$	1,596,296.00	\$	-	\$	1,596,296.00	\$	-	\$	-	\$	-	\$	-	0%	\$	1,596,296.00	\$	-
50000	FEE	\$	1,335,340.00	\$	-	\$	1,335,340.00	\$	-	\$	-	\$	-	\$	-	0%	\$	1,335,340.00	\$	-
50001	P&P Bond	\$	546,480.00	\$	-	\$	546,480.00	\$	-	\$	-	\$	-	\$	-	0%	\$	546,480.00	\$	-
Totals		\$	64,838,269.00	\$	-	\$	64,838,269.00	\$	-	\$	-	\$	-	\$	-	\$	-	64,838,269.00	\$	-



Engineering +
Environmental

Contaminated Media Management Plan – Updated for HDHQ Construction

NW 6th Avenue and NW Hoyt Street
Portland, Oregon

Prepared for:
Multnomah County

February 2016
REV. 1 – November 2016

PBS Project No. 15194.879

4412 SW Corbett Avenue, Portland, OR 97239
503.248.1939 Main
866.727.0140 Fax
888.248.1939 Toll-Free
www.pbsenv.com

Bend | Boise | Coos Bay | Eugene | Portland | Seattle | Tri-Cities | Vancouver

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SUPPORTING DATA

FIGURES

Figure 1 – Site Location Map

Figure 2 – Site Exploration Plan

Figure 3 – Site Plan (*Disposal Profiling Report, PBS, August 2016*)

Figures 1 and 2 are excerpted from *Geotechnical and Environmental Site Assessment*, Apex Companies, LLC, September 2013

APPENDICES

Appendix A – Contaminated Media Management Plan (CMMP), Sept. 2009

Appendix B – Health and Safety Plan (HASP)

1.0 INTRODUCTION

This document provides an update to the Updated Contaminated Media Management Plan (CMMP) dated Sept. 20, 2009, prepared by Hart Crowser for the Portland Development Commission. The CMMP addresses the property known as Block U, bounded by NW Hoyt Street (south), NW 6th Ave. (east), NW Irving Street (north) and NW Broadway (west) (Figure 1).

The 2009 CMMP was prepared after the remediation of contaminated soil at Block U. Subsequently, the Bud Clark Commons building was constructed on the west half of Block U; the east side has remained vacant since then. The east half is asphalt-paved on the north side and gravel-paved on the south side; there are partial retaining wall concrete structures on the northeast and north sides. Figure 2 illustrates the area of soil remediation in the southeast corner, as well as the locations of test borings for past environmental and geotechnical work.

Multnomah County (County) is planning the construction of the Health Department Headquarters (HDHQ) building on the east side. Although known contamination was remediated, the potential for encountering contaminated materials is assumed. This CMMP Update for HDHQ is intended to provide guidance for the building design and construction with respect to identification and management of potentially contaminated materials that may remain on the site.

REVISION 1 – November 2016 provides updated soil and groundwater information obtained in August 2016 (Section 4.2).

2.0 USE OF THIS DOCUMENT

This CMMP Update is intended to be used in parallel with the 2009 Updated CMMP, which provides background information such as site history, remediation activities, and the known and potential chemical contaminants in the soil and other materials at the site. Guidance as to worker health and safety is provided in this document in Section 7.

3.0 HDHQ CONSTRUCTION TEAM

3.1 Design Phase

Site work will occur during the Design Phase and consists of geotechnical borings, test pits, and cone penetrometer tests. The findings of this work will allow the completion of the building design.

3.2 Excavation Contractor

The County has contracted with JE Dunn (Contractor) as the excavation contractor for construction of the HDHQ building. If suspected contaminated soil is encountered or generated, the Contractor will immediately notify the County's Environmental Consultant, who will assess the soil and provide guidance to the Contractor for management of the contaminated material. If necessary, the Contractor may need to contain the contaminated material and dispose offsite.

3.3 Environmental Consultant

The County has contracted with PBS Engineering and Environmental as the Environmental Consultant to provide environmental oversight during the construction of HDHQ. The Environmental Consultant is responsible for implementation of the CMMP; onsite response if notified of potential contamination; field evaluation of potential contaminated material; sampling and analysis as deemed necessary; and direction to the Contractor as to appropriate management of the material.

4.0 KNOWN SURFACE AND SUBSURFACE MATERIALS

4.1 Pavement and Concrete

Asphalt paving and concrete at the site are not considered to be contaminated. Soil in the planters around the northeast and north sides is also considered to be clean. As necessary, these materials can be recycled, reused, or disposed offsite as construction debris. Excessively oil-stained pavement should be disposed as non-hazardous solid waste at a Subtitle D landfill.

4.2 Fine-Grained Soils - REV. Nov. 2016

Due to the historic documentation of elevated arsenic levels in soil, and uncertainty in disposal options for excess soil, subsurface testing was conducted in August 2016. It was determined that soil testing to obtain landfill approvals would expedite the offsite disposal of excess soil generated during construction. The foundation and excavation plans for the new building were reviewed and test points located around the site to represent areas of significant soil removal as well as areas where driven piles would be installed.

Twenty-one test points were completed using a push-probe drilling rig (third Figure attached; excerpt from PBS report). Soil samples were collected from 0 to 5 feet below ground surface (bgs) and from 5 to 10 feet bgs or more, depending on location. Groundwater was encountered at 20 to 23 feet bgs; samples were collected from six locations.

The results show that arsenic is at or below the Oregon DEQ Risk-Based concentration for exposure to construction workers of 15 mg/kg arsenic. The DEQ's regional background concentration for arsenic and the DEQ Clean Fill value is 8.8 mg/kg arsenic. Using the DEQ's 90% Upper Confidence Limit of the Mean calculator, a value of 8.8 mg/kg arsenic was obtained as a site-wide average value. **This level allows soil to be disposed offsite as Clean Fill; per DEQ, "Clean Fill still must be managed so that, when placed or disposed, it will not create an adverse impact on groundwater, surface water, or public health or safety."**

The offsite location for disposal of fill from the site should be carefully documented by the contractor.

5.0 IDENTIFICATION OF CONTAMINATED MATERIALS

There are readily observable indications of soil contamination that are useful to be aware of when excavating or disturbing site soils. If any of these conditions are encountered, in accordance with the 2009 CMMP Update, the Contractor should immediately notify the Environmental Consultant who will screen the suspect soils, provide sampling and analysis if deemed necessary, and assist the Contractor with proper management of the materials. The following guidance was excerpted from the 2009 CMMP Update.

5.1 Staining

Some types of contaminants will stain or discolor soil in a manner that it is visibly noticeable compared to typical soil colors. Staining in soil from contaminants usually results in a darkening of the soil color, often causing the soil to appear dark gray to black. In rare cases, other colorations may be present. Stains can range from being difficult to visibly detect to very obvious. Petroleum hydrocarbons are the most commonly encountered contaminants

that cause staining, are most likely to be encountered during excavation activities at the site, and could also possibly exhibit sheens and odors. Other non-petroleum contaminants may also cause staining, which would require further assessment.

5.2 Sheens

Some types of contaminants, such as petroleum hydrocarbons, will produce a sheen on water when contaminated soil is placed in water. Sheens typically have a silvery, reflective quality. Heavy contamination can result in iridescent, rainbow-like colors. Sheen may also cause the soil to have a shiny or glossy appearance. Sheens can range from being difficult to visibly detect to very obvious. Petroleum hydrocarbons are the most commonly encountered contaminants that will cause a sheen, although other contaminants (typically organic liquids) and naturally-occurring organic matter in the soil may also cause sheens. Sheens are often associated with staining or odors, particularly for petroleum products.

5.3 Odors

Some contaminants emit odors when exposed to the atmosphere. Odors can be very faint to strong, and range from sweet smelling to pungent. Odors are usually detected inadvertently during excavation or stockpiling of soil, and are usually noticeably different than typical odors in the air. The most commonly encountered contaminants that cause odors in soil are solvents and petroleum hydrocarbons, although other contaminants may have noticeable odors. Other common contaminant indicators that may occur with odors are staining or sheens.

5.4 Unusual Fill Appearance or Condition

Materials that are dumped, used as fill, or otherwise placed in the environment may be contaminated (or could cause contamination), and could result in an unusual appearance or condition during excavation. Unusual appearance or conditions to be aware of include layers or zones of non-soil material (e.g., ash, sludge, and/or slag of various colors), buried tanks or containers (which could contain chemicals or chemical residue), unanticipated utilities or conduits (which could be unidentified chemical lines, etc.), and/or moisture in the soil that appears to be something other than water.

Suspect contaminated soil or foreign materials should not be disturbed by excavation because of issues involving worker safety, and waste characterization must first be evaluated. It may become necessary to set up an exclusion zone using appropriate barriers such as temporary fencing, orange netting, and/or warning tape. The Contractor will notify the Environmental Consultant to evaluate the suspect soil through field screening and/or analytical testing. If contamination is confirmed, the soil will be managed appropriately.

5.4.1 Temporary storage

Temporary storage may become necessary for suspect or known contaminated soil on the site, pending waste characterization or while awaiting transport off the site. All stockpiled soil will be stored on and covered with 30-mil plastic at all times (except during soil placement or removal). The plastic should be secured against wind and rain, and sloped to drain precipitation without ponding. Storage locations will be on the site and in an area where the piles will not affect stormwater discharge and will be inaccessible to the general public.

5.4.2 Loading and Offsite Transportation

Transportation of contaminated soil requires specific manifesting and licensing, as well as specific insurance requirements. Under no circumstances will contaminated soil leave the site without acceptance by the off-site disposal facility(ies).

Contaminated soil will be loaded and transported using procedures preventing a release to the environment. Loading of soil will be performed in a manner that maintains a condition of no visible dust in the work area. Transport vehicles (e.g., dump trucks, pups) shall also avoid coming into contact with impacted material and tracking it off the site.

If transporting soils and debris that could generate dust, the loads shall be tarped or otherwise completely enclosed. Prior to departure from the site, all loose soil will be brushed from the vehicles and collected for appropriate disposal. Bills of lading shall be signed by the Contractor.

For transport of hazardous soils, a licensed hazardous waste transporter is required. Vehicles used to transport the waste shall be lined with plastic, tarped, or otherwise enclosed, and properly placarded. Prior to departure, a hazardous waste manifest and accompanying land disposal restriction notification shall be properly filled out and signed by the County or their agent and transporter.

5.4.3 Permits and Approvals

The Owner/Developer or, if assigned, the Excavation Contractor will be responsible for obtaining permits for earthwork activities at the project site. For contaminated soil, approvals and permits will be required from off-site disposal facilities for treatment or disposal of contaminated soil. For hazardous waste transport and disposal, additional registration, storage, labeling, and manifesting requirements are required. The Contractor or Environmental Consultant will arrange the off-site disposal of contaminated soil.

6.0 GROUNDWATER MANAGEMENT

In the event groundwater is encountered in any drilling, foundation installations, or other excavation work, the groundwater should be considered contaminated and managed in accordance with Section 5.2 of the 2009 CMMP Update (Appendix A).

7.0 WORKER HEALTH AND SAFETY

Because contamination may be present in soil and groundwater at the site, site personnel should be made aware of the potential for encountering contaminated media. Existing site data indicates that carcinogenic PAHs, arsenic, and/or lead in contaminated soil may pose an unacceptable risk to construction or excavation workers. It is the responsibility of each involved entity to conduct their own hazard assessment to determine appropriate health and safety measures.

7.1 Worker Safety

Each involved entity is responsible for the safety of their respective workers. This includes implementation of any training requirements, safety plans, monitoring, certifications, and any other action or requirement that may be required or prudent prior to beginning site activities. This CMMP or other notification must be provided to employees who will be working on-site. Prior to any ground-disturbing activities, a utility locate should be performed to identify potential utilities in proposed work areas.

Each involved party will make preliminary assessments of potentially contaminated media as it relates to worker safety. Occupational health guidelines for chemical hazards (i.e., OSHA and NIOSH) can be used to evaluate site conditions. The evaluation should consider exposure limits (i.e., TWA, STEL, PEL), exposure symptoms, and personal protective equipment. Specific recommendations should be provided to protect worker safety. All entities are responsible for notifying and updating others and their employees of potential site hazards that may be encountered during the project. Testing, management, handling, excavation, transportation, etc., of contaminated media may require persons with 40-hour hazardous materials (HAZMAT) training. Each party involved should assess the need for this training on the basis of current information for the site.

7.2 Health and Safety Plan

Parties involved should prepare a site-specific Health and Safety Plan (HASP) for their employees to cover safety issues related to specific environmental hazards that may be encountered. All parties will be responsible for compliance with their HASP, including use of appropriate personal protective equipment. The HASP that is attached as Appendix B of this document is provided for the benefit of PBS employees and subcontractors. Other parties are responsible for preparation of their own HASP.

8.0 PHASES OF THE CONSTRUCTION WORK

8.1 Design Phase

The geotechnical investigation work will be completed using a drill rig (deep borings) and a backhoe (test pits). The locations of the planned investigations have been reviewed with respect to remaining concerns in the 2008 CMMP and there are no known contaminants in the vicinity of the work.

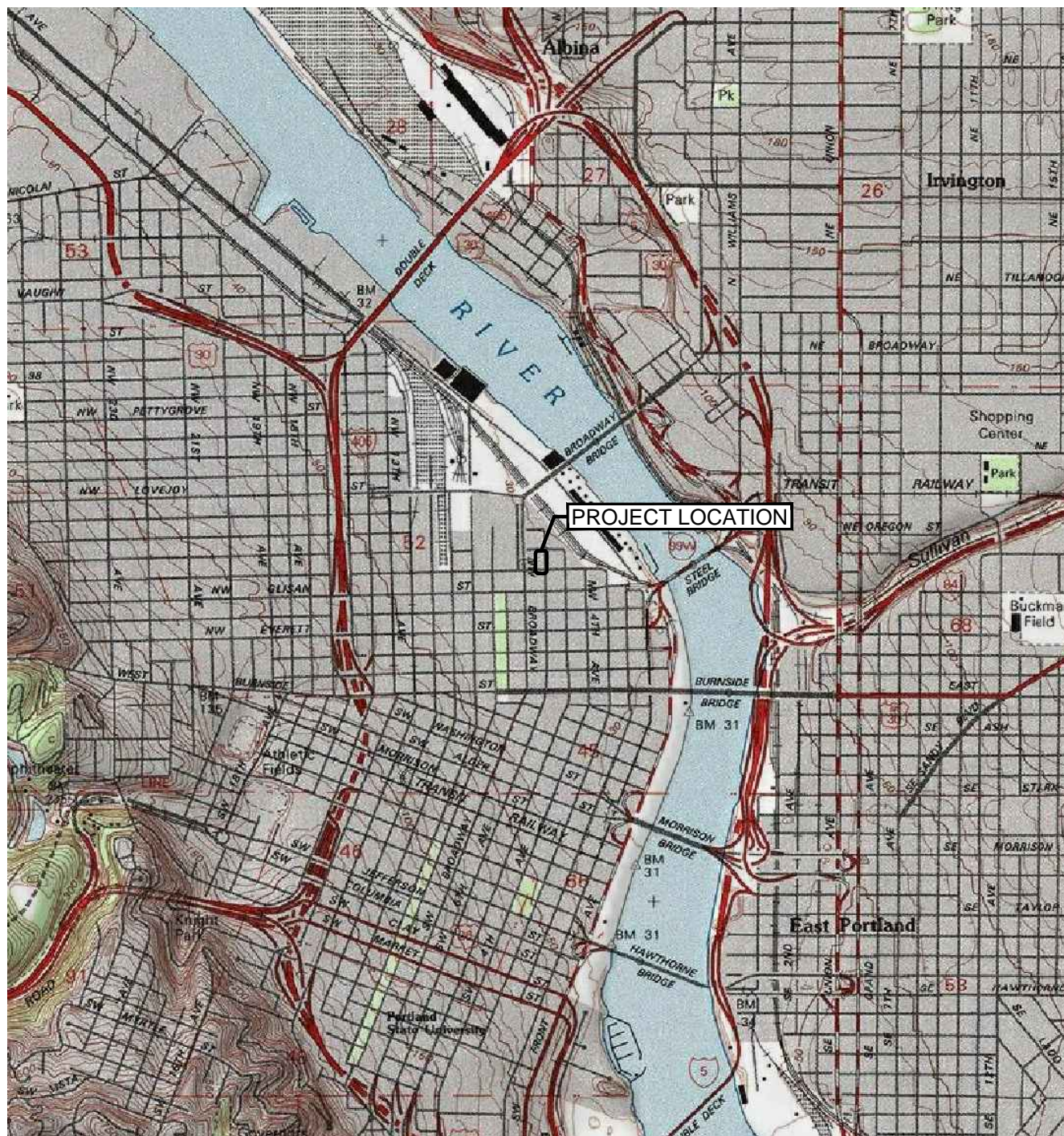
Soil that is removed from test pits will be returned to the pit and compacted with the backhoe. Soil generated during drilling will be placed into 55-gallon metal drums for convenience and good housekeeping (no special disposal is required). The drums will be stored on the east boundary of the site where 3 drums already exist (from previous site work).

8.2 Subsequent Site Work

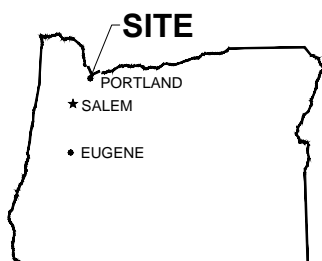
A variety of site activities will occur as the construction of the building progresses. This will include significant phases such as installation of piles; shoring; elevator pit and utilities excavations, etc. It is understood that there will be no re-use opportunities for excavated soil, and limited to no onsite space for storage of soil pending profiling for offsite disposal options. Plans must be made in advance of the excavation work to allow prompt placement into trucks and removal from the site.

**ATTACHMENT 9 TO GMP AMENDMENT
TO CM/GC CONTRACT NO. 4400001553**

FIGURES



SOURCE: USGS PORTLAND OR QUADRANGLE 1990.



OREGON



SCALE: 1" = 2,000'

PREPARED FOR: MULTNOMAH COUNTY



PROJECT #
15194.879

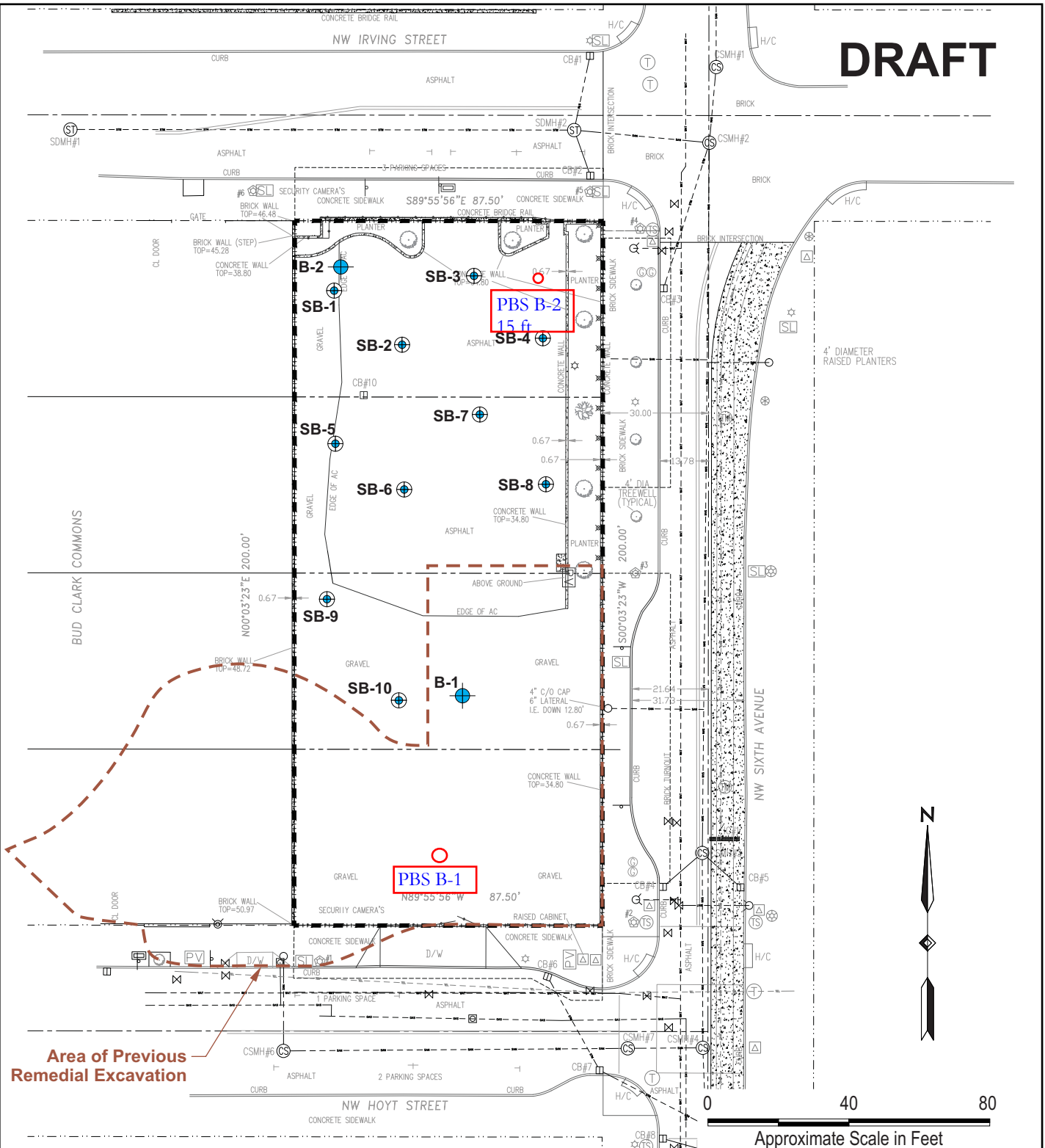
DATE
OCT 2016

VICINITY MAP
MULTNOMAH COUNTY HEALTH DEPARTMENT
NW 6TH AVENUE AND NW HOYT STREET
PORTLAND, OREGON

FIGURE

1

DRAFT



Legend:

- B-1 Hollow-Stem Auger Soil Boring
- SB-1 Direct-Push Boring
- Property Line
- - - Demolition/Work Limits

NOTE: Base map prepared from a Demolition Plan by ZGF Architects, C-201 Schematic Design, September 20, 2013.

Site Exploration Plan

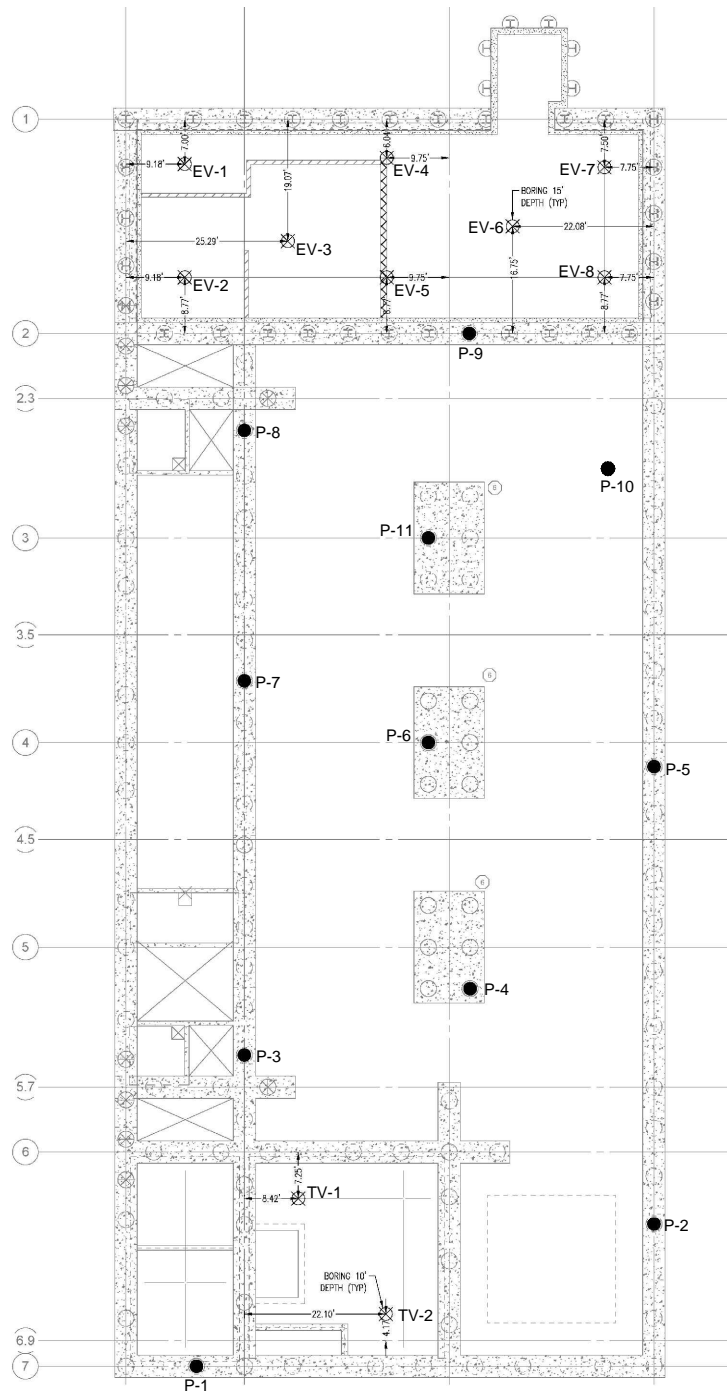
Geotechnical and Environmental Site Assessment
Home Forward - Block U
Portland, Oregon



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	2064-00
September 2013	

Figure
2

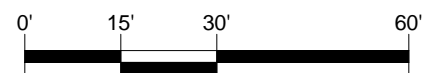


NOTES

1. THE PURPOSE OF THIS EXHIBIT IS TO DOCUMENT STAKING LOCATIONS FOR PROPOSED SOIL AND GROUNDWATER TEST LOCATIONS.
2. THIS EXHIBIT WAS PREPARED BASED ON THE "PROPOSED SOIL AND GROUNDWATER TEST LOCATIONS" MAP PROVIDED BY JE DUNN DATED 8/25/2016.
3. STRUCTURAL BACKGROUND WAS EXPORTED FROM THE STRUCTURAL REVIT DRAWING 21547_MCHDHQ_STRUCT 2016.RVT AND IS SHOWN FOR REFERENCE ONLY.

LEGEND

- P-1 PUSH-PROBE TEST NUMBER AND LOCATION



SCALE: 1" = 30'

PREPARED FOR: MULTNOMAH COUNTY



PROJECT #
15194.879

DATE
OCT 2016

SITE PLAN - SAMPLING
MULTNOMAH COUNTY HEALTH DEPARTMENT
NW 6TH AVENUE AND NW HOYT STREET
PORTLAND, OREGON

FIGURE

2

APPENDIX A

Contaminated Media Management Plan (CMMP), Sept. 2009

***Updated Contaminated Media
Management Plan***

Block U

***NW Sixth Avenue and NW Hoyt Street
Portland, Oregon***

***Prepared for
Portland Development Commission***

***September 30, 2009
15036-02***



HARTCROWSER

Delivering smarter solutions



***Updated Contaminated Media Management Plan
Block U
NW Sixth Avenue and NW Hoyt Street
Portland, Oregon***

***Prepared for
Portland Development Commission***

***September 30, 2009
15036-02***

Prepared by
Hart Crowser, Inc.



Richard D. Ernst, RG
Principal

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APPENDIX A DEQ CLEAN FILL SCREENING TABLE

ACRONYMS

AGRA	AGRA Earth & Environmental
bgs	Below the Ground Surface
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
CMMP	Contaminated Media Management Plan
CSM	Conceptual Site Model
cy	cubic yards
DEQ	Oregon Department of Environmental Quality
EM	electromagnetic
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
GPR	Ground-penetrating Radar
HCID	Hydrocarbon Identification
HSP	Health and Safety Plan
mg/kg	Milligram per Kilogram
mg/L	Milligrams per Liter
NIOSH	National Institute for Occupational Safety and Health
NWTPH-Dx	Northwest Total Petroleum Hydrocarbons-Diesel
NWTPH-Gx	Northwest Total Petroleum Hydrocarbons-Gasoline
OSHA	Occupational Safety & Health Administration
PAHs	Polynuclear Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PEL	Permissible exposure limit
PPE	Personnel Protective Equipment
POTW	Publicly Owned Treatment Works
RBCs	Risk-Based Concentrations
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
SPLP	Synthetic Precipitation Leaching Procedure
STEL	Short term exposure limit
SWLA	Solid Waste Letter of Authorization
TCLP	Toxicity Characteristic Leaching Procedure
TPH	Total Petroleum Hydrocarbons
TWA	Time-weighted average
UCL	Upper Confidence Limit
µg/l	Micrograms Per Liter
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds
XRF	X-ray fluorescence

**UPDATED CONTAMINATED MEDIA MANAGEMENT PLAN
BLOCK U
NW SIXTH AVENUE AND NW HOYT STREET
PORTLAND, OREGON**

1.0 INTRODUCTION

This Updated Contaminated Media Management Plan (CMMP) presents the protocols for identifying and managing contaminated soil during development of Block U on the northwest corner of the intersection of NW Sixth Avenue and NW Hoyt Street in Portland, Oregon (Figure 1). This plan includes information on identification, response to, removal, temporary storage, transportation, and disposal of contaminated soil. Health and safety issues and closure documentation are also described. A prior CMMP (Hart Crowser, 2008b) also included remediation of soils at the site, which was conducted in early 2009.

1.1 Purpose

In January and February 2009, remedial excavation activities were conducted at Block U to address petroleum- and lead-contaminated soils. Residual pockets of slightly impacted soils remain on the site property that may be encountered during future development of Block U. The purpose of this CMMP is to ensure that contaminated soil can be properly identified and managed. Shallow groundwater has very low contaminant levels and is below the anticipated depth of development activities. Therefore, groundwater is not addressed by this CMMP.

1.2 Plan Organization

Subsequent sections of this CMMP are organized as follows:

- Section 2 provides a description of the project site, previous environmental activities including the recent remediation activities, and known locations of residual contaminated media.
- Section 3 presents the parties involved in implementation of this CMMP, their responsibilities, and the chain of authority.
- Section 4 describes identification and management of contaminated soil.
- Section 5 presents other environmentally-related activities associated with excavation activities.
- Section 6 presents a discussion of health and safety issues.
- Section 7 describes closure documentation.

Data summary tables are included. Figures show the site location and layout, previous explorations, existing soil conditions, and the locations of residual impacted soil. Current Oregon Department of Environmental Quality (DEQ) draft clean fill screening levels are attached as an appendix (the DEQ is currently proposing a rulemaking that will allow beneficial off-site re-use of soil provided that contaminant concentrations do not pose an unacceptable risk to human health or the environment at the off-site location).

1.3 Limitations

This Updated CMMP is intended only to provide procedures for identification and handling of contaminated soil encountered during development of Block U. Hart Crowser prepared this Updated CMMP in accordance with generally accepted professional practices related to the nature of the work specified in this CMMP, in the same or similar localities, at the time this plan was prepared. This Updated CMMP is for the Block U only and for the exclusive use of Portland Development Commission. Future property owners may use this plan, but shall consider changes that may have occurred in environmental practices and regulations since plan preparation. No other warranty, express or implied, is made.

2.0 BACKGROUND

This section presents a description of the Block U, a summary of environmental activities conducted to date, and the extent of known contamination at the site. For more information, please refer to the Remedial Investigation (RI) Report (Hart Crowser, 2003), Pre-Construction Investigation (Hart Crowser, 2008a), and Closure Report (Hart Crowser, 2009) for the site. References are provided in Section 8.

2.1 Site Location and Description

The project site, Block U, consists of a city block located on the northwest corner of the intersection of NW Sixth Avenue and NW Hoyt Street in Portland, Oregon (Figure 1). The entire site was recently a flat parking lot, mostly paved with asphalt concrete; it is currently used as a construction staging area. Raised planters are present along the north and east perimeters of the property. Because Broadway and Irving Street are inclined for the approach to the Broadway Bridge, concrete-retaining walls are present along the west and north perimeters of the property. Figure 2 shows the layout of the site.

Early development of the Block U by 1889 consisted of a house, stables, and a coal storage shed. Commercial development occurred around the turn of the 20th century, with stores lining NW Sixth Avenue. By the 1930s, three multistory

buildings were constructed on the property, two of which were hotels. A service station (two configurations) occupied the southeast quarter of the block. From the 1940s through about 1960, buildings on the site were demolished. Since 1963 and until recently, the property was a parking lot. Currently, the property is used as a construction staging area.

Investigation and remedial activities identified several layers of subsurface soil on the site. Excavation in the northwestern and southern portions of the site removed soil to depths of up to 4 and 19 feet, respectively, replacing excavated soils with clean, imported, crushed gravel backfill (Figure 2). On the remainder of the site, soils consist of (from the surface downward):

- Approximately 1 foot of gravel base course beneath the 2 to 3 inches of asphalt-concrete pavement of the parking lot.
- Up to 6 feet of debris fill along the west portion of the block. Debris fill consists of silt with debris (e.g., bricks, gravel, wood, concrete, glass). At the base of this fill along the northwest perimeter of the site is a 1-inch black layer at approximately 2 feet below the ground surface (bgs).
- Elsewhere on the site and beneath the fill material are fine-grained soils consisting of clayey silt, silt, or sandy silt to a depth of about 41 feet.

Shallow groundwater shows a seasonal fluctuation between 16 and 25 feet bgs (groundwater was not encountered in the 19-foot-deep remedial excavation in January and February 2009). The anticipated groundwater flow direction is to the northeast, toward the Willamette River.

2.2 Previous Environmental Activities

Since 1999, environmental activities have been conducted at Block U, including a Phase I Environmental Site Assessment (ESA), subsurface investigations with chemical analyses on soil and groundwater, geophysical surveys, and remedial excavation. The results of these activities are summarized below.

Phase I ESA. In July 1999, AGRA Earth & Environmental (AGRA) completed a Phase I ESA for Block U. The Phase I ESA identified the following recognized environmental conditions: a former Union Oil Co. coal shed in the northwest portion of the block, former automobile service stations on the southwest and southeast quarters of the block (the southwest quarter was only used for parking since the late 1940s), possible heating oil underground storage tanks (USTs) associated with hotels formerly located on the northwest and northeast quarters of the block (no hotel was located on the northwest corner; the report likely meant the large building in the southwest corner prior to the mid 1940s), and

potential sources of contamination from off-site businesses (automobile service stations, dry cleaners, the main post office, and a manufactured gas plant).

Subsurface Investigations. Based on the findings of the Phase I ESA, AGRA conducted a push probe investigation in March 2000. Additional push probe investigations were conducted by Hart Crowser in August 2000 and March 2002. In April 2008, we conducted test pits in the southeast quarter of the block to further investigate the nature of debris fill previously encountered in push probes on the block. Figure 2 shows the exploration locations. Soil and groundwater samples from these investigations were analyzed for suspected contaminants. The primary contaminants detected were total petroleum hydrocarbons (TPH), polynuclear aromatic hydrocarbons (PAHs), lead, and arsenic. These results are discussed further in Section 2.3.

Geophysical Surveys. In March 2000, a geophysical survey over the entire property was conducted. An electromagnetic (EM) survey was performed on a 5-foot grid. Magnetic anomalies were then assessed by ground-penetrating radar (GPR). Buried debris was indicated in the northeast portion of the block; however, follow-up probe U-24 in 2002 did not find any debris. The EM survey suggested a possible UST pit was present along Hoyt Street, but the GPR survey indicated it was buried debris. In April 2002, sidewalks along the south and east sides of the property and adjacent streets were re-surveyed for USTs and/or their cavities. No USTs were detected by the survey; however, pipes and metal mesh in the street and sidewalks might mask an UST or UST cavity. A GPR survey of the southeastern portion of the block found a buried mechanic's pit from a previous service station (exposed by test pit TP-C) and a 10-foot length of buried pipe.

Remedial Excavation. To reduce contaminant concentrations on the site below urban residential Risk-Based Concentrations (RBCs), remedial excavation activities were conducted in January and February 2009. Figure 2 shows the excavation areas. Approximately 6,000 tons of petroleum- and lead-contaminated soils and debris fill were excavated and disposed of at the Hillsboro Landfill in Hillsboro, Oregon, as non-hazardous waste. Another 200 tons of a lead-contaminated burn layer was hazardous waste and removed and disposed of at Arlington Landfill in Arlington, Oregon.

Confirmation samples collected from the excavation limits indicated that residual concentrations of petroleum hydrocarbons and lead (Figures 3 and 4, respectively), if detected, are below urban residential RBCs and draft clean fill screening levels, indicating that cleanup goals were met. A review of residual soil and groundwater concentrations for the site indicated that the site does not pose an unacceptable risk to workers developing the property or future site users. Residual pockets of slightly impacted soils remain on the site and elevated, but anomalous, detections

of arsenic are also present (Figure 5). The purpose of this Updated CMMP is to appropriately manage these soils during future development of Block U.

2.3 Extent of Known Contamination

Analytical results and field observations were evaluated to gain an understanding of the nature and extent of residual soil contamination at Block U that needs to be addressed by this CMMP. Chemical data were compared to regulatory screening levels and criteria to determine appropriate management protocols for handling contaminated soils. We have also included a brief discussion of groundwater for informational purposes only, as redevelopment activities are not expected to encounter shallow groundwater.

2.3.1 Regulatory Screening Levels and Criteria

For redevelopment of Block U, certain regulatory screening levels and criteria are applicable to this site. These include the following.

- Clean Fill Screening Levels – These levels define the chemical concentrations below which soil can be used as unrestricted clean fill.
- Risk-Based Concentrations – Based on toxicity data and standard exposure factors, the DEQ has calculated RBCs to estimate contaminant concentrations in environmental media that are considered protective of humans, including sensitive groups, over a lifetime. If an RBC is exceeded, additional evaluation of site data is necessary to assess if an unacceptable health risk is present.
- Toxicity Characteristic Criteria – The Environmental Protection Agency (EPA) has established concentrations for the leachability of certain chemicals from solid waste, above which the waste exhibits the characteristic for toxicity and is designated as a hazardous waste.

These screening levels and criteria are described below as they pertain to this site. Additional criteria may be used by disposal facilities to determine whether to accept environmental media from the project site for treatment and/or disposal.

Clean Fill Criteria. The DEQ has developed draft clean fill screening levels for soil (DEQ, 2008a). The current screening levels are included as Appendix A and are listed in the soil data tables (Tables 1 through 4). If contaminant concentrations in site soils are below clean fill screening levels, the soil can be used as unrestricted clean fill on and off the property (as long as the placement location is more than 100 feet away from a surface water body). Otherwise, soil needs to be managed as a solid waste. The DEQ, however, is currently evaluating clean fill guidelines and may revise these screening levels and/or the approach to determine whether soils

are clean fill and/or can be used for beneficial re-use. For re-use, the DEQ is proposing a rulemaking that allows a Beneficial Use Determination to be made so that some types of solid waste can be used beneficially instead of disposed. This CMMP presents soil management protocols in accordance with the draft screening levels, criteria negotiated with the DEQ, and the future use of the property. As policies change and rules may be promulgated, it is advised that DEQ be consulted before managing excess soils that may be contaminated.

Risk-Based Concentrations. The DEQ has calculated RBCs for TPH and numerous chemical constituents for various exposure pathways and human receptors (DEQ, 2003, 2008b). The Conceptual Site Model (CSM) for the Block U identified future people associated with the property and its development to include urban residents and occupational, construction, and excavation workers. Potential exposure pathways to contaminants include direct contact to soil and inhalation of chemicals that have volatilized from soil and migrated to indoor or outdoor air (Hart Crowser, 2003, 2009). Because urban residents represent the most sensitive human receptor to identified exposure pathways, DEQ's RBCs for urban residents will be used for this site. The soil data tables (Tables 1 through 4) include the most stringent, urban residential RBCs for the potential exposure pathways. Because natural background arsenic levels exceed its RBC, the background arsenic concentration (7 mg/kg) can be used for comparison for screening purposes.

Toxicity Characteristic Criteria. To determine the toxicity characteristic of a solid waste, samples can be analyzed by the Toxicity Characteristic Leaching Procedure (TCLP) and Synthetic Precipitation Leaching Procedure (SPLP). Of the primary contaminants detected at this site, toxicity characteristic (or TCLP) criteria are available for metals (40 CFR 261.23). Previously, only leachable lead has been detected above its TCLP criterion (Hart Crowser, 2008b, 2009).

2.3.2 Soil Contamination

In early 2009, contaminated soil exceeding urban residential RBCs was excavated from Block U. This remedial action was successful in remediating the site so that no unacceptable risks to current and future users of the site were present. Still, residual pockets of slightly contaminated soil remain on the property (below urban RBCs, but above clean fill criteria) as well as elevated detections of arsenic. The nature and extent of residual soil contamination is described below and is shown on Figure 6. Tables 1 through 4 list chemical data on existing soil on the site.

Silt/Debris Fill. A few feet of silt/debris fill is present along the western portion of the block. Excavation activities removed this unit from the northwestern, southern, and southeastern portions of the site. Debris has consisted of bricks, gravel, wood, concrete, and glass. This unit has been encountered to a depth of

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6 feet and site characterization data indicate that TPH, PAHs, arsenic, and lead may be present in this unit. Lead is occasionally detected above clean fill criteria. Arsenic was also detected twice slightly above its anticipated background concentration (7 mg/kg). Excavated silt/debris fill should not be considered clean fill, but non-hazardous solid waste.

Black Layer. During remedial excavation activities, a 1-inch thick, black layer with up to 418 mg/kg lead was encountered approximately 2 feet bgs in the northwest corner of the site. TCLP analysis did not detect leachable lead, designating it as non-hazardous. Removal of this layer and overlying silt/debris fill resulted in the excavation in the northwest corner of the site (Figure 2). Excavation proceeded west to the fence line; however, the thin black layer extended westward beneath the fence. Based on the history of the site and the presence of the Broadway ramp, this unit is anticipated to extent only to the property line. Previous characterization results on a soil sample from probe U-1 detected PAHs and other metals, which may be present in the black layer. Based on the relatively limited volume of this material, the DEQ considers it a *de minimis* amount that does not require further action (DEQ, 2009). The black layer is a non-hazardous solid waste and can be considered part of the silt/debris unit.

Arsenic in Fine-Grained Soils. Arsenic has been detected in fine-grained soils on the site ranging from 3.36 to 38.3 mg/kg, with about half the samples exceeding the expected background concentration of 7 mg/kg. Samples with apparently elevated arsenic concentrations vary in depth and location, and have no other contaminants suggesting that the arsenic is from an anthropogenic source. In addition, the four highest arsenic detections (10.4 to 38.3 mg/kg) in the fine-grained soils were from the AGRA's investigation in 2000, which have not been confirmed by subsequent sampling (a review of these results, however, did not indicate any data quality issues).

Statistical analysis of the residual arsenic data indicates that soil within 4 feet of the ground surface has a 90 percent upper confidence limit (UCL) on the mean of 7.4 mg/kg, essentially equivalent to background (DEQ, 2009). As such, arsenic is not deemed to pose an unacceptable risk by direct contact to current and future users of the site. However, because of the higher (anomalous) concentrations at depth, the 90 percent UCL was 13.9 mg/kg (DEQ, 2009). Because this level exceeds the construction worker RBC of 13 mg/kg, this CMMP presents protocols to manage soils with elevated arsenic concentrations below 4 feet bgs. If the AMEC data are removed, however, the resultant UCL is 7.6 mg/kg (Hart Crowser, 2009).

Other Soils. The remedial excavation activities removed other soil types that were contaminated by petroleum hydrocarbons and lead. Although these soils

were removed in their entirety, they are discussed here should suspect soils be encountered during redevelopment.

- *Burn Layer.* In the southeastern portion of the block, a black layer of burned building debris (up to 1 foot thick) was present at the base of the debris fill at a depth of approximately 3 to 4 feet. Chemical data indicates TPH, PAHs, arsenic, and elevated lead were typically present in this unit. Leachable lead concentrations sometimes exceeded its TCLP criterion, designating this material as a hazardous solid waste.
- *Gasoline-Contaminated Soil.* Site characterization activities initially detected gasoline and its associated volatile organic compounds (VOCs) in the southeast corner of the site. During remedial excavation activities, gasoline-contaminated soil extended westward; excavation of this contaminated soil resulted in the large southern excavation to 19 feet bgs. Figure 3 shows that these soils have been removed.

2.3.3 Groundwater Contamination

Chemical data on groundwater is presented in Tables 5, 6, and 7. These results indicate that relatively low concentrations of gasoline-associated VOCs were present in the southern portion of the former service station area (where pump islands were formerly located). Soils in this area have since been remediated, thereby removing the potential source of groundwater contamination. Chloroform was also detected at 2.81 µg/L in groundwater from probe U-2 in the northwest corner of the site (chloroform is a byproduct of the chlorination of water).

The RI Report included a beneficial water use determination (Hart Crowser, 2003). Shallow groundwater is not used and will likely not be used in the future because of the availability of city water and low yield. Impacts to deeper groundwater resources (which may be used for industrial or irrigation purposes) is unlikely due to the low observed concentrations. As such, the only exposure pathway would be volatilization from groundwater to indoor/outdoor air. Table 6 includes urban residential RBCs for volatilization to indoor air. None of the detected VOCs exceeds its respective RBC, indicating that groundwater does not pose an unacceptable risk to the future redevelopment of Block U.

3.0 CHAIN OF AUTHORITY AND RESPONSIBILITIES

For implementation of this CMMP, several entities will be involved that will likely include the owner/developer, excavation contractor, environmental consultant, and DEQ, analytical laboratory, and off-site disposal facilities. These entities and their responsibilities are as follows. Prior to site work, a list of contacts shall be

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prepared and distributed to all entities for implementation of this CMMP and to assist in the timely notification of changing site conditions.

Property Owner and/or Developer. The Property Owner and/or Developer will contract, either directly or as a second tier subcontractor, with an Excavation Contractor to conduct earthwork activities and with an Environmental Consultant to assist with any potential contamination issues. The Owner/Developer has the ultimate authority and responsibility for the environmental issues related to the generation and disposal of contaminated media. The Owner/Developer can provide guidance to the Excavation Contractor with input from the Environmental Consultant and the DEQ. Unless assigned to the Environmental Consultant, the Owner/Developer is responsible for involving DEQ in the decision-making process relative to environmental matters.

Excavation Contractor. The Owner/Developer will contract with an Excavation Contractor during property redevelopment. If suspected contaminated soil is encountered or generated, the Excavation Contractor will immediately notify the Owner/Developer and the Environmental Consultant. Upon assessment, the Environmental Consultant will provide (as authorized by the Owner/Developer) the Excavation Contractor input on the manner in which to manage contaminated media per this CMMP.

Environmental Consultant. The Owner/Developer may contract with an Environmental Consultant to assist with potential contamination issues, including implementation of this CMMP. The Environmental Consultant is responsible for oversight during earthwork activities in areas of known or suspected contamination and any remedial excavation activities; implementation of this CMMP; on-site response if notified of potential contamination; field evaluation of potential impacts; sampling and analysis as necessary; evaluation of disposal requirements and options for contaminated media; and other environmental issues that may develop. For earthwork in areas where contamination is not suspected or present, the Environmental Consultant may not always be on site; therefore, notification of potentially contaminated media by the Excavation Contractor is critical.

Regulatory Agency (Oregon DEQ). The Oregon DEQ will provide technical assistance, as requested by the Owner/Developer and Environmental Consultant (if authorized by the Owner/Developer). Examples of potential DEQ interaction include providing assistance in obtaining approval for disposal of contaminated soil at an off-site disposal facility other than a permitted Subtitle C or D landfill, and providing guidance on determining management/disposal options for soils, including soils that may meet clean fill screening levels.

Laboratories and Off-Site Disposal Facilities. During redevelopment, the Environmental Consultant will submit soil samples to an analytical laboratory for analysis for profiling for disposal, assessment of excavated soils for re-use on the site, and/or to assess residual contaminant concentrations. The Excavation Contractor will haul excess excavated soil, whether contaminated or not, to an off-site disposal facility (each facility must approve acceptance of the soil). The Owner/Operator will be required to approve use of each off-site disposal facility. The Oregon DEQ may also require notification of the disposal facility.

4.0 CONTAMINATED SOIL IDENTIFICATION AND MANAGEMENT

Remedial excavation activities addressed the majority of contaminated soil at the site. Some residual contaminated soil remains and elevated arsenic concentrations may be present in deeper soils (Figure 6). During redevelopment, these soils may be encountered or other contaminated soils discovered in other areas. This section presents methods to identify contaminated soil and how to manage the soil.

4.1 Identification of Contaminated Soil

During redevelopment activities, known contaminated soils may be encountered or suspect contaminated soils could be discovered. This section presents aids to site personnel to identify known and potential contaminated soil, including sampling and analytical procedures. Known contaminated soils will be managed per Section 4.2. If suspect soils are encountered and are excavated, they will be stockpiled separately for further evaluation and management per this CMMP.

4.1.1 Soil/Material Types Present on the Site

Previous environmental activities have distinguished several soil/material types at the site. Based on chemical data, these soil/material types can be classified in general terms as “clean” and contaminated. The following discussion describes these soil/material types and presents a general indication of how each type should be managed.

Clean Soils/Materials. The soils and materials listed below are or can be assumed to be “clean” unless field indications of possible contamination are present (see Section 4.1.2 and 4.1.3) or chemical analyses determine otherwise.

- Pavement and Concrete. The parking lot is paved with a 2- to 3-inch layer of asphalt-concrete pavement. Concrete structures on the property include curbing, islands, and planter boxes. Historical concrete foundations were encountered during remedial activities, and other foundational structures may exist elsewhere on the property. Upon removal, these materials are

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considered uncontaminated and should be recycled or disposed of as construction debris. Excessively oil stained concrete, however, should be disposed of as non-hazardous solid waste in a Subtitle D landfill.

- *Base Course and Planter Soils.* Approximately 1 foot of gravel base course is present below pavement at the site. Soil is also present in planter boxes and landscaped areas of the site. Because these materials were imported to the site for construction and landscaping purposes, these materials are considered uncontaminated and should be recycled or disposed of as construction debris.
- *Imported Gravel Backfill.* Remedial excavations were backfilled with crushed gravel backfill. This material is uncontaminated and can be re-used on or off the site without further analysis, or disposed of as construction debris.
- *Fine-Grained Soils (0 to 4 Feet bgs).* Fine-grained soils that are less than 4 feet deep do not pose disposal/management concerns. Arsenic concentrations appear to be consistent to background levels. As such, this soil is considered uncontaminated and can be re-used on or off the site. If the soil exhibits any field evidence of suspect contamination, however, it should be re-tested prior to off-site re-use as fill or disposed of as non-hazardous solid waste in a Subtitle D landfill.

Contaminated Soils. The soil types listed below are or can be assumed to be contaminated. Additional analysis could be used to reclassify these contaminated soils as “clean” (i.e., meeting clean fill screening levels at the time of excavation; current screening levels are listed in Appendix A but may be revised by the DEQ).

- *Silt/Debris Fill.* In the west portion of the block, a few feet of silt with debris (bricks, gravel, wood, concrete, and glass) may be encountered. Chemical data indicates that TPH, PAHs, arsenic, and lead may be present in this unit. Based on detected concentrations, excavated silt/debris fill should be disposed of as non-hazardous solid waste in a Subtitle D landfill, other facility permitted to receive this soil per a DEQ Solid Waste Letter of Authorization (SWLA), or as otherwise authorized by the DEQ (e.g., new beneficial off-site re-use rules).
- *Black Layer.* A 1-inch thick, black layer is present approximately 2 feet bgs in silt/debris fill that extends westward beyond the west fence of the excavation in the northwest corner of the site. This layer may extend to the property line by the Broadway ramp. PAHs, lead, and possibly other metals are likely present in this layer. This layer should be disposed of as non-hazardous solid waste in a Subtitle D landfill.
- *Fine-Grained Soils (Greater than 4 Feet Deep).* Arsenic has been detected at concentrations above background levels (7 mg/kg) in several soil samples from below a depth of 4 feet (see Figure 6). If not re-tested, these soils can only be

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re-used on site below 4 feet bgs or disposed of as non-hazardous solid waste in a Subtitle D landfill. If testing confirms concentrations less than or equal to 7 mg/kg, the soil can be managed as clean fill.

- **Burn Layer.** Remedial excavation has removed this layer from the base of the silt/debris unit in the southeastern portion of the site. However, if a black layer of burned building debris is encountered, it may be contaminated with TPH, PAHs, arsenic, and lead. Additional testing of this material (TCLP lead) is necessary before transport off the site to determine the proper disposal facility (Subtitle C or D landfill).
- **Gasoline-Contaminated Soil.** Remedial excavation has removed this gasoline-contaminated soil from the southern portion of the block (Figure 3). Residual concentrations (less than 8 mg/kg) are below clean fill criteria and no further management of gasoline-contaminated soil is necessary. If other petroleum-contaminated soil is encountered, it will require chemical profiling to identify proper management protocols (likely non-hazardous solid waste in a Subtitle D landfill or other facility permitted by an SWLA).

4.1.2 Potential Contaminant Indicators

Many forms of soil contamination are only detectable with the use of environmental testing equipment or analytical testing. For soil, however, there are generally observable indicators of contamination such as staining, sheens, and odor. Non-soil fill, USTs, piping, etc., could also have associated contamination. These indicators are described below.

Staining. Some types of contaminants will stain or discolor soil that it is visibly noticeable compared to typical soil colors. Staining in soil from contaminants usually results in a darkening of the soil color, often causing the soil to appear dark gray to black. In rare cases, other colorations may be present. Stains can range from being difficult to visibly detect to very obvious. Petroleum hydrocarbons are the most commonly encountered contaminants that cause staining, are most likely to be encountered during excavation activities at the site, and could also possibly exhibit sheens and odors. Other non-petroleum contaminants may also cause staining, which would require further assessment.

Sheens. Some types of contaminants, such as petroleum hydrocarbons, will produce a sheen on water when contaminated soil is placed in water. Sheens typically have a silvery, reflective quality. Heavy contamination can result in iridescent, rainbow-like colors. Sheen may also cause the soil to have a shiny or glossy appearance. Sheens can range from being difficult to visibly detect to very obvious. Petroleum hydrocarbons are the most commonly encountered contaminants that will cause a sheen, although other contaminants (typically

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organic liquids) and naturally-occurring organic matter in the soil may also cause sheens. Sheens are often associated with staining or odors, particularly for petroleum products.

Odors. Some contaminants emit odors when exposed to the atmosphere. Odors can be very faint to strong, and range from sweet smelling to pungent. Odors are usually detected inadvertently during excavation or stockpiling of soil, and are usually noticeably different than typical odors in the air. The most commonly encountered contaminants that cause odors in soil are solvents and petroleum hydrocarbons, although other contaminants may have noticeable odors. Other common contaminant indicators that may occur with odors are staining or sheens.

Unusual Fill Appearance or Condition. Materials that are dumped, used as fill, or otherwise placed in the environment may be contaminated (or could cause contamination), and could result in an unusual appearance or condition during excavation. Unusual appearance or conditions to be aware of include layers or zones of non-soil material (e.g., ash, sludge, and/or slag of various colors), buried tanks or containers (which could contain chemicals or chemical residue), unanticipated utilities or conduits (which could be unidentified chemical lines, etc.), and/or moisture in the soil that appears to be something other than water.

4.1.3 Field Screening Tests

If suspected contaminated soil is encountered, the Excavation Contractor will immediately notify the Developer and the Environmental Consultant to conduct field screening and/or sampling and analysis. Field screening tests will be performed to evaluate whether contaminants are present. Field screening tests are as follows. All field observations should be documented.

- *Visual Indications.* Soil will be observed for the occurrence of oily liquids, significant staining, or significant odor. If observed, the soil should be considered contaminated.
- *Sheen Tests.* Field testing of soil for sheen will be conducted by placing soil in a plastic bag or glass jar, adding water to the soil, and mixing the soil and water. If sheen is observed, the soil should be considered contaminated unless testing indicates otherwise.
- *Vapor Monitoring.* Screening of soil for VOCs using a photoionization detector. If a VOC vapor concentration in excess of 25 parts per million is measured in soil, the soil should be considered contaminated.

If these tests indicate that contaminant is present or suspected, additional field screening may be conducted, samples may be collected to confirm the presence

of contamination, or the soil can be transported directly to an appropriate off-site disposal facility.

Elevated metal concentrations are typically not amenable to detection by the above field screening tests. Suspected metals-contaminated soils, including fine-grained soils below 4 feet bgs with potentially elevated arsenic concentrations, will require evaluation through sampling and analysis. Alternatively, an X-ray fluorescence (XRF) analyzer can be rented to field screen soil for metals. An XRF analyzer can provide real-time concentrations for up to 20 other metals.

4.1.4 Sampling Protocols

Previous data are available that either indicates the absence of contamination or the type and magnitude of contamination present in various soil/material types at the site (see Section 4.1.1). However, additional samples will or may be obtained for analysis for the reasons described below. If so, sample locations will be noted and recorded so that they can be described or plotted in site closure documentation. The Environmental Consultant will collect the samples in clean, laboratory-supplied containers.

Assessment for Arsenic in Fine-Grained Soils. As indicated in Section 4.1.1 and on Figure 6, arsenic has been detected above anticipated background concentrations (7 mg/kg) in several fine-grained soil samples below a depth of 4 feet. If fine-grained soils are excavated during redevelopment below this depth, retesting will be necessary to assess whether elevated arsenic concentrations exist if the soil is to be re-used on site within 4 feet of the ground surface or sent off the site as clean fill. Without testing, soil can either be re-used below a depth of 4 feet or disposed of as a non-hazardous solid waste in a Subtitle D landfill.

Testing of fine-grained soils below 4 feet bgs will be performed as follows. A composite sample will be collected from every 100 cubic yards (cy), or portion thereof, of fine-grained soil that has either been excavated and stockpiled or is planned to be excavated. Each composite sample will be composed of at least five subsamples obtained at discrete locations representative of the entire 100 cy (or portion thereof). Subsample soil shall be thoroughly mixed prior to placement into a sample jar for submission for arsenic analysis.

Reclassification of Contaminated Soil Types. In Section 4.1.1, silt/debris fill is considered contaminated. If apparently inert and uncontaminated silt/debris fill is encountered during redevelopment, it could be retested to determine if it meets clean fill screening levels. Samples of the silt/debris (either excavated and stockpiled or of material to be excavated) should be analyzed for TPH, PAHs, and metals. If

analytical results are below clean fill screening levels applicable at the time of excavation, the soil may be re-used off the site as clean fill.

Verification of “Clean” Excavated Soils. “Clean” soils were designated in Section 4.1.1. If desired, “clean” excavated soil may also be sampled to confirm the absence of contamination prior to disposal off the site. If sample results indicate detectable levels of contamination, the soil will be transported off-site to an appropriate landfill, SWLA facility, or other DEQ-approved off-site location for disposal, depending on the concentrations detected.

Assessing Suspect Contaminated Soil. If chemical data are not available and field indications of potential contamination are present in soil from a specific area, a sample of the suspect soil can be obtained for chemical analysis. Suspect contaminated soil should not be excavated until adequately assessed by the Environmental Consultant through field screening and/or analytical testing. If suspect soil has already been excavated, it should be stockpiled on and covered with plastic until the proper method of disposal is determined. A composite sample will be collected from the stockpiled soil for chemical analysis. Each composite sample will be composed of at least three subsamples obtained at discrete locations from the stockpile.

Profiling of Soil for Off-Site Disposal. Sampling may also be required by the landfill to obtain their approval for disposal. Existing data might be allowed, although landfill operators typically require more recent data (e.g., less than a year old) for profiling. As such, a representative sample of the contaminated soil type will be obtained for chemical analysis. Existing data may be used to guide where this sample should be collected.

Confirmation Samples from Excavation Limits. Based on existing data and results from the remedial activities, additional collection of confirmation samples is not required after removal of silt/debris, the black layer, or fine-grained soils. If other contaminated soils are discovered, discrete confirmation sampling may be warranted to document the residual concentrations at the excavation limits. The number of samples should be adequate to determine whether contamination exists and to support a risk-based evaluation of detectable residual concentrations.

Profiling of Burn Layer Material. Remedial excavation has removed this layer from the site. However, if a black layer of burned building debris is encountered, previous TCLP lead data indicates that it may or may not be hazardous waste. A composite sample of four subsamples should be obtained from each approximately 1,000 square feet area of exposed burn layer or every 40 cy of excavated and stockpiled material. The TCLP lead results on this sample will be used to designate

the burn layer in that area or stockpile and its appropriate disposal facility (Subtitle C or D landfill).

4.1.5 Analytical Protocols

Soil samples will be submitted to an Oregon-licensed analytical laboratory for chemical analysis. Samples should be analyzed by Northwest methodology and EPA SW-846 methods, as indicated below. The analytical program for samples collected in Section 4.1.4 is as follows.

- Assessment for Arsenic in Fine-Grained Soils. Arsenic by EPA Method 6020.
- Reclassification of Contaminated Soil Types. Samples of silt/debris fill should be analyzed for TPH as gasoline by NWTPH-Gx and as diesel/oil by NWTPH-Dx, PAHs by EPA Method 8270-SIM, and RCRA 8 metals (those listed in Table 4) by EPA Method 6020/7471A.
- "Clean" Excavated Soil. Hydrocarbon identification (HCID) by Northwest Method NWTPH-HCID with quantification of detected fuel types, and PAHs and RCRA 8 metals per the above methods.
- Assessing Suspect Contaminated Soil. HCID with quantification of detected fuel types and RCRA 8 metals per the above methods. If VOCs are indicated by field screening, samples will be analyzed for VOCs by EPA Method 8260B. If relatively high TPH concentrations are present, analysis for polychlorinated biphenyls (PCBs) should be performed.
- Profiling of Soils for Off-Site Disposal. Any facility receiving soil from the site (e.g., landfill) should be contacted as to their requirements for acceptance.
- Confirmation Samples from Excavation Limits. Samples should be analyzed for contaminants detected in the contaminated soil that was excavated. If relatively higher concentrations of TPH-contaminated soil (greater than 100 mg/kg) are to be left in place, chemical analysis for PAHs by EPA Method 8270-SIM should be performed to assess risks.
- Burn Layer Material. Leachable (TCLP) lead by EPA Method 1311/6010.

4.2 Management of Contaminated Soil

This section describes the management of contaminated soil excavated during redevelopment of the property. Temporary storage, loading, and transportation protocols and permits/approvals are also discussed.

4.2.1 Soil Management Procedures

Soils excavated and materials removed during development of the property will be managed in accordance with the procedures listed below. All excavated soil should be assessed for potential contamination using the methods described in Section 4.1.2. Any soil suspected of being contaminated should be evaluated by the Environmental Consultant through field screening and/or chemical analysis.

Pavement and Concrete. Asphalt-concrete pavement and concrete should be recycled or disposed of as construction debris. Excessively oil stained concrete, however, should be disposed of as non-hazardous solid waste in a Subtitle D landfill.

“Clean” Excavated Soils. “Clean” excavated soils are those soils that do not exhibit field evidence of contamination or which have been tested and are not contaminated (below clean fill screening levels or with metals concentrations at or below natural background levels). These soils consist of base course, planter soils, crushed gravel backfill, and fine-grained soils from the upper 4 feet of the site (i.e., 0 to 4 feet bgs). These soils can be re-used on the site if geotechnically suitable, transported off the site for clean fill, or disposed of as construction debris.

Fine-Grained Soils (Greater than 4 Feet Deep). Fine-grained soils deeper than 4 feet deep are to be managed as follows based upon re-testing for arsenic (per the protocols of Section 4.1.4 and 4.1.5)

- Untested: Soils can only be re-used on site below 4 feet bgs or disposed of as non-hazardous solid waste in a Subtitle D landfill.
- Re-Tested: Arsenic ≤ 7 mg/kg. If re-testing shows arsenic concentrations equal to or less than 7 mg/kg, the soil can be re-used on the site if geotechnically suitable, transported off the site for clean fill, or disposed of as construction debris.
- Re-Tested: Arsenic > 7 mg/kg. Soil with arsenic concentrations greater than 7 mg/kg can be re-used on the site below 4 feet bgs or disposed of as non-hazardous solid waste in a Subtitle D landfill.

Non-hazardous Contaminated Soils. Non-hazardous contaminated soils include silt/debris fill, black layer material, and burn layer material that has been tested and has TCLP lead concentrations of 5 mg/L or less. These soils will be disposed of at a permitted non-hazardous waste landfill. Nearby facilities are located in Hillsboro (Hillsboro Landfill), McMinnville (Riverbend Landfill), Corvallis (Coffin Butte Landfill), and Wasco County (North Wasco County Landfill). Because free liquids are not allowed in material disposed of at a landfill, excavated soil should be dewatered and/or mixed with adsorbent prior to transport for disposal.

Other options, with DEQ approval, include re-use on the site if the soil meets urban residential RBCs and is geotechnically suitable; disposal at a SWLA facility; or re-use at another off-site location approved by the DEQ (e.g., through new beneficial off-site re-use rules).

Hazardous Contaminated Soils. If TCLP lead analysis on burn layer material exceeds 5 mg/L, the material will be designated as a hazardous waste (D008). The Excavation Contractor will arrange for off-site transport and treatment and/or disposal at a RCRA permitted facility (e.g., the Arlington Landfill in Arlington, Oregon). If other hazardous soils are discovered, they should also be managed in a similar manner as described for hazardous burn layer material.

Suspect Contaminated Soils. Suspect contaminated soil or foreign materials should not be disturbed by excavation because of issues involving worker safety and waste characterization must first be evaluated. If disturbed or excavated, it should be temporarily stockpiled in Section 4.2.2. An exclusion zone will be set up using appropriate barriers such as temporary fencing, orange netting, and/or warning tape. The Excavation Contractor will notify the Environmental Consultant to evaluate the suspect soil through field screening and/or analytical testing. If contamination is confirmed, the soil will be managed in accordance with the above management procedures for non-hazardous and hazardous soils.

4.2.2 Temporary Storage Protocols

The Owner/Developer may allow temporary storage of suspect or known contaminated soil on the site pending waste characterization, while awaiting transport off the site, or awaiting re-use on the site. Stockpiles should not exceed 8 feet in height and a steeper than 1 vertical to 1.5 horizontal slope. Erosion controls will be employed to prevent stormwater run-on and run-off and wind erosion. Stockpiled soil will be stored on and covered with 30-mil plastic at all times (except during soil placement or removal). The plastic should be secured against wind and rain, and sloped to drain precipitation without ponding. Storage locations will be on the site and in an area where the piles will not affect stormwater discharge and will be inaccessible to the general public. Stockpiles shall be managed to prevent mixing with other materials. Upon completion of stockpiling, all evidence of stockpiling shall be removed.

4.2.3 Loading and Transportation

Transportation of contaminated soil requires specific manifesting, licensing, and insurance requirements. Under no circumstances will contaminated soil leave the site without acceptance by the off-site disposal facility(ies).

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Contaminated soil will be loaded and transported using procedures preventing a release to the environment. Loading of soil will be performed in a manner that maintains a condition of no visible dust in the work area. Transport vehicles (e.g., dump trucks, pups) shall also avoid coming into contact with impacted material and tracking it off the site. If transporting soils and debris could generate dust, the loads shall be tarped or otherwise completely enclosed. Prior to departure from the site, all loose soil will be brushed from the vehicles and collected for appropriate disposal. Bills of lading shall be signed by the Excavation Contractor.

For transport of hazardous soils, a licensed hazardous waste transporter is required. The vehicle used to transport the waste shall be lined with plastic, tarped or otherwise enclosed, and properly placarded. Prior to departure, a hazardous waste manifest and accompanying land disposal restriction notification shall be properly filled out and signed by the Property Owner or their agent and transporter.

4.2.4 Permits and Approvals

The Owner/Developer or, if assigned, the Excavation Contractor will be responsible for obtaining permits for earthwork activities at the project site. For contaminated soil, approvals and permits will be required from off-site disposal facilities for treatment or disposal of contaminated soil. For hazardous waste transport and disposal, additional registration, storage, labeling, and manifesting requirements are required. The Owner/Developer or their Excavation Contractor or Environmental Consultant will arrange the off-site disposal of contaminated soil.

4.3 Contamination Control

Earthwork activities in an area of soil contamination will be performed in a manner that minimizes cross-contamination with clean soil. Loading of soil will be performed to minimize dust generation. If contaminated soils spill onto clean areas during loading, the impacted materials shall be immediately removed for appropriate disposal. Similarly, loose soil on transport vehicles will be brushed off and collected for appropriate disposal. Tracking of soil from contaminated areas will be eliminated or minimized using decontamination procedures presented below.

Earthwork equipment contacting contaminated soils is considered contaminated and will require decontamination upon exiting the contaminated soil work area. Decontamination will consist of removing gross contamination by brushing, followed by cleaning with a pressurized steam cleaner or water jet until all visible traces of soil are removed. Sampling equipment (e.g., stainless steel spoons) will also be decontaminated by washing in a detergent solution followed by tap and

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distilled water rinses. Decontamination water will be collected to the maximum extent practicable, containerized (e.g., 55-gallon steel drums), and transported to an off-site wastewater treatment facility permitted to receive, treat, and dispose of such wastes. Analytical profiling of the decontamination water may be required.

When working in contaminated soil work areas (including excavation of fine-grained soil below 4 feet deep), personal protective equipment (PPE) will be worn in accordance with the Health and Safety Plan (HSP) prepared for use by each entity. Disposable personal protective clothing and trash will be accumulated and disposed of as solid waste by the entity generating these wastes. Non-disposal PPE will be decontaminated using the above methods for sampling equipment if possible; otherwise it will be brushed off to remove as much soil as possible and laundered prior to wearing again.

5.0 OTHER EXCAVATION-RELATED ACTIVITIES

During excavation for redevelopment, other activities will be performed that have environmental components. These include use of clean, imported material as backfill and the management of water from dewatering the excavation. These topics are discussed below.

5.1 Imported Material

All materials (e.g., soil, rock, crushed concrete) imported to the site for use as fill must be uncontaminated and free of debris. It also must be determined to be acceptable by the Owner/Developer and the Environmental Consultant. Purchases of native materials (e.g., crushed rock) from commercial source must be supported by receipts and/or weight tickets. Otherwise, non-commercial sources of fill material or materials of unknown origin must be supported by chemical analysis to document that the materials are uncontaminated. Samples of such material must be collected and analyzed prior to the material being hauled to the site.

Fill materials arriving at the site are subject to inspection by the Owner/Developer or Environmental Consultant for debris or evidence of contamination. If there is any question regarding the potential presence of contamination, unloading will stop until the Environmental Consultant can assess the material. Backfill material will be compacted as appropriate depending on the construction requirements of the backfilled areas.

5.2 Excavation Dewatering

During excavation activities, the Excavation Contractor will use all appropriate measures to minimize stormwater from entering the excavation where contaminated soil is present or suspected. If stormwater enters into such an excavation and dewatering is necessary, the wastewater will need to be profiled to assess whether it is contaminated and to determine the method of disposal. Water from excavations where contaminants are not present can be handled per typical construction practices. Excavation activities are not expected to encounter shallow groundwater; however, if groundwater is encountered, it should be considered contaminated and sampled as described below.

Temporary Storage Protocols. Potentially contaminated water may be left in the excavation until characterized through chemical analysis. However, it will be more practicable to pump the water into an above-ground storage tank for temporary holding while being tested (samples would then be obtained from the storage tank). The storage tank should be located where it does not interfere with construction activities and will be inaccessible to the general public. Water contacting the burn layer (if present) cannot be assumed to be non-hazardous. Written logs will be maintained regarding the origin, volume, and storage of water removed from excavations.

Sampling and Analysis. The Excavation Contractor shall obtain a sample of the wastewater for chemical analysis per the requirements of the proposed facility or Publicly Owned Treatment Works (POTW) permitted to receive, treat, and/or dispose of the wastewater (the facility will also need to be approved by the Owner/Developer). Care should be taken to minimize the amount of turbidity in the sample, such as allowing suspended solids to settle prior to sample collection or filtering the water prior to adding to the storage tank.

Chemical analyses that may be required by the facility or POTW (i.e., City of Portland Bureau of Environmental Services) include TPH; benzene, toluene, ethylbenzene, and total xylenes (BTEX); metals (cadmium, chromium, and lead); and/or total suspended solids. If water has contacted burn layer material, the wastewater will require analysis for lead by EPA Method 6020 or for leachable lead by EPA Method 1311/6020 (as this is a water sample, the results of both methods would be similar).

Disposal. Upon receipt of analytical results, the Excavation Contractor will obtain the necessary permit and/or approval from the disposal facility or POTW. When approved, the Excavation Contractor can dispose of the wastewater in accordance with the permit and/or approval. If the water is determined to be a hazardous waste (due to lead results exceeding 5 mg/L), the water will be

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handled and transported in accordance with hazardous waste regulations, including manifesting, labeling and use of a licensed hazardous waste transporter. Bills of lading, manifests, and/or disposal receipts will be required, as appropriate, by the Owner/Developer as proof of proper disposal of wastewater.

6.0 HEALTH AND SAFETY

Because contamination is present in soil and groundwater at the site (Section 2.3.2 and 2.3.3, respectively), site personnel should be made aware of the potential for encountering contaminated media. Current site data indicates arsenic in soil deeper than 4 feet may pose an unacceptable risk to construction workers. Carcinogenic PAHs may also be present in the black layer (northwest perimeter of the site). It is the responsibility of each involved entity to conduct their own hazard assessment to determine appropriate health and safety measures.

6.1 Worker Safety

Each involved entity is responsible for the safety of their respective workers. This includes implementation of any training requirements, safety plans, monitoring, certifications, and any other action or requirement that may be required or prudent prior to beginning site activities. This Updated CMMP or other notification must be provided to employees who will be working on site. Prior to any ground-disturbing activities, a utility locate should be performed to identify potential utilities in proposed work areas.

Each involved party will make preliminary assessments of potentially contaminated media as it relates to worker safety. Occupational health guidelines for chemical hazards (i.e., OSHA and NIOSH) can be used to evaluate site conditions. The evaluation should consider exposure limits (i.e., TWA, STEL, PEL), exposure symptoms, and personal protection equipment. Specific recommendations should be provided to protect worker safety. Contact with deeper fine-grained soil (either untested or with concentrations over 13 mg/kg [the construction worker RBC]) should be minimized through use of gloves and overalls (with laundering after use), dust control measures, and hand and face washing before breaks or leaving the site.

All entities are responsible for notifying and updating others and their employees of potential site hazards that may be encountered during the project. Testing, management, handling, excavation, transportation, etc., of contaminated media may require persons with 40-hour Hazardous Waste Operation & Emergency Response (29 CFR 1910.120). Each party involved should assess the need for this training on the basis of current information for the site.

6.2 Health and Safety Plan

Parties involved should prepare a site-specific HSP for their employees to cover safety issues related to specific environmental hazards that may be encountered. All parties will be responsible for compliance with their HSP, including use of appropriate personal protection equipment.

7.0 CLOSURE DOCUMENTATION

During redevelopment, the excavation and disposal/re-use of any contaminated soil will be documented in the field and with a site closure report. If residual contaminant concentrations are present, a risk-based assessment will be added to the site closure report. Required documentation is presented below.

Field Documentation. When managing contaminated soil during redevelopment activities, the Environmental Consultant will record, at a minimum, field screening results on in-place and excavated soil; on-site observations of excavation and soil management activities (including truck logs); removal, storage, and/or discharge volumes and rates of water from excavations; sampling and analytical methods and results; and communications with involved parties and regulatory agencies.

Site Closure Report. At the conclusion of the remedial excavation activities, a site closure report will be prepared that will include, but is not limited to:

- Description of excavation and soil management activities, including sampling activities and results, and the amount and types of contaminated soil excavated and its disposal;
- A discussion of handling of water removed during dewatering activities, including temporary storage, sampling activities and results, the volume and/or rate of wastewater disposed, and its disposal location;
- Site maps indicating areas where contaminated soil was removed; where it remains (if any); and where it was re-used;
- Photographs of site activities; and
- Copies of analytical laboratory reports, permits and approvals, and disposal manifests and receipts.

Risk-Based Closure. If contaminated soils with concentrations of TPH or chemical compounds above urban residential RBCs remain on or adjacent to the site, the closure report will include a risk-based assessment that will compare residual contaminant concentrations to applicable RBCs for site receptors and

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potentially complete exposure pathways. For possible on-site exposures, the risk-based assessment will include the following receptors: urban residents, construction workers, and excavation workers. Should contamination extend off the site into the City rights of way, off-site receptors will include only excavation workers as utility infrastructure is already in place. Potentially complete exposure pathways for these receptors will include direct soil contact and volatilization of contaminants in soil to indoor or outdoor air. Based on this assessment, the DEQ may require certain engineering or institutional controls.

8.0 REFERENCES

DEQ, 2003. *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites*. September 22, 2003.

DEQ, 2008a. Clean Fill Screening Table for Unrestricted Upland Disposal Greater Than 100 Feet From a Surface Water Body. May 2, 2008.

DEQ, 2008b. Excel® Spreadsheet for Risk Based Concentrations for Individual Chemicals. October 2008.

DEQ, 2009. *File Memorandum, Block U – ECSI #3102, NW 6th Avenue & NW Hoyt Street, Portland, Oregon*. September 30, 2009.

Hart Crowser, 2003. *Remedial Investigation Report, River District – Block U, NW Sixth Avenue and NW Hoyt Street, Portland, Oregon*. January 30, 2003.

Hart Crowser, 2008a. *Pre-Construction Investigation at Block U, NW 6th Avenue and NW Hoyt Street, Portland, Oregon*. July 24, 2008.

Hart Crowser, 2008b. *Contaminated Media Management Plan, Block U, NW Sixth Avenue and NW Hoyt Street, Portland, Oregon*. October 23, 2008.

Hart Crowser, 2009. *Site Closure Report, Block U - NW Sixth Avenue and NW Hoyt Street, Portland, Oregon*. June 29, 2009.

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**Table 1 - Soil Chemical Analyses Results: Petroleum Hydrocarbons
Block U - NW Sixth Avenue and NW Hoyt Street
Portland, Oregon**

Sample	Date	Depth in Feet	Sheen?	PID Reading	HCID			Gasoline	Diesel	Oil
					Gasoline	Diesel	Oil			
Previous Investigations					Concentration in mg/kg (ppm)					
U-1@5-6	24-Mar-00	5-6	-	<5	-	-	-	-	<25	<100
U-2@5-6	23-Mar-00	5-6	-	<5	<20	<50	<100	-	-	-
U-3@5-6	24-Mar-00	5-6	-	<5	<20	<50	<100	-	-	-
U-4@5-6	24-Mar-00	5-6	-	<5	<20	<50	<100	-	-	-
U-6@7-8	24-Mar-00	7-8	-	1,621	<20	<50	<100	-	-	-
U-7@5-6	24-Mar-00	5-6	-	<5	<20	<50	<100	-	-	-
U-8/S-2	5-Aug-00	4-8	No	<5	-	-	-	<0.676	<27.0	<67.6
U-9/S-2	5-Aug-00	6.5-8	No	<5	-	-	-	<0.658	<26.3	<65.8
U-11/S-1	5-Aug-00	1-4	No	<5	-	-	-	-	<24.1	<60.2
U-11/S-3	5-Aug-00	10.5-12	No	<5	-	-	-	-	<26.7	<66.7
U-12/S-1	5-Aug-00	1-4	No	<5	-	-	-	-	<24.4	<61.0
U-12/S-2	5-Aug-00	5-8	No	<5	-	-	-	-	<25.0	<62.5
U-14/S-1	5-Aug-00	1-4	No	<5	-	-	-	-	<23.5	<58.8
U-15/S-1	5-Aug-00	1-4	No	<5	-	-	-	-	<24.7	<61.7
U-16/S-9	10-Mar-02	16-18	No	12	-	-	-	4.28	-	-
U-18/S-3	10-Mar-02	4-6	No	<5	-	-	-	-	<25.0	<62.5
U-19/S-1	10-Mar-02	1-2	No	<5	-	-	-	-	<26.0	<64.9
U-20/S-1	10-Mar-02	1-2	No	<5	-	-	-	-	<25.6	<64.1
U-21/S-3	10-Mar-02	4-6	No	<5	-	-	-	-	<25.0	<62.5
U-23/S-4	10-Mar-02	6-8	No	<5	-	-	-	-	<25.3	<63.3
Removal Action										
C-1B2	19-Jan-09	10	No	<5	-	-	-	-	<28.5	<57.0
C-1W	15-Jan-09	6	No	<5	-	-	-	-	<34.7	<69.3
C-3	15-Jan-09	4	-	-	-	-	-	-	<27.8	<55.5
C-5	19-Jan-09	4-5	-	-	-	-	-	-	<29.5	<58.9
C-6NB2	13-Feb-09	20	No	<5	-	-	-	<6.83	<30.5	<61.0
C-6NW2	13-Feb-09	14	No	<5	-	-	-	<6.80	<28.0	<56.0
C-7B	4-Feb-09	19	No	200	-	-	-	<5.72	<28.2	<56.5
C-7B3	10-Feb-09	19	Slight	500	-	-	-	<6.35	<31.2	<62.4
C-7S	4-Feb-09	17	No	<5	-	-	-	<5.42	<27.3	<54.6
C-7S2	4-Feb-09	17	No	<5	<24.4	<60.9	<122	-	-	-
C-7S3	9-Feb-09	17	No	<5	-	-	-	<6.12	<28.4	<56.9
C-8B	20-Jan-09	17	No	58	-	-	-	<6.97	<28.2	<56.3
C-8WE	20-Jan-09	14	No	<5	-	-	-	<5.74	<25.6	<51.2
C-8WN	20-Jan-09	14	No	<5	-	-	-	7.49	<29.9	<59.9
C-8WS	20-Jan-09	10	No	<5	-	-	-	<6.45	<30.2	<60.5
C-10NB	12-Feb-09	19	No	<5	-	-	-	<6.14	<30.4	<60.8
C-10NW	12-Feb-09	17	No	<5	-	-	-	<6.58	<43.3	<86.6
C-10S	13-Feb-09	14	No	<5	-	-	-	<6.32	<27.7	<55.4
C-10W	11-Feb-09	17	No	100	-	-	-	<6.21	<41.3	<82.7
SW-E/17'	19-Feb-09	17	-	-	-	-	-	<6.22	<31.5	<63.1
Clean Fill Screening Level					26	100		26	100	
Urban Residential RBC					140	8,300	-	140	8,300	-

Notes:

1. Hydrocarbon identification (HCID) by Northwest Method NWTPH-HCID.
2. Gasoline by Northwest Method NWTPH-Gx.
3. Diesel and oil by Northwest Method NWTPH-Dx.
4. Results reported on a dry weight basis.
5. - = Not analyzed or not available.
6. < = Not detected above the indicated laboratory method reporting limit.
7. Shading denotes a detected concentration.
8. Clean fill screening levels from DEQ's soil management guidance (DEQ, 2008a).
9. Risk-based concentrations (RBCs) are the most stringent urban residential RBC for direct contract or volatilization pathways from DEQ's RBC spreadsheet (DEQ, 2008b). As groundwater is not used, the leaching pathway is not complete.

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**Table 2 - Soil Chemical Analyses Results: PAHs
Block U - NW Sixth Avenue and NW Hoyt Street
Portland, Oregon**

			Non-Carcinogenic PAHs							
			Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)perylene	Fluoranthene	Fluorene	Phenanthrene	Pyrene
Sample	Date	Depth in Feet								
Previous Investigations			Concentration in mg/kg (ppm)							
U-8/S-2	5-Aug-00	4-8	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
U-9/S-1	5-Aug-00	2-4	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
U-9/S-2	5-Aug-00	6.5-8	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
U-11/S-1	5-Aug-00	1-4	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
U-12/S-1	5-Aug-00	1-4	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
U-13/S-1	5-Aug-00	2-4	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
U-18/S-3	10-Mar-02	4-6	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
U-21/S-3	10-Mar-02	4-6	<0.0500	<0.0500	<0.0500	<0.0500	0.125	<0.0500	0.0600	0.0800
U-22/S-2	10-Mar-02	1.5-4	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Removal Action										
C-9B	22-Jan-09	4	<0.00907	<0.00907	<0.00907	<0.00907	<0.00907	<0.00907	<0.00907	<0.00907
Clean Fill Screening Level			20	-	590	-	2.23	28	-	210
Urban Residential RBC			5,900	-	41,000	-	4,600	5,200	-	3,400

Sample	Date	Depth in Feet	Carcinogenic PAHs							
			Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Naphthalene
Previous Investigations			Concentration in mg/kg (ppm)							
U-8/S-2	5-Aug-00	4-8	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
U-9/S-1	5-Aug-00	2-4	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
U-9/S-2	5-Aug-00	6.5-8	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
U-11/S-1	5-Aug-00	1-4	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
U-12/S-1	5-Aug-00	1-4	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
U-13/S-1	5-Aug-00	2-4	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
U-18/S-3	10-Mar-02	4-6	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
U-21/S-3	10-Mar-02	4-6	<0.0500	<0.0500	<0.0500	<0.0500	0.0650	<0.0500	<0.0500	<0.0500
U-22/S-2	10-Mar-02	1.5-4	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Removal Action										
C-9B	22-Jan-09	4	<0.00907	<0.00907	<0.00907	<0.00907	<0.00907	<0.00907	<0.00907	<0.00907
Clean Fill Screening Level			0.08	0.015	0.15	1.5	8	0.015	0.15	3.8
Urban Residential RBC			0.31	0.031	0.31	3.1	31	0.031	0.31	9.6

Notes:

1. Polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270-SIM.
2. All results reported on a dry weight basis.
3. - = Compound not analyzed for or screening level not available.
4. < = Not detected above the indicated laboratory method reporting limit.
5. Shading denotes a detected concentration.
6. Clean fill screening levels from DEQ's soil management guidance (DEQ, 2008a).
7. Risk-based concentrations (RBCs) are the most stringent urban residential RBC for direct contact or volatilization pathways from DEQ's RBC spreadsheet (DEQ, 2008b). As groundwater is not used, the leaching pathway is not complete.

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**Table 3 - Soil Chemical Analyses Results: VOCs
Block U - NW Sixth Avenue and NW Hoyt Street
Portland, Oregon**

VOC	Sample: Date: Depth (ft.): PID Reading	Previous Investigations			Removal Action			
		U-8/S-2	U-9/S-2	U-16/S-9	C-6NW2	C-6NB2	C-7B	C-7B3
		5-Aug-00	5-Aug-00	10-Mar-02	13-Feb-09	13-Feb-09	4-Feb-09	10-Feb-09
		4-8	6.5-8	16-18	14	20	19	19
		<5	<5	12	<5	<5	200	500
		Concentration in mg/kg (ppm)						
Acetone		<0.100	<0.100	<0.100	-	-	-	-
Benzene		<0.00500	<0.00500	<0.00500	<0.0213	<0.0213	<0.0179	<0.0199
Bromobenzene		<0.00500	<0.00500	<0.00500	-	-	-	-
Bromochloromethane		<0.00500	<0.00500	<0.00500	-	-	-	-
Bromodichloromethane		<0.00500	<0.00500	<0.00500	-	-	-	-
Bromoform		<0.00500	<0.00500	<0.00500	-	-	-	-
Bromomethane		<0.0100	<0.0100	<0.0100	-	-	-	-
2-Butanone		<0.100	<0.100	<0.100	-	-	-	-
n-Butylbenzene		<0.00500	<0.00500	<0.00500	-	-	-	-
sec-Butylbenzene		<0.00500	<0.00500	<0.00500	-	-	-	-
tert-Butylbenzene		<0.00500	<0.00500	<0.00500	-	-	-	-
Carbon disulfide		<0.00500	<0.00500	<0.00500	-	-	-	-
Carbon tetrachloride		<0.00500	<0.00500	<0.00500	-	-	-	-
Chlorobenzene		<0.00500	<0.00500	<0.00500	-	-	-	-
Chloroethane		<0.0100	<0.0100	<0.0100	-	-	-	-
2-Chloroethyl vinyl ether		<0.0500	<0.0500	<0.0500	-	-	-	-
Chloroform		<0.00500	<0.00500	<0.00500	-	-	-	-
Chloromethane		<0.0100	<0.0100	<0.0100	-	-	-	-
2-Chlorotoluene		<0.00500	<0.00500	<0.00500	-	-	-	-
4-Chlorotoluene		<0.00500	<0.00500	<0.00500	-	-	-	-
1,2-Dibromo-3-Chloropropane		<0.0100	<0.0100	<0.0100	-	-	-	-
Dibromochloromethane		<0.00500	<0.00500	<0.00500	-	-	-	-
1,2-Dibromoethane		<0.00500	<0.00500	<0.00500	<0.0425	<0.0427	<0.0358	<0.0397
Dibromomethane		<0.00500	<0.00500	<0.00500	-	-	-	-
1,2-Dichlorobenzene		<0.00500	<0.00500	<0.00500	-	-	-	-
1,3-Dichlorobenzene		<0.00500	<0.00500	<0.00500	-	-	-	-
1,4-Dichlorobenzene		<0.00500	<0.00500	<0.00500	-	-	-	-
Dichlorodifluoromethane		<0.0100	<0.0100	<0.0100	-	-	-	-
1,1-Dichloroethane		<0.00500	<0.00500	<0.00500	-	-	-	-
1,2-Dichloroethane		<0.00500	<0.00500	<0.00500	<0.0425	<0.0427	<0.0358	<0.0397
1,1-Dichloroethene		<0.00500	<0.00500	<0.00500	-	-	-	-
cis-1,2-Dichloroethene		<0.00500	<0.00500	<0.00500	-	-	-	-
trans-1,2-Dichloroethene		<0.00500	<0.00500	<0.00500	-	-	-	-
1,2-Dichloropropane		<0.00500	<0.00500	<0.00500	-	-	-	-
1,3-Dichloropropane		<0.00500	<0.00500	<0.00500	-	-	-	-
2,2-Dichloropropane		<0.00500	<0.00500	<0.00500	-	-	-	-
1,1-Dichloropropene		<0.00500	<0.00500	<0.00500	-	-	-	-
cis-1,3-Dichloropropene		<0.00500	<0.00500	<0.00500	-	-	-	-
trans-1,3-Dichloropropene		<0.00500	<0.00500	<0.00500	-	-	-	-
Ethylbenzene		<0.00500	<0.00500	<0.00500	<0.0425	<0.0427	<0.0358	<0.0397
Hexachlorobutadiene		<0.00500	<0.00500	<0.00500	-	-	-	-
2-Hexanone		<0.100	<0.100	<0.100	-	-	-	-
Iodomethane		<0.00500	<0.00500	<0.00500	-	-	-	-
Isopropylbenzene		<0.00500	<0.00500	<0.00500	<0.0850	<0.0853	<0.0715	<0.0794
4-Isopropyltoluene		<0.00500	<0.00500	<0.00500	-	-	-	-
4-Methyl-2-pentanone		<0.00500	<0.00500	<0.00500	-	-	-	-
Methyl-tert-butyl-ether		<0.0100	<0.0100	<0.0100	<0.0850	<0.0853	<0.0715	<0.0794
Methylene chloride		<0.100	<0.100	<0.100	-	-	-	-
Naphthalene		<0.0250	<0.0250	<0.0100	<0.425	<0.427	<0.358	<0.397
n-Propylbenzene		<0.00500	<0.00500	<0.00500	<0.0425	<0.0427	<0.0358	<0.0397
Styrene		<0.00500	<0.00500	<0.00500	-	-	-	-
1,1,1,2-Tetrachloroethane		<0.00500	<0.00500	<0.00500	-	-	-	-
1,1,2,2-Tetrachloroethane		<0.00500	<0.00500	<0.00500	-	-	-	-

Please refer to notes on the last page of this table.

**Table 3 - Soil Chemical Analyses Results: VOCs
Block U - NW Sixth Avenue and NW Hoyt Street
Portland, Oregon**

VOC	Sample: Date: Depth (ft.): PID Reading	Previous Investigations			Removal Action			
		U-8/S-2	U-9/S-2	U-16/S-9	C-6NW2	C-6NB2	C-7B	C-7B3
		5-Aug-00	5-Aug-00	10-Mar-02	13-Feb-09	13-Feb-09	4-Feb-09	10-Feb-09
		4-8	6.5-8	16-18	14	20	19	19
		<5	<5	12	<5	<5	200	500
Concentration in mg/kg (ppm)								
Tetrachloroethene	<0.00500	<0.00500	<0.00500	-	-	-	-	
Toluene	<0.00500	<0.00500	<0.00500	<0.0425	<0.0427	<0.0358	<0.0397	
1,2,3-Trichlorobenzene	<0.00500	<0.00500	<0.00500	-	-	-	-	
1,2,4-Trichlorobenzene	<0.00500	<0.00500	<0.00500	-	-	-	-	
1,1,1-Trichloroethane	<0.00500	<0.00500	<0.00500	-	-	-	-	
1,1,2-Trichloroethane	<0.00500	<0.00500	<0.00500	-	-	-	-	
Trichloroethene	<0.00500	<0.00500	<0.00500	-	-	-	-	
Trichlorofluoromethane	<0.0100	<0.0100	<0.0100	-	-	-	-	
1,2,3-Trichloropropane	<0.00500	<0.00500	<0.00500	-	-	-	-	
1,2,4-Trimethylbenzene	<0.00500	<0.00500	<0.00500	<0.0850	<0.0853	<0.0715	<0.0794	
1,3,5-Trimethylbenzene	<0.00500	<0.00500	<0.00500	<0.0850	<0.0853	<0.0715	<0.0794	
Vinyl acetate	<0.00500	<0.00500	<0.00500	-	-	-	-	
Vinyl chloride	<0.0100	<0.0100	<0.0100	-	-	-	-	
<i>m,p</i> -Xylene	<0.0100	<0.0100	<0.0100	-	-	-	-	
<i>o</i> -Xylene	<0.00500	<0.00500	<0.00500	-	-	-	-	
Total Xylenes	-	-	-	<0.128	<0.128	<0.107	<0.119	

Please refer to notes on the last page of this table.

**Table 3 - Soil Chemical Analyses Results: VOCs
Block U - NW Sixth Avenue and NW Hoyt Street
Portland, Oregon**

VOC	Sample: Date: Depth (ft.): PID Reading	Removal Action							
		C-7S	C-7S3	C-8WS	C-8WN	C-8WE	C-8B	C-10NB	C-10NW
		4-Feb-09	9-Feb-09	20-Jan-09	20-Jan-09	20-Jan-09	20-Jan-09	12-Feb-09	12-Feb-09
		17	17	10	14	14	17	19	17
		<5	<5	<5	<5	<5	58	<5	<5
Concentration in mg/kg (ppm)									
Acetone		-	-	<1.61	<1.74	<1.44	<1.74	-	-
Benzene		<0.0169	<0.0191	<0.0202	<0.0218	<0.0179	<0.0218	<0.0192	<0.0205
Bromobenzene		-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-
Bromochloromethane		-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-
Bromodichloromethane		-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-
Bromoform		-	-	<0.0806	<0.0871	<0.0718	<0.0871	-	-
Bromomethane		-	-	<0.0806	<0.0871	<0.0718	<0.0871	-	-
2-Butanone		-	-	<0.0806	<0.0871	<0.0718	<0.0871	-	-
n-Butylbenzene		-	-	<0.0806	<0.0871	<0.0718	<0.0871	-	-
sec-Butylbenzene		-	-	<0.0806	<0.0871	<0.0718	<0.0871	-	-
tert-Butylbenzene		-	-	<0.0806	<0.0871	<0.0718	<0.0871	-	-
Carbon disulfide		-	-	-	-	-	-	-	-
Carbon tetrachloride		-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-
Chlorobenzene		-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-
Chloroethane		-	-	<0.806	<0.871	<0.718	<0.871	-	-
2-Chloroethyl vinyl ether		-	-	-	-	-	-	-	-
Chloroform		-	-	<0.403	<0.435	<0.359	<0.435	-	-
Chloromethane		-	-	<0.403	<0.435	<0.359	<0.435	-	-
2-Chlorotoluene		-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-
4-Chlorotoluene		-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-
1,2-Dibromo-3-Chloropropane		-	-	<0.161	<0.174	<0.144	<0.174	-	-
Dibromochloromethane		-	-	<0.0806	<0.0871	<0.0718	<0.0871	-	-
1,2-Dibromoethane		<0.0339	<0.0383	<0.0403	<0.0435	<0.0359	<0.0435	<0.0384	<0.0411
Dibromomethane		-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-
1,2-Dichlorobenzene		-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-
1,3-Dichlorobenzene		-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-
1,4-Dichlorobenzene		-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-
Dichlorodifluoromethane		-	-	<0.161	<0.174	<0.144	<0.174	-	-
1,1-Dichloroethane		-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-
1,2-Dichloroethane		<0.0339	<0.0383	<0.0403	<0.0435	<0.0359	<0.0435	<0.0384	<0.0411
1,1-Dichloroethene		-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-
cis-1,2-Dichloroethene		-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-
trans-1,2-Dichloroethene		-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-
1,2-Dichloropropane		-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-
1,3-Dichloropropane		-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-
2,2-Dichloropropane		-	-	<0.0806	<0.0871	<0.0718	<0.0871	-	-
1,1-Dichloropropene		-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-
cis-1,3-Dichloropropene		-	-	<0.0806	<0.0871	<0.0718	<0.0871	-	-
trans-1,3-Dichloropropene		-	-	<0.0806	<0.0871	<0.0718	<0.0871	-	-
Ethylbenzene		<0.0339	<0.0383	<0.0403	<0.0435	<0.0359	<0.0435	<0.0384	<0.0411
Hexachlorobutadiene		-	-	<0.161	<0.174	<0.144	<0.174	-	-
2-Hexanone		-	-	<0.806	<0.871	<0.718	<0.871	-	-
Iodomethane		-	-	-	-	-	-	-	-
Isopropylbenzene		<0.0677	<0.0765	<0.0806	<0.0871	<0.0718	<0.0871	<0.0768	<0.0822
4-Isopropyltoluene		-	-	<0.0806	<0.0871	<0.0718	<0.0871	-	-
4-Methyl-2-pentanone		-	-	<0.0806	<0.0871	<0.0718	<0.0871	-	-
Methyl-tert-butyl-ether		<0.0677	<0.0765	<0.0806	<0.0871	<0.0718	<0.0871	<0.0768	<0.0822
Methylene chloride		-	-	<0.403	<0.435	<0.359	<0.435	-	-
Naphthalene		<0.339	<0.383	<0.403	<0.435	<0.359	<0.435	<0.384	<0.411
n-Propylbenzene		<0.0339	<0.0383	<0.0403	<0.0435	<0.0359	<0.0435	<0.0384	<0.0411
Styrene		-	-	<0.161	<0.174	<0.144	<0.174	-	-
1,1,1,2-Tetrachloroethane		-	-	<0.0806	<0.0871	<0.0718	<0.0871	-	-
1,1,2,2-Tetrachloroethane		-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-

Please refer to notes on the last page of this table.

**Table 3 - Soil Chemical Analyses Results: VOCs
Block U - NW Sixth Avenue and NW Hoyt Street
Portland, Oregon**

VOC	Sample: Date: Depth (ft.): PID Reading	Removal Action							
		C-7S	C-7S3	C-8WS	C-8WN	C-8WE	C-8B	C-10NB	C-10NW
		4-Feb-09	9-Feb-09	20-Jan-09	20-Jan-09	20-Jan-09	20-Jan-09	12-Feb-09	12-Feb-09
		17	17	10	14	14	17	19	17
		<5	<5	<5	<5	<5	58	<5	<5
Concentration in mg/kg (ppm)									
Tetrachloroethene	-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-	-
Toluene	<0.0339	<0.0383	<0.0403	<0.0435	<0.0359	<0.0435	<0.0384	<0.0411	-
1,2,3-Trichlorobenzene	-	-	<0.161	<0.174	<0.144	<0.174	-	-	-
1,2,4-Trichlorobenzene	-	-	<0.161	<0.174	<0.144	<0.174	-	-	-
1,1,1-Trichloroethane	-	-	<0.0806	<0.0871	<0.0718	<0.0871	-	-	-
1,1,2-Trichloroethane	-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-	-
Trichloroethene	-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-	-
Trichlorofluoromethane	-	-	<0.161	<0.174	<0.144	<0.174	-	-	-
1,2,3-Trichloropropane	-	-	<0.0806	<0.0871	<0.0718	<0.0871	-	-	-
1,2,4-Trimethylbenzene	<0.0677	<0.0765	<0.0806	4.27	<0.0718	<0.0871	<0.0768	<0.0822	-
1,3,5-Trimethylbenzene	<0.0677	<0.0765	<0.0806	0.0949	<0.0718	<0.0871	<0.0768	<0.0822	-
Vinyl acetate	-	-	-	-	-	-	-	-	-
Vinyl chloride	-	-	<0.0403	<0.0435	<0.0359	<0.0435	-	-	-
m,p-Xylene	-	-	<0.0806	<0.0871	<0.0718	<0.0871	-	-	-
o-Xylene	-	-	<0.0403	0.0470	<0.0359	<0.0435	-	-	-
Total Xylenes	<0.339	<0.115	-	-	-	-	<0.115	<0.123	-

Please refer to notes on the last page of this table.

**ATTACHMENT 9 TO GMP AMENDMENT
TO CM/GC CONTRACT NO. 4400001553**

**Table 3 - Soil Chemical Analyses Results: VOCs
Block U - NW Sixth Avenue and NW Hoyt Street
Portland, Oregon**

VOC	Sample: Date: Depth (ft.): PID Reading	Removal Action				Clean Fill Screening Level	Urban Residential RBC
		C-10S 13-Feb-09 14	C-10W 11-Feb-09 17	C-10W2 17-Feb-09 14	SW-E/17' 19-Feb-09 17		
		<5	100	<5	-		
Concentration in mg/kg (ppm)							
Acetone		-	-	-	-	-	-
Benzene		<0.0198	<0.0194	<0.0215	<0.0194	0.0084	0.15
Bromobenzene		-	-	-	-	-	-
Bromochloromethane		-	-	-	-	-	-
Bromodichloromethane		-	-	-	-	-	0.48
Bromoform		-	-	-	-	-	210
Bromomethane		-	-	-	-	-	1.3
2-Butanone		-	-	-	-	-	-
n-Butylbenzene		-	-	-	-	-	420
sec-Butylbenzene		-	-	-	-	-	78
tert-Butylbenzene		-	-	-	-	-	-
Carbon disulfide		-	-	-	-	-	-
Carbon tetrachloride		-	-	-	-	-	0.075
Chlorobenzene		-	-	-	-	-	58
Chloroethane		-	-	-	-	-	1.4
2-Chloroethyl vinyl ether		-	-	-	-	-	-
Chloroform		-	-	-	-	-	0.049
Chloromethane		-	-	-	-	-	0.63
2-Chlorotoluene		-	-	-	-	-	-
4-Chlorotoluene		-	-	-	-	-	-
1,2-Dibromo-3-Chloropropane		-	-	-	-	-	-
Dibromochloromethane		-	-	-	-	-	20
1,2-Dibromoethane		<0.0395	<0.0388	<0.0429	<0.0389	-	0.018
Dibromomethane		-	-	-	-	-	-
1,2-Dichlorobenzene		-	-	-	-	-	160
1,3-Dichlorobenzene		-	-	-	-	-	42
1,4-Dichlorobenzene		-	-	-	-	-	3.2
Dichlorodifluoromethane		-	-	-	-	-	-
1,1-Dichloroethane		-	-	-	-	-	0.71
1,2-Dichloroethane		<0.0395	<0.0388	<0.0429	<0.0389	-	0.071
1,1-Dichloroethene		-	-	-	-	-	54
cis-1,2-Dichloroethene		-	-	-	-	-	9.4
trans-1,2-Dichloroethene		-	-	-	-	-	16
1,2-Dichloropropane		-	-	-	-	-	-
1,3-Dichloropropane		-	-	-	-	-	-
2,2-Dichloropropane		-	-	-	-	-	-
1,1-Dichloropropene		-	-	-	-	-	-
cis-1,3-Dichloropropene		-	-	-	-	-	-
trans-1,3-Dichloropropene		-	-	-	-	-	-
Ethylbenzene		<0.0395	<0.0388	<0.0429	<0.0389	160	1.5
Hexachlorobutadiene		-	-	-	-	0.1	-
2-Hexanone		-	-	-	-	-	-
Iodomethane		-	-	-	-	-	-
Isopropylbenzene		<0.0790	<0.0776	<0.0859	<0.0777	2,300	1,200
4-Isopropyltoluene		-	-	-	-	-	-
4-Methyl-2-pentanone		-	-	-	-	-	-
Methyl-tert-butyl-ether		<0.0790	<0.0776	<0.0859	<0.0777	0.082	8.8
Methylene chloride		-	-	-	-	-	2.5
Naphthalene		<0.395	<0.388	<0.429	<0.389	3.8	9.6
n-Propylbenzene		<0.0395	<0.0388	<0.0429	<0.0389	52	140
Styrene		-	-	-	-	-	-
1,1,1,2-Tetrachloroethane		-	-	-	-	-	-
1,1,2,2-Tetrachloroethane		-	-	-	-	-	-

Please refer to notes on the last page of this table.

**Table 3 - Soil Chemical Analyses Results: VOCs
Block U - NW Sixth Avenue and NW Hoyt Street
Portland, Oregon**

VOC	Sample: Date: Depth (ft.): PID Reading	Removal Action				Clean Fill Screening Level	Urban Residential RBC
		C-10S	C-10W	C-10W2	SW-E/17'		
		13-Feb-09	11-Feb-09	17-Feb-09	19-Feb-09		
		14	17	14	17		
		<5	100	<5	-		
Concentration in mg/kg (ppm)							
Tetrachloroethene	-	-	-	-	-	0.19	
Toluene	<0.0395	<0.0388	<0.0429	<0.0389	140	2,300	
1,2,3-Trichlorobenzene	-	-	-	-	-	-	
1,2,4-Trichlorobenzene	-	-	-	-	-	-	
1,1,1-Trichloroethane	-	-	-	-	-	590	
1,1,2-Trichloroethane	-	-	-	-	-	17	
Trichloroethene	-	-	-	-	-	0.012	
Trichlorofluoromethane	-	-	-	-	-	-	
1,2,3-Trichloropropane	-	-	-	-	-	-	
1,2,4-Trimethylbenzene	<0.0790	<0.0776	<0.0859	<0.0777	5.7	70	
1,3,5-Trimethylbenzene	<0.0790	<0.0776	<0.0859	<0.0777	3.1	12	
Vinyl acetate	-	-	-	-	-	-	
Vinyl chloride	-	-	-	-	-	0.046	
<i>m,p</i> -Xylene	-	-	-	-	-	-	
<i>o</i> -Xylene	-	-	-	-	-	-	
Total Xylenes	<0.119	<0.116	<0.129	<0.117	25	110	

Notes:

1. Volatile organic compounds (VOCs) by EPA Method 8260B.
2. All results reported on a dry weight basis.
3. - = Compound not analyzed for or screening level not available.
4. < = Not detected above the indicated laboratory method reporting limit.
5. Clean fill screening levels from DEQ's soil management guidance (DEQ, 2008a).
6. Risk-based concentrations (RBCs) are the most stringent urban residential RBC for direct contact or volatilization pathways from DEQ's RBC spreadsheet (DEQ, 2008b). As groundwater is not used, the leaching pathway is not complete.
7. Shading denotes a detected concentration.

**ATTACHMENT 9 TO GMP AMENDMENT
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Table 4 - Soil Chemical Analyses Results: Metals
Block U - NW Sixth Avenue and NW Hoyt Street
Portland, Oregon

Sample	Date	Depth in Feet	Total Metals							
			Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Previous Investigations			Concentration in mg/kg (ppm)							
U-2@5-6	23-Mar-00	5-6	29.8	184	<0.24	25	8.3	<0.1	<4.0	3.9
U-6@11-12	24-Mar-00	11-12	10.4	-	-	-	-	-	-	-
U-7@5-6	24-Mar-00	5-6	38.3	198	<0.24	15.8	10.4	<0.1	<4.0	3.7
U-7@10-11	24-Mar-00	10-11	13.4	-	-	-	-	-	-	-
U-9/S-1	5-Aug-00	2-4	4.06	-	-	-	7.82	-	-	-
U-11/S-1	5-Aug-00	1-4	3.36	-	-	-	6.02	-	-	-
U-12/S-1	5-Aug-00	1-4	4.50	-	-	-	184	-	-	-
U-13/S-1	5-Aug-00	2-4	9.37	-	-	-	8.50	-	-	-
U-13/S-3	5-Aug-00	10-12	6.79	-	-	-	6.10	-	-	-
U-14/S-3	5-Aug-00	8-12	6.49	-	-	-	7.01	-	-	-
U-15/S-2	5-Aug-00	6-8	6.25	-	-	-	-	-	-	-
U-18/S-3	10-Mar-02	4-6	10.2	-	-	-	14.5	-	-	-
U-19/S-1	10-Mar-02	1-2	9.01	-	-	-	10.5	-	-	-
U-24/S-3	10-Mar-02	4-6	8.43	-	-	-	7.85	-	-	-
U-25/S-2	10-Mar-02	2-4	6.36	-	-	-	7.59	-	-	-
U-25/S-3	10-Mar-02	4-6	-	-	-	-	19.6	-	-	-
Removal Action										
C-1	15-Jan-09	4	-	-	-	-	14.9	-	-	-
C-2	15-Jan-09	4	-	-	-	-	11.5	-	-	-
C-3	15-Jan-09	4	-	-	-	-	12.8	-	-	-
C-4	15-Jan-09	4-5	-	-	-	-	14.6	-	-	-
C-5	19-Jan-09	4-5	-	-	-	-	14.9	-	-	-
C-6NB2	13-Feb-09	20	-	-	-	-	8.20	-	-	-
C-7B3	10-Feb-09	19	-	-	-	-	11.0	-	-	-
C-7S3	9-Feb-09	17	-	-	-	-	10.5	-	-	-
C-8B	20-Jan-09	17	-	-	-	-	11.6	-	-	-
C-9B	22-Jan-09	4	6.45	-	-	-	11.6	-	-	-
C-9CSB	9-Feb-09	3	-	-	-	-	12.3	-	-	-
C-9CWB	9-Feb-09	3	-	-	-	-	13.7	-	-	-
C-10-2	12-Feb-09	5.5	-	-	-	-	13.0	-	-	-
C-10NW	12-Feb-09	17	-	-	-	-	10.1	-	-	-
SW-E/17'	19-Feb-09	17	-	-	-	-	10.0	-	-	-
Clean Fill Criteria			7	82	1	42	17	0.1	2	2
Urban Residential RBC			1.0	31,000	78	140	400	47	390*	780

Sample	Date	Depth in Feet	Leachable Metals							
			Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Previous Investigation			Concentration in mg/L (ppm)							
U-7 @5-6	24-Mar-00	5-6	<0.04	-	-	-	-	-	-	

Notes:

1. Total metals by EPA Method 6010/6020.
2. Leachable arsenic by Synthetic Precipitation Leaching Procedure (SPLP) per EPA Method 6010.
3. All results reported on a dry weight basis except leachable metals.
4. - = Not analyzed.
5. < = Not detected above the indicated laboratory method reporting limit.
6. Shading denotes a detected concentration.
7. Clean fill screening levels from DEQ's soil management guidance (DEQ, 2008a).
8. Risk-based concentrations (RBCs) are the most stringent urban residential RBC for direct contact or volatilization pathways from DEQ's RBC spreadsheet (DEQ, 2008b). As groundwater is not used, the leaching pathway is not complete.
9. ^{\$}The arsenic RBC is below its background concentration of 7 mg/kg. See note 12 below.
10. *EPA Region 6 Screening Level for Residential Soil (no DEQ RBC is available for selenium).
11. Bolding denotes a detected concentration exceeding a clean fill criterion.
12. Underlined concentrations exceed an urban residential RBC (for arsenic, it exceeds its background concentration).

**ATTACHMENT 9 TO GMP AMENDMENT
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**Table 5 - Groundwater Chemical Analyses Results: PAHs
Block U - NW Sixth Avenue and NW Hoyt Street
Portland, Oregon**

		Non-Carcinogenic PAHs							
		Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)perylene	Fluoranthene	Fluorene	Phenanthrene	Pyrene
Sample	Date								
Previous Investigations		Concentration in µg/L (ppb)							
U-11	5-Aug-00	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
U-12	5-Aug-00	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
U-13	5-Aug-00	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
U-15	5-Aug-00	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
U-16	10-Mar-02	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
U-17	10-Mar-02	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
U-18	10-Mar-02	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
U-19	10-Mar-02	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100

		Carcinogenic PAHs							
		Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a, h)anthracene	Indeno(1,2,3-cd)pyrene	Naphthalene
Sample	Date								
Previous Investigations		Concentration in µg/L (ppb)							
U-11	5-Aug-00	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
U-12	5-Aug-00	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
U-13	5-Aug-00	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
U-15	5-Aug-00	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
U-16	10-Mar-02	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
U-17	10-Mar-02	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
U-18	10-Mar-02	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
U-19	10-Mar-02	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100

Notes:

1. Polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270-SIM.
2. < = Not detected above the indicated laboratory method reporting limit.
3. Because shallow groundwater would not be used at the site and no PAHs were detected, no screening criteria are shown.

**ATTACHMENT 9 TO GMP AMENDMENT
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**Table 6 - Groundwater Chemical Analyses Results: VOCs
Block U - NW Sixth Avenue and NW Hoyt Street
Portland, Oregon**

VOC	Sample: Date:	Previous Investigations							
		U-1 24-Mar-00	U-2 23-Mar-00	U-3 24-Mar-00	U-4 24-Mar-00	U-5 24-Mar-00	U-6 24-Mar-00	U-7 24-Mar-00	U-8 5-Aug-00
		Concentration in µg/L (ppb)							
Acetone		<20	<20	<20	<20	<20	<20	<20	<20.0
Benzene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
Bromobenzene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
Bromochloromethane		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
Bromodichloromethane		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
Bromoform		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.00
Bromomethane		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.00
2-Butanone		<10	<10	<10	<10	<10	<10	<10	<20.0
<i>n</i> -Butylbenzene		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.00
<i>sec</i> -Butylbenzene		<1.0	<1.0	<1.0	<1.0	<1.0	2.44	<1.0	<1.00
<i>tert</i> -Butylbenzene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
Carbon disulfide		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
Carbon tetrachloride		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
Chlorobenzene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
Chloroethane		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.80
2-Chloroethyl vinyl ether		-	-	-	-	-	-	-	<5.00
Chloroform		<1.0	2.81	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
Chloromethane		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<2.00
2-Chlorotoluene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
4-Chlorotoluene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
1,2-Dibromo-3-Chloropropane		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.80
Dibromochloromethane		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
1,2-Dibromoethane		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
Dibromomethane		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
1,2-Dichlorobenzene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
1,3-Dichlorobenzene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
1,4-Dichlorobenzene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
Dichlorodifluoromethane		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.00
1,1-Dichloroethane		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
1,2-Dichloroethane		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
1,1-Dichloroethene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
<i>cis</i> -1,2-Dichloroethene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.80
<i>trans</i> -1,2-Dichloroethene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
1,2-Dichloropropane		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
1,3-Dichloropropane		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
2,2-Dichloropropane		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
1,1-Dichloropropene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
<i>cis</i> -1,3-Dichloropropene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
<i>trans</i> -1,3-Dichloropropene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
Ethylbenzene		<1.0	<1.0	<1.0	<1.0	<1.0	11.9	<1.0	<1.00
Hexachlorobutadiene		<25	<25	<25	<25	<25	<25	<25	<2.00
2-Hexanone		<10	<10	<10	<10	<10	<10	<10	<20.0
Iodomethane		-	-	-	-	-	-	-	<1.00
Isopropylbenzene		<1.0	<1.0	<1.0	<1.0	<1.0	5.07	<1.0	<1.00
4-Isopropyltoluene		<1.0	<1.0	<1.0	<1.0	<1.0	1.61	<1.0	<1.00
4-Methyl-2-pentanone		<10	<10	<10	<10	<10	<10	<10	<1.00
Methylene chloride		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10.0
Methyl- <i>tert</i> -butyl-ether		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.00
Naphthalene		<25	<25	<25	<25	<25	<25	<25	<2.00
<i>n</i> -Propylbenzene		<1.0	<1.0	<1.0	<1.0	<1.0	5.55	<1.0	<1.00
Styrene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
1,1,1,2-Tetrachloroethane		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
1,1,2,2-Tetrachloroethane		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00

Please refer to notes on the last page of this table.

**Table 6 - Groundwater Chemical Analyses Results: VOCs
Block U - NW Sixth Avenue and NW Hoyt Street
Portland, Oregon**

VOC	Sample: Date:	Previous Investigations							
		U-1	U-2	U-3	U-4	U-5	U-6	U-7	U-8
		24-Mar-00	23-Mar-00	24-Mar-00	24-Mar-00	24-Mar-00	24-Mar-00	24-Mar-00	5-Aug-00
		Concentration in µg/L (ppb)							
Tetrachloroethene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
Toluene		<1.0	<1.0	<1.0	<1.0	<1.0	2.20	<1.0	<1.00
1,2,3-Trichlorobenzene		<25	<25	<25	<25	<25	<25	<25	<1.80
1,2,4-Trichlorobenzene		<25	<25	<25	<25	<25	<25	<25	<1.00
1,1,1-Trichloroethane		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
1,1,2-Trichloroethane		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
Trichloroethene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
Trichlorofluoromethane		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.00
1,2,3-Trichloropropane		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
1,2,4-Trimethylbenzene		<1.0	<1.0	<1.0	<1.0	<1.0	72.6	<1.0	<1.00
1,3,5-Trimethylbenzene		<1.0	<1.0	<1.0	<1.0	<1.0	21.6	<1.0	<1.00
Vinyl acetate		-	-	-	-	-	-	-	<1.00
Vinyl chloride		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.20
m,p-Xylene		<2.0	<2.0	<2.0	<2.0	<2.0	30.3	<2.0	2.01
o-Xylene		<1.0	<1.0	<1.0	<1.0	<1.0	27.0	<1.0	1.02
Total Xylenes		<2.0	<2.0	<2.0	<2.0	<2.0	57.3	<2.0	3.03

Please refer to notes on the last page of this table.

**ATTACHMENT 9 TO GMP AMENDMENT
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**Table 6 - Groundwater Chemical Analyses Results: VOCs
Block U - NW Sixth Avenue and NW Hoyt Street
Portland, Oregon**

VOC	Sample: Date:	Previous Investigations							Urban Residential RBC
		U-9 5-Aug-00	U-10 5-Aug-00	U-16 10-Mar-02	U-17 10-Mar-02	U-18 10-Mar-02	U-19 10-Mar-02	U-24 10-Mar-02	
Concentration in µg/L (ppb)									
Acetone		<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	-
Benzene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	340
Bromobenzene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-
Bromochloromethane		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-
Bromodichloromethane		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1,400
Bromoform		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-
Bromomethane		<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	2,800
2-Butanone		<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	-
<i>n</i> -Butylbenzene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	50,000
<i>sec</i> -Butylbenzene		<1.00	1.15	<1.00	<1.00	<1.00	<1.00	<1.00	8,400
<i>tert</i> -Butylbenzene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-
Carbon disulfide		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-
Carbon tetrachloride		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	38
Chlorobenzene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	54,000
Chloroethane		<1.80	<1.80	<5.00	<5.00	<5.00	<5.00	<5.00	1,400
2-Chloroethyl vinyl ether		<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	-
Chloroform		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	140
Chloromethane		<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	670
2-Chlorotoluene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-
4-Chlorotoluene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-
1,2-Dibromo-3-Chloropropane		<1.80	<1.80	<2.00	<2.00	<2.00	<2.00	<2.00	-
Dibromochloromethane		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-
1,2-Dibromoethane		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	87
Dibromomethane		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-
1,2-Dichlorobenzene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	53,000
1,3-Dichlorobenzene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	14,000
1,4-Dichlorobenzene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1,100
Dichlorodifluoromethane		<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	-
1,1-Dichloroethane		<1.00	<1.00	<1.50	<1.50	<1.50	<1.50	<1.50	1,900
1,2-Dichloroethane		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	460
1,1-Dichloroethene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	27,000
<i>cis</i> -1,2-Dichloroethene		<1.80	<1.80	<1.00	<1.00	<1.00	<1.00	<1.00	34,000
<i>trans</i> -1,2-Dichloroethene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	27,000
1,2-Dichloropropane		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-
1,3-Dichloropropane		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-
2,2-Dichloropropane		<1.00	<1.00	<1.90	<1.90	<1.90	<1.90	<1.90	-
1,1-Dichloropropene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-
<i>cis</i> -1,3-Dichloropropene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-
<i>trans</i> -1,3-Dichloropropene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-
Ethylbenzene		<1.00	1.07	<1.00	<1.00	<1.00	<1.00	<1.00	880
Hexachlorobutadiene		<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	-
2-Hexanone		<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	-
Iodomethane		<1.00	<1.00	<5.00	<5.00	<5.00	<5.00	<5.00	-
Isopropylbenzene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	120,000
4-Isopropyltoluene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-
4-Methyl-2-pentanone		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-
Methylene chloride		<10.0	<10.0	<20.0	<20.0	<20.0	<20.0	<20.0	12,000
Methyl- <i>tert</i> -butyl-ether		<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	70,000
Naphthalene		<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	1,200
<i>n</i> -Propylbenzene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	11,000
Styrene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-
1,1,1,2-Tetrachloroethane		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-
1,1,2,2-Tetrachloroethane		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-

Please refer to notes on the last page of this table.

**Table 6 - Groundwater Chemical Analyses Results: VOCs
Block U - NW Sixth Avenue and NW Hoyt Street
Portland, Oregon**

VOC	Sample: Date:	Previous Investigations							Urban Residential RBC
		U-9 5-Aug-00	U-10 5-Aug-00	U-16 10-Mar-02	U-17 10-Mar-02	U-18 10-Mar-02	U-19 10-Mar-02	U-24 10-Mar-02	
		Concentration in µg/L (ppb)							
Tetrachloroethene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	170
Toluene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	2,600,000
1,2,3-Trichlorobenzene		<1.80	<1.80	<1.80	<1.80	<1.80	<1.80	<1.80	-
1,2,4-Trichlorobenzene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-
1,1,1-Trichloroethane		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	520,000
1,1,2-Trichloroethane		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	56,000
Trichloroethene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	14
Trichlorofluoromethane		<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	-
1,2,3-Trichloropropane		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-
1,2,4-Trimethylbenzene		<1.00	4.04	<1.00	<1.00	<1.00	<1.00	<1.00	4,300
1,3,5-Trimethylbenzene		<1.00	1.06	<1.00	<1.00	<1.00	<1.00	<1.00	3,200
Vinyl acetate		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-
Vinyl chloride		<1.20	<1.20	<1.20	<1.20	<1.20	<1.20	<1.20	20
m,p-Xylene		<2.00	2.0	<2.00	<2.00	<2.00	<2.00	<2.00	-
o-Xylene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	-
Total Xylenes		<2.00	2.0	<2.00	<2.00	<2.00	<2.00	<2.00	59,000

Notes:

1. Volatile organic compounds (VOCs) by EPA Method 8260B.
2. Shading denotes a detected concentration.
3. - = Compound not analyzed for or screening level not available.
4. < = Not detected above the indicated laboratory method reporting limit.
5. Risk-based concentrations (RBCs) are for the volatilization to indoor air pathway under an urban residential RBC scenario (DEQ, 2008b).

**ATTACHMENT 9 TO GMP AMENDMENT
TO CM/GC CONTRACT NO. 4400001553**

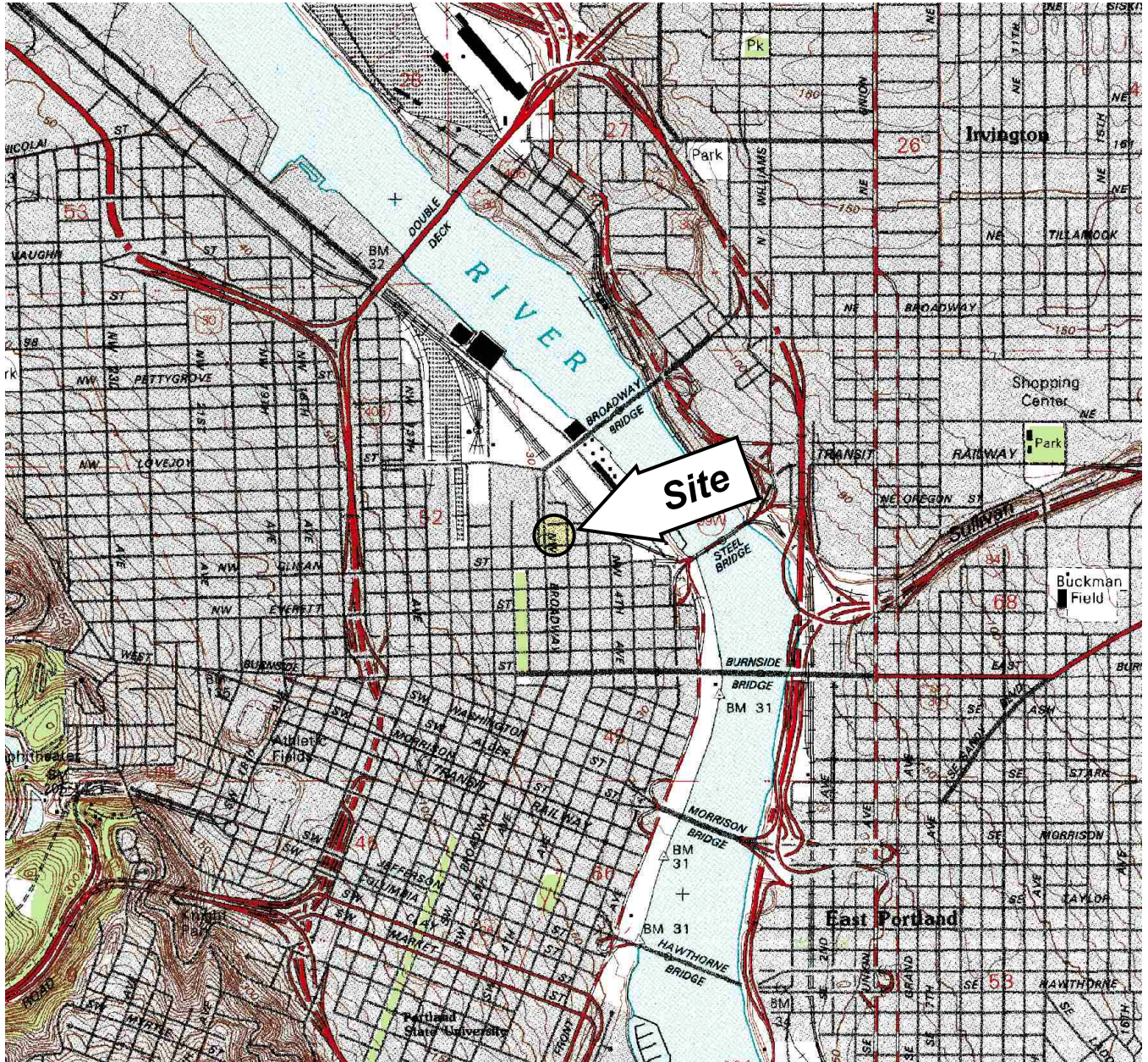
**Table 7 - Groundwater Chemical Analyses Results: Metals
Block U - NW Sixth Avenue and NW Hoyt Street
Portland, Oregon**

Sample	Date	Total		Dissolved	
		Arsenic	Lead	Arsenic	Lead
Previous Investigations		Concentration in µg/L (ppb)			
U-6	24-Mar-00	-	-	-	<1
U-11	5-Aug-00	-	-	<5.00	<5.00
U-12	5-Aug-00	-	-	<5.00	<5.00
U-15	5-Aug-00	-	-	<5.00	<5.00
U-16	10-Mar-02	350	358	<5.00	<5.00
U-17	10-Mar-02	13.1	14.7	<5.00	<5.00
U-18	10-Mar-02	27.0	44.7	<5.00	5.0
U-19	10-Mar-02	<5.00	<5.00	<5.00	<5.00
U-24	10-Mar-02	47.5	54.6	<5.00	<5.00

Notes:

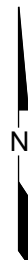
1. Metals by EPA Method 6010.
2. Shading denotes a detected concentration.
3. - = Not analyzed.
4. < = Not detected above the indicated laboratory method reporting limit.
5. Because shallow groundwater would not be used at the site and these metals are not volatile, no screening criteria are shown.


ATTACHMENT 9 TO GMP AMENDMENT
TO CM/GC CONTRACT NO. 4400001553



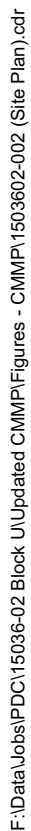
0 2,000 4,000

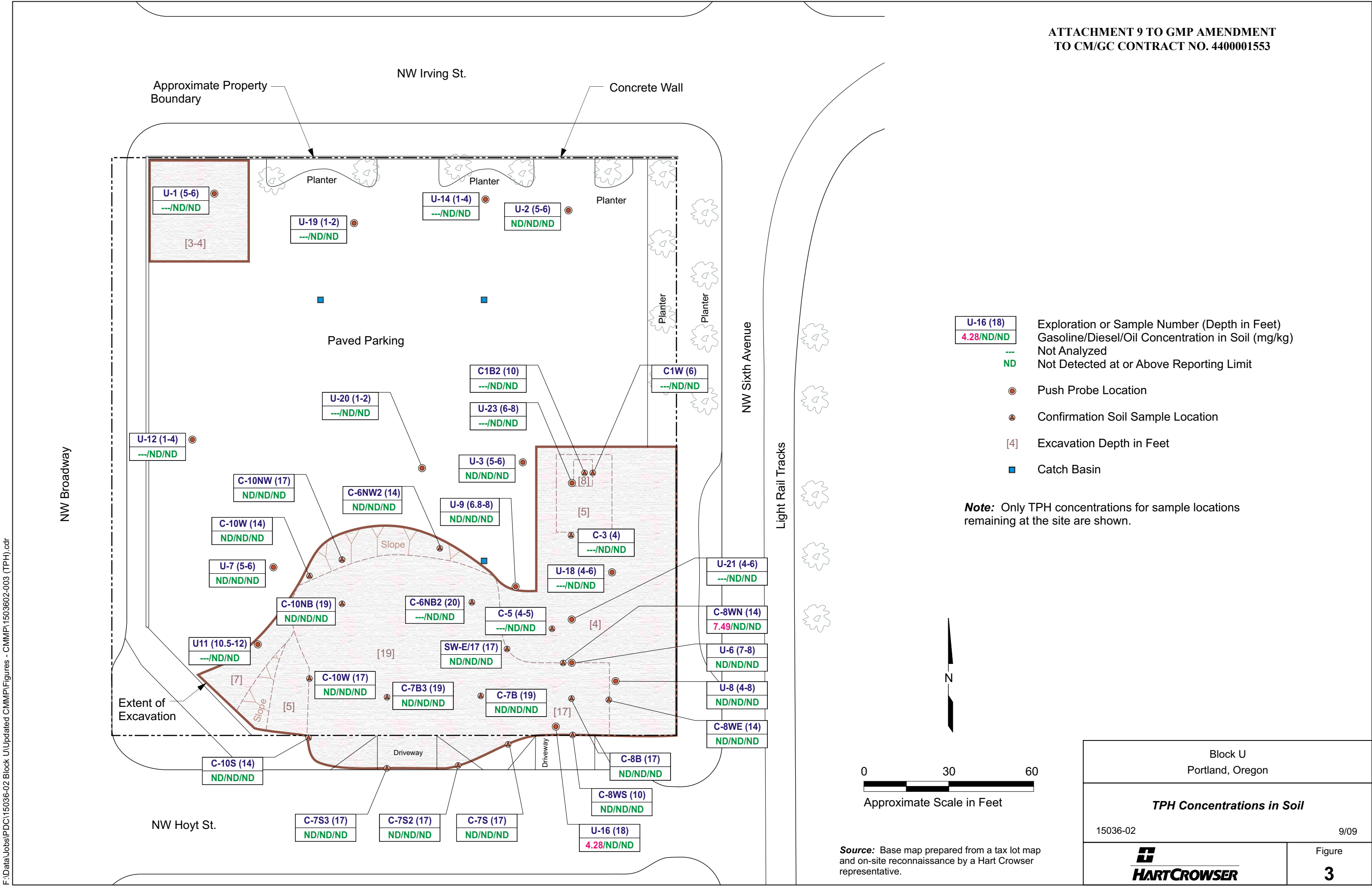
Scale in Feet
Contour Interval 10 Feet



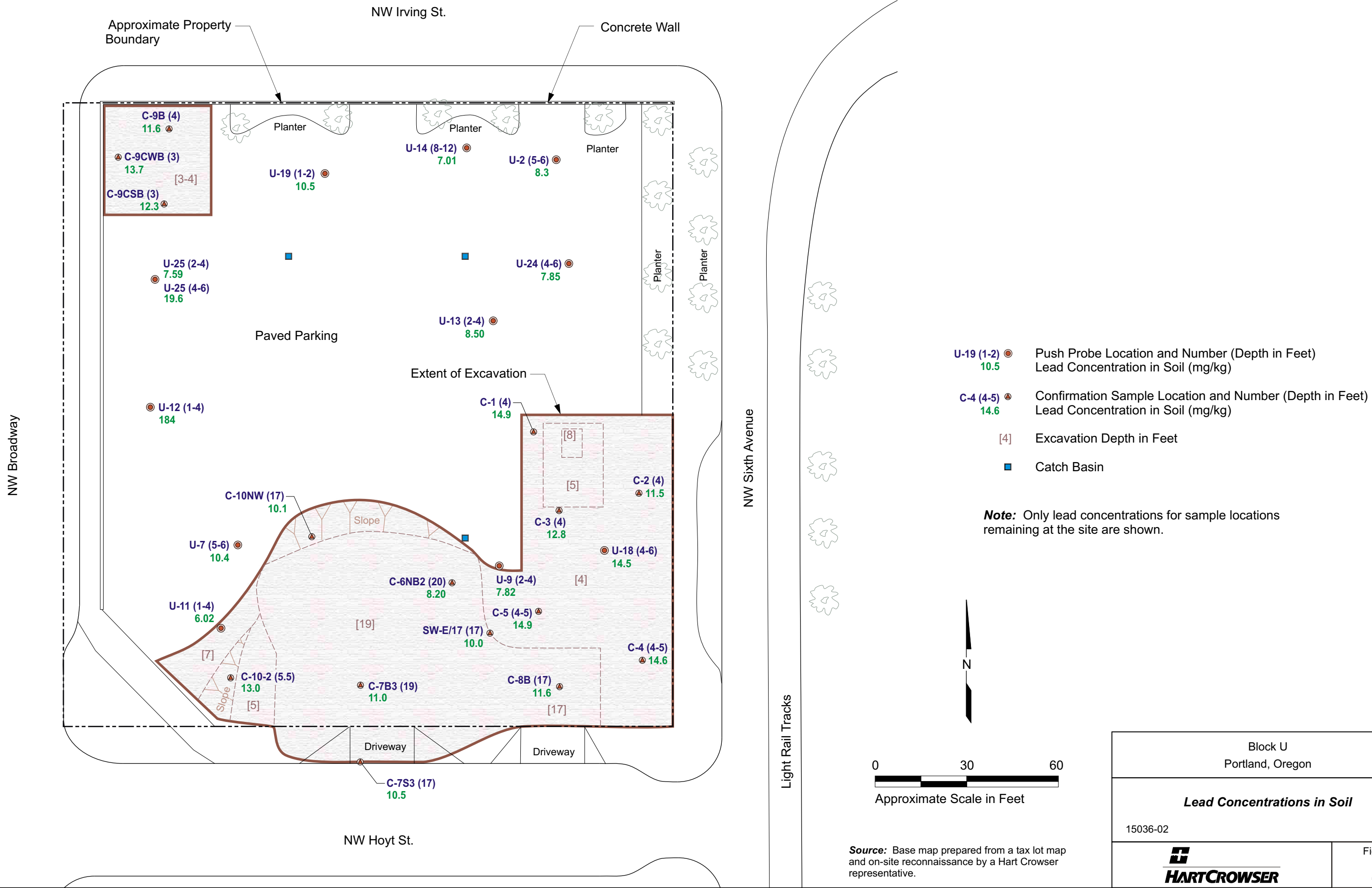
Block U Portland, Oregon	
Site Location Map	
15036-02	9/09
 HARTCROWSER	Figure 1

Source: Base map prepared from the USGS 7.5-minute quadrangles of Portland, Oregon, dated 1990.

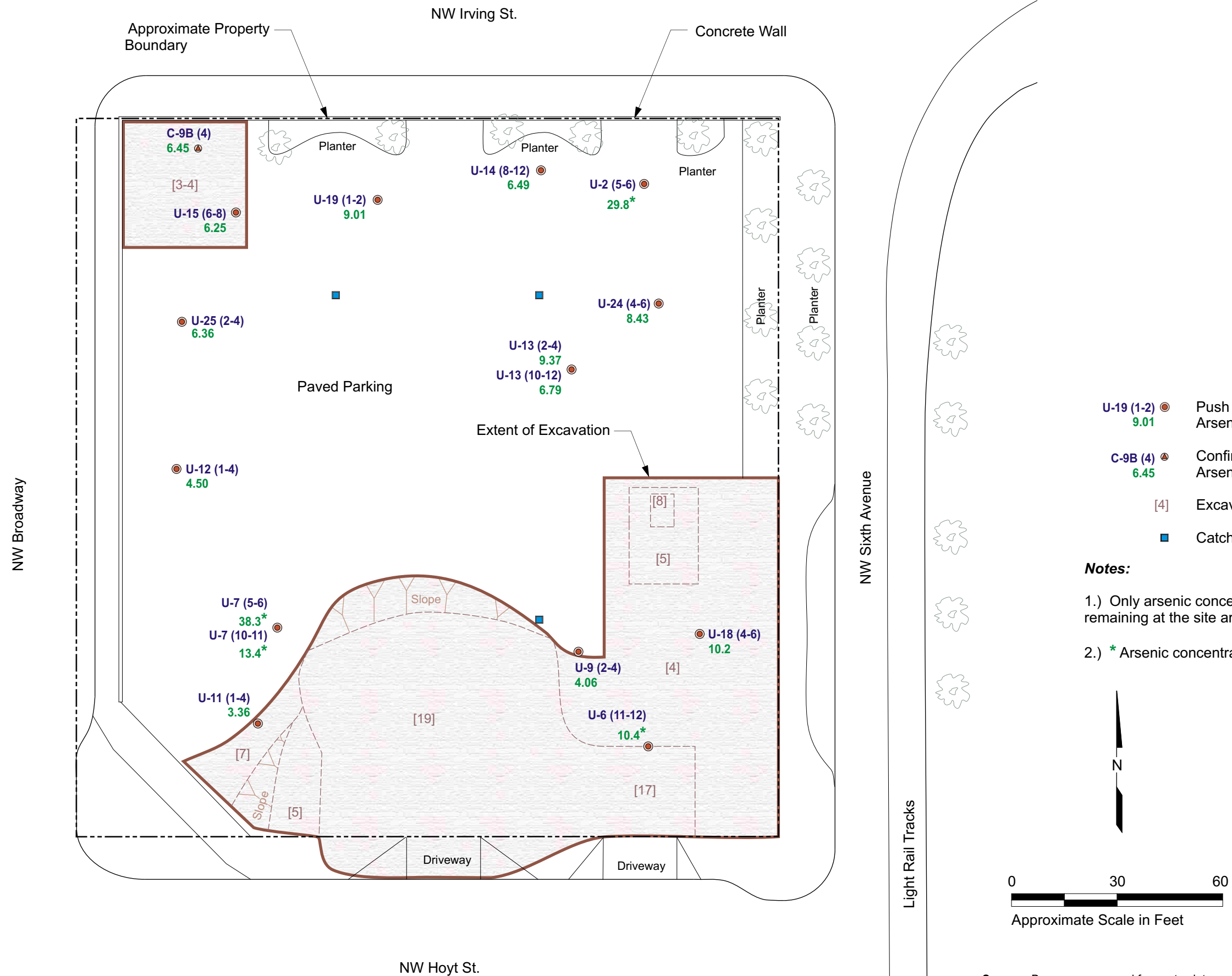





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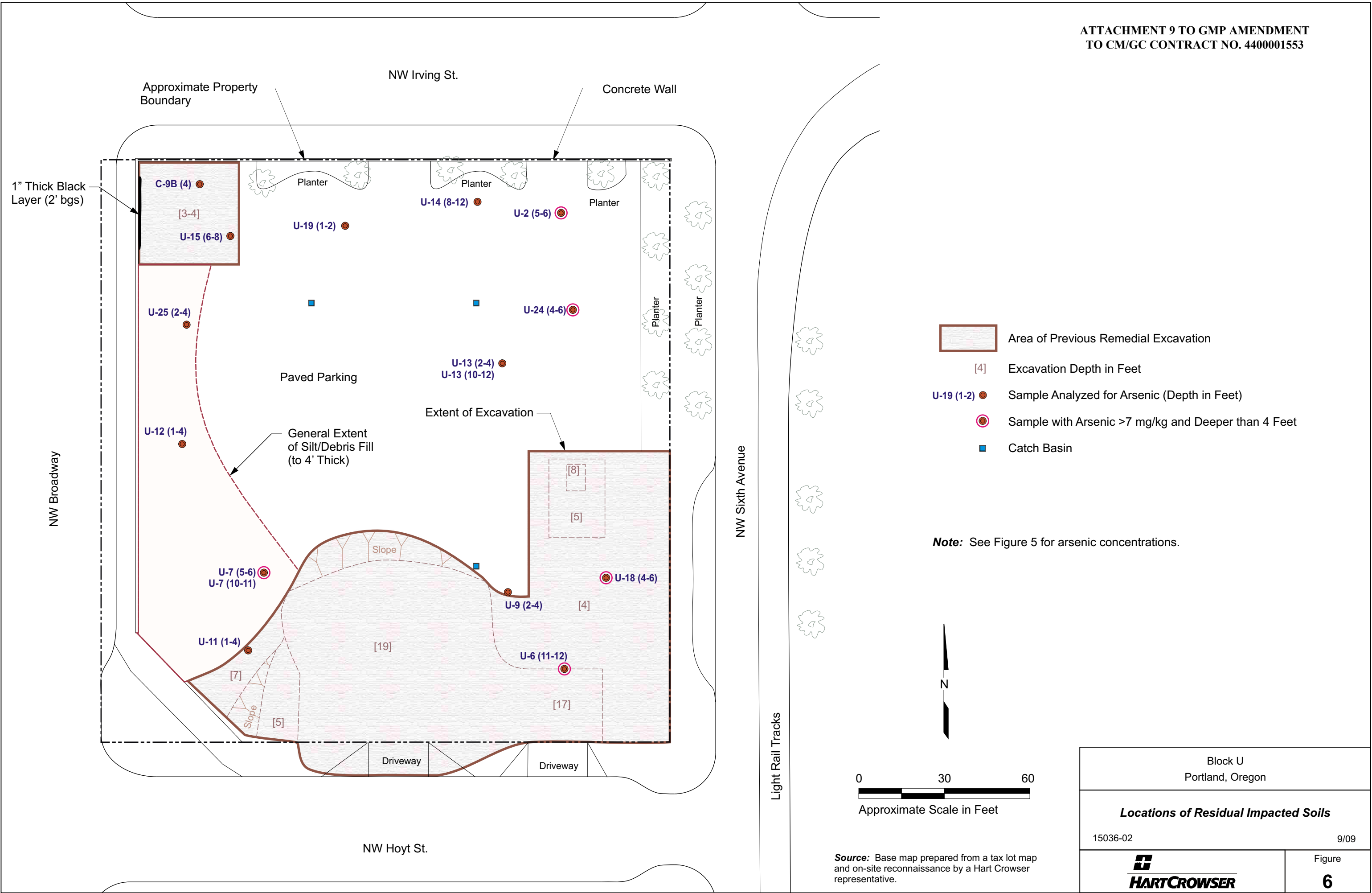
F:\Data\Jobs\PD\15036-02 Block U\Updated CMMP\Figures - CMMP\1503602-005 (Arsenic).cdr



Source: Base map prepared from a tax lot map and on-site reconnaissance by a Hart Crowser representative.

Block U Portland, Oregon	
Arsenic Concentrations in Soil	
15036-02	9/09
	Figure 5

F:\Data\Jobs\PD015036-02 Block U\Updated CMMP\Figures - CMMP\1503602-005 (Arsenic).cdr



**ATTACHMENT 9 TO GMP AMENDMENT
TO CM/GC CONTRACT NO. 4400001553**

**APPENDIX A
DEQ CLEAN FILL SCREENING TABLE**

May 2, 2008

DEQ-NWR Clean Fill Screening Table for Unrestricted Upland Disposal Greater than 100 Feet from a Surface Water Body

DEQ NWR
Solid Waste Program
Page 1

POLLUTANT	Concentration (mg/Kg)	Source
Antimony	4	Background
Arsenic	7	Background
Barium	82	EPA R6 Screening Level DAF1/Groundwater
Cadmium	1	Background
Chromium	42	Background
Copper	50	DEQ ECO L2/Invertebrate
Lead	17	Background
Mercury	0.1	DEQ ECO Level 2/Plant
Nickel	38	Background
Silver	2	DEQ ECO Level 2/Plant
Selenium	2	Background
Zinc	86	Background
Tributyltin (TBT)	18	EPA R6 PRG Residential
Napthalene	3.8	DEQ RBDM Leaching to Groundwater
Acenaphthene	20	ECO L2 Plant
Fluorene	28	EPA R6 Screening Level DAF1/Groundwater
Anthracene	590	EPA R6 Screening Level DAF1/Groundwater
Fluoranthene	2.23	EPA R6 Screening Level DAF1/Groundwater
Pyrene	210	EPA R6 Screening Level DAF1/Groundwater
Benzo(a)anthracene	0.08	EPA R6 Screening Level DAF1/Groundwater
Chrysene	8	EPA R6 Screening Level DAF1/Groundwater
Benzo(b)fluoranthene	0.15	DEQ RBDM Residential
Benzo(k)fluoranthene	1.5	DEQ RBDM Residential
Benzo(a)pyrene	0.015	DEQ RBDM Residential
Indeno(1,2,3-cd)pyrene	0.15	DEQ RBDM Residential
Dibenz(a,h)anthracene	0.015	DEQ RBDM Residential
Phenol	5	EPA R6 Screening Level DAF1/Groundwater
2-Methylphenol	0.8	EPA R6 Screening Level DAF1/Groundwater
4-Methylphenol	310	EPA R6 Residential
2,4-Dimethylphenol	0.4	EPA R6 Screening Level DAF1/Groundwater
Penatachlorophenol	0.001	EPA R6 Screening Level DAF1/Groundwater
Benzyl Alcohol	18000	EPA R6 Residential
Benzoic Acid	20	EPA R6 Screening Level DAF1/Groundwater
Dibenzofuran	0.002	DEQ ECO Level 2/Mammal
Hexachlorobutadiene	0.1	EPA R6 Screening Level DAF1/Groundwater
n-Nitrosodiphenylamine	0.06	EPA R6 Screening Level DAF1/Groundwater
4,4-DDE	0.01	DEQ ECO L2 SLV/Bird
4,4-DDD	0.01	DEQ ECO L2 SLV/Bird
4,4-DDT	0.01	DEQ ECO L2 SLV/Bird
Aldrin	0.02	EPA R6 Screening Level DAF1/Groundwater
alpha-Chlordane	0.5	EPA R6 Screening Level DAF1/Groundwater
Dieldrin	0.023	DEQ RBDM Leaching to Groundwater
Endrin	0.04	DEQ ECO L2 SLV/Bird
Heptachlor	0.11	DEQ RBDM Residential
gamma-BCH (Lindane)	0.0005	EPA R6 Screening Level DAF1/Groundwater

May 2, 2008

**DEQ-NWR Clean Fill Screening Table
for Unrestricted Upland Disposal
Greater than 100 Feet from a Surface Water Body**

DEQ NWR
Solid Waste Program
Page 2

POLLUTANT	Concentration (mg/Kg)	Source
Aroclor 1016	3.9	EPA R6 Residential
Aroclor 1221	0.22	EPA R6 Residential
Aroclor1232	0.22	EPA R6 Residential
Aroclor 1242	0.22	EPA R6 Residential
Aroclor 1248	0.22	EPA R6 Residential
Aroclor 1254	0.22	EPA R6 Residential
Aroclor 1260	0.22	EPA R6 Residential
Total PCBs	0.22	DEQ RBDM residential
Diesel & Heavy Oil (combined total)	100	OAR 340-122-0335, Level I criteria
Gasoline	26	DEQ RBDM Leaching to Groundwater
Benzene	0.0084	DEQ RBDM Leaching to Groundwater
Ethylbenzene	160	DEQ RBDM Leaching to Groundwater
MTBE	0.082	DEQ RBDM Leaching to Groundwater
iso-propylbenzene	2300	DEQ RBDM Residential
n-propylbenzene	52	DEQ RBDM Leaching to Groundwater
Toluene	140	DEQ RBDM Leaching to Groundwater
1,2,4-trimethylbenzene	5.7	EPA R6 Screening Level Residential
1,3,5-trimethylbenzene	3.1	DEQ RBDM Leaching to Groundwater
Xylenes	25	DEQ RBDM Leaching to Groundwater

Notes:

- When two or more samples collected, use the highest concentration for conservative evaluation of the data unless sufficient data for determination of mean concentration. When the detection limit is > the determination criteria, the D.L. is considered the concentration. Use the mean concentration when there are sufficient samples for statistical analysis.
- The SWLA applicant may provide additional data to demonstrate dredge material should be classified as clean fill. Additional data may include sufficient samples for statistical evaluation.
- Comparisons are made to the more conservative screening value for each pollutant. If natural background is greater than the screening value, use the default background concentration.
- Leaching to groundwater is used for DEQ RBDM and EPA R6 when leaching potential values are provided, except when natural background concentration exceeds the leaching screening value.
- For petroleum hydrocarbons (diesel, heating oil and VOCs), DEQ RBDM values are the preferred conservative reference concentration for leaching to groundwater.
- This table may be revised as new information becomes available.

Sources: (1) DEQ-NWR-Screening Level Values for Soils Revised Guidelines for Soil Management Determinations (Draft) Revised 1/1/2008; (3) Guidance for Ecological Risk Assessment: Levels I, II, III, IV - Level II Screening Values, 12/2008; DEQ Risk-Based Decision Making Risk-Based Concentrations 7/4/2007; (4) EPA Region 6 Human Health Medium-Specific Screening Levels, 12/4/2007; OAR 340-122-0335 Level I criteria.

APPENDIX B

Health and Safety Plan (HASP)



Engineering +
Environmental

Health and Safety Plan Contaminated Media Management Health Department Headquarters

Prepared for: Multnomah County
Portland, Oregon

Project No.: 15194.879

PREPARED BY: DULCY A. BERRI, RG

DATE: FEB. 19, 2016

EMERGENCY CONTACTS/EMERGENCY ROUTES

This section provides contact information in case emergency conditions should occur on site during the project activities. An Emergency Response Plan is presented in Section 12.0 of this report.

Emergency Telephone Numbers

Ambulance/Police/Fire:	911
Poison Control Center:	800.222.1222
National Response Center:	800.424.8802
EPA Environmental Response Team:	206.553.1200

Utility Notification Center (Washington):	800.424.5555
Utility Notification Center (Oregon):	800.332.2344
Oregon OSHA Center (Salem)	503.378.3272
Oregon Emergency Response System:	800.452.0311
Emergency Natural Gas	
Northwest Natural Gas:	800.882.3377

PBS Project Manager:	Dulcy Berri
	Office: 503.417.7591
	Cell: 503.780.8160

Ryan White
Office: 503.417.7608
Cell: 503.

PBS Site Safety Officer:	Dulcy Berri
	Office: 503.417.7591
	Cell: 503.780.8160

General Contractor Contact:	
JE Dunn	Office: 503.
	Cell: 503.

Emergency Route to Nearest Hospital/Emergency Medical Center

Name:	Legacy Good Samaritan Medical Center
Addres:	1015 NW 22 nd Avenue
	Portland, Oregon 97210
Phone:	503.413.7711

DIRECTIONS TO HOSPITAL:

- 1: Start going North on NW 6th Ave. toward NW Hoyt St. 0.0 mi
 - 2: Turn Left onto NW Hoyt St. 0.2 mi.
 - 3: Turn Right onto NW 9th Avenue 0.2 mi.
 - 4: Turn Left onto NW Lovejoy St. 0.8 mi
 - 5: Turn Right onto NW 22nd Ave. 0.0 mi
 - 6: End at 1015 NW 22nd Avenue, Portland
- Estimated Time: 4 minutes Estimated Distance: 1.17 miles

Figure 1.
Map to Hospital (Legacy –Good Samaritan)

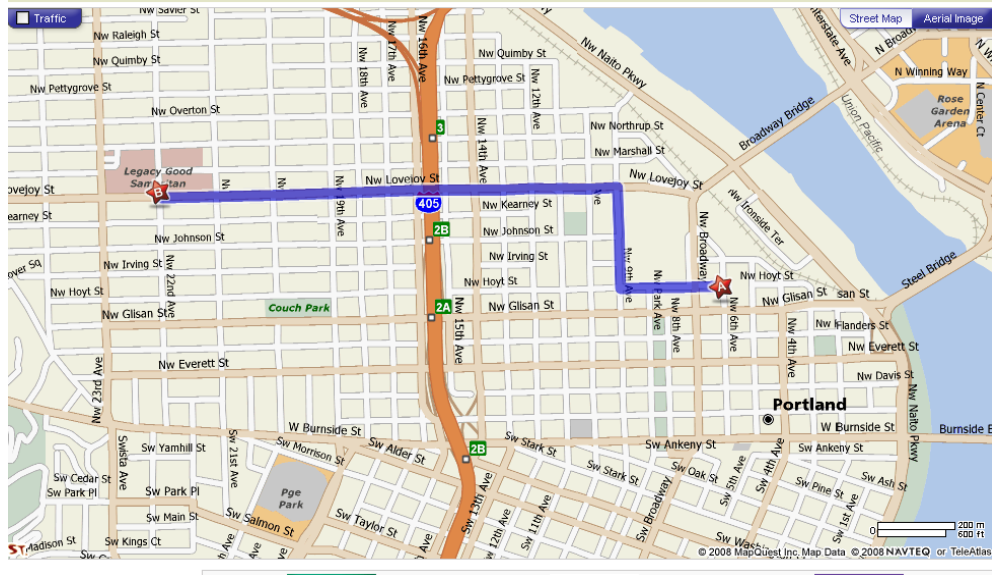


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FIGURE

Figure 1. Hospital Location Map

TABLES

Table 1. Potential Contaminants of Concern and Exposure Pathways
Table 2. Job Activity Hazard Analysis
Table 3. Air-Monitoring Procedures and Toxicity Action Levels
Table 4. Personal Protective Equipment

APPENDICES

Appendix A. Chemical Hazard Information
Appendix B. General Safe Work Practices
Appendix C. Standard Operating Procedures for Drilling into Soil and Rocks

SITE LOCATION: **NW Hoyt and NW 6th Avenue
Portland, OR**

PBS PROJECT NO.: 15194.879

DATES FOR FIELD ACTIVITIES: Start around Feb. 15, 2016

PROJECT OBJECTIVE

Identify and manage contaminated soil in accordance with the Updated Contaminated Media Management Plan for Health Department Headquarters (HDHQ) (PBS – Feb. 2016) during future investigations and redevelopment of the project site.

1.0 INTRODUCTION

This Health and Safety Plan (HASP) identifies general safe work practice procedures to be followed while conducting excavation activities at the site. A scope of work is covered in the site-specific work plan or proposal. It is the responsibility of the PBS Engineering + Environmental (PBS) Project Manager or qualified designee to ensure all aspects of this HASP are implemented. All personnel are advised that this field project may result in exposure to chemical and physical hazards. The requirements in this HASP are designed to minimize the risk of chemical exposure or physical injuries by a combination of personal protective equipment (PPE), engineering controls, and safe work practices.

The procedures and requirements contained in this plan are intended for PBS personnel performing field activities. PBS Subcontractors have the sole responsibility for safety of their own personnel. In addition, Subcontractors are responsible for the following:

- Required to supply their own HASP for the safety of their employees and safe operation of equipment while on site.
- To take all reasonable safety precautions with respect to the Work, and with all applicable laws, ordinances, rules, regulations and order of any public authority for the safety of persons or property in accordance with the requirements of the Work.
- Provide their own employees with all applicable training, medical testing, and PPE required by PBS in this HASP.

2.0 RESPONSIBLE PERSONS

PROJECT MANAGER:

Dulcy A. Berri, PBS

The Project Manager (PM) is responsible for ensuring that a site-specific HASP is completed for the project prior to commencement of any excavation activities. In addition, the PM ensures that PBS employees and subcontractors are in compliance with the Health and Safety Plan for the project.

SITE SAFETY OFFICER:

Dulcy A. Berri

The Site Safety Officer (SSO) is responsible for implementation of the PBS HASP during all field-related activities. The PM may perform this role.

ON-SITE SUBCONTRACTORS:

TBD

The PM will ensure that Subcontractors are aware of the requirements in this HASP; the Subcontractors are responsible for complying with these requirements. Subcontractors are responsible for the safety of their own employees, and must supply their own HASP for the safe operation of equipment while on site.

3.0 PROPERTY/FACILITY DESCRIPTION

3.1 Property/Facility Description and Status

The Site was a former fueling station and hotels. It has been a vacant lot for several years and most recently used as a parking lot. Contaminated soil and groundwater are known to exist at the Site.

3.2 Site History

This block was platted by the City of Portland in 1868 and by 1889, a house, stables and coal storage shed were present on the site. Between 1889 and 1896, the elevation of the site was raised with 10 feet of fill (mainly silt). Commercial development occurred around the turn of the 20th century. By the 1930s, three multistory buildings were constructed on the property, two of which were hotels. By 1927, a service station occupied the southeast quarter of the block and included a garage, wash rack, mechanic's pits, a store, pump island and restroom. The location of the fuel tanks is not known. The service station was demolished around 1947 but replaced with another station in 1949. A pump island and small garage were located on the southeast corner and included three 2,000 gallon underground storage tanks and a 250-gallon waste oil tank. This service station was demolished in the early 1960s. The block has been used as a parking lot since 1963.

3.3 Contaminants of Concern

Only arsenic is known to exist above regulatory thresholds at the site, and primarily at depths greater than 4 feet below ground surface (bgs). Despite significant remediation of the site in the past, there remains a risk that diesel, gasoline, and their constituents could be detected in soil or groundwater.

Table 1. Potential Contaminants of Concern and Exposure Pathways

Substance	Potential Media		Concentrations (List value if known, include units)	Potential Exposure Pathway		
	Soil	Water		Inhalation ¹	Absorption ²	Ingestion ³
Diesel-range	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Soil: 2,150 ppm	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Gasoline-range	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Soil: 3,170 ppm	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Heavy Oil-range	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Soil: 2,150 ppm	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Benzene	<input type="checkbox"/>	<input type="checkbox"/>	Not detected			

Ethylbenzene	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Yes - in GW	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Lead	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	GW: 358 ug/L Soil 1870 ppm	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Arsenic	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	GW: 350 ug/L Soil: 39.2 ppm	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PAHs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	GW – none Soil – some –	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

¹Inhalation: Inhalation of dusts generated during soil sampling could be an issue if the weather is dry, windy, or warm. Exposure via this route could potentially occur if chemicals that are present in soil and dust particles become airborne during site activities or if VOCs are liberated when contaminated soil is exposed to air.

²Absorption: Exposure via this route could occur if contaminated soil or groundwater contacts the skin or clothing. Protective clothing and decontamination activities will minimize the potential for skin contact with the contaminants.

³Ingestion: Exposure via this route could occur if individuals eat, drink, or perform other hand-to-mouth contact in the contaminated (exclusion) zones. Decontamination procedures will minimize the inadvertent ingestion of contaminants.

4.0 JOB ACTIVITIES WITH HAZARD ANALYSIS AND MITIGATION

Job activities during drilling and excavation projects include supervision of the subcontractors, documenting site activities related to subsurface work, and collecting soil or groundwater samples as needed.

Following are typical hazards encountered during drilling and excavation projects. Table 2 lists the job activities, potential hazards and mitigation for these hazards.

- Mechanical hazards are associated with working around heavy machinery (e.g., being hit or run over) or handling field equipment (e.g., hand and foot injuries or burns).
- Physical hazards include slips, trips, and falls (wet surfaces, equipment laying on the ground, change in ground surface elevations).
- Electrical hazards include electrical shocks from field equipment, underground and overhead utilities.
- Chemical hazards are associated with inhalation, ingestion, and dermal exposure to chemicals present on site.
- Temperature hazards include sunburn, heat exhaustion, heat stroke, frostbite, and hypothermia.
- Acoustical hazards are associated with exposure to elevated levels of noise.
- Ergonomic hazards include back strain caused by improper lifting, improper illumination in the work area, etc.
- Fire hazards include explosion hazards.
- Oxygen deficiency hazards result from enclosed spaces and insufficient ventilation.
- Biohazards include exposure to vegetation, insects, animals and bloodborne pathogens.
- Traffic hazards result from moving vehicles in or near the work area.

Table 2. Job Activity Hazard Analysis

Job Activity	Duties	Hazards	Mitigation Actions
Supervise Drilling And Excavation Subcontractors	Define and control work area	Vehicular traffic and visitors/non-essential personnel	<ul style="list-style-type: none"> Exclude pedestrians and vehicles by using fencing, cones, tape.
		Large equipment	<ul style="list-style-type: none"> Required PPE: safety vests, hard hat, steel-toed boots, safety glasses. Communicate scope of work/tasks during daily tailgate meeting.
		Utilities	<ul style="list-style-type: none"> Coordinate with the subcontractor to have public and private utilities located prior to commencement of work. Have property owner provide locations of on-site private utilities.
	Monitor air space around applicable work areas (i.e. areas with documented TPH or VOC contamination)	Vapors from boreholes	<ul style="list-style-type: none"> Monitor breathing space in work zone with PID. Stand upwind of borehole/drill rig. Communicate with subcontractor on PID readings and take appropriate action when necessary.
Document drilling and excavation activities	Log soils and notes on drilling and excavation activities	Large equipment	<ul style="list-style-type: none"> Required PPE: safety vests, hard hat, steel-toed boots, and safety glasses. Communicate with subcontractor on information you need. Pay attention to what is going on around you when taking photos or notes. Communicate with operators of heavy equipment to avoid getting in their way.
Sample soil	Collect soil or groundwater samples as necessary	Large equipment	<ul style="list-style-type: none"> Required PPE: safety vests, hard hat, steel-toed boots, and safety glasses. Stay clear of drill rig when it is in operation. Discuss soil sampling procedures prior to sample collection. Verify where driller wants you to stand while he is working.
		Exposure to contaminants of concern (vapors or contaminated soil or groundwater)	<ul style="list-style-type: none"> Wear nitrile gloves. Stand upwind from boring. Minimize time in contact with soil and groundwater. Monitor breathing space with PID and make adjustments to location or PPE as necessary.

5.0 SAFETY BRIEFINGS AND HAZARD COMMUNICATION

Before field work begins, PBS field personnel must be briefed on the potential site hazards, individual work assignments, and the provisions of this HASP as part of a "tailgate" safety meeting. PBS Subcontractors will also attend the tailgate safety meeting. PBS will ask PBS field employees and subcontractors to sign the HASP at the completion of the tailgate meeting indicating that they attended the on-site safety meeting.

Also, during the safety meeting, the SSO will communicate the following:

- Site-specific requirements imposed by the property owner or facility operator.
- Evacuation plan and/or designated meeting place in case of an emergency.

6.0 AIR MONITORING

6.1 Personal Monitoring Guidelines

Due to the contaminants of concern being PAHs, lead, and arsenic in the portion of the site being redeveloped, air monitoring may not be warranted. However, in the event strong or anomalous odors are encountered during the field work, air monitoring may be implemented at the site.

Personnel exposure monitoring has been performed at UST decommissioning activities for many years. This historical monitoring has demonstrated a good correlation between the personnel exposure monitoring data and photoionization detector (PID) readings. Although this is a drilling project, the contaminants are from former USTs that have leaked and so the air monitoring is applicable. PBS will utilize a PID to screen the work area for volatile organic compound (VOC) concentrations. The PID measurements will serve as surrogate measurements for the more hazardous constituents of gasoline, diesel, and waste oil. Monitoring must be performed by individuals familiar with the calibration, use and care of the PID instrument.

6.2 Air Monitoring Equipment

A PID will be used to monitor worker breathing zone and soil. A MiniRAE 2000 with a 10.6eV lamp will be used for monitoring.

Table 3. Air-Monitoring Procedures and Toxicity Action Levels

Instrument	Calibration Gas	Action Limit Concentration (ppm)
PID (10.6 eV lamp)	Isobutylene	10

Note: Accuracy of instruments maybe affected by high (>90%) humidity or rainy weather.

6.3 Air Monitoring Procedures and Action Levels

Air monitoring for VOCs will be conducted in the event there is a discovery of potentially contaminated soil. If the action level is reached, workers will back off the work location to an upwind area to review work conditions. After conditions have been allowed to stabilize, the air space around the work location will be rechecked. If necessary, engineering controls will be implemented and then the work zone will be reassessed. Engineering controls may include but are not limited to: work upwind, ventilation, etc. The SSO will reassess site safety conditions with the PID. If work cannot be done without exceeding this action limit, then this HASP will be revised to include work practices and PPE sufficiently protective of workers.

7.0 PERSONAL PROTECTION EQUIPMENT (PPE)

7.1 Required Personal Protective Equipment

The protective equipment will be selected based on the contaminant type(s), concentration(s) in applicable matrix (soil, water, air) and the known route(s) of entry into the human body. In situations where the type of materials, their concentrations, or exposure potentials are unknown, a decision based on professional judgment regarding the assignment of personal protective equipment will be made by the PM or SSO.

Based on the physical and potential chemical hazards that may be present, Modified Level D PPE is considered sufficiently protective of workers. Table 4 indicates the required and provisional PPE.

Table 4. Personal Protective Equipment

PPE Equipment	Required	Provisional
Steel-toed boots	YES	
Hard Hat	YES	
Safety Glasses/ Goggles	YES	
Safety Vest	YES	
Hearing Protection		When working around loud equipment.
Nitrile Gloves		During soil /groundwater handling
Level C PPE (to include respirator and chemical-resistant clothing)		If PID readings exceed action levels, and ONLY when SSO directs activities to proceed under Level C PPE.

Note: Project personnel are not permitted to use lower levels of protection from the specified levels of protection without the prior approval of the Site Safety Officer.

7.2 PPE Contingency Plan

In the event that conditions at the site change significantly, typically caused by the presence of chemicals above air-monitoring action levels, site personnel will cease all work immediately and exit the work area. The SSO and PM will assess the new conditions to determine how to proceed with sufficient worker protection.

8.0 CONFINED SPACE ENTRY

It is PBS policy that employees are not allowed to enter permit-required confined space. It is not expected that PBS employees will need to enter a non-permit required confined space during the field activities covered by this HASP.

9.0 MEDICAL SURVEILLANCE

PBS has an established medical monitoring program for employees involved in field projects that may require the use of a respirator, or potential exposure to hazardous materials. A copy of that program is available upon request from the PBS Health and Safety Director. Subcontractors are responsible for the site safety of their own personnel.

10.0 SITE CONTROL/WORK ZONES

Access to hazardous and potentially hazardous work areas must be controlled to reduce the probability of physical injury and chemical exposure of field personnel, visitors, and the public. When necessary, Exclusion, Decontamination, and Support Zones may be set up to separate the different activities and contain the contamination. The work locale must be made visible and only people working on the project should be allowed near the site and heavy equipment. If possible, erect temporary fencing around the work zone or other barrier to keep non-essential personnel away.

If it is deemed necessary to set up separate work zones, they shall be designated as follows. Depending on the scope of work, the work location may move several times throughout the day and a more flexible method of designating zones may be used. It may also be appropriate to just designate an exclusion zone, not for the purposes of contaminant control but to keep others outside the area of physical hazards. Zones other than the exclusion zone may not be necessary.

10.1 Exclusion (Hot) Zone

The region encompassing a drilling area, heavy equipment or other work area presenting a risk shall be designated as the Exclusion (Hot) Zone. This zone shall be identified through the use of caution tape, cones, blocking access with vehicles, or other readily identifiable barrier. Only necessary site workers or authorized site visitors shall be allowed in the Exclusion Zone. For sites where public access must be restricted outside of project work hours, the Site Safety Officer will confer with the property owner to determine the appropriate barrier.

10.2 Decontamination Zone

The Decontamination Zone is the transition area between the contaminated area and the "clean" Support Zone. The Decontamination Zone boundary shall be located next to the Exclusion Zone so that no contaminated materials or equipment shall pass beyond it to the Support Zone. It may be located within the exclusion zone, depending on contaminants and the scope of the project

10.3 Support Zone

The Support Zone shall consist of the area of the site extending from the outer boundary of the Decontamination Zone to the worksite perimeter. First aid and eye-wash equipment will be located in this area, as will support personnel. All visitors and any non-essential site personnel shall remain in the Support Zone. This can also include the entire area outside the exclusion zone and if no decontamination zone is designated.

Potentially contaminated equipment or other materials are not permitted in this zone. Personnel entering this zone are required to remove any protective equipment worn in the Exclusion and/or Decontamination Zone.

11.0 DECONTAMINATION

Field decontamination of personnel and equipment will include Alconox detergent and water wash and water rinse. Drillers will steam clean all rods and tooling between borings. The soil sample tooling will be decontaminated using Alconox and water followed by a water rinse. PBS will decontaminate hand tools and equipment used during sampling in the same manner as drilling tools. Subcontractors will supply their own decontamination equipment and supplies. Solid waste

(such as gloves, paper towels, etc.) will be contained in a plastic bag and disposed of in a municipal collection receptacle.

12.0 EMERGENCY RESPONSE PLAN

The Emergency Response Plan is provided to guide the SSO during emergency situations. Such situations include but are not limited to: fire or explosion, medical emergencies and uncontrolled contaminant release.

The following emergency equipment shall be kept on site:

- A fire extinguisher will be kept at the site. The extinguisher will be Type ABC approved by the National Fire Prevention Association (NFPA). The extinguisher will be serviced or replaced yearly.
- A first-aid kit will be available at the site.
- PBS employees will carry a mobile phone to the project site.

12.1 Plan Implementation

The SSO will have primary responsibility for directing activities in the event of an emergency situation. The SSO will evaluate the situation and will determine the need to implement the emergency procedures, in concert with other personnel which may include client representatives and the Project Manager. Other field personnel will assist the SSO as required during the emergency.

If the Emergency Response Plan is implemented, the SSO or designees are responsible for alerting all personnel at the affected area by use of a signal device (such as a hand held air horn), visual, or shouted instructions, as appropriate.

12.2 Emergency Contacts

Contact phone numbers and hospital information are provided immediately following the cover page of this HASP. The HASP will be kept in the SSO's and PM's vehicle or other unlocked location so that PBS field personnel and subcontractors can readily access it.

12.3 Fires

If a fire occurs, the area should be evacuated and a call placed to 911 for the local fire department. If immediate use of a fire extinguisher for a small, non-explosion related fire can reduce the chance of injury or property damage, then it may be done with caution but is not required. If an explosion appears likely, evacuate the area immediately and call 911. The PM should be informed immediately of the situation.

12.4 Medical Emergencies

If a worker is seriously injured or becomes ill or unconscious, call 911. If a worker leaves the site to seek medical attention, another worker must accompany the patient to the medical facility.

When in doubt about whether medical attention is necessary, always seek medical attention as a conservative approach. Notify the SSO and PM of the outcome of the medical evaluation as soon as possible.

In the event that a seriously injured person is also heavily contaminated, inform the emergency personnel immediately prior to their transporting the person off-site. Less severely injured individuals may have their protective clothing carefully removed or cut off before transport to the hospital.

12.5 Spills or Leaks

During drilling or excavation activities, the subcontractor must have a spill kit readily available. Leaks of hydraulic fluid, oil, and or fuel from heavy machinery are the responsibility of the subcontractor. The spill kit should include petroleum absorbent pads and/or granular absorbent material to help contain and clean up small quantity spills. In the event of a release, site personnel will:

- Locate the source of the spill. Stop the flow if it can be done safely.
- Begin containment and recovery of the spilled materials, if this can be done safely with available equipment, supplies, and PPE.
- Evacuate to a safe location if spill creates an Immediately Dangerous to Life and Health (IDLH) environment.
- Inform the PM immediately following getting to a safe location.
- Call appropriate regulatory agencies and/or 911, if appropriate.

PBS and its subcontractors will follow all applicable local, state and federal regulations regarding petroleum releases. Following any quantity of release, the PM (if not on site) will be notified, and notification will be made to regulatory agencies, as appropriate.

12.6 Emergency Notification, Documentation and Review

The PM and/or the SSO will notify the Health and Safety Director as soon as possible after an emergency situation has been stabilized. The PM will also notify the appropriate client contacts and regulatory agencies, if applicable. If an individual is injured, the PM will complete and submit a PBS Accident Report within 24 hours.

The PM and the Health and Safety Director will critique the emergency response action following the event. The results of the review will be used to improve future Emergency Response Plans and actions.

**ATTACHMENT 9 TO GMP AMENDMENT
TO CM/GC CONTRACT NO. 4400001553**

Health and Safety Plan

APPENDIX A. CHEMICAL HAZARD INFORMATION

Check the box for those chemicals that may be present at the site. If the chemical is not listed in the table, add it to the end of the table after looking up the hazardous properties.

Check if present	Material	Water Solubility ^a	Specific Gravity	Vapor Density	Flash Point °F ^c	Vapor Pressure	LEL UEL	LD ₅₀ mg/kg	PEL-TWA ^g	IDLH Level	Odor Threshold or Warning Concentration (ppm)	Hazard Property ^j	Dermal Toxicity ^k	Acute ¹ Exposure Symptoms
Volatile Compounds Organic (VOCs)														
<input checked="" type="checkbox"/>	Benzene	0.07%	0.8765	2.8	12	75 mm	1.2% 7.8%	3800	1 ppm	500 ppm	61-97	BCGO	CIG	BCDFHIKL MNOQR
<input checked="" type="checkbox"/>	Ethylbenzene	0.01%	0.867	3.7	55	7 mm	0.8% 6.7%	3,500	100 ppm	800 ppm	--	BCD	CIF	ABFHIKLM NPQR
<input checked="" type="checkbox"/>	Toluene	0.07% (74°F)	0.866	3.2	40	21 mm	1.1% 7.1%	5,000	200 ppm	500 ppm	1.6	BC	BHE	DEFHIKLM NOPQ
<input checked="" type="checkbox"/>	Xylene	Insoluble	0.8642	3.7	81-90	7-9 mm	1% 7%	5,000	100 ppm	900 ppm	0.62-40	BCD	H	ABFHIKLM NPQ
<input checked="" type="checkbox"/>	Diesel Fuel	Insoluble	0.81- 0.90	--	130	--	0.6-1.3% 6-7.5%	24,500	None established	None specified	0.08	BC	ABC	IN
<input checked="" type="checkbox"/>	Gasoline	Insoluble	0.72	3.4	-45	38-300 mm	1.4% 7.6%	--	300 ppm	None specified	0.5 - 0.1	CD	AB	IN
<input checked="" type="checkbox"/>	Arsenic	Insoluble	5.73	--	NA	0 mm	NA	--	0.010 mg/m ³	5 mg/m3	--	--	--	--
<input checked="" type="checkbox"/>	Lead	Insoluble	11.34	--	NA	0 mm	NA	--	0.050 mg/m3	100 mg/m3	--	--	--	--

EXPLANATION AND FOOTNOTES

a Water solubility expressed as 0.2 g means 0.2 grams per 100 grams water at 20°C.

b Solubility of metals depends on the compound in which they are present.

c Several chlorinated hydrocarbons exhibit no flash point in a conventional sense, but will burn in the presence of high energy ignition source or will form explosive mixtures at temperatures above 200°F.

d Practically non-flammable under standard conditions.

e Expressed as mm Hg under standard conditions.

f Explosive concentration of airborne dust can occur in confined areas.

g OSHA time-weighted Average (TWA) Permissible Exposure Limits (PELs) except where noted in h and i.

h TLV-TWA adopted by the American Conference of Governmental Industrial Hygienists (ACGIH), which is lower than the OSHA PEL.



**ATTACHMENT 9 TO GMP AMENDMENT
TO CM/GC CONTRACT NO. 4400001553**

Health and Safety Plan

i REL-TWA recommended by the National Institute of Occupational Safety and Health (NIOSH). A TLV or PEL has not been adopted by ACGIH or OSHA.

- j
- | | |
|---------------|-----------------|
| A - corrosive | E - reactive |
| B - flammable | F - radioactive |
| C - toxic | G - carcinogen |
| D - volatile | H - infections |

k Dermal Toxicity data is summarized in the following three categories:

Skin Penetration	Systemic	Local Potency
A - negligible penetration (solid-polar)	E - slight hazard -LD50= 500-15,000 mg/kg; lethal dose for 70 kg man = 1 pint - 1 quart	H - slight -reddening of skin
B - slight penetration (solid-nonpolar)	F - moderate hazard -LD50= 50-500 mg/kg; lethal dose for 70 kg man = 1 ounce - 1 pint	I - moderate -irritation/inflammation of skin
C - moderate penetration (liquid/solid-nonpolar)	G - extreme hazard -LD50 = 10-50 mg/kg; lethal dose for 70 kg man = drops to 20 ml	J - extreme -tissue destruction/necrosis
D - high penetration (gas/liquid-nonpolar)		

1 Acute Exposure Symptoms

- A - abdominal pain
B - central nervous system depression
C - comatose
D - convulsions
E - confusion
F - dizziness
G - diarrhea
H - drowsiness
I - eye irritation
J - fever
K - headache
L - nausea
M - respiratory system irritation
N - skin irritation
O - tremors
P - unconsciousness
Q - vomiting
R - weakness

APPENDIX B. GENERAL SAFE WORK PRACTICES

Field operations for this project shall be conducted in accordance with the minimum safety practices described below required for PBS employees.

- Hands must be thoroughly washed when leaving a contaminated or suspected contaminated area before eating, drinking, or any other activities.
- Contaminated protective equipment shall not be removed from the work area until it has been properly decontaminated or containerized on site.
- Avoid activities which may cause dust. Removal of materials from protective clothing or equipment by blowing, shaking, or any means which may disperse materials into the air is prohibited.
- Field personnel must use the "buddy system" when wearing any respiratory protective devices. Only when no respiratory equipment is required can field personnel work alone. Communications between members must be maintained at all times.
- Emergency communications shall be prearranged in case unexpected situations arise. Visual contact must be maintained between pairs on site, and team members should stay close enough to assist each other in the event of an emergency.
- Personnel should be cautioned to inform each other of subjective symptoms of chemical exposure such as headache, dizziness, nausea, and irritation of the respiratory tract.
- No excessive facial hair which interferes with a satisfactory fit of the facepiece-to-face seal will be allowed on personnel required to wear respiratory protective equipment.
- The selection, use, and maintenance of respiratory protective equipment shall meet the requirements of established PBS procedures, recognized consensus standards (AIHA, ANSI, NIOSH), and shall comply with the requirements set forth in 29 CFR 1910.134.
- At sites with known or suspected contamination, appropriate work areas for field personnel support, contaminant reduction, and exclusion will be designated and maintained.
- PBS field personnel are to be thoroughly briefed on the anticipated hazards, equipment requirements, safety practices, emergency procedures, and communications methods, both initially and in daily briefings.
- All PBS field vehicles shall contain a first-aid kit and multi-purpose portable fire extinguisher.
- All field personnel will, whenever possible, remain upwind of drilling rigs, open excavations, boreholes, etc.
- Subsurface work shall not be performed at any location until the area has been cleared by a utility locator firm to be free of underground utilities or other obstructions.

PROHIBITED WORK PRACTICES

Field operations that are specifically prohibited for this or any project task include:

- Field personnel are specifically prohibited from entering into excavations, trenches, or other confined spaces. Unattended boreholes and excavations must be properly covered or otherwise protected.
- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increase the probability of hand-to-mouth transfer and ingestion of materials is prohibited in any area where the possibility of contamination exists.

APPENDIX C. STANDARD OPERATING PROCEDURES FOR DRILLING INTO SOIL AND ROCKS

Purpose

The purpose of this Standard Operating Procedure (SOP) is to provide an overview for working safely around drilling operations with truck-mounted and other engine-powered drill rigs. The procedure addresses off-road movement of drill rigs, overhead and buried utilities, use of augers, rotary and core drilling, and other drilling operations and activities.

Application

The guidelines shall be applied to PBS projects in which truck-mounted, or other engine-powered, drill rigs are used.

The guidelines are applicable to PBS employees only. For drill rigs operated by contractors, the primary responsibility for drilling safety is with the drilling contractor.

Responsibility and Authority

Drill rig safety and maintenance is the responsibility of the drill rig operator. PBS employees are responsible for their own safety including recognizing and avoiding drill rig hazards. PBS employees that observe a drill rig condition believed to be unsafe, shall advise the drill rig operator and/or the client of the unsafe condition.

Geologist on-site:

- 1) Tailgate safety meeting should include discussion with driller about their rig and any and all safety precautions. **Driller should show you the location of emergency shut-off switch.** Rig should be in good working condition with no operation problems or evidence of leaks.
- 2) Discuss location of all utilities (above and below ground) with driller and note if they are near any of the planned locations.
- 3) If there are any locations that are difficult to access, off-road, or inside a building, take a look, walk the route or review the issues before moving the rig onto the location.
- 4) Inside drilling requires proper ventilation for the exhaust from the drill rig. Make sure that proper venting will be done. These issues should be resolved before the day of the job but some last minute details may need to be worked out after arriving on-site.
- 5) If driller has no helper, **YOU MAY NOT ASSIST**, but find out what are the pinch points and problem areas and keep an eye out for when the driller may be in trouble or need emergency assistance.
- 6) During drilling – **STAND BACK**. There is no need to be in the drillers work zone during drilling. Make sure your sample processing area is outside their work zone. If you observe something unusual or have a question, wait until the driller has stopped or signal to the driller that you have a question. Never approach the driller while they are actively drilling.
- 7) Keep spectators from entering the drillers work zone. If it is not practical to set up an exclusion zone – be aware of pedestrians and keep them away from active drilling.
- 8) Be aware of sharp edges such as the cut acetate sleeve for direct push soil samples. Also be aware of pinch points from split spoon samplers. Nitrile gloves need to be worn for protection against contaminants but an underglove may be worn to protect your hands, if necessary.
- 9) Sonic and air rotary drilling requires additional warnings and cautions and are not addressed in this SOP.

Safety Guidelines for Operators of Drill Rigs

Movement of Drill Rigs

Before moving a rig, the operator must do the following:

1. To the extent practical, walk the planned route of travel and inspect it for depressions, gullies, ruts, and other obstacles.
2. Check the brakes of the truck/carrier, especially if the terrain along the route of travel is rough or sloped.
3. Discharge all passengers before moving on rough or steep terrain.
4. Engage the front axle (on 4x4, 6x6, etc. vehicles) before traversing rough or steep terrain.

Driving drill rigs along the sides of hills or embankments should be avoided; however, if side-hill travel becomes necessary, the operator must conservatively evaluate the ability of the rig to remain upright while on the hill or embankment. The possibility must be considered that the presence of drilling tools on the rig may reduce the ability of the rig to remain upright (raises the center of mass of the rig).

Logs, ditches, road curbs, and other long and horizontal obstacles should be normally approached and driven over squarely, not at an angle.

When close lateral or overhead clearance is encountered, the driver of the rig should be guided by another person on the ground.

Loads on the drill rig and truck must be properly stored while the truck is moving, and the mast must be in the fully lowered position.

After the rig has been positioned to begin drilling, all brakes and/or locks must be set before drilling begins. If the rig is positioned on a steep grade and leveling of the ground is impossible or impractical, the wheel of the transport vehicle should be blocked and other means of preventing the rig from moving or topping over employed.

Buried and Overhead Utilities

The location of overhead and buried utility lines must be determined before drilling begins, and the locations should be noted on boring plans and/or assignment sheets. Further information on electrical safety may be seen in HS-206.

When overhead power lines are close by, the drill rig mast should not be raised unless the distance between the rig and the nearest power line is at least 20 feet or other distance as required by local ordinances, whichever is greater. The drill rig operator or assistant should walk completely around the rig to make sure that proper distance exists.

When the drill rig is positioned near an overhead line, the rig operator should be aware that hoist lines and power lines can be moved towards each other by wind. When necessary and approved by the Project Manager (PM), the utility and/or powerlines may be shielded, shut down, or moved by the appropriate personnel.

Clearing the Work Area

Before a drill rig is positioned to drill, the area on which the rig is to be positioned should be cleared of removable obstacles and the rig should be leveled if sloped. The cleared/leveled area should be large enough to accommodate the rig and supplies.

Safe Use of Auger

- Never place hands or fingers under the bottom of an auger flight or drill rods when hoisting the augers or rods over the top of another auger or rod in the ground or other hard surfaces, such as the drill rig platform.
- Never allow feet to get under the auger or drill rod while they are being hoisted.
- When the drill is rotating, stay clear of the drill string and other rotating components of the drill rig. Never reach behind or around a rotating auger for any reason.
- Move auger cuttings away from the auger with a long-handled shovel or spade; never use hands or feet.
- Never clean an auger attached to the drill rig unless the transmission is in neutral or the engine is off, and the auger has stopped rotating.

Safe Use of Hand Tools

OSHA regulations regarding hand tools should be observed in addition to the guidelines provided below:

- Each tool should be used only to perform tasks for which it was originally designed.
- Damaged tools should be repaired before use or discarded.
- Safety goggles or glasses should be worn when using a hammer or chisel. Nearby co-workers and by-standers should be required to wear safety goggles or glasses also, or move away.
- Tools should be kept cleaned and stored in an orderly manner when not in use.

Safe Use of Wire Line Hoists, Wire Rope, and Hoisting Hardware

Safety rules described in Title 29 Code of Federal Regulations (CFR) 1926.552 and guidelines contained in the Wire Rope User's Manual published by the American Iron and Steel Institute shall be used whenever wire line hoists, wire rope, or hoisting hardware are used.

Protective Gear

Minimum Protective Gear

Items listed below should be worn by all members of the drilling team while engaged in drilling activities.

- Hard Hat
- Safety Shoes (shoes or boots with steel toes and shanks)
- Gloves

Other Gear

Items listed below should be worn when conditions warrant their use. Some of the conditions are listed after each item.

1. Safety Goggles or Glasses: Use when working within 25 feet of a drill rig or when using hand tools or chemicals that may create eye hazards.

2. Safety Harnesses and Lifelines: Safety harnesses and lifelines shall be worn by all persons working on top of an elevated derrick beam or mast. The lifeline should be secured at a position that will allow a person to fall no more than six feet. OSHA Full Protection (1926 Subpart m) requirements apply.
3. Life Vests: Use for work over water.

Traffic Safety

Drilling in streets, parking lots or other areas of vehicular traffic requires definition of the work zones with cones, warning tape, etc. and compliance with local police requirements.

Fire Safety

- Fire extinguishers shall be kept on or near drill rigs for fighting small fires.
- If methane is suspected in the area, a combustible gas instrument (CGI) shall be used to monitor the air near the borehole with all work to stop at 20 percent of the Lower Explosive Limit (LEL).
- Work shall stop during lightning storms.



Engineering +
Environmental

Contaminated Media Management Plan – Block R

NW 6th Avenue and NW Hoyt Street
Portland, Oregon

Prepared for:
J E Dunn Construction

December 2016
REVISED January 2017

PBS Project No. 15194.879

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SUPPORTING DATA

FIGURE

Figure 1 – Site Location Map

1.0 INTRODUCTION

This Block R Contaminated Media Management Plan (CMMP) pertains to the use of Block R during the construction of the Health Department Headquarters (HDHQ) by J E Dunn Construction. The CMMP addresses the property bounded by NW Hoyt Street (north), NW 6th Avenue (east), NW Glisan Street (south) and NW Broadway (west) (Figure 1).

Block R lies immediately south of Block U; the east half of Block U is the future site of the HDHQ. There is a CMMP Update dated February 2016 and revised in November 2016 that applies to future construction work on Block U.

J E Dunn Construction (Dunn) will be leasing Block R from the Portland Development Commission (PDC) for material and equipment staging and for job trailers housing Dunn staff and subcontractors; sanitary facilities; material laydown and storage of other construction materials and equipment; and space reserved for operation of a crane.

As a result of known contamination on Block R, this CMMP provides background information and guidance on soil management during the temporary use of Block R.

Information that was new or revised in January 2017 is noted in the section header by **NEW** or **REV.:** revisions related to containerized storage of excavated soil (4.1, 5.5, 5.6, 8.2); health and safety (7.2); site inspections (8.3); and the environmental agency representative (3.4).

2.0 USE OF THIS DOCUMENT

This Block R CMMP provides background information such as site history, remediation activities, and the known and potential chemical contaminants in the soil and other materials at the site. Guidance as to worker health and safety is provided in this document in Section 7.

3.0 RESPONSIBLE PARTIES

3.1 J E Dunn Construction (Lessee)

Key personnel representing Dunn are Kyle Boehnlein and Tom Heger.

- Kyle Boehnlein – direct 503.972.6181 - mobile 816.215.4039

Kyle.boehnlein@jedunn.com

- Tom Heger – direct 971.270.2840 - mobile 816.309.8264

Tom.Heger@jedunn.com

3.2 Portland Development Commission (Lessor)

Colin Polk is PDC's environmental manager. PDC is leasing Block R to J E Dunn Construction for the duration of construction on Block U (HDHQ).

- Colin Polk – 503.823.3211

polkc@pdc.us

3.3 General Contractor

J.E. Dunn is also the General Contractor (GC) and will manage activities on Block R. If suspected contaminated soil is encountered or generated, the GC will immediately notify the designated Environmental Consultant, who will assess the soil and provide guidance to the GC for management of the contaminated material. If necessary, the GC may need to contain the contaminated material and dispose offsite.

3.4 Environmental Agency NEW

Michael Greenburg is the site manager for the Oregon Department of Environmental Quality (DEQ). Because of the known contamination, the site is listed with the DEQ (ESCI #3103). Mr. Greenburg reviews and approves of the CMMP for Block R and is available in the event agency opinion becomes necessary.

- Michael Greenburg – direct 503.229.5153

Michael.Greenburg@state.or.us

3.5 Environmental Consultant

PBS Engineering and Environmental will serve as the Environmental Consultant to provide environmental oversight during earth-disturbing activities on Block R. The Environmental Consultant is responsible for implementation of the Block R CMMP; onsite response if notified of potential contamination; field evaluation of potential contaminated material; sampling and analysis as deemed necessary; and direction to the GC as to appropriate management of the material.

- Dulcy Berri – direct 503.417.7591 - mobile 503.780.8160

Dulcy.berri@pbsenv.com

4.0 KNOWN SURFACE AND SUBSURFACE MATERIALS

4.1 Gravel Cap REV.

A gravel cap approximately 4 inches thick was placed over the site to create a physical barrier that prevents direct contact with underlying soils. Trenching or other excavation that will penetrate this cap requires testing of soils that are generated as well as documentation that the cap was replaced. Prior to site entry, the GC will ensure that at least 4 inches of clean gravel covers the site.

4.2 Subsurface Soils

The site history since 1889 has included at least three dry-cleaning sites and two service stations, as well as two hotels and the former Pacific Trailways bus depot. Block R has been vacant since 1988. Imported fill of unknown origin was also placed at the site.

Assessments by PDC have shown **levels of arsenic and PAHs in soil** above Oregon DEQ risk-based exposure levels for occupational site workers (site utility/trench workers) including *direct contact and incidental ingestion/inhalation* pathways. PAHs in soil appear to be related to asphaltic roofing material; in 2004, PDC conducted a removal of 220 tons of roofing as well as petroleum-contaminated soil.

Concentrations of PAHs in groundwater exceed EPA limits, however no work is contemplated on Block R that would encounter groundwater.

Section 8 addresses activities known at this time to occur on Block R. The utility trenching work will proceed with these precautions in mind, for worker health and safety as well as soil management and restoration of the 4-inch gravel cap.

5.0 IDENTIFICATION OF CONTAMINATED MATERIALS

Given the long history of development on Block R, unexpected materials or contamination may be encountered during utility work. There are readily observable indications of soil contamination that are useful to be aware of when excavating or disturbing site soils. If any of these conditions are encountered, the GC should immediately notify the Environmental Consultant who will screen the suspect soils, provide sampling and analysis if deemed necessary, and assist the GC with proper management of the materials.

5.1 Staining

Some types of contaminants will stain or discolor soil in a manner that it is visibly noticeable compared to typical soil colors. Staining in soil from contaminants usually results in a darkening of the soil color, often causing the soil to appear dark gray to black. In rare cases, other colorations may be present. Stains can range from being difficult to visibly detect to very obvious. Petroleum hydrocarbons are the most commonly encountered contaminants that cause staining and could also possibly exhibit sheens and odors.

5.2 Sheens

Some types of contaminants, such as petroleum hydrocarbons, will produce a sheen on water when contaminated soil is placed in water. Sheens typically have a silvery, reflective quality. Heavy contamination can result in iridescent, rainbow-like colors. Sheen may also cause the soil to have a shiny or glossy appearance. Sheens can range from being difficult to visibly detect to very obvious. Petroleum hydrocarbons are the most commonly encountered contaminants that will cause a sheen, although other contaminants (typically organic liquids) and naturally-occurring organic matter in the soil may also cause sheens. Sheens are often associated with staining or odors, particularly for petroleum products.

5.3 Odors

Some contaminants emit odors when exposed to the atmosphere. Odors can be very faint to strong, and range from sweet smelling to pungent. Odors are usually detected inadvertently during excavation or stockpiling of soil, and are usually noticeably different than typical odors in the air. The most commonly encountered contaminants that cause odors in soil are solvents and petroleum hydrocarbons, although other contaminants may have noticeable odors. Other common contaminant indicators that may occur with odors are staining or sheens.

5.4 Unusual Fill Appearance or Condition

Materials that are dumped, used as fill, or otherwise placed in the environment may be contaminated (or could cause contamination), and could result in an unusual appearance or condition during excavation. Unusual appearance or conditions to be aware of include layers or zones of non-soil material (e.g., roofing, burn ash, sludge, and/or slag of various colors), buried tanks or containers (which could contain chemicals or chemical residue),

unanticipated utilities or conduits (which could be unidentified chemical lines, etc.), and/or moisture in the soil that appears to be something other than water.

Suspect contaminated soil or foreign materials should not be disturbed by excavation because of issues involving worker safety, and waste characterization must first be evaluated. It may become necessary to set up an exclusion zone using appropriate barriers such as temporary fencing, orange netting, and/or warning tape. The GC will notify the Environmental Consultant to evaluate the suspect soil through field screening and/or analytical testing. If contamination is confirmed, the soil will be managed appropriately.

5.5 Temporary storage REV.

Temporary storage may become necessary for suspect or known contaminated soil on the site, pending waste characterization or while awaiting transport off the site. No soil stockpiling will be allowed on the ground; all soil to be temporarily retained will be stored in covered containers such as totes or drop boxes. The container cover should be secured against wind and rain. Container storage locations will be on the site and in an area that is inaccessible to the general public.

5.6 Loading and Offsite Transportation REV.

Transportation of contaminated soil requires specific manifesting and licensing, as well as specific insurance requirements. Under no circumstances will contaminated soil leave the site without acceptance by the off-site disposal facility. Contaminated soil will be containerized immediately upon excavation with secure covers that prevent blowing out during transport; containers will be loaded and transported using procedures preventing a release to the environment.

Prior to departure from the site, all loose soil will be brushed from the vehicles and collected for appropriate disposal. Bills of lading shall be signed by the GC.

Although not anticipated, for transport of hazardous soils, a licensed hazardous waste transporter is required. Such soils will be containerized immediately upon excavation. Prior to departure, a hazardous waste manifest and accompanying land disposal restriction notification shall be properly filled out and signed by the County or their agent and transporter.

5.7 Permits and Approvals

Approvals and permits will be required from off-site disposal facilities for treatment or disposal of contaminated soil. The GC or Environmental Consultant will arrange the off-site disposal of contaminated soil. No contamination at a hazardous waste level is anticipated to be encountered.

6.0 STORMWATER MANAGEMENT

Stormwater management on Block R will be the responsibility of the GC. Stormwater will be managed to ensure no uncontrolled runoff of stormwater offsite.

7.0 WORKER HEALTH AND SAFETY

Because contamination may be present in soil and groundwater at the site, site personnel should be made aware of the potential for encountering contaminated media. Existing site data indicates

that PAHs and arsenic in soil may pose an unacceptable **risk to utility excavation workers through direct contact and incidental ingestion/inhalation**. It is the responsibility of each involved entity to conduct their own hazard assessment to determine appropriate health and safety measures.

7.1 Worker Safety

Each involved entity is responsible for the safety of their respective workers. This includes implementation of any training requirements, safety plans, monitoring, certifications, and any other action or requirement that may be required or prudent prior to beginning site activities. This CMMP or other notification must be provided to employees who will be working on-site. Prior to any ground-disturbing activities, a utility locate should be performed to identify potential utilities in proposed work areas.

All entities are responsible for notifying and updating others and their employees of potential site hazards that may be encountered during the project.

7.2 Health and Safety Plan REV.

Parties involved should prepare a site-specific Health and Safety Plan (HASP) for their employees to cover safety issues related to specific environmental and work-site hazards that may be encountered. All parties will be responsible for compliance with their HASP, including use of appropriate personal protective equipment.

Specific precautions related to known contamination at the site include skin protection and prevention of dust during utility excavation. Upon completion of utility work, replacement and maintenance of the 4-inch minimum gravel cap will protect site workers. If any activity or action exposes underlying soil, the cap will be promptly replaced and soil recovered.

8.0 KNOWN PHASES OF WORK ON BLOCK R

8.1 Pre-Occupancy Inspection by PDC

Upon execution of the lease agreement between PDC and Dunn, a pre-occupancy visual inspection will be conducted by PDC and Dunn representatives to determine the current conditions of the property. Any soil staining or other unusual features will be noted, and action taken if deemed necessary by all parties.

8.2 Utility Installation REV.

Additional rock will be placed on Block R to ensure a firm substrate for trailers, vehicle and equipment movement and the crane. Underground power will be brought onsite from a location in NW Hoyt Street. A trench that is approximately 4 inches deep will be made to extend the power line to the west to job trailers and to the south to the Dunn trailers. Sanitary and water lines will similarly be extended from street connections in trenches approximately 3 feet deep.

All soil that is removed as a result of this trenching will be placed into secure containers that are covered securely to protect from rain. The soil will be tested by the Environmental Consultant, who will discuss options for offsite disposal with the GC who will promptly remove the soil from the site.

8.3 Site Inspections REV.

A variety of site operations will occur on Block R including movement and parking of vehicles and equipment; storage of hazardous liquids and solids necessary for the construction work on Block U. Contractors bringing any such materials onsite will be required to submit a Safety Data Sheet to the GC for review. In addition, the Environmental Consultant will review such submittals and flag any that might indicate special storage or handling precautions are appropriate.

The Environmental Consultant and/or the GC will make periodic inspections of Block U, looking for any indications of vehicle or equipment leaks, container leaks or spills, as well as indications that the gravel cap may be compromised. If any are found that present a concern, the Environmental Consultant will discuss corrective actions with the GC to mitigate the situation.

All contractors using Block R will also be required to report any spills or leaks to the GC, who will perform an inspection and followup with the Environmental Consultant as to appropriate action.

8.4 Post-Occupancy Inspection and Release

At the time that Block R is no longer needed to support construction on Block U, all equipment, supplies and trailers will be removed from the property. The Environmental Consultant will compile a closeout report that documents any soil-disturbing activities on Block R. A visual inspection of the ground surface across Block R will be made to determine any indications of spills or leaks that may require action.

There will be a visual inspection conducted with the PDC representative prior to release from Block R.

**ATTACHMENT 10 TO GMP AMENDMENT
TO CM/GC CONTRACT NO. 4400001553**

FIGURE

Block U/Block R

ATTACHMENT 10 TO GMP AMENDMENT
TO CM/GC CONTRACT NO. 4400001553

NW Irving St

Legend

Block U

NW Hoyt St

Block R

Google earth

2016 Google

NW Glisan St

100 ft



ATTACHMENT 11 TO GMP AMENDMENT TO CM/GC CONTRACT NO. 4400001553

Summary of Project Labor Agreement

Multnomah County (“**Owner**”) and JE Dunn Construction Company (the “**CM/GC**”), together with the labor unions representing trades working on the Multnomah County Health Department Headquarters Project and equity stakeholders promoting equity and diversity in the skilled building trades, have negotiated and entered into a Project Labor Agreement, effective February 17, 2017 (the “**PLA**”), which incorporates Owner’s Workforce Training and Hiring program and establishes uniform, standard working conditions and diverse community participation for the efficient performance of construction work on the Project.

Owner recognizes that, as a public owner, it has a unique role in the construction industry to ensure that public dollars spent benefit the community that it serves and do not indirectly or passively perpetuate discrimination against or historical under-inclusion of minorities and women and low income people in the construction industry. The Signatory Unions and the CM/GC recognize that strikes, sympathy strikes, pickets, work stoppages, slowdowns, lock outs, or other labor disruptions on Owner’s construction projects significantly hinder the ability of Owner to achieve its institutional mission.

The Signatory Unions, the CM/GC and the Equity Stakeholders recognize that Owner is entitled to retain and exercise full and exclusive authority for the management of its operations, and shall remain the sole judge in determining the competency and qualifications of all firms responding to its Invitations to Bid, including all prime contractors and subcontractors, with the corresponding right to hire or reject such potential contractors on its public works projects. The Signatory Unions, the CM/GC and the Equity Stakeholders recognize that securing the contracting diversity and apprenticeship objectives of the PLA should not impose undue administrative burdens on Owner, or the CM/GC and Subcontractors.

The objectives of the PLA are to ensure that:

- A. The public served by Owner receives the fullest benefit of those public works construction projects undertaken by Owner including economy and efficiency;
- B. Owner optimizes through its contracting processes diverse community participation inclusive of racial and ethnic minorities, and women in the Project;
- C. Owner receives the benefit of a highly skilled and well-trained workforce, and the development through apprentice programs of skilled labor based in the community, in the performance of the work on the Project;
- D. The Project is performed without disruptions caused by labor unrest, including strikes, sympathy strikes, lock outs, picketing, work stoppages, slowdowns and similar job disruptions;

- E. The PLA is established as a fair and balanced approach with respect to the rights and obligations of union and open shop contractors and employees; signatory and non-signatory contractors to the PLA; disadvantaged, minority, women, service disabled veterans and emerging small business enterprises and employees; and the equity interests of the community in the Project.

The Signatory Unions that have signed the PLA are:

Boilermakers Local 242
Bricklayers and Allied Craftworkers Local #1 Oregon
Cement Masons Local 555
Pacific Northwest Regional Council of Carpenters
IBEW Electricians Local 48
Elevator Constructors Local 23
Glass Workers Local 740 (IUPAT DC5)
Heat and Frost Insulators Local 36
Iron Workers Local 29
Laborers Local 737
Linoleum Layers Local 1236 (Floor Coverers IUPAT DC5)
Operating Engineers Local 701
Painters Local 10 (IUPAT DC5)
Plasterers Local 82
Roofers Local 49
Sheet Metal Workers Local 16 (SMART)
Sprinklerfitters Local 669
Teamsters Local 162

In lieu of signing the PLA, the UA Plumbers and Steamfitters Local 290 elected to sign and submit a letter of support dated February 8, 2017.


The Equity Stakeholders that have signed the PLA are:

National Association of Minority Contractors – Oregon
Oregon Association of Minority Entrepreneurs

An electronic copy of the executed PLA may be obtained by submitting a written request (including a return email address) to: Office of Multnomah County Attorney, ATTN.: Property Group, 501 SE Hawthorne Blvd, Suite 500, Portland, OR 97214.



Administrative Procedures

Subject:	Equity	Page:	Page 1 of 11
Effective Date:	May 1, 2015		
Approved By:	 Patrick Quinton, Executive Director		
Sponsor:	Executive Director		
Owner:	Director, Communications and Social Equity		

PDC's administrative procedures on Equity (these "Procedures") impact all PDC projects, programs, and internal functions either directly or indirectly. All staff should become familiar with this document and what it seeks to accomplish. These Procedures should also be carefully reviewed when planning any new project or program, hiring or promoting PDC employees, contracting for goods and services, and engaging in other activities such as renting space or hiring a caterer to host a PDC-sponsored event.

These Procedures are organized as follows:

- **Part One:** Policy Objectives, Guiding Principles, and Authority
- **Part Two:** Managing Investments to Support Equitable Outcomes
- **Part Three:** Contracting-Based Equity Programs
- **Part Four:** Human Resources Equity Plan
- **Part Five:** Other Internal Equity Measures
- **Part Six:** Definitions

PART ONE – POLICY OBJECTIVES, GUIDING PRINCIPLES, AND AUTHORITY

- 1.1 **Definitions.** The capitalized terms found in these Procedures are defined in Part Six.
- 1.2 **Policy Objectives.** These Procedures guide the implementation of PDC Board Resolution #6988, "[Adopting the Equity Policy of the Portland Development Commission](#)" (the "Policy"). The Policy aims to ensure that PDC's strategic goals, outcomes, programs, and initiatives advance social and economic equity by:
 - Increasing economic opportunity and income for all Portland residents and Historically Disadvantaged Portlanders;
 - Making use of all of PDC's revitalization and economic development activities to create equitable access to living wage jobs and wealth creation opportunities for Portlanders; and
 - Demonstrating PDC's commitment to and leadership in social equity through internal business practices, robust community partnerships, and accountability measures.

1.3 **Guiding Principles.** In order to fulfill the objectives of the Policy, PDC will:

- Manage all investments, projects and programs in a manner which considers beneficiaries, addresses disparities, and supports equitable outcomes as further described in Section 4.2 of the Policy and Part Two of these Procedures;
- Maximize community benefits from PDC programs and investments through living-wage construction jobs, career advancement, and business opportunities for Historically Disadvantaged Portlanders as further described in Section 4.3 of the Policy and Part Three of these Procedures; and
- Ensure that PDC's internal business practices increase diversity and social equity within PDC and support partnership, transparency, and accountability as further described in Section 4.4 of the Policy and Parts Four and Five of these Procedures.

PART TWO – MANAGING INVESTMENT TO SUPPORT EQUITABLE OUTCOMES

Part Two of these Procedures concerns impacts of PDC financial and non-financial investments in the community. Questions about sections 2.1 and 2.4 should be directed to PDC's Communications and Social Equity Director; questions about sections 2.2 and 2.3 should be directed to PDC's Deputy Director.

2.1 **Community Engagement.** PDC shall engage the community in ways that allow for meaningful public involvement of people impacted by PDC Activities. Such involvement may include, but is not limited to, the following:

- Creation of project or program advisory groups whose membership reflects the communities affected by PDC activities;
- Assessment and accommodation of multicultural and multilingual needs; and
- Working closely with all communities, particularly Historically Disadvantaged Portlanders, to address structural disparities, create pathways to prosperity, and determine the process for community involvement and governance.

2.2 **Strategic Alignment and Equity Lens for Loans and Grants.** A "Strategic Alignment and Equity Lens," (or "Equity Lens"), a sample of which is attached in Appendix A, shall be used to evaluate all PDC loans and grants to ensure financial resources address disparities, advance strategic equity objectives, and do not result in negative consequences for the community. The Equity Lens shall be reviewed prior to determining whether to move forward with a request for PDC financial assistance.

2.3 **Equity Plan for non-financial investments.** Staff for each new and existing program, major activity, and non-loan/grant investment shall identify and assess disparities in access or outcomes for Historically Disadvantaged Portlanders. Program staff shall then develop a plan to maximize inclusion and minimize or eliminate negative consequences (e.g., displacement) for Historically Disadvantaged Portlanders. An Equity Plan template for non-financial investments, which is attached as Appendix B of the Procedures, can be used to evaluate, plan, and address such disparities and opportunities.

2.4 **Community Benefits.** Projects receiving substantial investments through PDC shall be define explicit community benefits. PDC should enter into a community benefits agreement (a "CBA") to address issues of access for local residents to long-term employment opportunities and advancement, supply-chain opportunities for local businesses, and publicly-accessible amenities.

- 2.5 **Accountability.** The activities in sections 2.1, 2.2, 2.3, and 2.4 shall be reviewed and evaluated annually by the PDC Equity Council and PDC Executive Director to determine the effectiveness of PDC's equity approach and make recommendations for changes that more effectively foster effectiveness and public accountability.

PART THREE – CONTRACTING-BASED EQUITY PROGRAMS

Part Three of these Procedures describes the equity programs implemented through certain public and public-private contracting activities. Where applicable, the activities and programs described in this section must align with PDC's policy and guidelines on sustainable purchasing. Questions on this section should be directed to PDC's Communications and Social Equity Director.

- 3.1 **Business Equity Program.** The goal of the Business Equity Program ("BEP") is to ensure that PDC's projects and programs provides professional, supplier, and construction contracting opportunities to Certified Firms (i.e., certified minority-owned businesses, women-owned businesses, disadvantaged businesses, and emerging small businesses). The BEP also encourages the participation of businesses owned by veterans on Direct Contracting, PDC Sponsored Projects, and on projects utilizing PDC Resources, including Intergovernmental Agreements.

3.1.1 **Applicability.** The BEP applies in any of the following types of agreements:

- A PDC Personal Services Contract for any amount
- A PDC-Owned Construction Contract with Hard Construction Costs greater than \$200,000
- A PDC Sponsored Project receiving more than \$300,000 of PDC Resources to support a project with Hard Construction Costs greater than \$200,000
- A sale of PDC real property to a private party with a purchase price greater than \$300,000 that is expected to involve Hard Construction Costs greater than \$200,000
- An Intergovernmental Agreement with Hard Construction Costs greater than \$200,000 and more than \$100,000 in PDC Resources, whether project is contracted by PDC or another agency. The Executive Director or the Executive Director's designee may defer to another agency's program if its program is similar to PDC's program. If PDC defers to another agency's program, utilization reports shall be provided to PDC by the other agency on a monthly basis.

3.1.2 **Utilization Goals for Certified Firms.** The following Utilization Goals are established for each fiscal year. The Executive Director is responsible for annually reviewing the Utilization Goals and is authorized to modify them, based on the results of such annual analysis:

- **Personal Services Contracts (PDC-Owned or Sponsored):** 20% of the total number of awarded Personal Services contracts and 20% of total value of Personal Services Contracts
- **Construction Contracts (PDC-Owned):** 20% of Hard Construction Costs on projects
- **Construction Contracts (PDC – IGA):** 20% of Hard Construction Costs on projects
- **Construction Projects (PDC-Sponsored):** 20% of Hard Construction Costs on projects that exceed \$200,000 as calculated by an analysis of availability and capacity of Certified Firms for the specific project

- **Flexible Service Contracts (PDC-Owned):** 25% of the total number of Flexible Services Contracts awarded and 25% of the total value of all Flexible Services Contracts
- 3.1.3 **Utilization Goals for Projects Already Underway.** In an instance where a party receives notification of PDC's approval of the availability of PDC Resources after it has expended funds on a project, started construction, or taken other action that would impair its ability to comply with the BEP, PDC (through the PDC project manager, with assistance from the Equity Coordinator) may negotiate a Certified Firm participation level that is reasonable and may provide technical assistance to achieve that negotiated Utilization Goal.
- 3.1.4 **Program Requirements.** The BEP is implemented in construction projects by applying Appendix C of these Procedures for PDC-Owned construction projects and Appendix D of these Procedures for applicable PDC-Sponsored Projects.
- 3.1.5 **Prompt Payment.** For construction projects subject to the BEP, the contracting entity which received funds from PDC shall, upon receipt and approval of a monthly pay application, promptly pay the general contractors who shall subsequently promptly pay all subcontractors and suppliers within ten (10) calendar days. This requirement shall be made a part of the relevant construction contract.
- 3.1.6 **Self-Performed Work.** For construction contracts not subject to ORS 279C.305 (e.g., Sponsored Projects and PDC-Owned alternative contracts), PDC encourages opportunities for smaller contractors and Certified Firms. Prime Contractors who intend to self-perform more than 10% of the trade work to complete a project or an entire Construction Specifications Institute (CSI) MasterFormat trade division (e.g., excluding superintendence, supervision, mobilization, etc.) will be required to have the written authorization of the Communications and Social Equity Director or their designee, who may approve a higher percentage based on the type, size, available subcontractors, and other relevant project criteria.
- 3.1.7 **Joint Ventures.** For large-scale and alternative contracting projects not subject to low bid requirements, PDC may provide incentives for joint ventures and mentor-protégé partnerships that enhance BEP goals (e.g., additional points in the RFP evaluation process).
- 3.1.8 **Coordinator.** At its discretion, PDC may require that PDC Sponsored Projects assign a Certified Firm coordinator to projects subject to the BEP.
- 3.1.9 **Alternatives to Low Bid.** Alternatives to low bid (e.g., Design/Build, Construction Manager/General Contractor) that may enhance BEP goals should be pursued when feasible on projects subject to the BEP.
- 3.1.10 **Disparity Study Findings.** Annually, PDC shall develop a strategy to close disparities identified in the 2011 disparity study. This report will be prepared by PDC's Communications and Social Equity Director (or his or her designee).
- 3.1.11 **Five-Year Requirement.** On all projects subject to the BEP, all subcontractors who perform more than \$100,000 of work shall be a signatory to a State of Oregon Bureau of Labor and Industries ("BOLI") approved apprenticeship training program that has (a) been in existence for five years or longer and (b) has produced graduates. The PDC

Communications and Social Equity Director (or his or her designee) will approve any exceptions to this requirement.

- 3.1.12 **Effective Date of Applying the BEP on Sponsored Projects.** The effective date for applying the BEP to current projects is the signing of the transactional documents between PDC and the developer. At the signing of a memorandum of understanding (MOU) between PDC and the developer, a preliminary determination shall be made by PDC of the applicability of the Policy. A final determination shall be made by PDC of the applicability of the Policy prior to the signing of the transactional documents between PDC and the developer.
- 3.1.13 **Ineligibility.** Contractors or subcontractors that are on the [BOLI list of ineligible contractors](#) cannot participate in PDC Owned or PDC – IGA construction projects.
- 3.1.14 **Insurance and Bonding.** For PDC Sponsored Projects subject to BEP, PDC may provide incentives for the owner/developer/prime contractor to reduce insurance and bonding barriers for Certified Firms.
- 3.2 **Workforce Equity Program.** The Workforce Equity Program (“WEP,” formerly the “Workforce Hiring and Training Program”) aims to maximize apprenticeship opportunities in the construction trades and ensure employment opportunities for People of Color and Women. The WEP also encourages the employment of veterans and people with disabilities on Direct Contracting, Land Transactions, and on work utilizing PDC Resources.
- 3.2.1 **Applicability.** PDC-Owned Construction Contracts, PDC-Sponsored Projects, and PDC-Intergovernmental Agreements related to construction must comply with the WEP upon meeting any one of the following criteria:
- On a PDC-Owned Construction Contract consisting of construction work greater than \$200,000, the WEP shall apply to the prime contractor and any subcontract(s) greater than \$100,000.
 - On a PDC-Sponsored Project consisting of construction, the WEP shall apply if the project receives \$300,000 or more of PDC Resources to support a project with a Hard Construction Cost greater than \$1,000,000 and shall apply to the prime contractor and any subcontract(s) greater than \$100,000.
 - A sale of PDC real property to a private party with a purchase price greater than \$300,000 that is expected to involve Hard Construction Costs greater than \$200,000
 - On a PDC-Intergovernmental Agreement consisting of construction work greater than \$200,000, the WEP shall apply to the prime contractor and any subcontract(s) greater than \$100,000. The PDC Executive Director (or designee) may defer to another agency’s workforce program if its program is similar to PDC’s program. If PDC defers to another agency’s program, utilization reports shall be provided to PDC by the other agency on a monthly basis.
 - The WEP does not apply to Personal Services, Flexible Services, and other services contracts or agreements not involving construction work.

3.2.2 General Program Requirements. Projects subject to the WEP shall:

- Ensure that a minimum of 20% of labor hours in each apprenticeable trade performed by the contractor and subcontractors are worked by state-registered apprentices. **(Mandatory)**
- Work toward achieving the following Workforce Diversity Goals as outlined in the table below. The percentage of hours set forth below includes both apprenticeship hours and journey level hours. **(Aspirational)**

Workforce Goals by Fiscal Year	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018
Female	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%
People of Color	25.5%	26%	26.5%	27%	27.5%	28%	28.5%	29%	29.5%	30%

- Encourage the employment of veterans and people with disabilities. **(Aspirational)**
- Seek to employ a workforce that reflects the diversity of the City of Portland, including recruitment of a diverse workforce through the unions, the apprenticeship programs, and other community resources. **(Aspirational)**

3.2.3 Applying Requirements for Projects Already Underway. In an instance where a party receives notification of PDC's approval of the availability of PDC Resources after it has bid a project, expended funds on a project, started construction, or taken other action that would impair its ability to comply with the WEP, the PDC Project Manager, with assistance from the PDC Equity Coordinator, may negotiate a level of compliance that is reasonable and may provide technical assistance to achieve that negotiated Workforce Goal.

3.2.4 Program Requirements. The WEP is implemented in applicable construction projects by applying the Appendix E of these Procedures for both PDC-Owned and PDC-Sponsored Projects.

3.2.5 Equal Employment Opportunity Certification. Contractors and subcontractors subject to the WEP must be certified by the City of Portland as an Equal Employment Opportunity employer.

3.2.6 Damages. The requirements outlined in Section 3.2.2 are to be stipulated in PDC's agreements with a developer (for Sponsored Projects), another public agency (if the project is delivered through an Intergovernmental Agreement), or general contractor (if the project is owned by PDC). In the event that PDC determines, in its sole discretion, that the mandatory WEP requirements have not been substantially satisfied, subject to the terms of the applicable agreement, PDC's finding may result in one or more of the following actions:

- A finding of breach of the agreement with entity receiving funds with a notice to cure deficient performance;

- Excluding the entity, developer, contractor, or subcontractor from receiving future PDC Resources or bidding on future PDC solicitations subject to any other legal or procedural requirements;
 - A claim for liquidated damages with an assessment on the stipulated amount, to be reimbursed to PDC as the funding agency;
 - Withholding all or part of progress payments;
 - Any additional remedies included within the agreement.
- 3.3 **Enterprise Zone.** Effective on May 1, 2015, the BEP and WEP described above apply to PDC Enterprise Zone ("E-Zone") projects that involve new buildings and structures to be constructed or new additions to or modifications of an existing building or structure. If construction has commenced on an E-Zone project but is not yet completed, then see Sections 3.1.3 and 3.2.3 above to determine the effective date in applying the BEP and WEP. If construction was initiated and completed on an E-Zone project after May 1, 2015 and before an E-Zone Authorization Application is submitted, then the E-Zone company will pay an additional two percent (2%) of its actual tax savings to PDC's Workforce Training Business Development Fund.
- 3.4 **Exemptions.** The programs described in Part Three do not apply to the following: (a) projects as described in Section 3.3 that have submitted an E-Zone Authorization Application by April 31, 2015; (b) projects receiving PDC Resources derived from a financial assistance program that are intended to be used for working capital; (c) projects receiving federal funds when federal equity policies apply; (d) property acquisitions; or (e) other projects as deemed exempt by the PDC Executive Director after consultation with members of the Board.

PART FOUR – HUMAN RESOURCES EQUITY PLAN

Part Four of these Procedures describes the development, adoption, and implementation of a Human Resources Equity Plan (the "HR Equity Plan"). Questions on this section should be directed to PDC's Human Resources Director.

PDC will research and document benchmarks and best practices of similar organizations with successful internal and staff-focused diversity and equity programs. The Human Resources division will subsequently develop, adopt, and implement an annual work plan to address education, training, and strategies to retain, promote, and recruit diverse staff reflective of the local community.

Goals of the HR Equity Plan will include:

- 4.1 **Retention.** To accomplish retention goals of the HR Equity Plan:
- PDC managers will be trained in cultural competency and awareness of institutional and unintentional bias that impacts organizational effectiveness;
 - Employee performance evaluations will include accountabilities for cultural competency;
 - Policies, practices, and procedures will be screened for institutional racism; and
 - PDC will sponsor internal and external programs and educational opportunities to promote equity and inclusivity for all employees.

4.2 Recruitment. To accomplish the recruitment goals of the HR Equity Plan, PDC will:

- Collaborate with community equity partners to leverage diverse opportunities for recruitments and job postings;
- Report statistics and adhere to an Affirmative Action Plan ("AAP") that benchmarks local market diversity;
- Aspire to exceed the goals outlined in the AAP to be an employer of choice (i.e., an employment environment where employees choose to work due to the employer's superior practices, policies, benefits, and overall work conditions) in inclusiveness and equity within the broad population; and
- Consider all candidates who meet the minimum qualifications for all open positions, while encouraging candidates of color to apply and seek growth opportunities.

4.3 Career Development. To accomplish the career development goals of the HR Equity Plan, PDC will:

- Collaborate with individual employees to create development plans for all interested employees, including employees of color, in order to grow their careers within PDC;
- Develop opportunities and support for all employees, including employees of color, that will meet their particular career goals; and
- Promote mentorship opportunities for all interested employees, including employees of color, within PDC as part of individual development plans.

4.4 Hiring Panel Diversity. PDC will endeavor to create hiring and interview panels that are diverse in representation. To accomplish this, PDC may utilize the City of Portland's Minority Evaluator Program ("MEP") to identify and screen potential panel members.

PART FIVE – OTHER INTERNAL EQUITY MEASURES

Part Five of these Procedures describes other internal equity actions taken by PDC. Questions on this section should be directed to PDC's Communications and Social Equity Director.

- 5.1 Equity Council.** The PDC Equity Council (or other body as designated by the Executive Director) will oversee internal equity practices, monitor organizational progress, increase cultural competency training, and make recommendations for performance improvement. The scope and purpose of the Equity Council will be define in a separate
- 5.2 Flexible Service Contractor Work Order Selection.** PDC project managers should take steps to fairly distribute work to all qualified service providers within a flexible service contract category. A general preference will be given to Certified Firms.

PART SIX – DEFINITIONS

Capitalized terms in these Procedures have the following meanings:

"Board" means the PDC Board of Commissioners.

"Business Equity Program" means the program described in Section 3.1 of these Procedures.

"Financial Assistance Programs" means certain PDC business financial assistance programs, including, but not limited to, the Direct Tax Increment Loan, the Economic Development Administration (EDA) Revolving Loan and Real Estate Fund, and other programs the Executive Director may designate.

"Certified Firms" include Minority/Women/Emerging Small Business (M/W/ESB) firms as certified by the State of Oregon; or a Disadvantaged Business Enterprise (DBE) as certified by the U.S. Department of Transportation.

"Communities of Color" See People of Color.

"Direct Contracting" includes all professional, supplier, and construction services purchased directly by PDC (i.e., not through a developer, Intergovernmental Agreement, or any other third party).

"Enterprise Zone" is a five-year, 100% tax abatement program designed to encourage existing and new industrial firms to make new capital investments in certain designated areas. Participating firms are required to create or retain quality jobs while maximizing the economic benefits for residents of Portland who are currently earning at or below 80% Median Family Income.

"Equity" means everyone has access to opportunities necessary to satisfy their essential needs, advance their well-being, and achieve their full potential (see the [Portland Plan](#)).

"Flexible Service Contract" is a contract for services that has repetitive requirements on an as-needed basis and may include Personal Services Contracts.

"Hard Construction Cost(s)" are the costs to build improvements on a property, including all related construction labor and materials and fixed and built-in equipment costs. Costs not directly related to the construction of an improvement, such as overhead, administration, taxes, or other professional services such as architectural or engineering, are not considered Hard Construction Costs.

"Historically Disadvantaged Portlanders" are Persons of Color and people in Priority Neighborhoods.

"Intergovernmental Agreement" or "IGA" is an agreement between PDC and another government entity, including the City of Portland.

"Land Transaction" is the sale of real property by PDC at any price for the purpose of a private or public project.

"PDC Activities" refers broadly to PDC projects, programs, initiatives, and other actions that impact the local community.

"PDC-Owned Construction Contract(s)" include those in which PDC has a direct contractual relationship with the prime contractor and where PDC is the owner of the project.

"PDC Resource(s)" include: (i) PDC funds in the form of grants, loans, or payments (for purposes of calculating PDC Resources, any PDC funds used by a single entity for a single project in the form of grants, loans, or payments shall be combined to determine the total amount of PDC Resources); and (ii) the value of a Land Transaction (for purposes of calculating the value of a Land Transaction, the value shall be the difference between the appraised value of the property and its sale price).

"PDC-Sponsored Project(s)" include all projects that are privately owned and constructed involving PDC Resources, or a property conveyance that includes PDC Resources.

"People of Color" are people who self-identify as Black Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans, Subcontinent Asian-Pacific Americans, and/or first generation immigrant populations for the purpose of minority business ownership. (*Singular: "Person of Color"*)

"Personal Services Contract" is a contract for specialized skills, knowledge or unique resources that involve the application of highly technical or scientific expertise or the exercise of professional, artistic, or management discretion or judgment. Such services include, but are not limited to, those performed by architects, engineers, surveyors, attorneys, auditors, other licensed professionals, artists, designers, computer programmers, consultants, and property managers.

"Priority Neighborhoods" are geographic areas in Portland that either (1) experience lagging commercial investment and increased or persistent poverty; or (2) experience gentrification pressures.

"Utilization Goal(s)" are percentage goals set for Certified Firms and workforce utilization on contracts and projects subject to the Policy.

"Workforce Equity Program" means the program described in Section 3.2 of these Procedures.

"Workforce Goal(s)" means the goals related to construction trades that utilize People of Color and Women as a percentage of total construction hours worked on a PDC-Sponsored Project.

APPENDICES

- A. Strategic Alignment and Equity Lens**
- B. Equity Plan for Non-Financial Investments**
- C. Business Equity Program Specifications – Direct Bid Process Requirements**
- D. Business Equity Program Specifications – Loan Agreement / Development Agreement Process Requirements**
- E. Workforce Equity Program Specifications**