STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

In the Matter of Remedial Action at:	Agreed Order No. DE95HS-S292 Second Amendment
Lilyblad Petroleum, Inc. 2244 Port of Tacoma Road Tacoma, WA 98401	

TO: Lilyblad Petroleum, Inc.
2244 Port of Tacoma Road
P.O. Box 1556
Tacoma, WA 98401-1556

Sol-Pro, Inc.
2401 Lincoln Avenue
P.O. Box 1781
Tacoma, WA 98401-1781

Collectively referred to herein as the Potentially Liable Persons (PLPs)

I. JURISDICTION

This Second Amendment to Agreed Order (Order) No. DE95HS-S292 is issued pursuant to the authority of RCW 70.105D.050(1).

Section V., <u>Work to Be Performed</u>, is amended as follows:

4. Following approval of the remedial investigation report, Ecology shall prepare (either directly or through a contractor of its choice), and Lilyblad Petroleum, Inc. and Sol-Pro, Inc., shall reimburse Ecology's costs for, a feasibility study pursuant to the Scope of Work included as Attachment 9 to this Second Amendment.

5. After completion and approval of the feasibility study, Ecology shall prepare (either directly or through a contractor of its choice), and Lilyblad Petroleum, Inc. and Sol-Pro, Inc., shall reimburse Ecology's costs for, a Cleanup Action Plan to satisfy the requirements of Chapter 173-340-380 and to concurrently satisfy the corrective action requirements of WAC 173-303-646.

Attachments are amended to include:

Attachment Number 9: **Scope of Work for Feasibility Study**

No other condition or requirement of this Order is affected by this Second Amendment.

Lilyblad Petroleum, Inc. — Date: 8-11-06

Sol-Pro, Inc. — Date

Carol Kraege, Section Supervisor
Industrial Section
Solid Waste & Financial Assistance Program
Washington Department of Ecology

Effective date of this Second Amendment: 8-15-06

ATTACHMENT 9
SCOPE OF WORK FOR FEASIBILITY STUDY

LILYBLAD SITE
Tacoma, WA

AGENCY UNIT MANAGER	AGENCY CONTRACT OFFICER
Nancy Kmet	Laura Lowe

The Washington State Department of Ecology (Ecology) is requesting the Contractor to conduct a focused feasibility study for three cleanup alternatives for the Lilyblad Site (the Site).

SITE BACKGROUND AND HISTORY

The Lilyblad property covers 1.98 acres by the Port of Tacoma Road in Tacoma, Washington. The property borders PW Eagle to the south and the Nelson building to the Northwest. The southwest side of the property is bounded by a railroad track and the PW Eagle warehouse. The area is located on the tide flats and is classified as heavy industrial.

Lilyblad Petroleum Inc. (LPI) began operations in 1972 as a distributor of gasoline, diesel, and packaged petroleum products. In 1978, LPI began using a vacuum distillation unit to recycle spent solvent. In 1983, LPI entered a joint venture with Sol Pro Inc. to form the Sol-Pro/Lilyblad Hazardous Waste Management Corporation. The facility started blending high heat dangerous wastes to produce fuels. The partnership was dissolved in 1988 and the solvent recycling operation was discontinued three years after. The facility now stores, blends, repackages and distributes chemical and petroleum products. Pacific Functional Fluids, LLC is the current operator of the facility.

Contaminants of concern for the site have been identified, including petroleum hydrocarbons and chlorinated solvents. MTCA Method B cleanup levels for the contaminants have been established (see *attachment A*). A MTCA remedial investigation is completed for the site and shows the current extent of the contamination.

The Site, as defined by the extent of contamination in soil and groundwater, consists of the following areas (see *attachment B*):

a) The Lilyblad property;
b) The PW Eagle lot at the south corner of the Lilyblad property;
c) The PW Eagle building; and
d) From the Nelson building front parking lot to the Port of Tacoma Road.

There have been two interim remedial actions conducted at the Site, including the interception trenches system and in-situ treatment. The interception trenches were installed in 2001 by CDM at the north and south corners of the Lilyblad property with

associated water recovery and treatment system. The interception trench systems were shut down in September 2003, around the same time as the start of Terra Vac's in-situ treatment. In-situ treatment includes vapor and groundwater extraction wells and injection wells on selected parts of the Site. In a February 28, 2006 letter, Ecology directed Lilyblad to discontinue the in-situ treatment and submit a semi-annual groundwater monitoring plan to monitor the flow of groundwater off the Lilyblad property. Lilyblad submitted a proposed groundwater monitoring plan to Ecology on April 1, 2006. An Enforcement Order was issued to LPI on May 26, 2006 to revise the groundwater monitoring plan.

Ecology is prepared to evaluate the cleanup actions at the Site.

WORK TO BE PERFORMED

Ecology is issuing the Work Assignment to the Contractor for the professional services of a senior engineer and technical support staff. The senior engineer and/or support staff must have experience with generic containment, pump and treat technology, and in-situ bio and chemical treatment dealing with general TPH, PCP, and chlorinated solvents. The Work Assignment consists of a work plan for a focused feasibility study and focused feasibility study for the implementation of the following three cleanup alternatives at the Site:

Alternative #1: Containment with groundwater controls until contaminant concentrations are low enough to allow for natural attenuation. Containment includes a wall with pump and treatment system to prevent wall overflow. The treatment system refers to the existing treatment plant, installed by CDM with modifications proposed by the Contractor as needed, for treating groundwater to current NPDES Permit Limits. Subparts of this alternative include the following:

a. Slurry wall around the perimeter of the Lilyblad property;
b. Slurry wall in parts of the Site, to be determined by the Contractor
c. Steel wall around the perimeter of the Lilyblad property; and
d. Steel wall in parts of the Site, to be determined by the Contractor.

In subpart (b) and (d), the Contractor will determine the location and minimal size and length of the wall that will prevent contaminated groundwater from the Lilyblad property from migrating into adjacent properties.

Alternative #2: Generic in-situ treatment system, consisting of: 1) soil vapor extraction, 2) biodegradation using nutrients & chemical injections; and 3) chemical oxidation. The treatment system also includes the existing treatment plant, installed by CDM and modified by Terra Vac, for treating groundwater to current NPDES Permit Limits. Subparts of this alternative include the following:

a. In-situ treatment only; and
b. In-situ treatment for removal of total petroleum hydrocarbons (TPH) to MTCA Method B, and institutional controls and natural attenuation for other contaminants of concern thereafter.

Alternative #3: No action with only site groundwater monitoring at wells shown in *attachment C*. The groundwater monitoring wells are the same as the wells listed in Exhibit B of Enforcement Order no. 3334 issued by Ecology to Lilyblad on May 26, 2006.

The Focused Feasibility Study includes, but not is limited to:

- Detailed description of each alternative and subparts. The description will include the equipment, infrastructure, and implementation until cleanup is achieved.

- An evaluation of the long-term effectiveness of the three alternatives and their subparts once the alternatives are implemented on the most contaminated part of the Site as defined by the Contractor with Ecology's approval. For each alternative and subparts, the evaluation will determine the contamination throughout the Site at five, ten and twenty-year points after the alternative is implemented, as well as the estimated restoration timeframes. The evaluation will also determine the time and contamination at the start of natural attenuation for Alternative #1 and Alternative #2 subpart b.

- A detailed cost analysis for each of the three alternatives and respective subparts. The cost analysis will include the cost evaluation and projection for implementation of the three alternatives until groundwater and soil meet established MTCA cleanup levels. The analysis will take into consideration existing available equipment and infrastructure on the Site, including systems installed by CDM and Terra Vac.

The objective of the Focused Feasibility Study is to assist Ecology in selecting a clean up action that can be implemented with the remaining resources. Ecology will provide background information, coordinate, and share other details with the Contractor.

PROPOSED TASKS AND PERFORMANCE SCHEDULE

Ecology proposes a schedule for the work period as described below and summarized in *attachment D*. The Contractor may propose and negotiate a revision of the schedule with Ecology.

Task I. Discussion of the Work Assigned

On **August 15, 2006**, the Contractor, including the project manager, will meet or hold a conference call with Ecology to discuss the scope of work, qualifications of staff, schedules, and site background information necessary to complete the Work Assignment.

Task II. Work Plan

The Contractor will submit a work plan for Ecology's review and comments on **August 21, 2006**. The contents of the Work Plan are listed in contract no. C0700035 Section III.C. Ecology anticipates the approval of the Work Plan on **August 25, 2006.**

Task III. Site Information

Within 3 days after the approval of the Work Plan, the Contractor will obtain pertinent documents regarding the Site at the Ecology Industrial Section. The Industrial Section will provide the documents and ensure that the Contractor continues to have access to the documents until the completion of the work. These documents will include, but not be limited to:

- Remedial investigation reports
- Feasibility study reports
- Groundwater monitoring plans/reports
- Soil sampling plans/reports
- Pilot projects
- Interim action work plans/reports
- Supporting documents to the above items
- Available contact information of consultants responsible for preparing the work plans/reports
- Other available documents as requested by the Contractor

Task IV. Progress Reports

In thirty (30) days after the approval of the Work Plan, the Contractor will submit a progress report to Ecology. The progress report will contain applicable information as listed in contract no. C0700035 Section III.F.

On a weekly basis, the Contractor will informally notify Ecology's project manager of cost updates, including additional costs not accounted for in the Work Plan. The Contractor will also inform Ecology's project manager of any deviation or anticipated deviation from the Work Plan and the reasons for the deviation.

Task V. Draft and Final Report

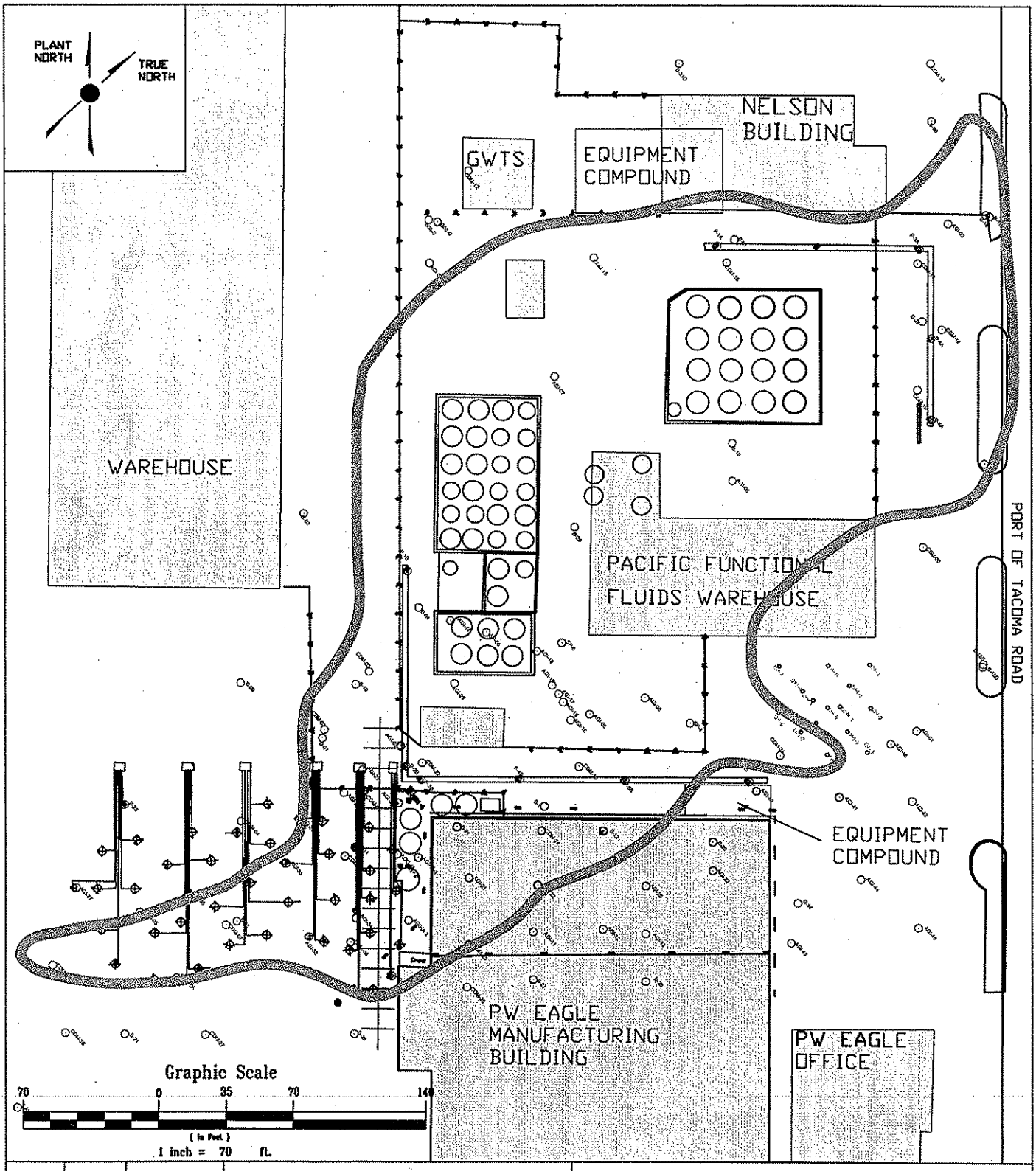
The contractor will complete a draft feasibility study for Ecology's review on **October 13 2006**. The draft feasibility study may be revised to meet Ecology's approval. Ecology anticipates a final meeting with the Contractor on **October 18, 2006** and the final draft of the feasibility study on **October 20, 2006**. A final feasibility study will be issued based on Ecology's comments, with copies provided to Ecology and Lilyblad.

Attachment A
Scope of Work for Feasibility Study
Lilyblad Site

MTCA METHOD B CLEAN UP LEVELS

Chemical Group	Contaminant of concern	Soil CUL (µg/kg)	Groundwater CUL (µg/L)
VOC	1,1,1-trichloroethane	1,144	227
VOC	1,1,2-tricholoroethane	54.1	16
VOC	1,1-dichloroethane	164,000	52,000
VOC	1,1-dichloroethene	7.9	1.93
VOC	1,2,4-trimethylbenzene	10,350,000	26,000
VOC	1,2-dichloroethane	100.6	37
VOC	1,4-dichlorobenzene	64.6	4.86
VOC	Benzene	75	22.7
VOC	bis(2-ethylhexyl)phthalate	4,400	2.2
VOC	cis-1,2-dichlorobenzene	14,880	5200
VOC	Ethylbenzene	41,130	6910
VOC	m,p-xylene	58,400	26,000
VOC	Methylene chloride	1,332	590
VOC	Tetrachloroethene	24.5	3.3
VOC	Toluene	71,340	15,000
VOC	Trichloroethene	121.7	30
VOC	Vinyl chloride	7.91	2.4
SVOC	Naphthalene	115,900	4,940
SVOC	Pentachlorophenol	37.97	3
SVOC	2-methylnaphthalene	-	22.5
TPH	Diesel range hydrocarbons	2000	1
TPH	Gasoline range hydrocarbons	100	1
MOIL	Motor oil	2000	1

Attachment B
Scope of Work for Feasibility Study
Lilyblad Site

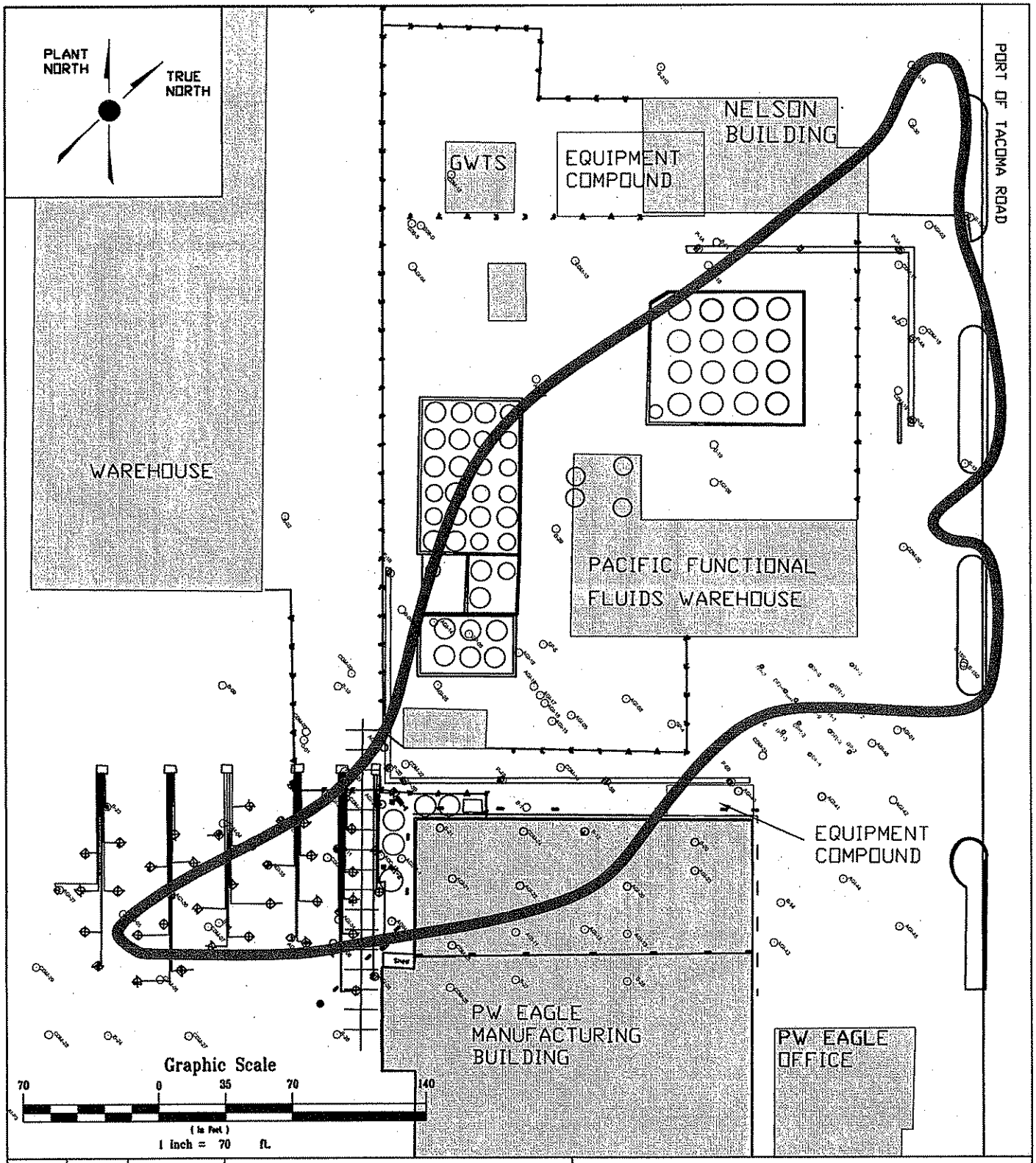


REV	DATE	DESCRIPTION

TERRA VAC
2232 PORT OF TACOMA
TACOMA, WA

SOIL PLUME
SITE-WIDE REMEDIATION DESIGN
LILYBLAD PETROLEUM SITE
TACOMA, WA

DRAWN BY: RJC	CHECKED BY:	PROJECT NO: 32-0118	FIGURE 4
APPROVED BY:	DATE: 06/30/05	SCALE: 1"=70'	



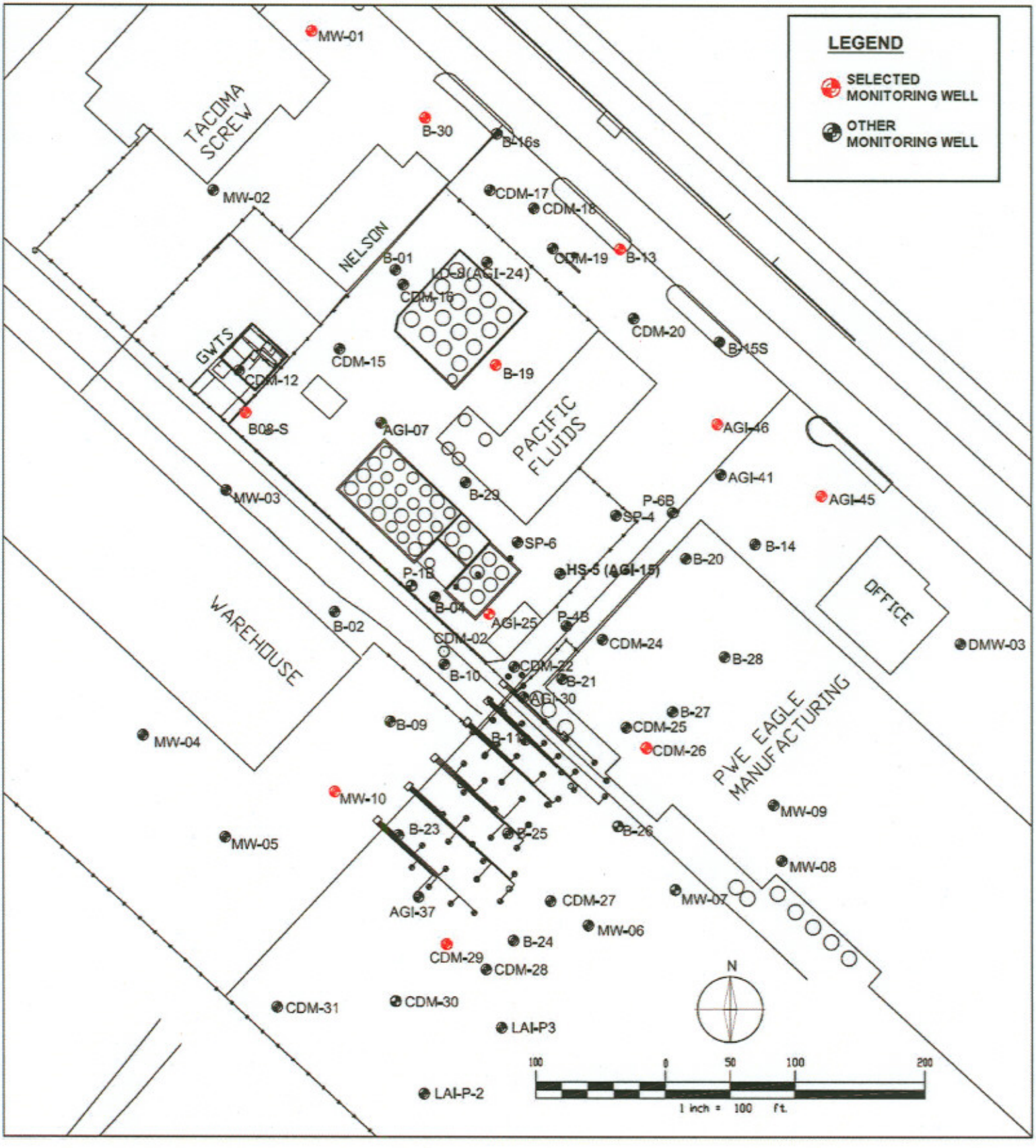
REV	DATE	DESCRIPTION

TERRA VAC
2232 PORT OF TACOMA
TACOMA, WA

GROUNDWATER PLUME SITE-WIDE REMEDIATION DESIGN LILYBLAD PETROLEUM SITE TACOMA, WA

DRAWN BY: RJC	CHECKED BY:	PROJECT NO: 32-0118	FIGURE 5
APPROVED BY:	DATE: 06/30/05	SCALE: 1"=70'	

Attachment C
Scope of Work for Feasibility Study
Lilyblad Site



Attachment D
Scope of Work for Feasibility Study
Lilyblad Site

PROPOSED SCHEDULE

Date/Time	Task
August 15	Preliminary meeting - discussion of work assignment
August 21	Work plan submission
August 25	Work plan approval
September 25	Progress report submission
October 13	Draft feasibility study submission
October 18	Final meeting – discussion and comments on draft feasibility study
October 23	Final feasibility study approval and completion