3.5 ENVIRONMENTAL HEALTH – HAZARDOUS MATERIALS

This section provides a summary of existing conditions at the New Whatcom site, and discusses potential environmental impacts and appropriate mitigation measures to address adverse impacts potentially associated with environmental health and hazardous materials.

3.5.1 Introduction

The majority of the New Whatcom site has been used for over 100 years for industrial purposes. As a result of those uses, portions of the site are affected by soil, groundwater and/or sediment contamination from historical releases of petroleum or hazardous substances. Seven properties within the site area are undergoing investigation and cleanup actions. Hazardous substances such as asbestos or lead-based paint could also remain in buildings or other structures present in portions of the New Whatcom site.

Implementation of appropriate abatement, demolition and cleanup actions will be conducted as part of the phased redevelopment of the New Whatcom site in order to address environmental health and hazardous materials issues in a coordinated manner. These activities will be performed in compliance with applicable regulations, as described below.

3.5.1.1 Overview of Environmental Cleanup Regulations

Cleanup activities at seven sites within the site area are being implemented under State of Washington regulations including the Model Toxics Control Act (MTCA; WAC 173-340) and the Sediment Management Standards (SMS; WAC 173-204). Both regulations are implemented by the Department of Ecology (Ecology), in coordination with other state and federal agencies.

The MTCA regulations are the main state law that defines how environmental cleanup decisions are to be made. These regulations specify criteria for the evaluation and conduct of a cleanup action, and specify how cleanup levels are to be developed for cleanup actions involving soil, groundwater and media other than sediment. The SMS regulations dictate the standards for cleanup of contaminated sediments and provide additional factors relevant to selection of a cleanup action at contaminated sediment sites.

Under both MTCA and SMS regulations, any cleanup action must protect human health and the environment, meet environmental standards in other laws that apply, and provide for monitoring to confirm compliance with appropriate cleanup levels.

The cleanup process includes multiple steps from start to finish. The time required to complete the process varies with the type of site, agency priorities and the timing for site reuse or redevelopment. Actions under MTCA are generally required to undergo environmental review under SEPA. The steps in the cleanup process include the following:

- **Initial Discovery and Investigation:** After the discovery of site contamination, an initial site hazard assessment is performed by Ecology to assess whether further action is required. One or more rounds of sampling may be conducted to gather initial information on the types and levels of contamination present.

- **Remedial Investigation and Feasibility Study (RI/FS):** The key study for evaluating site cleanup actions is the RI/FS. In the RI/FS, the site is investigated and the nature and extent of contamination is defined. Then, different potential alternatives for conducting a site cleanup action are defined and one or more preferred alternatives are identified for consideration by Ecology.

- **Cleanup Action Plan:** The Cleanup Action Plan is the document in which Ecology defines the cleanup remedy for a site. The Cleanup Action Plan is typically part of a legal agreement (typically a Consent Decree) between the state and the lead party conducting the cleanup.

- **Design and Permitting:** Design and permitting can take from less than six months for a relatively simple project, to two or more years for a complex project. Additional environmental review under SEPA is often conducted as part of permitting for cleanup projects during this phase. Cleanup actions involving sediment remediation often require federal permits and associated environmental review under NEPA.

- **Construction of the Cleanup Action:** Construction of the cleanup action can take from several months to several years, depending on the scope of the cleanup action. Cleanup actions often include application of a range of technologies such as soil or sediment removal, treatment of soils or groundwater, and/or capping of soils or sediments.

- **Long-Term Monitoring and Institutional Controls:** Cleanup actions include provisions for long-term monitoring and institutional controls to ensure compliance with site cleanup levels. Institutional controls are mechanisms for ensuring the long-term performance of cleanup actions. They are applicable to most remedies where contaminants are not completely removed from the site. Institutional controls involve administrative and legal tools to document the presence of contaminated materials, regulate the future disturbance/management of these materials, and provide for long-term care of remedial actions including performance of long-term monitoring.

Each of the seven cleanup sites within the site area has been extensively studied, and most sites have RI/FS studies that are in progress. The status of each site relative to cleanup process is discussed as part of Section 3.5.2 below.

3.5.1.2 Coordinated Cleanup & Redevelopment Planning

Future land uses are one factor considered as part of cleanup planning under MTCA. Future land uses are considered as part of the development of RI/FS studies and Cleanup Action Plans.

Under MTCA, land uses affect the analysis of cleanup levels. Particularly for soil, MTCA cleanup levels are more stringent for residential or mixed-use redevelopment scenarios than for industrial land uses. For example, the soil cleanup level defined under MTCA as protective of residential land uses (i.e., MTCA “unrestricted land use” cleanup levels based on direct-contact exposure risks) is 24 mg/kg; whereas the applicable cleanup level defined as protective under industrial land uses (i.e., MTCA “industrial land use” cleanup levels based on direct-contact exposure risks) is 1,100 mg/kg (Ecology, 2007). Land uses can also affect cleanup levels for contaminated groundwater or air quality, with cleanup levels for residential and mixed-use redevelopment being generally more stringent than for industrial land uses.

In evaluating sediment cleanup alternatives consistent with SMS regulations, both land and navigation uses (i.e., the types and sizes of vessels that use a particular area) are also considered. Land and navigation uses do not affect the cleanup levels, which are based on other factors (protection of sediment-dwelling organisms). However, the specific navigation and land uses for a sediment site can affect the potential for buried sediments to be disturbed. Land use and navigation patterns are evaluated as part of the RI/FS and Cleanup Action Plan development. Sediments that are likely to be re-exposed due to land and navigation uses are prioritized for removal.

In addition to the analysis of land uses contained in RI/FS and Cleanup Action Plans, potential land uses have been considered as part of the following evaluations:

- **Bellingham Bay Demonstration Pilot**: Addressing the need to coordinate potential land uses actions with sediment cleanup decisions was one of the factors that encouraged development of the Bellingham Bay Demonstration Pilot (Pilot). The Pilot was established by Ecology to help overcome some of the existing roadblocks to optimizing cleanup decisions for contaminated sediment sites in the Bellingham Bay area. The Pilot brought together a cooperative partnership of agencies and tribes, local government and businesses known collectively as the Pilot Team to develop an approach for source control, sediment cleanup and associated habitat restoration in Bellingham Bay. The Pilot Team defined and evaluated four fundamental cleanup and redevelopment elements – sediment cleanup and source control, sediment disposal siting, habitat, and land use (Ecology, 2000, Ecology, 2007c).

- **EPA Brownfields Pilot Activities:** During 1996, EPA awarded a Brownfields Pilot grant to the Port of Bellingham to assist in the coordinated cleanup and redevelopment planning for the Roeder Avenue Landfill, located within Redevelopment Area 1. The work performed under this grant assisted in the completion of the Interim Cleanup Action at the Roeder Avenue Landfill, and later development of a draft RI/FS for the landfill site (RETEC, 2001).

- **Port Environmental Due Diligence Studies:** As part of the acquisition of the former GP properties within the New Whatcom site, the Port conducted extensive environmental due diligence studies, in coordination with Ecology, the Department of Natural Resources, the Corps of Engineers, and other regulatory agencies and project stakeholders. This work included review of current environmental conditions at the contaminated areas within the site, and evaluation of potential cleanup requirements associated with different land uses. Proposed remedial plans (RETEC, 2004a; RETEC, 2004b) were developed for properties to be acquired by the Port, representing cleanup actions anticipated to address regulatory requirements and agency expectations for potential mixed-use redevelopment of the New Whatcom site. The results of the environmental due diligence work were presented to the public, and public comment was considered prior to the Port's decision to move forward with the acquisition of these properties. See Section 2.2.1 and Section 2.3.1 of **Chapter 2** for more information on the above evaluations.

3.5.2 Affected Environment

This section summarizes existing conditions by redevelopment area for the New Whatcom site and vicinity. The status of investigation and cleanup actions at each of the seven cleanup sites within the site area are discussed. These seven sites include the following:

- Central Waterfront Site (portions of Area 1)
- Pulp & Tissue Mill site (portions of Areas 2, 3, 4 and 5)
- Chlor-Alkali site (portions of Areas 8 and 9)
- Cornwall Avenue Landfill site (portion of Area 10)
- RG Haley site (portion of Area 10)
- Whatcom Waterway site (including the Whatcom Waterway, the ASB and nearby aquatic lands)
- I&J Waterway site (including aquatic lands located in the I&J Waterway adjacent to Area 1)

Refer to **Figure 3.5-1** for the location of these seven sites.

Area 1

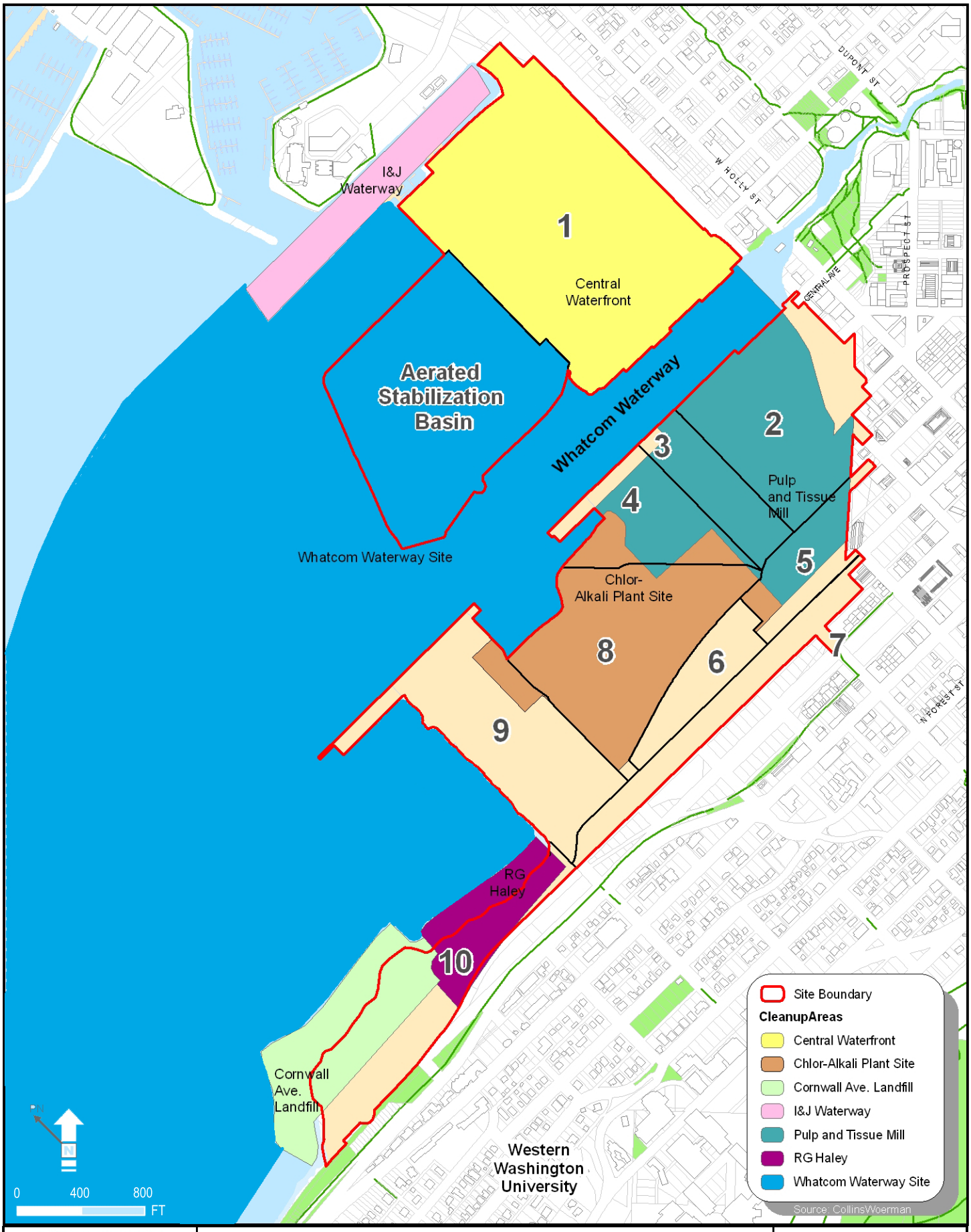
The Central Waterfront site is located within portions of Area 1. The Central Waterfront site includes four former cleanup sites that have been combined by Ecology into a single site to comprehensively manage commingled groundwater contamination plumes (RETEC, 2007a). The Central Waterfront site includes properties formerly known as the Roeder Avenue Landfill, the Chevron Bulk Fuels Facility, The Boat Yard at Colony Wharf, and the Olivine Uplands site. Contamination, associated with certain historical land uses, exists in this area. Recognized contamination sources within the Central Waterfront site include the following:

- Municipal solid waste disposal at the Roeder Avenue Landfill
- Bulk petroleum handling at the former Chevron Terminal property
- Boatyard and historical foundry operations at the Colony Wharf property
- Historical operations of a rock crushing plant and multiple lumber mills at the Olivine Uplands property

All of the above-listed contamination sources are historical in nature, and the associated industrial operations have ceased. Multiple rounds of investigation have been performed at the Central Waterfront site since the early 1990s. This work included development of coordinated cleanup and redevelopment planning under an EPA Brownfields Pilot grant, implementation of an interim action as part of the GP warehouse project during 1998 and 1999, and development of a draft RI/FS report for the Roeder Avenue Landfill site by the Port and City in 2001 (RETEC, 2001). Additional studies were performed on behalf of the former owners of the Chevron (KHM, 2003) and Colony Wharf properties through 2004 (GeoEngineers 2002; GeoEngineers, 2003; GeoEngineers 2004).

Environmental due diligence activities of the Port included development of a remedial plan for the Central Waterfront site (RETEC, 2004a), based on anticipated mixed-use redevelopment of that area. That plan expanded on the previous Roeder Avenue Landfill draft RI/FS and integrated additional cleanup actions at the other Central Waterfront area properties. Planned cleanup actions included targeted soil removals, groundwater treatment, construction of groundwater containment structures, soil capping, construction of landfill gas mitigation systems and implementation of institutional controls and monitoring.

A site-wide RI/FS study was initiated by the Port during 2006 under an Agreed Order with Ecology. The RI/FS Work Plan (RETEC, 2007a and RETEC, 2007b) summarizes existing information and the scope of the RI/FS study. Finalization of the RI/FS is expected during late



BLUMEN CONSULTING GROUP, INC

Figure 3.5-1
Location of Seven Cleanup Sites

New Whatcom Redevelopment EIS

2008, with construction of the Ecology-selected cleanup action expected between 2009 and 2011 after completion of design and permitting. Implementation of institutional controls and monitoring is expected to extend beyond this period, through the period of assumed New Whatcom site redevelopment.

Areas 2-5

The properties within Areas 2, 3, 4 and 5 have been used since the early 1900s for lumber mill activities, and then for operation of a pulp mill, and later a tissue mill. Production of pulp byproducts was added during the 1950s and 1960s and later expanded.

An extensive Phase 2 soil and groundwater assessment was performed at the Pulp and Tissue Mill property during 2004 (Aspect, 2004a). The assessment included extensive soil and groundwater testing. An area of petroleum contamination was identified in a former petroleum handling area within Area 2. Soil contaminant levels in other areas were generally intermediate between residential and industrial cleanup levels, meaning that they exceeded cleanup levels applicable to residential uses, but did not exceed cleanup levels applicable to industrial uses. One area of groundwater with a slightly acidic pH and elevated concentrations of copper, zinc and other constituents were detected near the former acid plant in Area 3.

Environmental due diligence activities of the Port included development of a remedial plan for the Pulp and Tissue Mill property (RETEC, 2004a), based on anticipated mixed-use redevelopment of that area. That plan incorporated soil excavation in the petroleum-contaminated portion of Area 2, in-situ groundwater treatment in the former acid plant area within Area 3, and implementation of institutional controls and monitoring throughout much of the property. The institutional controls framework (RETEC, 2004b) includes additional work such as soil cap placement in areas to be landscaped, and development of clean utility corridors with select backfill as part of future redevelopment activities. These additional actions may not be required if the New Whatcom site is retained for industrial uses (under the No Action Alternative).

A site-wide RI/FS study is to be initiated by the Port during 2007 or early 2008. This work will be performed under an Agreed Order with Ecology. Finalization of the RI/FS is expected during late 2008 or early 2009, with construction of the Ecology-selected cleanup action expected between 2009 and 2012 after completion of design and permitting. The specific timing of cleanup actions may be phased depending on the specific phasing of New Whatcom redevelopment.

Implementation of institutional controls and monitoring is expected to extend beyond this period, through the period of assumed site redevelopment.

Areas 6 & 7

The properties within Areas 6 and 7 have not been shown to have any ongoing soil or groundwater contamination problems.

Underground storage tanks were formerly located within Area 6. However, these tanks were removed during the 1990s and associated contamination problems are reported as cleaned up (Ebasco, 1992; ENSERCH, 1994).

Phase 2 soil and groundwater testing was performed within Area 7 as part of the GP and Port environmental due diligence activities (Aspect, 2004a). No exceedances of soil or groundwater cleanup levels were identified in this area.

No environmental cleanup activities are currently anticipated for the properties within Area 6 and Area 7 under residential, mixed-use or industrial land uses.

Areas 8 & 9

The Chlor-Alkali site is located within portions of Areas 8 and 9. A small portion of the site also extends into Area 5.

The Chlor-Alkali plant was operated by GP between 1965 and 1999. That plant used a mercury-cell process for production of sodium hydroxide and chlorine. Contaminant releases from plant operations resulted in impacts to soil and groundwater quality within the Chlor-Alkali site. Discharge of plant wastewaters also resulted in sediment quality impacts managed as part of the Whatcom Waterway site (see discussion below for that site).

Several rounds of investigation have been performed at the Chlor-Alkali site. An initial RI/FS study was completed by GP during 1994 (ENSR, 1994). The Chlor-Alkali plant operations were later discontinued, and the plant equipment was demolished. Later, draft supplemental RI and FS documents were completed by GP during 2003 (Aspect, 2003) and 2004 (Aspect, 2004b), respectively describing current conditions at the property.

Additional testing was performed at the Chlor-Alkali site during 2004 as part of GP/Port environmental due diligence activities (Aspect, 2004a). Environmental due diligence activities of the Port included development of a remedial plan for the Chlor-Alkali plant property (RETEC, 2004a), based on anticipated mixed-use redevelopment of that area. That plan incorporated targeted soil excavations, extensive in-situ treatment of soils and groundwater, and installation of groundwater diversion structures. The institutional controls framework outlined for the Chlor-Alkali site (RETEC, 2004b) includes additional work such as soil cap placement in areas to be landscaped, development of clean utility corridors with select backfill as part of future mixed-use redevelopment activities, and vapor mitigation as necessary for building foundations in certain site areas. Two portions of the property where soil contaminants were treated and managed in place were assumed to be restricted from future ground-floor residential redevelopment. These additional actions may not be required if the property is retained for industrial uses (No Action Alternative).

A site-wide RI/FS study is to be initiated by the Port during 2007 or early 2008. This work will be performed under an Agreed Order with Ecology. Finalization of the RI/FS is expected during late 2008 or early 2009, with construction of the Ecology-selected cleanup action expected between 2009 and 2012 after completion of design and permitting. The specific timing of cleanup actions may be phased depending on the specific phasing of New Whatcom site redevelopment.

Area 10

Two cleanup sites are located within Area 10. These include the Cornwall Avenue Landfill site and the RG Haley site.

The Cornwall Avenue Landfill site was used between 1888 and 1946 for lumber mill operations. Between 1953 and 1965 the Cornwall Avenue Landfill was used for disposal of municipal solid waste. Landfill operations ended at the site in 1965, and a soil layer was placed on top of the municipal waste. Environmental investigations performed at the Cornwall Avenue Landfill site since the early 1990s have documented the presence of soil, groundwater and sediment contamination at the site (Landau, 2003).

Between 1993 and 2003, the Port, the City and the DNR jointly funded the investigation of the Cornwall Avenue Landfill site and the development of a draft RI/FS. That draft RI/FS was completed during 2003 (Landau, 2003).

Environmental due diligence activities of the Port included development of a remedial plan (RETEC, 2004a) for the Cornwall Avenue Landfill site, based on anticipated mixed-use redevelopment of the area adjacent to the landfill, and development of park and related uses on top of the former landfill. That plan assumed implementation of the preferred remedial alternative from the 2003 draft RI/FS, with additional institutional controls and monitoring applied to adjacent redevelopment areas. The institutional controls framework (RETEC, 2004b) outlined for the Cornwall Avenue Landfill site includes maintenance of the landfill cap and implementation of landfill gas mitigation measures and capping in adjacent redevelopment areas. These additional actions may not be required if the property is retained for industrial uses (No Action Alternative).

During 2005 and 2007 the Port developed remediation interlocal agreements with the City and DNR for remediation of the Cornwall Avenue Landfill site. Consistent with those agreements, the Port entered into an Agreed Order with Ecology to finalize the site RI/FS. The RI/FS study is to be finalized during late 2007 or early 2008. Construction of the Ecology-selected cleanup action is expected between 2009 and 2011 after completion of design and permitting. The specific timing of cleanup actions may be phased depending on the specific phasing of New Whatcom site redevelopment.

The RG Haley site is located adjacent and immediately northeast of the Cornwall Avenue Landfill. Between 1953 and 1986 the property was used for operation of a pentachlorophenol wood treatment facility by International Crossarm and later by RG Haley International. The property has been vacant since 1986 when wood treating operations ceased. Soil and groundwater at the RG Haley site contain elevated concentrations of pentachlorophenol, petroleum and associated constituents that exceed water quality and sediment protection criteria. Some areas of sediment contamination have been defined in intertidal areas adjacent to the RG Haley site (GeoEngineers, 2006).

Portions of the upland properties within the RG Haley site are owned by Douglas Management, and other portions are owned by the State and are managed by DNR. Douglas Management is leading the investigation and cleanup of the RG Haley site under an Agreed Order with Ecology.

During 2001, Douglas Management implemented an Interim Action to control an oil seep observed discharging from the RG Haley site into Bellingham Bay (GeoEngineers, 2001). The work included installation of a barrier wall and a product recovery system. Douglas Management subsequently initiated an RI/FS study for the RG Haley site, under oversight by Ecology. The RI/FS study is ongoing, with a public review draft of the RI/FS expected during late 2007 or early 2008. The RI/FS preferred cleanup action for the RG Haley site is expected to include use of multiple cleanup technologies, including soil and groundwater treatment, sediment removal, capping, groundwater monitoring and institutional controls. Construction of

the RG Haley site cleanup action is expected between 2009 and 2012, after completion of associated design and permitting. Site institutional controls and monitoring are likely to continue into the future during the period of New Whatcom site redevelopment.

Future cleanup and land use decisions for the RG Haley site are currently the responsibility of Douglas Management, the owner of the majority of the site in coordination with Ecology, the City of Bellingham and DNR.

Whatcom Waterway

Sediments within the Whatcom Waterway and adjacent aquatic areas have been designated by Ecology as the Whatcom Waterway site. The Whatcom Waterway site includes lands that have been impacted by contaminants historically released from industrial waterfront activities, including mercury discharges from the former GP Chlor-Alkali plant. The Chlor-Alkali plant discharged mercury-containing wastewater into the Whatcom Waterway during the late 1960s and 1970s. Initial environmental investigations of the Whatcom Waterway site identified mercury in sediment at concentrations that exceed applicable standards, as well as other contaminants from industrial releases.

The RI/FS process for the Whatcom Waterway site was initiated in 1996 under an Agreed Order between GP and Ecology. The RI/FS process included development of an RI/FS (Anchor, 2000) and a companion SEPA EIS (Ecology, 2000) in 2000. Supplemental studies were subsequently completed by GP in 2002, 2003 and 2004 (Anchor, 2002; Anchor, 2003; Anchor, 2004) and by the Port in 2006 (RETEC, 2006). The 2006 studies included a supplemental RI/FS (RETEC, 2006) and a Draft Supplemental EIS (Ecology, 2006) for the Whatcom Waterway site. These studies were issued for public review and comment between October and December of 2006 (refer to **Chapter 2** of this Draft EIS for more information on the Whatcom Waterway Supplemental EIS).

After review of the public comments received, Ecology developed a Cleanup Action Plan and Consent Decree for the Whatcom Waterway site. The Consent Decree includes the Port, the City, DNR and Meridian Pacific LLC as signatories. The Cleanup Action Plan was issued for public comment during July and August of 2007, along with a Consent Decree and associated exhibits. Ecology issued a Final Supplemental EIS and final cleanup decision for the site in September 2007 (Ecology, 2007b), after review of public comments received on the Draft Cleanup Action Plan and Consent Decree.

The draft Cleanup Action Plan for the Whatcom Waterway site includes a combination of dredging, capping and monitored natural recovery of contaminated sediments. The proposed plan for dredging and capping are integrated with anticipated land and navigation uses for the Whatcom Waterway and vicinity. Institutional controls and monitoring are incorporated to provide for long-term compliance with site cleanup levels.

Project design and permitting are expected to take at least two years. Construction of the cleanup action is expected to take three years to complete. Design, permitting and construction of the cleanup action will be integrated with proposed New Whatcom in-water redevelopment activities and other planned separate actions by the Port to ensure coordination of activities, provide for holistic environmental review, and minimize construction impacts to juvenile salmonids and sensitive aquatic organisms.

As described below, the anticipated cleanup for the Whatcom Waterway site includes remediation of the ASB area.

Aerated Stabilization Basin

The ASB area of the New Whatcom site consists of a wastewater treatment impoundment constructed by GP during the late 1970s for treatment of process wastewater from GP-associated operations. The ASB was constructed in former log-booming areas under the terms of an Army Corps of Engineers Section 404 permit and associated state permits. Environmental reviews conducted during permitting included completion of an EIS, and mitigation of anticipated environmental impacts.

The ASB currently is used to treat process wastewater, stormwater and cooling-waters from the GP tissue mill operations and the associated Encogen co-generation facility. The ASB facility is operated consistent with an NPDES wastewater discharge permit, overseen by Ecology.

After GP closed its pulp mill operations, Ecology concluded that the ASB should be included within the Whatcom Waterway site boundary due to the presence of site-associated hazardous substances within the ASB area. Ecology required implementation of supplemental studies of the Whatcom Waterway, including the ASB area, between 2002 and 2004 as described in the 2006 RI/FS Report (RETEC, 2006).

During environmental due diligence activities conducted between 2004 and 2005, the Port evaluated potential future reuse options for the ASB, including development of a marina within the ASB. The Port met with Ecology, DNR, the Corps of Engineers, the Department of Fish and Wildlife and other regulatory agencies and stakeholders as part of due diligence activities. Ecology advised the Port that aquatic reuse of the ASB would likely require full removal and upland disposal of accumulated wastewater solids/sludges prior to reopening of the ASB to Bellingham Bay. The Port then developed a proposed cleanup and reuse plan for the ASB consistent with agency input (RETEC, 2004a). After public review and comment, the Port completed purchase of the ASB properties from GP during 2005.

The 2006 RI/FS for the Whatcom Waterway, and the subsequent Cleanup Action Plan and Consent Decree developed by Ecology consider future aquatic reuse of the ASB as a marina. The Consent Decree (Ecology, 2007b) includes provisions for revisiting the cleanup decision for the ASB portion of the Whatcom Waterway site in the event that the marina is not implemented by the Port.

As indicated above, the Cleanup Action Plan for the Whatcom Waterway, including the ASB, was issued for public comment during July and August of 2007, along with a Consent Decree and associated exhibits. Ecology issued the final cleanup decision for the site (Ecology, 2007b) in September 2007, after review of public comments received on the Draft Cleanup Action Plan and Consent Decree. Project design and permitting are expected to take at least two years. Construction of the cleanup action is expected to take 3 years to complete. Design, permitting and construction of the cleanup action will be integrated with proposed in-water redevelopment activities and planned separate actions by the Port.

I & J Waterway Site

The results of Whatcom Waterway RI/FS studies performed in 1996 and 1998 (Anchor, 2000) demonstrated that surface sediment impacts were present in certain nearshore locations of the I & J Waterway, along the northern edge of the New Whatcom site. These impacts were primarily associated with contaminants different than those of the Whatcom Waterway site sediments. Later studies performed in 2000 (ThermoRetec, 2001) confirmed that the surface sediment impacts were predominantly associated with elevated bis(2-ethylhexyl)phthalate and nickel in a localized area adjacent to the Bornstein Seafoods facility and the former Olivine lease area, respectively. The sources of these compounds appear to be historical releases, including the destruction of the seafood processing plant by fire in 1985, and historical Olivine dust and wastewater discharges from the ore crushing plant during the 1960s, 1970s and 1980s (Ecology, 2005).

Ecology and the Port have entered into an Agreed Order for completion of a sediment RI/FS study for the I & J Waterway site. Land use and navigation issues associated with the active federal navigation channel in the I & J Waterway are to be considered as part of the RI/FS study. The RI/FS study is ongoing, with completion anticipated during 2008. Sediment cleanup actions will be performed between 2010 and 2012, after finalization of the RI/FS, development of a Cleanup Action Plan, and implementation of remediation design and permitting.

3.5.3 Impacts

This section summarizes the potential for significant environmental impacts on environmental health associated with future redevelopment of the New Whatcom site.

Central to all Redevelopment Alternatives is the assumption that cleanup actions will be performed to address site contamination issues at the seven cleanup areas within the New Whatcom site. These cleanup actions are to be performed consistent with MTCA and SMS regulations and other applicable regulations, and will provide adequate mitigation for most of the environmental health and hazardous materials concerns present at the site.

Therefore, the discussion of the potential for environmental health impacts focuses on those impacts associated with proposed redevelopment. Environmental review under SEPA and/or NEPA of impacts and mitigation associated with the implementation of site cleanup actions has, or will be, accomplished under separate reviews (e.g., *2006 Draft and 2007 Final Supplemental EIS* for the Whatcom Waterway site) overseen by Ecology as lead agency under MTCA and SMS.

Potential environmental impacts evaluated are as follows:

- Construction Impacts: Impacts potentially occurring during phased construction of infrastructure and/or during demolition/construction of subsequent buildings.
- Operation: Impacts potentially occurring during operation of assumed land uses after completion of site construction.
- Cumulative or Indirect Impacts: Indirect impacts associated with the implementation of the separate actions/background projects, together with New Whatcom redevelopment.

3.5.3.1 Impacts of Redevelopment Alternatives 1-3 (2016 and 2026)

Redevelopment Alternatives 1 through 3 all involve mixed-use redevelopment of the New Whatcom site, and development of a marina within the ASB portion of the site. Based on the similarities (from the perspective of the MTCA and SMS regulations) of assumed land and navigation uses among these alternatives, there would be no significant differences among the alternatives related to potential environmental impacts and appropriate mitigation measures. Therefore, potential impacts related to all three alternatives are discussed together.

Cleanup actions performed at the various upland cleanup sites will be completed in phases, with the early construction phase of all cleanups expected to be complete by 2016. Subsurface soil removals, soil and groundwater treatment, installation of groundwater diversion barriers and containment structures and other invasive cleanup activities will be conducted during the early construction phase of the cleanup actions. Following this early phase of work, an institutional controls plan will be implemented at each cleanup site, defining specific requirements for how final site actions will be implemented in coordination with redevelopment.

The institutional controls plan for each of the cleanup actions will specify where appropriate, the implementation of soil caps (capping with a layer of clean fill material over portions of the site) or vapor mitigation systems that are required as part of site redevelopment. These specific requirements will vary from cleanup site to cleanup site. The institutional controls framework will also define any use limitations or specific worker protection standards applicable to areas of the cleanup sites. The institutional control plans will be recorded on property deeds (for land owned by the Port, City or private land owners) and on DNR index plates (for state-owned aquatic lands). To assist in information transfer, the institutional control plans will also be filed with Port property files and with the City building department. Institutional control plans will be reviewed as part of property sales, leases or specific mixed-use redevelopment projects.

The design, permitting and construction of cleanup actions within the Whatcom Waterway site will be implemented along with proposed waterfront redevelopment activities (assuming the necessary approval and permits are secured) to ensure coordination of activities, provide for holistic environmental review, and minimize construction impacts to juvenile salmonids and sensitive aquatic organisms. In particular the cleanout and marina development planned for the ASB (under either the No Action Alternative or as part of Redevelopment Alternatives 1-3), and the dredging, capping and shoreline stabilization and dock/float construction activities proposed for the Waterway will be conducted as one integrated project. Following construction activities, an institutional controls plan will be implemented at the Whatcom Waterway site, defining any subsequent use restrictions and other institutional control requirements associated with mixed-use site redevelopment.

Construction Impacts

Potential environmental impacts during construction of site infrastructure and initial building redevelopment include the following:

- **Demolition Activities:** Demolition of existing structures could disturb asbestos-containing materials and/or lead-based paints. Exposure to these contaminants could pose safety concerns for construction/demolition workers and could affect air quality, on a temporary basis and in the immediate vicinity of demolition activities. Mitigation of these potential impacts would be addressed by completing pre-demolition surveys, and

conducting asbestos and/or lead abatement activities where required by applicable air quality or worker safety regulations.

- **Soil Management:** Site grading, construction of infrastructure and future building development at the New Whatcom site could disturb or generate contaminated soils from within the site. For example, excavation of soils could be required to install building foundation systems, elevator vaults or other subsurface structures. Improper management of these materials (e.g., shipment of contaminated soils to a non-permitted off-site disposal area) could result in exposure of human health or environmental receptors to hazardous substances. Mitigation would be addressed by complying with the soil management provisions of cleanup site institutional controls, and ensuring compliance of all future site construction activities with these control measures. Such measures would provide for testing, segregation and proper on-site or off-site management of affected materials.

- **Worker Health & Safety:** State and federal worker safety regulations require special training, monitoring and work practices at cleanup sites. Subsurface construction activities (e.g., trenching or excavation for installation of building foundation structures or elevator vaults) in some areas of the New Whatcom site following cleanup could result in exposure of workers to contaminated soils or soil vapors that may require such training, monitoring or special work practices. Mitigation would be accomplished by complying with applicable construction worker safety protocols defined as part of cleanup site institutional control plans, and ensuring compliance of all future New Whatcom site construction activities with these control measures.

- **Stormwater Quality Impacts:** If construction activities disturb contaminated soils, pollutants could become entrained in site stormwater runoff. Mitigation would be addressed by maintaining cover soil over contaminated soils where practicable, and/or by implementation of stormwater treatment and monitoring during any construction activities that could disturb contaminated soils.

- **Groundwater Quality:** Cleanup activities at the New Whatcom site will include various activities to contain, treat, divert and/or monitor groundwater in order to comply with applicable cleanup levels and associated requirements. Site construction activities could potentially interfere with these cleanup actions by damaging containment or diversion structures (e.g., damaging a groundwater containment wall with building foundation pilings), exacerbating groundwater flow patterns (e.g., installing deep basement drains that re-direct groundwater flows), damaging groundwater monitoring equipment (e.g., damaging a groundwater well during roadway construction), or by introducing new land uses that are inconsistent with the site cleanup plans and institutional control measures (e.g., constructing an un-lined biofiltration swale within a landfill area). These concerns would be mitigated by ensuring compliance with the site-specific institutional control plans during all site cleanup and redevelopment construction activities.

- **Sediment Disturbance During Construction:** Construction activities in areas of capped contaminated sediments could result in disturbance of buried sediments, and potential impacts to sediment and water quality. For example, dredging for navigation depth within a capped area could penetrate the designed cap thickness unless the dredging complies with previously-defined limits designed to protect the cap against disturbance. These potential impacts would be mitigated by integrating the design, permitting and

construction of in-water cleanup and proposed redevelopment activities (to the extent possible), and by requiring compliance with site institutional control plans for all subsequent construction and redevelopment activities.

- **Facility/Land Use Siting:** As part of the final cleanup plans, some land uses could be restricted in certain portions of the New Whatcom site. For example, Ecology may specify that subsurface utility excavation and construction is restricted where certain contaminated soils are to be treated and/or contained in place. Alternately, Ecology may restrict these areas from redevelopment with ground floor residential uses. Improper siting of infrastructure or redevelopment features in such restricted areas could result in non-compliance with site cleanup requirements. Mitigation would be accomplished by incorporating a review of use restrictions associated with institutional control plans as part of the construction and building permit review process, and ensuring that all proposed uses comply with these use restrictions. If any proposed uses conflict with site cleanup requirements due to the presence of contained hazardous materials, this conflict would be addressed either through modification of the specific redevelopment plan (e.g., elimination of ground-floor residential use from a proposed building plan), or through implementation of additional removals of the contained hazardous materials in coordination with Ecology.

- **Vapor Mitigation for Building Foundations:** In portions of the site, soil vapors could be present due to the presence of municipal solid wastes, petroleum hydrocarbons or other hazardous substances. Construction of enclosed structures in these areas without appropriate vapor mitigation measures (e.g., under-slab vapor barrier or vapor extraction system) could result in unhealthful air quality within the structure. These concerns would be mitigated by incorporating vapor mitigation measures as part of building construction where necessary, to comply with site cleanup action plans and institutional control requirements.

- **Discovery of New Cleanup Issues:** As at any property, it is possible that previously-undocumented environmental contamination problems could exist at portions of the New Whatcom site, separate from the active cleanup actions. Should such contamination be discovered during design or construction activities, mitigation of potential environmental health and hazardous materials concerns would be conducted by complying with release reporting, investigation and cleanup provisions of applicable MTCA and SMS regulations.

Beneficial Impacts

It should be noted that the extent of cleanup required under Alternatives 1-3 (mixed-use redevelopment) would be generally more stringent than the level of cleanup required to support ongoing industrial uses under the No Action Alternative. This more stringent cleanup to meet applicable standards for mixed-uses would result in reductions in residual environmental risks and overall improvement in environmental protection of the site. Further, the coordination of cleanup and redevelopment under Alternatives 1-3 could require a more rapid time frame for cleanup than would occur without redevelopment. Both of the above impacts could be considered potential beneficial impacts to human health and the environment.

Operational Impacts

Potential environmental impacts could occur after completion of site construction and include the following:

- **Navigation Disturbance to Capped Sediment Areas:** Sediment cleanup actions in portions of the Whatcom Waterway and associated areas will include containment of subsurface impacted sediments beneath cap or natural recovery areas. Remedial design and permitting will include detailed analysis of natural conditions (e.g., storm waves and associated erosion) and planned navigation uses (e.g., waterway uses by boats from the marina and larger marine vessels at the Bellingham Shipping Terminal) that could result in disturbance and re-exposure of buried contaminated sediments. The cleanup actions will be designed and constructed in a manner that ensures protection of environmental quality with consideration of anticipated uses. However, use of the site and site area in a manner inconsistent with the remedial design (e.g., development of large-vessel moorage within a capped sediment area not designed to protect against erosion from large-vessel operations) could trigger sediment disturbance and recontamination. Mitigation of this risk would be accomplished by ensuring that all future navigation uses are consistent with designed uses and site institutional control plans defined as part of the cleanup actions. Should future navigation uses be proposed in the future that are inconsistent with initially designed uses, Ecology review may be required and additional remedial actions (e.g., upgrading of cap armoring to address potential prop wash concerns, or completion of additional sediment removal in the proposed large vessel moorage area) could be required in order to support such navigation uses.

- **Soil Management and Worker Safety:** During maintenance and repair of subsurface utilities, soil management and worker safety requirements could be triggered similar to those associated with construction activities – and discussed above. These impacts would be largely mitigated through initial development of utility corridors in clean backfill material, where practicable. This practice would allow future utility maintenance work to be conducted without requiring special soil management or worker safety provisions. Where this is not practicable, similar soil management and worker safety provisions applicable to construction activities (e.g., compliance with worker training, monitoring and work practice requirements defined in site institutional control plans) would apply to utility maintenance or other subsurface maintenance activities.

- **Future Hazardous Materials Use:** Under Alternatives 1-3, businesses could locate within the New Whatcom site that may use, store or process certain hazardous materials as part of their normal operations (e.g., storage and use of laboratory chemicals in a university research facility within Area 4; use of boat paints by marine-oriented businesses in Area 1). This could result in impacts to the environment if these chemicals are not properly stored, used or disposed. Mitigation of this potential risk would involve compliance with local (e.g., fire department hazardous materials regulations), state (e.g., State of Washington underground storage tank regulations) and federal regulations (e.g., federal spill prevention control and counter-measures requirements) relating to the use, storage or processing of hazardous materials.

3.5.3.2 No Action Alternative

The No Action Alternative assumes continued industrial use of the New Whatcom site, and development of a marina within the ASB portion of the site. Cleanup actions at the seven ongoing cleanup sites would be completed consistent with state MTCA and SMS regulations. These cleanup actions would ensure mitigation of environmental health and hazardous materials issues at these properties. As with Alternatives 1-3, the cleanup actions completed at the sites would include the development of institutional control plans for each cleanup site. All subsequent redevelopment and reuse of the New Whatcom site would comply with these requirements, including industrial development under the No Action Alternative.

As with Alternatives 1-3, the institutional controls for each of the cleanup actions will specify where appropriate, the implementation of soil caps or vapor mitigation systems that are required as part of site redevelopment. In general, the scope of these specific requirements would be less expansive for industrial land uses than for residential or mixed-use redevelopment, given the difference in cleanup standards for these categories of land use. The institutional controls framework will also define any use limitations or specific worker protection standards applicable to areas of the cleanup sites. The institutional control plans will be recorded on property deeds (for land owned by the Port, City or private land owners) and on DNR index plates (for state-owned aquatic lands). To assist in information transfer, the institutional control plans will also be filed with Port property files and with the City building department. Institutional control plans will be reviewed as part of property sales, leases or specific industrial redevelopment projects.

As with Alternatives 1-3, the design, permitting and construction of cleanup actions within the Whatcom Waterway site would be implemented along with associated waterfront redevelopment activities to ensure coordination of activities, provide for holistic environmental review, and minimize construction impacts to juvenile salmonids and sensitive aquatic organisms. In particular, the cleanout and marina development planned for the ASB, and the dredging, capping and shoreline stabilization and in-water construction activities planned for the Whatcom Waterway would be conducted as one integrated project. Following construction activities, an institutional controls plan would be implemented at the Whatcom Waterway site, defining subsequent use restrictions and other institutional control requirements associated with site redevelopment with industrial uses.

Because the cleanup process and the use of institutional control plans would be similar under the No Action Alternative, the types of potential environmental impacts and appropriate mitigation measures would generally be similar to those defined for Alternatives 1-3. The mitigation applicable to the construction and operational phases of redevelopment relate to compliance with the institutional controls framework for the completed cleanup actions. These potential environmental impacts and associated mitigation measures, including for both upland and aquatic areas of the New Whatcom site, would be comparable to those highlighted above for Alternatives 1 through 3.

Given the assumed level of industrial use under the No Action Alternative, more businesses could use, store or process hazardous materials at the site than under the Redevelopment Alternatives. Therefore, potential risks would likely be greater than under Alternatives 1 through 3. Compliance with applicable local, state and federal regulations relating to such materials would serve as mitigation.

Under the No Action Alternative, the benefits of a more stringent cleanup to support mixed-use redevelopment would not occur; similarly, the potential for a more rapid time frame for cleanup may not be actualized.

3.5.3.3 Cumulative or Indirect Impacts

In addition to the actions associated with Redevelopment Alternatives 1-3, separate actions may be implemented within the New Whatcom site area (refer to Section 2.9 of **Chapter 2** of this Draft EIS). The cumulative impacts of these separate actions together with potential impacts associated with Redevelopment Alternatives 1-3 are as follows:

- **Separate Actions Subject to Institutional Control Requirements:** In-water projects planned by the Port (Bellingham Shipping Terminal improvements; improvements along the southern side of the I & J Waterway and the north side of the Whatcom Waterway) would be located within areas of the site that are subject to ongoing cleanup actions. The potential impacts associated with implementation of these projects would be similar to those listed above for Alternatives 1-3; mitigation measures would also, therefore, be similar. Significant cumulative impacts would not result, assuming mitigation measures are implemented as indicated.

- **Other Projects:** Other offsite projects (Bellwether on the Bay Phase 2 Project, 1010 Morse Square Project and the Bay View Tower Project) are not located within areas of the New Whatcom site that are adjacent to ongoing cleanup actions. Potential environmental impacts include: impacts related to demolition of existing structures and disturbance of asbestos-containing materials and/or other contaminants; and the potential for discovery of undocumented contamination. Compliance with applicable MTCA regulations would preclude significant cumulative impacts.

3.5.4 Mitigation Measures

The potential environmental impacts associated with all EIS Alternatives are discussed above, along with mitigation measures that would be implemented to preclude significant impacts on environmental health. Applicable mitigation measures are listed below. Refer to the earlier discussion of potential impacts for the context for these mitigation measures.

Construction

Measures appropriate to mitigate potential construction impacts associated with environmental health and hazardous materials include the following:

- **Demolition Activities:** Completion of pre-demolition surveys and applicable asbestos and/or lead abatement activities where required by local, state and federal air quality or worker safety regulations.

- **Soil Management:** Compliance with the soil management provisions of cleanup site institutional controls, and ensuring compliance of all future site construction activities with these control measures.

- **Worker Health & Safety:** Compliance with construction worker safety protocols defined as part of cleanup site institutional controls, and ensuring compliance of all future site construction activities with these control measures.

- **Stormwater Quality Impacts:** Maintenance of cover soil over contaminated soils where practicable and/or implementation of stormwater treatment and monitoring during construction activities that could disturb contaminated soils.

- **Groundwater Quality:** Ensuring compliance with the site-specific institutional controls during site cleanup and redevelopment construction activities.

- **Sediment Disturbance During Construction:** Integrating the design, permitting and construction of in-water cleanup and redevelopment activities (to the extent possible), and requiring compliance with site institutional controls for subsequent construction and redevelopment activities.

- **Facility/Land Use Siting:** Incorporating a review of use restrictions associated with institutional control plans as part of future building permit reviews, and either 1) ensuring that all proposed uses comply with these use restrictions, or 2) conducting additional removals of the contained hazardous materials in coordination with Ecology, as necessary, to remove the use restrictions.

- **Vapor Mitigation for Building Foundations:** Incorporating vapor mitigation measures as part of building construction where necessary to comply with site cleanup plans and institutional controls.

- **Discovery of New Cleanup Issues:** Complying with release reporting, investigation and applicable cleanup provisions of the MTCA and SMS regulations.

Operation

Mitigation measures to address potential environmental impacts after completion of construction include the following:

- **Navigation Disturbance to Capped Sediment Areas:** Ensuring future navigation uses (shipping and boating) are consistent with designed uses and site institutional controls defined as part of the cleanup plans, and conducting additional actions required by Ecology as necessary, if alternative uses are proposed.

- **Soil Management and Worker Safety:** Initial development of utility corridors in clean backfill material where practicable; where this is not practicable, the same soil management and worker safety provisions applicable to construction activities (e.g., compliance with worker training, monitoring and work practice requirements defined in site institutional control plans) would apply to utility maintenance or other subsurface maintenance activities.

- **Future Hazardous Materials Use:** Compliance with local (e.g., fire department hazardous materials regulations), state (e.g., Washington underground storage tank regulations) and federal regulations (e.g., federal spill prevention control and counter-

measures requirements) relating to the use, storage or processing of hazardous materials.

3.5.5 Significant Unavoidable Adverse Impacts

No adverse environmental impacts that could not be mitigated would result under either Redevelopment Alternatives 1-3 or under the No Action Alternative.