ENGINEERING DESIGN REPORT

Cleanup of Pulp/Tissue Mill Remedial Action Unit, Georgia-Pacific West Site Bellingham, Washington

Volume 2: RAU-Wide Capping

Prepared for: Port of Bellingham

Project No. 140298-001-06 • August 21, 2015 Final

Aspect CONSULTING

earth + water

ENGINEERING DESIGN REPORT

Cleanup of Pulp/Tissue Mill Remedial Action Unit, Georgia-Pacific West Site Bellingham, Washington

Volume 2: RAU-Wide Capping

Prepared for: Port of Bellingham

Project No. 140298-001-06 • August 21, 2015 Final

Aspect Consulting, LLC

Steve Germiat, LHG
Principal Hydrogeologist
sgermiat@aspectconsulting.com

Dave Heffner, PE
Associate Remediation Engineer
dheffner@aspectconsulting.com

V:\140298 POB GP West Pulp & Tissue RAU Cleanup\Deliverables\EDR_Vol 2 RAU-Wide Capping\Final\EDR Vol 2 RAU-Wide Capping - Final.docx

Contents

1 Introduction 1

2 Objectives and Design Overview for RAU-Wide Cap 4

3 Current Surface Conditions 6

3.1 Pre-Design Characterization 6

3.2 Current Surface Types 6

4 Categories of RAU-Wide Cap 8

4.1 Category 1: No Action Required 9

4.2 Category 2: Buildings to be Demolished 9

4.3 Category 3: Capping with Clean Soil 9

4.3.1 Category 3a: Place Soil Cover with Grade Change 10

4.3.2 Category 3b: Place Soil Cover without Grade Change 10

4.3.3 Category 3c: Fill Unsecured Subsurface Structures 11

4.4 Category 4: Capping with New Hard Cap (Pavement) 11

4.4.1 Category 4a: Excavate to Construct New Pavement 11

4.4.2 Category 4b: Asphalt Overlay of Existing Thin Pavement 11

4.5 Category 5: Remove Veneer and Replace Underlying Surface If Needed 12

5 Cap Construction 12

5.1 Pre-Construction Items 12

5.2 Mobilization and Site Preparation 13

5.3 Cap Construction 13

5.3.1 Soil Cap 13

5.3.2 Hard Cap 14

5.4 Establish Stormwater Drainage from Capped Surface 15

5.5 Construction Performance Monitoring 16

6 Permits and Substantive Requirements 16

6.1 Federal Permit Requirement 17

6.1.1 NPDES Waste Discharge Permit No. WA0001091 17

6.1.2 NPDES Construction Stormwater General Permit 17

6.2 Permit Substantive Requirements 17

6.2.1 City of Bellingham Shoreline Substantial Development Permit 18

6.2.2 City of Bellingham Major Grading Permit 18

6.2.3 City of Bellingham Critical Areas Ordinance 18

6.2.4 City of Bellingham Stormwater Requirements 18

7 Documentation of RAU-Wide Capping.....19

8 Schedule for RAU-Wide Capping 19

9 References 20

Limitations 20

List of Figures

1 GP West Site with Remedial Action Units

2 Cleanup Action Areas for Pulp/Tissue Mill Remedial Action Unit

3 Current Surface Conditions

4 Design Plan for RAU-Wide Capping

1 Introduction

The Georgia-Pacific (GP) West Site (Site) in Bellingham, Washington, has been divided into the two remedial action units shown on Figure 1 for purpose of expediting remedial actions and facilitating redevelopment of the Site. The subject of this document is the Pulp and Tissue Mill Remedial Action Unit (RAU), which is being cleaned up first under the terms of Consent Decree No. 14207008 (Decree) between the Port of Bellingham (Port) and the Washington State Department of Ecology (Ecology). Based on evaluation of RAU remedial alternatives relative to Model Toxics Control Act (MTCA) criteria in the Feasibility Study (FS; Aspect, 2014b), Ecology's Cleanup Action Plan (CAP; Ecology, 2014) for the RAU selected a final cleanup action consisting of the following elements (refer to Figure 2):

1. **Soil Removal from the Bunker C Subarea.** In addition to soils that were removed from beneath the former Bunker C Tank in the completed (2011) interim action, the cleanup action includes removal of all remaining soils with concentrations of total petroleum hydrocarbons (TPH, specifically Bunker C fuel oil) exceeding 10,000 milligrams per kilogram (mg/kg) from the Bunker C subarea.

2. **RAU-Wide Capping**. The cap to control the soil direct-contact exposure and soil erosion pathways will consist of a combination of existing and new competent hard surfaces (pavement and building foundations), existing and new imported soil or crushed rock, and existing and new recycled concrete aggregate. 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 2 feet of uncontaminated soil or crushed rock over a geotextile marker layer to distinguish the capping material from the underlying contaminated soil. Caps can also be composed of a minimum of 2 feet of clean crushed concrete produced from demolition of the former mill buildings within the RAU (recycled concrete aggregate).

3. **Monitored Natural Attenuation (MNA) of Groundwater.** The Port will develop a Groundwater MNA Compliance Monitoring Plan to address residual contamination in groundwater that exceeds applicable groundwater cleanup levels within the Acid Plant subarea, the LP-MW01 subarea, and the Miscellaneous Dissolved Metals Exceedances area. 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.

4. **Institutional Controls.** The Port and Ecology will develop an Institutional Controls Plan for the RAU which 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 runoff 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; and
- Require that vapor intrusion (VI) potential be evaluated and/or VI controls constructed beneath future buildings in the LP-MW01 subarea if groundwater compliance monitoring indicates that volatile organic compound 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 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.

The Port will own, operate, and maintain the cleanup action until cleanup construction is complete. Following completion of the RAU cleanup action, the Port may sell or lease parcels within the RAU. Subsequent property owners and tenants ("Proponents") conducting activities that would disturb the RAU-wide cap will be required to comply with the Contaminated Materials Management Plan (Exhibit E to the Decree; Aspect, 2014a), as well as all other provisions of the Decree and environmental covenant(s), so as to not compromise the effectiveness of the completed cleanup action, including control of stormwater drainage.

In accordance with the Decree, the Engineering Design Report (EDR) describes the engineering concepts and design criteria for the cleanup. As agreed to by Ecology, the Bunker C soil removal and RAU-wide capping components of the RAU cleanup will be implemented as separate construction projects. Accordingly, the EDR for the RAU is split into two volumes corresponding to the two projects. Volume 1 of the EDR (Aspect, 2015b) covers Bunker C soil removal, which is being accelerated relative to the Decree-required schedule so as to integrate and not interfere with Phase 1 cleanup construction for the adjacent Whatcom Waterway site. This Volume 2 of the EDR addresses RAU-wide capping.

Separate Construction Plans and Specifications and Compliance Monitoring Plans will also be prepared, in accordance with the Decree, for the Bunker C soil removal and RAU-wide capping projects. In addition, a Cap Inspection and Maintenance Plan will describe inspection and maintenance protocols to ensure the long-term integrity of the RAU-wide cap. In accordance with the Decree, that Plan will be submitted with the As-Built Report for the RAU-wide capping so that the final cap configuration is known.

The remainder of this EDR volume consists of the following:

- Section 2 provides an overview of the capping design objectives and rationale.
- Section 3 describes the RAU's existing surface conditions.
- Section 4 describes each category of capping included in the design.
- Section 5 describes the capping construction elements to be implemented.
- Section 6 describes the requirements of applicable federal permits and procedurally exempt permits for the RAU-wide capping.
- Section 7 describes how completion of RAU-wide capping will be documented.
- Section 8 presents the currently anticipated schedule milestones for RAU-wide capping.
- Section 9 lists documents cited in this report.

2 Objectives and Design Overview for RAU-Wide Cap

The primary objective of the RAU-wide capping action is to protect human health and the environment by preventing direct contact with, and erosion of, contaminated soils within the RAU. This objective will be accomplished by a cap covering the entire RAU comprising either minimum 3 inches of competent hard cap (asphalt or concrete pavement, building slab, etc.), at least 24 inches of clean soil with a marker geotextile between cap soil and the underlying contaminated soil, or at least 24 inches of recycled concrete aggregate or crushed rock (ballast). The geotextile will provide a visual marker between uncontaminated capping soil and underlying contaminated soil. The geotextile is not needed beneath recycled concrete aggregate and imported crushed rock cap materials since the transition from these coarse granular materials into the underlying soil is visually obvious to the untrained eye.

Because the cap must function in place until the property is redeveloped (20–30 years), a second objective for the cap design is to address physical hazards (voids, highly uneven surfaces, steep slopes, etc.) in the final capped condition. For example, subsurface utility vaults and utilidors that are open or poorly secured with inadequate covers will be filled with clean soil as needed to eliminate physical hazards to foot and vehicular traffic.

In order to address erosion of contaminated soil and provide long-term protection, a final objective of the cap design is management of stormwater drainage from the final capped surface in accordance with applicable laws, regulations, and permits. The cap will be graded and stormwater drainage features installed as needed to allow passive drainage to the existing stormwater infrastructure within the RAU, in compliance with the Port's existing National Pollutant Discharge Elimination System (NPDES) permit and City of Bellingham requirements (described in Section 6).

As described in the CAP, portions of the RAU are currently covered with pavement and building foundations that, with long-term inspection and maintenance, will provide the required isolation of contaminated soil to achieve the CAP's environmental protection standards. These areas will require no further capping. In areas where the current surface conditions do not meet CAP requirements, a new cap will be constructed.

When the RAU is redeveloped, the new surface features (roads, buildings, landscaped soil areas, etc.) will function as a cap to prevent direct contact with, and erosion of, contaminated soil. However, it is anticipated that full build-out of the RAU could take decades. Therefore, Ecology has required that the environmental cap addressed in this EDR be designed and constructed to prevent soil contact and erosion for decades. Long-term inspection and maintenance of the cap are required by the Decree, as stated above.

The eastern[1] portion of the RAU contains areas of open soil at elevations well above surrounding areas and with steep slopes and degraded wooden retaining walls. This area

[1] Consistent with prior cleanup-related documentation for the Site, this document uses "Mill North" as its directional reference. In the "Mill North" reference, the Whatcom Waterway is oriented east-west on the north side of the RAU (see direction arrows for Mill North vs. True North on figures).

requires substantial regrading (both cut and fill) to construct a capped surface meeting CAP requirements while also eliminating physical hazards and controlling stormwater drainage and reducing erosion potential from the final capped surface. West of this area, only minor regrading is required to eliminate physical hazards and control stormwater drainage.

For areas requiring new capping, the design priority is placement of a minimum 2 feet of clean (uncontaminated) imported soil underlain by a marker geotextile. This capping material achieves the CAP objectives for preventing contaminated soil contact and erosion, and is pervious and readily gradable to achieve drainage. Soil capping is more cost effective (on unit area basis) to construct compared to pavement, and requires less long-term maintenance to retain cap integrity and functionality. However, some small areas of hard cap currently not meeting CAP standards will be excavated and repaved to maintain grades and functionality.

In addition, the Port's demolition of two buildings scheduled to occur in late 2015 (prior to RAU-wide cap construction) is expected to generally produce a surface meeting CAP standards—a combination of suitable hard caps and minimum 2-foot thickness of newly produced recycled concrete aggregate. Once demolition is complete, any deficiencies in the resulting surfaces for these two areas will be addressed through additional capping measures, as described in Section 4.2.

As described in Section 3, large areas of the RAU are currently covered by a surficial veneer of soil (with debris) that is interpreted to have been brought to the surface during prior mill demolition activities, and is therefore defined as contaminated in the CAP (hereafter termed "veneer"). The condition of the surface beneath the veneer areas is uncertain relative to CAP requirements for a cap, and it would be difficult to effectively remove all of the veneer across the RAU to inspect the surface condition, particularly where it is located on uneven surfaces. Therefore, the cap design prioritizes capping this material in place with a minimum 2 feet of import soil, except in areas where soil placement would create other issues. Where placement of a soil cap over the veneer would impede site access or create surface drainage issues, the veneer will be carefully removed and consolidated on site beneath a new cap. If the surface exposed by the removal of the veneer does not meet CAP requirements, it will be capped to meet CAP requirements, as defined in Section 4.

None of the material excavated during construction of the new cap will be exported from the RAU. Instead, the excavated material will be used as subgrade fill beneath new soil cap surfaces in the eastern portion of the RAU, where substantial regrading is occurring.

3 Current Surface Conditions

3.1 Pre-Design Characterization

In accordance with the Ecology-approved Pre-Design Characterization Plan (Aspect, 2015a), pre-design characterization included visual observation and mapping of existing surface conditions relative to the aforementioned CAP standards for RAU-wide capping. Existing surface conditions were determined based on the following:

- Detailed surface-cover surveys (location and condition of building slabs vs. pavement vs. open soil, etc.) across the entire RAU conducted in early 2015 by a professional land surveyor from Wilson Engineering of Bellingham, under subcontract to Aspect Consulting, LLC (Aspect);
- Several site reconnaissance visits by Aspect, which included additional visual observations, coring to determine thickness of pavement sections, and "potholing" to observe shallow subsurface conditions (e.g., beneath areas covered by veneer) and to confirm adequate thickness of placed recycled concrete aggregate; and
- Review of building plans, engineering drawings, and other documents regarding GP's historical pulp and tissue mill within the RAU.

3.2 Current Surface Types

As a result of the pre-design characterization effort, current surface conditions were categorized into the seven "Surface Types" (A through G) depicted on Figure 3. The Surface Types meeting CAP standards for the RAU-wide capping to prevent soil contact and erosion include:

A. Suitable hard cap;

B. Recycled concrete aggregate greater than 2 feet thick; and

C. Recently imported soil or crushed rock fill greater than 2 feet thick.

The Surface Types that do not meet CAP standards for the RAU-wide capping include:

D. Soil;

E. Unsuitable hard cap;

F. Veneer; and

G. Unsecured utilidors, vaults, etc.

A description of each of the current Surface Types follows.

A. Suitable Hard Cap

This category comprises continuous, intact concrete and asphalt surfaces. The concrete surfaces were formerly vehicle parking or driving areas, sidewalks, building floor slabs or other foundation elements of mill buildings that have been demolished, or buildings that will remain in place at the time of cap construction.

The asphalt surfaces were formerly roads and parking areas; some of the asphalt roads are still in use. The buildings that are acting as Suitable Hard Cap currently include the Board Mill, the Digester Building, the Alcohol Plant, the Barking and Chipping Plant, the Granary Building, and Tile Tanks (Figure 3). The Digester and the Barking and Chipping Plant are scheduled for demolition in fall 2015, prior to construction of the RAU-wide cap (anticipated spring 2016). After demolition, the footprints and immediately surrounding areas of those two demolished buildings will be either this Surface Type A or Surface Type B (described below), and those expected surfaces are incorporated into the cap design.

B. Recycled Concrete Aggregate Greater than 2 Feet Thick

This category is comprised predominantly of concrete from the demolition of former mill buildings which has been crushed to particles typically 3 inches and smaller ("3-inch minus") for reuse. After the buildings were demolished, the demolition contactor placed, graded, and compacted the recycled concrete aggregate over areas of exposed soil, in below-grade vaults, basements, etc., and around the perimeters of above-grade foundation elements of the former buildings.

C. Recently Imported Soil or Crushed Rock Fill Greater than 2 Feet Thick

Two areas are capped with materials in this category: 1) the footprint of the 2011 Bunker C Tank interim action excavation, which was backfilled with imported gravel borrow from a WSDOT-approved gravel source as documented in Aspect (2012); and 2) an area in the northwest corner of the RAU, behind an ecology block retaining wall along the Whatcom Waterway shoreline (Figure 3).

Surface Types A, B, and C already accomplish the capping objectives of the CAP, and will require no further action as part of this capping action. These surfaces will require periodic inspection and maintenance to continue to be protective, activities that will be addressed in the Cap Inspection and Maintenance Plan to be submitted when the RAU-wide cap is constructed.

Surface Types D, E, F, and G, described below, do not currently meet the capping requirements of the CAP, and therefore require action to meet those requirements.

D. Soil

This Surface Type comprises exposed fill soil that was placed before the Port owned the Site and, based on the RI/FS data, is defined by the CAP as contaminated.

E. Unsuitable Hard Cap

This Surface Type includes two types of materials: 1) hard surfaces that have been degraded or broken such that the soil under the hard surface is exposed; and 2) otherwise-intact paved areas where the pavement is less than 3 inches thick. The degraded or broken hard surfaces may be former concrete floor slabs that were damaged during building demolition, slabs damaged due to failure of

supporting subgrade foundation elements, or hard surfaces degraded due to various causes (e.g. long-term wear of asphalt pavement).

F. Veneer

This Surface Type comprises a discontinuous layer of soil with debris, up to several inches thick, that has accumulated on paved surfaces adjacent to areas of soil, unsuitable hard cap, and recycled concrete aggregate. The veneer contains soil interpreted to have been disturbed and brought to the surface during mill demolition activities, and is thus defined as contaminated by the CAP. Some of the veneer material has likely been redistributed by vehicle tracking and wind or water transport. During the pre-design characterization, potholing through the veneer at several locations revealed both suitable and unsuitable hard cap beneath it.

G. **Unsecured Utilidors, Vaults, etc**.

As depicted on Figure 3, the RAU contains a variety of subsurface structures (vaults, utilidors, etc.) that are currently open or poorly secured with inadequate covers and thus would pose a physical hazard to foot and vehicular traffic in the final capped condition. This category does not include active stormwater catch basins, which will be maintained to preserve their function for stormwater control in the final capped condition.

Based on the distribution of current Surface Types and the cap design objectives, the categories for RAU-wide capping are outlined in the following section, with details regarding construction of new capped surfaces presented in Section 5.

4 Categories of RAU-Wide Cap

The RAU-wide cap will include areas with current Surface Types A, B, and C, which already meet CAP objectives to prevent soil contact and erosion, and areas with current Surface Types D through G, which will be capped with imported soil, recycled concrete aggregate from building demolition occurring in 2015, or new pavement. The cap design considers the existing Surface Types relative to CAP requirements for a cap, as well as topography for the capped surface so as to manage surface drainage, eliminate physical hazards, and maintain site functionality, under the overriding assumption that the cap remains as is for decades. Meeting these design objectives requires the use of various categories of cap—including some existing surfaces and some new surfaces—depending on location. The cap categories are described below and their locations across the RAU are depicted on Figure 4. Additional details regarding grading and drainage for the capped surface will be developed and incorporated into the construction plans and specifications for the RAU-wide capping.

4.1 Category 1: No Action Required

Areas with Surface Types A, B, and C require no capping to meet the objectives of the CAP including drainage control, physical hazard mitigation, and maintaining access across the capped surface. These Category 1 cap areas include:

- Suitable hard cap surfaces including competent (suitable) paved surfaces and existing buildings (Board Mill, Alcohol Plant, Granary, and Tile Tanks) that will remain in place at the time of cap construction. The collective hard cap areas requiring no additional capping action are depicted as Category 1a caps on Figure 4; and
- Areas with recycled concrete aggregate or imported crushed rock fill greater than 2 feet in thickness. These areas are depicted as Category 1b caps on Figure 4.

Periodic inspection and maintenance will be performed on these capped areas to assure they continue to prevent soil contact and erosion in perpetuity. Inspection and maintenance activities will be described in the forthcoming Environmental Covenant and Cap Inspection and Maintenance Plan, which will be submitted with the Final As-Built Report for RAU-Wide Capping, in accordance with the Decree.

4.2 Category 2: Buildings to be Demolished

The Port will demolish the Digester Building and Barking and Chipping Plant by the end of 2015, prior to the planned 2016 construction of the RAU-wide cap. The demolition activities are not part of the cleanup action, but the post-demolition surface conditions are expected to meet the CAP objectives for capping. Specifically, the expected surfaces after the demolition will be Suitable Hard Cap (building floor slabs and other foundation elements) and recycled concrete aggregate of minimum 2-foot thickness. Recycled concrete aggregate produced from demolition of the Barking and Chipping Building will be placed in the areas requiring capping that surround the building.

Once demolition is complete, any deficiencies in the remaining surfaces relative to CAP requirements will be remediated using the most cost-effective capping option that meets CAP requirements, eliminates physical hazards, and maintains site drainage and functionality. Details regarding the additional capping actions required to meet CAP requirements for these two areas will be incorporated into the construction plans and specifications for the RAU-wide capping, which will be submitted for Ecology review and approval prior to cap construction. Figure 4 depicts the approximate extents of the Category 2 caps to be constructed in the areas of the to-be-demolished Digester Building and Barking and Chipping Plant.

4.3 Category 3: Capping with Clean Soil

The majority of the RAU areas that require capping will be capped with the placement of 2 or more feet of imported clean soil. The new soil cap areas are divided into those where the existing grade will change as a result of capping (Category 3a) and those where grade will not change (substantially) as a result of capping (Category 3b). In addition, imported clean soil will be used to fill numerous unsecured subsurface structures (vaults, utilidors, etc.) to eliminate physical hazards in the final capped condition. While subsurface and

surface grades will not change from this activity, it is designated as Category 3c because it is distinct from the other soil capping categories.

4.3.1 Category 3a: Place Soil Cover with Grade Change

A Category 3a soil cap will be constructed across much of the eastern portion of the RAU to cover large areas of veneer and accommodate the substantial cutting and filling required to create a stable capped surface that meets CAP requirements, eliminates physical hazards (steep slopes), and controls stormwater drainage from the newly capped surface. The highest elevation portion of this area is a large area of exposed soil with steep slopes (Figure 3). From the high elevation areas, the Category 3a soil cap extends (Figure 4):

- Northwestward to cover areas of veneer and unsuitable hard cap including, on the far west end, the former Steam Plant area which has highly uneven surfaces that are most efficiently capped by placement of soil cover. The cap in this nearshore area will match with the top of the Whatcom Waterway cleanup's capped slope, and will maintain drainage internal to the RAU;
- Westward to cover extensive areas of veneer, maintaining drainage and accessibility, tying into exiting grades that are currently comprised of a steep slope constructed of recycled concrete aggregate that extends hundreds of feet north-south along the edge of an exposed foundation(s) (Figure 3); and
- Southwestward to cover extensive veneer areas while maintaining drainage internal to the RAU, including filling a large depression along the southeast corner of the RAU (Figure 3). To maintain drainage internal to the RAU, an approximately 800-foot-long ecology block retaining wall, primarily 2 to 4 feet tall, but up to 6 feet in one short section, will be constructed along the southeastern RAU boundary, as noted on Figure 4.

On its eastern edge, the Category 3a soil cap will taper to zero thickness upon an existing suitable hard cap (Figure 4), or existing surface soils will be overexcavated, consolidated below the fill area as described below, and backfilled with 2 feet of cap material to match existing grade at the edge of the cap.

The contaminated soil that will be cut to lower the high elevation grades will be placed as subgrade fill in adjacent areas where grade is raised, with all contaminated material (including veneer areas) then capped by a marker geotextile and a minimum 2-foot cover of imported clean soil. Contaminated materials excavated from other areas of the RAU to construct the cap (described below) will also be placed as subgrade fill and capped in this area. The thickness of the soil cap varies to maintain grades for drainage, safety, and accessibility. The maximum design slope for the soil cap is 3H:1V to achieve geotechnical slope stability. We estimate that up to 59,000 cubic yards of clean soil would be imported to construct the Category 3a cap.

4.3.2 Category 3b: Place Soil Cover without Grade Change

Areas of soil and unsuitable hard cap on the west side of the RAU, where grades will not be changed for drainage, safety, or accessibility reasons, and around the edges of the cap on the east side of the RAU where necessary to match existing grade, will be capped by a 2-foot layer of clean soil for the reasons outlined in Section 2. The Category 3b cap areas

will be excavated to 2 feet below surrounding grade before the marker geotextile and 2 feet of clean soil is placed to match grade. We estimate that up to 3,500 cubic yards of clean soil would be imported to construct the Category 3b cap.

4.3.3 Category 3c: Fill Unsecured Subsurface Structures

As described in Section 3.2, the RAU contains numerous subsurface vaults, utilidors, etc. that are currently open or poorly secured and thus would pose a physical hazard in the final capped condition.

The bottoms of the unsecured subsurface structures will first be perforated to prevent accumulation of stormwater, and then filled with clean soil to match surrounding grade. Notably, there is an east-west-trending utilidor located just west of the Steam Plant that has three large surface openings currently secured only by temporary metal plates surrounded by ecology blocks (Figure 3). To allow filling of these three large open voids, permanent full-height concrete walls will need to be poured on the east and west ends of each opening to laterally contain the placed soil.

4.4 Category 4: Capping with New Hard Cap (Pavement)

Although the overall design priority is capping with imported soil cover as described in Section 2, small areas of the RAU that require capping will be capped with a minimum 3 inches of pavement. The new pavement cap categories and their design rationale are described below.

4.4.1 Category 4a: Excavate to Construct New Pavement

Areas where the current surface will be excavated to a depth of approximately 7 inches to allow construction of 4 inches of base course overlain by a minimum 3 inches of pavement matching surrounding grade are as follows:

- Small areas of Unsuitable Hard Cap surrounded by Suitable Hard Cap. Several such small areas are identified on Figure 4; and
- Areas of Soil and Unsuitable Hard Cap where subsurface infrastructure would make 2 feet of excavation (to place a soil cap) impracticable. In these areas, 7 inches of material would be excavated to allow construction of a new pavement cap. One sizable area of cap in this category is located due north of the Board Mill, where very large foundation elements are interspersed with Unsuitable Hard cap at variable grades (Figure 4). Other areas where excavation to 2 feet proves to be impracticable will likely be identified during the course of cap construction.

All material removed from these areas before paving will be used as subgrade fill beneath the Category 3a soil cap on the eastern portion of the RAU, as described in Section 4.3.1.

4.4.2 Category 4b: Asphalt Overlay of Existing Thin Pavement

This cap category will be constructed for the asphalt area immediately west of the Board Mill building. Based on coring completed during the pre-design characterization, the pavement there is intact but less than 3 inches thick. The capping objectives will be achieved there by constructing a minimum-thickness (2-inch) overlay of hot mix asphalt (HMA) placed directly on the existing asphalt pavement.

4.5 Category 5: Remove Veneer and Replace Underlying Surface If Needed

Most of the identified veneer areas will be capped by Category 3a soil cap, as described in preceding sections. However, certain areas of veneer, particularly those immediately adjacent to buildings that will remain in place at the time of cap construction (e.g., Alcohol Plant), or where it occurs in isolated small patches, cannot be covered by soil or recycled concrete aggregate without creating drainage or access problems. In these areas, the veneer will be excavated and placed as subgrade fill beneath the Category 3a soil cap on the east side of the RAU. If the underlying surface exposed by veneer removal does not meet CAP requirements, it will be capped with the most practicable method (excavating to place either a 2-foot soil cover or a 7-inch pavement section, as described above).

5 Cap Construction

5.1 Pre-Construction Items

The following actions will take place prior to the start of the RAU-wide capping construction:

- The Port will demolish two structures within the RAU: the Chipping and Barking Plant and the Digester Building; the above-grade Acid Tank next to the Digester Building may also be moved during the demolition project (Figure 4). This will occur prior to preparation of the construction plans and specifications, so the post-demolition surface condition will be known and any additional capping needed to meet CAP requirements can be incorporated into the plans and specifications.
- Also prior to preparation of the construction plans and specifications, the Port will conduct a detailed inventory and assessment of vaults, utilidors, and other subgrade enclosures. The results of the assessment will be used to specify and estimate materials quantities for filling of the structures (cap Category 3C) in the cleanup action.
- The Port will decommission monitoring wells that (1) are no longer needed for monitoring of the Pulp/Tissue Mill RAU groundwater cleanup as described in Aspect (2015c); and (2) will be needed for cleanup monitoring but whose presence will interfere with the construction of the RAU-wide cap. The latter group of wells will be decommissioned and replaced with new wells located as close as practical to, and screened at the same elevation as, the decommissioned wells, as described in Aspect (2015c).

5.2 Mobilization and Site Preparation

Mobilization and Site preparation activities for construction of the RAU-wide cap include:

- Mobilization of construction equipment and materials to site.
- Construction of erosion and sedimentation controls in accordance with the Temporary Erosion and Sediment Control (TESC) Plan in the construction plans and specifications (also, see permit requirements in Section 6).
- Removal or rerouting of active utilities (e.g., stormwater infrastructure, overhead power lines, and poles) that may be impacted by the cap construction activities. At the end of the cleanup action, utilities that were modified will be restored to their pre-construction function.
- Removal of inactive above-surface utility infrastructure (e.g., unused utility poles, chain-link fence lines, fire hydrants, etc.) and appurtenances (e.g., the machinery monument from the former G-P mill located on the highest elevation portion of the RAU) that will interfere with the capping activity.

5.3 Cap Construction

The following actions will be taken to effect the RAU-wide capping, using the cap categories described in Section 4.

5.3.1 Soil Cap

A soil cap will be placed on most areas of the RAU that require capping, as described above. Wherever soil capping is constructed in the RAU, it will follow these specifications:

1. The uncontaminated soil cap will be at least 24 inches thick.
2. Import soil will be virgin gravel borrow meeting the Washington State Department of Transportation (WSDOT) specification and imported from a WSDOT-approved source.
3. The top dressing of the soil cap will be 6 inches of virgin permeable ballast meeting the WSDOT specification. This material will be imported from a WSDOT-approved source.
4. Any material that is excavated or removed from an area to be capped is defined as contaminated in the CAP. None of this material will be exported from the site, but will be used as subgrade fill in the regrading of the eastern portion of the RAU.
5. A permeable marker geotextile will be placed between underlying contaminated material and imported soil cap to provide a clear visible separation between the soils.
6. All soil, rock, or debris placed, whether as part of the regrading or as part of the cap, will be placed in lifts of no more than 12 inches and compacted between lifts to achieve a dense and unyielding condition.

7. The edges of the Category 3a soil cap will have one of three different edge treatments, depending on existing grades and whether or not the capped area is adjacent to the RAU boundary. Where the capped area is adjacent to the RAU boundary and surrounding grade is generally increasing because of the cap, the 2-foot thickness of the cap soil will be retained at the boundary with a retaining wall of ecology blocks or another suitable structure. In areas where the capped area is not adjacent to the RAU boundary, the soil cap will either extend onto an existing area of suitable cap (e.g., intact pavement) and taper from 2 feet in thickness to the adjacent surface at a slope of 3H:1V or flatter, or contaminated soil will be over-excavated by 2 feet and replaced with soil cap material to match the existing grade.

8. Where a soil cap will be placed over an impervious paved surface that is topographically low and enclosed (that is, there is no outlet for stormwater), then the impervious surface will be ripped or otherwise perforated before the placement of the cap to prevent the accumulation of stormwater. Such activity would be conducted across a broad area so as to create diffuse infiltration and avoid focused infiltration that would change groundwater flow conditions; the design (plans and specifications) is subject to Ecology approval.

The preparation for and configuration of the soil cap will vary slightly depending on the current Surface Types, size, and location of the area being capped.

- In Category 3a soil cap areas, marker geotextile will be placed over the contaminated material occurrences, then the 2-foot soil cap will be placed, graded for drainage (per the final construction plans), and compacted.
- In Category 3b soil cap areas, soil and unsuitable hard cap will be excavated to 2 feet below surrounding grade before the marker geotextile and 2 feet of clean soil is placed. If excavation to 2 feet is deemed impracticable during construction, these areas will be excavated to allow construction of a 7-inch pavement section (refer to Section 4.4.2). As elsewhere, the excavation before capping will be performed to lower the subgrade and thereby reduce physical hazards and obstructions to site access and allow for stormwater control. After capping, the grade of the Category 3b cap areas will match surrounding grade. All material generated by excavating will be used as subsurface fill for regrading the east side of the RAU.
- The area with exposed contaminated soil above approximate elevation 16 feet (datum: mean lower low water [MLLW]) in the eastern portion of the RAU will be excavated and placed as subgrade fill in the area immediately to the west, which is now at approximately elevation 11 to 13 feet and will be raised for drainage purposes. Contaminated material excavated elsewhere in the west and central part of the RAU to lower the subgrade prior to capping will also be placed here. Supplemented with imported soil, the placed material will create a subgrade which, when capped, will achieve the cap design objectives outlined in Section 2.

5.3.2 Hard Cap

A pavement cap will be placed on limited areas of the RAU that require capping as described in Section 4.4. The preparation for and configuration of the final pavement cap will vary slightly depending on the Surface Types, size, and location of the area being

capped (Category 4a or 4b caps described in Section 4.4). Wherever new pavement is the cap in the RAU, except in the paved area immediately west of the Board Mill building, the capping will follow these specifications:

1. The Category 4a pavement cap will be at least 3 inches thick overlying a base course at least 4 inches thick. Before capping areas of these areas, the existing material will be excavated by approximately 7 inches to accommodate the thickness of the base course and pavement and maintain the surrounding grade.
2. The material of the placed pavement (whether HMA or concrete) will match the material on surfaces adjacent to it.
3. No marker geotextile will be placed between underlying contaminated material and pavement cap.
4. Placement of the base course and pavement will be in compliance with WSDOT standard specifications.
5. Any material that is excavated for pavement placement is defined as contaminated in the CAP, and will be used as subgrade fill in the regrading of the eastern portion of the RAU.

The Category 4b pavement cap placed on the paved area immediately west of the Board Mill building will receive 2 inches of HMA overlay directly on the existing asphalt pavement (no base course placed). The parking lot surface will be prepared for the overlay in compliance with appropriate WSDOT standard specifications.

5.4 Establish Stormwater Drainage from Capped Surface

Stormwater in the RAU currently infiltrates or drains to the existing stormwater system, from which it is conveyed to the Aeration and Stabilization Basin (ASB). In compliance with the Port's NPDES Waste Discharge Permit WA0001091, no stormwater flows from the RAU surface north to the Whatcom Waterway or off the RAU to adjacent properties.

In this capping action, the grade of the constructed cap has been designed so that stormwater drains to the existing stormwater system in the RAU. The Port regularly inspects and maintains (cleans out) the existing system catch basins to maintain system functionality, and will continue to do so following cap construction.

In the eastern portion of the RAU, the cap design includes limited stormwater infrastructure additions that are needed to maintain drainage from newly capped surfaces. This includes repair or replacement of grates on existing stormwater collection vaults and raising the rim elevation of several vaults to match the capped surface elevation. Low spots in the existing asphalt surface in areas to be capped will be ripped or otherwise perforated to prevent accumulation of stormwater within the cap material. Where activity would occur within the footprint of a groundwater contamination area (Figure 2), it would be conducted to avoid focused infiltration that would change groundwater flow conditions; the design (plans and specifications) is subject to Ecology approval.

5.5 Construction Performance Monitoring

The performance of the capping construction relative to CAP requirements will be monitored and recorded by the Port's representative (the Engineer). The details of the monitoring and reporting will be described in the Construction Monitoring Plan for RAU-Wide Capping, which will be submitted as a draft for Ecology review with the draft construction plans and specifications for the cap construction project.

The following aspects of the construction will be monitored for compliance with the construction plans and specifications:

- The areal extent of the construction of each type of cap;
- The depth of excavation required to lower the subgrade prior to placing cap materials, where appropriate;
- The specifications of import material;
- The placement of the marker geotextile, where appropriate;
- The thickness, placement, and compaction of capping materials; and
- The final grade and configuration of each capped area to monitor for physical hazards, obstacles to site access, and stormwater control.

6 Permits and Substantive Requirements

In accordance with MTCA, the RAU cleanup action, being conducted under the Decree, is 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). In addition, the cleanup action is not exempt from federal permits and requirements presented in Exhibit F to the Decree.

The cleanup action complies with the State Environmental Policy Act (SEPA; RCW 43.21C and WAC 197-11-250 through -259). Concurrent with execution of the Decree, Ecology conducted the SEPA review process and issued a Determination of Non-Significance for the proposed RAU cleanup action. Ecology's SEPA process included a public comment period as required under SEPA.

The following sections outline the federal permit requirements, and then how substantive requirements of procedurally exempt permits will be met, during implementation of the RAU-wide capping component of the RAU cleanup action.

6.1 Federal Permit Requirement

The RAU cleanup action must comply with federal permit requirements, as follows.

6.1.1 NPDES Waste Discharge Permit No. WA0001091

The Port manages National Pollutant Discharge Elimination System (NPDES) Waste Discharge Permit No. WA0001091, which regulates the discharge of permitted waters from the Site, via its secondary treatment ASB, to Bellingham Bay. It is anticipated that waters generated from the work (e.g., stormwater runoff and other potential process waters) may be managed under the permit, pending a written request to, and subsequent approval from, Ecology. The permit authorizes management of water from remediation activities; see Permit special condition S7 – Non-Routine and Unanticipated Discharges (Ecology, 2014) for further detail.

The preferred way to manage waters from the work is to use the existing pump station and force mains to convey waters from the project site directly to the ASB, and this will be specified in the contract documents.

6.1.2 NPDES Construction Stormwater General Permit

An NPDES Construction Stormwater General Permit (CSGP) would be required if the capping project were to disturb more than one acre and discharge stormwater runoff associated with construction activities to surface waters of the State. While the capping project involves disturbance of more than one acre, stormwater runoff will be managed under the existing NPDES permit (described above), which explicitly includes management of waters from remediation activities. The capping project is designed to prevent discharge to the Whatcom Waterway or other surface waters of the State.

If the capping project were to include discharge of stormwater to the Whatcom Waterway, then a CSGP would be required. In that case, the Port or the selected Contractor will submit a notice of intent (NOI) in accordance with the CSGP requirements prior to obtaining coverage under the CSGP. In the event that the Port obtains coverage under the CSGP, it is anticipated that the Port would transfer the permit to the selected Contractor. A project-specific stormwater pollution prevention plan (SWPPP) would be developed in accordance with the permit requirements and prior to the discharge of stormwater runoff to waters of the State.

6.2 Permit Substantive Requirements

The RAU cleanup action is generally subject to the following state and local requirements, but is procedurally exempt from them:

- City of Bellingham Shoreline Substantial Development Permit (Bellingham Municipal Code [BMC] Title 22);
- Major Grading Permit; City of Bellingham Grading Ordinance, BMC 16.70;
- Critical Areas Permit; City of Bellingham Critical Areas Ordinance, BMC 16.55; and
- City of Bellingham Stormwater Requirements, BMC 15.42.

The applicable substantive requirements of these state and local permits or approvals, and the manner in which the RAU-wide capping component of the RAU cleanup action will meet them, are identified below. The Port will continue to coordinate with the City of Bellingham regarding implementation of the cleanup project. This includes providing for City review the construction plans and specifications, such that the City will provide a letter concurring that the planned cleanup work will meet the substantive requirements of their permits listed below.

6.2.1 City of Bellingham Shoreline Substantial Development Permit

Portions of the RAU-wide capping project will occur within the regulated shoreline area designated by City of Bellingham Shoreline Master Program (SMP; BMC Title 22) as Waterfront District - Shoreline Mixed Use. The cleanup action must therefore meet the substantive requirements of a City Shoreline Substantial Development Permit (SSDP). To comply with the SSDP, the project must have no unreasonable adverse effects on the environment or other uses, no interference with public use of public shorelines, compatibility with surroundings, and no contradiction of purpose and intent of SMP designation.

6.2.2 City of Bellingham Major Grading Permit

Pursuant to the City of Bellingham Grading Ordinance (BMC 16.70.070), a Major Grading Permit is required from the City for grading projects that involve more than 500 cubic yards of grading. The permit-required standards and requirements will be integrated into the construction plans and specification for this cleanup action to ensure that the construction complies with the substantive requirements of the City grading ordinance. Those substantive requirements include: location and protection of potential underground hazards, proper vehicle access point to prevent tracking 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, and compliance with City traffic requirements when using City streets.

6.2.3 City of Bellingham Critical Areas Ordinance

City of Bellingham critical area substantive requirements are applied to activities taking place on shorelines through shoreline permitting. This cleanup action will occur on land designated as a “seismic” hazard area by BMC 16.55 Critical Areas because it occurs on man-made fill. However, this capping project is not a development proposal and does not include construction of any improvements – it replaces the existing surfaces that do not meet CAP performance standards for an environmental cap while maintaining stormwater drainage internal to the RAU as currently occurs.

6.2.4 City of Bellingham Stormwater Requirements

Pursuant to the City of Bellingham Stormwater Management (BMC 15.42), the cleanup work must meet the requirements of a City of Bellingham Stormwater Permit.

The substantive requirements will be met by managing stormwater under NPDES Waste Discharge Permit No. WA0001091 and requiring the selected Contractor to develop a pre-construction submittal of a Temporary Erosion and Sediment Control (TESC) Plan, which will be required by the construction specifications. The TESC Plan will include

plans or sketches showing the location of each best management practice (BMP) and a narrative describing how the Contractor will implement, monitor, and maintain BMPs to properly manage stormwater runoff from the work areas so as to avoid discharge to waters of the State.

If CSGP coverage is required for the capping project, the substantive requirements will be met by obtaining and complying with the NPDES CSGP.

7 Documentation of RAU-Wide Capping

Upon completion of construction, a draft As-Built Report for RAU-Wide Capping describing the methods and outcome of capping will be prepared and submitted to Ecology for review and comment. If any environmental data is collected during construction, it will be uploaded to Ecology's Environmental Information Management (EIM) database in accordance with the Decree.

8 Schedule for RAU-Wide Capping

The anticipated schedule milestones for RAU-wide capping are as follows:

- November 2015-January 2016: Review and finalization of the Construction Plans and Specifications and the CMP for the capping project.
- February 2016: Port solicits competitive construction bids for the capping project.
- March 2016: Port awards contract to selected Contractor.
- April through August 2016: Construct the RAU-wide cap.
- October 2016: Submit draft As-Built Report for RAU-Wide Capping to Ecology for review.

This schedule may be adjusted based on conditions encountered during cleanup, or other factors.

9 References

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

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

Aspect, 2014a, Contaminated Materials Management Plan, Pulp/Tissue Mill Remedial Action Unit, G-P West Site, June 19, 2014.

Aspect, 2014b, Feasibility Study, Pulp/Tissue Mill Remedial Action Unit, Vol. 2a of RI/FS, Georgia-Pacific West Site, Bellingham, Washington, October 27, 2014.

Aspect, 2015a, Pre-Design Characterization Plan, Pulp and Tissue Mill Remedial Action Unit, Georgia-Pacific West Site, Bellingham, Washington, February 6, 2015.

Aspect, 2015b, Engineering Design Report, Cleanup of Pulp and Tissue Mill Remedial Action Unit, Georgia-Pacific West Site, Bellingham, Washington, Volume 1: Soil Removal from Bunker C Subarea, May 14, 2015.

Aspect, 2015c, Compliance Monitoring Plan for Groundwater Monitored Natural Attenuation, Pulp/Tissue Mill RAU, Georgia-Pacific West Site, July 7, 2015.

Washington State Department of Ecology (Ecology), 2014, Cleanup Action Plan, Pulp/Tissue Mill Remedial Action Unit, Georgia-Pacific West Site, Bellingham, Washington, Exhibit B to Consent Decree No. 14207008, October 30, 2014.

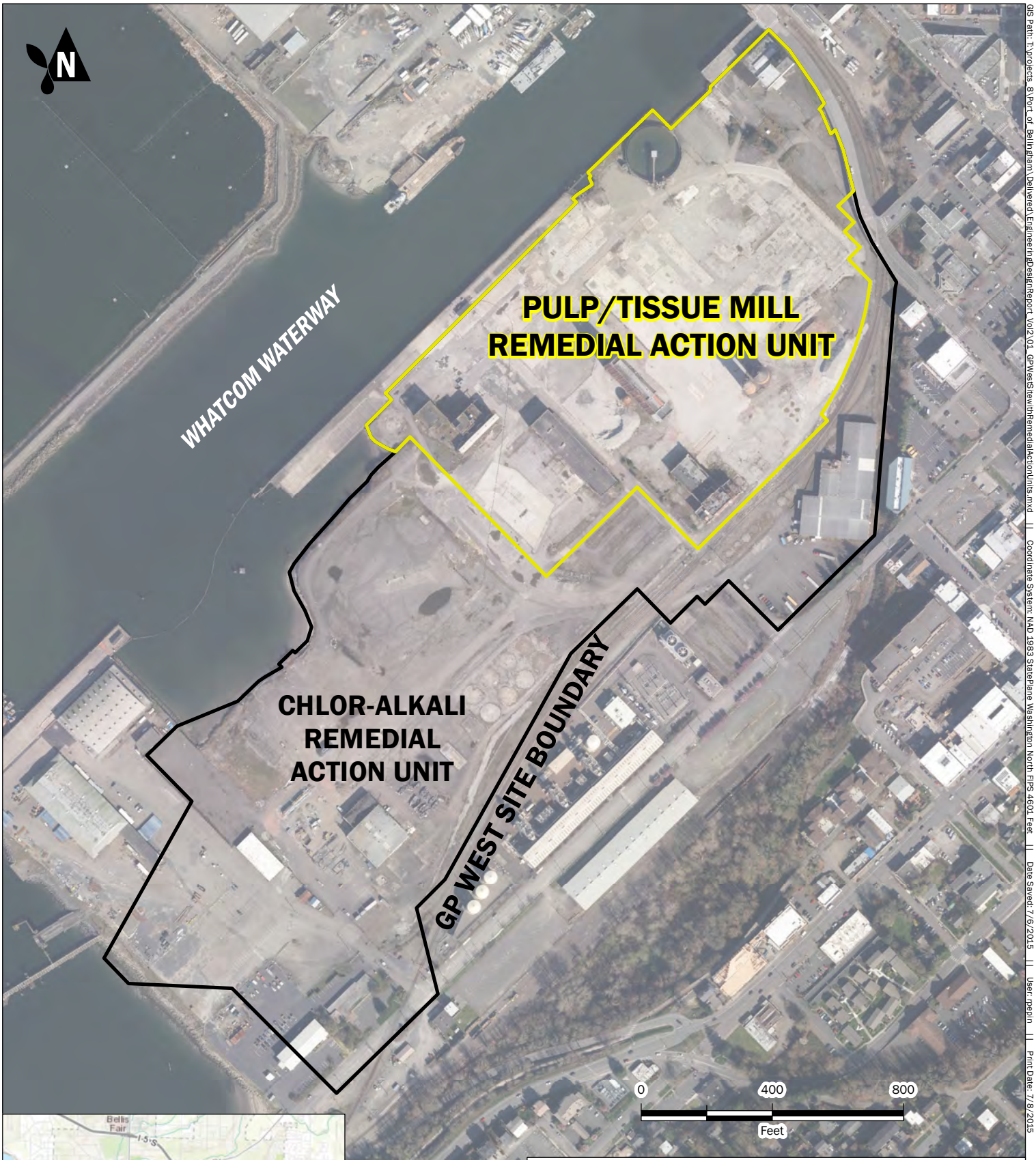
Washington State Department of Ecology (Ecology), 2014, National Pollutant Discharge Elimination System Waste Discharge Permit No. WA-000109-1 for the Georgia-Pacific West Site.

Limitations

Work for this project was performed for the Port of Bellingham (Client), and this report was prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

All reports prepared by Aspect Consulting for the Client apply only to the services described in the Agreement(s) with the Client. Any use or reuse by any party other than the Client is at the sole risk of that party, and without liability to Aspect Consulting. Aspect Consulting's original files/reports shall govern in the event of any dispute regarding the content of electronic documents furnished to others.

FIGURES



GP West Site with Remedial Action Units

Engineering Design Report Vol. 2, RAU-Wide Cap
Pulp/Tissue Mill RAU
GP West Site, Bellingham, WA

Aspect CONSULTING	JUL-2015	BY: MAV / EAC	FIGURE NO. 1
	PROJECT NO. 140298	REVISED BY: ---	

GIS Path: T:\projects_8\Port_of_Bellingham\Delivered\Engineering\DesignReport_Vol2\01_GPWestSitewithRemedialActionUnits.mxd || Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet || Date Saved: 7/6/2015 || User: rpepin || Print Date: 7/8/2015

Whatcom Waterway

Acid Plant Subarea

Miscellaneous Dissolved Metals Exceedances

LP-MW01 Subarea

BNSF

MILL NORTH

TRUE NORTH

45°

0 60 120 240 360 480 Feet

- Bunker C-contaminated soil removal (subject of this EDR volume)
- Capping and use restrictions
- Bunker C Tank Interim Action (2011) (no further action required)
- Groundwater Contamination to be Monitored
- Pulp/Tissue Mill RAU Boundary
- Property Boundaries from ALTA Survey (David Evans and Assoc., 2004)
- Whatcom Waterway Site Cleanup- Shoreline Cutback and Cap

Cleanup Action Areas for Pulp/Tissue Mill Remedial Action Unit

Engineering Design Report Vol. 2, RAU-Wide Cap
Pulp/Tissue Mill RAU
GP West Site, Bellingham, WA

Aspect Consulting	JUL-2015	BY: SJG / HRL	FIGURE NO. 2
	PROJECT NO. 140298	REVISED BY: MAV / EAC	

GIS Path: T:\projects_all\Port_of_Bellingham\Delivered\EngineeringDesignReport_Vol2\02_Proposed Cleanup Action Areas.mxd || Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet || Date Saved: 7/8/2015 || User: rpepin || Print Date: 7/8/2015

GP Dock

Clarifier

Granary Building

Barking and Chipping Building

Digester Building

Board Mill

Acid Tank

Tile Tank

Tile Tank

Alcohol Plant

Surface Types

- A. Suitable Hard Cap
- B. Recycled Concrete Aggregate Greater than 2 Feet Thick
- C. Recently Imported Soil or Crushed Rock Fill Greater than 2 Feet Thick
- D. Soil
- E. Unsuitable Hard Cap
- F. Veneer
- G. Unsecured Utilidors, Vaults, Etc.
- Dock (to Remain Temporarily)
- Building/Structure
- Stormwater System
- Stormwater System (Not in Use)
- Topographic Contour (5 ft)
- Topographic Contour (1 ft)

Note: Vertical Datum: NAVD88. Existing Topographic Contour Source: City of Bellingham LiDAR, 2013

MILL NORTH

TRUE NORTH

45°

0 62.5 125 250 375 500 Feet

Current Surface Conditions

Engineering Design Report Vol. 2, RAU-Wide Cap
Pulp/Tissue Mill RAU
GP West Site, Bellingham, WA

Aspect Consulting	AUG-2015	BY: SJG / RAP	FIGURE NO. 3
	PROJECT NO. 140298	REVISED BY: ---	

GIS Path: T:\projects_8\Port_of_Bellingham\Delivered\EngineeringDesignReport_Vol2\03_CurrentSurfaceConditions.mxd || Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet || Date Saved: 8/11/2015 || User: mpirin || Print Date: 8/11/2015

GP Dock

Shoreline Cutback Area
(Whatcom Waterway Cleanup)

Granary Building

Board Mill

Alcohol Plant

Tile Tank

Tile Tank

Cap Categories

- 1a: No Action Required (Suitable Hard Cap Exists)
- 1b: No Action Required (Minimum 2 Foot Recycled Concrete Aggregate or Imported Fill Exists)
- 2: Building to be Demolished, Leaving Suitable Hard Cap and Recycled Concrete Aggregate
- 3a: Place Minimum 2 Foot Import Soil Cap (Grade Change)
- 3b: Excavate and Place 2 Foot Import Soil Cap (No Grade Change)
- 3c: Fill Unsecured Subsurface Structure to Grade with Import Soil
- 4a: Excavate 7 Inches and Construct New Pavement
- 4b: Construct Asphalt Overlay on Existing Thin Pavement
- 5: Remove Veneer, Consolidate under 3a Cap, and Cap Underlying Surface as Necessary
- Concrete Block Retaining Wall
- Dock (to Remain Temporarily)
- Building/Structure
- Stormwater System
- Existing Topographic Contour (1 ft)
- Proposed Topographic Contour (1 ft)

Vertical Datum: NAVD88.
Existing Topographic Contour Source: City of Bellingham LiDAR, 2013

MILL NORTH
TRUE NORTH
45°

0 62.5 125 250 375 500 Feet

Note: Edge treatments around the perimeter of the Category 3a soil cap (see Section 5.3.1) are not depicted, but will be specified in the construction plans and specifications for the RAU-wide cap.

Design Plan for RAU-Wide Capping

Engineering Design Report Vol. 2, RAU-Wide Cap
Pulp/Tissue Mill RAU
GP West Site, Bellingham, WA

Aspect CONSULTING	AUG-2015	BY: MAV / RAP	FIGURE NO. 4
	PROJECT NO. 140298	REVISED BY: ---	

Path: T:\projects_8\Port_of_Bellingham\Delivered\EngineeringDesignReport_Vol2\04_DesignPlanforRAUWideCapping.mxd