ASSOCIATED
ENVIRONMENTAL
GROUP, LLC

PHASE II – SITE CHARACTERIZATON REPORT

Conducted on:
Devere & Sons Distributing Mini Mart
100 E. First Street
Cle Elum, WA

September 20, 2006

Prepared for:
Mr. James Devere
PO Box 336
Cle Elum, WA 98922-0336

Associated Environmental Group, LLC

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1.0 INTRODUCTION

The purpose of this site characterization study was to determine the extent of the residual petroleum contaminated soil and groundwater as a result of historical release from underground product lines. This phase II site characterization study was conducted with a truck-mounted direct push probe surrounding the current aboveground storage tanks (ASTs) in order to delineate the extent of soil and groundwater contamination. The fieldwork included:

- Advance five separate borings for the purpose of collecting soil samples at 4-foot intervals for gasoline and diesel range petroleum hydrocarbons and BTEX analysis.
- Collect groundwater samples from four of the five borings for gasoline, diesel, and oil range petroleum hydrocarbons and BTEX analysis.
- Conduct field screening of collected soil samples for immediate delineation of vertical and lateral extent of any contamination found onsite.
- Record soil characteristics and sampling depths.

This report represents documentation of activities relating to site work on the subject property including soil and groundwater sampling.

1.1 Site History

Based on documents provided by the Washington State Department of Ecology (Ecology), AEG was able to formulate the following timeline of the previous environmental activities at the subject property:

On March 9, 1994, a Pacific Northern Environmental (PNE) technician was performing a tracer tank/line test at the subject site. The technician noted that one probe installed by PNE; in conjunction with tracer testing conducted a year earlier had been removed so he replaced the missing tracer probe. On March 10th, the facility operator's staff performed a tank volume measurement of a 15,000 gallon above ground storage tank (AST) and realized that there was an 8,400-gallon loss of product. Upon investigation, the operator found that the newly installed replacement tracer probe had punctured the 2 inch fiberglass product line from the diesel AST to the pump island. The punctured line was immediately repaired by the operator's staff and PNE personnel responded to conduct the cleanup.

On March 12th, 1994, it was decided that a number of test pits would be excavated to determine the threat of off-site migration and to remove the product from the groundwater. Five test pits were excavated and of the five test pits, only the fifth, located approximately 15 feet east of the spill area, showed contamination of both groundwater and soil. A 12-inch perforated PVC extraction pipe was installed in the test pit and water-diesel (liquid phase hydrocarbon) mixture

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was pumped out of the pipe. Apparently, the extraction pump was thereafter disconnected by PNE because very little product had been recovered.

In January, 1995, Pacific Northern Geoscience (PNG) filed a status report regarding the product recovery program in place at the subject property. (Note: The report references a prior status report dated November 30, 1994 but AEG has not been able to locate a copy of this report) PNG reported that very little product had been recovered from two monitoring wells installed. They theorized that fluctuating water levels may have caused the product remaining on site to become trapped in interstitial pore space within the saturated zone. PNG concluded that additional recovery of the free product was not feasible. They recommended installation of three additional monitoring wells and continuing soil and groundwater sampling as part of a RI/FS. There is no further information regarding this release, other than a May 15, 1996 note from Mr. Gerald Tousley of the Kittitas County Health Department that the 1994 incident was closed because the Site Hazard Assessment process was completed.

Mr. Tousley then made reference to a 200 gallon leak of unleaded gas from a 1000 gallon UST that had apparently occurred over a span of several months. Mr. Tousley reported that the owner had told him that the offending tank had been drained and that he intended to remove all USTs and install aboveground tanks. Furthermore, Mr. Tousley reported that documentation existed to show that the subsurface soil and groundwater remained contaminated. Mr. Tousley assigned the site a hazard ranking of 5.

Per a UST Closure Site Assessment Report filed by SAGE Earth Sciences in September, 1996, Northwest Petroleum Equipment (NPE) and Randy's Blue Dot Excavating removed two USTs on July 17, 1996. (Note: in June, 1994, a Notice of Intent to remove a 4,000 gallon UST was filed with the Ecology but there were no decommissioning reports included in Ecology's files.) Soil and groundwater samples taken showed both soil and groundwater contamination. Unfortunately, the final page of the report, that would have included recommendations, was missing. On March 29th, 1999, James DeVere, owner of the site, filed a SPCC Plan Certification that declared that the facility had been cleaned up per the US Environmental Protection Agency. Attached was a copy of the SPCC plan. There is no documentation in the Ecology file that demonstrates when and how the site was remediated.

On August 9th, 2000, the WDOE received information regarding a small surface spill of approximately 40 gallons of oil/petroleum from an AST. The spill was cleaned up and on September 28th, Mr. Dick Bassett from the WDOE recommended that a No Further Action letter be issued.

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On May 21st, 2003, there was a report of a small release (between 10 and 50 gallons) of heating oil from a UST. Blue Mountain Environmental Consulting Services were called in and cleaned up the spill.

On August 9, 2006 AEG was contracted by Mr. Devere to sample the three remaining groundwater monitoring wells to check for the presence of residual petroleum contamination from the historical releases and the subsequent cleanup action. The sampling results indicate that the groundwater in monitoring wells MW-1 and MW-4 contained concentrations of diesel range hydrocarbons and benzene at levels slightly exceeding MTCA method-A cleanup levels. Based on these results, recommendation was made to conduct a comprehensive Phase II site characterization study including a delineation of the contamination plume.

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2.0 SOIL AND GROUNDWATER CHARACTERIZATION

On August 31, 2006 AEG and subcontractor, Environmental Services Network (ESN), collected soil and groundwater samples from five borings on the subject property. Soil samples were collected at four-foot intervals starting at four feet below ground surface (bgs). Groundwater was encountered in all six borings during drilling activities between 7 and 8 feet bgs. Samples of groundwater were collected from each boring utilizing a temporary screen and a low volume peristaltic pump. *Refer to Appendix – A: Site Diagrams for the sample boring locations.*

2.1 Soil and Groundwater Sampling Procedures

The soil samples were placed in labeled laboratory supplied four-ounce glass jars with Teflon-lined lids. Volatiles samples were taken using laboratory supplied and labeled 40-milliliter glass vials with Teflon-lined lids following EPA Sample Collection Method 5035A protocols. There were no indications of soil contamination from any of the borings except for those soils taken at the soil-groundwater interface; soils from this depth exhibited a sweet aromatic odor.

Groundwater samples were taken from five borings using a temporary PVC screen and low volume peristaltic pump. The groundwater samples were collected in laboratory supplied and labeled 40-milliliter glass vials with Teflon-lined lids. The water samples were analyzed by NWTPH-Gx\Dx\Dxt to identify the range of hydrocarbons and for BTEX constituents by EPA Method 8021B.

To reasonably ensure the purity of AEG's samples, the following actions were taken (1) N-DEX gloves were used in handling all sampling jars and sampling devices; (2) The sampling equipment was scrubbed with TSP and triple-rinsed with distilled water prior to each sample extracted; and (3) The containers were then placed in a cooler to keep the sample temperature at 34 degrees F and transported under a chain-of-custody to ESN laboratory in Olympia, Washington 98506.

The analytical results are presented in Table 1.0 and 2.0.

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3.0 CONCLUSIONS AND RECOMMENDATIONS

Based on field and laboratory sampling results and site observations, AEG has concluded the following:

- The soil matrix onsite consists of sand and gravel and is uniform throughout the site.
- Soil samples from Boring 1 at 13 and 18 feet below ground surface submitted for analysis contained no detectable concentrations of gasoline, BTEX, or diesel and oil range hydrocarbons.
- The groundwater sample from Boring 2 contained concentrations of benzene, gasoline, and diesel above MTCA Method-A cleanup levels.
- The groundwater sample from Boring 3 contained a concentration of benzene above MTCA cleanup levels.
- The groundwater sample from Boring 5 contained concentrations of BTEX and gasoline below cleanup levels. Diesel was also detected and at a concentration exceeding MTCA Method-A cleanup levels.
- Groundwater on the subject site was observed between 8 and 10 feet bgs.

The laboratory sample results indicate that the groundwater at the Devere and Sons site consist of gasoline, benzene, and diesel contamination exceeding MTCA Method-A cleanup levels. Based on the historical environmental reports, the source of the contamination has been removed and the current groundwater contamination appears to be residual material from an incomplete cleanup action.

AEG recommends the following:

- ❖ AEG recommends installing 2 additional groundwater monitoring wells; One on the south side of the warehouse and one near First St. These wells are needed to access the gradient and directional flow of groundwater.
- ❖ Groundwater contamination can be remediated by injections of Oxygen Releasing Compounds (ORC). ORC increases the amount of dissolved oxygen in the groundwater thereby stimulating microbial growth and effective bio-remediation of the contaminates of concern.
- ❖ Submit Voluntary Cleanup Program (VCP) application to Ecology for technical assistance.

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4.0 LIMITATIONS

This report summarizes the findings of the services authorized under our agreement. It has been prepared using generally accepted professional practices, related to the nature of the work accomplished. This report was prepared for the exclusive use of Mr. James Devere and his designated representatives for the specific application to the project purpose.

Recommendations, opinions, site history and proposed actions contained in this report apply to conditions and information available at the time this report was created. Since conditions and regulations beyond our control can change at any time after completion of this report, or our proposed work, we are not responsible for any impacts of any changes in conditions, standards, practices and/or regulations subsequent to our performance of services. We cannot warrant or validate the accuracy of information supplied by others, in whole or part.

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Table 1:Summary of Ground Water Analytical Results
Devere & Sons Mini Mart
Cle Elum, Washington

Sample Number[1]	Date Analyzed	BTEX[2] (ug/l)				Gasoline[3]	Diesel[4]	Oil[4]	Mineral Oil[4]
		B	T	E	X	ug/l	ug/l	ug/l	ug/l
B-2-W	9/1/06	**53.7**	2.3	34.3	23.8	**900**	**1,290**	<400	<400
B-3-W	9/1/06	**7.2**	<1	1.1	<1	<100	<200	<400	<400
B-5-W	9/1/06	2.5	<1	8.1	8.8	300	**3,430**	<400	<400
PQL		1	1	1	1	100	200	400	400
Method A		5	1,000	700	1,000	800	500	500	500

Notes:

[1]Approximate sample location is shown in figure 1

[2]Analyzed by EPA 8021B. B=benzene, T=toluene, E=ethybenzene, X=xylenes

[3]Analyzed by Washington State Department of Ecology method NWTPH-Gx

[4]Analyzed by Washington State Department of Ecology method NWTPH-Dx/Dxt

µg/l - micrograms per liter or parts per billion (ppb)

"<" = not detected above laboratory limits.

PQL=Practical Quantitation Limits

Bold indicated the detected concentration exceeds the MTCA Method-A Levels

Table 2: Summary of Soil Analytical Results
Devere & Sons Mini Mart
Cle Elum, Washington

Sample Number[1]	Date Analyzed	BTEX[2] (mg/kg)				Gasoline[3]	Diesel[4]	Oil[4]	Mineral Oil[4]
		B	T	E	X	mg/kg	mg/kg	mg/kg	mg/kg
B1-13	9/1/06	<0.03	<0.10	<0.05	<0.15	<10	<25	<40	<40
B1-18	9/1/06	<0.03	<0.10	<0.05	<0.15	<10	<25	<40	<40
PQL		0.03	0.10	0.05	0.15	10	25	40	40
Method A Cleanup Levels		0.03	7	6	9	30	2,000	2,000	4,000

Notes:

[1]Approximate sample location is shown in figure 1

[2]Analyzed by EPA 8021B. B=benzene, T=toluene, E=ethybenzene, X=xylenes

[3]Analyzed by Washington State Department of Ecology method NWTPH-Gx

[4]Analyzed by Washington State Department of Ecology method NWTPH-Dx/Dxt

mg/kg=milligrams per kilograms or parts per million (ppm)

"<" = not detected above laboratory limits.

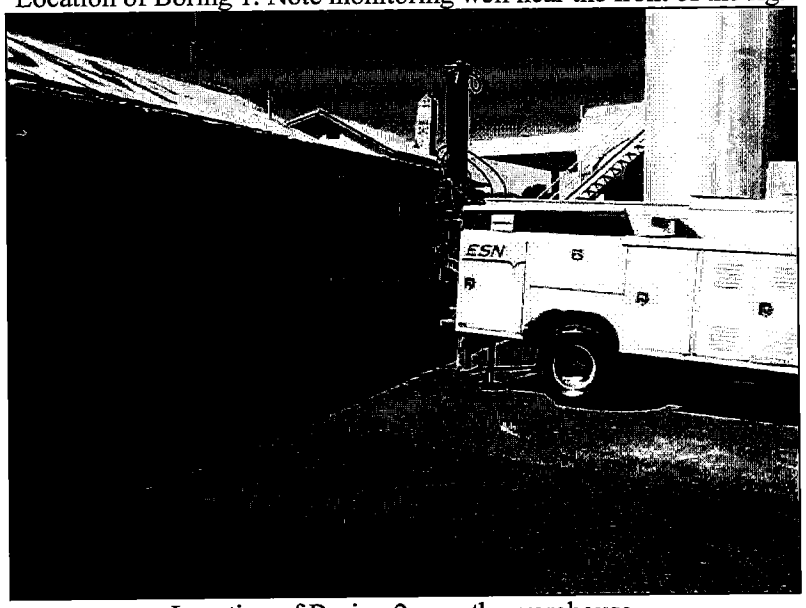
PQL=Practical Quantitation Limits

Bold indicated the detected concentration exceeds the MTCA Method-A Levels

Site Characterization Photographs – Devere & Sons, Cle Elum, WA

Location of Boring 1. Note monitoring well near the front of the rig.

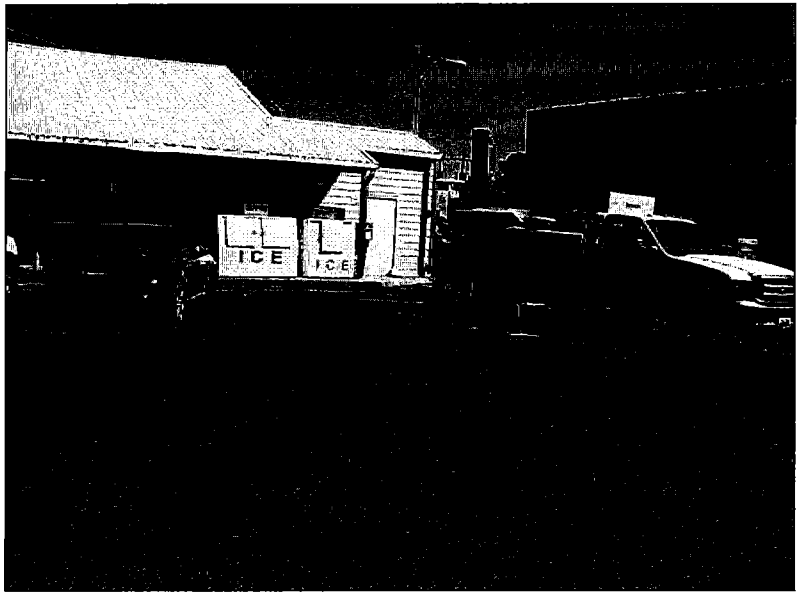
Typical soils from the subject site.



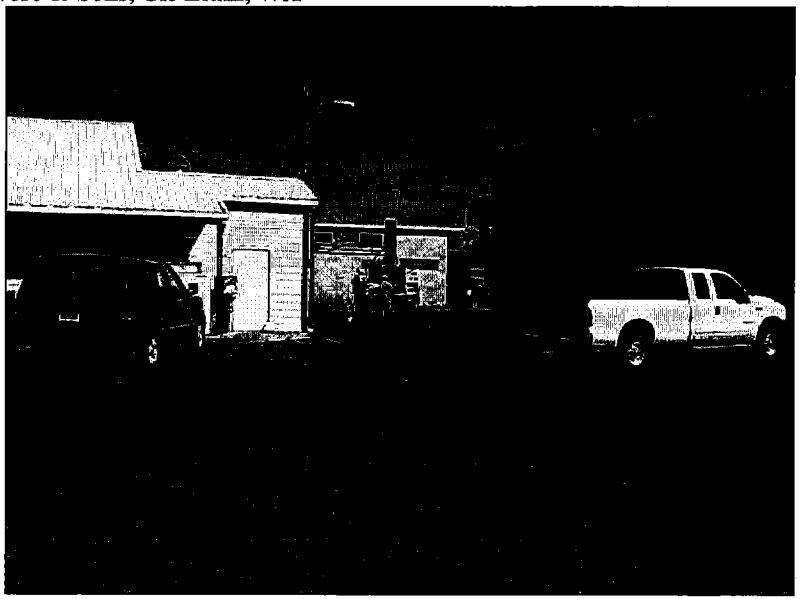
Location of Boring 2 near the warehouse.

Water and electrical utilities surrounding Boring 3.

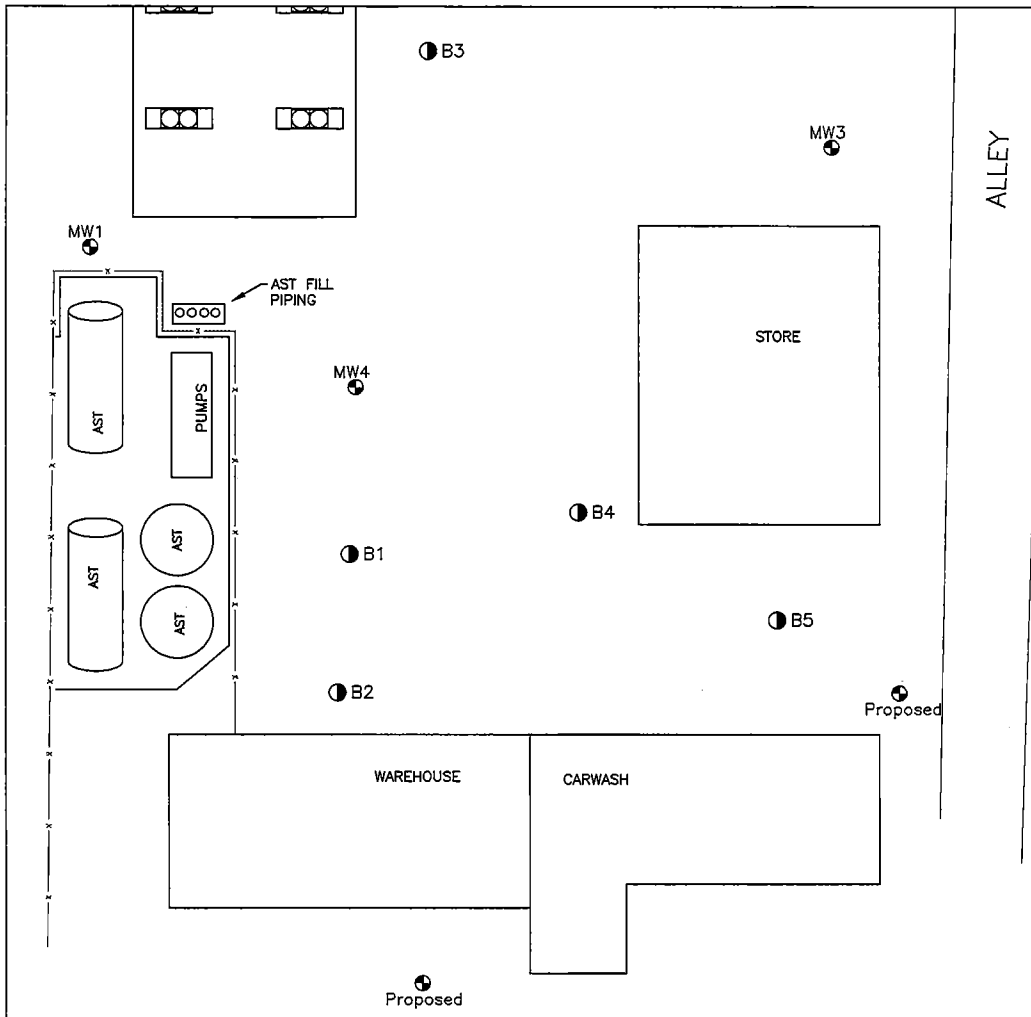
Site Characterization Photographs – Devere & Sons, Cle Elum, WA



Boring 4 located near the convenience store.



Looking southeast at location of Boring 5 along east edge of site.



Sample Number[1]	Date Analyzed	BTEX[2] (ug/l)				Gasoline[3]	Diesel[4]	Oil[4]	Mineral Oil[4]
		B	T	E	X	ug/l	ug/l	ug/l	ug/l
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B-5-W	9/1/06	2.5	<1	8.1	8.8	300	3,430	<400	<400
PQL		1	1	1	1	100	200	400	400
Method A		5	1,000	700	1,000	800	500	500	500

Sample Number[1]	Date Analyzed	BTEX[2] (mg/kg)				Gasoline[3]	Diesel[4]	Oil[4]	Mineral Oil[4]
		B	T	E	X	mg/kg	mg/kg	mg/kg	mg/kg
B1-13	9/1/06	<0.03	<0.10	<0.05	<0.15	<10	<25	<40	<40
B1-18	9/1/06	<0.03	<0.10	<0.05	<0.15	<10	<25	<40	<40
PQL		0.03	0.10	0.05	0.15	10	25	40	40
Method A Cleanup Levels		0.03	7	6	9	30	2,000	2,000	4,000

GRAPHIC SCALE

0 20 40

1" = 20'

No.	Revision/Issue	Date

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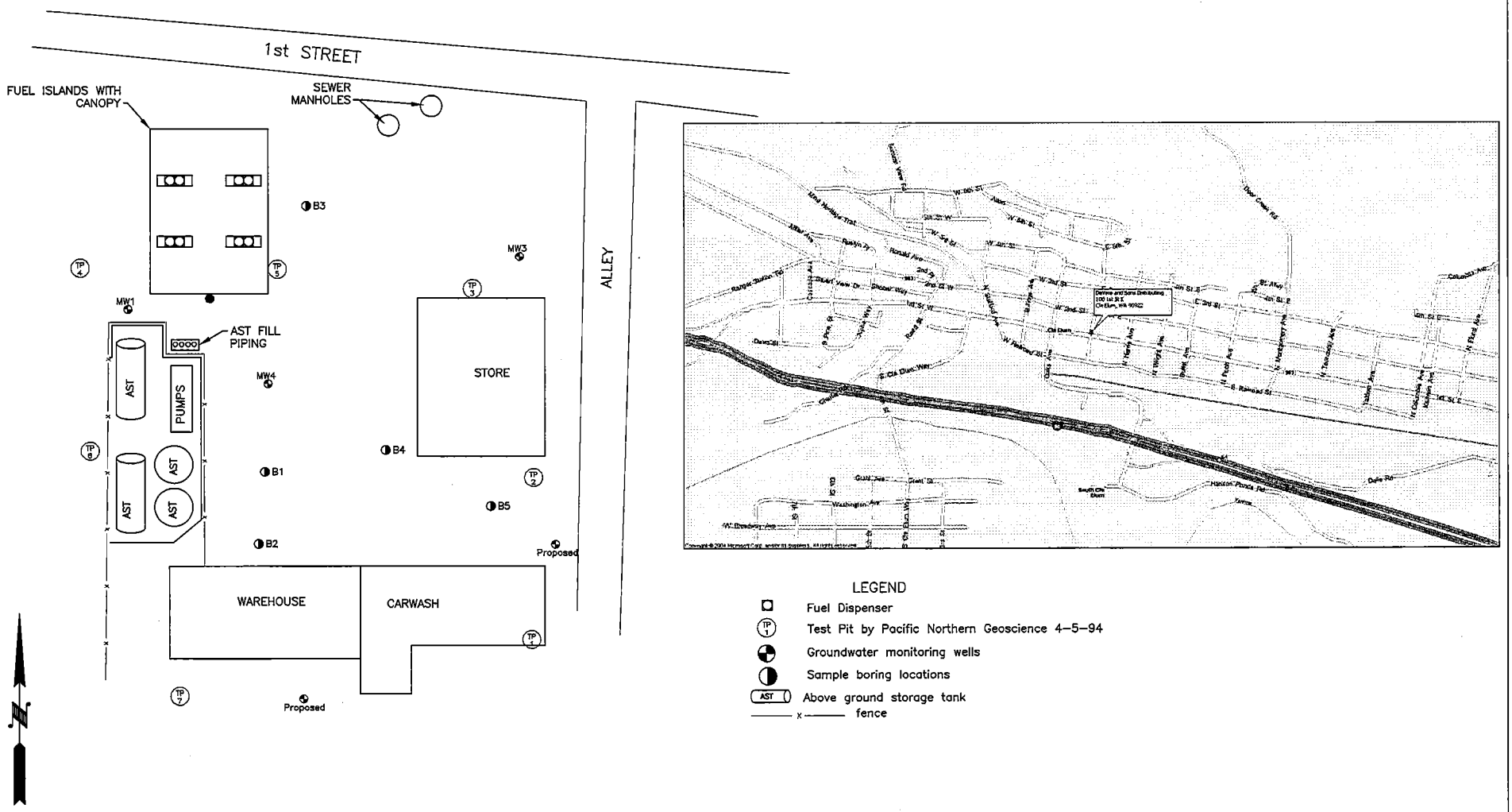
BORINGS

SITE PLAN

DEVERE & SONS
STREET ADDRESS
CLE ELUM, WA

Project:	Date:
06-192	08-31-06



No.	Revision/Issue	Date

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OVERALL
SITE PLAN

DEVERE & SONS
100 E. 1st Street
CLE ELUM, WA 98922

Project:	Date:
06-192	08-31-06