DRAFT

CLEANUP ACTION PLAN

HARDEL MUTUAL PLYWOOD

THURSTON COUNTY, WASHINGTON

PREPARED BY:
Washington State Department of Ecology
Southwest Regional Office
Toxics Cleanup Program

January 2012

CONTENTS

List of Figures

List of Tables

List of Acronyms

bgs	below ground surface
CFR	Code of Federal Regulations
CLARC	Cleanup Levels and Risk Calculation
cm/sec	centimeters per second
COC	contaminant of concern
CUL	cleanup level
DNAPL	dense non-aqueous phase liquid
Ecology	Washington State Department of Ecology
EPA	Environmental Protection Agency
mg/kg	milligrams per kilogram
MNA	monitored natural attenuation
MSDS	material safety data sheet
MSL	mean sea level
MTCA	Model Toxics Control Act
MW	monitoring well
NAPL	non-aqueous phase liquid
O&M	operation and maintenance
ORP	oxygen reduction potential
PAH	polyaromatic hydrocarbon
PCHB	Pollution Control Hearings Board
PID	photo-ionization detector
ppm	parts per million
QA	quality assurance
QC	quality control
RCW	Revised Code of Washington
RI/FS	remedial investigation / feasibility study
RPD	relative percent difference
SB	soil boring
TOC	total organic carbon
TPH	total petroleum hydrocarbons
µg/L	micrograms per liter
VOC	volatile organic compound
WAC	Washington Administrative Code

1. INTRODUCTION

This Cleanup Action Plan (CAP) has been prepared by the Washington State Department of Ecology (Ecology) to specify cleanup standards and identify the cleanup action to be implemented at the Hardel Mutual Plywood Site (Hardel)(also referred to as the "Site"). As required by the Model Toxics Control Act (MTCA), Chapter 70.105D RCW, this CAP describes the alternative chosen for remediation of the Site and was written according to the requirements set forth in WAC 173-340-380. The proposed cleanup action addresses both the existing land use (vacant commercial/industrial lot) and a potential future unrestricted use of the Site.

The purpose of the draft CAP is to:

- Describe the Site, including a summary of its history and extent of contamination;
- Identify site-specific cleanup levels and points of compliance for each contaminant of concern (COC) and applicable exposure medium;
- Identify applicable state and federal laws for the proposed cleanup action;
- Summarize the cleanup action alternative evaluated in the Feasibility Study (FS);
- Identify and describe the selected cleanup action alternative for the Site;
- Outline elements of the selected cleanup action for the different media that result in protection of human health and the environment.

Previously, a remedial investigation/feasibility study (RI/FS) was conducted to investigate soil, sediment and groundwater conditions affected by past activities at the former Hardel property in Olympia, Washington. The RI/FS Report was prepared by Greylock Consulting LLC (Greylock) and was submitted to Ecology under the requirements of Agreed Order No. DE 4108 and pursuant to the MTCA, RCW 70.105D.050(1).

2. EXECUTIVE SUMMARY

A summary of the cleanup action at this Site is as follows:

- All soil contaminated with petroleum hydrocarbons and polyaromatic hydrocarbons (PAHs) above MTCA cleanup levels was removed from the Site as part of an interim action. The excavation area was then backfilled with clean fill material and topped with approximately one foot of clean recycled crushed concrete in 2010. No additional remedial action is required for upland soil.
- Four quarters of compliance groundwater monitoring were performed after source removal as part of the interim action. The confirmation groundwater monitoring

results were below the MTCA cleanup levels for petroleum hydrocarbons and PAHs. Additional groundwater monitoring is not required.

- During the remedial investigation three sediment samples contained concentrations of dioxins/furans from18 ng/KG to 41 ng/KG, higher than average background concentrations in Budd Inlet. One sediment sample also contained bis(2-thylhexyl)phthalate at a concentration of 94 mg/kg, twice the sediment quality standards (SQS) and 1.2 times the sediment cleanup screening level (CSL). There have been no documented uses of this Site that would have produced phthalates or dioxins/furans. As part of this cleanup action plan, cleanup of dioxins/furans and phthalates in the sediment is not required.

- The interim action performed by Hardel completed all required cleanup of soil, groundwater and sediment at the Hardel Mutual Plywood Site.

3. SITE DESCRIPTION

The Hardel Site was a former plywood manufacturing facility located at 1210 West Bay Drive NW in the City of Olympia, Thurston County, Washington (Figure 1). The Hardel Site is located in the SW ¼ SE ¼ Section 10, Township 18 North, Range 02 West and is identified by Thurston County tax parcel number 72600200100. The Hardel property is 17.8 acres in size, consisting of approximately 6.7 acres of uplands and 11.1 acres of tide lands. The currently vacant property primarily consists of graded surficial crushed concrete and gravel fill. The property is generally level and is bordered to the north by the former Delson Lumber Site, to the south by the former Reliable Steel Site, to the west by West Bay Drive NW and residential/commercial properties, and to the east by Budd Inlet.

The property is described with the legal description noted as SCHNEIDER LOT 1 BLK 2 LESS S 200F TGW PT HURD DLC DAF: COM SE COR DLC W 95F N18-14W 2.215 CH; E 20F; N16-53W 140.5 F; W 47.5F; N10-45W 120F; W 130F; N10-45W 60F; E 120F; N10-, by the Thurston County Assessor's Office (Figure 2). The "Site" is defined as the area of contamination, which includes portions of the Hardel property and adjacent tidelands.

4. PROJECT HISTORY

The Hardel facility was originally operated as logging/lumber related businesses from as early as 1924 through 1996 (Figure 3). Between 1924 and 1952, the Site was occupied by Henry McCleary Timber Company, Olympia Harbor Lumber Company, Olympia Towing, and West Side Log Dump. From 1951 through 1996 the Site was used by Hardel as a plywood manufacturing facility.

In 1996 a fire consumed the manufacturing facility. The only structures remaining after the fire were concrete building foundations, asphalt pavement, and an inactive rail line. Functioning storm drainage and water lines also remained on the property.

5. PHYSICAL SITE CHARACTERISTICS

Subsurface soil, sediment and groundwater are the primary media of concern for Site cleanup and are described below:

5.1 Subsurface Soil Conditions

The Site resides along Budd Inlet in Thurston County. Budd Inlet lies in the southern Puget lowlands which were subjected to multiple glaciations during the Pleistocene. Surface soils at this Site have been mapped as Alluvium (Qal) consisting of fine-grained flood plan deposits, marine alluvium, and artificial fill. Coastal bluffs to the west of the Site are comprised of glaciofluvial sands and gravels.

Boring logs from the Site show fill, marine sands, and wood from 0 to 25 feet below ground surface (bgs). In some areas poorly sorted gravel is present.

5.2 Groundwater Conditions

Shallow groundwater is present at approximately 3 to 4 feet bgs on the upland portion of the Site. Shallow groundwater occurs in alluvial deposits and marine sands. The direction of groundwater flow is toward the east, with a slight northeast component. Groundwater at the site is tidally influenced, however, groundwater flow direction and gradient is strongly influenced by groundwater movement from the bluffs west of the Site.

5.3 Sediment Conditions

Sediment in Budd Inlet consists of clay, silt, sand and gravel. Within the maintained portion of the navigation channel, finer grained sediments predominate (typically about 30% clay, 40% silt, 25% sand, and 1% gravel) (Corps, 2007).

Approximately 11.1 acres of the Site are tidelands which have a very shallow slope. The surface sediments consist primarily of silt and sand mixed particles.

6. NATURE AND EXTENT OF CONTAMINATION

A remedial investigation was completed by Greylock in December of 2007 to identify the source(s) of the contamination and complete the assessment of the vertical and horizontal extent of the contamination, and identify alternative remedial strategies (Figure 4).

"Area of Contamination 1" (AOC-1), located on the northwestern part of the site was characterized by elevated concentrations of heavy oil in soil. TPH concentrations ranged from 5,000 mg/kg at GB-8 to complete saturation at MW-1, MW-5 and MW-9. AOC-1 was completely covered by concrete or asphalt.

"Area of Contamination 2" (AOC-2), located on the southwestern part of the site was characterized by elevated concentrations of diesel in soil. Some elevated PAH's had also been detected in this area, but diesel was more widespread and thus was the primary contaminant that drove the cleanup of AOC-2. Diesel concentrations ranged from 3,200 mg/kg at GB-6 to 21,000 mg/kg at GB-20. AOC-2 was completely covered by concrete.

The Site contained two discrete areas of concern (AOC) for groundwater that were co-located with the two AOCs for soil. Prior to soil cleanup activities performed during the Interim Action, groundwater in AOC No. 1 contained free phase hydrocarbon product at MW-1, MW-5, and MW-9. AOC No. 2 contained dissolved diesel concentrations of 25,000 ug/L at MW-7 prior to the start of soil cleanup activities.

Sediment sampling was performed during the remedial investigation in 2007. Four sediment samples were obtained and subsequently analyzed for metals, pesticides, PCBs, semivolatile organic compounds, sulfide, total organic carbon (TOC), total solids, and dioxins. One sample contained bis(2-thylhexyl)phthalate at a concentration of 94 mg/kg, twice the sediment quality stands (SQS) and 1.2 times the sediment cleanup screening level (CSL). Dioxin concentrations in the sediment ranged from 18 ng/KG to 41 ng/KG. Woody debris was encountered at various depths, compositions, and locations by visual assessment on the nearshore tide lands of the Site.

6.1 Contaminants of Concern

The contaminants of concern (COCs) for the Hardel Site were defined as those hazardous substances identified as exceeding MTCA Method A cleanup levels (CULs), or Method B CULs if Method A standards are not available, at least one time in the Remedial Investigation (RI). The following table lists the COCs that had MTCA Method A/B exceedances for soil, Sediment Management Standards for sediment (SQS/CSL), and Marine Chronic Surface Water Standards for groundwater, or MTCA Method A drinking water standards if the surface water standards are not available.

Hardel Contaminants of Concern			
Hazardous Substance	**MTCA Cleanup Level**		
	Soil	**Sediment**	**Groundwater**
Benzo(a)pyrene	0.1 mg/kg	99/210	N/A
Benzo(k)fluoranthene	0.14 mg/kg	230/450	N/A
Chrysene	0.14 mg/kg	110/460	N/A
Napthalene	5 mg/kg	99/170	N/A
Dioxins/furans **	11 ppt TEQ	N/A	N/A
Phthalates **	N/A	78 ppm *	N/A
Total cPAHs TEC	0.1 mg/kg	N/A	0.03 ug/L
TPH-diesel range	2,000 mg/kg	N/A	500 ug/L
TPH-heavy oil range	2,000 mg/kg	N/A	500 ug/L
*organic carbon normalized ** Phthalates and Dioxins/furans were determined to not be COCs at this Site.			

6.2 Soil

Petroleum hydrocarbons and PAHs above the MTCA Method A CULs were limited to the western portion of the Site near West Bay Drive in AOC No. 1 and AOC No. 2 (Figure 2). AOC No. 1, located at the northwestern part of the Site, contained soil with elevated hydrocarbons as heavy oil at depth of approximately 3 to 12 feet below ground surface (bgs). AOC No. 2, located at the southwestern part of the site, contained elevated hydrocarbons as diesel from depths of approximately 3 to 11 feet bgs. PAHs above cleanup levels were also found in AOC No.2.

6.3 Ground Water

The shallow aquifer at this Site is approximately 3 to 4 feet below ground surface and discharges to Budd Inlet. Two discrete areas of concern (AOCs) for groundwater are located within the two AOCs for soil. AOC No. 1 contained up to one foot of free phase hydrocarbon product and AOC No. 2 contained dissolved diesel concentrations of 25,000 ug/L.

6.4 Sediment

Sediment samples collected during the remedial investigation resulted in one sample with bis(2-ethylhexyl)phthalate at a concentration of 94 mg/kg, twice the sediment quality standards and 1.2 times the sediment cleanup screening level. Dioxin was also found in the sediment of this Site between 18 ng/KG and 41 ng/KG. A woody debris survey found woody debris from 0-25% wood in shallow sediment (0-6 cm) samples. Six

sample locations near the shore and south of the former rail road trestle contained greater than or equal to 75% wood at depths of approximately 5 to 30 cm.

7.0 CLEANUP STANDARDS

The Hardel Mutual Plywood Site is zoned commercial-industrial and is surrounded by industrial, commercial, and residential properties. The Site may be used for residential or commercial purposes in the future. MTCA Method A cleanup standards for unrestricted use were used to evaluate soil and groundwater cleanup levels, and where Method A standards were not available, Method B standards were used. Sediment chemistry results were compared to Washington State Sediment Management Standard (SMS) criteria.

The point of compliance for soil is throughout the Site for protection of groundwater and from the ground surface to a depth of 15 feet for soil for the protection of human health based on direct contact exposure.

The point of compliance for groundwater is throughout the Site. The shallow aquifer is not a drinking water aquifer due to its proximity to marine surface water. Therefore the cleanup levels for groundwater at this Site are for the protection of marine surface water.

8.0 SUMMARY OF REMEDIAL ACTION ALTERNATIVES

In the Feasibility Study (FS), alternative components were identified and screened for their applicability in addressing Site contamination and achieving remedial objectives (meeting cleanup standards). The various components were screened to narrow the list of technologies. Other measures were considered for more detailed evaluation in the FS.

The remedial action alternatives developed and evaluated for the Hardel Site were:

Alternative 1 – Free Product Removal; Capping and Natural Attenuation

This alternative would involve:

- Passive removal of free product from groundwater in AOC No.1 using a product skimmer.
- Maintaining the currently existing concrete cap.
- Natural attenuation of hydrocarbons in groundwater.

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Alternative 2 - Free Product Removal; In Situ Treatment by Chemical Oxidation

This alternative would involve:

- Passive removal of free product from groundwater in AOC No. 1 using a product skimmer.
- In situ soil and groundwater treatment in AOCs No. 1 and No. 2 using direct push technology with Regenox, a chemical agent.

Alternative 3 - Free Product removal; On Site Bioremediation and Offsite Disposal of Unsuitable Materials

This alternative would involve:

- Active removal of free product from groundwater in AOC No. 1 by excavation and pumping.
- Excavation and onsite bioremediation (or landfarming) of geotechnically suitable soils (sands and gravels) in AOC No. 1 and No. 2.
- Excavation and offsite disposal of geotechnically unsuitable soils (silts, clays, and wood) at a landfill permitted to accept contaminated soils.

Alternative 4 – Free Product Removal; Excavation and Offsite Disposal of Contaminated Soils

This alternative would involve:

- Active removal of free product from groundwater in AOC No. 1 by excavation and pumping.
- Excavation, removal and offsite disposal of contaminated soils to a landfill permitted to accept these materials.

9.0 SELECTED REMEDIAL ACTION ALTERNATIVE

In this cleanup action plan, Alternative 4 has been identified as the preferred remedial alternative for the Hardel Site. This alternative involves addressing Site soil and groundwater contamination. Alternative 4 provides the highest level of protection to human health and the environment by removing all contaminated source material from the Site and replacing it with clean material. Free product will be pumped from an excavation at the northern end of the Site to a storage tank for disposal or recycling. Soil above cleanup levels will be removed from AOCs No. 1 and 2. Confirmation sampling will be performed to verify that all contaminated soil has been removed. One year of quarterly groundwater monitoring will be performed to confirm that the remediation has been successful.

Prior to writing this Cleanup Action Plan, free product in one area of the Site appeared to migrate towards Budd Inlet during a Supplemental Characterization and Feasibility Study at the Site, completed in October, 2009. It was determined an interim action should be performed to remove free product and soil greater than cleanup levels to prevent this migration from reaching surface waters.

The interim action removed concrete building foundations which were subsequently crushed and stockpiled for future use as surficial fill. All petroleum-contaminated soil (approximately 23,331 tons) was excavated and disposed at Weyerhaeuser Regional Landfill. Excavations were backfilled with clean fill material. The upper one foot of the Site was filled and graded with the crushed concrete. Groundwater pumped from the excavations was stored in onsite Baker Tanks and treated prior to discharge to the sanitary sewer system in accordance with the "Discharge Authorization Letter" from Lott Alliance. Four quarters of compliance groundwater monitoring following backfilling activities resulted in all groundwater contaminate concentrations achieving MTCA cleanup levels. This CAP will therefore not require additional groundwater monitoring or cleanup of groundwater.

This CAP will not require cleanup of phthalates in the Hardel tidelands because sediment containing phthalates and dioxins/furans are not associated with historic operations at this Site. Sediments in urban areas of Puget Sound frequently contain phthalates above the Washington Department of Ecology cleanup levels, which are set to protect aquatic organisms. Research shows that phthalates wind up in marine sediments and are pervasive in the environment because they are contained in hundreds of common products found in everyday life. Phthalates found in sediment at one location (GS-4) of this Site are believed to have originated from residential neighborhoods to the West, having migrated by storm water, or from historic operations at the adjacent parcel to the South.

Dioxins/furans were found at concentrations ranging from 18 to 41 ng/KG in sediments at this Site. These dioxins/furans are believed to originate from an offsite source and are not known to have originated from historic operations on the uplands of this Site. There does not appear to be a direct linkage of dioxins/furans found in the intertidal sediment to the upland source area investigated in the remedial investigation of this Site. Dioxins/furans in sediments of Budd Inlet are believed to come from several upland sources including the former Cascade Pole facility. This CAP will not require cleanup of dioxins/furans in the intertidal sediment.

Shallow sediment samples (0 to 6 cm) contained woody debris comprised most commonly from 0 to 25% wood. Sediment samples at six locations near the shore and south of the former rail road trestle from 5 to 30 cm deep found woody debris equal to or greater than 75% wood. Complete characterization of Budd Inlet sediments for woody debris hasn't been completed. This CAP will not require cleanup of woody debris in the Hardel tidelands.

10.0 CRITERIA FOR SELECTION OF CLEANUP ACTION

MTCA specifies the criteria for selecting an appropriate cleanup action (WAC 173-340-360). Presented below are the requirements for selecting a cleanup action along with determinations of how the selected cleanup action meets each requirement.

10.1 Protection of Human Health and the Environment: The selected alternative will protect human health and the environment by using protection,

performance and compliance monitoring of the soil and groundwater. The remedy will eliminate risk by removing or destroying contaminants above CUL concentrations in soil and eventually in groundwater by removing contaminants from the Site, restoring the Site to MTCA cleanup levels to eliminate future exposure to humans or ecological receptors.

10.2 Compliance with Cleanup Standards: MTCA cleanup levels are estimated to be achieved in soil and groundwater almost immediately. Cleanup levels will be met at points of compliance.

10.3 Compliance with ARARs: In addition to establishing minimum requirements for cleanup standards, applicable state and federal laws may also impose certain technical and procedural requirements for performing cleanup actions. This alternative is compliant with state and federal laws. The remedial cleanup action at the Hardel Site fulfills the requirements of a routine cleanup action under MTCA. Method A is appropriate as the primary method to establish cleanup levels for the Hardel Site because there are few hazardous substances, the Site will be undergoing a routine cleanup action, and numerical cleanup standards are available or can be calculated for the indicator hazardous substances in the media being remediated. Method A CULs will be used for hazardous substances in soil and ground water.

10.4 Compliance Monitoring: Under MTCA, compliance monitoring is required for all cleanup actions (WAC 173-340-410). Three categories of compliance monitoring are defined under MTCA:

- Protection monitoring to confirm that human health and the environment are protected during construction and operation of the cleanup action.
- Performance monitoring to confirm that the cleanup action has attained cleanup standards or remedial objectives.
- Confirmational monitoring to confirm the long-term effectiveness of the cleanup action after remedial objectives have been attained. Cleanup actions consisting of on-Site disposal, isolation, or containment will require long-term monitoring until the residual hazardous substance no longer exceeds CULs.

Protection monitoring would take place during remediation primarily using groundwater monitoring. Performance monitoring would take place during remediation as discussed above to determine that soil has been treated to CULs, as feasible. Confirmational monitoring would include a groundwater sampling program to monitor for and evaluate the natural attenuation. This program would monitor for trends in contaminant concentrations, confirm that attenuation is taking place, determine the anticipated time frame for meeting CULs, determine the potential for off-Site migration, determine whether cleanup standards are met, and assess whether additional actions may be warranted.

10.5 Long-Term Effectiveness: It is anticipated that CULs will be attained in one year after implementation of the remedy, thereby providing long-term effectiveness.

10.6 Short-Term Effectiveness: Monitoring will ensure that groundwater is not migrating to surface water. The direct contact/ingestion by humans pathway will be eliminated by removal of contaminated soil.

10.7 Permanent Reduction in the Toxicity, Mobility, and Volume of Hazardous Substances: Soil removal will occur until CULs have been attained throughout the Site. The volume of contaminated soil will be reduced significantly.

10.8 Ability to be Implemented: Soil removal at this Site is readily implementable.

10.9 Cleanup Costs: All four alternatives have similar costs, within the margin of error for estimates. The chosen remedy has a present worth estimate of $1.48 million.

10.10 Addresses Community Concerns: Community acceptance will be evaluated based on the comments received during the public comment period. Public comments will be considered during preparation of the final CAP.

11.0 APPLICABLE, RELEVANT, AND APPROPRIATE REQUIREMENTS

WAC 173-340-700(4)(a) states, "In addition to establishing minimum requirements for cleanup levels, applicable state and federal laws may also impose certain technical and procedural requirements for performing cleanup actions." Applicable, relevant, and appropriate requirements (ARARs) for this Site include:

- Chapter 49.17 RCW, Washington Industrial Safety and Health Act (WISHA).
- Chapter 70.94 RCW, Clean Air Act.
- Washington State Water Well Construction Regulations (Chapter 173-160 WAC) regulating any groundwater monitoring well installation and decommissioning.
- State Environmental Policy Act (SEPA) review on proposed state or local governmental actions including permits not otherwise categorically exempt (Chapter 197-11 WAC).
- Resource Conservation and Recovery Act (RCRA) as implemented through the state Dangerous Waste Regulations (Chapter 173-303 WAC) regulating any handling, treatment, or off-Site disposal of hazardous/dangerous waste (e.g. Granulated Activated Carbon if needed in a contingency action).

Remedial actions performed under a consent decree, enforcement order, or agreed order, and Ecology when it conducts a remedial action are exempt from the procedural requirements of certain laws. Sites that are cleaned up under an order or decree may be exempt from obtaining a permit under certain other laws but they must meet the substantive requirements of these other laws. This list does not preclude identification of other state or federal ARAR's that may be identified prior to implementation of the selected remedy.

12.0 SCHEDULE

Since cleanup activities for the Site soil, groundwater and sediment were completed (or were deemed not necessary) during the Interim Action, no schedule for implementing the cleanup action is necessary.

13.0 REFERENCES

Greylock Consulting LLC, Hardel Mutual Plywood Site, Remedial Investigation Report, December 17, 2007

Greylock Consulting LLC, Feasibility Study, Former Hardel Plywood Site, May 8, 2009

Greylock Consulting LLC, Supplemental Subsurface Investigation, Former Hardel Plywood Site, October 26, 2009

Greylock Consulting LLC, Interim Action Work Plan, Former Hardel Plywood Site, November 2010

Greylock Consulting LLC, Interim Action Closure Report, Former Hardel Mutual Plywood Site, December 2010

Greylock Consulting LLC, Compliance Well Installation & First Round of Groundwater Monitoring, February 17, 2011

Greylock Consulting LLC, Post-Construction Quarterly Groundwater Monitoring Report, March 23, 2011

Greylock Consulting LLC, Post-Construction Quarterly Groundwater Monitoring Report, June 3, 2011

Greylock Consulting LLC, Post-Construction Groundwater Monitoring Report, September 22, 2011

Greylock Consulting LLC, Post-Construction Groundwater Monitoring Summary of Four Quarters, November 28, 2011

Corps of Engineers, Olympia Harbor Maintenance Dredging and Minor Widening, Olympia, Thurston County, Washington, Draft Environmental Assessment, May 2007

FIGURES

Figure 1. Vicinity Map

Thurston County Assessor

Basic information
Property: 72600200100

Use these buttons to display different information for this property

New Search | Basic Info | Values | Structures | Taxes | Sales | Feedback | Printable | Map Info

Owner/Taxpayer Information

Role	Pct	Name Street	City	State	Country	Zip
Owner	100%	HARDEL MUTUAL PLYWOOD CORP PO BOX 540	CHEHALIS	WA		98532
Taxpayer	100%	HARDEL MUTUAL PLYWOOD CORP PO BOX 540	CHEHALIS	WA		98532

Parcel Information

Situs Address:	1210 WEST BAY DR NW, OLYMPIA
Legal Description:	SCHNEIDER LOT 1 BLK 2 LESS S 200F TGW PT HURD DLC DAF: COM SE COR DLC W 95F N18-14W 2.215 CH; E 20F; N16-53W 140.5 F; W 47.5F; N10-45W 120F; W 130F; N10-45W 60F; E 120F; N10-
Sect/Town/Range:	10 18 2W
Size:	7.00 Acres
Use Code:	96 Commercial/Industrial Land
TCA Number:	110
Neighborhood:	63U2
Property Type:	LAND-ONLY
Taxable:	YES
School District:	OLYMPIA S.D. #111
Water Source:	PUBLIC
Sewer Type:	SEWER

Office of the Assessor
2000 Lakeridge Drive SW - Olympia, WA 98502
Customer Service (360)867-2200 -- Fax (360)867-2201 -- TDD (360)754-2933

FIGURE 2

WEST BAY DRIVE

BURLINGTON NORTHERN RR

RELIABLE STEEL

N 20°30'00" W
130.55'

N 14°22'11" W
403.33'

N 12°40'12" W
421.28'

N 74°05'00" E
99.96'

N 10°40'37" W
165.41'

N 03°23'00" E
159.01'

N 89°31'12" E
10.65'

13.95'
N 77°56'46" E

N 89°31'12" E
154.45'

N 89°31'12" E
85.34'

N 89°31'12" E
76.97'

N 84°01'33" E
632.49'

N 89°31'12" E
315.79'

SHIPPING OFFICE & LUNCH ROOM

PATCH LINE

PLUG-CUTTING SAW

10' TRIM SAW

VENCER COMPOSER

METHYLENE CHLORIDE DRUMS

SPREADER

24-OP HOT PRESS

BOILER ASH ACCUMULATION AREA

GLUE WASHWATER CONTAIINMENT

BANDER

SANDER

PLUG LINE ROUNDTABLE

DWN. PLUG LINE

TRUCK PORT LOADING AREA

REEL

UPSTAIRS PLUG LINE

PLUG LINE ROUNDTABLE

NEW SIDING SAW

SIDING SAW

10-OP HOT PRESS

EFB UNIT

ROUT LINE

10' PATCH LINE

SCRUBBER CONTAINMENT

DRYER #2

PANEL TURNER

POLT B METHYL STORAGE

HOG

40-OP HOT PRESS

CORE SAW

SPREADER

8' TRIM SAW

BLUE SILO

HOG ROOM

BOILER HOUSE

MAINTENANCE

WELD SHOP

PIPE SHOP W/ BAGHOUSES ON TOP

1

2

3

SANDER DUST BIN

EXISTING FENCE

DRYER #1

AIR COMPRESSOR ROOM

GLOVE SHACK

MAIN ENTRANCE

REST ROOMS

VENEER STORAGE AREA

PETROLEUM PRODUCTS & USED OIL

PROPANE TANK

FORMER HARDEL MUTUAL PLYWOOD WATERFRONT FACILITY

CONFERENCE ROOM

SAFETY OFFICE

PURCHASING OFFICE

EXIST. TOP OF SLOPE

EXIST. SHORELINE

BUDD INLET

LEGEND

FORMER STRUCTURES:
EXTERIOR BUILDING WALL
INTERIOR BUILDING WALL
MANUFACTURING EQUIPMENT
CONCRETE SLAB

SCALE: 1"=80' FEET

0 40' 80' 160'

Modified from Boateng & Assoc. (1996) and ETS pacific (1990)

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Federal Way, WA 98003
office: 253-661-3520
cell/direct: 253-266-2838
www.greylockenv.com

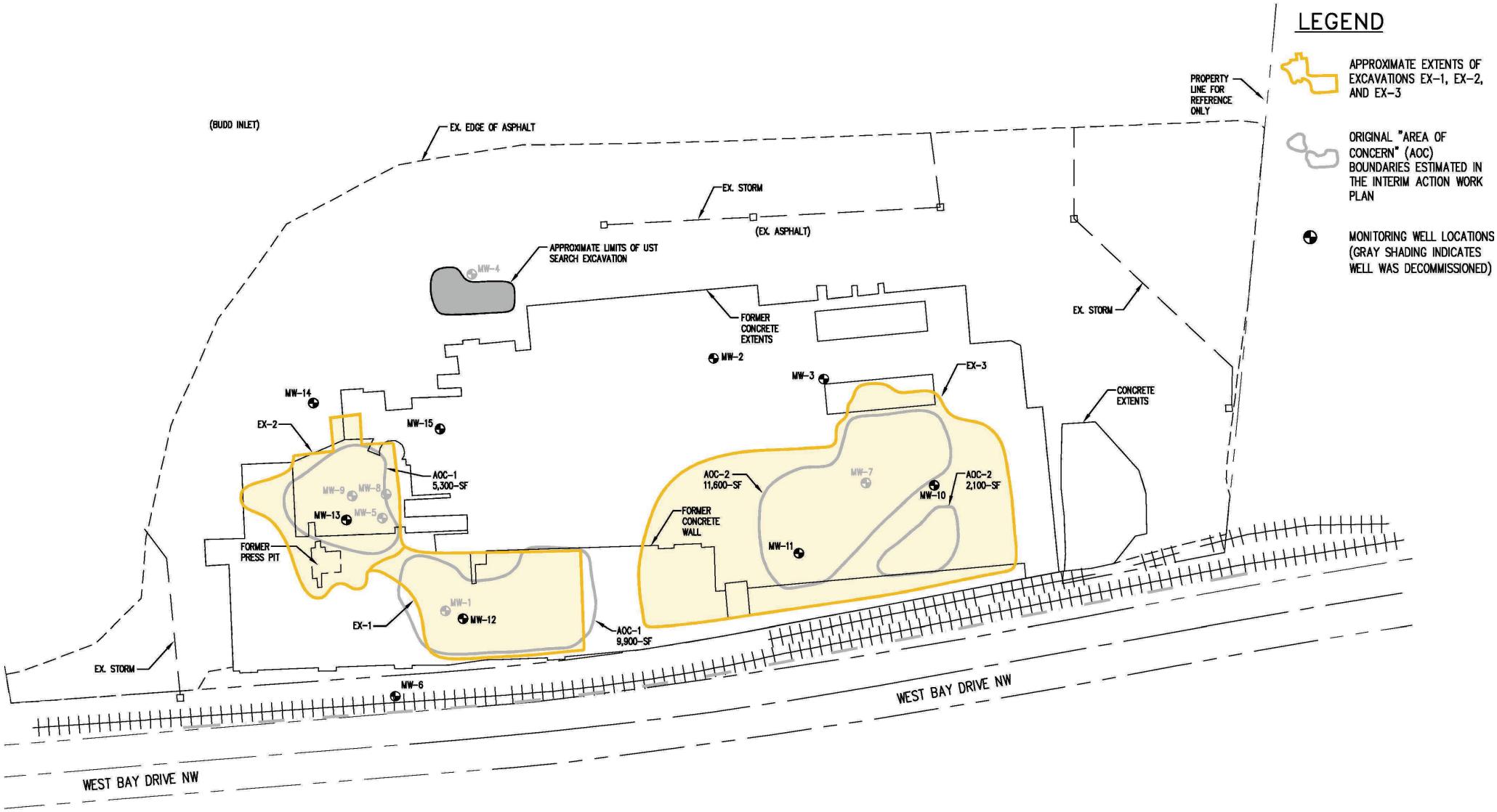
GREYLOCK CONSULTING LLC
Water Resources & Environmental Services

TITLE:

HISTORICAL FEATURES

Figure 3

Hardel Mutual Plywood 1210 West Bay Dr. Olympia, WA	DRAWN BY: SD	DATE: Sept. 11, 2007	SHEET NO: 2



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GREYLOCK CONSULTING LLC
Water Resources & Environmental Services

Modified from KPFF Demolition and Site Plan, March 2010

E N S W

0 80 160

APPROXIMATE SCALE IN FEET

FIGURE 4 : APPROXIMATE EXTENT OF SOIL EXCAVATIONS

Project : Hardel Mutual Plywood Site
Location : Olympia, Washington
Client : Hardel Mutual Plywood Corp.
Project No : 0401.2

TABLES

Table 3: "Confirmation" Soil Sampling Results: Excavation "EX-1"

Hardel Mutual Plywood, 1210 West Bay Drive NW, Olympia, WA

Test Method: NWTPH-DX/DX Extended

All results and limits in parts-per-million (ppm) or mg/kg

Test Method NWTPH-DX Extended	MTCA Method A Criteria[1]	Sample ID:	**EX-1-B1**	**EX-1-S1**	**EX-1-S2**	**EX-1-B2**	**EX-1-S3**	**EX-1-S4**	**EX-1-B3**	**EX-1-S5**	**EX-1-B4**	**EX-1-S6**	**EX-1-B5-OEX**
	(ppm)	Date Sampled:	**07/01/10**	**07/01/10**	**07/01/10**	**07/01/10**	**07/01/10**	**07/06/10**	**07/06/10**	**07/06/10**	**07/06/10**	**07/07/10**	**07/12/10**
Diesel	2,000		<25	<25	<25	<25	<25	<50	<50	72	<50	<50	<50
Heavy Oil	2,000		<50	1500	<50	<50	<50	<100	<100	<100	<100	<100	<100

Test Method NWTPH-DX Extended	MTCA Method A Criteria[1]	Sample ID:	**EX-1-B6**	**EX-1-B7**	**EX-1-B8**	**EX-1-S7**	**EX-1-S8**	**EX-1-B9**	**EX-1-S9**	**EX-1-S10**	**EX-1-S11**	**EX-1-S12**	**EX-1-S13**
	(ppm)	Date Sampled:	**07/07/10**	**07/07/10**	**07/07/10**	**07/07/10**	**07/07/10**	**07/08/10**	**07/08/10**	**07/08/10**	**07/08/10**	**07/08/10**	**07/12/10**
Diesel	2,000		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Heavy Oil	2,000		<100	<100	<100	<100	<100	<100	200	<100	<100	<100	250

Test Method NWTPH-DX Extended	MTCA Method A Criteria[1]	Sample ID:	**EX-1-S14**
	(ppm)	Date Sampled:	**07/12/10**
Diesel	2,000		<50
Heavy Oil	2,000		210

Notes: 1- Method A soil cleanup level for unrestricted land use as published in the Model Toxics Control Act (MTCA), Chapter 173-340 WAC.

Table 4: "Confirmation" Soil Sampling Results: Excavation EX-2

Hardel Mutual Plywood, 1210 West Bay Drive NW, Olympia, WA
Test Method: NWTPH-DX/DX Extended
All results and limits in parts-per-million (ppm) or mg/kg

Test Method NWTPH-DX Extended	MTCA Method A Criteria[1]	Sample ID:	EX-2-S1	EX-2-S2	OEX-2-B1[2]	OEX-2-S3A	OEX-2-S4	EX-2-B2	EX-2-B3	OEX-2-S5A	EX-2-B4	EX-2-S6	EX-2-B5
	(ppm)	Date Sampled:	07/13/10	07/13/10	08/04/10	07/29/10	07/26/10	07/15/10	07/15/10	07/29/10	07/15/10	07/15/10	07/22/10
Diesel	2,000		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Heavy Oil	2,000		<100	<100	<100	<100	420	<100	<100	<100	680	250	<100

Test Method NWTPH-DX Extended	MTCA Method A Criteria[1]	Sample ID:	EX-2-S7	EX-2-B6	EX-2-S8	OEX-2-S9	EX-2-S10	EX-2-B7	OEX-2-S11	EX-2-S12	EX-2-B8	EX-2-B9	EX-2-S13
	(ppm)	Date Sampled:	07/22/10	07/22/10	07/22/10	07/27/10	07/22/10	07/26/10	08/04/10	07/27/10	07/27/10	07/29/10	07/29/10
Diesel	2,000		<50	110	<50	<50	<50	<50	<50	<50	<50	<50	<50
Heavy Oil	2,000		<100	<100	<100	<100	200	<100	<100	<100	<100	<100	<100

Notes:
1- Method A soil cleanup level for unrestricted land use as published in the Model Toxics Control Act (MTCA), Chapter 173-340 WAC.
2- Sample logged as "OEX-2-B5" on original chain-of-custody form/lab report.

Table 5: "Confirmation" Soil Sampling Results: Excavation "EX-3"

Hardel Mutual Plywood, 1210 West Bay Drive NW, Olympia, WA
Test Method NWTPH-DX/DX Extended
All results and limits in parts-per-million (ppm) or mg/kg

Test Method NWTPH-DX Extended	MTCA Method A Criteria[1]	Sample ID:	EX-3-S1	EX-3-S2	EX-3-B1	EX-3-S3	EX-3-B2	EX-3-B3	EX-3-S4	EX-3-B4	EX-3-S5	EX-3-S6	EX-3-B-5
	(ppm)	Date Sampled:	08/11/10	08/11/10	08/11/10	08/11/10	08/11/10	08/12/10	08/12/10	08/12/10	08/12/10	08/17/10	08/19/10
Diesel	2,000		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Heavy Oil	2,000		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100

Test Method NWTPH-DX Extended	MTCA Method A Criteria[1]	Sample ID:	EX-3-S7	EX-3-B6	EX-3-S8	EX-3-B7	EX-3-S9	EX-3-S10	EX-3-B8	EX-3-B9	EX-3-S11	EX-3-S12A	EX-3-S12B
	(ppm)	Date Sampled:	08/19/10	08/19/10	08/24/10	08/25/10	08/25/10	08/25/10	08/26/10	08/30/10	08/30/10	08/30/10	08/30/10
Diesel	2,000		<50	<50	<50	<50	<50	460 / 640 (Dup)	<50	<50	<50	<50	<50
Heavy Oil	2,000		110/<100 (Dup)	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100

Test Method NWTPH-DX Extended	MTCA Method A Criteria[1]	Sample ID:	EX-3-S13	EX-3-B10	EX-3-B11	EX-3-B12	EX-3-S17	EX-3-S18	EX-3-S20	OEX-3-S14	EX-3-B13	OEX-3-S21	EX-3-S22
	(ppm)	Date Sampled:	08/30/10	09/02/10	09/02/10	09/08/10	09/08/10	09/08/10	09/10/10	09/10/10	09/10/10	09/15/10	09/15/10
Diesel	2,000		<50	<50	<50	<50	<50	<50	100	<50	<50	<50	<50
Heavy Oil	2,000		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100

Test Method NWTPH-DX Extended	MTCA Method A Criteria[1]	Sample ID:	EX-3-S23	EX-3-S24	EX-3-S25	EX-3-S26	EX-3-S27
	(ppm)	Date Sampled:	09/16/10	09/16/10	09/16/10	09/16/10	09/16/10
Diesel	2,000		1,300	<50	<50	<50	<50
Heavy Oil	2,000		<100	<100	<100	<100	<100

Notes: 1- Method A soil cleanup level for unrestricted land use as published in the Model Toxics Control Act (MTCA), Chapter 173-340 WAC.
(Dup) - Indicates result of "duplicate" sample analysis.