Former Hardel Plywood Site
1210 West Bay Drive NW
Olympia, Washington
Draft Interim Action Work Plan

December 3, 2009

Prepared For: Hardel Mutual Plywood, Inc.

Prepared By:

GREYLOCK CONSULTING LLC

GC Project No. 0391

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1.0 INTRODUCTION

This Draft Interim Action Plan (IAP) presents a summary of upland soil and groundwater conditions and recommendations for an interim action related to Hardel Mutual Plywood Corporation's (Hardel's) property located at 1210 West Bay Drive NW in Olympia, Washington. The project area is located along the western shore of Budd Inlet as shown on the Vicinity Map (Figure 1). Results of the May 8, 2009 Feasibility Study (FS) and the October 26, 2009 Supplemental Subsurface Investigation were used to develop this IAP (Greylock, 2009a,b).

The Interim Action (IA) will consist of free product removal, and excavation and offsite disposal of upland soils containing elevated total petroleum hydrocarbons (TPH) and polyaromatic hydrocarbons (PAHs). This IAP provides specific information on the interim action associated with waste materials management, health and safety, and compliance monitoring in accordance with WAC 173-340-430.

2.0 BACKGROUND INFORMATION

2.1 Site Description

The Former Hardel Plywood Site (Site) is located at 1210 West Bay Drive NW in Olympia, Washington. The property is 17.8 acres in size, consisting of approximately 6.7 acres of uplands and 11.1 acres of tide lands. The upland portion of the property consists of asphalt pavement and concrete building foundations. The property is generally level. It is bordered to the north by Budd Inlet and the former Delson Lumber Site, to the south by the former Reliable Steel Site, to the west by West Bay Drive NW and residential properties, and to the east by Budd Inlet. At the current time, the Site is vacant.

The upland portion of the Site is zoned commercial-industrial. The property is surrounded by a mix of uses, including industrial, commercial, and residential.

The Site lies along the western portion of Budd Inlet. The Site is surrounded by steep bluffs to the west and Budd Inlet to the north and east. The western edge of the Site consists of a relatively steep slope; however, the majority of the Site is relatively flat. The upland portion of the Site lies at an elevation of approximately 11 ft above Mean Sea Level (MSL).

2.2 Site History

The Site has been home to logging/lumber related businesses from as early as 1924 through1996. Between 1924 and 1951, the Site was occupied by Henry McCleary Timber Company, Olympia Harbor Lumber Company, Olympia Towing, and West Side Log Dump (Tetra Tech, 1999). 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 are concrete building foundations, asphalt pavement, and an inactive rail line. Functioning storm drainage and water lines also are present on the property.

When the plant was in operation, Hardel stored, handled, and used green veneer, petroleum products, caustic containing sodium hydroxide, low formaldehyde content resin, glue, pitch, and several finishing chemical products in the process of manufacturing plywood. The process created boiler ash waste which was recycled.

Hardel's 1990 spill contingency plan for the Site documents the presence of many tanks for the following purposes: caustic storage tank, glue storage tank, hydraulic oil storage tank, glue mixing tank, waste oil storage tank, resin storage tank, pitch scrubber tank, pitch settling tank and many 55-gallon drums of miscellaneous petroleum products. Most of these were located on the eastern side of the plant near the caustic storage area and the maintenance and welding shops. There also was one underground storage tank (UST) on the site. According to Ecology's databases it was installed in 1964 and closed in place, but the date of closure is not listed. Personnel interviews suggest that the former UST was located east of the former welding shop.

2.3 Summary of Previous Environmental Studies

Previous environmental studies performed at the site are listed below.

> Tetra Tech EM Inc., 1999. Phase 1 Environmental Site Assessment (ESA) Hardel Mutual Plywood Waterfront Property. July 1999.
>
> Stemen Environmental Inc., 2004. Phase 2 Environmental Site Assessment Report. July 6, 2004.
>
> Greylock, 2007. Draft Remedial Investigation. Former Hardel Plywood Site, 1210 NW West Bay Drive, Olympia, Washington. December 17, 2007.
>
> Greylock, 2009a. Feasibility Study. Former Hardel Plywood Site, 1210 NW West Bay Drive, Olympia, Washington. May 8, 2009.
>
> Greylock 2009b. Supplemental Subsurface Investigation. Former Hardel Plywood Site, 1210 NW West Bay Drive, Olympia, Washington. October 26, 2009.

Tetra Tech EM Inc., 1999

Tetra Tech EM Inc. performed a Phase 1 ESA at the site in July 1999. This study involved historical research and interviews. No soil, groundwater, or sediment sampling was performed during this study. Potential areas of concern were identified based on historical features (Figure 2).

Stemen Environmental Inc., 2004

Stemen Environmental Inc. performed a Phase 2 Environmental Site Assessment on the property in June and July of 2004. A total of 34 investigative soil samples and 33 investigative water samples were collected from 33 exploratory borings. Select soil and water samples from borings and test pits were tested for TPH, semivolatiles, metals, and PCBs. Testing identified the presence of heavy oil and diesel-range petroleum products in soil and groundwater on the site. Free phase petroleum product was detected in borings on the northwestern end of the property. Testing confirmed the presence of PAHs in soils on the northwestern portion of the property and in groundwater on the southwestern portion of the property.

Greylock Consulting LLC, 2007, 2009a, 2009b

Greylock completed a Remedial Investigation (RI) at the Site in December, 2007. Twenty-six (26) soil borings were installed to depths ranging from 12 to 20 ft below ground surface (bgs) using a direct push drill rig. Seven (7) of those borings were converted to shallow monitoring wells. Groundwater flow direction and tidal influence was assessed. Soil and groundwater were tested for TPH and PAHs.

The RI concluded that shallow groundwater is present at approximately 3 to 4.5 ft bgs. The direction of groundwater flow is toward the east. Tidal fluctuation does not appear to affect the direction of groundwater flow at the Site.

The RI concluded that soil containing heavy oil, diesel, and PAHs above cleanup levels are present along the western end of the Site. Groundwater in this area contained heavy oil and diesel above cleanup levels. One well at the northwestern part of the Site (MW-1) contained oil, 0.95 ft thick, floating on the water table in 2007 (Figure 3). Additional borings were recommended to further characterize the extent of soil and groundwater contamination.

Greylock completed a Supplemental Characterization and Feasibility Study at the Site in May, 2009. Eleven (11) supplemental soil borings were installed to depths ranging from 5 to 16 ft bgs using a direct push drill rig. Also, three (3) hand auger borings were installed, west of the concrete slab.

Two discrete areas of concern (AOCs) were identified for soil and groundwater. AOC No. 1 is characterized by soil and groundwater containing heavy oil above cleanup standards. Free product was observed on the water table in this area. AOC No. 2 is characterized by soil and groundwater containing diesel above cleanup standards. Both areas are located along the western part of the site. Four different remedial options were evaluated for cleanup of soil and groundwater. The preferred remedial option for the Site was identified as free product removal, excavation and offsite disposal of approximately 11,300 cubic yards of contaminated soils.

Greylock completed a Supplemental Subsurface Investigation in October, 2009. Eight (8) soil borings were installed to depths ranging from 4.5 to 20 ft bgs using a hollow stem auger rig. Two (2) wells were installed for the purpose of intercepting and recovering free product. This supplemental investigation encountered additional soil and groundwater impacted with heavy oil. The results of this investigation identified an additional 3,650 cubic yards of soil that will require excavation and offsite disposal.

3.0 NATURE AND EXTENT OF CONTAMINATION

AOC No. 1, located on the northwestern part of the site is characterized by elevated concentrations of heavy oil in soil (Figure 4). TPH concentrations range from 5,000 mg/kg at GB-8 to complete saturation at MW-1, MW-5 and MW-9. AOC No. 1 is completely covered by concrete or asphalt. It contains approximately 8,850 cubic yards of impacted soil.

AOC No. 2, located on the southwestern part of the site is characterized by elevated concentrations of diesel in soil (Figure 4). Some elevated PAHs have also been detected in this area, but diesel is more widespread and thus is the primary contaminant that drives the cleanup of AOC No. 2. Diesel concentrations range from 3,200 mg/kg at GB-6 to 21,000 mg/kg at GB-20. AOC No. 2 is completely covered by concrete. It contains approximately 6,100 cu yds of impacted soil.

The Site contains two discrete AOCs for groundwater that are located within the two AOCs for soil. Groundwater in AOC No. 1 contains free phase hydrocarbon product at MW-1, MW-5, and MW-9. AOC No. 2 contains dissolved diesel concentrations of 25,000 ug/L at MW-7.

4.0 INTERIM ACTION

The purpose of the interim action (IA) at the Site is to remove free product and soil greater than cleanup levels. The IA will achieve an immediate improvement to human health and the environment as TPH and PAH contaminated soils will no longer be present at the Site. This IA will be conducted in accordance with the MTCA cleanup regulation and applicable state and federal laws described in WAC 173-340-430.

4.1 Interim Action Activities

The following activities will be completed during the IA:

- Concrete building foundations will be removed to allow access to the contaminated soil beneath. The concrete will be removed and either hauled off to a landfill or crushed onsite and used for backfill above the water table. If any concrete contains petroleum staining, it will be segregated from the clean concrete and tested prior to hauling to a landfill.

- Contaminated areas will be excavated, product will be removed, and excavations will be dewatered to allow for removal of soil at depth. The areas surrounding MW-1, MW-5,

and MW-9 will be excavated and a temporary, sump pit with drain rock will be installed to remove free product. Following product removal, excavations will be dewatered to allow for further excavation. Water will be stored and treated in two above ground holding tanks. The first holding tank will consist of a 21,000 gallon baffled tank which will serve as a sedimentation tank. The second holding tank will consist of a 21,000 gallon reverse baffled tank which will remove residual free product, if any is present. Following treatment, water will be discharged to LOTT or other licensed water handling facilities.

- Petroleum-impacted soil will be excavated and loaded onto trucks that will transport the soil to a landfill licensed to accept this material. It is estimated that approximately 8,850 cubic yards of soil will be removed from AOC No. 1 and approximately 6,100 cubic yards of soil will be removed from AOC No. 2.

- Soil samples will be collected to confirm that all soil above cleanup levels has been removed. Samples will be analyzed for WTPH D-extended at a Washington State accredited laboratory.
    - Sidewall samples will be collected at least every 50 ft in completed excavations.
    - A minimum of 8 bottom samples will be collected from the AOC No. 1 excavation.
    - A minimum of 6 bottom samples will be collected from the AOC No. 2 excavation.

- Excavations will be backfilled with clean, imported fill. The fill will be graded and compacted across the Site. The contractor may elect to use recycled concrete from the Site for locations above the water table.

- Site storm water will be controlled. During demolition and excavation, site storm water will be controlled by blocking catch basins in the active work areas. If significant standing water accumulates during construction, it will be pumped to the above ground holding tanks.

A SEPA checklist has been prepared for this project and is included as Attachment A.

5.0 COMPLIANCE MONITORING

Compliance monitoring will be implemented during the IA at the Site in accordance with MTCA requirements. There are three types of compliance monitoring described in WAC 173-340-410: protection, performance, and confirmational monitoring. Protection monitoring will be conducted during remedial activities to confirm that human health and the environment are adequately protected. Performance monitoring will be conducted to demonstrate that soil cleanup levels have been attained at the Site. Confirmational monitoring will be conducted by sampling and analyzing site groundwater after the impacted soil has been removed.

5.1 Protection Monitoring

The purpose of protection monitoring is to confirm that human health and the environment are adequately protected during the IA. These measures will include a Health and Safety Plan (HASP), surface water runoff control, and spill prevention and pollution control (SPCC) measures associated with the work. The project HASP is included as Attachment B.

5.2 Performance Monitoring

Performance monitoring will involve collecting soil samples from the sidewalls and bottom of the excavations to confirm that concentrations of contaminants above cleanup levels have been removed from the Site.

Since dewatering is required as part of the construction, dewatering effluent will be sampled and the sample results will be evaluated by the remediation contractor to determine compliance with LOTT's standards for management and disposal.

5.3 Post-Construction Groundwater Confirmational Monitoring

Confirmational groundwater monitoring to evaluate the long-term effectiveness of the IA cleanup will be performed after the completion of remedial excavation activities. It is expected that this monitoring plan will use some of the existing wells but likely will include new groundwater monitoring wells at locations to be approved by Ecology.

6.0 QUALITY ASSURANCE/QUALITY CONTROL

Quality assurance/quality control (QA/QC) procedures and standards that will be implemented during the IA and subsequent compliance groundwater monitoring activities are presented in the SAP included as Attachment C to this document. The purpose of the SAP is to describe soil sampling protocol, analysis, and quality control procedures that will be implemented to produce chemical and field data that are representative, valid, and accurate for use in evaluating the IA effectiveness.

7.0 REPORTING

Following completion of this IA, a cleanup report summarizing the interim remedial activities, results of confirmatory soil sampling and a discussion regarding the attainment of soil cleanup levels will be prepared in accordance with WAC 173-340-400. Quarterly groundwater monitoring reports will also be prepared.

8.0 PRELIMINARY SCHEDULE

The upland remedial action is currently scheduled to begin in the second quarter of 2010. An estimated schedule is presented in the table below.

Action Items	Estimated Completion Date
Submit Draft IAP to Ecology (completed).	2009 Third Quarter
Submit Updated Draft IAP to Ecology.	2009 Fourth Quarter
30-day Public Comment Period.	2009 Fourth Quarter
Ecology Approval of Final IAP.	2010 First Quarter
Initiate Project Construction.	2010 Second Quarter
Complete Project Construction.	2010 Third Quarter

Note: The schedule was created based on our understanding of the Agreed Order process and a basic expectation of the duration of agency and public review. The duration of each action item is estimated and may change accordingly.

9.0 LIMITATIONS

We have prepared this work plan for the exclusive use of Hardel Mutual Plywood and their authorized agents and regulatory agencies as part of their evaluation of remedial alternatives at the site. This work plan is not intended for use by others, and the information contained herein is not applicable to other sites. No one except Hardel Mutual Plywood and their authorized agents should rely on this work plan without first conferring with Greylock.

Greylock personnel performed this study in accordance with generally accepted standards of care that existed in the state of Washington at the time of this study. This work plan has been prepared in accordance with generally accepted professional practices in the area at this time. We make no other warranty, either expressed or implied.

This work plan is based on conditions that existed at the time the study was completed. The findings of this work plan may be affected by the passage of time or events such as a change in property use or occupancy, or by natural events, such as floods, earthquakes, or groundwater fluctuations.

10.0 REFERENCES

Greylock, 2007. *Draft Remedial Investigation. Former Hardel Plywood Site, 1210 NW West Bay Drive, Olympia, Washington.* December 17, 2007.

Greylock, 2009a. *Feasibility Study. Former Hardel Plywood Site, 1210 NW West Bay Drive, Olympia, Washington.* May 8, 2009.

Greylock, 2009b. *Supplemental Subsurface Investigation. Former Hardel Plywood Site, 1210 NW West Bay Drive, Olympia, Washington.* November 4, 2009.

Stemen Environmental Inc., 2004. *Phase 2 Environmental Site Assessment Report. Former Hardel Mutual Plywood Waterfront Property. 1210 NW West Bay Drive, Olympia, Washington.* July 26, 2004.

Tetra Tech EM Inc., 1999. *Phase 1 Environmental Site Assessment Hardel Mutual Plywood Waterfront Property.* July 1999.

Figure 1. Vicinity Map

WEST BAY DRIVE

BURLINGTON NORTHERN RR

N 20°30'00" W
130.53'

N 14°22'11" W
403.33'

N 12°40'12" W
421.28'

N 74°05'00" W
96.96'

N 10°40'37" W
165.41'

N 03°23'00" E
159.01'

N 89°31'12" E
10.65'

N 84°01'33" E
632.49'

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 89°31'12" E
315.79'

RELIABLE STEEL

SHIPPING OFFICE & LUNCH ROOM

PATCH LINE

PLUG-CUTTING SAW

10' TRIM SAW

VENCER COMPOSER

METHYLENE CHLORIDE DRUMS

SPREADER

24-OP HOT PRESS

BANDER

SANDER

PLUG LINE ROUNDTABLE

DWN. PLUG LINE

UPSTAIRS PLUG LINE

PLUG LINE ROUNDTABLE

NEW SIDING SAW

SIDING SAW

10-OP HOT PRESS

EFB UNIT

BOILER ASH ACCUMULATION AREA

TRUCK PORT LOADING AREA

REEL

ROUT LINE

10' PATCH LINE

GLUE WASHWATER CONTAIINMENT

SCRUBBER CONTAINMENT

DRYER #2

PANEL TURNER

POLT B METHYL STORAGE

BLUE SILO

40-OP HOT PRESS

HOG

HOG ROOM

BOILER HOUSE

PIPE SHOP W/ BAGHOUSES ON TOP

MAINTENANCE

WELD SHOP

8' TRIM SAW

CORE SAW

SPREADER

DRYER #1

SANDER DUST BIN

EXISTING FENCE

PETROLEUM PRODUCTS & USED OIL

AIR COMPRESSOR ROOM

GLOVE SHACK

MAIN ENTRANCE

VENEER STORAGE AREA

REST ROOMS

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)

P.O. Box 23254
Federal Way, WA 98093
Office: (253) 941-0654
greylockllc@comcast.net

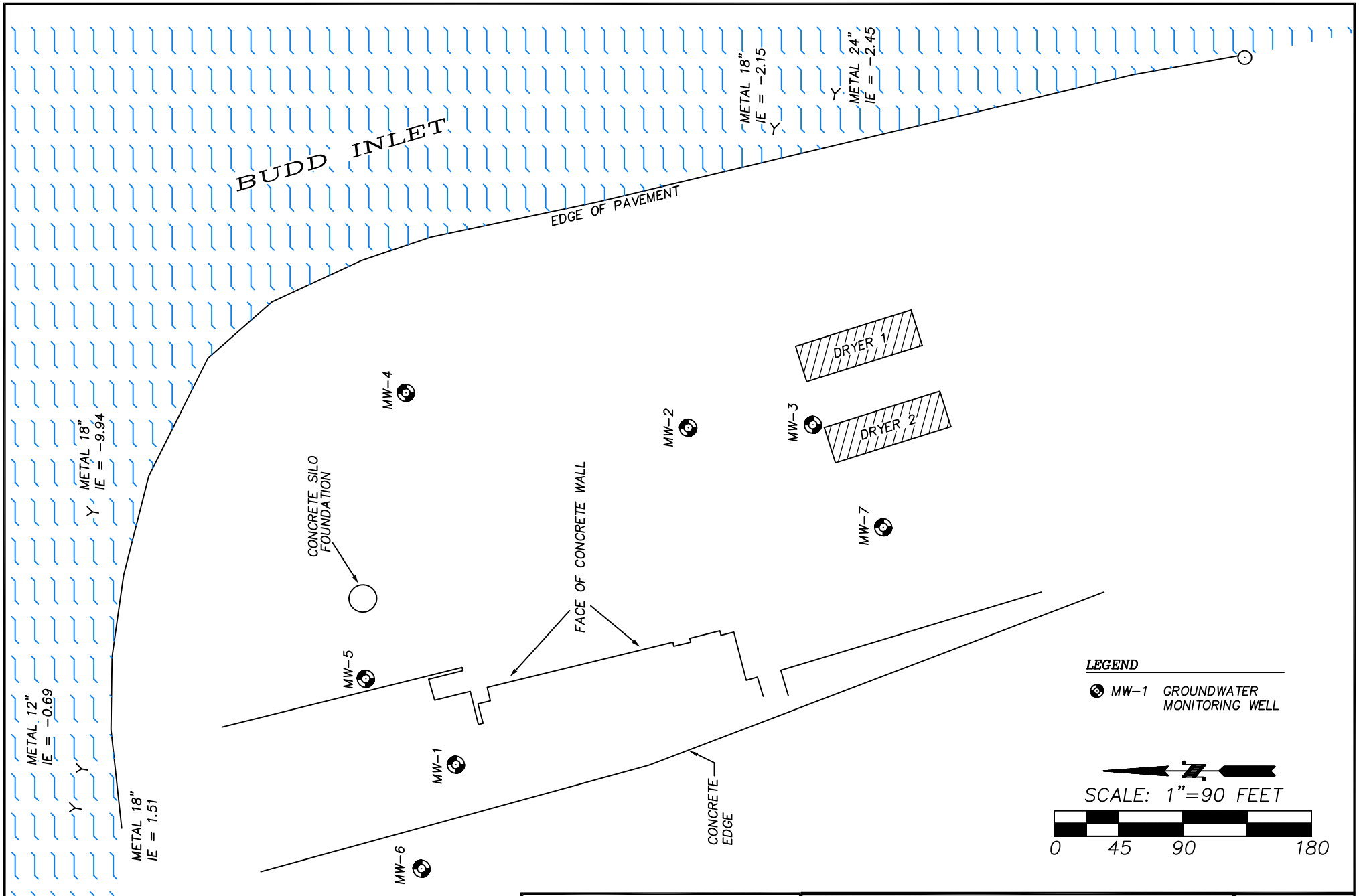
GREYLOCK CONSULTING LLC
Water Resources & Environmental Services

TITLE:

SITE PLAN

Figure 2

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



P.O. Box 23254
Federal Way, WA 98093
Office: (253) 941-0654
greylockllc@comcast.net

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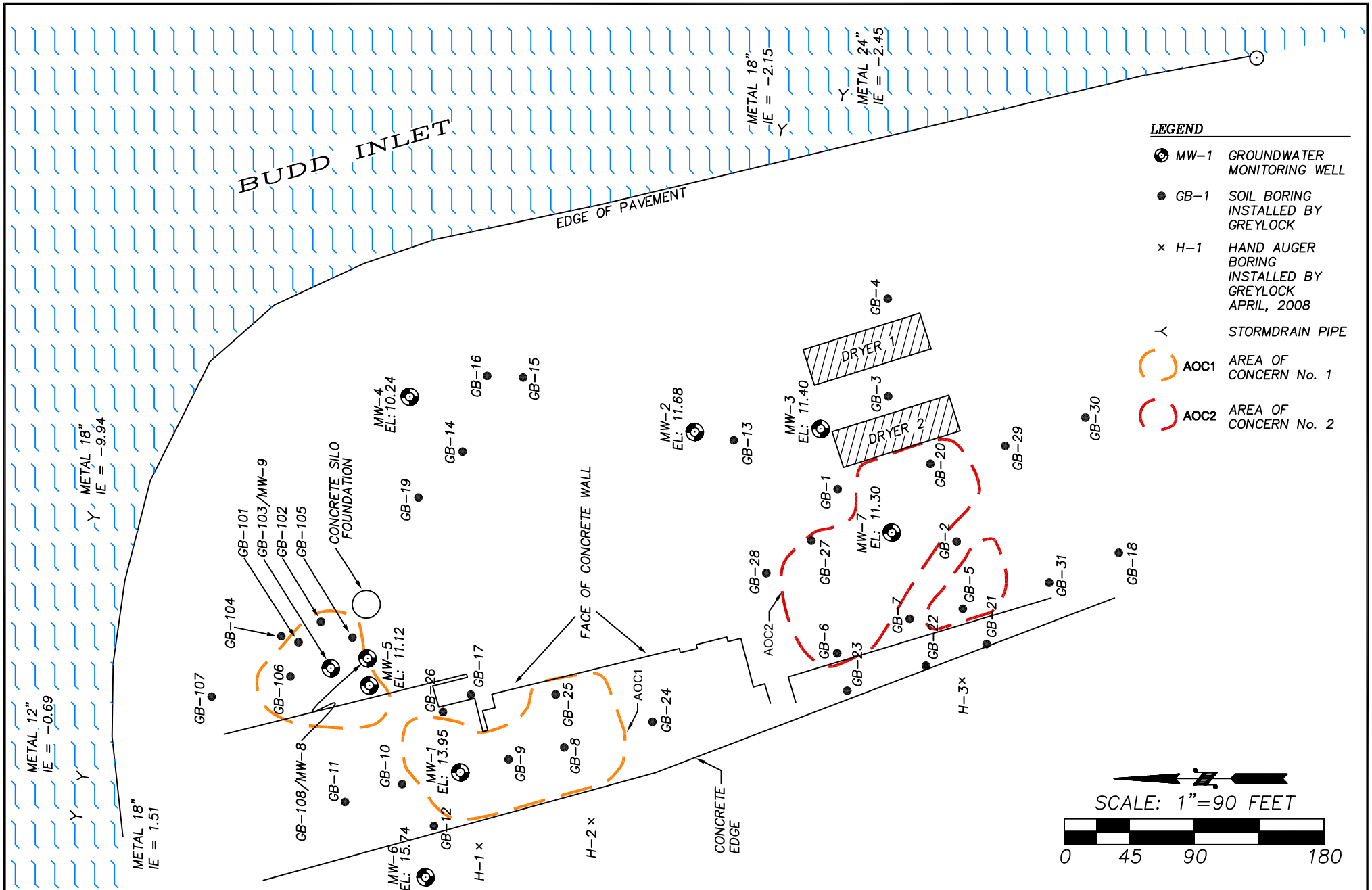
TITLE:
FIGURE 3 -
MONITORING WELL LOCATIONS

Hardel Mutual Plywood Site, Olympia, Washington
Modified from Andresen Surveying August 2007

DRAWN BY: CPS

DATE: 10/30/09

SHEET NO: 3



P.O. Box 23254
Federal Way, WA 98093
Office: (253) 941-0654
greylockllc@comcast.net

GREYLOCK CONSULTING LLC
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TITLE:
FIGURE 4 -
APPROXIMATE EXTENT OF SOIL AND GROUNDWATER ABOVE CLEANUP LEVELS

Hardel Mutual Plywood Site, Olympia, Washington
Modified from Andresen Surveying August 2007

DRAWN BY: CPS

DATE: 10/22/09

SHEET NO: 4

CPS October 22, 2009 - C:\clients\Greylock\hardel new 2.dwg