Draft Supplemental Environmental Impact Statement

for

BNSF Railway Former Fueling and Maintenance Facility
Skykomish, Washington

Prepared by:

Washington State Department of Ecology

with assistance from:

The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, Washington 98134-1162

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For additional copies of the document, contact

Washington State Department of Ecology
Susan Lee, Public Involvement Coordinator
3190 160th Avenue SE
Bellevue, WA 98008-5452
425-649-4486
Email: slee461@ecy.wa.gov

http://www.ecy.wa.gov/programs/tcp/sites/bnsf_sky/bnsf_sky.html

To receive this document in alternative format,
please contact Susan Lee at 425-649-4486 (Voice) or 711 or 1-800-833-6388 (TTY).

FACT SHEET

Project Title:

Overall Site Cleanup of the BNSF Former Railroad Fueling and Maintenance Facility, Skykomish, Washington.

Proposed Action:

The Proposed Action consists of several interdependent cleanup activities applied to the different zones of the overall site. The cleanup activities will result in:

- Temporary and voluntary relocation of residents.
- Temporary relocation of residential and commercial buildings.
- Excavation of contaminated soil and sediment and replacement with clean soil and sediment.
- Aggressive treatment of soil beneath the school.
- Groundwater control/treatment.
- Restoration of wetlands and wildlife habitat, private property and public infrastructure that are disturbed by the cleanup activities.

Contaminated soil and sediment exceeding applicable cleanup or remediation levels will be transported by rail to a permitted Subtitle D landfill for disposal.

Project Location:

The project is located in the Town of Skykomish, Washington. Skykomish is about 40 miles east of Everett, Washington on U.S. Highway 2. The Town of Skykomish is on the left bank (south side) of the South Fork Skykomish River, parallel and to the south of Washington State Highway 2.

Proponent:

BNSF Railway Company
2454 Occidental Street, Suite 1A
Seattle, Washington 98134

Lead Agency:

Washington State Department of Ecology
P.O. Box 47600
Olympia, Washington 98504-7600

Responsible Official:

Tim L. Nord
Manager – Land and Aquatic Lands Cleanup Section
Toxics Cleanup Program
Washington State Department of Ecology
P.O. Box 47600
Olympia, Washington 98504-7600

Contact Person:

Louise Bardy
Site Manager
Washington State Department of Ecology
3190 160th Avenue SE
Bellevue, Washington 98008

Required Approvals:

The Proposed Action will be conducted at Ecology's direction under a Model Toxics Control Act (MTCA) Consent Decree. In accordance with Ecology Policy 130B (Permit Exemptions for Remedial Actions under MTCA, February 17, 1995), and MTCA (RCW 70.105D.090), work conducted pursuant to a MTCA order or decree is exempt from the procedural requirements of state and local permits, including chapters 70.94, 70.95, 70.105, 75.20 (Hydraulic Permit), 90.48 (Water Quality), and 90.58 (Shorelands) RCW.

All local and state substantive requirements must be addressed. Certain federal permits may be required for work that affects wetlands and/or the Skykomish River. The following permits or substantive requirements may be required:

Federal permits may include:

- Permit for the discharges of dredged, excavated or fill material to waters of the United States pursuant to Section 404 of the Clean Water Act, 33 USC §1344 (which may be incorporated in a U.S. Army Corps of Engineers (USACE) Nationwide 38 permit).
- Permit for the discharge of pollutants pursuant to Section 402 of the Clean Water Act, 33 U.S.C. § 1342. Ecology issued National Pollutant Discharge Elimination System (NPDES) Waste Discharge Permit No. WA-003212-3 on May 4, 2006 for the discharge of industrial stormwater, construction stormwater, and de-watering resulting from BNSF cleanup activities in Skykomish.
- Water Quality Certification from the State of Washington pursuant to Section 401 of the Clean Water Act, 33 U.S.C. § 1341 (which may be incorporated in a USACE Nationwide 38 permit or individual permits).

The State substantive requirements may include:

- Washington Department of Fish and Wildlife's (WDFW's) Hydraulic Project Approval (HPA) (RCW 77.55.021)
- State water quality protection requirements (including requirements for waste discharge for industrial waste to groundwater, Chapter 173-216 WAC, and the state's Underground Injection Permit requirements, Chapter 173-281 WAC)

- King County Board of Health permit for a Temporary Septic Drainfield (K.C.B.O.H. Title 13) must be met.

Also, the substantive requirements of the Town of Skykomish's Zoning Code, Flood Plain Management Ordinance, Shoreline Master Program and Critical Areas Ordinance and Shoreline Substantial Development Permit must also be met.

Authors and Principal Contributors:

Washington State Department of Ecology
3190 160th Avenue SE
Bellevue, WA 98008-5452
SEPA Lead: Dawn Hooper
Additional contributors include: Louise Bardy, Susan Lee, Dave South, Ron Timm

ENSR Corporation (dba The RETEC Group, Inc. [RETEC])
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134-1162
SEPA Lead: John Guenther, LHG
Additional contributors include: Halah Voges, Mike Byers, and Steve Howard

Date of Issue:

June 12, 2007

Cleanup Start Date: Anticipated September 2007

Locations where the Draft SEIS and other documents are available for review:

Skykomish Library, 100 5th Avenue
Skykomish, 360-677-2660

WA Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008
425-649-7190 (Call for an appointment)

Ecology's Website:
http://www.ecy.wa.gov/programs/tcp/sites/bnsf_sky/bnsf_sky.html

Historic and supporting materials, including a 2003 Draft EIS, are available at the Ecology address and webpage as listed above.

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1 Summary

In accordance with Washington Administrative Code (WAC) 197-11-262, the Washington State Department of Ecology (Ecology) issued a State Environmental Policy Act (SEPA) Determination of Significance (DS) for cleanup alternatives contained in a Model Toxics Control Act (MTCA) Feasibility Study (FS) for the BNSF Railway Company (BNSF) site located in Skykomish, Washington. Ecology's issuance of the DS required that an Environmental Impact Statement (EIS) be prepared to evaluate the significant adverse environmental impacts that would result from the cleanup actions.

In accordance with WAC 197-11-405, this Draft Supplemental Environmental Impact Statement (Draft SEIS) will supplement the *Draft Environmental Impact Statement* (Draft EIS) and *Draft Feasibility Study* (Draft FS) prepared and issued in September 2003. The Draft FS evaluated 11 cleanup alternatives and was finalized in March 2005. The Final FS was accepted by Ecology as having enough information to make cleanup decisions, and Ecology has used the Final FS to select a cleanup action for the site.

The proposed cleanup action includes a considerable amount of excavation and grading and the temporary relocation of people and residential and commercial structures. The proposed cleanup action presented in the *Draft Cleanup Action Plan* (Ecology, 2007) also includes remedial methods not previously evaluated in the 2003 Draft EIS or Final FS. Although there will be significant temporary adverse environmental impacts from this action, the overall cleanup will have beneficial results for both the community and the environment. Mitigation measures are the responsibility of the proponent.

1.1 Introduction

This Draft SEIS evaluates existing environmental conditions, environmental impacts, and mitigation measures associated with the proposed cleanup action for the BNSF former maintenance and fueling facility located in Skykomish, Washington. Preparation of the EIS satisfies Ecology's requirements pursuant to Chapter 43.21C Revised Code of Washington (RCW) and WAC 197-11 (SEPA) pertaining to the site cleanup process.

The cleanup will be performed by BNSF under a Consent Decree (CD). Exhibits to the Decree will include a Cleanup Action Plan (CAP), Public Participation Plan (PPP), list of necessary permits, list of substantive requirements a model restrictive covenant, project schedule, model access agreement, and temporary relocation guidelines for the cleanup.

Additional documents and permits that will support the cleanup action include:

- Engineering Design Report (EDR) and Construction Plans and Specifications (to be provided before each phase of work)
- Compliance Monitoring Plan
- Financial Assurance documents
- Operation and Maintenance Plans
- As-Built Reports
- National Pollution Discharge Elimination System (NPDES) Permit
- *Remedial Investigation* (RI; RETEC, 1996) and the Supplemental RI (RETEC, 2002)
- *Final Feasibility Study* (FS; RETEC, 2005) and the Draft FS and Draft EIS (RETEC, 2003).

All of these documents have been or will be available for public and agency review.

The proposed cleanup action will be performed under the authority of Chapter 70.105D RCW (MTCA) and Chapter 173-340 WAC (MTCA Cleanup Regulation). These statutes and implementing regulations apply to the site in their entirety and govern all remedial actions at the site.

1.2 Relationship of Project Environmental Documents and Public Comments

This section describes the overall relationship between this Draft SEIS and other project environmental documents. It also describes how public comments received on draft project environmental documents have been or will be responded to. The relationship of project environmental documents and public comments is shown in Table 1-1 and on Figure 1-1.

1.2.1 Relationship of Environmental Documents

Earlier EIS documents prepared for this cleanup project include the 2003 combined Draft FS and Draft EIS for the overall cleanup, and the 2006 *EIS for the Levee Zone Interim Action for Cleanup*. The 2003 Draft EIS and this Draft SEIS will be completed as one Final EIS for the overall cleanup, later in 2007. Public comments that were received on the 2003 Draft EIS will be responded to as shown in Table 1-1.

The 2003 combined Draft FS and Draft EIS were issued concurrently for public comment on September 3, 2003. The Draft FS was accepted as final on March 15, 2005. A Final EIS will be prepared for the overall cleanup following the issuance of this Draft SEIS.

This Draft SEIS supplements the 2003 Draft EIS for the overall cleanup. A supplemental EIS is prepared if changes or new information relevant to the environmental concerns of a project become known. The 2003 Draft EIS is being supplemented to analyze two additional remedial methods not previously analyzed in the 2003 Draft EIS; these methods are groundwater containment and treatment and aggressive treatment beneath the school. In addition, the 2003 Draft EIS analyzed an array of cleanup alternatives; this Draft SEIS now analyzes the alternative the agency proposes to select as the final cleanup for the site. Other changes relevant to the environmental concerns of the project include the Interim Action for cleanup of the Levee Zone. [A separate Draft EIS and Final EIS were prepared in 2006 specifically for the Levee Zone Interim Action for Cleanup, as required for interim actions pursuant to WAC 197-11-268.]

Public comments received in 2003 have been responded to in the following ways:

- Public comments on the Draft FS were considered when developing the 2006 Engineering Design Report for the Levee Zone Interim Action for Cleanup.

- Public comments on the 2003 Draft FS have been considered when developing the 2007 CAP for the overall site cleanup.

- Public comments received on the 2003 Draft EIS that pertained to the Levee Zone were addressed by Ecology when developing the 2006 Levee Zone Interim Action for Cleanup EIS and will not be re-addressed in the 2007 Final EIS.

- Public Comments pertaining to the overall site cleanup portion of the 2003 EIS will be responded to by Ecology in the 2007 Final EIS.

Both the 2003 Draft EIS and this Draft SEIS will be finalized as one Final EIS document.

1.2.2 Relationship of Public Comments

SEPA requires that public comments received on a Draft EIS be responded to in the Final EIS (WAC 197-11-560). Comments received on the 2003 Draft EIS, which covered the overall cleanup, pertained to the the Levee Zone as well as for the remaining portion of the site, since the Levee Zone Interim

Action had not yet occurred. Ecology considered comments pertaining to the Levee Zone in the 2006 Final EIS for the Levee Zone Interim Action, since such comments were directly related to the area of the site cleanup in the interim action. Ecology has not yet responded to the additional comments received on the 2003 Draft EIS for the overall cleanup. These outstanding comments will be responded to in one Final EIS, which will be prepared as a final document for both the 2003 Draft EIS and this Draft SEIS. In addition, all of the project's public comments received during the concurrent comment period for the Consent Decree (which includes the Cleanup Action Plan as an exhibit) will be summarized and responded to by Ecology in the Project Responsiveness Summary.

1.3 Purpose and Objective for the Proposal

Ecology's purpose and objective with respect to this proposal is to clean up petroleum, arsenic, lead, PCB, and dioxin/furan contamination from the soil, sediment, groundwater, surface water, and air at the BNSF Skykomish Site in a manner that meets the requirements of the MTCA Cleanup Regulation.

The MTCA Cleanup Regulation specifies minimum requirements for cleanup actions. All cleanup actions must meet these requirements. The minimum regulatory requirements that every cleanup action must meet are:

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

There are several other requirements that cleanup actions must meet. Those most pertinent to the BNSF Skykomish site are:

- Treat or remove the source of the release (for liquid wastes, areas contaminated with high concentrations of hazardous substances, highly mobile hazardous substances, or hazardous substances that cannot be reliably contained)
- Implement groundwater containment to the maximum extent practicable to avoid lateral and vertical expansion of the groundwater volume affected by the hazardous substance
- Provide for a reasonable restoration time frame
- Consider public concerns
- Use permanent solutions to the maximum extent practicable.

1.4 Summary Description of the Alternatives

This Draft SEIS evaluates the proposed cleanup action selected by Ecology. Additional remedial methods that were not included in the Final FS or evaluated in the 2003 Draft EIS are also evaluated. These additional remedial methods include aggressive treatment beneath the school and hydraulic control, containment, and treatment of groundwater.

The No Action Alternative was analyzed in the 2003 Draft EIS and provides a benchmark from which the proposed cleanup action will be evaluated. Since the Interim Action for cleanup of the Levee Zone is nearly complete, existing conditions of the No Action Alternative will consider that work.

1.4.1 The No Action Alternative

The No Action Alternative considers the site in its existing condition and is defined as what would be most likely to happen if the proposed cleanup action did not occur. Under the No Action Alternative, the site would remain in its existing condition.

Currently, the site in its existing condition contains areas where free product is present that acts as a source of soil and groundwater contamination. Contamination at the site poses several potential threats to human health and the environment. Subsurface soil contamination may pose a potential vapor intrusion concern. A direct contact threat exists through ingestion of surface soil and subsurface soil if that soil is excavated and exposed. Petroleum constituents in groundwater pose a human health threat due to the potential for ingesting groundwater. The Town of Skykomish has a drinking water supply that is tested regularly and it is not affected by contamination associated with the site. Contaminated groundwater and free product have impacted the Skykomish River and Former Maloney Creek water quality and sediments that are habitat for benthic invertebrates. Most of the petroleum contamination that was currently affecting the South Fork Skykomish River (Skykomish River) was successfully addressed during the 2006 interim action, as described in the EDR and 2006 Final EIS for the Levee Zone Interim Action for Cleanup, and the Draft 2006 As Built Completion Report (RETEC, 2007). However, petroleum contamination would still exist upland and continue to act as a source of contamination to groundwater, with no measures in place to stop its continued migration to the river. This contamination would over time recontaminate the river sediments.

Under the No Action Alternative, contamination remaining on site would eventually recontaminate the river and other areas cleaned in 2006.

1.4.2 The Proposed Cleanup Action

The Skykomish site has been divided into six cleanup zones (FS 2005) based on existing land use patterns, land type (e.g., wetlands and uplands),

contaminant distribution and exposure pathways, and environmental sensitivity. The six cleanup zones have been assigned the following names:

- Levee Zone
- Northwest Developed Zone (NWDZ)
- Northeast Developed Zone (NEDZ)
- South Developed Zone (SDZ)
- Former Maloney Creek Zone (FMC)
- Railyard Zone (RY).

The proposed cleanup action incorporates several interdependent cleanup activities applied to the different zones of the site. The proposed cleanup action will result in residential and commercial structures being temporarily relocated in order to complete the project. Project mitigation and restoration activities will be required for natural resources, private property and public infrastructure that are disturbed by the proposed cleanup action.

1.5 Summary of Impacts and Mitigation Measures

Table 1-2 summarizes potential impacts resulting from the proposed cleanup action and the No Action Alternatives. The proposed cleanup action mitigates potentially significant adverse impacts such that no permanent significant adverse impacts on the natural or built environment have been identified.

1.6 Supporting Project Information

The sections that follow provide document-specific descriptions and summaries of additional project information that can be found in these documents. Supporting project information can be found in the following documents:

- *Remedial Investigation* (RETEC, 1996) and *Supplemental Remedial Investigation* (RETEC, 2002)

- *Draft Feasibility Study and Environmental Impact Statement* (RETEC/Ecology, 2003) and *Final Feasibility Study* (RETEC, 2005)

- Draft and Final *Environmental Impact Statements prepared for the Levee Zone Interim Action for Cleanup* (Ecology, 2006)

- *Draft Cleanup Action Plan* (Ecology, 2007)

- *Engineering Design Report – Levee Zone Interim Action for Cleanup* (RETEC, 2006).

1.6.1 Remedial Investigation (RI) and Supplemental RI

The purpose of an RI is to collect site-specific data necessary to adequately characterize a site for the purpose of developing and evaluating cleanup alternatives. The RI and Supplemental RI prepared for Skykomish pertains to the overall site and includes the following information:

- A detailed description of site features including demography, land use, climatology, natural resources and ecology
- Hazardous substances investigation results
- Soil and groundwater investigation results
- Surface water and sediment investigation results
- Air quality investigation results
- Description of interim remedial actions
- Risk assessment
- Remedial goals and objectives
- Identification of data gaps.

1.6.2 Draft Feasibility Study/Environmental Impact Statement (FS/EIS) and Final FS

The purpose of an FS is to develop and evaluate cleanup action alternatives to enable a cleanup action to be selected for the site. The purpose of an EIS is to evaluate significant adverse environmental impacts associated with a proposed action or actions. In this case, the proposed actions were the cleanup action alternatives described in the FS at the time the Draft EIS for the overall cleanup was issued. This Draft SEIS now updates the Draft EIS, to evaluate the alternative proposed by the agency for the final cleanup of the site. [The procedural requirements for preparing and issuing the 2003 Draft FS and the Draft EIS were combined pursuant to WAC 197-11-250.]

The 2003 Draft FS/EIS and Final FS prepared for Skykomish pertains to the overall site and includes the following information:

- Site background and history
- Description of the natural and built environment.
- Nature and extent of contamination.
- Conceptual site model.
- Description of cleanup standards.

- Development of remedial alternatives.
- MTCA and SEPA evaluation of remedial alternatives.
- Analysis of a preferred alternative.

1.6.3 Interim Action for Cleanup of the Levee Zone Environmental Impact Statements

The 2006 Draft and Final EISs for Interim Action for Cleanup of the Levee Zone evaluated environmental impacts associated specifically with the Interim Action. Although these documents contain some general and overall site information (e.g., site history), the information within these documents focuses primarily on the Levee Zone. These two documents include the following information:

- Site background and history
- Description of the natural and built environment
- Description of the interim cleanup action
- Description of existing conditions, impacts, and mitigation
- Nature and extent of contamination.

1.6.4 Draft Cleanup Action Plan (DCAP)

The DCAP describes technical details pertaining to the overall cleanup action and the cleanup action to be taken at the site.

The DCAP prepared for Skykomish pertains to the overall site and includes the following information:

- Description of current site conditions. Site history and human health and environmental concerns.
- MTCA regulatory cleanup requirements.
- Description of the site remedy and cleanup actions.
- Alternative cleanup actions considered and basis for remedy selection.
- Description of the cleanup implementation and schedule.

Table 1-1 Relationship of Project Environmental Documents and Public Comments

Draft Project Document Issued for Public Comment	Final Project Document	Addressing Public Comments on Draft Document
Draft FS/Draft EIS Overall Site Cleanup September 3, 2003	Final FS Overall Site Cleanup March 15, 2005	Comments used to develop draft CAP
	Final EIS Overall Site Cleanup To be issued 2007 (see Draft SEIS below)	Comments responded to in 2006 Interim Action Final EIS for the Levee Zone and 2007 Final EIS
Draft EIS Interim Action for Cleanup of the Levee Zone March 3, 2006	Final EIS Interim Action for Cleanup of the Levee Zone April 27, 2006	Comments responded to in 2006 Interim Action Final EIS for the Levee Zone
Draft SEIS Overall Site Cleanup To be issued 2007	Final EIS Overall Site Cleanup To be issued 2007	Comments will be addressed in 2007 Final EIS

Table 1-2 Summary of Impacts and Mitigation Measures

Element of the Environment	Impacts of the No Action Alternative	Impacts of the Proposed Action Alternative	Proposed Measures to Mitigate Impacts
Geology/Soils			
Topography	No change in topography.	Temporary alteration of site topography from excavation, backfilling, and grading.	Backfilling and grading the site to its original topography.
Geology and Soils	No change in geology. Existing contamination will remain. No change in soil density or hydraulic properties. Existing soil contamination will remain.	Excavation and replacement of existing soils and sediment. Pre-excavation soil density and hydraulic properties may be affected by the excavation and replacement of existing soils. Soils placed within the recovery trench may affect groundwater flow characteristics (see Water).	Remove contaminated soils and sediment and replace with clean and comparable material. Remove contaminated soil and replace with clean and comparable soil in most areas. Replace topsoil for re-establishing vegetation. Surface water and groundwater will be monitored to determine if the replaced soils impact site hydrology such that additional drainage measures need to be taken.
Sediments	Sediment contamination in FMC, wetlands, and in the Skykomish River near the Fifth Street Bridge will remain.	Temporary disturbance from the excavation and replacement of sediment.	Remove contaminated sediment. Replace with clean and comparable material.
Natural Hazards: Seismic and Volcanic Events	Potential migration of existing subsurface contamination.	Short-term vulnerability of exposed contaminated soils, sediment, and water in case of earthquake. Potential for off-site impacts.	Use best management practices (BMPs) for spill planning, prevention, sediment and erosion control, as specified in Washington State's Stormwater Manual.
Flooding and Erosion	Contamination will remain. Current flood management system is sub-standard. Former Maloney Creek wetlands provide flood storage.	Flooding may cause release and migration of contamination from open excavations.	Collect weather data and gauge river levels during excavation of contamination. Use sand bags to control high water levels if necessary. Time work to coincide with low precipitation and water levels. Remove equipment from excavation in the event of flooding.
Air			
Air Quality	Contaminated airborne particulates from disturbed contaminated surface soils. Potential hydrocarbon vapors at surface.	Potential release of above-ground and subsurface hydrocarbon vapors. Exposure to contaminated particulates. Increased vehicle emissions during excavation activities and off-site shipment of contaminated soil.	An air monitoring plan will be prepared and implemented that will include pre-disturbance baseline data and monitoring throughout the project. Dust will be controlled (see below). Excavations and stockpiles will be controlled as necessary to keep vapors within acceptable limits.
Dust and Odor	Dust generated from currently exposed soil and existing traffic conditions. Continued petroleum odors when petroleum is exposed through seepage or excavation.	Dust from excavation activities, construction-related traffic, and newly exposed soil may impact residents and businesses. Petroleum product odor from exposing product in soil and groundwater during construction. Potential odor in school during installation and operation of an aggressive treatment system. Exhaust odors from construction equipment.	Use BMPs for dust control. These BMPs will include application of water or dust suppressant, plastic sheeting, mulch, and re-vegetation of new areas of exposed soil as quickly as possible. Wash adjacent building exteriors, as necessary. Monitor dust to ensure air quality standards are met. Use plastic sheeting or foam to cover and control odor sources from stockpiled soil and other sources during construction. Forty percent of the diesel-powered construction equipment used will meet EPA Tier 2 low emissions standards. Air monitoring to ensure air quality standards are met. Use of Puget Sound Clean Air Agency compliance standards.
Water			
Groundwater Quantity and Quality	Existing subsurface migration of contamination and no use of groundwater.	Potential release of contaminated groundwater during construction. Installation of the recovery trench and pumping, treating, and re-injecting treated groundwater will affect groundwater flow.	Contaminant source (i.e., free product and dissolved petroleum) removal, on-site water treatment and containment, EDR and substantive requirements regarding spill planning, prevention and response will be implemented to meet state drinking water standards. Changes to groundwater flow characteristics and quality will be predicted by modeling prior to groundwater control and will be closely monitored during implementation of groundwater control activities in the NEDZ and Railyard zone. The groundwater control system will be designed to minimize impacts to groundwater flow patterns that are off the railyard facility. Additional engineering control of water flow will be taken if necessary.
Surface Water Quantity and Quality	Petroleum discharges to surface water will continue near the Fifth Street Bridge. Potential migration of existing contamination and seepage of product into the river.	Potential erosion, sedimentation, and release of contaminated water. Temporary modifications to topography and the replacement of existing soils may affect surface water infiltration rates and flow characteristics. Temporary disturbance of river bank and riparian habitat. Potential downstream riverbank erosion impacts. Potential hydrologic effect on Former Maloney Creek channel and adjacent wetlands drainage.	Use BMPs for contaminant source removal and on-site water treatment and discharge per all applicable standards. Immediately contain and remove oil from standing water in excavations. Use of sediment and erosion control BMPs and riparian habitat enhancement. Monitor and control surface water flow characteristics. Monitor surface water flow effects on Former Maloney Creek channel and adjacent wetlands drainage. Design groundwater control system to minimize changes in flux to former Maloney Creek channel. Work with Town to address any impacts related to drainage.

Table 1-2 Summary of Impacts and Mitigation Measures

Element of the Environment	Impacts of the No Action Alternative	Impacts of the Proposed Action Alternative	Proposed Measures to Mitigate Impacts
Plants and Animals			
Vegetation and Terrestrial Habitat	Continued potential risk to terrestrial flora and fauna.	Land clearing and temporary loss of terrestrial habitat. Potential contaminant exposure to wildlife (e.g., water fowl) and domestic animals.	Re-vegetation and terrestrial habitat restoration and enhancement. Use of mylar bird deterrent, predator decoys, night lighting, and oil recovery to reduce potential exposure to animals.
Fisheries and Aquatic Habitat	Existing contamination remains beneath the Fifth Street Bridge and contaminated sediment in Former Maloney Creek channel and adjacent wetlands.	Potential temporary disruption of the river substrate near the riverbank under the Fifth Street Bridge. Temporary disruption of Former Maloney Creek channel and adjacent wetlands.	Replacement of contaminated sediment with clean sediment. Aquatic and riparian habitat restoration and enhancement. Place fish barriers in Former Maloney Creek channel prior to construction season to prevent fish entering the area.
Threatened and Endangered Species	Potential migration of contamination and future impacts to river substrate and water quality.	Temporary loss of terrestrial roosting habitat for birds and aquatic habitat in Maloney Creek.	Re-vegetation and habitat restoration/enhancement.
Environmental Health			
Contamination	Existing conditions.	Potential exposure associated with the handling and transportation of contaminated soils and water.	Remove contaminated soil and sediment from the environment and dispose to an approved and permitted facility. Use of containment measures. Pump and treat groundwater prior to discharging. Use personal protective equipment, restrict work zones, and appropriately train workers.
Noise	Existing conditions.	Noise will be generated from construction equipment, truck traffic, screener, soil and material handling, and the water treatment and other remediation equipment. Noise will have a significant impact on residents, businesses, and the school during construction. Air sparging equipment (compressors and/or blowers) will generate noise for several years after “active” construction is completed.	Muffle construction equipment, restrict idling on trucks, and limit hours of operation. Place noise-generating remediation equipment (e.g., air sparging equipment) in sound-insulated enclosures, as necessary and on Railyard property if possible. Meet with community members and establish and operate a call-in line to address specific concerns and identify necessary mitigation throughout the duration of the project.
Vibration	Existing conditions.	Relatively significant vibration impacts from construction activities, truck traffic, and installation of remediation equipment (e.g., from drilling through school basement). Longer-term vibration impacts from the operation of remediation equipment. Vibration impacts will be felt by residents and could potentially cause physical damage to residential and commercial structures.	Use equipment enclosures and select equipment and operations that produce lower vibrations during drilling and earthwork, and limits on magnitude or accelerations can be set. Monitor structures for vibration damage and repair if necessary. Select construction techniques with lesser vibration impacts, when practicable.
Risk of Explosion	Existing conditions.	Possible temporary above-ground fuel storage.	Store fuel per all applicable storage regulations and spill response planning. Emergency response planning per EDR.
Land and Shoreline Use			
Current Land Use Designations	Existing Conditions	The proposed action will not result in any direct impacts or changes to current land use designations.	As there are no direct impacts, no mitigation measures have been developed.
Aesthetics	Existing conditions.	Temporary loss of trees and vegetation. Possible construction of new storage building(s). Above-ground remediation equipment enclosures and associated equipment. Visible groundwater monitoring well monuments and other remediation equipment. Relatively long-term visits and presence of remediation system operation and maintenance personnel.	Landscape planting and restoration plans will be developed in conjunction with affected property owners and the Town, as applicable. Restoration will be to existing conditions and current codes. Work with Skykomish Design Review Board on design of above-ground enclosures and storage buildings, as necessary. Use flush-mount groundwater monitoring well monuments. Ensure all flush-mount installations are at or slightly below grade so as not to interfere with snow plow operations, cause trip hazards, or otherwise interfere with typical local uses.

Table 1-2 Summary of Impacts and Mitigation Measures

Element of the Environment	Impacts of the No Action Alternative	Impacts of the Proposed Action Alternative	Proposed Measures to Mitigate Impacts
Cultural and Historic Resources	Existing conditions	Temporary disturbance of historic structures from movement, vibration, heat and moisture, and utilities modifications. Potential discovery and disturbance of resources.	Pre-inspect structures to identify pre-existing structural conditions (e.g., dry rot or other sub-standard conditions). After moving, replace historic structures to existing conditions with necessary code upgrades. Repair and reconstruct structures to existing conditions and current codes. Implementation of "Technical Memorandum: Project History, Project Effects and Mitigation Measures with respect to Historic Properties" (NWAA, 2006). Monitor control points on the school and other historic structures when deep excavation is within 15 feet of structure. Document historic resources in accordance with local, state, and federal requirements, as appropriate. Manage cultural and archaeological resources using qualified persons (see Cultural Resources Monitoring and Discovery Plan). Advocate and support consultations with affected Tribes.
Housing	Existing conditions.	Temporary relocation of residences and businesses. Temporary construction noise and vibration disruption to nearby residences and businesses. Possible demolition of residences. Potential exacerbation of existing structural damage. Potential property boundary line conflicts following project survey of properties.	Conduct property surveys as early as feasible. Inspect and conduct structural surveys before and after relocation. Provide temporary alternative housing, relocation and moving expenses for those significantly impacted by project activities. Develop a Relocation Plan. Restore housing to original location with upgrades as necessary to meet current codes (or owner can rebuild per current code). Building demolition will be only at the property owner's request.
Commercial Buildings	Existing Conditions	The cleanup action involves the temporary relocation of commercial structures. Utilities including power, telephone, water, septic, and natural gas would be temporarily disconnected. Unknown existing structural damage may be discovered and require corrective action. Cosmetic or structural damage to the structures could potentially result from relocating. Air-sparging equipment will be visible and will require access by project personnel for the duration of cleanup activities. Surveyed property boundaries may not correlate with what property owners believe to be existing property boundaries. Structures will be subjected to vibration.	Inspect and conduct structural surveys before and after relocation. New foundations will be constructed prior to moving the commercial structures back to their original locations. Surrounding property and landscaping will be restored. Utilities will be reconnected to each business. Access to operating businesses and public facilities will be maintained during the cleanup. Heaters and dehumidifiers will be operated to prevent potential damage from moisture and cold temperature. Structures will be monitored during the move to and from the storage location. A business relocation plan will be negotiated for the affected businesses. Relocate businesses to ensure continued operations, when feasible.
Parks and Recreation	Existing conditions.	Temporary access and use restrictions in areas affected by construction activity.	Enhance recreational opportunities by removing contamination. Opportunity for Town to create public spaces and river access.
Light and Glare	Existing conditions.	Possible portable construction lighting.	Shield and focus lighting away from roads and residences. Limit all but essential project activities to daylight hours.
Transportation			
Highway and Street System	Existing conditions.	Temporary obstructions and detours. Road damage associated with project construction and truck traffic. Temporary closure of the Fifth Street railroad crossing. Increased traffic on other side roads from detoured and displaced traffic.	Maintain emergency services access throughout project and use traffic control and signage. Repair roads and reconstruct to current standards.
Pedestrian System	Existing conditions.	Temporary obstructions and detours. Temporary presence of remediation system operation and maintenance personnel.	Use pedestrian traffic control and signage. Maintaining emergency ingress and egress to public facilities, residences, and businesses. Use of a public transportation shuttle to provide access to Town locations around detours or blockages.
School/ Student Transportation	Existing conditions.	Temporary vehicle and pedestrian access and parking obstructions.	Use a traffic control flagger and maintain bus access via 6th Street and Railroad Ave. Emergency ingress and egress to school for students and vehicles.
Parking Spaces	Existing conditions.	Temporary loss of parking areas along streets.	Identify interim parking locations for affected businesses or operations as necessary, such as the community church, during EDR planning prior to each zone cleanup phase.

Table 1-2 Summary of Impacts and Mitigation Measures

Element of the Environment	Impacts of the No Action Alternative	Impacts of the Proposed Action Alternative	Proposed Measures to Mitigate Impacts
Public Services and Utilities			
Schools	No change.	Temporary access and use constraints from construction traffic and activities. Noise, vibration, odors, and dust associated with drilling and the installation and long-term operation of remediation equipment. Restricted use of school lower level (basement, kitchen, restrooms) during aggressive treatment activities.	Identify and provide alternate school access locations using temporary walkways and routing. Provide transportation to alternative outdoor recreation areas until school property is restored. Use of vibration and noise-dampening and monitoring equipment. Relocate students/activities that use lower level of school to acceptable locations within the school or to portables for the duration of aggressive treatment operations or other cleanup activities. Conduct as much work as possible when building is unoccupied and during summer.
Public Buildings and Services	Existing Conditions	Temporary relocation of some public buildings. Utilities will be temporarily disconnected. Unknown existing structural damage may be discovered and require corrective action. Cosmetic or structural damage to the structures could potentially result from relocating.	New foundations will be constructed prior to moving the public structures back to their original locations. Surrounding property and landscaping will be restored. Utilities will be reconnected to each business. An inspection and structural survey will be conducted on public buildings before and after relocation. A comprehensive property survey of affected properties within the cleanup area will be conducted as early as possible.
Septic Systems	Existing Conditions	On-site septic systems for relocated residential, public, and commercial structures will be decommissioned, disconnected, and removed from the project area.	Buildings will be connected to the Skykomish community wastewater system, if it is available. All residences and commercial buildings that are to be temporarily relocated, as well as any property disturbances made to conduct the cleanup, are to be restored to pre-existing conditions. If necessary, prior to the availability of community wastewater system infrastructure, temporary replacement septic systems will be installed by BNSF until the community wastewater system becomes available. The project will result in a significant improvement in the sanitary sewage handling in the Town by replacing many outdated septic systems with systems that meet current permit codes. BNSF will coordinate the installation of wastewater infrastructure with the Town of Skykomish as well as providing for onsite septic capacity compatible with and ready for connection to the Towns wastewater system.
Utilities	Existing conditions.	Relocation or temporary displacement of utilities. Replace private septic systems.	Restoration of utilities and replace private septic systems according to code and prepare hookups to community wastewater treatment system.
Stormwater Management	Existing conditions.	Stormwater flow diversions and potential for flooding and erosion.	Engineered stormwater management plan consistent with applicable BMPs and substantive requirements. Monitoring stormwater flow characteristics and potential impact on Former Maloney Creek channel and any other impacted area. Coordinate with the Town on Stormwater Plan management during early development of EDR for each zone.
Emergency Services	Existing conditions.	Temporary detours and construction obstructions. Temporary disruption of community services associated with the relocation of the Town Hall, Post Office, and Community Center.	Identification of emergency access routes. Coordination with local fire department for emergency planning and response. Preparation of Site-Specific Health and Safety Plan for all activities.
General Mitigating Measures			
Meet with community members to personally address resident or business-specific concerns and identify necessary mitigation throughout the duration of the project. Establish a call-in line for community members to report concerns or problems. Use a communications plan that will identify a primary point of contact for the project. The communications plan will be posted at the Town Hall and other public meeting areas throughout the community.			

2 Proposed Cleanup Action and the No Action Alternatives

2.1 Introduction

The BNSF Former Maintenance and Fueling Facility is located in the Town of Skykomish (Figure 2-1). The facility opened in the late 1890s. Historic operations released contaminants to the surrounding environment. BNSF has accepted responsibility for cleaning this historic contamination at the site consistent with MTCA and SEPA. The proposed cleanup action consists of implementing the work as described in the Draft CAP (Ecology, 2007).

2.1.1 Town of Skykomish Description

The Town of Skykomish is a rural town with a population of 214 (U.S. Census Bureau, 2001). Seasonal residents bring the total population to between 250-300 people (Blanck, 2003). Figure 2-2 shows the town street plan.

Skykomish is divided into five zoning districts: residential, commercial, industrial, historic commercial, and public (Ordinance 235, 1995). Businesses in Skykomish include a deli, tavern, gas station, motel, and two hotels. One of the hotels has a restaurant. These businesses cater to local residents and tourists (Town of Skykomish, 1993). Besides BNSF Railway track maintenance and snow removal activities, there is no other industry in Skykomish. There is a town hall, post office and a library. The National Forest Service maintains a presence in Skykomish.

The town is surrounded on all sides by the Snoqualmie-Mount Baker National Forest. This portion of the National Forest is in Management Area 27-SF, part of which is designated Scenic Forest[1].

Skykomish was built near the confluence of Maloney Creek and the South Fork of the Skykomish River. Maloney Creek was diverted from its original course in approximately 1912, and many channel modifications have occurred since then (USFS, 1991). The original course of Maloney Creek was located along the southern boundary of the railyard. The channel has subsequently been diverted south of Town, and the former course has developed into a marshy area that collects stormwater drainage from the railyard and the southern part of Town.

[1] Scenic Forest is a designation made by the U. S. Forest Service (USFS) to describe land managed to enhance viewing and recreational experience. Area 27-SF includes areas which are managed for the growth and protection of old growth forest, a reach of the Skykomish River which is designated as a Wild and Scenic River, and other areas managed to enhance viewing and recreational experiences.

The United States Army Corps of Engineers (USACE) constructed a flood control levee in 1951 along the left bank of the Skykomish River west of the John Glick Henry Memorial Bridge (Fifth Street Bridge), to protect the town from flooding.

Skykomish became a center for railroad operations when train service started to Seattle in 1893. Skykomish became the commercial center of the Upper Skykomish Valley. The Town of Skykomish was incorporated in 1909, and mining, lumbering, milling, and the railroad were its economic mainstays. In 1929 the town had a population of 929.

Railroad facilities in Skykomish have included a roundhouse, turntable, and electrical generating substation. Five operational eras have been defined: Coal and Steam, Oil and Steam, Electric, Diesel, and Maintenance; each have introduced products that have impacted the site. Fueling and maintenance activities ceased in 1974.

The railroad still runs through Town, but railyard activities since 1974 have been limited to track maintenance and snow removal. The railroad continues to be a BNSF main transcontinental route with approximately 24 trains passing through Skykomish daily (Yates, 2003a).

Today the Town's economic mainstays are the railroad, tourism. and the USFS maintenance yard and ranger station. The other major employer is the Skykomish School District.

2.1.2 Nature and Distribution of Contamination

Fuel spillage during historic railyard operations has resulted in petroleum contamination of groundwater, surface water, soil, and sediment. There is concern regarding vapors that have the potential to emanate from the petroleum. Portions of the railyard comprise the source area for the petroleum contamination. The petroleum has migrated beyond the railyard and has been found underneath homes and businesses in Skykomish. Prior to the 2006 Interim Action to clean up the Levee Zone, the petroleum contamination extended to the Skykomish River. Petroleum contamination underlies portions of the Former Maloney Creek channel. PCBs and dioxin/furan are associated with the petroleum contamination in soil in small areas on the railyard and Former Maloney Creek; this contamination will be cleaned up with the cleanup of petroleum contamination.

Lead and arsenic contamination from historic railyard operations is present in shallow soils.

Free product (liquid petroleum) discharged on the railyard has migrated along the water table and reached the Skykomish River prior to the cleanup actions conducted in 2006. Groundwater is contaminated with dissolved petroleum.

The Site is defined as the portions of the Town or zones where soil, groundwater, air, and sediment containing hazardous substances exceed site-specific cleanup levels. The Site has been divided into "cleanup sites" on the basis of land use and type of petroleum contamination as shown in Figure 2-3. There are three types of land use and two types of petroleum contamination. Land use types are the railyard, residential/commercial, and aquatic.

Petroleum contamination resulted from spills of bunker-C fuel oil and diesel fuel oil. Bunker-C is a heavy, viscous fuel oil made from residuals left over after refining of hydrocarbons. Diesel fuel oil is a refined product. From a cleanup standpoint, bunker-C at moderate and high concentrations is quite resistant to most cleanup techniques except excavation. Diesel at low-to-moderate concentrations may be cleaned up with techniques that do not require excavation, although excavation of diesel is most practical at high concentrations.

Figure 2-4 shows the distribution of petroleum contamination on the site. Figure 6 of the Draft Cleanup Action Plan (DCAP) shows the distribution of metals contamination.

Site-specific cleanup levels and remediation levels were developed for the site. A cleanup level is the concentration of a hazardous substance in soil, water, air, or sediment that is determined to be protective of human health and the environment under specified exposure conditions. A remediation level is a concentration of a contaminant above which a specified cleanup action is taken.[2] The practical use of these levels, or concentrations, is that they define where certain cleanup actions must be taken. The cleanup levels and remediation levels, and the actions to be taken when they are exceeded, are summarized in Table 2-1. These levels are discussed in full in the DCAP.

2.1.3 Project History

Investigations performed by BNSF in cooperation with Ecology since 1993 have revealed petroleum contamination in soil, surface water, groundwater, and sediment. Portions of the railyard comprise the source area for the contamination. The contamination has migrated beyond the railroad property and has been found beneath homes and businesses in Skykomish. The petroleum contamination extends to the Skykomish River and also underlies portions of the Former Maloney Creek channel. A more detailed project history can be found in the 2003 FS.

An interim action in the Levee Zone was performed in 2006 and 2007 in which contaminated sediment and free product were excavated from the banks

[2] For example, soil with contamination above a remediation level may be excavated whereas soil with contamination between the cleanup level and the remediation level may be managed on-site.

and bed of the Skykomish River and contaminated soil and free product was excavated from adjacent upland areas.

The remaining site contamination consists of the following:

- **Soils –** Subsurface soils contain petroleum and associated compounds (e.g., polynuclear aromatic hydrocarbons [PAHs]) to an approximate 15-ft depth and possibly deeper in some areas. Shallow soil on parts of the railyard contain polychlorinated biphenyls (PCBs) and lead and arsenic. In addition, lead and arsenic are present in shallow soil within some residential areas north of the railyard.

- **Groundwater –** Free product and dissolved petroleum hydrocarbons consisting of diesel fuel and bunker-C oil are present in groundwater beneath the site.

- **Surface Water –** Diesel and bunker-C (dissolved and as a free product from upland areas are being transported underground by groundwater and are migrating toward the river. Groundwater with dissolved petroleum hydrocarbons flows into the river adjacent to portions of the NEDZ.[3]

- **Sediments –** Sediment contaminated with petroleum hydrocarbons and dioxin/furan is present in a portion of the Former Maloney Creek. There may also be sediment with petroleum contamination in the immediate vicinity of the Skykomish River Fifth Street Bridge abutment in the Skykomish River[4].

The contaminants are known to be toxic above certain concentrations, and some components are known human carcinogens.

2.1.4 Regulatory Requirements

The proposed cleanup alternative has been designed in accordance with Chapter 173-340 WAC (MTCA Cleanup Regulations).

2.1.4.1 Applicable or Relevant and Appropriate Requirements

Applicable or relevant and appropriate regulatory requirements apply to health and safety, stormwater management, noise and odor control, waste

[3] Prior to the 2006/2007 Interim Action, petroleum hydrocarbons were seeping into the Skykomish River in portions of the site adjacent to the NWDZ.

[4] Sediment adjacent to and beneath the Skykomish River west of the Fifth Street Bridge contained petroleum hydrocarbons prior to 2006. These contaminated sediments were removed in 2006 as part of an Interim Action to clean up the levee zone soil and sediment, and eliminate hydrocarbon seeps into the river.

characterization, hauling of excavated materials, zoning and land use, historic preservation, solid waste management, excavation, backfilling, grading, endangered species protection, air and water quality, and relocation of residents. These regulations and requirements are listed below:

- **WAC 296-155:** Safety Standards for Construction Work
- **29 Code of Federal Regulations (CFR) 1910.21:** Occupational Safety and Health Standards
- **Revised Code of Washington (RCW) 70.107; WAC 173-60:** Washington Noise Control Act
- **WAC 173-303:** Dangerous Waste Regulations
- **RCW 46:** Motor Vehicles
- **WAC 173-304:** Solid Waste Management
- **WAC 173-460 and the Puget Sound Clean Air Agency:** Air emissions criteria for the site
- **Section 311 of the Clean Water Act:** Pollution from oil and hazardous substance releases
- **RCW 90.56:** Plans and standards associated with oil and hazardous substance spill prevention and response.

2.1.4.2 Permits

The proposed cleanup alternative will be conducted with Ecology oversight under a Consent Decree. In accordance with Ecology Policy 130B (Permit Exemptions for Remedial Actions under MTCA, February 17, 1995) and MTCA (RCW 70.105D.090), work conducted pursuant to a MTCA consent decree is exempt from the procedural requirements of local permits and certain state permits. All local and state substantive requirements must be met. The following permits or substantive requirements may be required for portions of the cleanup:

Federal permits may include:

- Permit for the discharges of dredged, excavated or fill material to waters of the United States pursuant to Section 404 of the Clean Water Act, 33 USC §1344 (which may be incorporated in a U.S. Army Corps of Engineers (USACE) Nationwide 38 permit)
- Permit for the discharge of pollutants pursuant to Section 402 of the Clean Water Act, 33 U.S.C. § 1342. Ecology issued National

Pollutant Discharge Elimination System (NPDES) Waste Discharge Permit No. WA-003212-3 on May 4, 2006 for the discharge of industrial storm water, construction stormwater, and de-watering resulting from BNSF cleanup activities in Skykomish

- Water Quality Certification from the State of Washington pursuant to Section 401 of the Clean Water Act, 33 U.S.C.§ 1341 (which may be incorporated in a USACE Nationwide 38 permit or individual permits).

The State substantive requirements may include:

- The Washington Department of Fish and Wildlife's (WDFW's) Hydraulic Project Approval (HPA) (RCW 77.55.021)

- State water quality protection requirements (including requirements for waste discharge for industrial waste to groundwater, Chapter 173-216 WAC, and the state's Underground Injection Permit requirements, Chapter 173-281 WAC)

- King County Board of Health permit for a Temporary Septic Drainfield (K.C.B.O.H. Title 13) must be met.

Also, the substantive requirements of the Town of Skykomish's Zoning Code, Flood Plain Management Ordinance, Shoreline Master Program and Critical Areas Ordinance and Shoreline Substantial Development Permit must be met.

2.2 Summary of the Proposed Cleanup Actions

The proposed cleanup actions are driven principally by the need to clean up petroleum contamination in soil and groundwater. The proposed cleanup action uses several cleanup approaches that will remove moderate-to-high levels of petroleum contamination rapidly, and manage lower levels that will remain in place. The industrial nature and use of the railyard along with institutional controls, will allow higher petroleum concentrations to remain behind and be managed than in areas off the railyard. Soil with lead, arsenic, PCB, and dioxin/furan contamination above cleanup levels will be removed.

Six approaches will be used to clean up the contamination: excavation, air-sparging[5], groundwater control, containment, and treatment, aggressive treatment under the school, vapor protection, monitoring, and institutional controls (groundwater withdrawal prohibitions and covenants). Each of these six approaches is discussed in the next section. The cleanup activities will be

[5] Air sparging injects air into the ground through a network of wells connected by manifold piping to a blower. The aeration of the soil and groundwater acts to increase the rate at which natural soil bacteria use the petroleum for energy and excrete waste products that are not hazardous such as carbon dioxide, water, and methane at low concentrations.

conducted over a period of several years. Some investigations will be conducted early in the cleanup to assist in the detailed planning for the cleanup activities.

Figure 2-5 shows the cleanup schedule. This schedule includes soil excavation, installation of the air-sparging system, installation of groundwater control and treatment systems, and aggressive treatment beneath the school. Vapor monitoring and, if necessary, installation of vapor protection for buildings, will be conducted at appropriate times during and after the main construction. The air-sparging system is anticipated to operate about 10 years. The groundwater control and treatment system that will contain any contaminated groundwater remaining on the railyard, will operate indefinitely. Institutional controls will be necessary so long as contamination remains on the property where the institutional controls apply.

The following summarizes the general cleanup actions that are planned or, where noted, that have been done for each zone.

- **Levee Zone –** The Levee Zone Interim Action for Cleanup was conducted in 2006 and is described in the EIS and other documents prepared specifically for the project.

- **Northwest Developed Zone –** Soil with petroleum concentrations exceeding the soil remediation level of 3,400 mg/kg will be excavated. This was done in a portion of the NWDZ adjacent to the Levee Zone in the 2006 interim action. Shallow soil with lead and arsenic contamination that exceeds cleanup levels (250 and 20 mg/kg, respectively) will be excavated. Aggressive treatment will be used to reduce the amount of mobile petroleum beneath the school.[6]

- **Northeast Developed Zone –** Free product and soil with petroleum concentrations exceeding 30,000 mg/kg will be excavated. Investigations will be performed to determine whether free product and soil with petroleum concentrations exceeding 30,000 mg/kg extend under buildings and whether the buildings need to be temporarily relocated or shored to allow excavation to occur. Air sparging will be done to reduce all soil petroleum concentrations to below 3,400 mg/kg and to reduce groundwater petroleum concentrations to below 477 mg/kg. Air sparging introduces

[6] Thermal treatment may be used. Thermal treatment would involve the installation of boreholes beneath the school and electrical heating of the soil using electrical elements in the boreholes. Petroleum recovery from the boreholes would occur over a period of several months. In addition, a recovery trench will be excavated north and west of the school to prevent further migration (this trench is also for post-treatment monitoring and, if necessary, free product containment. Other aggressive treatment methods will be considered.

oxygen into the groundwater, which volatilizes some petroleum constituents and promotes bacterial decay of others. Air sparging will involve the installation of sparging wells, pneumatic blowers, and associated piping and vapor recovery systems. The air-sparging system would be operated over a period of about 10 years.

- **South Developed Zone –** Soil with petroleum concentrations exceeding 3,400 mg/kg will be excavated.

- **Former Maloney Creek Zone –** Sediment with petroleum concentrations exceeding 22 mg/kg will be excavated. This excavation also will remove dioxin/furan contamination.

- **Railyard Zone –** Groundwater will be hydraulically controlled and contained at BNSF's railyard facility property boundary. Free product and contaminated groundwater will be recovered, treated, and re-circulated by underground injection to flush contamination from beneath the railyard. Petroleum contaminated soil will be excavation in association with installation of the hydraulic control and containment system. An additional 7,500 cubic yards of smear and vadose zone soil also will be excavated over a period of 20 years and as railyard operations permit. Soil with petroleum concentrations exceeding 22 mg/kg within 25 feet of FMC will be excavated to a depth of 4 feet. Soil with petroleum concentrations exceeding 3,400 mg/kg within 25 feet of FMC and below a depth of 4 feet will also be excavated. Soil contaminated with petroleum, PCB, or metals within 2 feet of the surface will be excavated to their respective cleanup or remediation levels, as applicable.

2.3 The Proposed Cleanup Actions

The following section describes the proposed cleanup actions within the different cleanup site zones. Figure 2-6 shows the location and nature of cleanup activities throughout the site.

The remedial technologies used at the site will result in varying degrees of disruption; all natural resources, private property, and public infrastructure that are disturbed by the remedial actions will be restored to pre-existing conditions upon completion of each active phase of remediation. Current building codes will be followed during all restoration work. Some natural resource enhancements will also be implemented as part of the cleanup.

For each phase of the cleanup, before actual cleanup activities commence, access will be negotiated with each affected property owner.

2.3.1 Soil Excavation

The cleanup activity that is likely to have the greatest short-term impact to the Town, and that is proposed for all of the cleanup zones, is excavation. Before the excavation begins, the site must be prepared and any buildings must be moved out of the excavation area. Upon completion of the excavation, those buildings that have been moved will be replaced to their original sites and then the land and infrastructure will be restored. This technology will be used in most of the cleanup zones.

Owners will be asked to temporarily relocate if necessary for excavation. Those who agree to relocate will be relocated to suitable alternative facilities identified during access negotiations. BNSF will bring equipment and materials to the site and will prepare the project area for the remedial action. Site preparations will include removing all underground public and private utility lines and stormwater sewers. Vegetation will be cleared and grubbed. Existing foundations, septic systems, porches, sidewalks, patios, driveways and landscaping will be cleared and materials disposed of appropriately.

Temporary access roads may be built and haul routes will use existing roads. Electricity and telephone lines will be re-routed by the utility providers prior to the excavation. Locations for the re-routed lines will be determined by the utility providers, Town of Skykomish, and BNSF.

Relocated buildings will be stored within Town. It will not be possible for residents to inhabit the structures while they are relocated – the buildings will remain vacant.

Excavated materials will be segregated into contaminated and clean stockpiles. Contaminated soils will be loaded into dump trucks and transported to a temporary storage stockpile[7] on the railyard. These materials will then be transported by rail or truck to an off-site disposal facility. Clean soils will be used as backfill on-site.

Reconstruction and restoration will consist of backfilling the excavations, replacing the stormwater sewer system, building foundations and then moving the buildings to their original locations, restoring and reconnecting the utilities, and re-landscaping the areas. Existing roads within the Project Area will be restored to King County Standards. Damaged surfaces or property will be replaced in kind.

Replacement septic systems will be installed for use until the Skykomish community wastewater treatment system becomes available. During restoration work BNSF will coordinate the installation of wastewater

[7] Contaminated-soil stockpiles will be placed on an impermeable base surrounded with berms to catch any contaminated water that drains from the stockpile. This water will be collected, treated to remove contaminants, and discharged to the Skykomish River or to the ground.

infrastructure with the Town of Skykomish such that connections to and construction of the Skykomish wastewater treatment system are done in the least disruptive, efficient manner. This coordination shall ensure that the temporary systems that are installed prior to a permanent system can be easily reconfigured with minimal disruption and cost to the Town or the property owner.

Backfill material will include stockpiled excavated soil with petroleum concentrations below remediation levels and approved imported soil. Backfill material will be compacted to a density suitable to bear the applied foundation loads.

Excavation will not occur under the house and outbuildings if current owners choose not to temporarily relocate. However, access will be necessary to work around the house and outbuildings on properties where the owner does not agree to relocation of the house and outbuildings.

Contamination will thus remain under such structures, and possibly also elsewhere on the property in question. This contamination will have to be contained. Containment structures are anticipated to be impermeable walls installed in the subsurface that isolate the contamination under the property and limit its movement. Design and location will be on a case-by-case basis depending upon the location and nature of structures.

Such properties will require restrictive covenants. The covenants require the property owner to notify future owners of the presence of contamination, to maintain containment structures, and to properly handle the contamination if exposed. Since these properties would not have been excavated, restoration would be only to the extent necessary after installation of the containment structures. These properties will not be connected to the Skykomish community wastewater system as part of the cleanup. Connection to the system for such properties will be at the property-owner's expense.

2.3.2 Air Sparging

Air sparging is a remedial process that involves the injection of air into the groundwater. The air introduced during sparging will volatilize and enhance biodegradation of the petroleum hydrocarbons. Air sparging will be accomplished by installing a number of wells throughout the area to be air sparged. The wells will be connected by a network of underground pipes. The pipes will supply air from a compression station to the wells, which will inject the air into the groundwater. Air sparging is expected to result in cleanup of dissolved petroleum in groundwater. Air sparging is also expected to result in a decrease in soil petroleum concentrations. This decrease in soil petroleum concentration is necessary so that groundwater does not become re-contaminated by contaminated soil after the air-sparging system is shut off. Groundwater monitoring will be conducted to assess the performance of the air-sparging system so that adjustments to the system may be made, if

necessary. This technology will be used in the NEDZ, and it may be used as a contingency measure near the River, along the BNSF railyard property boundary and near FMC.

2.3.3 Groundwater Control and Treatment

Free product, dissolved petroleum and groundwater hydraulic control, containment, and treatment will consist of construction of a redundant barrier system and groundwater extraction trench along the north boundary of the railyard when free product and soil with petroleum concentrations are greater than the remediation level. Investigations will be conducted to assess the need for a similar system along the north boundary of the Former Maloney Creek Channel.

Free product, dissolved petroleum and groundwater will be extracted from the railyard containment system, treated to remove petroleum hydrocarbons, and infiltrated or injected via wells into the shallow aquifer on or adjacent to the railyard. The infiltration or injection will be done in a manner that flushes contaminants toward the containment system for extraction. Treated water may also be discharged to the Skykomish River or Former Maloney Creek in accordance with federal permits and substantive state and local requirements for wastewater discharges to surface water.

2.3.4 Treatment beneath the School

Petroleum contamination beneath the school will be treated by an aggressive treatment method. Thermal treatment is under consideration and other treatment methods will be considered.

If thermal treatment is used, borings will be drilled through the floor of the school basement at approximately 15-foot intervals. Heating elements installed in the borings will heat the soil requiring treatment to a temperature that approaches that of boiling water (212ºF). Heating will volatize petroleum constituents and reduce the viscosity of the bunker-C fuel oil to enhance free product recovery. The petroleum vapor will be vacuumed from the soil and piped to a treatment facility. The treatment facility will be located on the railyard, if possible. At the treatment facility the petroleum will be filtered from the air by activated carbon or converted to carbon dioxide and water. The cleaned air will be released into the atmosphere. If used, thermal treatment is expected to take at least one year, from the time the well installation begins to when the wells are decommissioned.

Following treatment, the remaining contamination under the school building is not expected to be mobile or yield significant concentrations of petroleum hydrocarbons in air or dissolved in groundwater. However, it likely will not meet the soil petroleum cleanup or remediation level. Routine monitoring following completion of the treatment will assess the mobility of the remaining contamination, and any mobile product, if present, will be removed

using an interception and recovery trench. The recovery trench will be installed north and west of the school. It is anticipated that such a trench will be installed as part of any treatment process.

2.3.5 Vapor Protection

Air monitoring will be done for any building, structure, or enclosed space that remains or is built over soil with petroleum concentrations exceeding 3,400 mg/kg. Protection against vapor intrusion will be required if the air monitoring shows air standards are exceeded as a result of petroleum contamination under the building. This protection most likely will be the placement of a vapor barrier in the crawl space of the building or other engineering controls. The specifics of vapor protection will be determined on a case-by-case basis for each building that requires it.

2.3.6 Monitoring

Several environmental monitoring activities will occur as part of cleanup. Protection monitoring will ensure that worker and public safety is protected. Protection monitoring will include taking air samples to ensure that air quality is not unacceptably impacted by construction activities. Performance monitoring will collect soil, sediment, air, and water samples to ensure that the cleanup activities meet the performance standards set for them. Confirmational monitoring will be done to assess whether the cleanup actions are effective over the long term.

Protection and performance monitoring will occur during construction activities and will be only a minor part of the activity which will be occurring. Air sampling equipment will be installed near the periphery of the work area and other appropriate locations. Personnel will collect soil samples and water samples as necessary.

Air monitoring for vapor protection is discussed in the preceding section and is a type of performance monitoring.

Confirmational monitoring will occur over decades. It will consist of sampling groundwater from wells along the levee, along the railyard boundary, and from wells distributed throughout the Town. Confirmational monitoring will also include collection of sediment samples from the river and FMC channel

2.3.7 Institutional Controls

Institutional controls are legal measures undertaken to limit or prohibit activities that may interfere with the integrity of an interim action or a cleanup action or result in exposure to hazardous substances at the site. The institutional controls that will be used for this cleanup are zoning overlays and restrictive covenants where petroleum-contaminated soil remains on a

property above concentrations that are a threat to human health or the environment.

Groundwater withdrawal will be prohibited. This will be accomplished through the well-permitting process administered by Public Heath – Seattle & King County. Zoning or other land use controls may be used to ensure that contaminated soil which is not excavated is properly managed. Permit review will identify whether a planned project is within an area where groundwater withdrawal prohibitions or management of contaminated soil are needed. Permit conditions will require that contaminated soil is appropriately managed when the activities are carried out. BNSF and Ecology will work cooperatively with the Town of Skykomish to develop and implement such overlays. A restriction on permits for groundwater extraction will be implemented for properties in the Northeast Developed Zone during air sparging.

A restrictive covenant is a covenant placed in a property deed that specifies measures to ensure that contamination remaining on a property is managed in a manner that protects human health and the environment. A restrictive covenant will be placed on BNSF's railyard facility property since contamination will remain on the property after the main excavation activities. Restrictive covenants will also be required for other properties where soil contamination remains above concentrations protective of direct contact (i.e., 3,400 ppm).

Institutional controls, being legal instruments, do not have significant environmental impacts in the context being considered in this document, and will not be further discussed herein. See Chapter 4 of the DCAP for a full discussion of institutional controls for each zone of the site.

2.4 Proposed Construction Schedule

Cleanup of the BNSF Skykomish Site will proceed in phases over a number of years. The phased cleanup construction schedule is shown on Figure 2-5. A summary of cleanup activities by work year is as follows:

- **2008 –** Excavation of far east free product area on the Railyard. Construction of project-duration soil handling facility on the railyard. Excavation of NWDZ east of Fifth Street. Installation of hydraulic control and containment system along northern railyard boundary. Excavation of portion of NEDZ along Railroad Avenue. Excavation of metals in the NEDZ. Installation of air-sparging system to treat contaminated soil and groundwater in NEDZ.
- 2009 – Excavation of NWDZ between Fifth and Sixth Street. Extension of hydraulic control and containment system along northern railyard boundary. Excavation of SDZ, FMC, two

southern free product areas on the railyard, and petroleum and metals contaminated soil within 2 feet of the surface on the railyard. Installation of hydraulic control and containment system on BNSF's railyard facility property to protect FMC, if necessary.

- **2010 –** Excavation of NWDZ west of Sixth Street and treatment beneath the school. Cleanup around south abutment of Fifth Street Bridge (this work may be moved to 2011 and is subject to coordination with the Washington State Department of Transportation).
- **2011 –** Cleanup of the south abutment of the Fifth Street Skykomish Bridge if not performed in 2010. Any work not completed in prior years, dismantling of active cleanup operations.
- **2012 and following –** Operation and maintenance of installed systems. Compliance monitoring. Excavation of additional smear-zone soil on BNSF's railyard facility property boundary.

2.5 Description of the No Action Alternative

Under the No Action Alternative, site conditions would remain much the same as they are today. The Levee Zone and the northern portion of the NWDZ have been temporarily protected by the interim action excavation work completed in 2006, except near the Fifth Street Bridge. Contaminated soil and groundwater contamination would remain under the rest of the Town and would continue to migrate in the subsurface.

The No Action Alternative would not protect people or ecological receptors from exposure to surface or subsurface contamination. Petroleum contamination would still exist upland and continue to contaminate groundwater, with no measures in place to stop its continued migration to the river. It would lead to recontamination of the Levee Zone and the northern portion of the NWDZ where cleanup has already occurred, and would lead eventually recontaminate the river and river sediments as well.

The No Action Alternative would not significantly affect the current built environment. No roads, buildings, or utilities would be physically damaged or disrupted. No residents, business, or public facilities would be moved.

The No Action Alternative does impact the Town of Skykomish's ability to maintain subsurface utilities such as water and the stormwater sewer system since they lie above impacted soil. The long-term presence of contamination could deter future investment in the built environment and the community. The natural environment (i.e., groundwater) would continue to be significantly and adversely impacted by the contamination present.

Table 2-1 Summary of Cleanup Actions (and Cleanup Levels from DCAP)

	Levee Zone	NWDZ	NEDZ	SDZ	FMC	RY
Petroleum CUL*	• 40.9 mg/kg or "pass" bioassay SED • 22 mg/kg SOIL • 208 µg/L GW & SW	• 22 mg/kg SOIL • 208 µg/L GW	• 22 mg/kg SOIL • 208 µg/L GW	• 22 mg/kg SOIL • 208 µg/L GW	• 40.9 mg/kg SED • 22 mg/kg SOIL • 208 µg/L GW & SW	• 22 mg/kg SOIL • 208 µg/L GW & SW
Petroleum REL*	• 3,400 mg/kg SOIL below levee more than 25 feet south of OHWM	• 3,400 mg/kg SOIL • 477 µg/L GW	• Free-product (30,000 mg/kg and no evidence of free product flowing into or accumulating in an excavation) • 3,400 mg/kg SOIL • 477 µg/L GW • 208 µg/L GW entering FMC zone.	• 3,400 mg/kg SOIL • 477 µg/L GW	• 3,400 mg/kg SOIL	• Excavation of selected areas • 1,870 mg/kg SOIL in top two feet • 477 µg/L GW at BNSF property boundary
Cleanup Action	• Cleanup performed in 2006/2007 • Excavated sediment, soil and free product • Levee reconstructed • Habitat restored	• Excavate soil to 3,400 mg/kg, except under school • Remove lead* contaminated soils in yards • Isolation/control under school, other buildings if necessary • Aggressive treatment beneath school • Vapor protection	• Excavate free product • Remove lead contaminated soils in yards • Air sparge and biovent to 3,400 mg/kg soil, 477 µg/L GW throughout zone, • Meet 208 µg/L GW at conditional point of compliance • Isolation/control under buildings if necessary • Vapor protection	• Excavate soil to 3,400 mg/kg, 22 mg/kg within 25 feet of FMC to depth of 10 feet • Isolation/control under buildings if necessary • Vapor protection	• Excavate sediment to 40.9 mg/kg and soil to 22 mg/kg • Remove dioxin/furans • Restore wetland and fish habitat • Vapor protection	• Excavation of selected areas, 22 mg/kg within 25 feet of FMC to depth of 4 feet • Remove metals, PCB, shallow petroleum • Containment and GW treatment at BNSF property boundary to protect GW beneath town to 477 µg/L and GW entering FMC Zone to 208 µg/L • Vapor protection

Notes:
* CUL = Cleanup Level; RL = Remediation Level; Arsenic cleanup level = 20 mg/kg; Lead cleanup level = 250 mg/kg; PCB cleanup level 0.65 mg/kg; GW = Groundwater; SW = Surface water

3 Existing Conditions, Environmental Impacts and Mitigating Measures in the Natural Environment

3.1 Geology/Soils

This section describes existing conditions, impacts, and mitigation measures for the geology and soils element of the natural environment. In accordance with 197-11-444 WAC, the geology and soils element of the natural environment includes topography, geology, soils, sediments, natural hazards, and flooding.

The proposed action will result in temporary adverse impacts to site topography, geology, soils, and sediments. These temporary impacts will result from significant excavation, backfilling, soil management, and grading activities.

3.1.1 Topography

Existing Conditions: The areas of the Town that will be affected by the proposed cleanup action are relatively flat, sloping gently from east to west toward the Skykomish River (Skykomish River).

Impacts: Existing site terrain is relatively flat. The topography of the project area will be temporarily altered from its existing condition as a result of significant excavation, fill, and grading activities. These excavation activities will result in significant short-term adverse impacts. The site will be restored to its original topography at the end of each construction season, and there will be no long-term topographic changes resulting from the project.

Mitigation Measures: The impacted areas will be restored to pre-disturbance topography resulting in no long-term changes.

3.1.2 Geology and Soils

Existing Conditions: The site is located in the Skykomish Valley on the south bank of the Skykomish River. The Skykomish Valley is a glacially-scoured valley with steep sidewalls and a relatively flat bottom. The Skykomish River, flowing from east to west adjacent to the site, now occupies the northern side of the valley at the site location. Over time the river has meandered across the valley, re-working and leaving deposits of silt, sand, gravel, cobbles, and boulders that are covered by a generally thin layer of topsoil and/or fill. These soils are currently impacted by contamination, and there is the potential for future contaminant migration.

The deposits underlying Skykomish can be broken into three distinct units:

- Upper topsoil and fill (1 to 2 ft thick).
- Gravelly sand and sandy gravel with cobbles and boulders (11 to 22 ft thick).
- Lower silt (3 to 10.5 ft thick).

Impacts: A large volume of soil will be excavated and removed from the project area. Temporary soil disturbances will result from the excavation of trenches, construction of access and haul roads, utilities relocation, and preparation of staging areas.

Construction backfill including soil, sand, and gravel will be supplied locally from approved sources and quarries. Pre-excavation soil density and hydraulic properties may be affected by the excavation and replacement of existing soils. Changes in hydraulic properties may result in changes to surface and subsurface hydrology. Soils placed within the hydraulic containment and control trenches may affect groundwater flow characteristics across the site. Hydrologic conditions, impacts, and mitigation associated with soils are discussed in Section 3.3 (Water).

Mitigation Measures: Contaminated soils will be excavated and removed from the site. These soils will be replaced with clean soils of comparable type and gradation to reduce potential impacts on subsurface and surface hydrology. Backfill soils will be washed as necessary to minimize turbidity impacts prior to placement to minimize turbidity impacts. Backfill material will be compacted to a density suitable to bear the applied foundation loads. Top soil will be replaced to promote re-vegetation of disturbed areas.

3.1.3 Sediments

Existing Conditions: Surface (top 10 centimeters) and subsurface (below 10 centimeters) sediment occurs within the Former Maloney Creek channel and associated wetlands, and within the South Fork of the Skykomish River.

The Former Maloney Creek sediments and associated wetlands are dominated by sandy silts and clay. These sediments are currently impacted by contamination and there is the potential for future contaminant migration.

Contaminated sediments were excavated from within the Skykomish River and replaced with clean and comparable material as part of the 2006 Levee Zone Interim Action for Cleanup. Some contaminated sediments may remain in the vicinity of the Fifth Street Bridge.

Impacts: Sediment will be excavated from the Former Maloney Creek Zone and, if necessary, in the Levee Zone near the Fifth Street Bridge. Excavated sediment will be replaced with imported substrate of comparable type and gradation to existing materials.

Mitigating Measures: Impacted sediments within the Skykomish River and Former Maloney Creek channel and associated wetlands will be excavated and replaced with substrate of comparable type and gradation. Backfill soils will be washed prior to placement to minimize turbidity impacts. Replacement sediment will be chemically tested to ensure no adverse impacts from fill. Oil absorbent booms and oil recovery equipment may be used during excavation of impacted sediments to provide containment of impacted water if necessary.

3.1.4 Natural Hazards: Seismic and Volcanic Events

Existing Conditions: Natural hazards that could potentially affect the proposal include seismic activity, volcanic activity, flooding, and erosion. Flooding and erosion hazards are evaluated in the next section.

The site is located in seismically-active western Washington. In the past 50 years, earthquakes have been felt in Skykomish, Washington, in 1965, 1996, and 2001 (USGS, 2006). The 1996 quake was centered near Duvall, and the 1965 and 2001 quakes were centered south of Seattle (USGS, 2006).

The site is located 31 miles south southwest of Glacier Peak. The United States Geological Survey considers Glacier Peak a volcano of "very high threat" to life and property in case of eruption. Three other Cascade volcanoes, Mt. Baker, Mt. Rainier, and Mt. St. Helens, all farther away, are also considered "very high threat" volcanoes by the United States Geological Survey (Ewert, John W., Guffanti, Marianne, and Murray, Thomas L., 2005, An Assessment of Volcanic Threat and Monitoring Capabilities in the United States: Framework for a National Volcano Early Warning System. US Geological Survey Open File Report 2005-1164).

Impacts: Geologic hazards that could potentially affect the project include seismic hazards (i.e., earthquakes) and volcanic eruptions. Based on the historic record of seismic activity recorded for the Town of Skykomish, the likelihood of a significant seismic event during site work is relatively low. Excavation sidewalls could slump during an earthquake, but it is unlikely contaminated soil or groundwater would migrate very far as a result. Project plans for spill control would be put into effect as necessary.

If an earthquake did occur, the most significant concern would be impacts on structures that are temporarily relocated, on excavations, and on the hydraulic control and containment system at BNSF's railyard facility property boundary. With respect to the structures, there is no way to assess whether earthquake damage would be more or less than if the structures were not

temporarily relocated. With respect to the hydraulic control and containment system, the system will be designed to resist the seismic forces that may impact the system and emergency procedures will be developed to bring the system back on line rapidly in case of shut-down due to earthquake.

Distance and topography make it unlikely that a volcanic eruption would impact the site with lava flows or mudflows. An eruption of sufficient magnitude coincident with winds blowing toward the site could generate ashfall that would reach the site. It is unlikely that ashfall would result in migration of contaminated soil or groundwater, or have an unmanageable impact on the hydraulic control and containment system.

A significant earthquake or volcanic eruption that affected the region would likely delay the work due to regional damage. In such a case, the site would be secured until normal work could resume.

Mitigating Measures: In the event of an earthquake, the entire site, including natural features and structures, will be inspected to assess any potential damage. Spill response personnel will mobilize, if necessary, to contain contamination and prevent downstream impacts.

In the event that ashfall from a volcanic eruption is impacted by contamination, the impacted ash will be appropriately characterized, managed, and disposed. Appropriate dust control measures will be taken when excavating and handling the ash.

3.1.5 Flooding and Erosion

Existing Conditions: The 100-year flood zones are shown on Figure 3-1. Portions of the site are located within the 100-year flood plain. The 100-year flood is anticipated to flood all of the areas to the west of Fifth Street and north of the railroad tracks. The levee on the southern side of the Skykomish River is an energy diversion levee intended to protect the Town from significant erosion during flooding. This levee diverts high-velocity flows downstream away from the Town. Town flooding is exacerbated by Maloney Creek and Skykomish River water backing up Maloney Creek around the west end of the levee at it's confluence with the Skykomish River.

The river generally floods during high rainfall events in the fall, winter, or spring. Non-point sediment from flood erosion may be transported and deposited during flooding events. (Erosion potential associated with cleanup activities is discussed in Section 3.3.2, *Surface Water Quality and Quantity*.)

There is the potential for short-term flooding of the work area along the river bank beneath the Fifth Street Bridge or along the Former Maloney Creek.

Impacts: Flooding may cause release and migration of contamination and sediment from open excavations.

Mitigating Measures: The following elements will be implemented to avoid or mitigate impacts from flooding during cleanup work:

- Schedule work in flood-prone areas during months when the risk of high water is low
- Monitor weather and river flows to prepare for potential high flows
- Remove equipment from excavations in the event of flooding
- Sand bags will be available to respond to potential localized flooding.

3.1.6 The No Action Alternative

Under the No Action Alternative, the proposed project would not be implemented. The site topography, soils, sediments, and geology would not be altered and would remain the same as described in Section 3.1.1 Existing Conditions. Contamination would continue to migrate and eventually impact clean soils and river sediment if the project is not implemented.

3.1.7 Significant Unavoidable Impacts

Excavation, backfilling, and grading will create significant unavoidable adverse impacts on soils, sediments, and geology for the duration of the work. Long-term significant unavoidable adverse impacts on soils, sediments or geology have not been identified. The project design will minimize potential risks from natural hazards.

3.1.8 Cumulative Impacts

No significant cumulative impacts on soils, sediments, or geology have been identified.

3.2 Air

This section describes existing conditions, impacts, and mitigation measures for the air element of the natural environment. In accordance with 197-11-444 WAC, the air element of the natural environment includes air quality, dust, and odor. Air quality concerns relate to impacts on human health. Dust and odor concerns relate to nuisance impacts.

The project will result in temporary adverse impacts to air. These impacts will result primarily from the dust generated by disturbance of dry soils and exposure of petroleum hydrocarbons, by the release of hydrocarbon vapors from open excavation areas and from soil stockpiles, potentially by Thermal

or other aggressive treatment of the oil under the School building, and by air-sparging systems located in the Northeast Developed Zone. Air-sparging systems may also be installed near the River, near Former Maloney Creek, and along the BNSF railyard facility property boundary if necessary to augment the primary cleanup actions.

3.2.1 Air Quality

Existing Conditions: Skykomish is currently in attainment of National Ambient Air Quality Standards. These standards set criteria for seven pollutants: carbon monoxide, lead, nitrogen dioxide, particulate matter less than 10 microns in size, particulate matter less than 2.5 microns in size, ozone, and sulfur oxides. However, the site is located on the boundary of an area that was designated as non-attainment for ozone until 1996. This area, which incorporates all but the extreme northwest portion of King County, is currently subject to a maintenance plan for ozone approved by the United States Environmental Protection Agency (EPA). The maintenance plan for ozone addresses fuel specifications for mobile sources, inspection and maintenance programs for automobiles, and industry-specific rules. The only significant sources of ozone precursors in the Skykomish area are automobiles and train traffic. This project will not be directly affected by the current ozone maintenance plan. The Puget Sound Clean Air Agency (PSCAA) is currently in the process of updating the maintenance plan for the region.

Petroleum contamination currently underlying the Town has the potential to cause vapor intrusion into buildings and enclosed spaces.

The presence of lead and arsenic in dust generated from railyard activities is also a potential concern. BNSF applies Soil-Sement, a dust suppressant, annually to control dust in the area of lead and arsenic contamination on the railyard.

Outdoor air quality monitoring for hydrocarbons, lead, and arsenic was conducted during the 2006 interim action. Applicable standards were not exceeded.

Impacts: Vapors associated with subsurface petroleum hydrocarbon contamination will be released to the atmosphere from soil excavation, soil stockpiles on the railyard, thermal or other aggressive treatment at the school, and air-sparging systems. Elevated concentrations of hydrocarbon vapors can be toxic. Petroleum hydrocarbon vapors may intrude into the school from thermal or other aggressive treatment methods used beneath the school.

Subsurface hydrocarbon vapors may be affected by subsurface remediation activities. The air-sparging system and the treatment system beneath the school could potentially impact how vapors move through the subsurface. These vapors could potentially enter the basements of structures. Additional

automobile/truck exhaust due to increased traffic will cause impact during cleanup.

Excavation of shallow surface soils contaminated with lead and arsenic has the potential to release lead and arsenic contaminated dust.

Mitigating Measures: Mitigating measures for air quality and dust and odor are similar, and will be discussed in the next section, Dust and Odor.

3.2.2 Dust and Odor

Existing Conditions: Traffic in Town and on Stevens Pass Highway (U.S. 2) at the north end of the Town are sources of dust. Approximately 24 trains pass through Skykomish on a daily basis (Yates, 2003a) and are responsible for diesel exhaust emissions, but they do not routinely stop and idle in town. Periodic railroad operations on the railyard such as re-grading generate dust. Dust from the railyard is reduced by the annual application of a dust suppressant. No stationary industrial sources of air pollution have been identified in the proximity of the site.

No industrial odor sources are present in Skykomish. Emissions resulting from diesel exhaust from daily trains passing through Skykomish may be a source of odors.

Impacts: Dust will be generated from the project area due to soil excavation and construction traffic. Dust may be generated from the excavation work areas and from vehicular traffic on access roads and staging areas. Transient wind-blown dust will settle on surrounding structures including residences, businesses, and vehicles. Dust could enter businesses and residences through open windows and doors.

Petroleum products exposed to the atmosphere can have a strong and distinctive odor. It is likely that petroleum odors will be noticeable during project construction activities involving product exposure, including excavation and short-term staging of contaminated material in stockpiles, especially during times when the weather is warm and the air is still.

Exhaust odors from construction equipment may also be noticeable. Petroleum odor may intrude into the school from thermal or other aggressive treatment methods used beneath the school.

Mitigating Measures: An air quality monitoring plan will be prepared and implemented. Baseline data will be collected.

Excavation and grading activities will be carried out in a manner that minimizes emissions of dust and odor (fugitive emissions). Best Management

Practices (BMPs) will be used for dust control. These BMPs will include the following:

- Application of water to suppress dust
- Cover soil piles to minimize dust generation
- Mulch cover over bare soil or excavation
- Re-vegetation as soon as possible.

The exteriors of adjacent buildings impacted by dust will be washed after construction is complete, as necessary.

The Site-Specific Health and Safety Plan or a separate air monitoring plan will specify air monitoring requirements and limits for nuisance dust. The plan will detail the location of Site perimeter monitoring stations and present action levels that will result in protection of workers surrounding the site. The plan is intended to ensure protection of Site workers and nearby residents from airborne particulates and petroleum vapors.

In the event specified limits for nuisance dust are exceeded, the health and safety plan officer on Site will assess the concern and take appropriate action (the on-site health and safety officer will have authority to immediately stop work if necessary and notify Ecology thereafter). No health and safety concerns are anticipated to persons on adjacent properties.

Plastic sheeting or foam can be used to cover and control odor sources. At least 40 percent of the construction equipment used will meet EPA Tier 2 low emissions standards.

There are no standard methods for mitigating odors caused by exposed petroleum products in the environment. The odors will be mitigated naturally by wind. Odor generated from exposed product will be temporary and diminish following completion of the project.

The Puget Sound Clean Air Agency (PSCAA) and Ecology (WAC 173-460) provide air emissions criteria for the site. Measures will be provided as described above and according to PSCAA Regulation I, Section 9.15, as necessary, to suppress any fugitive dust generated during site excavation and grading that exceeds these criteria.

3.2.3 The No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed. Dust and odor conditions would not be altered and would remain the same as described in Section 3.2.1. The potential for vapor intrusion into buildings would remain.

3.2.4 Significant Unavoidable Impacts

Cleanup activities will create unavoidable odor impacts. Petroleum hydrocarbon odors will be present periodically, particularly during times of still air. The odors will be most noticeable close to open excavations where free product is present. During the 2006 interim action, there were a number of odor complaints. Monitoring during the 2006 Levee Zone Interim Action for Cleanup indicated no significant dust or contaminant migration, although there were several complaints related to odors from open excavations and construction vehicles and dust collecting on buildings near excavation areas and stockpile areas. The project design and operational procedures will minimize potential risks from construction-generated dust and odor.

3.2.5 Cumulative Impacts

No significant cumulative impacts to air have been identified.

3.3 Water

This section describes existing conditions, impacts, and mitigation measures for the water element of the natural environment. In accordance with 197-11-444 WAC, the water element of the natural environment includes groundwater and surface water quantity, quality, and flooding.

Groundwater and surface water may enter excavations. These different sources of water within the excavations will be treated as surface water for purposes of describing potential impacts and mitigation.

3.3.1 Groundwater Quantity and Quality

Existing Conditions: Unconfined groundwater is encountered at depths ranging from approximately 3 to 17 ft below ground surface throughout most of the site. Groundwater elevations are generally higher to the south and lower near the Skykomish River. The groundwater is generally closest to the ground surface near the Skykomish River and increases in depth to the south as the land rises. Near the Former Maloney Creek Channel, the land elevation decreases and groundwater is near the surface again. The groundwater is hydraulically connected with surface water in the Skykomish River and the Former Maloney Creek Zone.

The groundwater elevations throughout the site are influenced by the river level, precipitation, temperature, and local drainage. These factors cause the groundwater elevations to vary seasonally. Groundwater elevations are generally higher from November to April and lower from June to early November (RETEC, 2001). Hydraulic conductivity values range from 41 to 84 ft/day, and the average hydraulic conductivity is 64 ft/ day. Groundwater usually has some vertical component to flow; however, the vertical flow is restricted by a silt layer that underlies much of the site.

Groundwater flow throughout the project area is generally to the north or northwest. To the west of 4th Street, the hydraulic gradient is 0.01, which results in an average groundwater flow rate of 2.5 ft/day (RETEC, 2002a).

No water supply wells are located in the Town of Skykomish. The people of Skykomish are served by two public water supply wells that are located about 1,100 ft east (upgradient) of Skykomish. The primary well is completed to a depth of 216 ft below ground surface (bgs) and draws water from three discrete intervals between 181 and 216 ft bgs. A backup well is located adjacent to the primary well and is completed to a depth of 219 ft bgs. In 1993, the water system pumped an average of 70,000 gallons per day and 2,100,000 gallons per month. Storage capacity was provided by one water tank with a capacity of 220,000 gallons. Water from the public water system has been sampled and no contaminants related to the site have been detected.

Impacts: Groundwater contamination on the site includes free product and dissolved petroleum hydrocarbons. Contaminated groundwater will be exposed within the excavations during site work. There is a potential for the release of contaminated groundwater when water is pumped from excavations.

Groundwater remediation and control on the railyard will include groundwater extraction, treatment, and infiltration or re-injection. This method of groundwater treatment will alter groundwater flow directions and velocities beneath and adjacent to the railyard.

Mitigating Measures: Impacts to groundwater will be mitigated by removing, treating, and containing contaminant sources. Additional mitigation will be provided by following the requirements of a site-specific spill prevention and response plan. Groundwater flow characteristics will be predicted and modeled prior to the implementation of groundwater control measures. Groundwater control systems will be designed to minimize off-site impacts to groundwater flow patterns and will be closely monitored and adjusted as necessary.

3.3.2 Surface Water Quantity and Quality

The Skykomish River and Former Maloney Creek and the creek's associated wetlands will be affected by the Proposed Action.

Existing Conditions: The Skykomish River is a fast-flowing river with fluctuating flow and water levels throughout the year. It receives its water from upstream tributaries and spring snowmelt and flows from the project site northwest into Snohomish County. The Skykomish River contains flowing water all year. Designated uses for the river include (see WAC 173-201A, Table 602):

- Domestic, industrial, agricultural, and stock water supply.

- Wildlife habitat, harvesting, commerce/navigation, boating, and aesthetics.

- Char spawning/rearing, which means use for spawning or early juvenile rearing by native char (bull trout and Dolly Varden), or use by other aquatic species similarly dependent on such cold water. Other common characteristic aquatic life uses include summer foraging and migration of native char; and spawning, rearing, and migration by other salmonid species.

- Extraordinary prime contact, which means it provides extraordinary protection against waterborne disease or serves as a tributary to extraordinary shellfish harvesting areas.

Water levels are lowest in July through October. The quantity of water discharged by the river is gauged at Gold Bar approximately 20 miles downstream of the town, and river height is gauged at the Fifth Street Bridge in Skykomish. A heavy storm event can cause the water level to rise several feet within a few hours in Skykomish.

Groundwater with dissolved petroleum hydrocarbon contamination reaches the Skykomish River in a portion of the NEDZ (See Figure 2.4). Contaminated sediment and free product were removed during the 2006 interim action for the Levee Zone and NWDZ. Monitoring will assess whether groundwater with dissolved petroleum hydrocarbon contamination still reaches the river in the Levee Zone.

Former Maloney Creek was created when the creek that originally flowed south of BNSF's railyard and north of Old Cascade Highway was diverted to its current channel in 1913. The former channel of Maloney Creek became a wetland fed primarily from stormwater runoff from surrounding areas. The eastern portion of the wetland receives water from roadside ditches on the north and south sides of Old Cascade Highway. The wetland is ponded during the wet season (seasonally inundated) and fed primarily by surface water runoff, but occasionally also by groundwater recharge during times of high water table (RETEC, 2003). The outflow drains west to Maloney Creek through a 210-foot long 36-inch diameter culvert that extends to the southwest under Old Cascade Highway and the fire station. The culvert drains into a channel that has its own associated wetland. Flows eventually reach the current alignment of Maloney Creek, which drains west to the South Fork of the Skykomish River.

The Former Maloney Creek channel and associated wetlands substrate consist of silt and sandy silt of varying depths, but generally extending a few feet, overlying the sand and gravel deposits typical of the area. Groundwater levels generally are deeper than the bed of the channel by 1 foot or more (RETEC,

2003), but this has not yet been confirmed. Groundwater with dissolved petroleum hydrocarbon contamination reaches Former Maloney Creek and its associated wetlands.

Impacts: Contaminated soil will be drained prior to removal from the work area. The water from the soils is likely to be contaminated by dissolved petroleum.

Exposed soils are subject to erosion and transport by wind and rain. Sediment from erosion could flow into surface water ditches, the Former Maloney Creek channel, Maloney Creek or the river and adversely impact water quality. This is also the case for the Skykomish River as work is conducted near the Fifth Street Bridge.

Eroded soils can result in turbidity and sedimentation of surface water. Turbid (cloudy or muddy) surface water looks unclean and can result in sedimentation. Sedimentation can adversely affect fisheries and other aquatic habitat and obstruct stormwater flow and treatment.

Temporary modifications to the site topography and the replacement of existing soils may affect surface water infiltration rates and flow characteristics. There is a potential hydrologic impact on the Former Maloney Creek channel and associated wetlands. The proposed groundwater control system could increase groundwater flow to the Former Maloney Creek channel, resulting in increased base flow within the channel.

Mitigating Measures: Groundwater that collects in excavations is likely to be contaminated with free product and dissolved petroleum. Storage and treatment will be provided for water that is pumped from the excavation. Contaminated groundwater released during construction activities will be collected and treated prior to being discharged. Treatment will include free product recovery and water treatment so that water quality complies with applicable standards and discharge limits. Treatment system components will be placed within a lined facility, as appropriate, that will retain contaminated water in case of leakage.

A spill response plan will be developed for the site. The contractor will be required to have spill response equipment available on site. A Spill Response contractor will be on call in case accidental releases occur while work is being performed in or near surface water.

Best Management Practices (BMPs) will be implemented to significantly reduce the likelihood of surface water impacts. Examples of BMPS are provided below. The potential release of contaminated surface water and surface water flow characteristics will be visually monitored. The flow characteristics of Former Maloney Creek and adjacent wetlands will also be monitored. The groundwater control system will be designed to minimize

impacts on surface water flow characteristics. Representatives of the Town of Skykomish may be consulted to address potential drainage impacts.

Sediment and erosion control BMPs used at the site will meet the following requirements:

- Use ditches, berms, pumps, and other methods necessary to divert and drain surface water away from excavations and other work areas
- Prevent sediment from entering the river, creek, roadways, storm sewers, or catch basins with sediment fences, hay bales, and other means of capturing sediment in runoff
- Prevent any stormwater coming in direct contact with source material or any other contaminants from leaving the current work area
- Divert seepage water into sumps and pump to storage tank for testing and, if necessary, on-site treatment and discharge or disposal at an approved off-site facility
- Install a temporary outfall from the construction stormwater treatment system to the river.

Inspect and repair or replace damaged components of temporary erosion and sediment controls on a regular basis. Inspect immediately after rain or flooding events, and inspect daily during prolonged rain events.

3.3.3 The No Action Alternative

Under the No Action Alternative, as described in Section 3.3.1, the proposed project would not be constructed. Groundwater and surface water conditions would not be altered by cleanup activities, but contamination in the groundwater and soil (including free product and dissolved petroleum) would continue to migrate and groundwater would be unusable. Petroleum discharge to surface water would continue in the near future at and around the Fifth Street Bridge, and eventually along the levee in the NWDZ and NEDZ, since upland contamination will eventually migrate to the areas already cleaned up and would recontaminate them.

3.3.4 Significant Unavoidable Impacts

Construction activities have the potential to affect surface- and groundwater quality from contaminated stormwater runoff and flooding. The project has numerous design elements and mitigation measures that if employed, should reduce or eliminate impacts on water quality. Therefore, no significant unavoidable adverse impacts on water quality are expected.

3.3.5 Cumulative Impacts

No significant cumulative impacts on water quality are expected.

3.4 Plants and Animals

This section describes existing conditions, impacts, and mitigation measures for the plants and animals element of the natural environment. In accordance with 197-11-444 WAC, the plants and animals element of the natural environment includes vegetation and terrestrial habitat, fisheries and aquatic habitat, and threatened and endangered species.

3.4.1 Vegetation and Terrestrial Habitat

Existing Conditions: The south bank of the South Fork of the Skykomish River adjacent to the Town of Skykomish is developed and disturbed to the water's edge along most of its length. Approximately 1,200 feet of the riverbank located west of the Fifth Street Bridge was reconstructed as part of the Interim Action for the Levee Zone during 2006. Habitat enhancement and mitigation activities associated with the restoration of the Levee Zone are ongoing.

Prior to the Interim Action, the riprap flood control levee occupied less than one acre along the south side of the river. Adequate soil was present to support understory vegetation and low density of trees and shrubs along the top and sides of the levee. Understory plants on the levee consisted of swordfern (*Polystichum munitum*), Himalayan blackberry (*Rubus discolor*), and giant knotweed (*Polygonum sachalinense*). The top and southern sides of the levee were dominated by grasses and shrubs with a few scattered small trees. Grand fir (*Abies grandis*), black hawthorn (*Crataegus douglasii*), tall Oregon grape (*Mahonia aquifolia*), and snowberry (*Symphoricarpos albus*) are present. Orchardgrass (*Dactylis glomerata*), English plantain (*Plantago lanceolata*), common tansy (*Tanacetum vulgare*), and mullein (*Verbascum thapsis)* were among the common non-native species present at the levee.

Low-quality habitat exists in other areas of the proposed work. Habitat in these areas includes buildings, paved roads and sidewalks, paved and graveled driveways, turf grass lawns, home gardens, and a variety of trees and shrubs.

The WDFW, USFS, and USFWS were contacted to determine the presence of special status or priority habitat wildlife species in the vicinity of the site (Township 26 North, Range 11 East, Sections 26, 27, 33, 34, and 35). The following special-status or priority-habitat species were identified:

- Cascades Frog
- Northern Red-Legged Frog
- Oregon Spotted Frog
- Tailed Frog

- Northern Goshawk
- Harlequin Duck
- Peregrine falcon
- Pileated woodpecker
- Pacific Townsend's big-eared bat.

Threatened and Endangered Species: The USFWS, USFS, and the WDFW provided information on federally listed, proposed, and candidate wildlife species and Washington State threatened and endangered species that may occur in the vicinity of the site. Three listed species of birds are known to occur in the general vicinity of the site. These species include the bald eagle, marbled murrelet, and northern spotted owl. Three listed mammal species, Canada lynx, gray wolf, and grizzly bear, could potentially occur in the site vicinity; however, no suitable habitat for these three mammals is present in the site vicinity and no sightings of the species have been documented (USFS, 2003). These species are not expected to occur in the site vicinity (USFS, 2003; Stinson, 2001).

Impacts: Clearing and grubbing of the existing vegetation (including brush and trees) and debris will be done to enable remediation activities. A few trees may be removed by the Town for replanting outside the project boundary. Other vegetation and debris will be disposed of at an appropriate municipal landfill.

Necessary land clearing and grubbing activities will result in the temporary loss of vegetation and terrestrial habitat, including a 0.95-acre portion of the seasonally flooded forested wetland of Former Maloney Creek. Although the vegetation that will be removed consists primarily of shrubs and grasses, larger trees will also be removed. In addition, the landscaping from the yards of the residences and businesses that are to be temporarily and voluntarily relocated will also be removed.

Wildlife and domestic animals could potentially come in contact with contaminated soils or water.

Mitigating Measures: Following completion of remediation activities, native vegetation will be replanted in accordance with a project planting plan. A planting plan will be developed for each phase and will be included in Engineering Design Report (EDR) for that phase.

Landscape planting will enhance the environment and help preserve the natural resources. The landscaping will meet all federal, state, and local laws, and applicable permits will be obtained.

Mylar bird deterrents, predator decoys, and night lighting may be used to deter terrestrial wildlife and domestic animals from entering areas of potential contaminant exposure.

3.4.2 Fisheries and Aquatic Habitat

Existing Conditions: Fish and aquatic biota habitat are present in the Skykomish River. The channel immediately below the Fifth Street Bridge ranges from approximately 150 to 250 ft wide. The channel gradient in this area averages approximately 27 ft per mile. The channel contains mostly glide habitat, with occasional riffles at lower flows. Larger sections of riffle are present approximately 2,900 ft downstream of the existing levee. Substrate within the channel varies in size from boulders and cobbles to gravel and sand. Boulder substrates are more frequent along the northern portions of the channel, with cobbles, gravels, and sands occurring in a bar adjacent to the southern shore.

Low-velocity shoreline habitat that provides refuge for migrating juvenile salmonids, is present along the base of the existing levee throughout much of the site. The larger riprap and boulders present along this shoreline reduce flow velocities near the bank by creating eddies where water flows around these larger substrates. Low-velocity areas are also present within the interstices of the larger boulders and riprap.

Fish may have difficulty accessing low-velocity shoreline habitat during natural low flow periods in the Skykomish River. These natural low flows may also limit access to pockets of spawning gravels, while also potentially dewatering redds.

Overhanging vegetation where present along the shoreline offers refuge from predators for juvenile fish, while helping to reduce water temperatures and increase water quality. In addition, overhanging vegetation provides a food source for juveniles through the deposition of detritus, which is a primary food source for aquatic insect larvae. Other food sources include benthic invertebrates present in the surface layers of sediment in the riverbed.

Aquatic habitat features present near the site include boulder substrates that provide refuge from high flows, large woody debris that provides refuge from predators, and large holding pools for migrating fish. The aquatic habitat present in the area of the proposed project is described in detail in the reports on the biological evaluation conducted for the site (Grette, 2005a and Grette, 2005b).

Fish in the upper South Fork of the Skykomish River include Chinook salmon (*Oncorhynchus tshawytscha*), bull trout (*Salvelinus confluentus*), coho salmon (*O. kisutch*), pink salmon (*O. gorbuscha*), chum salmon (*O. keta*), steelhead (*O. mykiss*), coastal cutthroat trout (*O. clarki clarki*), sockeye salmon (*O.*

nerka), pacific lamprey (*Entosphenus tridentatus*), river lamprey (*Lampetra ayresi*), and mountain whitefish (*Prosopium williamsoni*). Chinook salmon and bull trout are the only species listed as threatened or endangered. Details on threatened and endangered species are discussed below. Details on all other fish mentioned above are contained in Section 2.2.6.2 of the FS (RETEC, 2005a).

The juveniles of the salmonid species would be expected to utilize the shoreline edge habitat of the Skykomish River upon emergence. Juvenile coho and pink and chum salmon typically emerge from the gravel from late February and early March through April and May. The low-velocity shoreline edge habitat of the South Fork would be used by these species. However, pink and chum generally migrate to estuarine waters immediately after emergence, and would likely be present only for a very short period.

Historically, Sunset Falls, located approximately 11 miles downstream from Skykomish, presented a barrier to the upstream migration of anadromous fish in the Skykomish River. The Washington Department of Fish and Wildlife began to trap and haul anadromous fish around Sunset Falls in 1952. This operation continues to be performed annually.

The two threatened or endangered species of fish in the Skykomish River are Puget Sound chinook salmon and bull trout. In addition, coho salmon, listed as a federal candidate species, is present. Juvenile chinook would be expected to be present within the Skykomish River near the Town of Skykomish from mid to late February through May. Although juvenile bull trout rear in headwater streams and tributaries to the Skykomish River, juvenile bull trout are not expected to be present within the Skykomish River. As mentioned above, water levels within the South Fork at this time are such that the shoreline edge habitat is available to juvenile salmonids.

An approximately 0.95-acre seasonally flooded forested wetland associated with the Former Maloney Creek channel is located on and adjacent to the railyard. A smaller isolated wetland exists southeast of Old Cascade Highway, behind the school bus barn.

These wetlands are dominated by early to mid-seral trees and shrubs, with the exception of the culvert inlet site, which is dominated by emergent species (e.g., small-fruited bulrush, *Scirpus microcarpus*). Dominant canopy plant species include black cottonwood (*Populus balsamifera*), red alder (*Alnus rubra*), and big-leaf maple (*Acer macrophyllum*), with a dense understory community consisting of red-osier dogwood (*Cornus stolonifera*) and salmonberry (*Rubus spectabilis*). Relatively high densities of non-native and invasive species in the wetland area include giant knotweed (*Polygonum sachalinense*), Himalayan blackberry (*Rubus discolor*), Scot's broom (*Cytisus*

scoparius), reed-canary grass (*Phalaris arundinaceae*), and herb Robert (*Geranium robertianum*).

Adult chum salmon as well as silver salmon, pink salmon, steelhead, and cutthroat trout, have been observed by others in the Former Maloney Creek channel and in the roadside drainage ditches draining into the wetland area during the wet season. No federal- or state-listed threatened or endangered species have been observed in the study area. Aquatic wildlife habitat may be limited by the lack of permanent inundation. Isolated ponds are observed after snowmelt, but are not observed by late spring. The patches of forested and wetland habitat along the Former Maloney Creek channel are expected to be used by various birds and mammals, including towhee, dark-eyed junco, common bushtit, common crow, coyote, and raccoon (RETEC, 2003).

A quantitative functional assessment was conducted in 2003 of Former Maloney Creek channel wetlands on and adjacent to the railyard. Wetland functions were scored as low, with the exception of plant diversity, primary production and export, and general habitat suitability, which were scored as moderate. The assessment also indicated that opportunity to perform functions was moderate, except for habitat suitability for anadromous fish, which ranked low as a result of the short period of inundation and small wetland size.

Impacts: Sediment will be excavated from the Former Maloney Creek Zone. This disturbance will result in the temporary loss of aquatic habitat within that zone.

A small area along the Skykomish River beneath the Fifth Street Bridge may be impacted by excavation activity.

No direct significant impacts are anticipated to threatened or endangered species. However, there may be temporary indirect impacts associated with the temporary loss of terrestrial or aquatic habitat during cleanup.

Mitigating Measures: Restoration will occur in the disturbed area of the Skykomish River and Former Maloney Creek Zone. Contaminated sediment will be removed and replaced with clean sediment. Riparian and wetland habitat will be restored and enhanced. Restoration and enhancement activities will be completed in accordance with an approved habitat restoration plan. Aquatic habitat impacts are expected to be temporary and recover rapidly.

Fish barriers may be used in the Former Maloney Creek channel prior to and during construction to prevent fish from entering the work area. Work in riparian areas and wetlands can be scheduled for periods of time when fish and other aquatic species are not spawning.

3.4.3 The No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed. Site vegetation and terrestrial and fisheries and aquatic habitat would not be altered and would remain the same as described in Section 3.4.1.

3.4.4 Significant Unavoidable Impacts

With the implementation of mitigation measures, no significant unavoidable adverse impacts on wildlife and fish habitat or threatened or endangered species have been identified. However, there will be unavoidable significant short-term impacts to upland vegetation due to the extent of land clearing and excavation activities.

3.4.5 Cumulative Impacts

No significant cumulative impacts on fish and wildlife and their respective habitat, vegetation, and threatened or endangered species have been identified.

4 Existing Conditions, Environmental Impacts and Mitigating Measures in the Built Environment

4.1 Environmental Health

This section describes existing conditions, impacts, and mitigation measures for the environmental health element of the built environment. In accordance with 197-11-444 WAC, the environmental health element of the built environment includes toxic and hazardous materials, noise, and risk of explosion. Vibration has been added for analysis due to the likelihood of construction- and excavation- related vibration that may potentially affect nearby structures and occupants.

4.1.1 Contamination

Existing Conditions: Existing site conditions include contamination with petroleum hydrocarbons in the form of free product, dissolved hydrocarbons in groundwater, and soil contamination. The depth of contamination varies from approximately 2 feet to 15 feet below the ground surface. Arsenic and lead are present in shallow soils on the rail yard and in a few residential yards north of the rail yard. PCBs have been found in a limited area on the rail yard in shallow soils. Dioxin/furan has been found at shallow depths within the Former Maloney Creek channel.

Chapter 2 summarizes the contamination on site and references documents where the site contamination is described in detail.

Impacts: Contaminated soil and sediment will be excavated, transported by truck to on-site stockpiles for temporary storage, and transported by rail or truck off-site. Contaminated groundwater will be contained in the excavations. Free product accumulating in excavations will be removed and sent off-site for recycling or disposal. Should dewatering of excavations be necessary, contaminated water will be pumped into temporary storage tanks, treated, and discharged in accordance with NPDES permit conditions and all other applicable requirements. Site workers may come into direct contact with contaminated water, sediments, and soil.

Mitigating Measures: Areas where contaminated water, sediments, and soils are exposed to the atmosphere will be secured by using construction and safety fencing and clearly marked with appropriate signage. These areas will be restricted and accessible only to designated workers.

Containment measures will be used to control contaminated media including the use of a cofferdam (around the bridge), water storage tanks, sorbent materials, plastic sheeting, fencing, and signage. Additional information regarding the mitigation of potential contaminant releases will be provided in the Stormwater Pollution Prevention Plan.

Evacuated sediment and soil exceeding specific levels of contamination will be transported off-site and disposed of at a permitted and lined Subtitle D landfill. Stockpiled soils will be covered when not being actively handled, or stored in a covered storage. Contaminated water draining from stockpiles will be contained within impermeable liners and berms, collected, treated, and discharged in accordance with NPDES permit conditions and all other applicable requirements.

Site workers may come into direct contact with contaminated water, sediments, and soil. However, they will be working under a site-specific health and safety plan that includes training to recognize the hazards associated with contaminated water, sediments, and soil and that requires use of appropriate protective equipment of minimize potential exposure.

Work areas will be secured to make sure that the public will not be directly exposed to the contamination.

4.1.2 Noise

Existing Conditions: The three main sources of noise[8] in Skykomish are trains passing through the BNSF railyard, vehicular traffic along U.S. Highway 2, and the fire station siren. Stationary idling locomotives exceed 85 dB (the occupational limit) at 30 feet (Union Pacific Railroad, 1999) while a train traveling 30 to 40 miles-per-hour produces 88.7 dB of noise at a distance of 100 feet (RETEC, 2003b). Approximately 24 trains pass through Skykomish on average each day, but do not regularly stop and idle in town. Noise associated with these trains includes blowing train horns, wheel noise, and warning bells at street-railroad crossing barricades.

[8] Noise can be defined as unwanted sound that is disturbing or annoying. Sound can be objectionable due to pitch or loudness. Pitch depends on the frequency of vibrations that produce the sound. Loudness is the intensity of sound waves. Decibels (dB) measure the relative amplitude of sound. The decibel scale is logarithmic, meaning that an increase of 10 decibels is a ten-fold increase in acoustic energy. The A-weighted sound level (or dBA) gives greater weight to sound frequencies to which the human is ear is more sensitive. Since environmental sounds are often made up of time-varying events, most environmental sounds are described using an average level that has the equivalent acoustical energy as the summation of all the time-varying events.

Noise attenuates in the atmosphere as a function of distance between the receiver and the source. Typically noise is reduced 6 dB for every doubling in distance. Additionally noise is attenuated by intervening structures.

Impacts: Construction-related noise will be generated from truck traffic, excavation activities (scraping and banging, unloading or dumping of material), heavy equipment engine noise, and soil screening operations. Some heavy equipment will be equipped with safety alarms (beepers) that activate when the equipment reverses. These safety alarms are intended to be very loud for safety purposes.

Construction activities will be loud and are likely to adversely impact local businesses, residents, and school activities. Although noise impacts may be considered a nuisance, they are not likely to pose any health or safety concerns. Construction activities are expected to last 6 - 9 months each year through at least 2012. Noise monitoring during the 2006 Levee Zone Interim Action for Cleanup excavation activities indicated that noise levels did not exceed regulatory thresholds beyond the railyard or the excavation exclusion areas, except south of the yard near the soil loading area.

Noise will result from drilling, excavation and loading activities, and operations at the railyard including the arrival of rail cars that often occurs late at night. Noise will also result from long-term operation of remediation equipment including compressors, blowers, pumps associated with air-sparging, and the thermal or other aggressive treatment equipment at the school. The total duration of treatment under the school will be at least one year, and the total duration of air-sparging activities in the northeast developed zone will be approximately 10 years. Air sparging is included as a contingency if Site monitoring finds additional cleanup actions are needed. In such an event, air-sparging wells would be near the levee.

Mitigating Measures: Noise monitoring will be performed during construction to assess the magnitude of noise impacts.

Construction noise will be reduced by using sound-insulating enclosures for equipment where applicable, providing mufflers on engines, using quieter equipment or construction practices, and turning off equipment when not in use. To reduce construction noise at nearby receptors, the construction industry's best management practices for noise will be incorporated into construction plans and contractor specifications. Ear protection may be required for some Site workers.

Adjacent and near-by neighboring properties will also be impacted by construction noise during cleanup activities. BNSF and Ecology will meet with impacted landowners and residents to discuss issues and specific concerns, and subsequently take measures to address these issues and identify reasonable and appropriate mitigation measures.

Cleanup documents will provide specific detail as to how the measures will be implemented. With regard to excessive noise, site activities will comply with the Washington Noise Control Act (RCW 70.107; WAC 173-60.) Noise

control will include the use of mufflers on heavy and other construction equipment, turning off equipment when not in use, hearing protection, and limited hours of operation.

Normal work hours for this cleanup are 7:00 a.m. to 7:00 p.m. Monday through Saturday. State regulations establish construction work hours as 7:00 a.m. to 9:00 p.m. Monday through Friday and 9:00 a.m. to 9:00 p.m. Saturday and Sunday. BNSF will request a variance in order to begin work at 7:00 a.m. on Saturdays if needed. If other hours are to be exceeded, a variance would be requested, and Ecology would confer with the Town before determining if the substantive requirements for a variance exist. The Town would not be required to issue a variance since the cleanup action is exempt from this requirement, as described in RCW 70.105(D).090.

Work will be allowed outside normal hours if necessary to complete in-water work before the close of the fish window or to complete work prior to the end of the dry season.

A toll-free call-in line will be established so that residents and business owners impacted by excessive noise can contact a project representative.

4.1.3 Vibration

Existing Conditions: Existing sources of vibration in the Town of Skykomish include railroad and vehicular traffic and temporary construction projects (e.g., Publics Works and road improvement projects).

Impacts: Construction-related vibrations will be generated from the operation of heavy equipment, truck traffic, pneumatic hammering, sheet pile installation, and drilling.

Vibration can dislodge dirt and dust that can then be transported by wind and gravity.

Temporary vibrations are likely to adversely impact local businesses and school activities. Some of the drilling activities will occur within the school building and will result in significant but relatively short-term vibration impacts. Longer-term vibration impacts within the school may be associated with the relatively long-term operation of remediation equipment.

Some of the local residences are also likely to be impacted by vibrations. Although these impacts may be considered a nuisance, they are not likely to pose any health or safety concerns.

Construction-generated vibrations could potentially adversely impact the structural integrity of historic structures located near project work areas. These impacts may include cracking of masonry or other rigid building

materials. Construction activities are expected to last 6-9 months each year through at least 2012.

Mitigating Measures: To reduce construction-generated vibration at nearby receptors, truck routes and speed limitations may be established, and the construction industry's best management practices for vibration reduction will be incorporated into construction plans and contractor specifications. Structural monitoring of nearby historic structures will be performed.

Contractors will be required to use construction techniques with fewer vibration impacts, when practicable. Any means of reducing vibration due to drilling in the school will be carefully considered when planning for drilling. Also, drilling activities will be scheduled when school is not in session.

Structural surveys will be conducted and survey results will be used in developing a Relocation Plan prior to structure relocations and excavation.

An inspection and structural survey will be conducted on identified structures that may be affected by vibrations both before and after excavation work and relocation. The surveys will be compared, and any damage to the structures due to the vibrations will be repaired.

4.1.4 Risk of Explosion

Existing Conditions: Existing risks of explosion present in Skykomish include the transportation of explosive and flammable materials on rail cars that travel through the Town. Since there are no service stations located on the south side of the river, the only fuel trucks that enter the Town are home heating oil and propane supply trucks.

Impacts: It is not anticipated that fuel will be stored on site. However, depending on the construction equipment fuel demand and the availability of having fuel delivered by truck, it may be determined necessary to construct a temporary fuel storage facility.

Mitigating Measures: Although it is not anticipated that fuel will be stored on site, in the event that a temporary fuel storage facility is necessary, the temporary fuel storage facility will be constructed on an impervious surface, contained, and kept in an explosion-proof tank. An emergency spill response plan will be prepared for any on-site fuel storage.

4.1.5 The No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed and contamination, noise, and vibration would remain at levels as described in Section 4.1.1 (Existing Conditions).

4.1.6 Significant Unavoidable Impacts

Noise and vibration impacts will likely result in short-term significant impacts to residents, businesses and the school. With the implementation of mitigation measures, no significant unavoidable adverse impacts from contaminant exposure or risk of explosion have been identified.

4.1.7 Cumulative Impacts

With the implementation of mitigation measures, no cumulative impacts from contaminant exposure, noise, vibration or risk of explosion have been identified.

4.2 Land and Shoreline Use

This section describes existing conditions, impacts, and mitigation measures for the land and shoreline use element of the built environment. In accordance with 197-11-444 WAC, the land and shoreline use element of the built environment includes aesthetics, historic and cultural resources, housing, parks and recreation, and light and glare.

4.2.1 Current Land Use Designations

Existing Conditions: This section describes how the Town of Skykomish is zoned and current land use and development patterns.

The Town of Skykomish is a rural town and is surrounded on all sides by the Mt. Baker-Snoqualmie National Forest. The Town is divided into five zoning districts: Industrial, Commercial, Historic District/Historic Commercial, Residential, and Public (Ordinance 235, 1995).

The Industrial zone of Skykomish consists of the railyard. There are Commercial zones located on the north bank of the Skykomish River and on the north and south sides of the railyard. The remainder of the town is zoned Residential and Public. The Public zoned areas include the school, community center, town hall, post office, and library. There is a public park outside the city limits on the north side of the Skykomish River. An additional small park, the Depot Park, is located at the intersection of Fifth Street and Railroad Avenue. The Skykomish zoning designations and Historic District boundaries are shown on Figure 4-1.

The majority of businesses in Skykomish are relatively small retail establishments including a deli, vintage stove shop, tavern, gas station, a motel, and a hotel and restaurant that cater to local residents and tourists (Town of Skykomish, 1993). Besides the BNSF Railway maintenance activities, there is no other industry in Skykomish.

The Town's Critical Areas Ordinance (CAO) was adopted to designate and classify environmentally sensitive and geologically hazardous areas, including wetlands, fish and wildlife habitats, flood hazard areas, geologic hazard areas, and aquifer recharge areas. The CAO regulates alterations in and adjacent to critical areas to protect natural resource values, public resources and facilities, and public safety. The CAO also meets the requirements of the Washington Growth Management Act (RCW 36.70A) with regard to the protection of critical areas and the Shoreline Management Act (RCW 90.58) with regard to protecting shorelines. Areas within the 100-year floodplain are defined as Flood Hazard areas under the CAO.

The Skykomish River bank is a designated critical area and is subject to the provisions of the CAO and Shoreline Management Act.

Impacts: The proposed action will not result in any direct impacts or changes to current land use designations.

Mitigating Measures: As there are no direct impacts, no mitigation measures have been developed.

4.2.2 Aesthetics

Existing Conditions: The Town of Skykomish led a visioning project to identify and describe a vision for the future of Skykomish (Vision For Skykomish, Berryman & Henigar & University of Washington, August 2005). The Town's Comprehensive Plan, prepared in accordance with the requirements of the State Growth Management Act, also provides guidance for preserving and protecting aesthetic resources. The following information was derived from the 2005 Vision For Skykomish:

The community of Skykomish values the small size, simplicity, and intimacy of its town. It is situated in a mountain setting alongside the Skykomish River. The Town has a rich history rooted in timber and the development of what is now the BNSF Railway Company (BNSF).

The Town's history is visible in both the style and architecture of historic buildings such as the inn and depot. Historic references such as the sidewalks, lighting, and many of the buildings in central Skykomish evoke the early railroad era of the 1920's.

The levee provides a park-like area that affords views and access to the river. A multi-use trail runs along the top of the levee which includes native vegetation planted as part of the Levee Zone Interim Action for Cleanup during 2006.

The Town includes a portion of the Old Cascade Highway, a scenic byway which is well marked where it intersects the current highway.

The Town reflects its timber and railroad heritage. Historic and picturesque, false-front buildings line some streets. Most buildings, sharing the Town's sense of history, are wood frame with Victorian or Craftsman era details. Sidewalks along Railroad Avenue still evoke the old boardwalks with shed roof overhangs and balustraded balconies with chamfered wood posts. There is no off-street parking in Skykomish, enhancing its pedestrian friendliness.

Aesthetic conditions pertaining to the Town's historic character are further described in the cultural and historic resources section.

Impacts: Aesthetic impacts would be limited to short-term visual impacts. These visual impacts include construction work in various cleanup zones through at least 2012 including soil stockpiling on the railyard, the temporary loss of vegetation, and temporary relocation of structures. Additionally, some currently overhead utilities may be moved to new overhead locations or buried.

Groundwater monitoring well monuments and remediation equipment enclosures will be visible throughout the Town. The presence of personnel responsible for gathering monitoring data and remediation equipment operation and maintenance will be noticeable.

Groundwater monitoring and/or air-sparging wells may be located in right of ways and private properties and could potentially damage or be damaged by snow plows.

Mitigating Measures: The project area will be re-planted and restored in cooperation with affected property owners and in accordance with property access agreements. Restoration will be consistent with the Town's vision for the future (Vision For Skykomish) and Comprehensive Plan to the extent that these documents have been incorporated into the Town's land use code and zoning. Restoration work will be coordinated with the Skykomish Design Review Board.

Where practicable, the Town's design recommendations will be implemented.

Discussions have occurred among BNSF, Ecology, and the residents of the Skykomish community where they have identified additional aesthetic mitigation opportunities. These discussions have included consideration of a boat launch; professional landscaping; conduits/wires for future installation of electrical, phone, and cable infrastructure; installation of below-ground power and telephone lines; and installation of a landscape sprinkler system. With the exception of the sprinkler system, these enhancements are considered "optional" because they are not required as part of the cleanup. In addition, the community has completed a Visioning Plan that includes aesthetic impact mitigation considerations.

Groundwater monitoring and sparging wells will be constructed using flush-mount monuments where possible to minimize visual aesthetic impacts. Flush-mount construction of the well monuments will also minimize the likelihood of damage to and damage by snow plows.

Remediation equipment and equipment enclosures will be designed and landscaped to minimize visual impacts. Stockpiled soil will be removed by train or truck to manage and minimize accumulation of excavated soil according to the project schedule.

4.2.3 Cultural and Historic Resources

Existing Conditions: The Town of Skykomish includes historic structures and buildings listed on the National and State Registers of Historic Places. The Town also includes an area zoned as Historic Commercial. The designated Historic District is shown on Figure 4-1. Additional detailed information pertaining to cultural and historic resources in the Town of Skykomish can be found in the Cultural Resources Assessment Report (NWAA, 2005).

The Historic Commercial zone lies mainly to the north of the railyard and is defined differently by the National Historic Register District and an Interlocal Agreement for landmark services between the Town of Skykomish and King County. The Town of Skykomish Zoning Ordinance #235 encompasses all areas with national and local historic designations.

The National Historic Register District is defined as Railroad Ave., from 3rd Street to west of 6th Street, and part of Old Cascade Hwy. The National Register designation includes 12 buildings and the Fifth Street Bridge as well as the Skykomish Masonic Hall along Old Cascade Highway.

Prior to the national designation of the Skykomish Historic Commercial District, the Great Northern Depot and Maloney's General Store were listed separately in the National Register of Historic Places. The local designation includes 12 buildings as well, but does not include the Fifth Street Bridge.

Based on the findings of the Cultural Resources Assessment Report and comments from local affected Tribes, cultural or archaeological materials may be present within the project area. However, no significant cultural resources were discovered during the Levee Zone Interim Action for Cleanup during 2006.

Impacts: Historic residential structures may be temporarily relocated from the construction area and construction-related activity will occur in and around the school.

The school was built in 1936 and has a masonry exterior. Due to its rigidity, masonry structures can be particularly vulnerable to vibration-caused damage

(e.g., cracking). Construction-generated vibrations from drilling in the interior of the school building could potentially damage the school's exterior. Heat generated by the thermal treatment could lead to expansion stresses acting on the school building.

Some relatively minor modifications to the interior and exterior of the school may be necessary for the connection of new or relocated utilities and to allow thermal or other aggressive treatment to take place.

Historic, cultural, or archaeological artifacts could be encountered or disturbed during site excavation activities. The disturbance of artifacts can interfere with the historic or archaeological interpretation of the discovery.

Mitigating Measures: An inspection and structural survey will be conducted on historic structures before and after relocation. Structures will be monitored during the move to and from the storage location. Appropriate instrumentation will be used to monitor for structural movement and stress on structures during relocation.

In addition, before and after cleanup, structural surveys will be conducted on all historic structures that may be subject to construction-related impacts, and structural evaluations will be conducted where significant technical challenges exist. The surveys will be compared, and any damage to the structures shown to be due to the relocation, excavation, or vibrations will be repaired.

To mitigate potential damage to the historic structures by vandalism and theft, security will be provided by fencing, lighting, and security personnel.

Heaters and dehumidifiers will be operated within the relocated buildings, when necessary, to prevent potential damage from moisture and cold temperatures.

The school and other historic structures in the vicinity of the project area will be periodically inspected for evidence of construction-related damage during the duration of the project. Any observed damage will be documented and appropriate action taken as necessary to repair and protect the structure from further damage. A post-restoration structural survey will be conducted, and any remaining damage to structures identified as a result of excavation or relocation will be repaired.

Site workers will be briefed on the recognition of historic and cultural resources (e.g., artifacts). A professional archaeologist will monitor Site excavation activities in designated sensitive areas, and work will be monitored in accordance with the Cultural Resources Monitoring and Discovery Plan and all applicable rules and regulations.

4.2.4 Housing

Existing Conditions: The majority of housing units in Skykomish are single-family residences (U.S. Census Bureau, 2001) including some mobile homes. Approximately one-third of the single-family residences are used as seasonal residences. There are approximately 35 residential dwellings (plus outbuildings), 10 commercial buildings, and 4 public facilities on the site.

The most recent census (U.S. Census Bureau, 2001) reports 214 people living in Skykomish, of which 29 (13 percent) are under the age of 19. It is estimated that up to 30 seasonal residents live in Skykomish at any time of the year (Dohran, 2003). The school is the major year-round employer in Skykomish. The number of seasonal residents and visitors is increasing. Residents of Skykomish are increasingly commuting to major employment centers. The economy of Skykomish is now dependent on the railroad, tourism, and the USFS (Town of Skykomish, 1993).

The cleanup action involves the relocation of some residential structures. Some structures may be demolished. It is anticipated that relocated residential structures will be moved to a temporary staging area while the property is cleaned up. Residents will be accommodated in acceptable alternate facilities.

The locations of the structures that will be affected by site work are shown on Figure 4-1.

Impacts: The cleanup action involves the temporary relocation of residential structures (see Figure 4-1). Prior to relocation, utilities including power, telephone, water, sewer, and natural gas would be disconnected. This work is typically limited to the confines of the crawl space of the home. People and their personal effects would be removed from the homes to alternative locations in or near Skykomish, if possible.

The process by which buildings typically are moved involves jacking the structure onto large beams that span the length of the structure. The buildings would then be moved in their entirety to the temporary staging area in Town. The building would remain on the beams throughout the duration of the cleanup in anticipation of their restoration to their original locations and orientations. It will not be possible for residents to inhabit the structures while they are temporarily and voluntarily relocated.

Any existing foundations, porches, side walks, patios, driveways, and landscaping will be cleared or excavated and materials disposed of appropriately.

Unknown existing structural damage may be discovered and require corrective action to avoid exacerbating the existing damage. Cosmetic or structural damage to the structures could potentially result from relocating

them to the designated staging area. Relocated buildings could be impacted by moisture and/or cold temperatures during staging and storage.

Affected properties within the cleanup area will be surveyed prior to cleanup. The surveyed property boundaries may not correlate with what property owners believe to be existing property boundaries and current land use patterns. Property owners affected by property boundary conflicts arising from the survey results will need to resolve those issues in a timely manner with other affected property owners and the Town.

Structural surveys and evaluations will also be conducted on residential structures that require relocation or that may be exposed to significant vibration (e.g., structures located within 15 feet of a deep excavation) to determine if the structures can be moved or withstand the vibration. These surveys and evaluations may identify pre-existing damage, which will remain the owner's responsibility.

Mitigating Measures: New foundations will be constructed on each residential lot prior to moving the houses back to their original locations. Foundation construction will include compaction of backfill to withstand the foundation loads. Each yard will be restored with landscaping and driveways will be replaced. Utilities including power, telephone, and water will be reconnected to each residence.

While the houses are being staged, heaters and dehumidifiers will be operated to prevent potential damage from moisture and cold temperature as necessary.

An inspection and structural survey will be conducted on residential structures before and after relocation. Structures will be monitored during the move to and from the storage location. Appropriate instrumentation will be used to monitor for structural movement and stress on structures during relocation.

In addition, before and after cleanup, structural surveys will be conducted on all residential structures that may be subject to construction-related impacts, and structural evaluations will be conducted where significant technical challenges exist. The surveys will be compared, and any damage to the residential structures shown to be due to the relocation, excavation or vibrations will be repaired.

Reconstruction of private residential septic systems is discussed in Section 4.4 Public Services and Utilities.

Housing relocation guidance will be available for the affected residents. The housing relocation guidance and supporting information will be prepared to assist residents with making decisions regarding their property. Structural demolition will occur only at the property owner's request. BNSF may be

willing to acquire some properties outright in order to facilitate cleanup activities and reduce the disruption of certain homeowners.

To allow time for adjacent owners to resolve property boundary issues, a comprehensive property survey of affected properties within the cleanup area should be conducted as early as possible.

4.2.5 Commercial Buildings

Existing Conditions: The Town of Skykomish Commercial Zones are located on the east and west sides of Fifth Street at the north and south ends of the Fifth Street Bridge and on the west side of Fourth Street between Railroad Avenue and the Skykomish River. An enclave of commercial property is located immediately north of the Fifth Street Bridge on the south side of State Hwy. 2.

The Town of Skykomish has also designated a Historic Commercial District along the north side of the railyard between Third Street and Seventh Street. An enclave of historic property is also located on the south side of the main rail line on the east side of Fifth Street. The Skykomish Commercial Historic District boundary is shown on Figure 4-1.

Commercial businesses in Skykomish include a deli, tavern, stove shop, gas station, motel, and two hotels, one with a restaurant. These businesses cater to local residents and tourists (Town of Skykomish, 1993).

The cleanup action involves the relocation of some commercial structures. Some structures may be demolished. It is anticipated that relocated commercial structures will be moved to a temporary staging area while the property is cleaned up. Commercial businesses will be accommodated in acceptable alternate facilities in Skykomish.

Impacts: The cleanup action involves the temporary relocation of commercial structures. Prior to relocation, utilities including power, telephone, water, septic, and natural gas would be disconnected. Businesses would be removed to alternative commercial facilities in or near Skykomish, if possible.

The process by which buildings are typically moved involves jacking the structure onto large beams that span the length of the structure. The buildings would then be moved in their entirety to the temporary staging area in Town. The buildings would remain on the beams throughout the duration of the cleanup in anticipation of their restoration to their original locations and orientations. It will not be possible for business owners to access the structures while they are temporarily and voluntarily relocated.

Any existing foundations, porches, side walks, and landscaping will be cleared or excavated and materials disposed of appropriately.

Unknown existing structural damage may be discovered and require corrective action to avoid exacerbating the existing damage. Cosmetic or structural damage to the structures could potentially result from relocating them to the designated staging area. Relocated buildings could be impacted by moisture and/or cold temperatures during staging and storage.

Air-sparging wells and equipment may be installed on commercial properties located within the NEDZ. The air-sparging equipment will be visible and will require access by project personnel for the duration of cleanup activities.

A property survey for commercial properties located within the project area will be conducted. The surveyed property boundaries may not correlate with what property owners believe to be existing property boundaries and current land use patterns. Property owners affected by property boundary conflicts arising from the survey results will need to resolve those issues with other affected property owners and the Town.

Structural evaluations will be conducted on commercial structures that require relocation or that may be exposed to significant vibration (e.g., structures located within 15 feet of a deep excavation) to determine if the structures can be moved or withstand the vibration. These surveys may identify pre-existing damage, which will remain the owner's responsibility.

While businesses not subject to relocation may remain in operation, they may find their operations notable limited or constrained by the cleanup construction activities occurring in the town.

Mitigating Measures: New foundations will be constructed prior to moving the commercial structures back to their original locations. Foundation construction will include compaction of backfill to withstand the foundation loads. Surrounding property and landscaping will be restored according to individual landscaping plans. Utilities including power, telephone and water will be reconnected to each business. Access to operating businesses and public facilities will be maintained during the cleanup.

While the commercial structures are being staged, heaters and dehumidifiers will be operated to prevent potential damage from moisture and cold temperature.

An inspection and structural survey will be conducted on commercial structures before and after relocation. Structures will be monitored during the move to and from the storage location. Appropriate instrumentation will be used to monitor for structural movement and stress on structures during relocation.

In addition, before and after cleanup, structural surveys will be conducted on all commercial structures that may be subject to construction-related impacts,

and structural evaluations will be conducted where significant technical challenges exist. The surveys will be compared, and any damage to the commercial structures shown to be due to the relocation, excavation or vibrations will be repaired.

Reconstruction of septic systems is discussed in Section 4.4 Public Services and Utilities.

A business relocation plan will be negotiated for the affected businesses. The business relocation plan and supporting information will be prepared to assist owners of ongoing businesses with making decisions regarding their property.

To allow time for adjacent business owners to resolve property boundary issues, a comprehensive property survey of affected properties within the cleanup area should be conducted as early as possible.

4.2.6 Parks and Recreation

Existing Conditions: Skykomish has one small community park that is south of U.S. Highway 2 and north of the South Fork of the Skykomish River. The park includes a baseball diamond. Access to the park is approximately half a mile east of Skykomish River. In addition, there is a small park, the Depot Park, located at the intersection of Fifth Street and Railroad Avenue. Other nearby recreational facilities include the South Fork of the Skykomish River and neighboring National Forest lands. The school playground and tennis courts are also used by the public. Mitigation associated with the 2006 Levee Zone Interim Action for Cleanup includes enhanced recreational opportunities associated with restored river access.

Impacts: No direct impacts to parks have been identified. However, public access and recreational use of the south bank of the river's shoreline area may be restricted at times throughout the duration of the project.

The school playground may be utilized as a construction-related staging area during work within and around the school and may not be available for recreational purposes during the duration of the project.

Mitigating Measures: If the school playground is not available for use due to the cleanup, temporary transportation for Skykomish School students and staff will be provided at a small community park that is south of U.S. Highway 2 and north of the South Fork of the Skykomish River during the duration of the project.

4.2.7 Light and Glare

Existing Conditions: Current light and glare sources include sparse street and residential lighting. Additional lighting sources are in place around the school building and the commercial businesses.

Impacts: Although it is not anticipated that construction activities will occur outside daylight hours, portable construction lighting may be necessary due to construction delays or timing constraints that make working during the evening hours necessary. Night lighting may also be used as a deterrent to keep wildlife and domestic animals away from exposed hazards.

Mitigating Measures: Light and glare impacts caused by portable construction lighting and night lighting, if necessary, would be directed away from homes and roads as much as possible and focused on the work areas. The lights would be shielded and turned off when not necessary.

4.2.8 The No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed. Land and shoreline use would not be altered and would remain the same as described in Section 4.2.1 Existing Conditions.

4.2.9 Significant Unavoidable Impacts

With the implementation of mitigation measures, no significant unavoidable adverse impacts to aesthetics, cultural and historic resources, parks and recreation, or light and glare have been identified. The temporary displacement and relocation of residential and commercial structures and public facilities will be a significant unavoidable impact.

4.2.10 Cumulative Impacts

With the implementation of mitigation measures, no long-term cumulative impacts to aesthetics, cultural and historic resources, housing, parks and recreation, or light and glare have been identified.

4.3 Transportation

This section describes existing conditions, impacts, and mitigation measures for the transportation element of the built environment. In accordance with 197-11-444 WAC, the transportation element of the built environment includes pedestrian traffic and vehicular traffic and parking. School access has been added for analysis due to the likelihood that construction traffic and excavation activities will potentially affect school access.

4.3.1 Highway and Street System

Existing Conditions: There is no public transportation to or within the Town of Skykomish. U.S. Highway 2 is a federal highway. U.S. Highway 2 extends west from Skykomish and ends in Everett, Washington, and extends east from Skykomish over Stevens Pass to Wenatchee, Washington, and points beyond.

The Washington State Department of Transportation (WSDOT) maintains the steel truss Fifth Street Bridge into town from U.S. Highway 2. The Fifth Street

Bridge is 102 feet long with 10 feet of clearance (Department of Highways, 1938). There are no posted load restrictions on the Fifth Street Bridge.

There are about 3.3 miles of local roads composed predominantly of asphalt concrete in Skykomish (Town of Skykomish, 1993). East-west rail lines split the Town. There is one vehicular crossing of the rail line at Fifth Street, controlled by a rail-crossing barricade with traffic lights and a warning bell.

The average annual daily traffic count for U.S. Highway 2 is approximately 4,750 vehicles (Taylor, 2003). There is limited traffic within Skykomish itself, and there are no traffic lights except at the railroad crossing with passing trains.

Impacts: Construction traffic including dump trucks and other heavy equipment, will be intense at times throughout the Town during construction. Both the eastern and western portions of Railroad Avenue are included within the remediation area; therefore, the entire road will be closed and inaccessible by the general public and emergency vehicles at times. Temporary access roads may be required at times.

Traffic may be reduced to one lane of travel along all the through-streets within the Town limits throughout the construction period. Limited access will cause delays and inconvenience. Signage related to the project will be that typical of a road construction project with traffic controls and authorized personnel access.

The project will require the transportation of an extensive quantity of contaminated soil to the temporary stockpile storage areas. This will result in frequent truck traffic throughout the Town.

The Fifth Street railroad crossing will be closed for temporary periods of time. These temporary closures will result in traffic backups on Fifth Street and increased traffic on the Old Cascade Highway and other side streets. Emergency vehicle access will be maintained across the railroad tracks.

The remediation work will create traffic disruption to residents located in and near the excavation areas. It is also anticipated that there may be some construction-related traffic associated with the construction and continuous operation of water treatment facilities and that some construction activities may extend past daylight hours on occasion.

Business owners have indicated concerns regarding traffic disruption from previous construction projects. Business customer parking and delivery vehicles could be delayed and disrupted by construction-related traffic detours. Access to commercial businesses located in the Town of Skykomish may be disrupted during the cleanup project.

Detours will redirect and may delay traffic to relocated public and commercial places of business including the Post Office, Town Hall and Whistling Post Tavern.

Mitigating Measures: Traffic control measures will be required as part of contractor submittals for each phase of work and will be described in the Traffic Control Plan in the construction plans and specifications. These measures will include construction related traffic controls and signage and plans for limiting access to cleanup zones as appropriate. The construction access and haul roads to the project site will be selected to ensure the maximum safety and efficient traffic flow.

Plans for proposed access/haul roads will be presented to Town officials, emergency personnel, and local residents for comment. Interim parking areas for affected residents and business operations will be provided. Temporary roads will be constructed to provide access for residents and emergency vehicles. Construction related damage to roads and sidewalks will be repaired or reconstructed to current standards. Traffic disruptions and delays will be minimized, and the Traffic Control Plan will identify access routes throughout the community including operating businesses and public facilities during the various phases of the project.

4.3.2 Pedestrian System

Existing Conditions: Although no official pedestrian traffic survey has been completed for the Town of Skykomish, it has been observed that pedestrians and bicyclists use both the streets and sidewalks for going about their business (including access to school, work, public facilities, and businesses). Pedestrians use the Railway crossing at Fifth Street as the only local access for crossing the railroad tracks located between the north and south sides of Town.

Impacts: Sidewalks will be temporarily removed and pedestrian access will be restricted within the project work areas. The railroad street crossings may also be closed thus preventing passage by pedestrians and bicyclists.

Mitigating Measures: Pedestrian traffic aids such as temporary ramps, sidewalks, and handicap parking will be constructed if necessary. Temporary chain-link fencing will be installed along the perimeter of the Project Area and around all stockpile, excavation, staging, and work areas. Warning signs will be posted at every entrance gate and at least every 50 feet along the fence, warning the general public that the project site contains physical and chemical hazards and that access is forbidden to unauthorized personnel.

In addition to the contractor personnel, at least one RETEC or BNSF project supervisor representative will be on-site at all times when field work is in progress. This field representative or supervisor will be the site health and

safety officer, and will endeavor to restrict access to the active work zone by any unauthorized personnel. All of the sidewalks that were either removed or damaged as a result of the proposed construction activities will be replaced.

Provision such as a temporary railway crossing within the town boundaries will be made for pedestrians to go from one side of Town to the other without having to walk undue distances.

Clearly marked pedestrian access routes will be maintained throughout the Town and across the railroad tracks during construction.

4.3.3 School Student Transportation

Existing Conditions: The school provides pedestrian, vehicle, and school bus access from Railroad Avenue and 6th Street. During the summer months prior to September 15th, an estimated 6 to 12 employee and visitor vehicles may be parked outside the school along either or both of these streets.

School buses load and unload along both streets and turn around by backing into 6th Street from Railroad Avenue and then returning eastbound on Railroad Avenue.

Impacts: The cleanup work will create traffic disruption that cannot be avoided. This traffic disruption is likely to impact the Skykomish School due to its proximity to some of the work areas. BNSF is working with the Skykomish School District to coordinate construction activities and minimize impacts.

Mitigating Measures: Fencing and signage will be erected around and adjacent to the school while the school is in operation. School officials will be provided advance notice of the drilling and remediation system installation and operation work within the school building. Emergency evacuation and ingress and egress routes will be identified and marked with signage.

Flaggers and traffic control officers may be located at strategic locations as necessary to assist with student, staff, and school bus movements.

4.3.4 Railroad Transportation

Existing Conditions: BNSF Railway operates and maintains three mainline sets of east-west oriented railroad tracks within the Town of Skykomish. Train traffic includes passage of about 24 trains per day as part of a transcontinental railway. Other secondary tracks exist on BNSF Railway property. Additional information pertaining to railroad operations within the Town of Skykomish can be found in the 2003 RI and FS.

Impacts: Numerous additional rail cars will be stored on the railyard for transporting most of the excavated material from the site. Mainline traffic is not expected to be significantly impacted during cleanup.

Mitigating Measures: Adequate plans will be prepared by the BNSF to minimize impact to the rail line traffic.

4.3.5 Parking Spaces

Existing Conditions: Parking is available along both sides of most of the streets in Skykomish. Except for the on-street parking, no public or private designated parking areas are located within the project area.

Impacts: Parking will be unavailable in cleanup areas. There will be limited parking in localized areas near the cleanup zones due to increased demand by construction workers for parking space.

Mitigating Measures: Alternate parking areas will be designated as needed.

4.3.6 The No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed. Transportation systems, parking, and access would not be altered and would remain the same as described in Section 4.3.1 Existing Conditions.

4.3.7 Significant Unavoidable Impacts

With the implementation of mitigation measures, most significant impacts will be reduced. However, the significant adverse impacts to pedestrian or vehicular traffic that have been identified cannot be avoided.

4.3.8 Cumulative Impacts

With the implementation of mitigation measures, no cumulative impacts to pedestrian or vehicular traffic have been identified.

4.4 Public Services and Utilities

This section describes existing conditions, impacts and mitigation measures for the public services and utilities element of the built environment. In accordance with 197-11-444 WAC, the public services and utilities element of the built environment includes schools, public buildings, utilities, stormwater systems, and emergency services.

4.4.1 Schools

Existing Conditions: The Skykomish Elementary and High Schools of School District 404 are located at 105 Sixth Street. The number of students enrolled in grades K through 12 since 2003 has fluctuated between 58 and 80. The School District covers an area from Index in Snohomish County to the eastern

side of Stevens Pass. School buses bringing students to school enter the Town of Skykomish on Fifth Street, turn right on Railroad Avenue, and right again onto 6th Street. The buses turn left at the three-way intersection at the end of the block and turn around (Moore, 2003).

With the exception of trains passing through town, railyard activity, and occasional miscellaneous construction work, the school is relatively quiet. Most of the school windows open, and noise and air quality are usually not disruptive to school activities.

Impacts: The project will create noise and traffic disruption that cannot be avoided to the Skykomish School due to its proximity to the proposed work area and cleanup work necessary within the school building. The school playfields may be used for project-related staging during the construction phase of the project. During this time, the school playfields will not be available for school or other recreational activities.

Cleanup activities such as drilling, installation, operation, and removal of the treatment system will generate significant noise, odor, and vibration. These activities will be done when school is not in session whenever possible. These impacts are likely to disrupt school activities and access to the school or portions thereof, possibly resulting in temporary relocation of school operations. These activities may require cleanup-related employees to enter the school premises in order to conduct on-site work.

Construction noise and vibration impacts will be particularly noticeable during school activities. Construction-generated dust may be noticeable if school windows are open during nearby construction activities. Parking near the school will be limited and restricted by construction equipment, worker staging, and work areas. School utilities may be temporarily disrupted or relocated.

The temporary relocation of students, employees, and school facilities from the lower level of the school and possibly from the entire school to an acceptable alternate location within the Town may be necessary during installation and operation of the thermal or other aggressive treatment system beneath the school. The school bathrooms, kitchen (including daily food service for 50-70 people), and some classrooms are located on the lower level. Thermal treatment activities, if used, are expected to require at least one year to complete and are expected to result in some noise, odor, and vibration. Vapor intrusion into the lower level of the school is a potential concern.

Mitigating Measures: Pedestrian and school-related vehicular traffic, including school buses, will be controlled using fencing and signage. In addition, flaggers and traffic control officers will be employed and strategically located throughout the duration of the project when school is in session so that safe access to the school is maintained.

Some or all school operations may be temporarily relocated to an acceptable alternate location in agreement with the school board and as necessary during thermal or other aggressive treatment activities beneath the school.

Vibration impacts caused by drilling within the school will be mitigated by the use of vibration-dampening equipment and techniques, and drilling will be performed when the school is not in session. Noise caused by the operation of remediation equipment will be mitigated by the use of noise-insulating equipment enclosures. An Air Monitoring Plan will be developed to identify air quality concerns that arise during the cleanup activities.

Because of the unique nature of the school on the Skykomish community, Ecology and BNSF will conduct early and open meetings regarding the development of cleanup plans for the school to minimize impact on the learning environment.

4.4.2 Public Buildings and Services

Existing Conditions: Public buildings located within the Town of Skykomish include a post office, Town Hall, library, community center, and a community church.

The cleanup action involves the relocation of some public facilities. Some structures may be demolished. It is anticipated that relocated public facilities will be moved to temporary staging areas while the property is cleaned up. Public facilities will be accommodated in acceptable alternate facilities located within the Town.

Impacts: The cleanup action involves the temporary relocation of some public buildings. Prior to relocation, utilities including power, telephone, water, septic, and natural gas would be disconnected. Essential public services will be relocated to alternative locations within the Town.

The process by which buildings are typically moved involves jacking the structure onto large beams that span the length of the structure. The buildings would then be moved in their entirety to the temporary staging area in Town. The buildings would remain on the beams throughout the duration of the cleanup in anticipation of their restoration to their original locations and orientations. It will not be possible for business owners to access the structures while they are temporarily and voluntarily relocated.

Any existing foundations, porches, sidewalks, and landscaping will be cleared or excavated and materials disposed of appropriately.

Unknown existing structural damage may be discovered and require corrective action to avoid exacerbating the existing damage. Cosmetic or structural damage to the structures could potentially result from relocating

them to the designated staging area. Relocated buildings could be impacted by moisture and/or cold temperatures during staging and storage.

Properties within the property area will be surveyed. The surveyed property boundaries may not correlate with what property owners believe to be existing property boundaries and current land use patterns. Property owners affected by property boundary conflicts arising from the survey results will need to resolve those issues with other affected property owners and the Town.

Structural evaluations will be conducted on public buildings that require relocation or that may be exposed to significant vibration (e.g., structures located within 15 feet of a deep excavation) to determine if the structures can be moved or withstand the vibration. These surveys may identify pre-existing damage, which will remain the owner's responsibility.

A comprehensive property survey should be conducted as early as possible to allow sufficient time for adjacent owners to resolve boundary issues.

Access to public facilities will be maintained during the cleanup.

Mitigating Measures: New foundations will be constructed prior to moving the public structures back to their original locations. Foundation construction will include compaction of backfill to withstand the foundation loads. Surrounding property and landscaping will be restored according to individual landscaping plans. Utilities including power, telephone, and water will be reconnected to each business.

While the public structures are being staged, heaters and dehumidifiers will be operated as needed to prevent potential damage from moisture and cold temperature.

An inspection and structural survey will be conducted on public buildings before and after relocation. Structures will be monitored during the move to and from the storage location. Appropriate instrumentation will be used to monitor for structural movement and stress on structures during relocation.

In addition, before and after cleanup, structural surveys will be conducted on all public buildings that may be subject to construction-related impacts, and structural evaluations will be conducted where significant technical challenges exist. The surveys will be compared, and any damage to the public buildings shown to be due to the relocation, excavation or vibrations will be repaired.

Reconstruction of septic systems is discussed in Section 4.4 Public Services and Utilities.

To allow time for adjacent business owners to resolve property boundary issues, a comprehensive property survey of affected properties within the cleanup area should be conducted as early as possible.

4.4.3 Utilities

Existing Conditions: Overhead power and telephone lines are present throughout the Town and within the project area. Underground utilities include waterlines, a storm drain system, and fiber optic cables. The fiber optic cables cross under the tracks at Fifth Street.

There are no natural gas distribution or municipal sewage treatment systems in Skykomish.

No water supply wells are located in the Town of Skykomish. The people of Skykomish are served by two public water supply wells that are located about 1,100 feet east (up gradient) of Skykomish. The primary well is completed to a depth of 216 feet below ground surface. A backup well is located adjacent to the primary well and is completed to a depth of 219 feet below ground surface. In 1993, the water system pumped an average of 70,000 gallons per day and 2,100,000 gallons per month. Storage capacity was provided by one water tank with a capacity of 220,000 gallons. Water from the public water system has been sampled and no contaminants related to the site have been detected.

Impacts: Temporary disruption of utilities will occur in the work areas during cleanup activities. Truck traffic associated with cleanup activities is likely to cause occasional breaks in the water distribution pipes throughout town.

Mitigating Measures: Prior to commencing any on-site activities, all underground public and private lines will be located and marked with paint and recorded on a site plan. Except for short-term disconnects necessary for construction or house moving, service will be maintained for all properties not directly impacted by cleanup activities, and service will be restored to directly-affected properties as soon as possible after return of the properties to their respective sites.

Puget Sound Energy will be contacted to relocate the overhead power lines where necessary. The telephone lines (Verizon) that run on the same poles, may be moved. BNSF will coordinate with Puget Sound Energy and Verizon to ensure minimal disruption of services.

BNSF will coordinate with the Town to ensure that water pressure is maintained throughout the Town during the cleanup activities. The storm drain system and water supply pipes in the project area will be replaced as part of this remedial action. The details of the temporary rerouting of utilities and the final permanent establishment of the utilities will be worked out with the

utility companies, the Town, and associated affected residents (where appropriate) prior to construction.

Fiber optic cable lines will be restored in areas where impacted by the project.

4.4.4 Septic Systems

Existing Conditions: Residents use on-site septic systems consisting of tanks and leach fields to treat and dispose of sanitary waste. Public Health – Seattle & King County does not normally permit replacement of on-site septic systems in the project area. Many existing septic systems do not meet current code requirements. A Comprehensive Community Sewer and Facilities Plan (Skykomish, 2007) has been developed for the Town of Skykomish that will be integrated into the cleanup work.

Impacts: On-site septic systems for relocated residential, public, and commercial structures will be decommissioned, disconnected, and removed from the project area.

Mitigating Measures: Buildings will be connected to the Skykomish community wastewater system after relocation, if it is available. All residences and commercial buildings that are to be temporarily relocated, as well as any property disturbances made to conduct the cleanup, are to be restored to pre-existing conditions according to agreements made with each property owner. Current building and septic/wastewater code requirements will be followed during all restoration work. If necessary, prior to the availability of community wastewater system infrastructure, temporary replacement septic systems will be installed by BNSF until the community wastewater system becomes available. If construction of the collection and conveyance portion of the Town's wastewater system becomes available, BNSF may agree with the Town to use this system as a temporary system provided that BNSF is responsible for all associated costs and operations of the temporary system until a fully completed and approved wastewater treatment system is available. Such operations would include effluent conveyance, treatment, and disposal. BNSF will provide all wastewater facilities and equipment located upstream of the check valve between the tank and the community wastewater pipeline.

The pre-existing and previously relocated, structures will be connected to the wastewater system by the Town when one becomes available at no charge to the property owner subject to the terms and conditions established for the community wastewater system by Town ordinance. The property owner will be required to pay monthly sewer charges and meet other requirements set forth in the sewer code and rate structures to be established by the Town Council. The project will result in a significant improvement in the sanitary sewage handling in the Town by replacing many outdated septic systems with systems that meet current public health code requirements.

BNSF will coordinate the installation of wastewater infrastructure with the Town of Skykomish such that connections and construction to the Skykomish wastewater treatment system is done in the least disruptive and most efficient– manner.

4.4.5 Stormwater Management

Existing Conditions: There is no municipal storm water treatment system in Skykomish. There are three catchments that capture and pipe stormwater in the Town of Skykomish: the town catchment; the Former Maloney Creek catchment; and the railyard catchment. The town catchment captures stormwater runoff north of the railroad tracks; the Former Maloney Creek catchment, south of the railroad tracks; and the railyard catchment, from the south side of the railroad tracks. Surface water infiltrates in unpaved areas on the north side of the railroad tracks.

North of the railroad tracks, stormwater accumulates in one of four collection basins that flow by way of one of three culverts to the west of the Fifth Street Bridge and directly into the Skykomish River. In unpaved areas on the north side of the railroad tracks, stormwater does not accumulate in these collection basins but infiltrates through surface soil.

The catchment area for the Former Maloney Creek channel is approximately 42 acres. It is bounded by Fifth Street to the west, the railroad tracks to the north, and extends no farther than the residential areas to the east and south.

Stormwater runoff passes along ditches and through culverts in the Former Maloney Creek catchment area. Twenty-four-inch culverts pass generally in the east/west direction under cross-streets and driveways along the Old Cascade Highway. The easternmost culvert passes under 4th Street and passes under each street and driveway to the west until it passes under the Old Cascade Highway in the northwest direction, connecting the flow to the Former Maloney Creek channel. Water then flows through the channel to the west, receiving runoff from the railyard.

Flow from the Former Maloney Creek channel then passes through a 36-inch culvert under the intersection of Fifth Street and the Old Cascade Highway, and under the fire station to the southwest. After the culvert, the drainage runs approximately 400 feet until it joins the current Maloney Creek channel. Maloney Creek in turn discharges into the South Fork of the Skykomish River.

The Former Maloney Creek channel receives runoff from the railyard. Stormwater on the southern side of the railyard flows to the west along the tracks to a depression just east of Fifth Street. A culvert passes from this depression to the south where it discharges into the Former Maloney Creek channel. Another culvert historically transferred stormwater from this

depression to the north under the tracks, but has since been blocked by a telephone pole, which stops flow through this culvert.

As part of the restoration work associated with the Levee Zone Interim Action for Cleanup, the stormwater collection system along W. River Road was upgraded to current code and an oil/water separator was added.

Impacts: Surface stormwater infiltration and flow patterns may be affected by the change in soil backfill and compaction.

Flow will be re-routed around the construction area, as needed, during excavation and backfilling activities.

Mitigating Measures: The area to be disturbed during each phase of remedial activities is between one and five acres; therefore, remedial action and construction activities must adhere to requirements of the General NPDES Permit to Discharge Storm Water Associated with Construction Activities. A Stormwater Pollution Prevention Plan has been prepared that includes Best Management Practices (BMPs) for managing stormwater during remedial activities. These BMPs are outlined in the Stormwater Management Manual for Western Washington (Ecology, 2005). Additionally, the site-specific plan will be updated prior to each phase of work.

Major excavation and construction activities along the riverbank and in the Former Maloney Creek channel and associated wetlands will be completed prior to beginning of the rainy season.

4.4.6 Emergency Services

Existing Conditions: The Town of Skykomish contracts fire fighting services through a contract with King County Fire District No. 50 and police protection through a contract with the King County Sheriff (Yates, 2003b). Road maintenance including snow plowing and repairing of road surfaces (Yates, 2003b) is also provided under contract by King County. The nearest hospital to Skykomish is approximately 40 miles to the west in Monroe, Washington.

Impacts: Emergency service access will be maintained throughout the duration of the project. However, there will be construction-related detours for some periods that could require emergency vehicles to take alternate routes or wait a short period of time for construction equipment to be moved. Street detours will result, in part from temporary closure of existing railroad crossings.

Mitigating Measures: Access for emergency response vehicles will be maintained at all times. Temporary access roads will be constructed as necessary to assure emergency vehicle access. Construction equipment will be

moved immediately if necessary. Access will also be maintained for ingress and egress from the school. Other temporary access is being planned to accommodate emergency access across the train tracks.

4.4.7 The No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed. Public services and utilities would not be altered and would remain the same as described in Section 4.4.1 Existing Conditions.

4.4.8 Significant Unavoidable Impacts

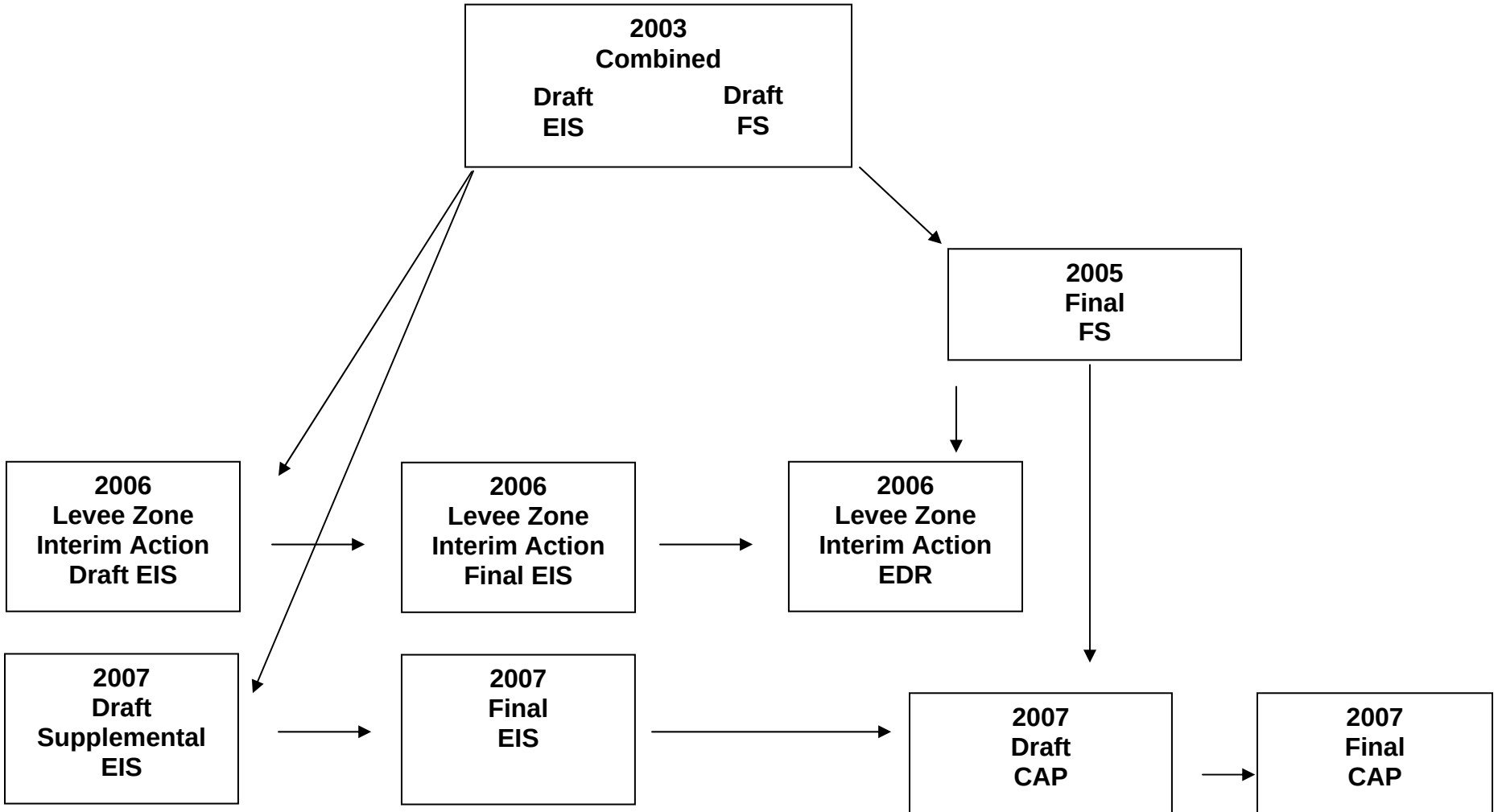
With the implementation of mitigation measures, no significant unavoidable adverse impacts to public services and utilities are identified. The most significant public services and utilities impacts identified are those described in the school impacts section.

Significant unavoidable impacts will be experienced by the school. These impacts include temporary inaccessibility to the basement, restrooms, kitchen, and woodshop – or the need to relocate school operations entirely. The school playfield and drainfield will also be temporarily inaccessible during periods of the cleanup action.

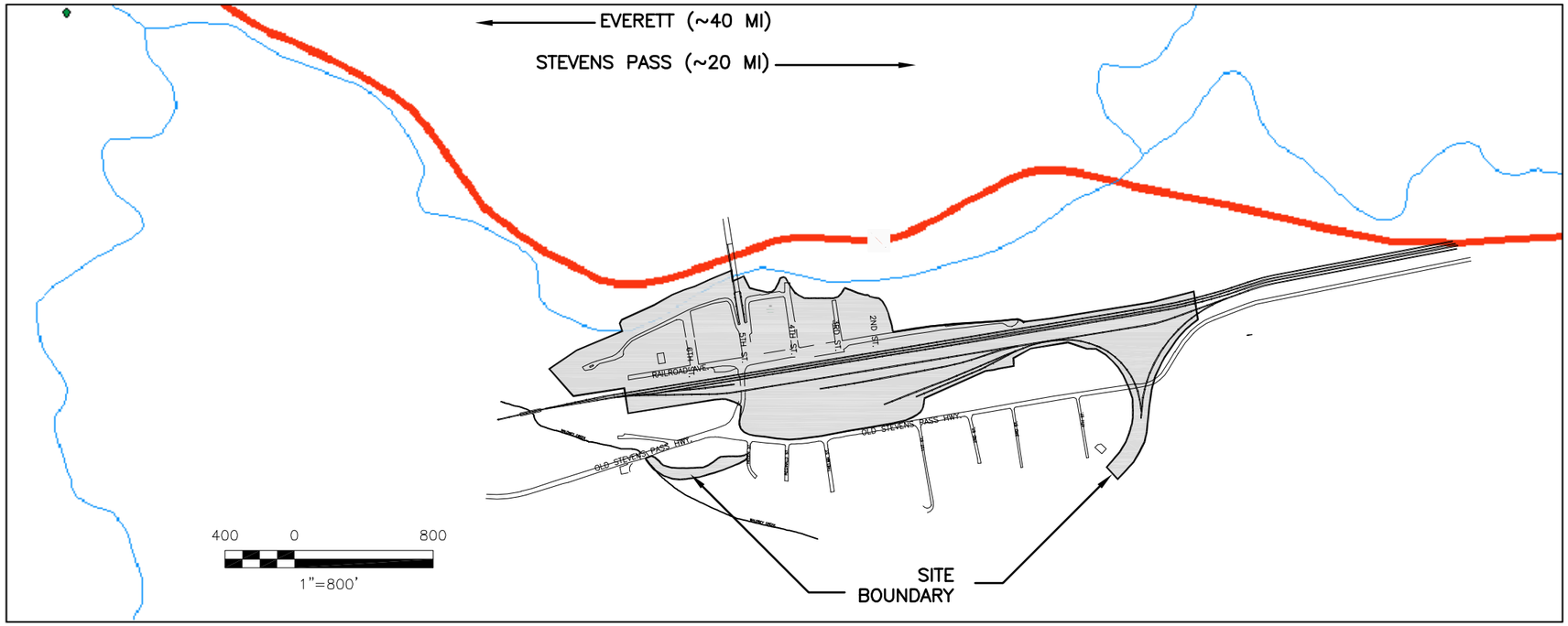
4.4.9 Cumulative Impacts

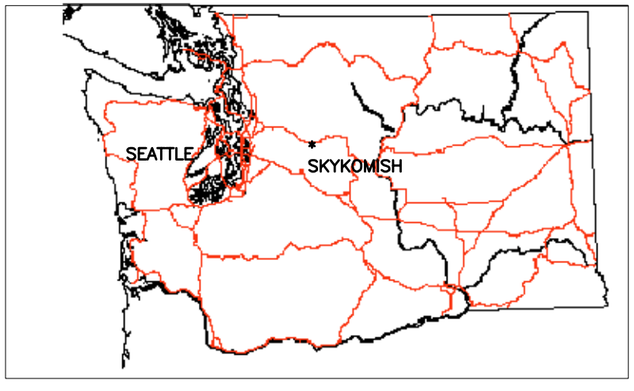
With the implementation of mitigation measures, no cumulative impacts to public services and utilities are identified.

Figure 1-1
Flowchart of Project Environmental Documents



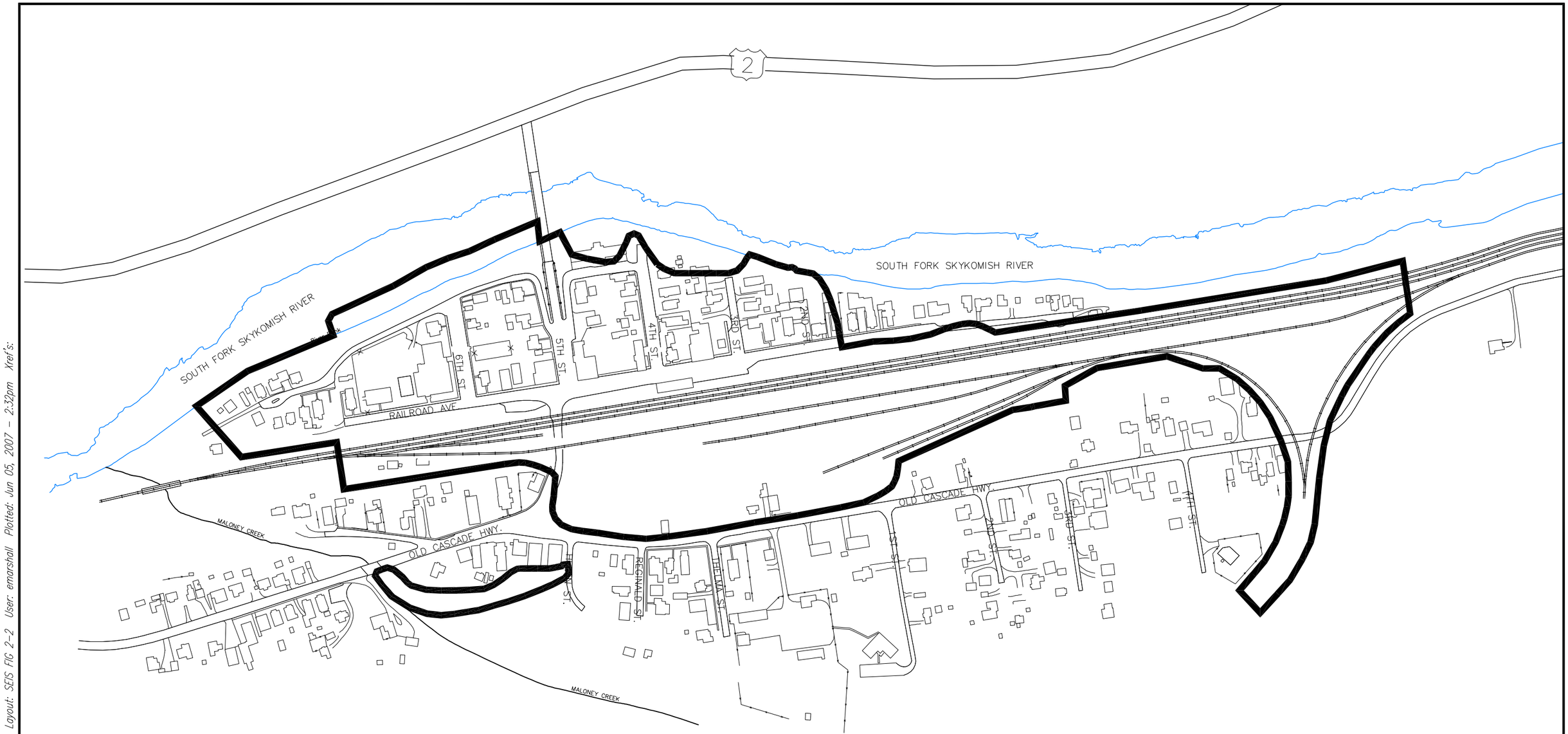
EIS - Environmental Impact Statement
FS - Feasibility Study
EDR - Engineering Design Report
CAP - Cleanup Action Plan





WASHINGTON STATE DEPARTMENT OF ECOLOGY

DRAFT SEIS BNSF RAILWAY SITE SKYKOMISH, WA			**SITE LOCATION MAP**
DATE: 6/5/07	DRWN:		**FIGURE 2-1**



WASHINGTON STATE DEPARTMENT OF ECOLOGY

150 0 300

1"=300'

DRAFT SEIS BNSF RAILWAY SITE SKYKOMISH, WA			TOWN STREET MAP
DATE: 6/5/07	DRWN:		FIGURE 2-2

File: H:\16423\ECOLOGY\6-4-07\FIG_2-TOWN_STREET.dwg Layout: SEIS FIG 2-2 User: emarshall Plotted: Jun 05, 2007 - 2:32pm Xref's:

2

EVERETT (~40 MI)

STEVENS PASS (~20 MI)

SOUTH FORK SKYKOMISH RIVER

SOUTH FORK SKYKOMISH RIVER

River Park

5TH ST.

6TH ST.

4TH ST.

3RD ST.

2ND ST.

RAILROAD AVE.

MALONEY CREEK

OLD CASCADE HWY.

HELEN ST.

REGINALD ST.

THELMA ST.

1ST ST.

2ND ST.

3RD ST.

4TH ST.

OLD CASCADE HWY.

MALONEY CREEK

Site boundary

Railroad Facility Property

WASHINGTON STATE DEPARTMENT OF ECOLOGY

N

125 0 250

1"=250'

DRAFT SEIS
BNSF RAILWAY SITE
SKYKOMISH, WA

SITE DIAGRAM

DATE: 6/5/07 | DRWN: | | | **FIGURE 2-3**

SOUTH FORK SKYKOMISH RIVER

SOUTH FORK SKYKOMISH RIVER

2

RAILROAD AVE.

5TH ST.

4TH ST.

3RD ST.

2ND ST.

1ST ST.

BNSF PROPERTY LINE

BNSF PROPERTY LINE

BNSF PROPERTY LINE

OLD CASCADE HWY.

OLD CASCADE HWY.

MALONEY CREEK

MALONEY CREEK

HELEN ST.

REGINALD ST.

THELMA ST.

1ST ST.

2ND ST.

3RD ST.

4TH ST.

20,000

2,000

200

20

LEGEND

- SITE BOUNDARY
- ZONE BOUNDARIES
- 2006 INTERIM ACTION AREA
- >208µg/L NWTPH–Dx DISSOLVED IN GROUNDWATER
- ESTIMATED EXTENT OF KNOWN FREE PRODUCT IN WELLS
- 2,000 CONCENTRATION OF TPH–Dx IN SMEAR ZONE SOIL (mg/kg)

N

125 0 250

1"=250'

WASHINGTON STATE DEPARTMENT OF ECOLOGY

DRAFT SEIS
BNSF RAILWAY SITE
SKYKOMISH, WA

SITE PETROLEUM DISTRIBUTION

DATE: 6/5/07 | DRWN: | **FIGURE 2-4**

File: H:\16423\ECOLOGY\6-4-07\FIG_4-PETROLEUM_DIST.dwg Layout: SEIS 2-4 User: emarshall Plotted: Jun 05, 2007 – 3:00pm Xref's:

2

2011

COMPLETED
2006

2010

2009

2008

GROUNDWATER
MONITORING

AIR SPARGING

2008

GROUNDWATER
MONITORING

2007-2012

2009

2009

SOUTH FORK SKYKOMISH RIVER

SOUTH FORK SKYKOMISH RIVER

River Bank

5TH ST.

6TH ST.

4TH ST.

3RD ST.

RAILROAD AVE.

BNSF PROPERTY LINE

BNSF PROPERTY LINE

BNSF PROPERTY LINE

OLD CASCADE HWY.

OLD CASCADE HWY.

MALONEY CREEK

MALONEY CREEK

HELEN ST.

REGINALD ST.

THELMA ST.

1ST ST.

2ND ST.

3RD ST.

4TH ST.

N

125 0 250

1"=250'

SOLID COLORS	ACTIVE REMEDIATION ZONE
	HYDRAULIC CONTROL AND CONTAINMENT SYSTEM
	AIR SPARGE SOIL WITH PETROLEUM BETWEEN 3,400 mg/kg & FREE PRODUCT; AIR SPARGE GROUNDWATER

SOLID COLORS — STRUCTURE DIRECTLY AFFECTED BY CONSTRUCTION – COLOR DESIGNATES ANTICIPATED YEAR OF MAJOR REMEDIATION ACTIVITIES.

WASHINGTON STATE DEPARTMENT OF ECOLOGY

DRAFT SEIS
BNSF RAILWAY SITE
SKYKOMISH, WA

CLEANUP SCHEDULE

DATE: 6/5/07 | DRWN: | **FIGURE 2-5**

File: H:\16423\ECOLOGY\6-4-07\Fig_1.3-SCHEDULE.dwg Layout: SEIS 2-5 User: emarshall Plotted: Jun 05, 2007 - 3:08pm Xref's:

2

LEVEE ZONE*

NORTHWEST DEVELOPED ZONE

NORTHEAST DEVELOPED ZONE

RAILYARD ZONE

SOUTH DEVELOPED ZONE

FORMER MALONEY CREEK ZONE

SOUTH FORK SKYKOMISH RIVER

River Bank

BNSF PROPERTY LINE

RAILROAD AVE.

5TH ST.

4TH ST.

3RD ST.

2ND ST.

6TH ST.

OLD CASCADE HWY.

MALONEY CREEK

HELEN ST.

REGINALD ST.

THELMA ST.

1ST ST.

2ND ST.

3RD ST.

4TH ST.

Areas within Railyard Zone not owned by BNSF

Note:

* As defined in the Feasibility Study (2005)

N

150 0 300

1"=300'

WASHINGTON STATE DEPARTMENT OF ECOLOGY

DRAFT SEIS
BNSF RAILWAY SITE
SKYKOMISH, WA

SITE ZONES

DATE: 6/5/07 | DRWN:

FIGURE 2-6

THE 100-YEAR FLOODPLAIN DATA IS AN UPDATED VERSION FROM FEMA.

THE FLOODWAY DATA IS A STANDARD KING COUNTY GIS COVERAGE, AND IN GENERAL IS NOT A REPLACEMENT FOR PAPER FEMA MAPS. A COMPILATION OF BEST AVAILABLE FLOODPLAIN BOUNDARIES IN WHICH THE PURPOSE OF THE COVERAGE PROVIDES THE LOCATION OF THE REGULATORY 100 YEAR FLOODPLAIN.

SOME PORTIONS OF THE COVERAGE WERE OBTAINED BY MICHAEL BAKER & ASSOCIATES (A FEMA CONTRACTOR). SOURCES FOR THE DATA INCLUDE FEMA PRELIMINARY AND FINAL FLOOD INSURANCE MAPS (FIRMs) AND KING COUNTY FLOOD BOUNDARY WORK MAPS.

ALL OTHER MAPPING INFORMATION SUPPLIED BY KING COUNTY, AND MAY NOT REFLECT ACTUAL OR CURRENT CONDITIONS. INFORMATION HAS NOT BEEN VERIFIED.

WASHINGTON STATE DEPARTMENT OF ECOLOGY

DRAFT SEIS
BNSF RAILWAY SITE
SKYKOMISH, WA

100 YEAR FLOOD ZONE

DATE: 06/05/07 | DRWN: E.M./SEA

FIGURE 3-1

File: H:\16423\ECOLOGY\6-4-07\SEIS-flood-zones.dwg Layout: ANSI_B1-CP User: emarshall Plotted: Jun 06, 2007 - 10:47am Xref's:

WASHINGTON STATE DEPARTMENT OF ECOLOGY

DRAFT SEIS BNSF RAILWAY SITE SKYKOMISH, WA			**SKYKOMISH ZONING DISTRICTS**
DATE: 00/00/07	DRWN: E.M./UKN		**FIGURE 4-1**

File: H:\16423\ECOLOGY\6-4-07\SEIS-town-zones.dwg Layout: ANSI_B1-CP User: emarshall Plotted: Jun 06, 2007 - 8:26am Xref's:

Attachment 1

SEPA Distribution List

BNSF Skykomish Cleanup Site
SEPA Distribution List
Updated 5-17-07

US EPA REGION 10

CARL KITZ
US EPA

JUDITH LEE
GEOGRAPHIC IMP UNIT
US EPA REGION 10

TOM EATON
US EPA
WA OPERATIONS OFFICE

FRED STROUD
US EPA
LAS VEGAS

US NOAA FISHERIES
NW REGION

ROBERT TAYLOR
US NOAA

KATHE HAWE
US NOAA
REGIONAL NEPA COORDINATOR

CINDY SCHEXNIDER
US FISH & WILDLIFE SERVICE

JEFF KRAUSMAN
US FISH & WILDLIFE

RYAN IKE
US FEMA REGION 10

JIM GREEN
US ARMY CORPS OF ENGINEERS

SEPA/NEPA REVIEWER
US ARMY CORPS OF ENGINEERS
US ATSDR

GARY KETCHESON
US FOREST SERVICE

BARRY GALL
US FOREST SERVICE

US FOREST SERVICE
SKYKOMISH

BARBARA BUSSE
US FOREST SERVICE
SKYKOMISH

JAMIA HANSEN-MURRAY
SEPA/NEPA REVIEWER
US FOREST SERVICE

US DEPT OF INTERIOR
BUREAU OF INDIAN AFFAIRS

STEPHANIE TOOTHMAN
US NATIONAL PARK SERVICE

PRESTON SLEEGER
US DEPT OF INTERIOR
OFFICE OF ENVIRON POLICY & COMPL

WA DEPT OF TRANSPORTATION
SEATTLE

ERNIE COMBS
WS DOT
OLYMPIA

KC ROAD SERVICES DIV

STEVE KENT
WA DEPT OF LABOR & INDUSTRIES

BILL JOLLY
WA PARKS & RECREATION

KARIN BERKHOLTZ
WA DEPT COMMUNITY DEVELOP

KWAME AJYEI
PUGET SOUND CLEAN AIR AGENCY

JOHN ANDERSON
PUGET SOUND CLEAN AIR AGENCY

WA DEPT OF HEALTH

PUGET SOUND REGIONAL COUNCIL
SEPA/NEPA REVIEWER
PUGET SOUND REG COUNCIL
BARBARA RITCHIE
ENVIRONMENTAL REVIEW
WA DEPT OF ECOLOGY

RANDY CARMAN
WA DEPT FISH & WILDLIFE

WA DEPT OF FISH & WILDLIFE

CHAD JACKSON
WA DEPT OF FISH & WILDLIFE

CYNTHIA PRATT
WA DEPT FISH & WILDLIFE

WA DEPT OF NATURAL RESOURCES

DAVE DIETZMAN
WA DEPT OF NATURAL RESOURCES

JOHN DOHRMANN
DIR GOVERNMENTAL AFFAIRS
PSAT

ELIZABETH JAKAB
PUGET SOUND WORKERS COMP

SIERRA CLUB
CASCADE CHAPTER

ALISON MIELKE
SIERRA CLUB CASCADE CHAPTER

SEATTLE AUDUBON SOCIETY

AUDUBON WASHINGTON

PEOPLE FOR PUGET SOUND

THE NATURE CONSERVANCY

STEVE WHITNEY
THE WILDERNESS SOCIETY

WA STATE TOXICS COALITION

DAVID FLAUHRTY
N CASCADES CONSERV COUNCIL

COMMUNITY COALITION FOR
ENVIRONMENTAL JUSTICE

WA CITIZENS FOR RESOURCE
CONSERVATION

ROGER HOESTEREY
TRUST FOR PUBLIC LAND

WA ENVIRON COUNCIL
SEATTLE

WA STATE ENVIRON COUNCIL
OLYMPIA

1000 FRIENDS OF WASHINGTON

REV JIM FOSTER

KELLIE KVASHIKOFF
ENVIRON & NAT RESOURCES DEPT
SNOQUALMIE TRIBE

STEVE HULSMAN
WA DEPT OF HEALTH

PAUL MARCHANT
WA DEPARTMENT OF HEALTH

ROB BANES
WA DEPT OF HEALTH
OFFICE OF ENVIRON ASSESSMENTS

SKYKOMISH COMMUNITY CHURCH

SAM MELLISON

KELLY COOPER
WA DEPT OF HEALTH

NANCY BERNARD
WA DEPT OF HEALTH

JULIET VAN EENWYK
WA DEPARTMENT OF HEALTH

SANDRA SHAW
WA DEPT OF HEALTH

LORNA GOEBEL

DARRYL JOSELYN

SEATTLE-KING CO HEALTH DEPT

ALONZO PLOUGH
KING CO HEALTH DEPARTMENT

KEN ELLIOTT
KING CO HEALTH DEPARTMENT

DAN MORAN

KING CO HEALTH DEPARTMENT

ALLENE MARES
PUBLIC HEALTH SEATTLE-KING CO

JOHN HARTMAN
SEATTLE KC HEALTH ENV HEALTH
NORTHSHORE

GREG BISHOP
KING CO HEALTH DEPARTMENT

WALLY SWOFFARD
SEATTLE KING CO PUBLIC HEALTH

DAVID SOLET
KING CO HEALTH EPIDEMIOLOGIST

DAVE LUZI
TULALIP TRIBE

DARYL WILLIAMS
TULALIP TRIBE

HENRY GOBIN
MANAGER CULTURAL RESOURCES
TULALIP TRIBES

TERI WILLIAMS
NATURAL RESOURCES
THE TULALIP TRIBES

RICHARD YOUNG
ENVIRONMENTAL DIRECTOR
THE TULALIP TRIBES

CHANTAL STEVENS
MUCKELSHOOT INDIAN TRIBE

LAW OFFICES OF BELL & INGRAM
ATTN: DAVID CARSON

RIDDELL WILLIAMS
GARY WEST

TOM BEAN
KING CO WTR & LAND RESOURCES DIV

DAVE CLARK
KING CO WATER & LAND RESOURCES DIV

MEGAN SMITH
KING CO WATER & LAND RESOURCES DIV

OLIVIA RUGO
KING CO WATER & LAND RESOURCES

MARK MITCHELL
KING CO DEPT OF DEV & ENV SRVCS

KEN JOHNSON
KING CO DEPT NAT RESOURCES

KING CO DDES

DEPUTY DIRECTOR
KING CO DEPT OF DEV & ENV SRVS

GREG BORBA
KING CO DEPT OF DEV & ENV SRVS

JULIE KOLER
KING CO HISTORIC PRES OFFICER

CHARLES SUNDBERG
KING CO HISTORIC PRESERVATION

DR ROBERT WHITLAM
WA OFFICE OF ARCHEOL & HIST PRES

RUSSELL HOLTER
WA OFFICE OF ARCHEOL & HIST PRES

KATHY LAMBERT
KING CO COUNCIL

RON SIMS
KING CO EXECUTIVE

RANDY POPLOCK
KING CO HOUSING & COMMUNITY
DEVELOPMENT

ERIC JENSEN
KING CO COMMUNITY DEV PRGM

JULIA LARSON
KING CO OFFICE OF ECON DEVEL &
BUSINESS RELATIONS

CRILLY RITZ
CULTURAL RESOURCES
SNOHOMISH CO PUBLIC WORKS

CHRIS BERGER
SKYKOMISH WATERSHED LEAD
SNOHOMISH CO PUBLIC WORKS

KATHY THORNABURGH
SNOHOMISH CO SURFACE WATER

JANET CARROLL
SURFACE WATER MGMT
SNOHOMISH CO

TOM HUBBARD
SNOHOMISH CO PUBLIC WORKS

CANDICE SOINE
SNOHOMISH CO PUBLIC WORKS

TOWN OF GOLD BAR

SKY VALLEY TOWING
ATTN: SCOTT ZACHERY

SKY CHALET

MICHAEL MOORE
SKYKOMISH ENVIRON COALITION

DARYL PETRARCA
ADAPT ENGINEERING

STAN MAY
BERRYMAN & HENIGAR

SCHOOL DIST #404

BILL AND DESIREE GOULD

TANYA BARNETT
CASCADIA LAW GROUP PLLC

JOHN ROBINSON

CHRISTINA YATES

ROBERT BOWMAN

DAN WOODFORD

KING CO LIBRARY

CHARLIE BROWN/THEORA JO RYDER

KAY JOHNSON
KING COUNTY LIBRARY SYSTEM

LAURA BOYES
WOODINVILLE LIBRARY

LINDA CYRUS
KING CO LIBRARY

MARIAMNE KINGSBURY
PUGET SOUND ENERGY

ELAINE BABBY
PUGET SOUND ENERGY

LEA BOYLE
S KING CO ENVIRON SERVICES
PUGET SOUND ENERGY

SKY HOTEL LLC
C/O INVESTORS PROPERTY MGMT

SKYKOMISH HOTEL

P & V INVESTMENT INC

US POSTAL SERVICE
SKYKOMISH BRANCH

CANDY KENNY
US POSTAL SERVICE WESTERN FSO

NEIL STAFHEST
US POSTAL SERVICE

BILL WESTWOOD
MNGR ENVRION AFFAIRS
VERIZON NW

GTE TELEPHONE OPERATION
ONE GTE PL MC HQD03WA

GTE TELEPHONE OPERATIONS
(VERIZON)

SKYRIVER INN

CORRIE J YACKULIC
SCHROETER GOLDMARK & BENDER

RICK & SUSAN GORANSON

SKY DELI

RICHARD & NANCY YARGES

WHISTLING POST TAVERN

FIRE DISTRICT 50 GARAGE

JAMES KNISLEY

SKY VALLEY RESOURCE CENTER

CASCADIA INN

HENRY SLADEK

PATRICIA GALLAGHER-CARLSON

TOWN OF SKYKOMISH

ROBERT & CHARLOTTE MACKNER

CLINT STANOVSKY

ROGER WAGONER
BERRYMAN & HENIGAR

ROD LENTZ
US FOREST SERVICE
OKANOGAN VALLEY OFFICE