

Exhibit A



WHATCOM WATERWAY

**PULP/TISSUE MILL
REMEDIAL ACTION UNIT**

**CHLOR-ALKALI
REMEDIAL
ACTION UNIT**

GP WEST SITE BOUNDARY



Location of Pulp/Tissue Mill Area

Exhibit B



WASHINGTON STATE
DEPARTMENT OF
E C O L O G Y

**CLEANUP ACTION PLAN,
PULP/TISSUE MILL
REMEDIAL ACTION UNIT
Georgia-Pacific West Site
Bellingham, Washington**

October 30, 2014 Final

Washington State Department of Ecology
3190 160th Avenue Southeast
Bellevue, Washington 98008-545

Contents

1	Introduction and Background	2
2	Remedial Action Objectives	4
3	The Selected Cleanup Action	4
3.1	Description of Selected Cleanup Action.....	4
3.2	Contamination Remaining in the RAU	6
3.3	Other Remedial Alternatives Evaluated	7
3.4	Rationale for Selecting Cleanup Action	7
3.5	Compliance with WAC 173-340-360.....	8
3.6	Compatibility with Whatcom Waterway Remedial Activities	9
4	Cleanup Standards.....	9
4.1	Soil	9
4.2	Groundwater.....	9
5	Applicable State and Federal Laws	10
6	Cleanup Implementation Schedule.....	11
7	References.....	11

List of Tables

- 1 Soil and Groundwater Cleanup and Remediation Levels

List of Figures

- 1 GP West Site with Remedial Action Units
- 2 Areas Exceeding Cleanup Levels
- 3 Selected Cleanup Action

1 Introduction and Background

This Cleanup Action Plan (CAP) defines the cleanup action selected by the Washington State Department of Ecology (Ecology) for the portion of the Georgia-Pacific West Site (Site) referred to as the Pulp/Tissue Mill Remedial Action Unit (RAU). The Site is being cleaned up under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D of the Revised Code of Washington, and the Model Toxics Control Act Cleanup Regulation, Chapter 173-340 of the Washington Administrative Code (WAC).

The Port of Bellingham (Port) acquired the former Georgia-Pacific Mill property located at 300 West Laurel Street in Bellingham, Washington, in January 2005. In August 2009, Ecology and the Port entered into Agreed Order No. DE 6834 (Order), which requires the Port to perform a Remedial Investigation (RI) and a Feasibility Study (FS) for the Site. The Site is defined by the extent of contamination caused by the release of hazardous substances from the former industrial facility (refer to Figure 1).

In August 2013, a Site-wide RI was completed (Aspect, 2013) and an amendment to the Order separated the Site into the Pulp/Tissue Mill and Chlor-Alkali RAUs. Figure 1 shows the boundaries of the two RAUs. Remediation of contamination in the Chlor-Alkali RAU is expected to be considerably more complex than that in the Pulp/Tissue Mill RAU. The FS evaluations and selection/implementation of cleanup remedies for the two RAUs are now on separate tracks, which will allow cleanup and redevelopment at the Pulp/Tissue Mill RAU to proceed more quickly¹. As such, the Chlor-Alkali RAU will be addressed in a separate CAP.

The RI identifies the following subareas of contamination within the Pulp/Tissue Mill RAU, which are shown on Figure 2:

- Bunker C subarea;
- Dioxin-Contaminated Debris subarea (within the Bunker C subarea footprint);
- Acid Plant subarea; and
- LP-MW01 subarea.

Soils in the Bunker C Subarea are impacted by carcinogenic polycyclic aromatic hydrocarbons (cPAHs) and total petroleum hydrocarbon (TPH) in the Bunker C oil range, including non-aqueous-phase liquid (NAPL). In addition, dioxins/furans are a concern in soils within a small portion of this subarea, which is designated the Dioxin-Contaminated Debris subarea. In late 2011, the Port conducted an interim action in the Bunker C Subarea pursuant to the amended Order. The interim action involved the excavation and off-site treatment/disposal of greater than 5,000 tons of TPH-impacted soil and debris from beneath the former Bunker C Tank and achieved soil cleanup levels within the excavation footprint (see Figure 2).

¹ The boundary between the two RAUs, which was originally defined in the Second Amendment to the Order, has been redrawn to further expedite cleanup at the Pulp/Tissue Mill RAU. Refer to Section 1 of the FS for the Pulp/Tissue Mill RAU (Aspect, 2014).

Soils in the Acid Plant subarea contain acidic (low) pH and elevated concentrations of metals, including arsenic, cadmium, copper, mercury, and lead. Shallow groundwater in the immediate vicinity and downgradient of these soils is acidic and impacted by dissolved metals at concentrations of concern based on marine protection. (As discussed in Section 4.2, RAU groundwater is nonpotable.) The RI data indicate that the dissolved metals are mobile due to the low groundwater pH, and that both metals concentrations and low pH attenuate naturally before the groundwater reaches the shoreline.

In the LP-MW01 subarea, vinyl chloride and tetrachloroethene (also known as perchloroethene or PCE) were detected in shallow groundwater from a single monitoring well at concentrations of concern based on vapor intrusion (VI) and marine protection. The RI data indicate that soil contamination above cleanup levels was not detected in this subarea, and that the extent of contaminant migration in groundwater is extremely limited due to natural attenuation.

The RI also identifies metals at concentrations of concern based on marine protection in shallow groundwater in the general vicinity of the LP-MW01 Subarea. The estimated extent of these elevated concentrations is labeled Miscellaneous Dissolved Metals Exceedances on Figure 2. In addition, soil throughout the Pulp/Tissue Mill RAU was found to contain widely scattered contaminant concentrations exceeding soil cleanup levels for unrestricted land use.

Detailed information is presented in the Site-wide RI (Aspect, 2013). Section 7 of the RI presents the conceptual site model for subareas within the Pulp/Tissue Mill RAU, which discusses contaminants of concern and their historical source(s), nature and extent of contamination, contaminant fate and transport, and environmental exposure pathways and receptors.

The FS for the Pulp/Tissue Mill RAU (Aspect, 2014) was completed in accordance with the amended Order. The FS, subject to public comment concurrent with this CAP, develops cleanup alternatives for the RAU and evaluates them with respect to criteria specified in the Washington State Model Toxics Control Act regulations (MTCA; Chapter 173-340 WAC). A “preferred alternative” was identified based on the results of that evaluation, which is the cleanup action selected for implementation.

This CAP describes the Ecology-selected cleanup action for the Pulp/Tissue Mill RAU and provides additional information in accordance with WAC 173-340-380(1)(a).

Consistent with Chapter 70.105D RCW, “Model Toxics Control Act”, as implemented by Chapter 173-340 WAC, Model Toxics Control Act Cleanup Regulation”, it is determined that the proposed cleanup actions are protective of human health and the environment, attain federal and state requirements that are applicable or relevant and appropriate, comply with cleanup standards, provide for compliance monitoring, use permanent solutions to the maximum extent practicable, provide for a reasonable restoration time frame, and consider public concerns raised during public comment.

2 Remedial Action Objectives

Remedial Action Objectives (RAOs) are specific goals for protecting human health and the environment. RAOs for the Pulp/Tissue Mill RAU were developed in the FS, and include the following:

- Prevent direct contact with, and erosion of, impacted soils throughout the RAU, which includes known contaminated soils within the Bunker C, Dioxin-Contaminated Debris, and Acid Plant subareas;
- Meet groundwater cleanup levels throughout the RAU;
- Within the Bunker C Subarea, prevent direct contact with TPH/cPAH-contaminated soils, and prevent the accumulation of NAPL for groundwater protection;
- Within the Dioxin-Contaminated Debris Subarea, prevent direct contact with, and erosion of, dioxin/furan-contaminated soils; and
- Within the Acid Plant Subarea, prevent direct contact with, and leaching of, metals-contaminated soils.

3 The Selected Cleanup Action

3.1 Description of Selected Cleanup Action

The selected cleanup action design concept is presented on Figure 3. The cleanup action consists of the following elements:

Soil Removal from the Bunker C Subarea. In addition to soils that were removed from beneath the former Bunker C Tank in the completed interim action, the cleanup action includes removal of all remaining soils with TPH concentrations exceeding 10,000 mg/kg (the subarea-specific residual saturation remediation level) from the Bunker C Subarea. These soils have an estimated in-place volume of 2,000 cubic yards (CY).

RAU-wide Capping. Capping to control soil direct-contact exposure and soil erosion pathways will consist of a combination of existing pavement and building foundations, new buildings and pavement, and new soil caps. Most of the RAU is currently capped with pavement and building foundations which, subject to long-term inspection and maintenance, should provide the required isolation of underlying contaminated soil to achieve environmental protection. Integration of the existing RAU surfaces - with repair, replacement, and installation of new cap materials and erosion controls as needed to achieve protectiveness - will constitute the RAU-wide cap pending redevelopment. When redevelopment modifies these conditions such that cap protectiveness is compromised, new capping would be implemented.

New hard caps will be composed of a minimum 3 inches of concrete, asphalt, paving blocks, or building foundations. New soil caps will be composed of a minimum 24

inches of uncontaminated soil cover with a geotextile separation layer to distinguish the capping material from the underlying soil. Uncontaminated soil may include RAU soil confirmed to meet applicable soil cleanup levels (soil reuse) as well as imported uncontaminated soil.

The redevelopment plans for the Port property include increasing grade elevation to mitigate the impact of potential sea level rise and to reduce the grade separation with the downtown Bellingham Central Business District. RAU grading will be designed to maintain the required remediation performance standards, and will be integrated with redevelopment aesthetics and drainage. It is anticipated that impacted soil generated during redevelopment projects can be reused beneath new capping systems. In general, soil generated from a defined project area can be subsequently reused beneath a new capping system within the same project area without additional chemical testing. Soil may be temporarily stockpiled for a time period of up to 2 years; however, Ecology must approve reuse of any material that is placed outside of the project area from which it is generated, based on chemical testing data for that material. In addition, material removed from the source area of the Acid Plant Subarea (low-pH, metals-contaminated soil; Figure 2., requires chemical testing and Ecology approval prior to any reuse of that material.

Proper management of potentially contaminated materials remaining beneath the RAU-wide cap after cleanup is necessary to ensure that future redevelopment-related activities are consistent with this CAP. The Contaminated Materials Management Plan (CMMP), included as an exhibit to the Pulp/Tissue Mill RAU Consent Decree, defines the procedures required for managing contaminated materials (soil, debris, and water) encountered during post-cleanup redevelopment-related activities, including chemical testing, and requirements for restoration of the RAU-wide cap if disturbed by redevelopment, within the Pulp/Tissue Mill RAU.

- **Monitored Natural Attenuation (MNA) of Groundwater.** MNA will be applied to address residual contamination in groundwater that exceeds applicable groundwater cleanup levels. Based on the RI data, the contaminants that exceed cleanup levels in upland groundwater include pH and selected metals in the Acid Plant Subarea, PCE and vinyl chloride in the LP-MW01 subarea, and selected metals in the Miscellaneous Dissolved Metals Exceedances area. Contaminants are expected to continue to naturally attenuate through a combination of sorption, bioattenuation, volatilization, dispersion, and tidal mixing. The RI data indicate that natural attenuation is effectively reducing concentrations of groundwater contaminants in each of these areas.
- Contingent actions will be considered for implementation if MNA fails to restore groundwater at a reasonable rate and is determined not to be protective of human health and the environment (remedy failure). Contingent actions could include enhanced source attenuation or downgradient groundwater treatment and/or control. Design of a contingent action would be conducted if potential failure of MNA is indicated based on groundwater compliance monitoring results, at which time substantial additional information would be available to determine the causes of failure and, therefore, the most effective and practicable means to remedy it.

- **Institutional Controls.** The Port and Ecology will develop an Institutional Controls Plan for the RAU that includes environmental covenants in accordance with WAC 173-340-440 and RCW 64.70. Institutional controls will:
 - Provide notification regarding the presence of residual contaminated materials, and regulate the disturbance/management of those materials and the cleanup action components;
 - Prohibit activities such as utility excavations or site grading that could cause preferential pathways for contaminant migration or run-off and sediment impacts to Whatcom Waterway;
 - Prohibit extraction of groundwater for drinking or any other use;
 - Provide for long-term monitoring and stewardship of the cleanup action;
 - Require that VI potential be evaluated and/or VI controls constructed beneath future buildings in the LP-MW01 subarea if groundwater compliance monitoring indicates that vinyl chloride and PCE concentrations have not naturally attenuated to below cleanup levels in that subarea;
 - Prohibit activities that may impact or interfere with the remedial action and any operation, maintenance, inspection or monitoring without prior written approval from Ecology;
 - Prohibit activities that may threaten continued protection of human health or the environment without prior written approval from Ecology;
 - Prohibit conveyance of any interest in any portion of the Property without providing for the continued adequate and complete operation maintenance and monitoring of remedial actions and continued compliance with the restrictive covenant;
 - Restrict any lease for any portion of the Property to uses and activities consistent with the restrictive covenant and notify all lessees of the restrictions on the use of the Property; and
 - Amendments to the restrictive covenant will require public comment and Ecology approval.

3.2 Contamination Remaining in the RAU

- The extent of contaminated soil and groundwater exceeding cleanup levels following completion of the Bunker C Subarea interim action was estimated in the FS (Aspect, 2014). As noted above, additional contaminated soils in the Bunker C subarea, with an estimated volume of 2,000 CY, will be removed under the selected cleanup action. Therefore, using the FS estimates as a basis, soil contamination exceeding cleanup levels for unrestricted land use (Table 1) will remain in the RAU as follows (refer to Figure 2):
 - An estimated 4,600 CY of TPH-contaminated soil will remain in the Bunker C Subarea;

- An estimated 100 CY of dioxin-contaminated soil will remain in the Dioxin-Contaminated Debris Subarea; and
- An estimated 3,700 CY of soil with acidic pH and metals contamination will remain in the Acid Plant Subarea.
- In addition, soils throughout the 31-acre RAU contain scattered contaminant concentrations exceeding soil screening levels for unrestricted land use. These scattered exceedances occur from the existing ground surface down to an estimated average depth of 12 feet. This equates to an RAU-wide impacted soil volume of approximately 600,000 CY. Exposure to, and erosion of, contaminated soils remaining in the RAU following implementation of the cleanup action will be controlled through capping and institutional controls.
- With respect to groundwater, plumes exceeding cleanup levels (Table 1) will be present at the beginning of remedy implementation as follows (refer to Figure 2):
- Acidic pH and dissolved metals covering an estimated 2.1 acres in the Acid Plant Subarea;
- Dissolved vinyl chloride and PCE covering an area estimated at less than 0.1 acre in the LP-MW01 Subarea; and
- Dissolved metals covering an area estimated at 2.5 acres in the Miscellaneous Dissolved Metals Exceedances area.
- The RI data indicate that none of the plumes are approaching the shoreline, and that natural attenuation is effectively reducing contaminant concentrations in each of the plumes.

3.3 Other Remedial Alternatives Evaluated

The FS evaluates four remedial alternatives (Alternatives 1 through 4), the first of which corresponds to the selected cleanup action described above. Alternatives 2 and 3 would include the same remedial components as Alternative 1 but, in addition, would provide active treatment in the Acid Plant Subarea. In Alternative 2, a hydraulic cap would be installed over impacted vadose zone soils to control acidic leaching, and crushed limestone would be placed beneath the water table to provide *in situ* buffering of acidic groundwater. *In situ* buffering of acidic groundwater would also be provided in Alternative 3, but impacted vadose zone soils would be removed rather than capped.

Finally, the most aggressive remedial alternative, Alternative 4, involves removal and off-site disposal/reuse of contaminated soils throughout the RAU to a depth of 15 feet below ground surface (bgs), or deeper if needed to address groundwater risk.

3.4 Rationale for Selecting Cleanup Action

In the FS comparative evaluation, the four remedial alternatives were evaluated against the following MTCA criteria in accordance with WAC 173-340-360(2):

Threshold Criteria

- Protection of human health and the environment;

- Compliance with cleanup standards and applicable state and federal laws;
- Provision for compliance monitoring;

Other Criteria

- Use of permanent solutions to the maximum extent practicable;
- Provision for a reasonable restoration time frame; and
- Consideration of public concerns.

It was determined that all four alternatives would meet the requirements of the “threshold criteria.” Estimated restoration time frames, which range from 3–6 years in Alternative 4 to 16–36 years in Alternative 1, were all determined to be reasonable.

Consideration of public concerns is an inherent part of the cleanup process under MTCA. The FS report was issued for public review and comment along with this CAP. Ecology determined whether changes to the documents were needed in response to public comments.

A disproportionate cost analysis (DCA) was conducted to assess the extent to which the remedial alternatives would use permanent solutions to the maximum extent practicable. The DCA quantified the environmental benefits of each alternative, and then compared alternative benefits versus costs. Costs are disproportionate to benefits if the incremental cost of a more permanent alternative over that of a lower-cost alternative exceeds the incremental benefits achieved by the more permanent alternative. Based on the results of the DCA, Alternative 1 was determined to be the most cost effective. Therefore, under MTCA, Alternative 1 has been identified as the alternative that is permanent to the maximum extent practicable. Additional details on the DCA and the alternatives that were evaluated are included in the FS (Aspect Consulting 2014).

3.5 Compliance with WAC 173-340-360

The selected cleanup action complies with the provisions of WAC 173-340-360. It will be protective of human health and the environment, comply with cleanup standards and applicable state and federal laws, and provide for compliance monitoring.

All soils with TPH concentrations above the residual saturation remediation level (Aspect 2013) of 10,000 mg/kg TPH will be removed. Remaining soils with hazardous substance concentrations that exceed soil cleanup levels will be contained through capping. Institutional controls will provide notification regarding the presence of residual contaminated soils, regulate the disturbance/management of those soils and the cleanup action components, and provide for long-term monitoring and stewardship of the cleanup action. MNA will address residual contamination in groundwater that exceeds applicable groundwater cleanup levels, and a compliance monitoring plan will specify contingency actions to be considered in the event that potential contaminant migration is indicated.

As discussed above, the selected cleanup action is also considered to use permanent solutions to the maximum extent practicable, provides for a reasonable restoration time frame of 16-36 years, and considers public concerns.

3.6 Compatibility with Whatcom Waterway Remedial Activities

The Pulp/Tissue Mill RAU is adjacent to the Whatcom Waterway cleanup site, which has a cleanup remedy and schedule defined under a Consent Decree with Ecology. The selected cleanup action for the Pulp/Tissue Mill RAU has overlap with the planned cleanup of the Whatcom Waterway site, in terms of integrating the RAU-wide soil cap with planned capping of the south bank of the Whatcom Waterway. The cleanup action for the Pulp/Tissue Mill RAU is compatible with the Whatcom Waterway cleanup.

If the Whatcom Waterway cleanup is not initiated by the time the Pulp/Tissue Mill RAU cleanup is conducted, the upland area within the planned clarifier cutback footprint (planned for removal/regrading under the Whatcom Waterway cleanup) will be remediated consistent with the surrounding portion of the RAU (all part of the Bunker C Subarea).

4 Cleanup Standards

Cleanup standards consist of cleanup levels for hazardous substances present at a site, the location where cleanup levels must be met (point of compliance), and other regulatory requirements that apply to the site (“applicable state and federal laws”). Soil and groundwater cleanup standards applicable to the Pulp/Tissue Mill RAU are outlined below.

4.1 Soil

Table 1 lists soil cleanup levels and remediation levels for the soil contaminants identified in the RI. The standard point of compliance for the direct-contact exposure pathway (i.e., throughout the Site from the ground surface to 15 feet bgs) is not applicable to this containment (i.e., capping) remedy. Per WAC 173-340-700(4)(c):

Where a cleanup action involves containment of soils with hazardous substances above cleanup levels, the cleanup action may be determined to comply with cleanup standards provided the compliance monitoring program is designed to ensure the long-term integrity of the containment system, and the other requirements for containment in this chapter are met.

Institutional controls shall be used to limit or prohibit activities that may interfere with the integrity of the cleanup action and provide inspection and maintenance of the RAU-wide cap to assure both the continued protection of human health and the environment.

4.2 Groundwater

Table 1 also lists groundwater cleanup levels for the groundwater contaminants identified in the RI. As described in Section 5.2 of the RI, the highest beneficial use of Site groundwater is discharge to marine water—not potable use. Under MTCA, however, the standard point of compliance for groundwater cleanup levels is throughout Site groundwater, regardless of whether the groundwater is potable (WAC 173-340-

720(8)(b)). As noted in Section 3.4, a restoration time frame of 16 to 36 years has been estimated for MNA to achieve groundwater cleanup levels throughout the RAU under the selected cleanup action. A groundwater compliance monitoring plan will be developed and implemented to evaluate the performance of the MNA remedy. The Groundwater MNA Monitoring Compliance Plan will present the locations of monitoring wells, monitoring frequency, location-specific monitoring analytes, and analytical methods.

Compliance with groundwater cleanup standards also encompasses the MTCA requirement to remove soil with NAPL exceeding residual saturation. This requirement will be addressed through removal of remaining soils with TPH concentrations exceeding the RAU-specific residual saturation remediation level (RI Section 7.5.2.1 Aspect 2013) of 10,000 mg/kg for the Bunker C Subarea.

5 Applicable State and Federal Laws

Cleanup standards established for the Pulp/Tissue Mill RAU incorporate applicable state and federal laws and regulations in the form of chemical-specific regulatory criteria for soil and groundwater as described in Section 2.6 of the FS. In addition, there may be location- and action-specific requirements for completing a cleanup action.

In accordance with MTCA, the Port would be exempt from the procedural requirements of Chapters 70.94, 70.95, 70.105, 77.55, 90.48, and 90.58 of the Revised Code of Washington (RCW), and of any laws requiring or authorizing local government permits or approvals. However, the Port must still comply with the substantive requirements of such permits or approvals (WAC 173-340-520). The permits, approvals, and substantive requirements that are known at this time to apply to the selected cleanup action are listed as an exhibit to the Consent Decree.

6 Cleanup Implementation Schedule

A schedule of deliverables will be included as an exhibit to the Consent Decree. However, it is anticipated that cleanup implementation will generally proceed according to the following schedule:

- Complete pre-design investigation and then design of the cleanup action construction components (i.e., TPH-impacted soil removal from the Bunker C Subarea and RAU-wide capping) within 12 months of Consent Decree execution;
- Complete soil removal from the Bunker C Subarea and initiate RAU-wide capping within 24 months of Consent Decree execution;
- Develop a Groundwater MNA Compliance Monitoring Plan within 10 months and initiate compliance monitoring within 24 months² of Consent Decree execution; and
- Develop and initiate implementation of an Institutional Controls Plan within 30 months of Consent Decree execution.

Groundwater MNA compliance monitoring will continue until groundwater cleanup levels are achieved throughout the Site. The FS estimated that this may take up to 36 years, with the limiting factor being groundwater natural attenuation in the Acid Plant Subarea.

Post-cleanup property redevelopment will maintain the RAU-wide cap by replacing the capped surfaces with new redevelopment elements (pavements, building foundations, and new soil caps). Therefore, the Institutional Controls Plan will include controls to prevent direct contact with, and erosion of, impacted soils in the interim. Requirements for periodic inspection and maintenance of the RAU-wide cap will also likely be detailed in the Institutional Controls Plan. These requirements would remain in effect in perpetuity.

7 References

Aspect, 2013, Remedial Investigation, Georgia-Pacific West Site, Bellingham, August 5, 2013, Final, Volume 1 of RI/FS.

Aspect, 2014, Feasibility Study, Pulp/Tissue Mill Remedial Action Unit, Vol. 2a of RI/FS, Georgia-Pacific West Site, Bellingham, Washington, April 15, 2014, Draft Final.

² Initiated after completion of RAU-wide capping to avoid potential destruction of newly installed monitoring wells during capping.

TABLES

Table 1 - Soil and Groundwater Cleanup and Remediation Levels

Pulp/Tissue Mill RAU Cleanup Action Plan, GP West Site

Constituent of Concern	Soil Cleanup Level (mg/kg)		Soil Remediation Level (mg/kg)	Groundwater Cleanup Level (µg/L)
	Unsaturated Soil	Saturated Soil		
Total Petroleum Hydrocarbon (TPH)				
Diesel-Range TPH	2,000	2,000		--
Oil-Range TPH	2,000	2,000		--
Bunker C in Bunker C Subarea	3,100	3,100	10,000	--
Heavy Metals				
Arsenic	20	20		5
Cadmium	1.2	1		8.8
Chromium (Total)	5,200	260		260
Copper	36	36		3.1
Lead	250	81		8.1
Mercury	2	0.1		0.059
Nickel	48	48		8.2
Selenium	7.4	1		71
Silver	0.32	0.02		1.9
Zinc	100	85		81
Volatile Organic Compounds				
cis-1,2-Dichloroethene (DCE)	2.5	0.14		--
Tetrachloroethene (PCE)	0.3	0.015		3.3
Trichloroethene (TCE)	0.056	0.005		1.5
Vinyl chloride	0.006	0.005		0.5
Polycyclic Aromatic Hydrocarbons (PAHs)				
Acenaphthene	5.2	0.26		3.3
Anthracene	71	3.5		9.6
Fluoranthene	52	2.6		3.3
Fluorene	7.4	0.37		3
Pyrene	330	16		15
1-Methylnaphthalene	35	35		--
2-Methylnaphthalene	320	320		--
Naphthalene	32	1.6		83
Benz(a)anthracene	1.4	0.12		0.02
Benzo(a)pyrene	0.14	0.14		0.02
Benzo(b)fluoranthene	1.4	0.38		0.02
Benzo(k)fluoranthene	7.7	0.38		0.02
Chrysene	2.6	0.13		0.02
Dibenzo(a,h)anthracene	0.14	0.14		0.02
Indeno(1,2,3-cd)pyrene	1.4	1.1		0.02
Total cPAHs (TEQ) ⁽²⁾	0.14	0.14		0.02
Dioxins/Furans				
Total 2,3,7,8 TCDD (TEQ)	1.3E-05	1.3E-05		1.0E-05 ⁽³⁾
Conventional				
pH (in Standard pH Units)	>2.5 and <11.0	>2.5 and <11.0		>6.2 and <8.5

cPAH carcinogenic PAH TEQ toxic equivalent
 mg/kg milligrams per kilogram µg/L micrograms per liter
 TCDD tetrachlorodibenzodioxin

Notes:

1. Refer to Section 5 of the remedial investigation report (Aspect, 2013) for derivation of soil and groundwater screening levels that are adopted as cleanup levels and remediation levels for unrestricted land use.
2. The Total cPAHs (TEQ) is calculated from the concentrations of seven cPAHs using the toxicity equivalency factor method described in WAC 173-340-708. The groundwater cleanup level for Total cPAHs (TEQ) is the practical quantitation limit (PQL).
3. The groundwater cleanup level for dioxins/furans (Total 2,3,7,8 TCDD (TEQ)) is the PQL.

FIGURES



WHATCOM WATERWAY

**PULP/TISSUE MILL
REMEDIAL ACTION UNIT**

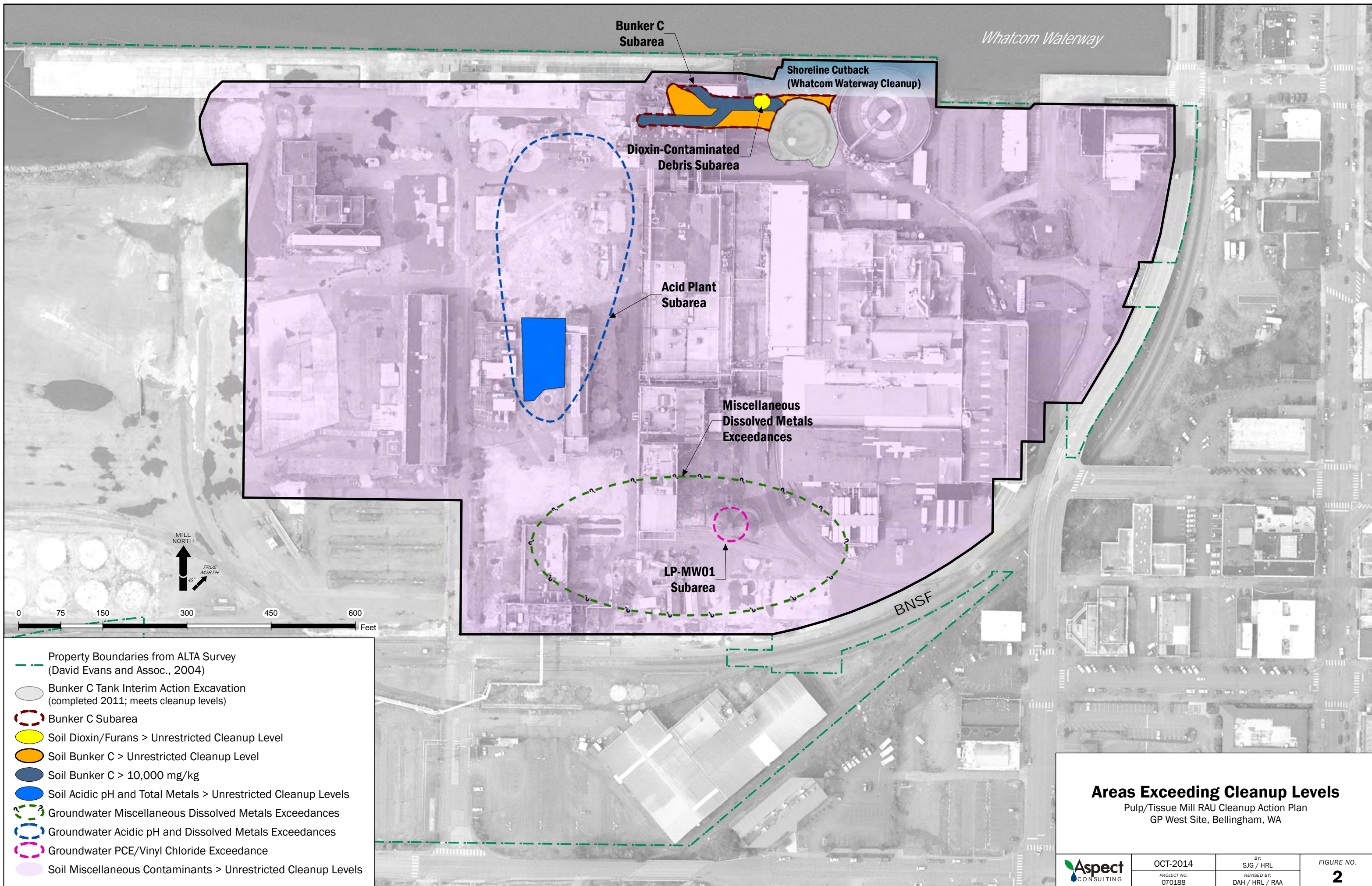
**CHLOR-ALKALI
REMEDIAL
ACTION UNIT**

Note:
Refer to Section 1 discussion of the
Remedial Action Unit boundaries.



FIGURE NO.
1

GP West Site with Remedial Action Units
Bellingham, Washington



Bunker C Subarea

Whatcom Waterway

Shoreline Cutback
(Whatcom Waterway Cleanup)

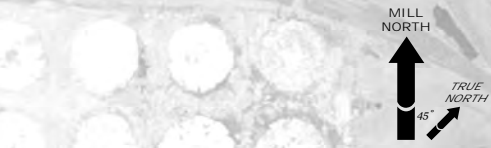
Dioxin-Contaminated
Debris Subarea

Acid Plant
Subarea


Miscellaneous
Dissolved Metals
Exceedances

LP-MW01
Subarea

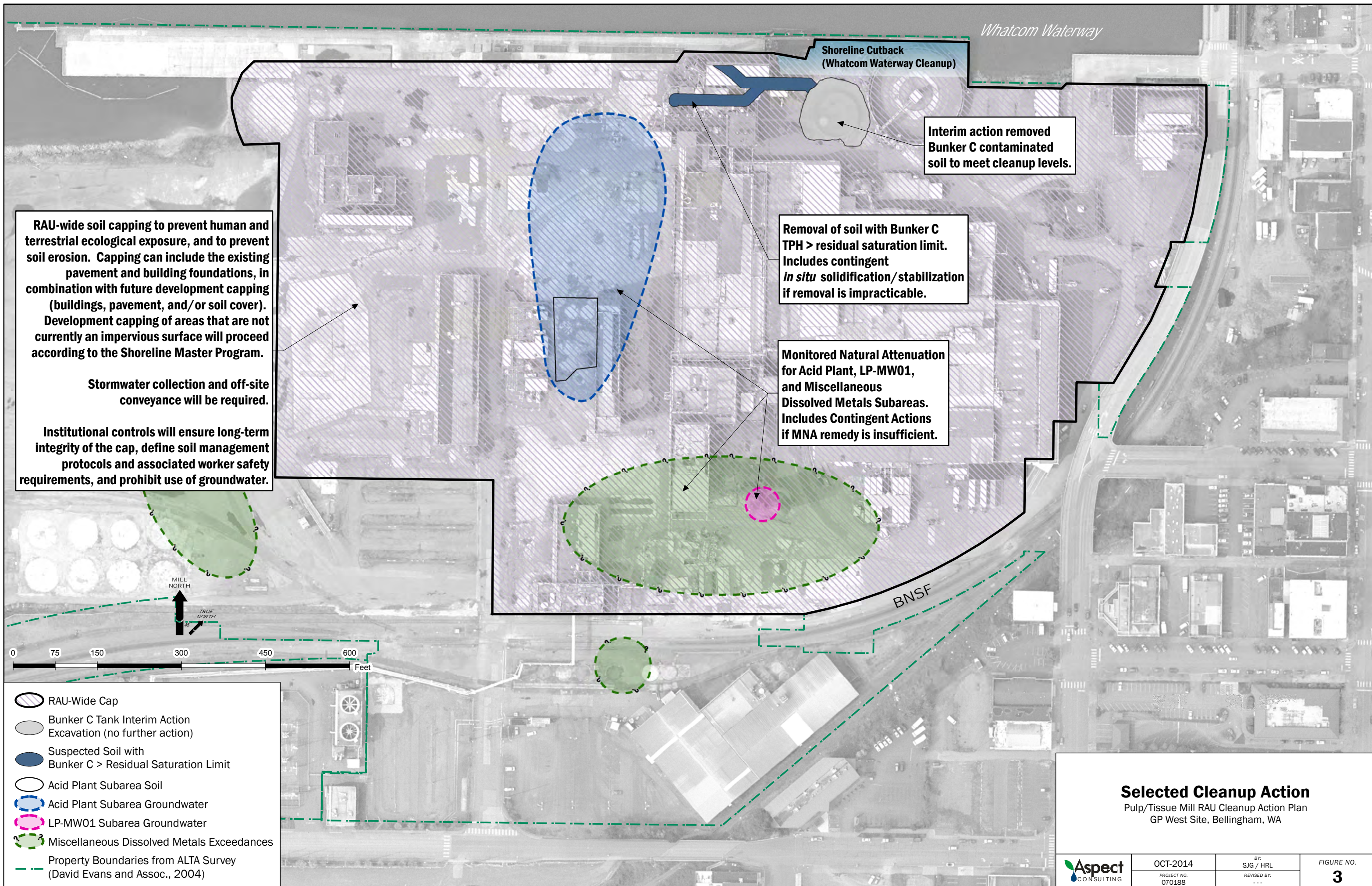
BNSF



- Property Boundaries from ALTA Survey (David Evans and Assoc., 2004)
- Bunker C Tank Interim Action Excavation (completed 2011; meets cleanup levels)
- Bunker C Subarea
- Soil Dioxin/Furans > Unrestricted Cleanup Level
- Soil Bunker C > Unrestricted Cleanup Level
- Soil Bunker C > 10,000 mg/kg
- Soil Acidic pH and Total Metals > Unrestricted Cleanup Levels
- Groundwater Miscellaneous Dissolved Metals Exceedances
- Groundwater Acidic pH and Dissolved Metals Exceedances
- Groundwater PCE/Vinyl Chloride Exceedance
- Soil Miscellaneous Contaminants > Unrestricted Cleanup Levels

Areas Exceeding Cleanup Levels		
Pulp/Tissue Mill RAU Cleanup Action Plan GP West Site, Bellingham, WA		
	OCT-2014 PROJECT NO. 070188	BY: SJG / HRL REVISIONS BY: DAH / HRL / RAA
		FIGURE NO. 2

Path: T:\projects_8\Port_of_Bellingham\Working\RAU Feas Study\PulpTissue Mill April 2014 CAP\2 Areas Exceeding Cleanup Levels.mxd



RAU-wide soil capping to prevent human and terrestrial ecological exposure, and to prevent soil erosion. Capping can include the existing pavement and building foundations, in combination with future development capping (buildings, pavement, and/or soil cover). Development capping of areas that are not currently an impervious surface will proceed according to the Shoreline Master Program.

Stormwater collection and off-site conveyance will be required.

Institutional controls will ensure long-term integrity of the cap, define soil management protocols and associated worker safety requirements, and prohibit use of groundwater.

Removal of soil with Bunker C TPH > residual saturation limit. Includes contingent *in situ* solidification/stabilization if removal is impracticable.

Monitored Natural Attenuation for Acid Plant, LP-MW01, and Miscellaneous Dissolved Metals Subareas. Includes Contingent Actions if MNA remedy is insufficient.

Interim action removed Bunker C contaminated soil to meet cleanup levels.

- RAU-Wide Cap
- Bunker C Tank Interim Action Excavation (no further action)
- Suspected Soil with Bunker C > Residual Saturation Limit
- Acid Plant Subarea Soil
- Acid Plant Subarea Groundwater
- LP-MW01 Subarea Groundwater
- Miscellaneous Dissolved Metals Exceedances
- Property Boundaries from ALTA Survey (David Evans and Assoc., 2004)

Selected Cleanup Action		
Pulp/Tissue Mill RAU Cleanup Action Plan GP West Site, Bellingham, WA		
	OCT-2014 PROJECT NO. 070188	BY: SJG / HRL REVISED BY: ...
		FIGURE NO. 3

Exhibit C

Exhibit C
Schedule of Deliverables
Consent Decree for Pulp/Tissue Mill RAU, Georgia-Pacific West Site

Deliverables/Milestone		Schedule
A. Administrative		
A.1	Lodge Consent Decree in Court (CD Effective Date)	Within 30 days of execution by Port and Ecology
A.2	Progress Reports to Ecology	For first three years following CD Effective Date, quarterly on the 15th of the month beginning after CD Effective Date. Thereafter, annually on the CD anniversary date.
B. Bunker C Subarea Soil Removal and RAU-wide Capping		
B.1	Draft Pre-Design Characterization Plan	Submit to Ecology within 60 days of CD Effective Date (A.1)
B.2	Final Pre-Design Characterization Plan	Submit to Ecology within 30 days following Ecology approval of draft (B.1)
B.3	Pre-Design Site Characterization	Complete within 90 days from Final Pre-Design Characterization Plan (B.2)
B.4	Draft EDR for Bunker C Subarea Soil Removal + RAU-Wide Capping	Submit to Ecology within 60 days following completion of pre-design characterization (B.3)
B.5	Final EDR for Bunker C Subarea Soil Removal + RAU-Wide Capping	Submit to Ecology within 30 days following Ecology approval of draft (B.4)
B.6	Draft CPS for Bunker C Subarea Soil Removal + RAU-Wide Capping	Submit to Ecology within 60 days of Final EDR for Bunker C Soil Removal (B.5)
B.7	Final CPS for Bunker C Subarea Soil Removal + RAU-Wide Capping	Submit to Ecology within 30 days following Ecology approval of draft (B.6)
B.8	Draft CMP for Bunker C Subarea Soil Removal + RAU-Wide Capping	Submit to Ecology with Draft CPS (B.6)
B.9	Final CMP for Bunker C Subarea Soil Removal + RAU-Wide Capping	Submit to Ecology with Final CPS (B.7)
B.10	Bunker C Subarea Soil Removal + RAU-Wide Capping Construction	Complete within 240 days from Final CPS (B.7)
B.11	Draft As-Built Report for Bunker C Soil Removal + RAU-Wide Capping	Submit to Ecology within 60 days of completion of construction (B.10)
B.12	Final As-Built Report for Bunker C Soil Removal + RAU-Wide Capping	Submit to Ecology within 30 days following Ecology approval of draft As-Built Report (B.11)
C. Environmental Covenants		
C.1	Draft Environmental Covenant(s) and Draft Cap IMP	Submit to Ecology with Final As-Built Report (B.12)
C.2	Final Environmental Covenant(s) and Final Cap IMP	Submit to Ecology within 30 days following Ecology approval of drafts (C.1)

C.3	Proof of recording of Environmental Covenant(s)	Submit to Ecology within 30 days following Final Environmental Covenant(s) and Cap IMP (C.2)
D. Groundwater MNA		
D.1	Draft Groundwater MNA Compliance Monitoring Plan	Submit to Ecology within 30 days of pre-design characterization (confirm groundwater quality) (B.3)
D.2	Final Groundwater MNA Compliance Monitoring Plan	Submit to Ecology within 30 days following Ecology approval of draft (D.1)
D.3	Groundwater MNA Compliance Monitoring Implementation	Start within 30 days of completing RAU-wide cap construction (B.10)
D.4	Draft Annual Groundwater MNA Report	Submit to Ecology annually within 60 days after receipt of current year's analytical data
D.5	Final Annual Groundwater MNA Report	Submit to Ecology within 30 days following Ecology approval of draft (D.4)

Notes:

Dates falling on weekends or holidays will be the following business day.

Abbreviations: CD: Consent Decree; CMP: Compliance Monitoring Plan; CPS: Constructions Plans & Specifications; EC: Environmental Covenant; EDR: Engineering Design Report; IMP: Inspection & Maintenance Plan; MNA: Monitored Natural Attenuation (for groundwater); RAU: Remedial Action Unit.

Exhibit D

After Recording Return
Original Signed Covenant to:
Brian S. Sato
Toxics Cleanup Program
Department of Ecology
3190 160th Avenue SE
Bellevue, WA 98008

Environmental Covenant

Grantor: Port of Bellingham
Grantee: State of Washington, Department of Ecology
Brief Legal Description: [Insert brief legal description]
Tax Parcel Nos.: [Insert tax parcel numbers]
Cross Reference:

RECITALS

- a.** This document is an Environmental (Restrictive) Covenant (hereafter “Covenant”) executed pursuant to the Model Toxics Control Act (“MTCA”), Chapter 70.105D RCW and Uniform Environmental Covenants Act (“UECA”), Chapter 64.70 RCW.
- b.** The Property that is the subject of this Covenant is the Grantor-owned part of a site commonly known as Georgia Pacific West, Facility Site ID No. 14. The Property is legally described in Exhibit A, and illustrated in Exhibit B & C, both of which are attached (hereafter “Property”). If there are differences between these two Exhibits, the legal description in Exhibit A shall prevail.
- c.** The Property is the subject of remedial action under MTCA. This Covenant is required because residual contamination remains on the Property after completion of remedial actions. Specifically, the following principal contaminants remain on the Pulp/Tissue Mill Remedial Action Unit (RAU) portions of the Property:

Medium	Principal Contaminants Present
Soil	Petroleum, metals, dioxin, and acidic pH
Groundwater	Metals, acidic pH, vinyl chloride, and PCE
Surface Water/Sediment	N/A

The following principle contaminants remaining on the Chlor-Alkali RAU portions of the Property:

Medium	Principal Contaminants Present
[To be inserted upon agreement of the parties at a future date]	[To be inserted upon agreement of the parties at a future date]

d. It is the purpose of this Covenant to restrict certain activities and uses of the Property to protect human health, the environment, and the integrity of remedial actions conducted at the site. Records describing the extent of residual contamination and remedial actions conducted are available through the Washington State Department of Ecology. This includes the following documents for the Pulp/Tissue Mill RAU:

Bunker C Tank Interim Action Report
 Georgia-Pacific West Site
 Bellingham, Washington
 Aspect Consulting, February 24, 2012

Remedial Investigation Report
 Georgia-Pacific West Site
 Bellingham, Washington
 Aspect Consulting, August 5, 2013

Draft Final Feasibility Study
 Pulp/Tissue Mill
 Remedial Action Unit
 Vol. 2a of RI/FS, Georgia-Pacific West Site
 Bellingham, Washington
 Aspect Consulting, May 2, 2014

Draft Final Cleanup Action Plan
 Pulp/Tissue Mill
 Remedial Action Unit
 Georgia-Pacific West Site
 Bellingham, Washington
 Aspect Consulting, June 9, 2014

The following documents are available for the Chlor-Alkali RAU:

[To be inserted upon agreement of the parties at a future date]

e. This Covenant grants the Washington State Department of Ecology, as holder of this Covenant certain specified rights. The right of the Washington State Department of Ecology as a holder is not an ownership interest under MTCA, Chapter 70.105D RCW or the Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”) 42 USC Chapter 103.

COVENANT

Port of Bellingham, as Grantor and fee simple owner of the Property hereby grants to the Washington State Department of Ecology, and its successors and assignees, (hereafter “Ecology”) the following covenants. Furthermore, it is the intent of the Grantor that such covenants shall run with the land and be binding on all current and future owners of any portion of, or interest in, the Property.

Section 1. General Restrictions and Requirements.

The following general restrictions and requirements shall apply to the Property:

- a. Interference with Remedial Action.** The Grantor shall not engage in any activity on the Property that may impact or interfere with the remedial action and any operation, maintenance, inspection or monitoring of that remedial action without prior written approval from Ecology.
- b. Protection of Human Health and the Environment.** The Grantor shall not engage in any activity on the Property that may threaten continued protection of human health or the environment without prior written approval from Ecology. This includes, but is not limited to, any activity that results in the release of residual contamination that was contained as a part of the remedial action or that exacerbates or creates a new exposure to residual contamination remaining on the Property.
- c. Continued Compliance Required.** Grantor shall not convey any interest in any portion of the Property without providing for the continued adequate and complete operation maintenance and monitoring of remedial actions and continued compliance with this Covenant.
- d. Leases.** Grantor shall restrict any lease for any portion of the Property to uses and activities consistent with this Covenant and notify all lessees of the restrictions on the use of the Property.
- e. Amendment to the Covenant.** Grantor must notify and obtain approval from Ecology at least sixty (60) days in advance of any proposed activity or use of the Property in a manner that is inconsistent with this Covenant.¹ Before approving any proposal, Ecology must issue a public notice and provide an opportunity for the public to comment on the proposal. If Ecology approves the proposal, the Covenant will be amended to reflect the change.

Section 2. Specific Prohibitions and Requirements.

In addition to the general restrictions in Section 1 of this Covenant, the following additional specific restrictions and requirements shall apply to the Property. Any prior written notification to Ecology required for an activity shall be provided to Ecology at least forty-five (45) days before the activity is undertaken. If upon notification of the activity, Ecology determines that the activity is outside of the scope of Section 2(a)(iii), Ecology will notify the Proponents and Port and require approval prior to commencing the activity.

The following restrictions and requirements shall apply to the Pulp/Tissue Mill RAU:

¹ Examples of inconsistent uses are: using the Property for a use not allowed under the covenant (for example, mixed residential and commercial use on a property that is restricted to industrial uses); OR, drilling a water supply well when use of the groundwater for water supply is prohibited by the covenant.

a. Containment of soil. The remedial action for the Pulp/Tissue Mill RAU portion of the Property is based on containing contaminated soil under a cap consisting of a hard cap composed of a minimum three (3) inches of concrete, asphalt, paving blocks, or building foundations; or a new soil cap composed of a minimum 24 inches of uncontaminated soil cover with a geotextile separation layer to distinguish the capping material from the underlying soil; or as otherwise proposed by the Port and agreed to by Ecology and located as illustrated in Exhibit B. The primary purpose of this cap is to control soil direct-contact exposure and soil erosion pathways for the protection of the marine environment.

As such, the following restrictions shall apply within the area illustrated in Exhibit B:

i) With the exception of activities carried out consistent with Section 2(a)(iii), any activity on the Property that will compromise the integrity of the cap including drilling; digging; piercing the cap with sampling device, post, stake or similar device; grading; excavation; installation of underground utilities; removal of the cap; or, application of loads in excess of the cap load bearing capacity, is prohibited without prior written approval by Ecology. The Grantor shall report to Ecology within forty-eight (48) hours of the discovery of any damage to the cap. Unless an alternative plan has been approved by Ecology in writing, the Grantor shall promptly repair the damage and submit a report documenting this work to Ecology within thirty (30) days of completing the repairs.

ii) With the exception of activities carried out consistent with Section 2(a)(iii), the Grantor shall not alter or remove the existing structures on the Property in any manner that would expose contaminated soil, result in a release to the environment of contaminants, or create a new exposure pathway, without prior written approval of Ecology.

iii) Activities that disturb the capped areas, such as utility trenching or other development or maintenance actions, shall be performed subject to any applicable requirements in the Contaminated Materials Management Plan attached as Exhibit E to Consent Decree No. _____. The Grantor shall not conduct such activities without prior written notice to Ecology as set forth in Section 2, above.

iv) The Grantor covenants and agrees that it shall annually, or at another time as approved in writing by Ecology, inspect the cap and report within thirty (30) days of the inspection the condition of the cap and any changes to the cap that would impair its performance.

b. Stormwater facilities.

To minimize the potential for mobilization of contaminants remaining in the soil/groundwater on the Property, no stormwater ponds shall be constructed within the area of the Property illustrated in Exhibit C. No focused stormwater infiltration shall occur within the area of the Property illustrated in Exhibit C without prior written approval by Ecology as set forth in Section 2, above. All stormwater catch basins, conveyance systems, and other appurtenances located within this area shall be of water-tight construction.

c. Vapor controls.

The residual contamination on the Property includes volatile chemicals that may generate harmful vapors, and thus pose a risk of vapor intrusion to future structures within the area of the

Property illustrated in Exhibit C. If post-construction groundwater compliance monitoring indicates that a vapor intrusion risk persists in the area due to vinyl chloride and/or PCE concentrations that have not naturally attenuated to below cleanup levels, the following restrictions shall apply within the area of the Property illustrated in Exhibit C to minimize the potential for exposure to these vapors:

i) Any building or other enclosed structure constructed within the area shall be constructed with the appropriate safeguards proposed by the Port and agreed upon by Ecology to prevent the migration of vapors into the building or structure.

d. Groundwater use.

The groundwater beneath the area of the Property illustrated in Exhibit C remains contaminated and shall not be extracted for any purpose other than temporary construction dewatering, investigation, monitoring, or remediation. Drilling of a well for any water supply purpose is strictly prohibited. Groundwater extracted from within this area for any purpose shall be considered potentially contaminated and any discharge of this water shall be done in accordance with state and federal law. To minimize the potential for the migration of contaminated groundwater, excavations, including utility trenching, and placement of pipe bedding within the area of the Property illustrated in Exhibit C are strictly prohibited without forty-five (45) days prior written notification to Ecology as described in Section 2.

e. Monitoring

Several groundwater monitoring wells are located on the Property to monitor the performance of the remedial action. The Grantor shall maintain clear access to these devices and protect them from damage. The Grantor shall report to Ecology within forty-eight (48) hours of the discovery of any damage to any monitoring device. Unless Ecology approves of an alternative plan in writing, the Grantor shall promptly repair the damage and submit a report documenting this work to Ecology within thirty (30) days of completing the repairs.

The following restrictions and requirements shall apply to the Chlor-Alkali RAU:

[to be inserted upon agreement of the parties at a future date].

Section 3. Access.

- a. The Grantor shall maintain clear access to all remedial action components necessary to construct, operate, inspect, monitor, and maintain the remedial action.
- b. The Grantor freely and voluntarily grants Ecology and its authorized representatives, upon reasonable notice, the right to enter the Property at reasonable times to evaluate the effectiveness of this Covenant and associated remedial actions, and enforce compliance with this Covenant and those actions, including the right to take samples, inspect any remedial actions conducted on the Property, and to inspect records related to the remedial action.
- c. No right of access or use by a third party to any portion of the Property is conveyed by this instrument.

Section 4. Notice Requirements.

a. **Conveyance of Any Interest.** The Grantor, when conveying any interest in any part of the Property, including but not limited to title, easement, leases, and security or other interests, must:

- i. Notify Ecology at least thirty (30) days in advance of the conveyance.
- ii. Include in the conveying document a notice in substantially the following form, as well as a complete copy of this Covenant:

NOTICE: THIS PROPERTY IS SUBJECT TO AN ENVIRONMENTAL COVENANT GRANTED TO THE WASHINGTON STATE DEPARTMENT OF ECOLOGY ON [DATE] AND RECORDED WITH THE WHATCOM COUNTY AUDITOR UNDER RECORDING NUMBER [RECORDING NUMBER]. USES AND ACTIVITIES ON THIS PROPERTY MUST COMPLY WITH THAT COVENANT, A COMPLETE COPY OF WHICH IS ATTACHED TO THIS DOCUMENT.

- iii. Unless otherwise agreed to in writing by Ecology, provide Ecology with a complete copy of the executed document within thirty (30) days of the date of execution of such document.
- b. **Reporting Violations.** Should the Grantor become aware of any violation of this Covenant, Grantor shall promptly report such violation to Ecology.
- c. **Emergencies.** For any emergency or significant change in site conditions due to Acts of Nature (for example, flood, fire) resulting in a violation of this Covenant, the Grantor is authorized to respond to such an event in accordance with state and federal law. The Grantor must notify Ecology of the event and response actions planned or taken as soon as practical but no later than within twenty-four (24) hours of the discovery of the event.
- d. Any required written notice, approval, or communication shall be personally delivered or sent by first class mail to the following persons. Any change in this contact information shall be submitted in writing to all parties to this Covenant.

Brian Gouran Port of Bellingham 1801 Roeder Avenue Bellingham, WA 98227 (360) 676-2500	Environmental Covenants Coordinator Washington State Department of Ecology Toxics Cleanup Program P.O. Box 47600 Olympia, WA 98504-7600 (360) 407-6000
--	---

As an alternative to providing written notice and change in contact information by mail, these documents may be provided electronically in an agreed upon format at the time of submittal.

Section 5. Modification or Termination.

a. If the conditions at the Property requiring a Covenant have changed or no longer exist, then the Grantor may submit a request to Ecology that this Covenant be amended or terminated. Any amendment or termination of this Covenant must follow the procedures in Chapter 64.70 RCW and Chapter 70.105D RCW and any rules promulgated under these chapters.

Section 6. Enforcement and Construction.

- a. This Covenant is being freely and voluntarily granted by the Grantor.
- b. Grantor shall provide Ecology with an original signed Covenant and proof of recording within ten (10) days of execution of this Covenant.
- c. Ecology shall be entitled to enforce the terms of this Covenant by resort to specific performance or legal process. All remedies available in this Covenant shall be in addition to any and all remedies at law or in equity, including Chapter 70.105D RCW and Chapter 64.70 RCW. Enforcement of the terms of this Covenant shall be at the discretion of Ecology, and any forbearance, delay, or omission to exercise its rights under this Covenant in the event of a breach of any term of this Covenant is not a waiver by Ecology of that term or of any subsequent breach of that term, or any other term in this Covenant, or of any rights of Ecology under this Covenant.
- d. The Grantor, upon request by Ecology, shall be obligated to pay for Ecology’s costs to process a request for any modification or termination of this Covenant and any approval required by this Covenant.
- e. This Covenant shall be liberally construed to meet the intent of the Model Toxics Control Act, Chapter 70.105D RCW and Uniform Environmental Covenants Act, Chapter 64.70 RCW.
- f. The provisions of this Covenant shall be severable. If any provision in this Covenant or its application to any person or circumstance is held invalid, the remainder of this Covenant or its application to any person or circumstance is not affected and shall continue in full force and effect as though such void provision had not been contained herein.
- g. A heading used at the beginning of any section or paragraph or exhibit of this Covenant may be used to aid in the interpretation of that section or paragraph or exhibit but does not override the specific requirements in that section or paragraph.

The undersigned Grantor warrants he/she holds the title to the Property and has authority to execute this Covenant.

The undersigned Grantor warrants he/she holds the title to the Property and has authority to execute this Covenant.

EXECUTED this _____ day of _____, 20__.

PORT OF BELLINGHAM

Robert Fix, Executive Director

Dated: _____

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Robert W. Warren, P.Hg., MBA
Section Manager, Toxics Cleanup Program
Northwest Regional Office

Dated: _____

GRANTOR INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____
COUNTY OF _____

On this _____ day of _____, 20__, I certify that _____ personally appeared before me, and acknowledged that **he/she** is the individual described herein and who executed the within and foregoing instrument and signed the same at **his/her** free and voluntary act and deed for the uses and purposes therein mentioned.

Notary Public in and for the State of
Washington, residing at _____.
My appointment expires_____.

GRANTOR CORPORATE ACKNOWLEDGMENT

STATE OF _____
COUNTY OF _____

On this _____ day of _____, 20__, I certify that _____ personally appeared before me, acknowledged that **he/she** is the _____ of the corporation that executed the within and foregoing instrument, and signed said instrument by free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that **he/she** was authorized to execute said instrument for said corporation.

Notary Public in and for the State of
Washington, residing at _____.
My appointment expires_____.



WHATCOM WATERWAY

**PULP/TISSUE MILL
REMEDIAL ACTION UNIT**

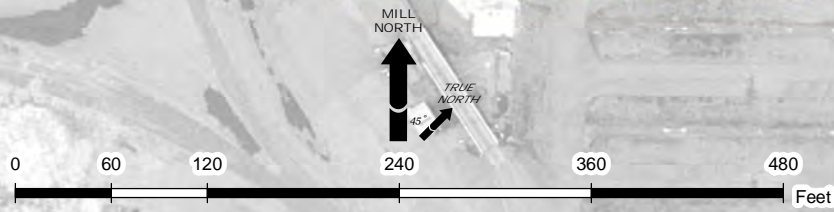
**CHLOR-ALKALI
REMEDIAL
ACTION UNIT**








GP WEST SITE BOUNDARY




Location of Pulp/Tissue Mill Area

Whatcom Waterway



-  Containment of Soil (Section 2a);
-  Groundwater Use (Section 2d);
-  Groundwater Monitoring (Section 2e)
-  Vapor/Gas Controls (Section 2c)
-  Restrictions on Focused Stormwater Infiltration and Utility Excavations beneath Water Table (Sections 2b and 2d, respectively)
-  2011 Interim Action Area (Soil Containment Not Required)
-  Whatcom Waterway Site Cleanup-Shoreline Cutback and Cap

Areas of Specific Prohibitions and Requirements
Pulp/Tissue Mill RAU Environmental Covenant
Bellingham, Washington

	JUN-2014	BY: S/JG / HRL	FIGURE NO. 1
	PROJECT NO. 070188-001-22	REV BY: ...	

Path: T:\projects_8\Port_of_Bellingham\Delivered\RAU Pulp_Tissue Mill Envir Cov\Areas of Specific Prohibitions and Requirements.mxd

Exhibit E

CONTAMINATED MATERIALS MANAGEMENT PLAN

Pulp/Tissue Mill Remedial Action Unit,
G-P West Site

Prepared for: Port of Bellingham

Project No. 070188-001-22 • June 19, 2014 Final



earth + water

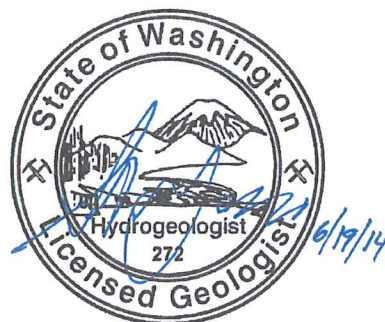


**CONTAMINATED MATERIALS
MANAGEMENT PLAN**
Pulp/Tissue Mill Remedial Action Unit,
G-P West Site
Prepared for: Port of Bellingham

Project No. 070188-001-22 • June 19, 2014 Final

Aspect Consulting, LLC

Matthew von der Ahe, LG
Sr. Staff Geologist
mvonderahe@aspectconsulting.com



Steve J. Germiot

Steve Germiot, LHG
Sr. Associate Hydrogeologist
sgermiot@aspectconsulting.com

V:\070188 Port Bellingham\Deliverables\Pulp & Tissue Mill RAU\Contaminated Materials Management
Plan\Final\Contam Matls Mgt Plan for PTM RAU - final.docx



Contents

1	Introduction	1
1.1	Purpose of this Document	1
1.2	Description of PTM RAU.....	2
1.3	Summary of Ecology's Selected Cleanup Action	3
1.4	Residual Contaminants of Potential Concern	5
1.4.1	Subsurface Debris and Structures	6
2	Worker Health and Safety Requirements	6
3	Requirements for Management of Contaminated Materials	7
3.1	Notification.....	7
3.2	Management of Contaminated Materials	8
3.2.1	Erosion, Sedimentation, and Dust Control	9
3.2.2	Materials Handling On Site	9
3.2.3	Off-Site Disposal of Excavated Materials	10
3.2.4	Chemical Testing Protocols and Criteria for On Site Material Reuse ..	10
3.3	Water Management.....	11
3.4	Preventing Groundwater Contaminant Migration	11
3.5	Subsurface Drilling and Well Decommissioning.....	12
3.6	Restoration of CAP-Required Cleanup Elements	13
3.7	Management of Material with Previously Unknown Hazardous Substances	13
4	References	15

List of Tables

- | | |
|---|---|
| 1 | Soil Screening Levels for Reuse of Material |
|---|---|

List of Figures

- | | |
|---|--|
| 1 | Areas Exceeding Cleanup Levels |
| 2 | Selected Cleanup Action |
| 3 | Decision Flowchart for Management of Excavated Materials |

1 Introduction

This Contaminated Materials Management Plan (CMMP) presents general procedures for handling and management of potentially contaminated materials (soil, debris, groundwater) generated by construction-related activities during redevelopment of the Pulp/Tissue Mill Remedial Action Unit (PTM RAU) within the Georgia-Pacific West Site (Site) in Bellingham, Washington (Figure 1).

The Site is being cleaned up under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D of the Revised Code of Washington, and the MTCA Cleanup Regulation, Chapter 173-340 of the Washington Administrative Code (WAC). Cleanup of the PTM RAU in accordance with MTCA is legally required under a Consent Decree between the Port of Bellingham (Port) and Washington Department of Ecology (Ecology). Ecology's selected cleanup action is defined in their Cleanup Action Plan (CAP) for the PTM RAU (Ecology, 2014), which is an exhibit to the Consent Decree (CD). The cleanup action includes an environmental covenant(s) which requires that future activities within the RAU not compromise the protectiveness of the cleanup action defined in the CAP.

The PTM RAU is located within the Bellingham Waterfront District master-planned redevelopment area. It is anticipated that the Port will sell and/or lease property within the PTM RAU to entities for redevelopment, subject to the Waterfront District Subarea Plan (Port of Bellingham and City of Bellingham, 2013) and its development regulations. The environmental covenant(s) required by the CAP is legally applicable to the future Owners of properties within the PTM RAU including the Port.

A property owner or tenant (hereafter collectively termed "Proponent") conducting redevelopment-related activities on property within the PTM RAU will be required to comply with this CMMP and all other provisions of the CD and environmental covenant(s) so as to not interfere with the effectiveness of Ecology's selected cleanup action. Therefore, Proponents must integrate the provisions of this CMMP into their design specifications and implementation for future redevelopment-related projects anywhere within the PTM RAU. Proponents will also be responsible for securing any and all permits required for their redevelopment projects.

1.1 Purpose of this Document

This CMMP describes the procedures for managing contaminated materials (soil, debris, and water) encountered during all post-cleanup redevelopment-related activities (construction, maintenance, etc.) within the PTM RAU. Proper management of contaminated materials is necessary to ensure that future redevelopment-related activities are consistent with Ecology's CAP. Additional requirements may also be imposed on future redevelopment to comply with other regulatory programs or contract requirements.

Specific objectives of this CMMP specific to the PTM RAU are to:

- Provide a brief overview of environmental conditions and the selected cleanup action, with reference to documents providing additional detail;
- Define regulatory requirements for health and safety when workers are conducting activities that will encounter contaminated subsurface materials; and
- Provide protocols for managing contaminated materials generated during redevelopment-related activities to meet requirements of the CAP and applicable laws, regulations, ordinances, and permits.

By incorporating this CMMP into the CD for cleanup of the PTM RAU, future redevelopment-related activities covered under the CMMP and conducted consistent with the requirements of the environmental covenant(s) will be considered pre-approved by Ecology. However, prior notification to Ecology and the Port is required for all redevelopment activities that will breach the CAP-required surface cap and disturb potentially contaminated materials beneath it (Section 3.1 defines notification requirements).

An assumption inherent to this CMMP, consistent with the CAP, is that all subsurface materials within the entire PTM RAU are potentially contaminated, thus requiring an environmental surface cap across the entire RAU (RAU-wide cap) as a component of the cleanup action (described in Section 1.3). However, for a given redevelopment-related project, if supplemental environmental sampling and analysis performed by a Proponent demonstrates to Ecology's satisfaction that materials to be disturbed during the project are not contaminated relative to applicable cleanup standards, this CMMP's requirements for management of contaminated materials may not apply. However, any cleanup-related elements, including but not limited to the RAU-wide cap, that are disturbed by the Proponent's activities must be restored as needed to fully meet the remediation performance standards of the CAP (refer to Section 3.6). In addition, if an area is documented by a Proponent to be uncontaminated, contaminated materials from other areas cannot be placed there.

1.2 Description of PTM RAU

The Remedial Investigation (RI; Aspect, 2013) and Feasibility Study (FS; Aspect, 2014) for the Site identify low-level contamination throughout the entire PTM RAU, as well as the following localized contaminant areas (subareas) within the PTM RAU which are shown on Figure 1:

- Bunker C subarea;
- Dioxin-Contaminated Debris subarea (within the Bunker C subarea footprint);
- Acid Plant subarea; and
- LP-MW01 subarea.

Soils in the Bunker C subarea are impacted by carcinogenic polycyclic aromatic hydrocarbons (cPAHs) and total petroleum hydrocarbon (TPH) in the Bunker C oil range, including non-aqueous-phase liquid (NAPL). In addition, dioxins/furans are a contaminant of concern in soils within a small portion of this area, which is designated the Dioxin-Contaminated Debris subarea. In late 2011, the Port conducted an interim action in the Bunker C subarea, which involved the excavation and off-site disposal of greater than 5,000 tons of TPH-impacted soil and debris from beneath the former Bunker C oil tank (excavation area denoted on Figure 1).

Soils in the Acid Plant subarea contain acidic pH and metals (including arsenic, cadmium, copper, mercury, and lead) at concentrations exceeding cleanup levels. Shallow groundwater in the immediate vicinity and downgradient of these soils is acidic and impacted by dissolved metals at concentrations of concern based on marine protection (Site groundwater is non-potable). The RI data indicate that the dissolved metals are mobile due to the low groundwater pH, and that metals concentrations and low pH attenuate naturally before the groundwater reaches the shoreline.

In the LP-MW01 subarea, vinyl chloride and tetrachloroethene (aka perchloroethene or PCE) were detected in shallow groundwater from a single monitoring well at concentrations of concern based on vapor intrusion (VI) and marine protection. Soil contamination above cleanup levels was not detected in this subarea, and the extent of contaminant migration in groundwater is extremely limited due to natural attenuation.

The RI also identifies metals at concentrations of concern based on marine protection in shallow groundwater in the general vicinity of the LP-MW01 subarea. The estimated extent of these elevated concentrations is labeled Miscellaneous Dissolved Metals Exceedances on Figure 1.

In addition, soil at scattered locations throughout the PTM RAU was found to contain contaminant concentrations (e.g., cPAHs, heavy metals) exceeding soil cleanup levels for unrestricted land use. Although it is possible that not all subsurface materials within the PTM RAU are contaminated, it is assumed for purposes of the CAP and this CMMP that they are contaminated (unless demonstrated otherwise by chemical testing), thus requiring proper management if disturbed.

The depth to groundwater within the PTM RAU ranges from 1 to 10 feet below ground surface and it varies with season and, near the Waterway, with the tides.

Detailed information regarding subsurface conditions and contaminant distribution is presented in the Site RI (Aspect, 2013). Specifically, Section 7 of the RI presents the conceptual site model for each subarea, which discusses contaminants of concern and their historical source(s), nature and extent of contamination, contaminant fate and transport, and environmental exposure pathways and receptors. In addition, the Bunker C Tank Interim Action Report (Aspect, 2012) describes the methods and results from that interim action cleanup.

1.3 Summary of Ecology's Selected Cleanup Action

Ecology's selected cleanup action for the PTM RAU consists of the following elements, as illustrated on Figure 2:

Soil Removal from the Bunker C Subarea. In addition to soils that were removed from beneath the former Bunker C Tank during the completed interim action, the cleanup action includes removal of all remaining soils with TPH concentrations exceeding 10,000 mg/kg (subarea-specific remediation level) from the Bunker C subarea.

RAU-wide Capping. Capping to control soil direct-contact exposure and soil erosion pathways will consist of a combination of existing pavement and building foundations, new buildings and pavement, and new soil caps. Much of the PTM RAU is currently capped with pavement and building foundations that, subject to long-term, ongoing inspection and maintenance, should provide the required isolation of underlying contaminated soil to achieve environmental protection. Integration of the existing RAU surfaces - with repair, replacement, and installation of new cap materials and erosion controls as needed to achieve protectiveness - will constitute the RAU-wide cap. When redevelopment-related activities modify these conditions such that cap protectiveness is compromised, new capping would need to be implemented.

Specific capping design will be presented in an Engineering Design Report as required by the CD; however, it is anticipated that new hard caps will be composed of a minimum 3 inches of concrete, asphalt, paving blocks, or building foundations. New soil caps will be composed of a minimum 24 inches of uncontaminated soil cover over a geotextile separation layer to distinguish the capping material from the underlying soil. Soil in the cap may include RAU soil confirmed to meet applicable soil cleanup levels as well as imported, uncontaminated soil.

Beyond the CAP requirements, the redevelopment plans for the PTM RAU include increasing grade elevation to mitigate the impact of potential sea level rise and to reduce the grade separation with the downtown Bellingham Central Business District. PTM RAU grading will be designed to maintain the required remediation performance standards, and will be integrated with redevelopment aesthetics and site drainage. Impacted soil from development projects may be temporarily stockpiled for a time period of up to 2 years, with subsequent reuse beneath new capping constructed within the project area or as part of other projects within the Site, subject to the provisions of this CMMP. All soil to be stockpiled temporarily for reuse will be managed to ensure protectiveness.

Ecology must approve reuse of any material that is placed on Site outside of the project area from which it is generated, based on chemical testing data for that material. In addition, material removed from the source area of the Acid Plant subarea (low-pH, metals-contaminated soil; Figure 1), requires chemical testing and Ecology approval prior to on Site reuse of that material.

Monitored Natural Attenuation (MNA) of Groundwater. MNA will be applied to address residual contamination in groundwater that exceeds applicable groundwater cleanup levels. Based on the RI data, cleanup level exceedances include selected metals and acidic pH in the Acid Plant subarea, PCE and vinyl chloride in the LP-MW01 subarea, and selected metals in the Miscellaneous Dissolved Metals Exceedances area. Contaminants are expected to continue to naturally attenuate through a combination of sorption, bioattenuation, volatilization, dispersion, and tidal mixing. The RI data indicate

that natural attenuation is effectively reducing concentrations of groundwater contaminants in each of these areas.

Contingent actions will be considered for implementation if MNA fails to restore groundwater at a reasonable rate and is determined by Ecology to not be protective of human health and the environment.

Institutional Controls. Following completion of the CAP-required cleanup construction, the Port and Ecology will develop an Institutional Controls Plan for the PTM RAU that includes environmental covenants in accordance with WAC 173-340-440 and RCW 64.70. It is anticipated that institutional controls will:

- Notify Proponents of the presence of residual contaminated materials, and regulate the disturbance and management of those materials and the cleanup action components;
- Require project specific design to reduce risk of creating preferential pathways for contaminant migration or run-off and sediment impacts to Whatcom Waterway (e.g., utility excavations or site grading);
- Prohibit extraction of groundwater for drinking or any other use. Groundwater extraction for construction dewatering is allowed, but that is not a beneficial use of water;
- Provide for long-term monitoring and stewardship of the cleanup action; and
- Require that VI potential be evaluated and/or VI controls constructed beneath future buildings in the LP-MW01 subarea if groundwater compliance monitoring indicates that vinyl chloride and PCE concentrations have not naturally attenuated to below cleanup levels in that subarea.

1.4 Residual Contaminants of Potential Concern

Data collected within the PTM RAU indicate that, following completion of the active cleanup measures, contaminants of potential concern (COPC) that will remain in soil at concentrations exceeding MTCA unrestricted cleanup levels include (Figure 1):

- An estimated 4,600 cubic yards (CY) of TPH-contaminated soil will remain in the Bunker C subarea;
- An estimated 100 CY of dioxin-contaminated soil will remain in the Dioxin-Contaminated Debris subarea; and
- An estimated 3,700 CY of soil with acidic pH and metals contamination will remain in the Acid Plant subarea.

In addition, soils in areas scattered throughout the 31-acre PTM RAU contain COPC concentrations exceeding soil cleanup levels for unrestricted land use. These soils occur from the existing ground surface down to an estimated average depth of 12 feet. This equates to an RAU-wide impacted soil volume of approximately 600,000 CY. Contaminants are assumed to be present beneath the RAU-wide cap in subsurface materials anywhere outside of soil excavation areas (Bunker C subarea) within the PTM RAU.

ASPECT CONSULTING

Groundwater contamination exceeding cleanup levels at the beginning of cleanup implementation includes (Figure 1):

- Acidic pH and dissolved metals covering an estimated 2.1 acres in the Acid Plant subarea;
- Dissolved vinyl chloride and PCE covering an area estimated at less than 0.1 acre in the LP-MW01 subarea; and
- Dissolved metals covering an area estimated at 2.5 acres in the Miscellaneous Dissolved Metals Exceedances area.

1.4.1 Subsurface Debris and Structures

Excavation or grading below the RAU-wide cap may encounter subsurface debris and structures associated with the former pulp and tissue mill. Such material may include foundation elements (footings, slabs, grade beams, pile caps, piles, etc.), utilities (stormwater catch basins and pipelines, water supply pipelines, sewer pipelines, etc.), and/or process components (pipelines, utility corridors, etc.). Subsurface debris and structures should be presumed to be impacted by the same contaminants as the immediately surrounding soil, and must be handled and managed consistent with the procedures prescribed in this CMMP. Structures that appear to be process components should be handled with greater care, as they may contain higher concentrations of contaminants.

Section 3.7 addresses procedures to be followed if redevelopment-related excavation activities encounter a previously unknown occurrence of hazardous substances.

2 Worker Health and Safety Requirements

Contractors conducting subsurface work within the PTM RAU are solely responsible for all matters relating to the health and safety of their employees and subcontractors while working within the RAU.

It is known that residual contamination exists in subsurface materials (soil, debris, and groundwater) throughout the PTM RAU, beneath the RAU-wide cap, at concentrations that may pose a risk to worker safety. Therefore, any contractor(s) conducting work that will disturb subsurface materials within the PTM RAU must prepare a Site Health and Safety Plan in accordance with OSHA 29 CFR 1910.120 and other applicable federal, state, or local laws or regulations.

Contractors' workers that engage in activities which could expose them to potentially hazardous substances, dangerous conditions, or other health hazards, must comply with 29 CFR 1910.120 and applicable federal, state, and local laws and regulations; this includes but is not limited to having the necessary health and safety training and performing work in accordance with their Site Health and Safety Plan and applicable regulations.

3 Requirements for Management of Contaminated Materials

This section describes the requirements that apply to any post-cleanup activities which breach the PTM RAU-wide cap and disturb underlying potentially contaminated materials. As stated in Section 1.1, if a Proponent demonstrates to the satisfaction of Ecology that materials to be disturbed during a project are not contaminated relative to applicable cleanup standards, this section's requirements for management of contaminated materials may not apply. This may include projects that disturb only future imported fill (assumed not contaminated) that is placed above the existing Site soil for redevelopment-related purposes, after completion of the cleanup action. If an area is documented by a Proponent to be uncontaminated, contaminated materials from other areas cannot be placed there. Any cleanup-related elements that are disturbed by the Proponent's activities must be restored as needed to fully meet the remediation performance standards of the CAP (refer to Section 3.6). In addition, construction best management practices (BMPs) – as required by applicable federal, state, and local laws, regulations, ordinances, and permits - will be required for any redevelopment-related activity on the PTM RAU, irrespective of whether they involve handling of contaminated materials.

Figure 3 presents a decision flowchart for management of materials generated by future redevelopment-related activities, which corresponds to the requirements of this section.

3.1 Notification

The Proponents will notify Ecology and the Port within 45 days before the beginning of any activity that will disturb the RAU-wide cap or underlying materials within the PTM RAU, or potentially create pathways for the migration of contaminated groundwater as described in Section 3.4. If Ecology determines the activity is not appropriate to be managed under this Plan, Ecology will notify the Proponents and Port and require approval prior to commencing the activity or construction of the project. The notification will include a written document submitted for Ecology review that describes the planned scope of the project, including but not limited to: how material excavated or graded from the project area will be managed including whether such materials are intended to be reused on Site; how water generated will be managed; whether subsurface drilling will be conducted; and whether existing monitoring wells will be disturbed. The notification document will also include any chemical testing data proposed to characterize material for reuse on Site, in accordance with Section 3.2.4 of this CMMP.

At the time of this document, contact information for Ecology and Port representatives is as follows:

Department of Ecology Northwest Regional Office
Cleanup Site Manager
Brian Sato
425-649-7000
bsat461@ecy.wa.gov

Port of Bellingham
Environmental Site Project Manager
Brian Gouran
360-676-2500
briang@portofbellingham.com

3.2 Management of Contaminated Materials

As described in Section 1.3, Ecology's selected cleanup action for the PTM RAU involves permanent removal of contaminant sources that pose a risk to human health or the environment via contaminant migration, plus an RAU-wide surface cap that provides protection from direct contact with and erosion of contaminated materials.

Proponents have options for managing potentially contaminated materials generated during their project-specific activities. Any material generated during redevelopment activities may be disposed of at a licensed and approved off-site disposal facility. Alternatively, the material may be beneficially reused within two years, as backfill/regrade material within the Site, as long as that material would not pose a risk to groundwater quality and it is capped in accordance with the CAP's remediation performance standards (reiterated in Section 1.3). Stockpiled soils must be disposed of at a licensed and approved off-site disposal facility after two years. Reuse assumes that the physical (e.g., geotechnical) characteristics of the material generated are suitable to meet the Proponent's project-specific requirements. Suitable barricades, fencing, signing and other warning and safety devices will be provided to limit access and protect the public and site workers from contaminated materials.

Soil generated from a defined project area may be subsequently reused within two years, beneath a new capping system within the same project area without additional chemical testing. Conversely, Ecology must approve reuse of any material that is placed on Site outside of the project area from which it is generated, based on chemical testing data for that material as described in Section 3.2.4 or as agreed to with Ecology during the project notification process (Section 3.1). In addition, material removed from the source area of the Acid Plant subarea (low-pH, metals-contaminated soil; Figure 1), requires chemical testing and Ecology approval prior to any reuse of that material on Site. The chemical testing requirements for that material are outlined in Section 3.2.4.

The on-site relocation of excavated contaminated material within the PTM RAU does not constitute generation of waste.

When construction, maintenance, or other redevelopment-related activities will disturb the RAU-wide cap and potentially contaminated materials under the cap, then the procedures outlined in the following subsections must be followed.

Section 3.7 addresses procedures to be followed if redevelopment-related excavation activities encounter a previously unknown occurrence of hazardous substances.

Note that procedures in this section apply to the material comprising the PTM's RAU-wide cap (e.g., pavement) as well as materials underlying the cap. For purposes of this CMMP, it is reasonably assumed that the material comprising the cap is not contaminated. As such, removed cap materials can be reused on site consistent with

provisions of this CMMP, or can be disposed of at a facility permitted to accept inert debris (construction and demolition landfill). Concrete or other cementitious material may not be reused in the subsurface on Site below the depth of the seasonally high groundwater table.

3.2.1 Erosion, Sedimentation, and Dust Control

When contaminated material is excavated, stockpiled, and handled, temporary erosion and sedimentation control (TESC) practices compliant with applicable state and local laws, regulations, ordinances, and permits must be followed.

In addition, construction BMPs must be implemented to minimize generation of dust throughout all handling of contaminated materials, in accordance with applicable state and local laws, regulations, ordinances, and permits.

3.2.2 Materials Handling On Site

Excavated materials to be managed on site temporarily must be stockpiled or placed into appropriate containers (e.g., covered roll-off boxes) while on site to avoid dispersal of potentially contaminated material via water (erosion) or wind. If material will be disposed of offsite, it may be directly loaded for transport to a permitted disposal facility. As required by the CAP, material generated by excavation or grading within the PTM RAU must either be placed beneath the RAU-wide cap or properly disposed of offsite within 2 years of its excavation/grading.

Stockpile Management

Stockpiles of potentially contaminated material must be constructed and maintained to prevent erosion, contact with stormwater runoff, dust generation, and worker contact. The water content of material to be stockpiled must be minimized to the extent practical prior to stockpiling to minimize drainage of free liquids from the stockpile.

Each stockpile must be underlain by a low-permeability liner with a minimum thickness of 10 millimeters (mil), and adjacent sheets of liner must be continuously overlapped by a minimum of 3 feet. The ground surface on which the liner will be placed must be free of any objects that could damage the liner. Alternatively, a layer of geotextile or plywood may be placed beneath the liner to protect it in locations containing rocks or debris on the ground surface, or in areas through which vehicular traffic will travel. A berm must be constructed around each stockpile or stockpile area. The berm must contain sufficient area and volume to allow for ponding and control of liquids within it.

Stockpiles must be covered when not in use. Stockpile covers must have a minimum thickness of 10 mils, and must be anchored as needed (e.g., sandbags) to prevent being removed by wind or other disturbance. Tears or discontinuities in the stockpile cover must be fixed immediately. Stockpiles must be inspected at least once per week to ensure they remain properly covered.

Water or other liquids accumulating within the stockpile area must be collected and disposed of in accordance with applicable federal, state, and local laws, regulations, ordinances, and permits (see Section 3.3).

3.2.3 Off-Site Disposal of Excavated Materials

Materials excavated from the PTM RAU may be disposed of at a permitted off-site facility. The disposal facility will have specific permit requirements for profiling the waste materials (through sampling and chemical analysis) that must be complied with before off-site transport and disposal is allowed. Note that, based on extensive characterization conducted during the RI, no environmental media within the PTM RAU have been identified as hazardous waste/dangerous waste under the state Dangerous Waste Regulations (Chapter 173-303 WAC).

Transport and off-site disposal of all waste materials generated from the PTM RAU must be conducted in accordance with Chapter 173-303 WAC and other applicable federal, state, and local laws, regulations, ordinances, and permits.

The property owner will be the generator for all waste materials generated on their property, in accordance with Chapter 173-303 WAC.

3.2.4 Chemical Testing Protocols and Criteria for On Site Material Reuse

As stated above, soil generated from a defined project area may be subsequently reused within two years, beneath a new capping system within the same project area without additional chemical testing. Conversely, chemical testing is required prior to on Site reuse of material generated from the source area of the Acid Plant subarea (Figure 1) or material that will be placed outside of the project area from which it is generated, based on chemical testing data. Chemical data used to characterize such material can include existing (RI/FS) data if representative of the location and material and/or new representative sampling and chemical analysis as described in this section.

To generate new chemical testing data, one representative 5-point composite sample must be collected for each 100 cubic yards of material, using industry-standard sampling practices for the material being sampled and the contaminants being analyzed for (listed below). The material may be sampled *in situ* (before excavation/grading) or sampled from a stockpile after excavation/grading. Each sample must have a unique identification number and, for each sample, the correlation between the identification number and the location from which it was collected must be recorded. The characterization soil samples must be submitted under chain-of-custody protocol to an analytical laboratory accredited by Ecology for the chemical analyses to be conducted.

New soil samples will be analyzed for contaminants of concern based on groundwater protection for the PTM RAU (addressing vapor intrusion and marine protection). Since all soil must be reused beneath a new cap, it is not necessary to test for contaminants that pose a risk only via soil direct contact (e.g., cPAHs). If new chemical testing is required as described above, the new soil samples must be analyzed for following groundwater contaminants of concern defined in the RI/FS:

- Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc);
- Soil pH; and
- Chlorinated solvent volatile organic compounds (VOCs).

Table 1 presents soil screening levels¹ to assess suitability for on-Site reuse of material that requires additional chemical testing (described above). In accordance with MTCA, the groundwater-protection-based soil reuse screening levels for some contaminants are different for material located above the water table (unsaturated) versus below the water table (saturated) (Table 1).

Based on the chemical testing data, material with measured concentrations less than the soil reuse screening levels in Table 1 will be acceptable for reuse beneath a cap on Site.

Based on the chemical testing data, materials with detected concentrations greater than the soil reuse screening levels will be disposed of offsite in accordance with Section 3.2.3. However, if concentrations detected in the material are greater than the soil reuse screening levels, the Proponent may determine and present for Ecology approval alternative area-specific soil concentrations protective of groundwater by applying the other MTCA methods presented in WAC 173-340-747 (e.g., use of leaching tests, calculation of a dilution/attenuation factor to apply in the 3-phase leaching model, and use of empirical groundwater data). Materials determined to be protective of groundwater by these methods are acceptable for reuse beneath the RAU-wide cap.

The chemical testing information must be submitted to Ecology for their review and written opinion regarding suitability of the tested material for its intended reuse purpose (e.g., above or below the water table etc.). No excavated material for which chemical testing is required may be placed on Site without Ecology written approval regarding its reuse suitability.

3.3 Water Management

Redevelopment-related activities generating water include but are not limited to construction dewatering (groundwater withdrawal), stormwater runoff from work areas including soil stockpile areas, drainage from stockpiles, and water from cleaning equipment. All water generated by redevelopment-related activities must be characterized, handled (captured, pumped, stored, treated, conveyed, etc.), and discharged in compliance with federal, state, and local laws, regulations, ordinances, and permits. Water generated during redevelopment-related activities may not be discharged or allowed to flow onto the ground surface, to the Whatcom Waterway, or off the site, except as allowed by permit.

3.4 Preventing Groundwater Contaminant Migration

The Proponent's redevelopment-related activity must not create or facilitate migration of contaminated groundwater within or from the areas depicted on Figure 1 (Acid Plant subarea, LP-MW01 subarea, Miscellaneous Dissolved Metals area). Specific redevelopment-related activities that would require additional design considerations if planned within those areas include but are not limited to:

¹ Soil reuse screening levels are soil concentrations based on leaching to groundwater applying MTCA-default assumptions and adjusted for background metals concentrations and analytical practical quantitation limits (PQL); refer to Section 5 of RI for details regarding screening level derivation.

- Construction of subsurface utilities extending beneath the water table. Any such utility corridors would need to be backfilled in a manner so as to not serve as a preferred pathway for groundwater migration (e.g., backfill with low-permeability material such as controlled density fill [CDF]); and
- Construction of stormwater infiltration facilities that create focused groundwater recharge and thus change the local groundwater flow directions or velocity. Diffuse infiltration that would not substantively change groundwater flow directions or velocity in those areas is acceptable and would not require specialized design measures.

The required prior notification to the Port and Ecology (Section 3.1) must describe any such redevelopment-related features activities considered within the defined areas of groundwater contamination, along with the design measures to be implemented to prevent migration of contaminated groundwater.

3.5 Subsurface Drilling and Well Decommissioning

Drilling into materials beneath the RAU-wide cap may be necessary for geotechnical or environmental characterization of subsurface conditions in support of future redevelopment projects within the PTM RAU. All drilling within the PTM RAU is subject to applicable state and local laws, regulations, ordinances, and permits. Drinking water supply wells are not allowed to be installed or operated within the PTM RAU under the CAP-required environmental covenant.

The Port and Ecology contacts identified in Section 3.1 must be notified if redevelopment-related activities will disturb any monitoring wells within the PTM RAU.

Any monitoring well rendered inoperable by redevelopment-related activities must be properly decommissioned in accordance with the state's Minimum Standards for Construction and Maintenance Wells (Chapter 173-160 WAC). Any monitoring well that needs to be disturbed for redevelopment-related activities but is required to remain operable to meet CAP requirements as determined by Ecology, must be repaired or replaced to restore its pre-existing function and meet requirements of Chapter 173-160 WAC.

Any CAP-required cleanup element, including but not limited to the RAU-wide cap, that is disturbed by drilling or well decommissioning activities must be restored in accordance with Section 3.6. In no case may the portion of a decommissioned boring or monitoring well that penetrates the RAU-wide cap be of a quality inferior to that of the cap prior to disturbance. In addition, the surface finish for any subsurface exploration (whether an operable monitoring well or decommissioned boring/well) must match the surrounding finish grade unless otherwise approved by Ecology.

Drill cuttings, water, or other materials produced from subsurface drilling or monitoring well decommissioning within the RAU are subject to the same requirements as other potentially contaminated materials and water produced in the RAU as specified in this CMMP and subject to applicable regulations.

3.6 Restoration of CAP-Required Cleanup Elements

Any cleanup element required by the PTM RAU CAP, including but not limited to the RAU-wide cap, which is disturbed by future investigation, construction, maintenance, or other activities must be restored to fully meet the remediation performance standards of the CAP (reiterated in Section 1.3) as soon as possible after the disturbance. Written documentation of disturbance and restoration of CAP-required cleanup elements must be provided to Ecology for review and approval that the CAP requirements are met.

3.7 Management of Material with Previously Unknown Hazardous Substances

If the Proponent encounters a previously unknown occurrence of hazardous substances at concentrations greater than applicable cleanup levels and those materials possess field-screening indications of gross contamination (e.g., odor or presence of visible non-aqueous phase liquid (NAPL)), then the Proponent must notify Ecology and the Port contacts in Section 3.1 of the occurrence within 3 business days. Hazardous substances known to exceed cleanup levels within soil or groundwater of the PTM RAU include petroleum hydrocarbon, metals, VOCs, PAHs, dioxins/furans, and acidic pH. Aspect (2013) and Aspect (2014) provide additional details regarding hazardous substances within the PTM RAU, and are incorporated here by reference.

After notifying the Port and Ecology, such materials excavated for project purposes must be segregated and managed separately from materials without indications of gross contamination. Excavated materials with indications of gross contamination must be either: (1) properly profiled and disposed of off site in accordance with procedures identified in Section 3.2.3; or (2) sampled to characterize the contamination as described below, and the information presented to Ecology for their determination on its suitability for on-site reuse beneath the RAU-wide cap.

To chemically characterize material containing gross contamination for potential on-site reuse, one representative 5-point composite sample will be collected for each 20 cubic yards of material with indications of gross contamination, using industry-standard sampling practices for the material being sampled and the contaminants being analyzed for (listed below). The material may be sampled *in situ* (that is, before excavation/grading) or sampled from a stockpile after excavation/grading. Each sample must have a unique identification number and, for each sample, the correlation between the identification number and the stockpile or *in situ* location from which it was collected must be recorded. Characterization soil samples must be submitted under chain of custody to an Ecology-accredited analytical laboratory for the following chemical analyses:

- Diesel-range and oil-range petroleum hydrocarbons (by NWTPH-Dx method with silica gel pretreatment);
- VOCs by EPA Method 8260; and
- The metals arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc (by EPA Methods 6000 and 7000).

ASPECT CONSULTING

The list of analyses may be revised based on field screening or other information.

Based on the chemical testing data, excavated material with measured concentrations less than the soil reuse screening levels in Table 1 will be acceptable for reuse beneath a cap on Site.

Based on the chemical testing data, excavated materials with detected concentrations greater than the soil reuse screening levels will be disposed of offsite in accordance with Section 3.2.3. However, if concentrations detected in the material are greater than the soil reuse screening levels, the Proponent may determine and present for Ecology approval alternative area-specific soil concentrations protective of groundwater by applying the other MTCA methods presented in WAC 173-340-747 (e.g., use of leaching tests, calculation of a dilution/attenuation factor to apply in the 3-phase leaching model, and use of empirical groundwater data). Materials determined to be protective of groundwater by these methods are acceptable for reuse beneath the RAU-wide cap.

The chemical testing information must be submitted to Ecology for their review and written opinion regarding suitability of the tested material for its intended reuse purpose (e.g., above or below the water table etc.). No excavated material for which chemical testing is required may be placed on Site without Ecology written approval regarding its reuse suitability.

4 References

- Aspect, 2012, Bunker C Tank Interim Action Report, Georgia-Pacific West Site, Bellingham, Washington, February 24, 2012.
- Aspect, 2013, Remedial Investigation, Georgia-Pacific West Site, Bellingham, Volume 1 of RI/FS, August 5, 2013.
- Aspect, 2014, Feasibility Study, Pulp/Tissue Mill Remedial Action Unit, Vol. 2a of RI/FS, Georgia-Pacific West Site, Bellingham, Washington, May 2, 2014.
- Ecology, 2014, Cleanup Action Plan, Pulp/Tissue Mill Remedial Action Unit, Georgia-Pacific Site, Bellingham, Washington, June 2014.
- Port of Bellingham and City of Bellingham, 2013, The Waterfront District Draft Sub-Area Plan, 2013.

TABLE

Table 1 - Soil Screening Levels for Reuse of Material
 Contaminated Materials Management Plan, Pulp/Tissue Mill RAU, GP West Site

Contaminant of Concern	Soil Reuse Screening Level Based on Groundwater Protection (mg/kg)	
	Unsaturated Soil (above water table)	Saturated Soil (below water table)
Metals		
Arsenic	20	20
Cadmium	1.2	1
Chromium (Total)	5,200	260
Copper	36	36
Lead	250	81
Mercury	2	0.1
Nickel	48	48
Zinc	100	85
Volatile Organic Compounds (Chlorinated Solvents)		
cis-1,2-Dichloroethene (DCE)	2.5	0.14
Tetrachloroethene (PCE)	0.3	0.015
Trichloroethene (TCE)	0.056	0.005
Vinyl chloride	0.006	0.005
Conventionals		
pH (in Standard pH Units)	<2.5 or >11.0	<2.5 or >11.0

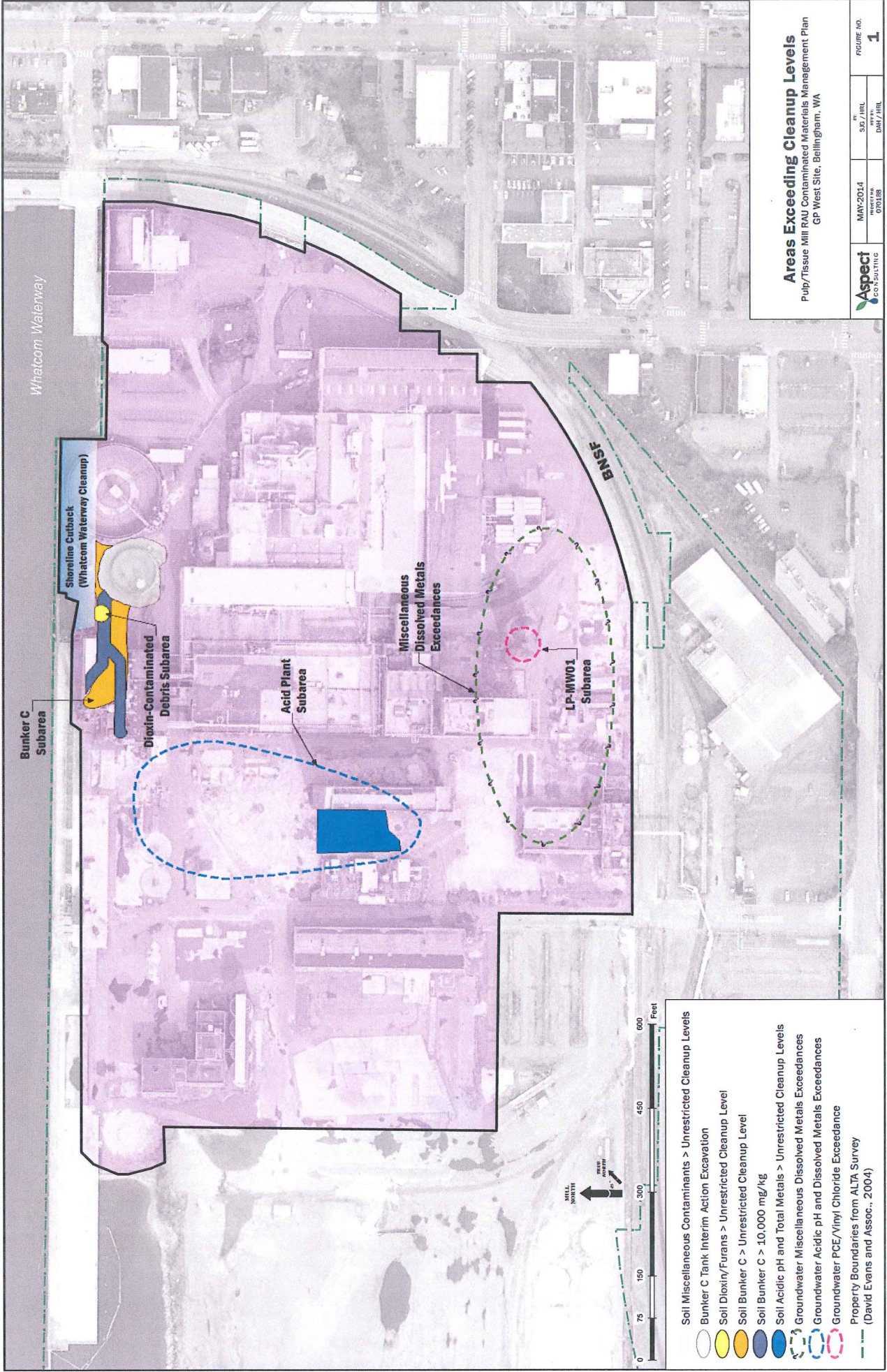
Notes:

mg/kg: milligrams per kilogram.

These screening levels apply to material that is either (1) generated from the source area of the Acid Plant subarea and intended for reuse anywhere on Site, or (2) intended for reuse on Site outside of the project area from which it is generated.

If detected concentrations in material intended for reuse exceed these screening levels, alternative methods for determining concentrations protective of groundwater (per WAC 173-340-747) may be applied for reuse suitability assessment (see Section 3.2.4).

FIGURES

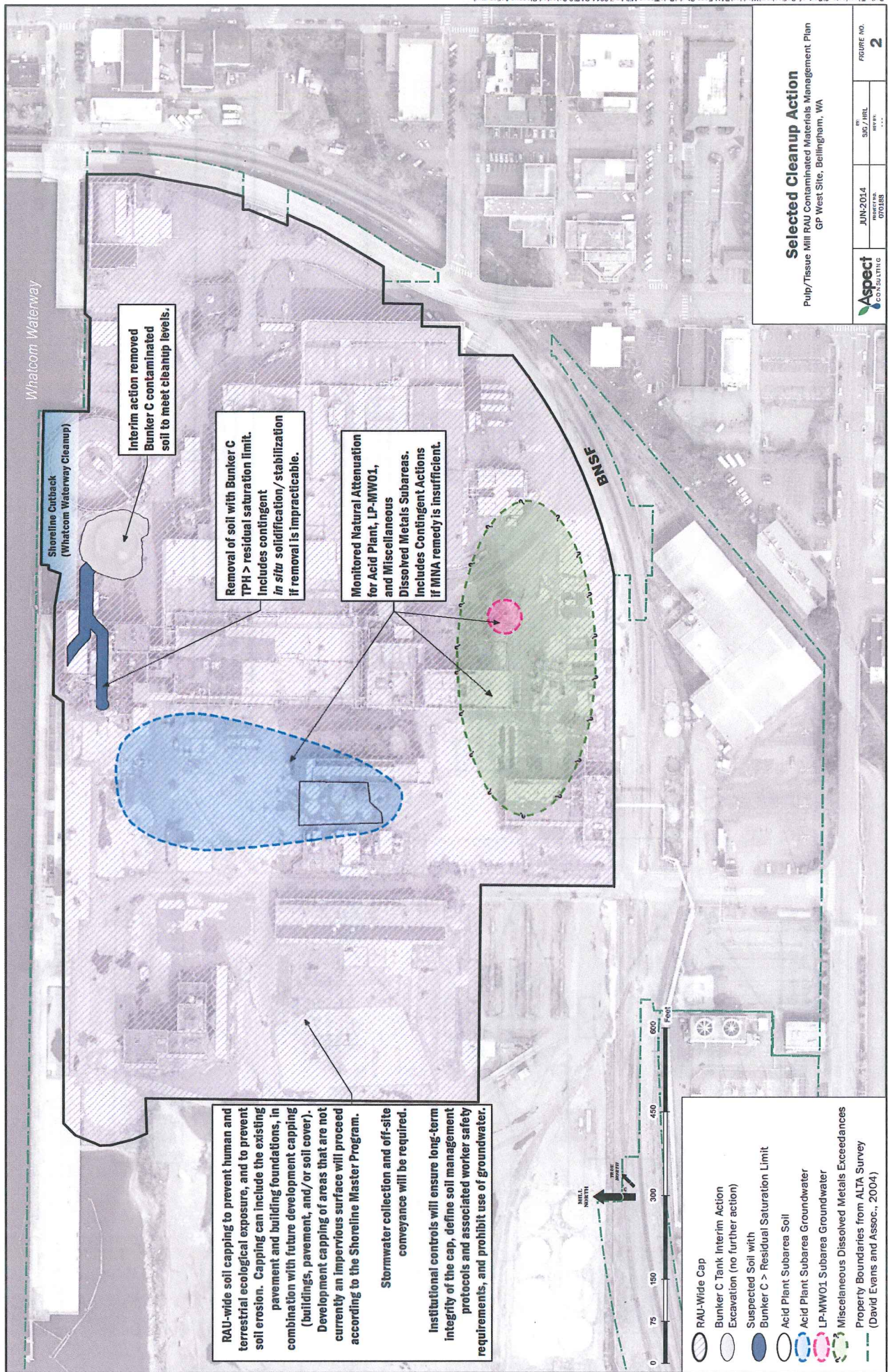


Areas Exceeding Cleanup Levels

Pulp/Tissue Mill RAU Contaminated Materials Management Plan
GP West Site, Bellingham, WA

Aspect CONSULTING	MAX:2014	SDY:IRL	FIGURE NO.
	INTERVALS	DAY / IRL	1

- Soil Miscellaneous Contaminants > Unrestricted Cleanup Levels
- Bunker C Tank Interim Action Excavation
- Soil Dioxin/Furans > Unrestricted Cleanup Level
- Soil Bunker C > Unrestricted Cleanup Level
- Soil Bunker C > 10,000 mg/kg
- Soil Acidic pH and Total Metals > Unrestricted Cleanup Levels
- Groundwater Miscellaneous Dissolved Metals Exceedances
- Groundwater Acidic pH and Dissolved Metals Exceedances
- Groundwater PCE/Vinyl Chloride Exceedance
- Property Boundaries from ALTA Survey (David Evans and Assoc., 2004)



Whatcom Waterway

Shoreline Outback
(Whatcom Waterway Cleanup)

Interim action removed
Bunker C contaminated
soil to meet cleanup levels.

Removal of soil with Bunker C
TPH > residual saturation limit.
Includes contingent
in situ solidification/stabilization
if removal is impracticable.

Monitored Natural Attenuation
for Acid Plant, LP-MW01,
and Miscellaneous
Dissolved Metals Subareas.
Includes Contingent Actions
if MNA remedy is insufficient.

RAU-wide soil capping to prevent human and terrestrial ecological exposure, and to prevent soil erosion. Capping can include the existing pavement and building foundations, in combination with future development capping (buildings, pavement, and/or soil cover). Development capping of areas that are not currently an impervious surface will proceed according to the Shoreline Master Program.

Stormwater collection and off-site conveyance will be required.

Institutional controls will ensure long-term integrity of the cap, define soil management protocols and associated worker safety requirements, and prohibit use of groundwater.

BNSF



- RAU-Wide Cap
- Bunker C Tank Interim Action
- Excavation (no further action)
- Suspected Soil with Bunker C > Residual Saturation Limit
- Acid Plant Subarea Soil
- Acid Plant Subarea Groundwater
- LP-MW01 Subarea Groundwater
- Miscellaneous Dissolved Metals Exceedances
- Property Boundaries from ALTA Survey (David Evans and Assoc., 2004)

Selected Cleanup Action

Pulp/Tissue Mill RAU Contaminated Materials Management Plan
GP West Site, Bellingham, WA

Aspect
CONSULTING

JUN-2014
REVISED
02008

BY: SJC / HRL
DATE: ...

FIGURE NO. **2**

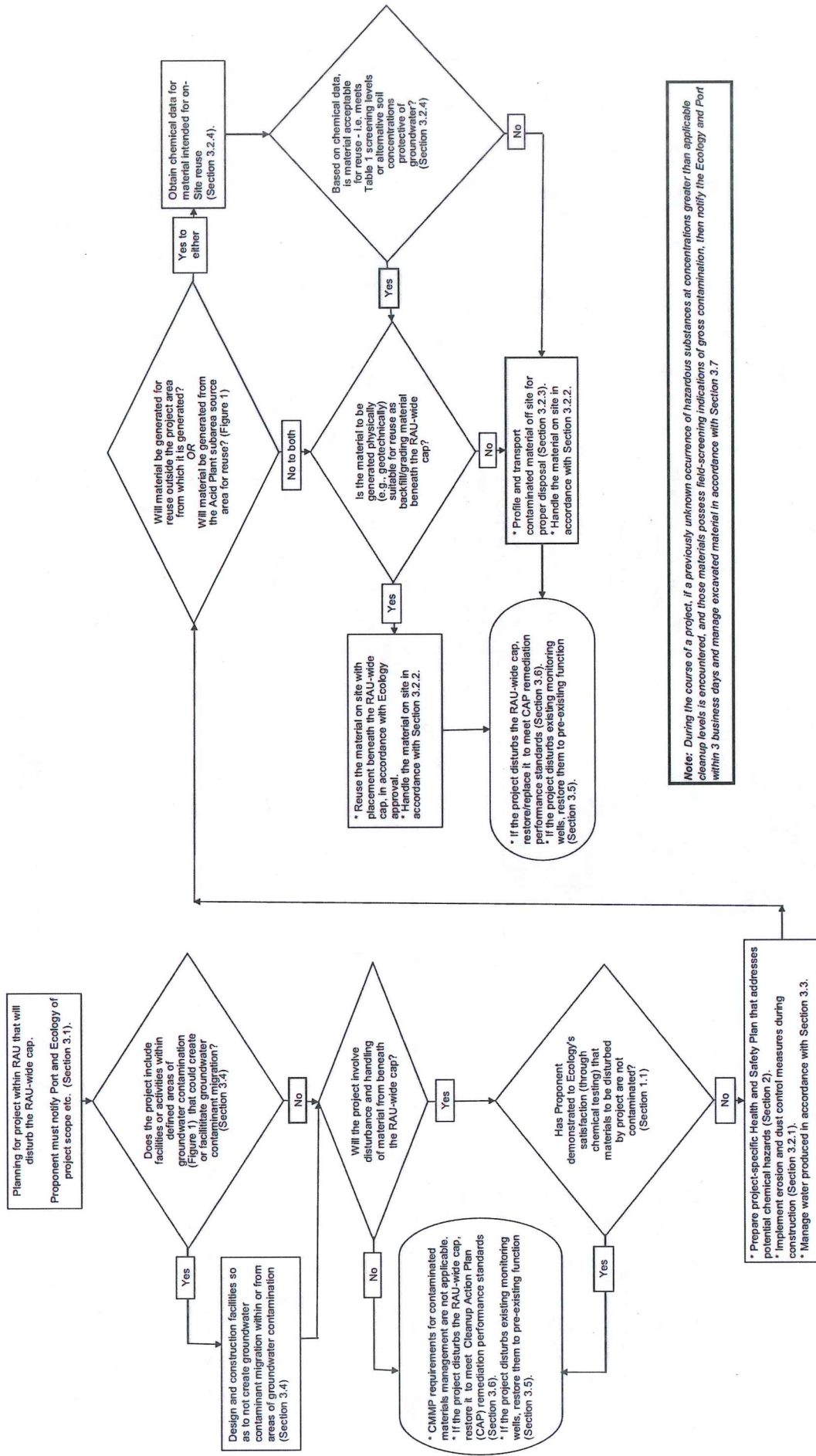


Figure 3
Decision Flowchart for Management
of Excavated Materials

Exhibit F

EXHIBIT F
LIST OF REQUIRED PERMITS OR APPROVALS

APPLICABLE PERMITS OR APPROVALS & REQUIREMENTS

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

NPDES Construction Stormwater General Permit

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

NPDES Waste Discharge Permit

The Port currently operates the Aerated Stabilization Basin (ASB) under an individual NPDES Waste Discharge Permit (Permit No. WA0001091). It is anticipated that management of Site stormwater and construction-related dewatering water will be routed to the ASB for treatment. The Port will comply with all requirements of the NPDES Waste Discharge permit and any subsequent modifications.

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

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

Exhibit G

EXHIBIT G

APPLICABLE SUBSTANTIVE REQUIREMENTS OF PROCEDURALLY EXEMPT PERMITS OR APPROVALS

APPLICABLE PERMITS OR APPROVALS & REQUIREMENTS

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

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

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

City of Bellingham Fill and Grade Permit (BMC Title 16.70.070)

Pursuant to the City of Bellingham Grading Ordinance (BMC 16.70), a Major Grading permit is required from the City for grading projects that involve more than 500 cubic yards of grading. The City grading ordinance identifies a number of standards and requirements for obtaining a grading permit. The City standards and requirements will be integrated into the construction plans and specifications where applicable for the cleanup action to insure it complies with the substantive requirements of the City grading ordinance. Those substantive requirements include: staking and flagging property corners and lines when near adjacent properties, location and protection of potential underground hazards, proper vehicle access point to prevent transport of soil off-site, erosion control, work hours and methods compatible with weather conditions and surrounding property uses, prevention of damage or nuisance, maintaining a safe and stable work site, compliance with noise ordinances and zoning provisions, development of a traffic plan when utilizing City streets and written permission when grading from legal property owner.

City of Bellingham Critical Area Ordinance (BMC Title 16.55.420)

Critical Area Ordinance substantive requirements are applied to land development activities in the City of Bellingham. The cleanup action will occur on land designated by the City of Bellingham as having “erosion” and “landslide” hazards as well as a range of seismic hazards from “very high” to “low”. The substantive requirements associated with BMC 16.55.420 include an assessment or characterization of the hazard areas which may include a hazard analysis and geotechnical engineering report by a licensed professional.

City of Bellingham Construction Stormwater Permit (BMC Title 15.42)

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