T-1720-03

Storage Tank Investigation
4321 University Way N.E.
(Tower Records)
Seattle, Washington

June 1997

Commercial Property Advisors
P. O. Box 11167
Bainbridge Island, Washington 98110

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
400 N. 34th St. • Suite 100
P.O. Box 300303
Seattle, Washington 98103
206 • 632 • 8020

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

SEATTLE
RICHLAND
FAIRBANKS
ANCHORAGE
SAINT LOUIS
BOSTON

June 2, 1997

Mr. Allen Hartung
Commercial Property Advisors
Box 11167
Bainbridge Island, Washington 98110

RE: STORAGE TANK INVESTIGATION, 4321 UNIVERSITY WAY N.E. (TOWER RECORDS), SEATTLE, WASHINGTON

Dear Mr. Hartung:

This letter report provides the results of the tank investigation performed at the Tower Records building at 4321 University Way N.E. in Seattle, Washington (Figure 1). The purpose of the investigation was to determine the size and contents (if any) of the two storage tanks identified in the basement of the Tower Records building during a Level 1 Environmental Site Assessment (ESA), and to determine if subsurface contamination had resulted from the use of the tanks (Figure 2).

BACKGROUND

Shannon & Wilson performed a Level 1 ESA at the site in October 1996. During the Level 1 ESA, two storage tanks were found in the basement of the building. One of the tanks (Tank 1) is under the concrete floor of the basement on the east side of the boiler room. The second tank (Tank 2) is located behind a 5-foot wall (stated incorrectly as a 4-foot wall in the Level 1 ESA report) on the west side of the boiler room (Figure 2). Tank 2 could not be seen because the area behind the 5-foot wall has been filled in with sand, ash, concrete rubble, and bricks. There were no historical records related to the tanks; therefore, the age of the tanks is unknown.

400 NORTH 34TH STREET · SUITE 100
P.O. BOX 300303
SEATTLE, WASHINGTON 98103
206·632·8020 FAX 206·633·6777
TDD: 1·800·833·6388

INVESTIGATION ACTIVITIES

Mr. Ken Stoffel of Oil Tank Location Services was contracted to determine the orientation, size, and depth of the tanks, as well as to measure the amount of liquid in each tank. On November 25, 1996, Mr. Stoffel was on site and determined that Tank 1 is 12 by 5 feet oriented north to south. The top of Tank 1 is 22 inches below the surface of the basement floor. Tank 1 has a calculated volume of 1,760 gallons, and contained 34 inches of black oil at the time of the visit. Tank 2 is approximately 5 by 3 feet oriented north to south. Tank 2 has a calculated volume of 300 gallons, and contained 4 inches of product at the time of the visit. The top of Tank 2 is 24 inches below the surface of the fill placed in this area. The complete report is presented in Appendix A.

Subsequent hydrocarbon identification (HCID) analyses of the product collected from each tank indicated that the product in Tank 1 is a mixture of oil and diesel, and the product in Tank 2 is diesel fuel.

On October 31, 1996, a Shannon & Wilson representative installed four soil borings at the site, one on each side of Tank 1, as shown on Figure 2. No sample was collected at boring location B-2. During the first attempt at this location, a terra cotta drain tile was encountered at 6 inches below the surface. The second attempt was terminated at 2 feet when the top of the tank was reached. Soil samples were collected from the remaining three boring locations (B-1, B-3, and B-4). Water seepage was noted in B-4 at a depth of approximately 4 feet below the concrete floor. The soil samples were analyzed by method Washington Total Petroleum Hydrocarbons as Diesel extended (WTPH-D-Extended) to include oil-range hydrocarbons. Diesel-range and oil-range hydrocarbons were detected in the samples at concentrations of 360 to 10,000 milligrams per kilogram (mg/kg), and 140 to 550 mg/kg, respectively. Table 1 presents a summary of the analytical results, and the complete laboratory reports are provided in Appendix B.

A Shannon & Wilson representative returned to the site on November 25 and 26 to further define the extent of the contamination. Six additional hand borings were attempted, one of which (B-10) was taken from behind the 5-foot wall next to Tank 2. Boring B-10 was

advanced at an angle through the concrete wall in the area of the second tank to attempt to determine if the floor beneath the tank was concrete and possibly a secondary containment. Concrete was encountered in the angled boring at the approximate depth of the adjacent basement floor slab. Because of compact soil conditions, samples were collected in the borings at shallow depths ranging from 2.5 to 3.5 feet below the surface of the basement's concrete floor. Samples from locations B-6 and B-9 were not analyzed at the laboratory because they were taken from 2.8 and 2.5 feet below ground surface (bgs), respectively, which is above the level of groundwater seepage noted at the site, and no hydrocarbon odor was noted at these sample locations. The soil samples from locations B-5 and B-8 contained 490 mg/kg and 1,100 mg/kg of diesel-range hydrocarbons, respectively. No hydrocarbons were detected in the samples from B-7 and B-10.

A Shannon & Wilson representative again returned to the site on December 18, 1996, in another attempt to collect soil samples at greater depth to determine the vertical extent of the contamination. An attempt was made to sample deeper at B-4 where the highest concentrations were observed; however, because of extremely dense soil conditions, greater depth was not achieved. A supplemental sample was collected at this location at a depth of 3.5 to 4.0 feet. Analysis of this sample indicated a concentration of 8,000 mg/kg diesel. A new boring (B-11) was advanced near the southern boundary of the basement. Diesel-range hydrocarbons were detected, but the concentrations were below the cleanup level. what were they?

CONCLUSIONS AND RECOMMENDATIONS

Two storage tanks have been confirmed to be located in the basement of the building located on site. One of the tanks (Tank 1) is located beneath the concrete floor of the basement, and the other tank (Tank 2) is located behind a 5-foot concrete wall on the west side of the boiler room. It is believed that Tank 2 is resting on a concrete floor, which could act as a secondary containment, minimizing the potential impact to the underlying soils and/or groundwater; however, the extent of the concrete floor could not be determined.

Both tanks contained fuel product. Diesel- and oil-range petroleum hydrocarbon soil contamination exceeding Model Toxics Control Act (MTCA) Method A cleanup levels exists beneath the basement floor of the building. The chromatograms from the analyses of the soil samples were compared to chromatograms of the product sampled from both tanks in an effort to determine whether the contamination in the soil is from one or both of the tanks. The comparison was inconclusive; we were unable to determine if either tank is contributing to the soil contamination detected. The extent of the contamination is unknown. However, it appears to exist beneath the western portion of the basement at depths greater than 3 feet below the basement floor. It was not possible to determine the bottom depth of the contamination because of difficult sampling conditions.

Water was encountered at an approximate depth of 4 feet below the basement floor. This water may be facilitating horizontal migration of the petroleum contamination. The water is believed to be a perched groundwater layer resulting from local surface water drainage. The water's direction of flow is unknown but may be to the south-southeast, corresponding with local surface topography.

Owners are required by law to report any release of any hazardous substance, including petroleum products, to Ecology within 90 days of discovery. This includes any discovery during excavation, or geotechnical or environmental investigations. In our opinion, the analytical results from this investigation qualify as reportable concentrations. We are available to assist with Ecology reporting.

Cleanup of the soil and/or water contamination beneath the building is not practical at this time. The soil beneath the building was very dense, and collecting the samples to evaluate the existing conditions was very difficult. Similarly, cleanup efforts would also be very difficult because the low permeability characteristics of these dense soils. At this time, we recommend that the tanks be properly abandoned in place, including removal of the residual product. If the building is demolished at some time in the future, the tanks should be removed, and requirements for the excavation of contaminated soils evaluated at that time.

CLOSURE

The data presented in this report are based on limited research at the site and should be considered representative at the time of our observations. Changes in the conditions of the property could occur with time from both natural processes and human activities. In addition, changes in governmental codes, regulations, or law could occur. Because of such changes beyond our control, our observations and recommendations applicable to this facility may need to be revised, either wholly or in part.

This report was prepared for the exclusive use of the Commercial Property Advisors and in no way guarantees that an agency or its staff will reach the same conclusions as Shannon & Wilson, Inc. We have prepared Appendix C, "Important information About Your Environmental Report," to assist you and others in understanding the use and limitations of our reports.

Sincerely,

SHANNON & WILSON, INC.

Gretchen M. Miller
Environmental Scientist

Brian L. Clark, P.E.
Principal Engineer

GMM:BLC:JFZ/gmm

Enclosures: Table 1 - Soil Analytical Results
Figure 1 - Vicinity Map
Figure 2 - Basement Floor Plan and Exploration Plan
Figure 3 - Locations of Diesel and Oil Above Potential Regulatory Criteria
Appendix A - Oil Tank Location Services Report
Appendix B - Analytical Laboratory Reports
Appendix C - Important Information About Your Environmental Report

T1720-03.LT2/T1720-lkd/dgw

TABLE 1

SOIL ANALYTICAL RESULTS

Sample Data			Sample Results	
Sample Location	Date Sampled	Sample Depth [a]	Oil (mg/kg)	Diesel (mg/kg)
B-1	10/31/96	4.3	140	**360**
B-3	10/31/96	4.2	170	**1,200**
B-4	10/31/96	4.5	**550**	**10,000**
B-4*	12/18/96	3.5-4.0	ND	**8,000**
B-5	11/25/96	3.0	63	**490**
B-7	11/26/96	3.5	ND	ND
B-8	11/26/96	3.2	130	**1100**
B-10	11/26/96	4.0 [b]	ND	ND
B-11	12/18/96	2.8-3.4	ND	110
B-11	12/18/96	3.4-3.8	ND	36
MTCA Cleanup Levels [c]			200	200

NOTES:

[a] Measured in feet from surface of basement floor.

[b] Measured in feet as distance behind the concrete wall.

[c] Model Toxics Control Act Method A Standards

*This sample was collected at an approximately 15 degree angle.

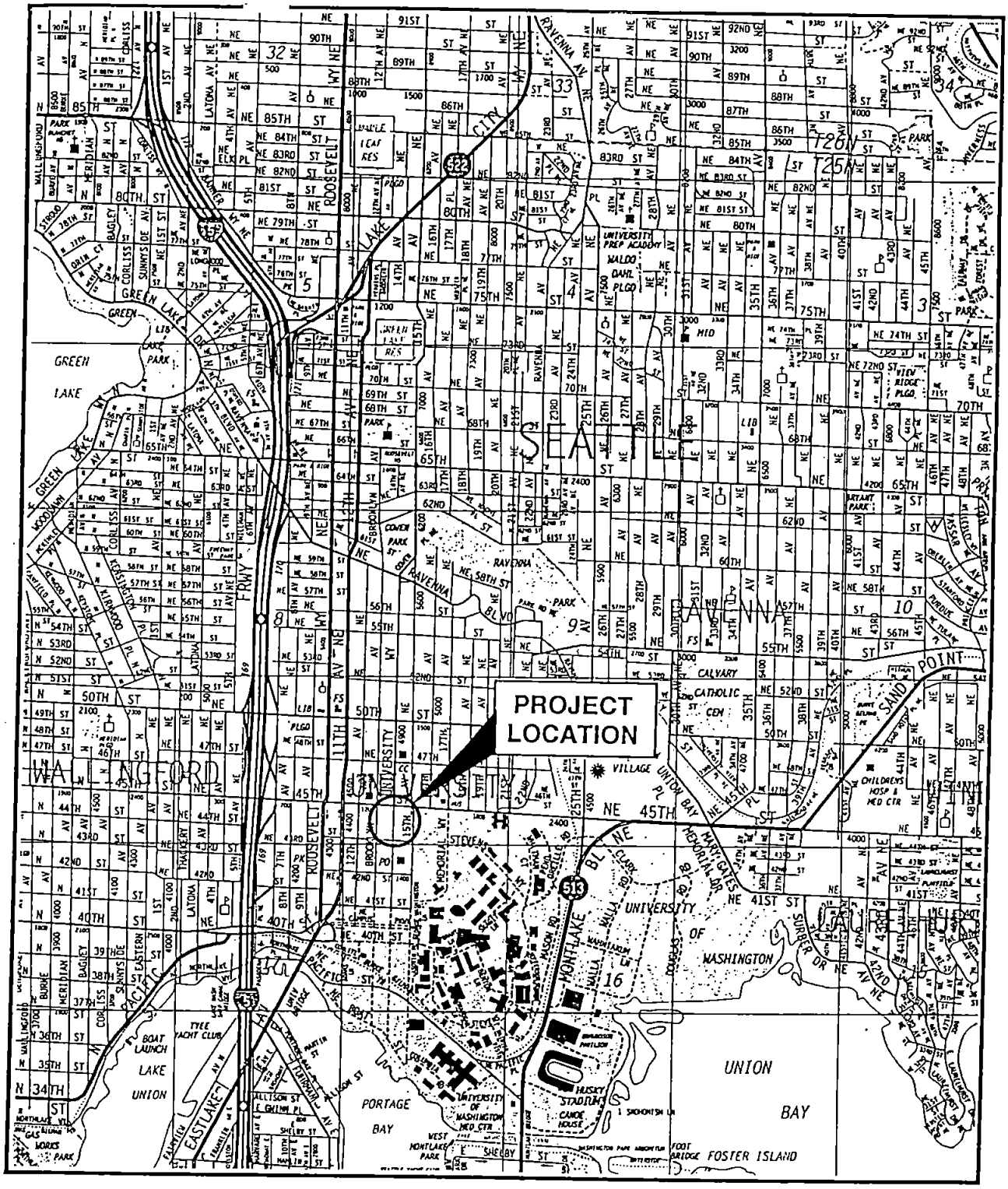
mg/kg = milligrams per kilogram

NA = Not analyzed

< = Less than the method detection limit (MDL), limit reported.

Boldface concentrations exceed cleanup level.

Laboratory results reported by Onsite Environmental, Inc., Redmond, Washington.



0 1/4 1/2 1

Scale in Miles

NOTE

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VICINITY MAP

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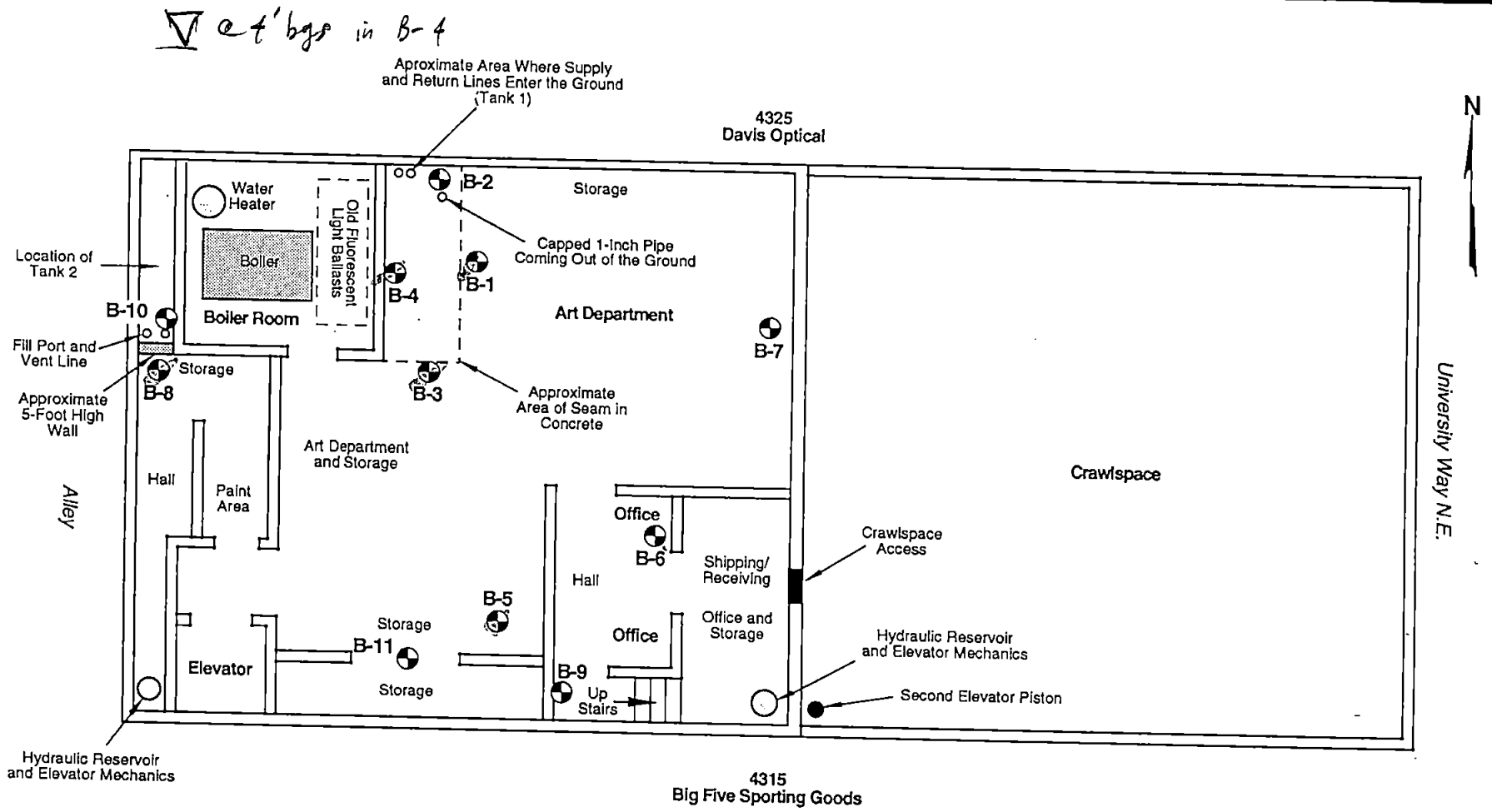
FIG. 1



Not to Scale

LEGEND

B-1 Boring Sample Designation and Approximate Location

NOTE

Figure adapted from Emergency Exit Plans prepared by Tower Records in 1992.

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BASEMENT FLOOR PLAN AND EXPLORATION PLAN

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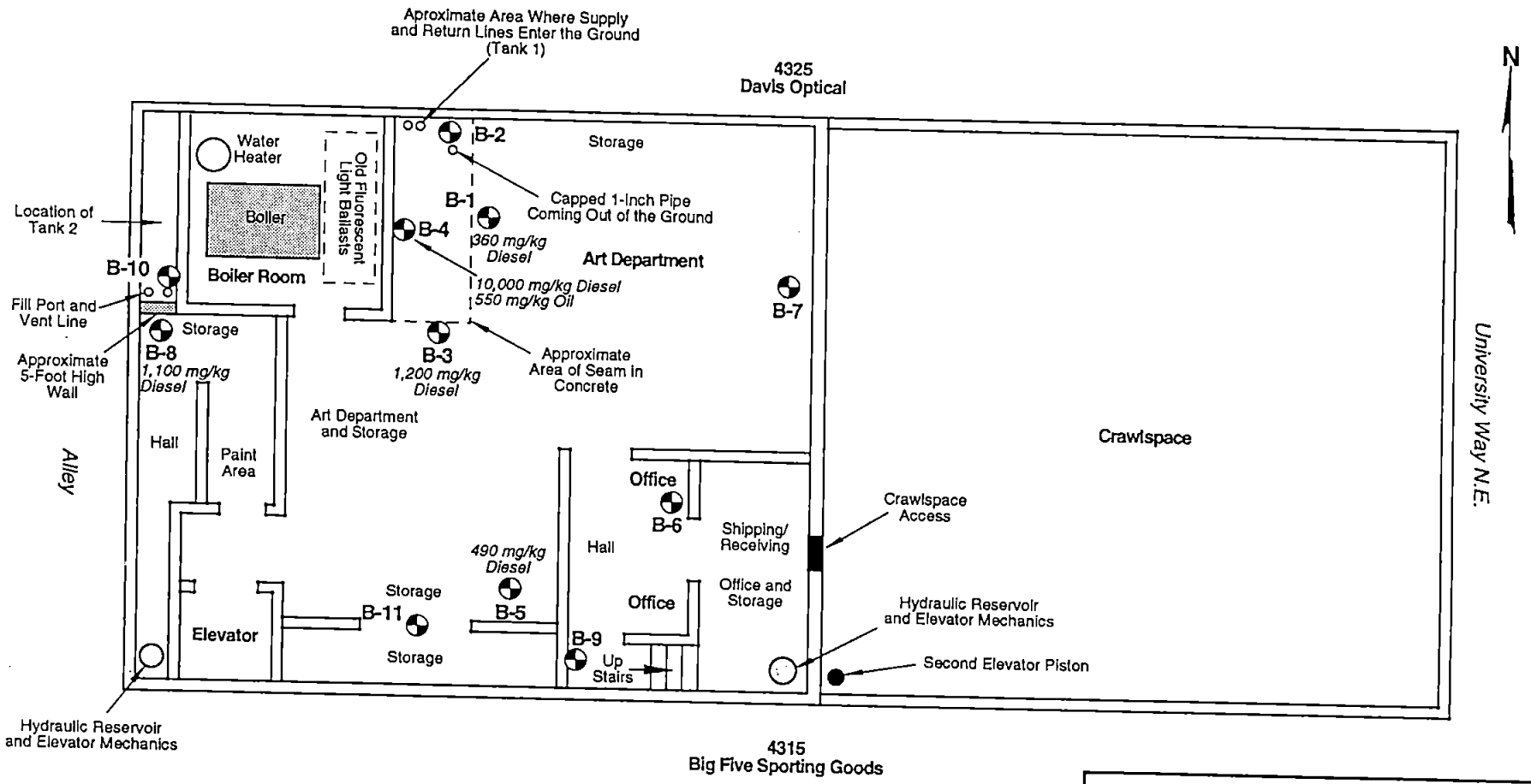
FIG. 2

FIG. 2



Not to Scale

LEGEND

B-1 Boring Sample Designation and Approximate Location

NOTE

Figure adapted from Emergency Exit Plans prepared by Tower Records in 1992.

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LOCATIONS OF DIESEL AND OIL ABOVE POTENTIAL REGULATORY CRITERIA

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FIG. 3

FIG. 3

APPENDIX A

OIL TANK LOCATION SERVICES REPORT

OIL TANK LOCATION SERVICE

P.O. Box 66234 Seattle, WA 98166 (206)241-2292
Ken Stoffel

Address 4321 University Way NE
Seattle, WA

Job # Shannon & Wilson

Invoice # 7523

Tank Size (60"X12') 1760 Gal.

Lay of Tank North to South

Depth Below Surface 22 inches

Type of Ground Cover Cement Floor

Tank Diameter 60 Inches

Amount of Liquid BLACK OIL 34 Inches _____ Gal.

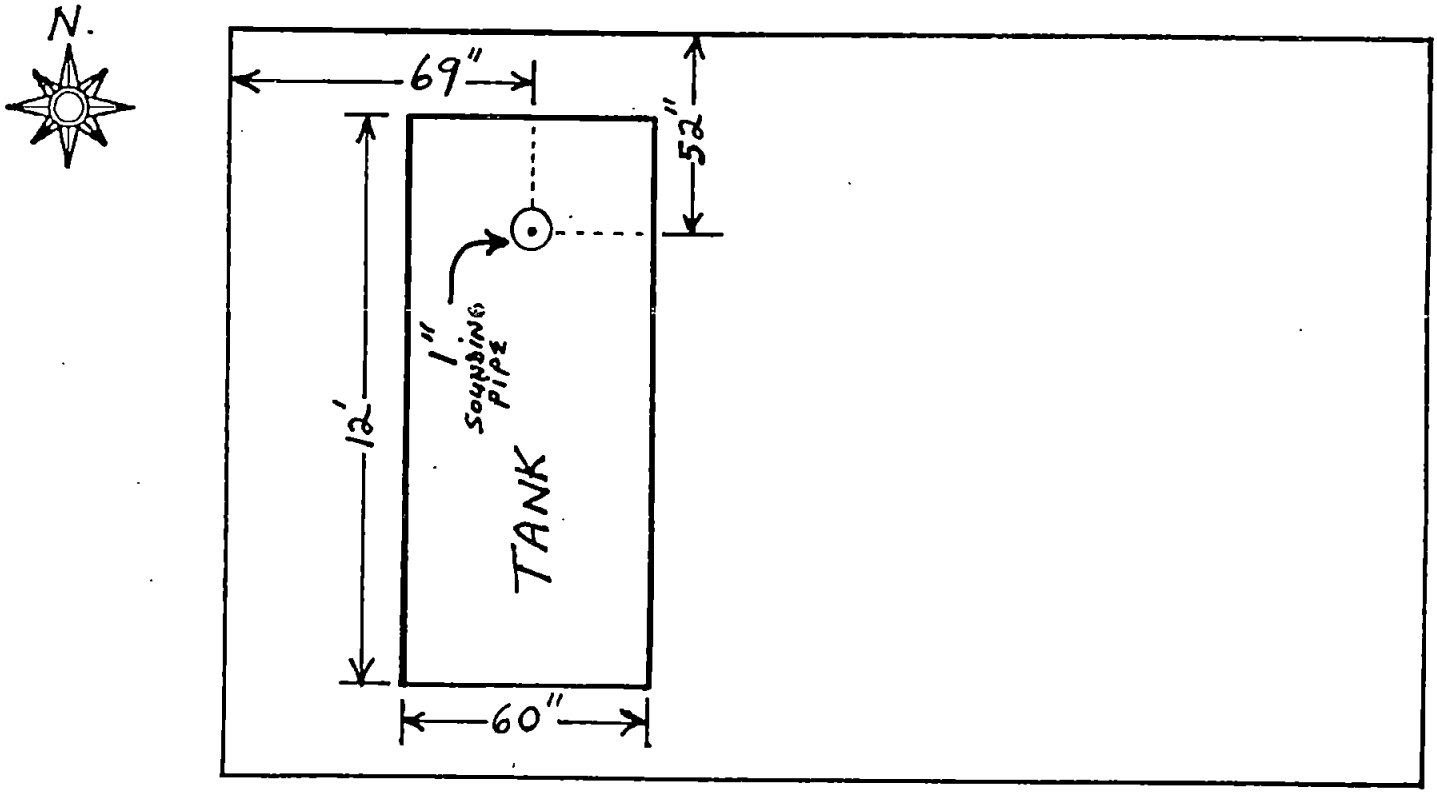
Amount of Fuel _____ Inches _____ Gal.

Amount of Water _____ Inches _____ Gal.

Date of Location 10/25/96

By: Ken Stoffel

Comments: Tank lays beneath cement basement floor. 1 inch sounding tube over north end of tank. Difficult access to tank from alley. Fill pipe and vent pipe not located. Center line of tank marked with silver paint.



(NOT TO SCALE)

Every effort is made to be as accurate as possible when detecting for underground objects. However, because of possible fluctuations caused by various soil conditions and/or other metal objects in close proximity of said object and/or obstruction restricting proper use of locating equipment; Ken Stoffel DBA Oil Tank Location Service, will accept no liability for mistakes, errors or omissions made in this report.

OIL TANK LOCATION SERVICE

P.O. Box 66234 Seattle, WA 98166 (206)241-2292
Ken Stoffel

Address 4321 University Way NE
Seattle, WA

Job # Shannon & Wilson

Invoice # 7523

Tank Size Estimate 38"X61" = 300 Gal.

Lay of Tank North to South

Depth Below Surface 24 inches

Type of Ground Cover Earth

Tank Diameter 38 Inches

Amount of Liquid 4 Inches _____ Gal.

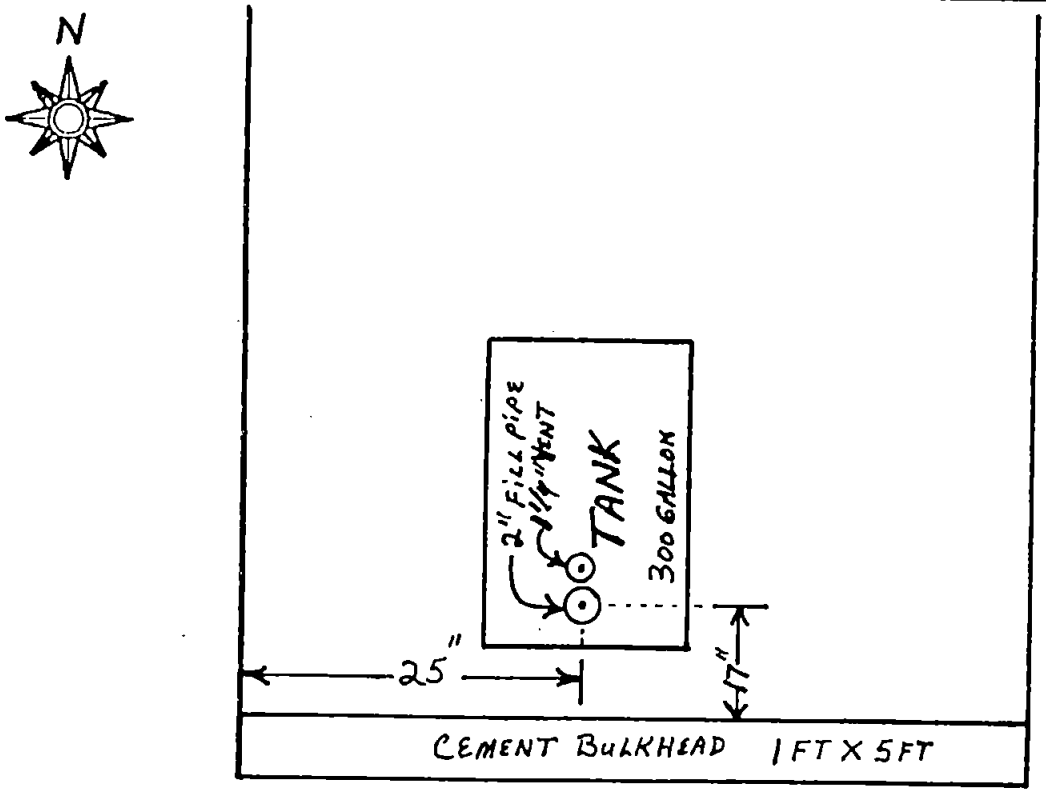
Amount of Fuel 4 Inches _____ Gal.

Amount of Water ø Inches _____ Gal.

Date of Location 10/25/96

By: Ken Stoffel

Comments: Tank lays in cement crib, in basement, west side of building. 2 inch direct fill pipe over south end of tank. 1 1/4 inch vent pipe also over south end of tank. Low overhead over tank, apx 2 1/2 - 3 feet.



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