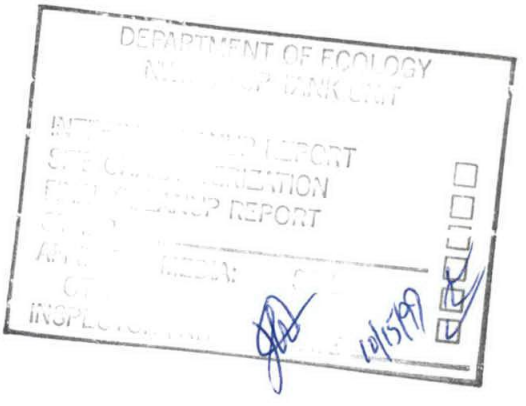
VOLUNTARY CLEANUP PROGRAM REPORT

Garden Plaza and 5th & Park Property

Park Avenue North and North 6th Street

Renton, Washington



GEOTECH CONSULTANTS, INC.

October 1, 1999

JN 99136E

JM Investments
510 Rainier Avenue South
Seattle, Washington 98144

Attention: Michael Mastro, Sr.

Subject: **Voluntary Cleanup Program Report**
Garden Plaza and Fifth and Park Property
Park Avenue North and North Sixth Street
Renton, Washington

Dear Mr. Mastro:

We are pleased to present the results of our recently completed Voluntary Cleanup Program Report for the Garden Plaza and Fifth and Park Property at the intersection of Park Avenue North and North Sixth Street in Renton, Washington. A copy of this report, along with all of its supporting documentation, will be forwarded to the Northwest Region of the Washington Department of Ecology (WDOE) for Voluntary Cleanup Program (VCP) review. The goal of this submittal is to have the groundwater sampling and analysis requirement portion of the deed restriction removed. The deed restriction was recorded as a requirement of an earlier determination of "no further action" (NFA). This report was prepared in response to your request and in accordance with the terms of our general services, agreement dated April 6, 1999. Our methodologies, findings, and conclusions are summarized in this report.

We appreciate the opportunity to be of service on this project. If you have any questions, or if we may be of additional service, please contact us.

Respectfully submitted,

GEOTECH CONSULTANTS, INC.

Timothy A. Johnson
Environmental Geologist
WDOE-Registered Site Assessor

cc: **Washington Department of Ecology**

TAJ:alt

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VOLUNTARY CLEANUP PROGRAM REPORT
Garden Plaza and Fifth and Park Building
Park Avenue North and North Sixth Street
Renton, Washington

EXECUTIVE SUMMARY

The subject property is currently developed with two office buildings and a parking garage, and is located at the southeastern corner of the intersection of Park Avenue North and North Sixth Street in Renton, Washington. The Vicinity Map, Plate 1, illustrates the general location of the site. Land use in the surrounding area is characterized by commercial structures on the west side of Park Avenue North and north side of North 6th Street. Industrial properties lie to the east and farther north. More specifically, North 6th Street borders the site to the north; an auto body repair business is across this street. Garden Avenue North borders the site to the east, Pacific Car and Foundry (PACCAR) is across this street. North 5th Street is to the south, across which is a vacant parcel. Park Avenue North adjoins the site to the west. Several commercial businesses are on the west side of Park Avenue North.

Landau and Associates, Incorporated, Rittenhouse Zeman and Associates, and Earth Consultants, Incorporated have conducted previous environmental studies of the site. These studies were conducted in 1988 and in the spring and summer of 1989. All three of the previous studies reported that petroleum hydrocarbons in excess of Method A cleanup levels were discovered in soil and groundwater at various locations in the northwestern quarter of the property. The property had a history of petroleum use and storage that may have accounted for the presence of petroleum detected in the subsurface. Vinyl chloride was detected in a groundwater sample near the eastern property line. The presence of vinyl chloride was attributed to the PACCAR site where vinyl chloride contamination of groundwater was confirmed.

Geotech Consultants, Inc. became involved with this project in October 1993 when we conducted additional sampling and analysis of soil at 13 locations and groundwater from monitoring wells installed in 11 of the borings on the property. During drilling of the borings and installation of monitoring wells, we confirmed the previous findings of a localized area of soil and groundwater contamination near the northwestern corner of the property.

These findings were reported to the Washington Department of Ecology (WDOE) in an *Independent Remedial Action Program* (IRAP) report dated April 8, 1994. The WDOE reviewed the report and issued a determination of no further action. However, due to the presence of petroleum hydrocarbons in soil and groundwater above the Method A cleanup levels, a deed restriction was placed with the property title. Additionally, the deed restriction required semi-annual sampling and analysis of three monitoring wells designated by the WDOE over a period of five years.

Between February 22, 1995 and November 1998, three of the monitoring wells installed by Geotech Consultants, Inc. were sampled and analyzed for diesel-range petroleum hydrocarbons. Analysis over time indicates that the concentrations of petroleum hydrocarbons as diesel have decreased over time and have been below current Method A cleanup levels since January of 1997.

Based upon the results of sampling and laboratory analysis of groundwater, it appears that any remaining petroleum-contaminated soil is not contributing petroleum hydrocarbons to the shallow groundwater beneath the subject property. It also appears that removal of the groundwater

sampling and analysis requirement in the deed restriction and that a final determination of no further action is warranted at this time.

With regard to future action at the site, it is our recommendation that after long-term monitoring is complete, the monitoring wells be lawfully abandoned in accordance with the appropriate sections of WAC 173-160.

1.0 PROJECT BACKGROUND/SITE DESCRIPTION

1.0.1 Location

A. Site Name

The subject property is known as the Garden Plaza and Fifth and Park Property. Currently, two office buildings and a parking structure occupy the subject property.

B. Street Address

The property address of the Garden Plaza building is 535 Park Avenue North and the Fifth and Park Building is addressed 500 Park Avenue North, both in the city of Renton in King County, Washington. The zip code is 98055.

C. Phone Number

The telephone number for Stephen Ryan of Boeing Environmental Affairs, the site contact, is (206) 393-4707.

D. Map of Site Location

The Vicinity Map, attached as Plate 1, illustrates the location of the subject property and the surrounding area within a one-mile radius of the site. Plate 2, the Site Plan, depicts the setting of the subject property and adjacent sites. The parcel is bordered on the north by North 6th Street; Garden Avenue North borders the site to the east, Park Avenue North to the west, and North 5th Street to the south.

1.0.2 Topography and Geology

A. Site Diagrams

Attached to this report, the following plates illustrate relevant site features.

Plate 1	Vicinity Map
Plate 2	Site Plan
Plate 3	Site Exploration Map: Borings/Monitoring Well Locations
Plate 4	Geologic Cross Section Map
Plate 5	Groundwater Depth and Flow Direction Map
Plate 6	Groundwater Sample Results Map

B. Site Soil Types

Physiographically, the site is situated on a delta formed by the ancestral Cedar River. This delta formed at the mouth of the Cedar River where it entered glacial Lake Russell near the end of the last period of continental glaciation, which ended approximately 13,500 years ago. The area around the site has been extensively modified by rechannelization of the Cedar River in the early 1900's and by more recent urbanization.

A published geologic map for the site vicinity (Mullineaux, 1965) suggests that much of the material mantling the subject parcel is urban or industrial land modified by widespread or discontinuous fill. Native deposits below the mantle of fill are likely composed of alluvium deposited by the Cedar River. The alluvial material can range from clay to gravel, and is commonly composed of sand and gravel with occasional interbedded peat.

The sand and gravel typically exhibits high vertical hydraulic conductivity, while the silt and clay typically exhibits low vertical hydraulic conductivity, which frequently results in the formation of a "perched" water table along its upper contact with a more permeable overlying soil. The "perched" water table (if present) is frequently seasonal and derives recharge primarily from the infiltration of precipitation through more permeable overlying soil.

Our review of a United States Geologic Survey topographic map of the *Renton Quadrangle* indicates that the site is approximately 25 feet above sea level. The surrounding area is generally flat with little topographic relief.

The test boring locations, completed for our Phase II site investigations, are illustrated on the Site Exploration Map, Plate 3. We also refer the reader to the **Appendix A: Previous Reports** for the specific conditions encountered at selected drilling locations.

In general, the upper soil layer in the borings encountered up to 3 feet of fill overlying alternating layers of silty sand and sandy silt, with varying amounts of gravel in some of the layers.

The fill was predominantly moist to damp. In all borings, we encountered areas of seepage at various depths. Subsequent measurements of groundwater over four years in monitoring wells installed in borings B-4, B-12, and B-14 indicates that the groundwater is between 7 to 10 feet below the existing ground surface. Groundwater levels probably vary seasonally in response to rainfall. An interpretive cross section is provided as Plate 4.

1.1 RELEASE INFORMATION/SITE CHARACTERIZATION

1.1.1 Release Information

On April 8, 1994, Geotech Consultants, Inc. presented the results of an Independent Remedial Action Program (IRAP) report to G & M Investments and the Washington Department of Ecology (WDOE), which summarized the findings of the previous investigations. No new areas of contamination have been identified since initial notification occurred in 1994; therefore, no additional notification is necessary. We recommend the user of this document refer to **Appendix A: Previous Reports** for information regarding sampling and analysis completed prior to April 1994. The WDOE issued a determination of no further action regarding the Total Petroleum Hydrocarbon and vinyl chloride identified in reports provided to the WDOE in September 1994. A deed restriction was recorded against the property at that time.

We spoke with John Lillie of the WDOE on April 7, 1999 to discuss the site and to determine if additional remediation of the site would be required. We were informed that no additional remedial actions would be required, however, a new submittal through the Voluntary Cleanup Program would be required to remove the deed restriction placed on the property.

1.1.2 Site Characterization

As part of our site characterization, we reviewed previously completed environmental reports for the subject property. The following reports are appended to this submittal:

(1) Landau Associates, Inc. (LAI). *Property Assessments E & H Properties (Renton, Kent, Auburn, Duwamish) King County, Washington.* July 24, 1989. 38 pages, attachment.

(2) Geotech Consultants, Inc. *Subsurface Exploration and Testing, Garden Plaza and Fifth and Park Property, North Sixth Street at Park Avenue, Renton, Washington.* November 5, 1993. 19 pages plus tables, plates, appendices.

(3) Geotech Consultants, Inc. *Supplemental Subsurface Exploration and Testing, Garden Plaza and Fifth and Park Property, North Sixth Street at Park Avenue, Renton, Washington.* December 10, 1993. 14 pages plus tables, plates, appendices.

(4) Geotech Consultants, Inc. *Independent Cleanup Report, Garden Plaza and Fifth and Park Property, North Sixth Street at Park Avenue, Renton, Washington.* April 8, 1994. 9 pages plus tables, plates, appendices

We also completed eight rounds of groundwater sampling and analysis from the three wells identified in the deed restriction recorded against the property deed. Groundwater occurrence, flow direction, and contaminant levels are discussed in greater detail in **Section 2.0, Groundwater Investigation**.

A. Review of Previous Environmental Studies

A brief summary of the previous work completed by Geotech Consultants, Inc. and other consultants is provided in the following paragraphs. For more detailed information we refer the reviewer to the referenced documents attached to this report as **Appendix A**.

In 1989 Landau Associates, Inc. (LAI) presented a *Property Assessment* report of four properties to the Boeing Company. Included in the report was information regarding history, development, and identification of contamination on the subject property. Historical evidence reviewed for LAI's *Property Assessment* indicates that the subject property was mostly vacant or agricultural land with the exception of a house fronting Park Avenue North constructed by at least 1936. Industrial and commercial use of the site reportedly began in 1943 with the construction of a Shell heating oil distributor on the northwestern corner of the site. Sunset Coal and Oil operated the distribution facility between 1950 and 1967. The Renton Boilerworks occupied the east-central portion of the property from 1960 to at least 1970. A towing company reportedly occupied this portion of the property in 1988. Pacific Northwest Bell (PNB) operated a maintenance building on the northeastern corner of the site beginning in 1968. The Fifth and Park building was constructed in 1979. The Garden Plaza building and garage were constructed in 1988 following demolition of the PNB building.

Landau Associates, Inc. also reviewed previous environmental reports completed by Earth Consultants, Inc. (ECI) and Rittenhouse-Zeman & Associates, Inc. (RZA) for the subject property.

According to the LAI report, ECI conducted a geotechnical study for the proposed Garden Plaza Building in 1988 and discovered that soil from near the center of the Garden Plaza Building contained 1,200 parts per million (ppm) of total petroleum hydrocarbons (TPH). The specific type of petroleum was not determined. Groundwater samples from the northeastern and northwestern corners of the building area contained 4.0-ppm and 20.0-ppm diesel-range hydrocarbons, respectively. It was ECI's opinion that contaminants existing on the site "represent isolated, relatively small volume spills which were limited in extent."

Landau Associates review of the RZA report reveals that nine soil borings and one groundwater monitoring well were drilled around the perimeter of the Fifth and Park Building in 1989. A groundwater sample from the northwestern corner of the building was found to have a TPH concentration of 13 ppm. Soil from two borings on the north side of the building contained residual TPH concentrations of 4,700 and 1,300 ppm. Boring and monitoring well locations are shown on Plate 3, Site Exploration Map of this report.

Sampling and analysis of selected soil and groundwater samples were also included in LAI's *Property Assessment.* Three monitoring wells were installed on the subject property and groundwater from two of the wells was analyzed. Analysis revealed that the monitoring well near the northeastern corner of the site, closest to the Pacific Car and Foundry (PACCAR) site had 45 parts per billion (ppb) of vinyl

chloride. A groundwater sample from the west-central portion of the property had a TPH concentration of 56 ppm. Groundwater flow as reported by LAI was generally toward the west.

Geotech Consultants, Inc. (GCI) conducted drilling, sampling, and analysis of soil and groundwater between October 13, 1993 and February 22, 1994. Seven borings, B-1 through B-7 (converted to monitoring wells MW-1 through MW-7) were installed on the site in October 1993. The reports note that diesel-range hydrocarbons above Method A cleanup guidelines were detected in a monitoring well, designated as MW-4, on the west-central portion of the property. Heavy-oil range petroleum hydrocarbons above cleanup levels were detected in soil near the southeastern corner of the property. Sampling and analysis of groundwater from LAI's well on the eastern side of the property confirmed the presence of vinyl chloride. Analysis of groundwater from monitoring wells installed by GCI in the vicinity of LAI's well did not detect vinyl chloride. An additional five borings, B-8 through B-12, were drilled by GCI in November 1993. Three of these borings were converted to monitoring wells, MW-10 through MW-12. The finding confirmed that the areas of contamination, previously identified by GCI and other consultants were generally confined to small localized areas. Concentrations of TPH in groundwater were lower than measured in October 1993. In February 1994, one more boring/monitoring well (B-13/MW-13) was drilled downgradient from the MW-4. Analysis of groundwater from this well resulted in non-detectable levels of TPH.

An Independent Remedial Action Program (IRAP) report was prepared by GCI in April 1994 and submitted to the WDOE for review. Following review of the report and attendant documentation, the WDOE requested an additional boring/monitoring well (B-14/MW-14) be drilled near the Landau Associates Inc. monitoring well MW-6. Following receipt of the preliminary laboratory results, the WDOE issued a status of no further action, pending filing of a deed restriction with the property deed noting the contaminated soil and groundwater existing beneath the site. The deed restriction also noted that semi-annual groundwater monitoring was to continue for a period of five years in three monitoring wells, MW-4, MW-13, and MW-14 installed by GCI.

1.1.3 Threats To Sensitive Species, Environments, Or Public Health

The subject property is located in an area of Renton that has been developed with commercial structures and industrial facilities since the early to mid-1900's. No aquifer recharge areas, or other sensitive areas as mapped by the City of Renton were noted on the subject property. No public water supply wells are located within one-half of a mile of the subject site.

As discussed in detail in later sections of this report, it is our opinion that past releases at the site do not pose a threat to public health or to other sensitive areas. Because of the relatively low concentrations and the low volatility of the diesel-range hydrocarbons, the potential for hazardous concentrations of hydrocarbon vapors appears to be low.

1.2 PREVIOUS INVESTIGATIONS

As mentioned previously in ***Section 1.1.2, Site Characterization,*** with the exception of the work completed by Earth Consultants, Rittenhouse-Zehman Associates, and Landau Associates, Incorporated, we are not aware of any other environmental studies that have been completed on the subject property.

1.3 SELECTION OF CLEANUP STANDARDS

Based upon the results of laboratory analysis as quantified by earlier workers and Geotech Consultants, Inc., which identified diesel- and oil-range hydrocarbons in the soil and groundwater across the subject property, the site groundwater analytical results were compared to the Method A Cleanup Levels established by the Model Toxics Control Act (MTCA, Chapter 173-340 WAC) for Total Petroleum Hydrocarbons (TPH).

The points of compliance selected for groundwater were the three monitoring wells; MW-4, MW-13, and MW-14 identified in the deed restriction recorded as part of the 1994 determination of no further action and guidance offered in WDOE *Publication No. 94-49*.

1.4 REMEDIAL ACTIONS AND RATIONALE FOR SELECTION

With the exception of semi-annual groundwater monitoring, no additional remedial actions were conducted.

1.5 INSTITUTIONAL CONTROLS

The majority of the contaminated soil identified by previous consultants appears to be located beneath the existing buildings or driveways, which reduces the potential for infiltration of rain and inhibits further migration. These features will also assist in inhibiting percolation of precipitation into the soil.

1.6 SAMPLING AND ANALYSIS

No additional soil sampling was conducted for this phase of study.

2.0 GROUNDWATER INVESTIGATION

The groundwater sampling locations were determined by the WDOE in the deed restriction recorded as part of the no further action determination issued by the WDOE in 1994. The three monitoring wells designated by the WDOE were Geotech Consultants' monitoring wells MW-4, MW-13, and MW-14. Shortly after beginning the sampling in February 1995, monitoring well MW-13 was damaged during widening of Park Avenue North. During our second sampling event in September 1995, we were not able to locate MW-13, as a sidewalk apparently covered it.

Monitoring well MW-12 was designated as a replacement sampling point, being the closest well to MW-13.

2.0.1 Monitoring Well Installation and Sampling

Monitoring well design and construction methods conformed to requirements and specifications as outlined in Washington Administrative Code (WAC) 173-160-500 through 173-160-560 (Resource Protection Wells). The well screen in each installation was positioned to span the maximum and minimum range of the anticipated seasonal groundwater fluctuation, thus facilitating representative sampling at any time during the year. The annulus of each well casing was sand-packed 1 foot above its well screen. A bentonite seal was placed above the sand and carried to within 1-foot of the ground surface to prevent the infiltration of surface contamination along the well casing. A non-shrinking cement grout was used to stabilize the upper section of each well. Protective, aboveground casings with provisions for locking access to each well head were also provided.

Prior to groundwater sampling, a sterilized electronic water level indicator was used to measure the depth to groundwater. A sterilized, submersible electric pump was used to purge the well by removing a minimum of three well volumes of water. This procedure was followed to assure that samples obtained from the wells would be representative of ambient groundwater conditions in the surrounding water-bearing strata.

Following development and purging of the well, a sterilized stainless steel or pre-cleaned disposable bailer was used to extract groundwater from each well. Between samplings, the stainless steel bailer was cleaned and sterilized with laboratory-grade detergent and distilled water. The samples were poured into preconditioned bottles furnished by the project laboratory, stored in an iced chest at, or below, 4 degrees centigrade, and transported to the project laboratory in this condition. EPA-recommended sample management protocol, including the maintenance of chain-of-custody documentation, was observed at each stage of the project.

A. Water Table Survey

The Site Exploration Map, Plate 3, graphically illustrates the boring locations completed by RZA, LAI, and GCI. The Groundwater Depth and Flow Direction Map, Plate 4, depicts the groundwater depth and approximate flow direction from our 1993 survey. Table 1, Water Table Survey, presents a summary of groundwater leveling survey data for October 1993. No additional groundwater leveling surveys have been completed between October 1993 and the present. However, groundwater depth has been recorded in each of the three wells sampled as part of the semi-annual sampling and appears in Table 2, Groundwater Laboratory Results.

B. Site Groundwater Depth, Gradient, and Conductivity

Our interpretation of data presented in Table 1, the Water Table Survey, reveals that the direction of groundwater flow, as measured during the 1993 survey, is generally toward the west. Previous studies for the area also generally confirmed the western regional groundwater flow direction.

The hydraulic conductivity at the location of the contamination is estimated to be 1.0 x 10^{-2} cm/sec (0.01 cm/sec) to 1.0 x 10^{-1} cm/sec (0.1 cm/sec).

C. Geologic Cross Sections - Groundwater

Plate 5, the Cross Section, presents a cross section drawn from east to west across the western portion of the site.

D. Maximum Concentration Map

Plate 6, Groundwater Sample Results Map, illustrates the historical concentrations of TPH detected in groundwater.

E. Laboratory Analysis

Groundwater samples for the semi-annual sampling were analyzed for diesel- and oil-range hydrocarbons by Washington Method WTPH-Dx (extended).

F. Groundwater Data

Table 2, Laboratory Results - Groundwater Samples, February 1995 to November 1998, presents a summary of groundwater analyses from the three monitoring wells at the subject site. Quantification analysis of groundwater samples from monitoring wells MW-4, MW-12, and MW-14 revealed levels of petroleum hydrocarbons that have decreased to below cleanup level or to below method detection limits. The cleanup level for total petroleum hydrocarbons in groundwater is 1,000 ppb.

2.0.2 Groundwater Treatment

No groundwater treatment was conducted, or is planned to be conducted on the site at this time.

2.1 REGULATORY RECORDS/PERMITS

2.1.1 Regulatory Records/Permits

No permits were required to complete the groundwater sampling.

3.0 CONCLUSIONS/RECOMMENDATIONS

The purpose of this study was to assess the condition of groundwater in the three monitoring wells designated by the WDOE for semi-annual sampling, and to provide documentation after comparing the site's groundwater sample laboratory results to Method A guidelines that the site conditions warrant removal of the groundwater sampling requirement in the deed restriction.

3.0.1 Condition of Groundwater

As a preface to discussion of groundwater contamination at the explored/sampled localities, we present the following brief discussion of groundwater occurrence beneath the site:

- With regard to groundwater occurrence across the site, it appears that since 1995, the depth to groundwater varied by as much as 3.24 feet in MW-12 and as little as 2.43 feet in MW-14. The depth fluctuations are probably the result of seasonal changes and or irrigation of grass and decorative plantings.

- The groundwater flow direction appears to be toward the west-northwest across the site. The groundwater flow may be influenced by previous development on the site, utility trenches in adjoining streets, or other unknown influences.

Based upon the results of analysis of groundwater obtained from three monitoring wells designated by the WDOE for semi-annual sampling, it appears that the concentration of total petroleum hydrocarbons as diesel-range hydrocarbons were above the Method A cleanup level in MW-4 in our February and September 1995 and October 1996 samplings. Subsequent re-sampling and analysis of MW-4 revealed that concentrations of diesel-range hydrocarbons have been below Method A Cleanup levels since January 1997. Concentrations of diesel-range hydrocarbons have been below Method A cleanup levels in MW-12 and MW-14 since the initial samplings in February 1995. No oil-range hydrocarbons have been identified in any of the three wells.

Based upon the results of the semi-annual groundwater monitoring, it is our opinion that the groundwater monitoring and the institutional controls that are currently in place have demonstrated that groundwater leaving the property is not affected. In conclusion, it is our opinion that, based upon the results of our groundwater monitoring, the deed restriction issued by WDOE as part of the determination of no further action in 1994 should now be removed.

With regard to future action at the site, it is our opinion that additional investigation of groundwater near the former contaminated soil, such as installation of additional monitoring wells, would not be warranted at this time. It is our recommendation that after receiving a letter removing the groundwater sampling requirement from the WDOE, the remaining monitoring well be lawfully abandoned in accordance with the appropriate sections of WAC 173-160.

3.0.2 Voluntary Cleanup Program

This report has been prepared in accordance with the requirements of the Washington Department of Ecology's Voluntary Cleanup Program (VCP) following the guidelines in WDOE document *Guidance On Preparing Independent Remedial Action Reports Under The Model Toxics Control Act, Publication 94-18*, for review by the WDOE. A copy of the *VCP Report Summary Form* is found in Appendix C.

4.0 LIMITATIONS

This report has been prepared for specific application to this project in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area, and in accordance with the terms and conditions set forth in our general services agreement dated April 6, 1999. This report is for the exclusive use of JM Investments, The Boeing Company, and their several representatives, for specific application to this site. This report will become a matter of public record through the Voluntary Cleanup Program (VCP). No warranty is expressed or implied. If new information is developed in future site work, which may include excavations, borings, or studies, Geotech Consultants, Inc. should be allowed to re-evaluate the conclusions of this report and provide amendments as required.

We appreciate our opportunity to provide environmental consulting services on this project. If you have any questions, or if we can be of further assistance, please do not hesitate to contact us.

Respectfully submitted,

GEOTECH CONSULTANTS, INC.

Timothy A. Johnson
Environmental Geologist
WDOE Registered Site Assessor

JAMES R. FINLEY, JR. STATE OF WASHINGTON 19660 REGISTERED PROFESSIONAL ENGINEER

10/4/99

EXPIRES 8/17/01
James R. Finley, P.E.
Principal

Enclosures

TAJ/JRF:alt

5.0 REFERENCES

City of Renton. *Monitoring and Production Wells and Geologs* City of Renton Public Works. 1997

Geotech Consultants, Inc. *Subsurface Exploration and Testing, Garden Plaza and Fifth and Park Property, Renton, Washington.* 15 pages. November 5, 1993.

Geotech Consultants, Inc. *Supplemental Subsurface Exploration and Testing, Garden Plaza and Fifth and Park Property, Renton, Washington.* 8 pages. December 10, 1993.

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Landau Associates, Inc. *Final Report, Property Assessments: E and H Properties (Renton).* Prepared for Boeing Environmental Affairs. July 24, 1989.

Mullineaux, D.R. *Geologic Quadrangle Map of the Renton Quadrangle, King County Washington.* Geologic Quadrangle Maps of the United States Map GQ 405. 1965.

Thomas Brothers Map Co. The Thomas Guide: King/Pierce/Snohomish Counties. 1996.

Washington Department of Ecology. *Guidance on Preparing Independent Remedial Action Reports under the Model Toxics Control Act Chapter 70.105D.* Publication 94-18. March 1994.

Washington Department of Ecology. *Guidance on Sampling and Data Analysis Methods.* Publication No. 94-49. January 1995.

Washington Department of Ecology. *Interim Interpretive and Policy Statement cleanup of Total Petroleum Hydrocarbons (TPH).* Publication No. ECY97-600. January 1997.

TABLE 1
WATER TABLE SURVEY
(OCTOBER 1993)

Well Number	Elevation of Measuring Point[1]	Depth to Groundwater[2]	Elevation of Water Table Surface
LMW-2D[3]	27.21 feet	6.59 feet	20.62 feet
MW-1	27.61 feet	6.54 feet	21.07 feet
MW-2	27.86 feet	6.57 feet	21.29 feet
MW-3	24.71 feet	5.19 feet	19.52 feet
MW-4	29.36 feet	10.73 feet	18.63 feet
MW-5	27.96 feet	9.33 feet	18.63 feet
MW-6	27.68 feet	14.04 feet	18.64 feet
MW-7	27.70 feet	8.29 feet	19.41 feet

Notes:

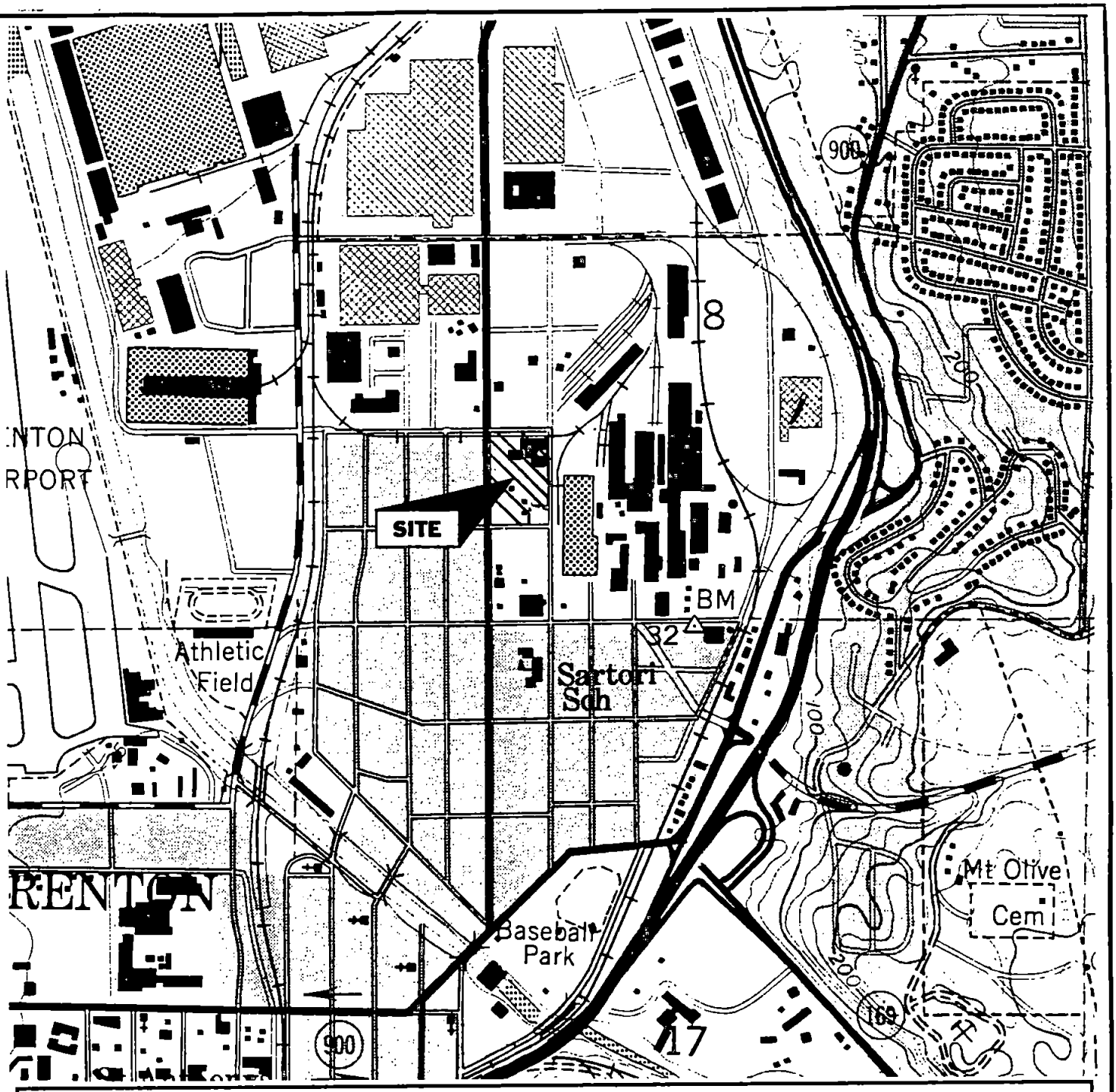
1. Reference elevation datum city of Renton NGVD datum located at 8th and Park. Elevation information presented on preliminary site plan.
2. The measuring point for each well was the northern side of the top of the 2-inch, PVC well casing.
3. LMW –2D refers to Landau Associates monitoring well MW-2D.

TABLE 2
LABORATORY RESULTS[1]
GROUNDWATER SAMPLES - MONITORING WELLS
FEBRUARY 1995 through NOVEMBER 1998

Well ID Number	Date Sampled	Depth to Water (feet)	Diesel[2,3]	Oil[3]
MW-4	2/22/95	8.23	**2.2**[2]	NR[4]
MW-4	8/25/95	10.27	**9.9**[2]	NR
MW-4	10/1/96	9.68	**1.4**[3]	<1.0[3]
MW-4	1/20/97	7.52	<0.5[3]	<1.0[3]
MW-4	10/31/97	9.34	0.69[3]	<0.5[3]
MW-4	4/9/98	6.84	0.31[3]	<0.5[3]
MW-4	11/25/98	7.25	<0.20[3]	<0.5[3]
MW-13	2/22/95	NA[5]	<0.5[2]	NR
MW-13	8/25/95	NA	NT[6]	NT
MW-12[7]	8/25/95	9.83	0.68[2]	NR
MW-12	10/1/96	9.36	<0.5[3]	<1.0[3]
MW-12	1/20/97	6.59	<0.5[3]	<1.0[3]
MW-12	10/31/97	8.45	<0.5[3]	<0.5[3]
MW-12	4/9/98	8.21	<0.25[3]	<0.5[3]
MW-12	11/25/98	8.65	<0.20[3]	<0.5[3]
MW-14	2/22/95	7.39	<0.50[2]	NR
MW-14	8/25/95	9.15	0.53[2]	NR
MW-14	10/1/96	8.75	<0.5[3]	<1.0[3]
MW-14	1/20/97	6.72	<0.5[3]	<1.0
MW-14	10/31/97	8.40	<0.5[3]	<.0.5[3]
MW-14	4/9/98	8.16	<0.25[3]	<0.5[3]
MW-14	11/25/98	8.60	<0.20[3]	<0.5[3]
Method A Cleanup Standards[8]			**1.0**	

Notes:

1. Results are reported in parts per million (ppm).
2. Diesel by Washington Method WTPH-D.
3. Diesel and Oil by Washington Method WTPH-Dx (extended).
4. NR signifies "not reported". Concentrations of oil-range hydrocarbons were not reported for samples analyzed in 1995.
5. NA denotes not available due to damage of well from nearby construction.
6. NT denotes not tested.
7. MW-12 replaced MW-13 for the remainder of the project due to damage to MW-13.
8. Method A Cleanup Levels - Groundwater the Model Toxics Control Act (MTCA) 173-340-720.
9. Bold Values in table are above Method A Cleanup levels.



LEGEND:

CONTOUR INTERVAL: 25 FEET
SCALE: 1" = 1,000'

N

SITE

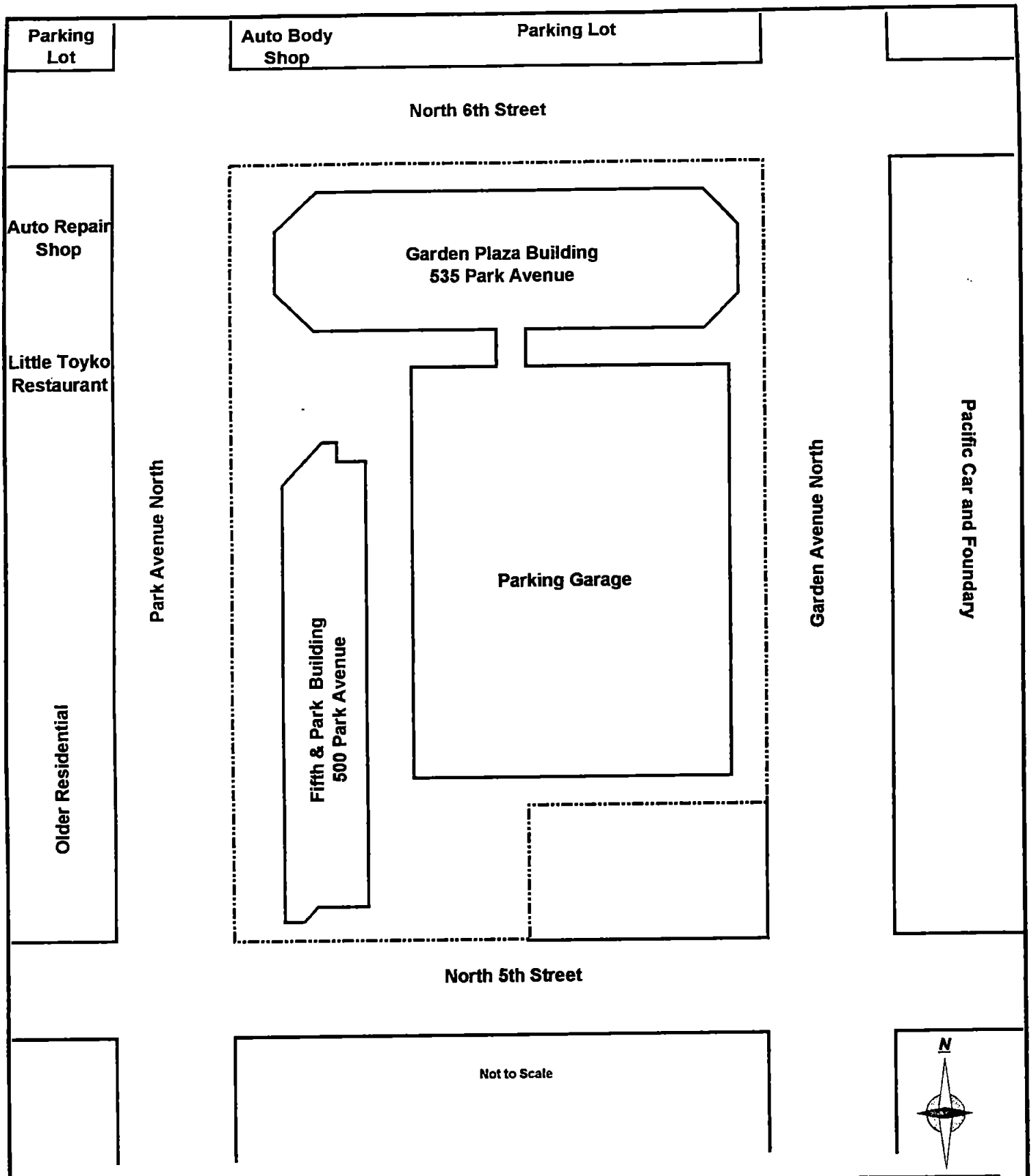
PROBABLE DIRECTION OF REGIONAL SHALLOW GROUNDWATER FLOW

(SOURCE: USGS TOPOGRAPHIC MAP OF THE RENTON QUADRANGLE, WA. 1949, PHOTOREVISED 1968 & 1973)

GEOTECH
CONSULTANTS, INC.

VICINITY MAP
GARDEN PLAZA & FIFTH and PARK BUILDING
PARK AVENUE N. at N. 6th STREET
RENTON, WASHINGTON

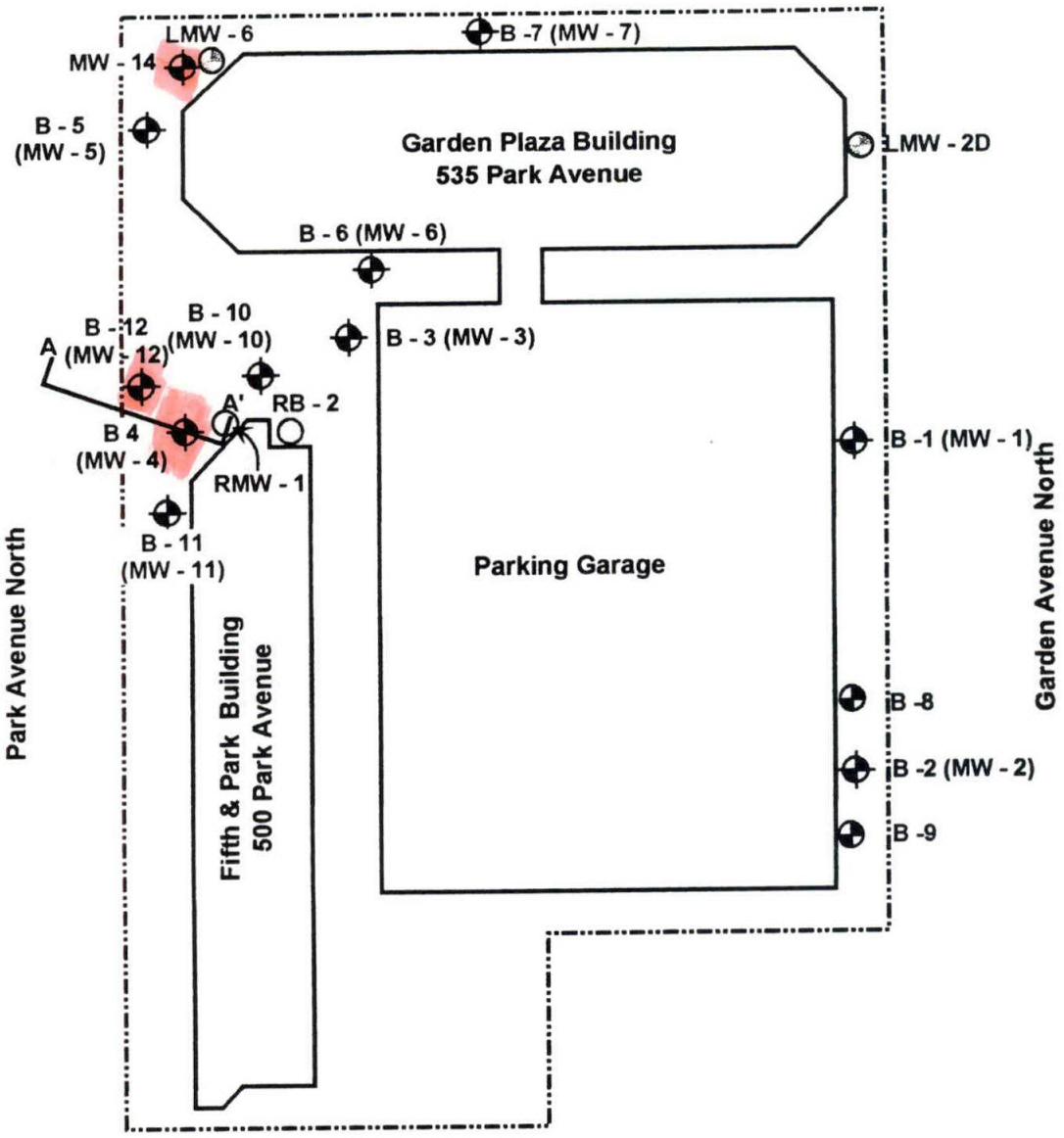
Job No:	Date:		Plate:
99136E	September 1999		1



GEOTECH
CONSULTANTS, INC.

SITE PLAN
GARDEN PLAZA &
FIFTH and PARK BUILDING
PARK AVENUE N. at N. 6th STREET
RENTON, WASHINGTON

Job No:	Date:		Plate:
99136E	August 1999		2



LEGEND:

- Approximate location of boring completed by Rittenhaus Zeman Associates, Inc., 1989
- Approximate location of boring completed by Landau Associates, Inc., 1989
- Approximate location of monitoring well completed by Geotech Consultants, Inc., 1993 and 1994
- Approximate location of boring completed by Geotech Consultants, Inc., 1993

Approximate Scale: 0 — 100'

N

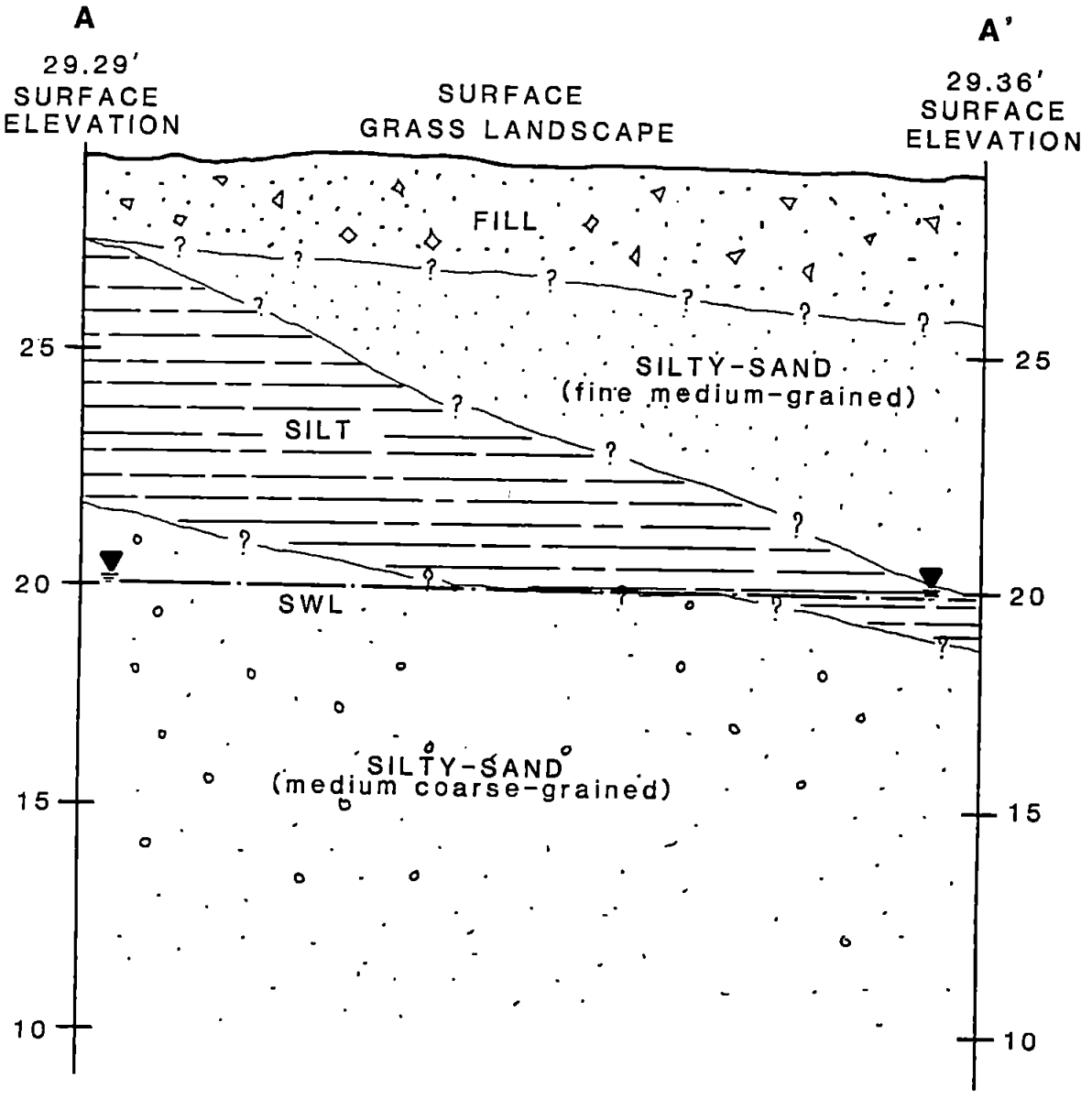
A — A'

Cross Section Line

GEOTECH
CONSULTANTS, INC.

SITE EXPLORATION MAP
GARDEN PLAZA &
FIFTH and PARK BUILDING
PARK AVENUE N. at N. 6th STREET
RENTON, WASHINGTON

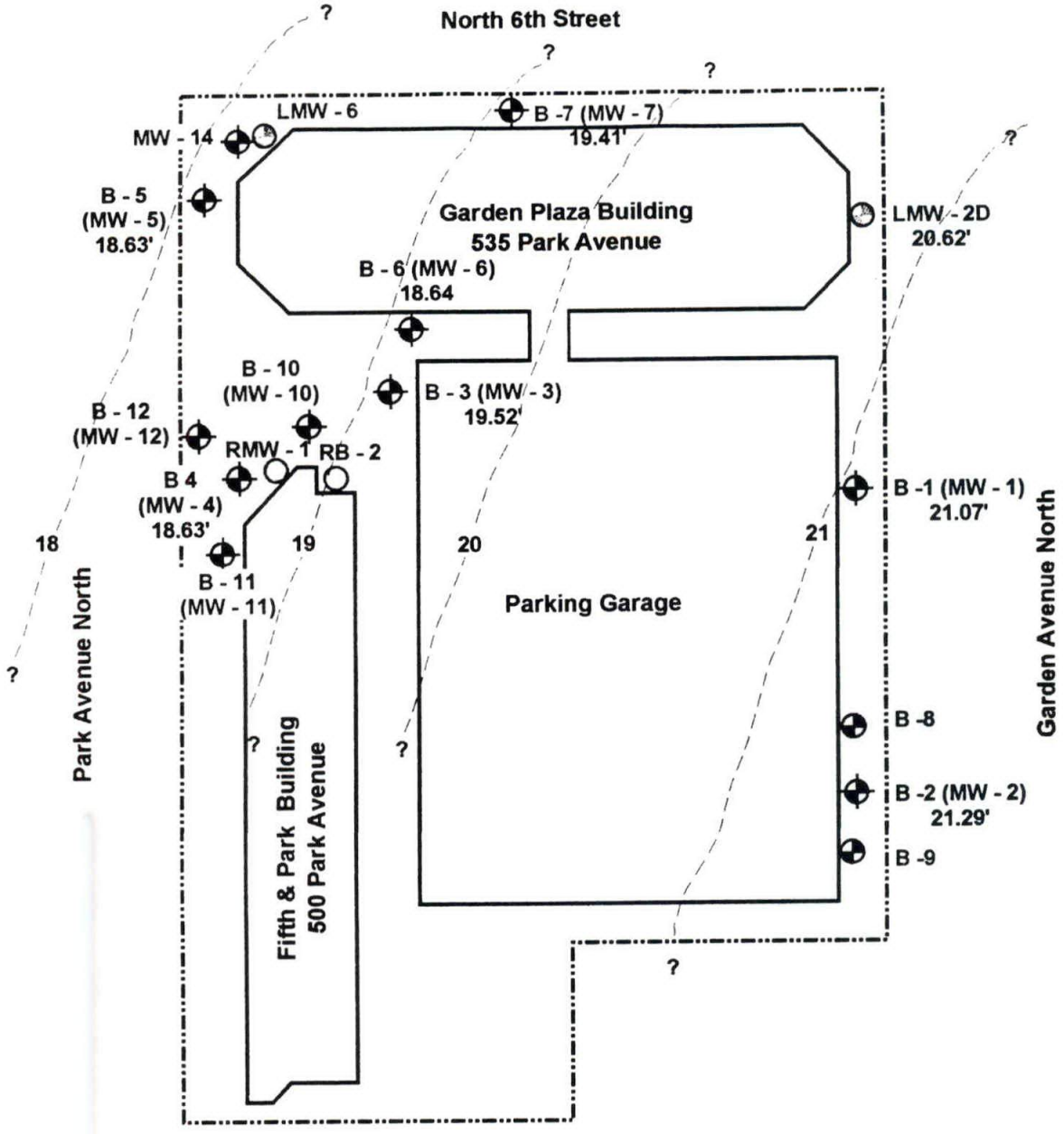
Job No:	Date:		Plate:
99136E	September 1999		3



GEOTECH
CONSULTANTS, INC.

GEOLOGIC CROSS SECTION
GARDEN PLAZA &
FIFTH and PARK BUILDING
PARK AVENUE N. at N. 6th STREET
RENTON, WASHINGTON

Job No:	Date:		Plate:
99136E	September1999		4



LEGEND:

- Approximate location of boring completed by Rittenhaus Zeman Associates, Inc., 1989
- Approximate location of boring completed by Landau Associates, Inc., 1989
- Approximate location of monitoring well completed by Geotech Consultants, Inc., 1993 and 1994
- Approximate location of boring completed by Geotech Consultants, Inc., 1993
- Approximate groundwater contour elevation lines Geotech Consultants, Inc., 1993

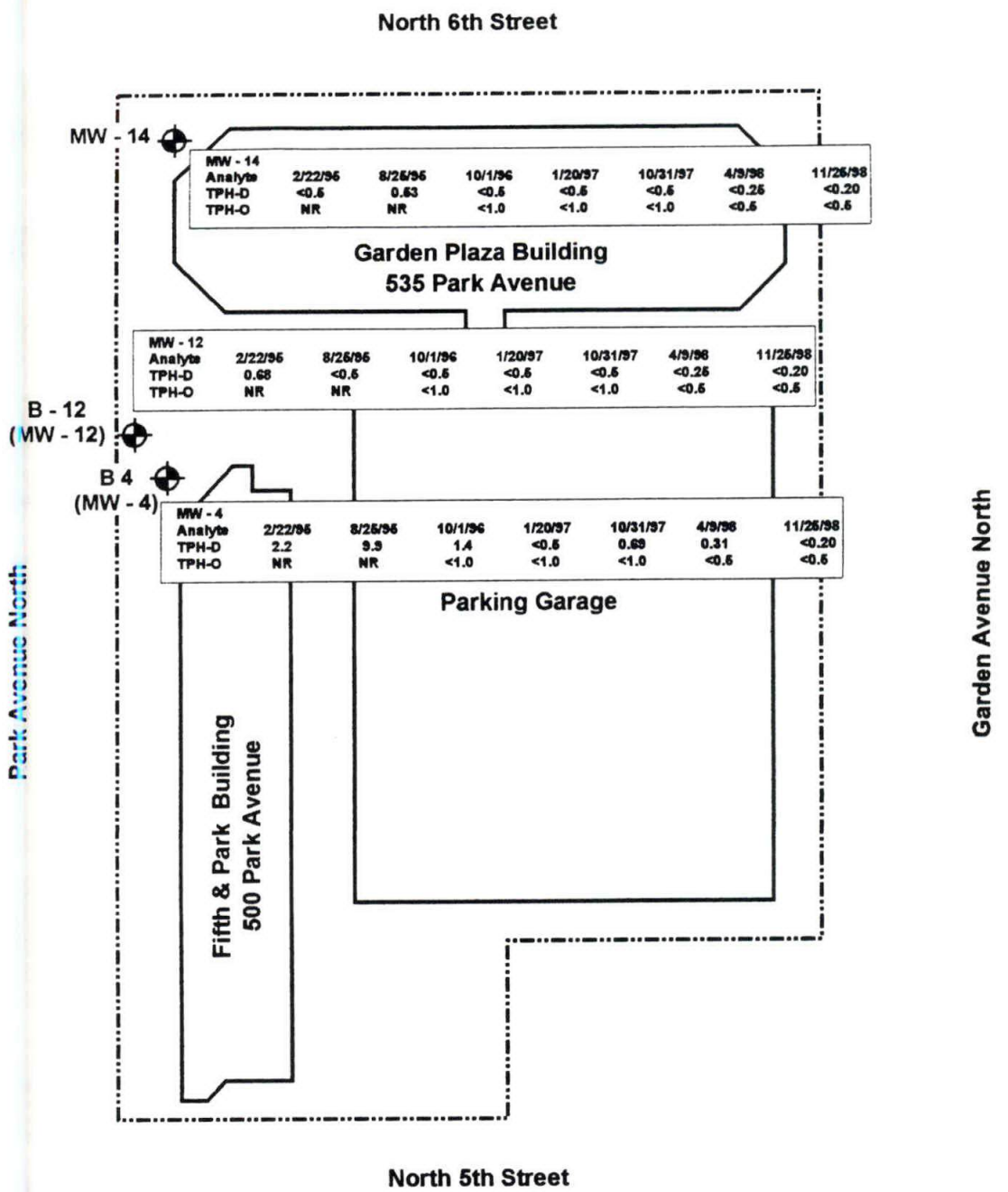
Approximate Scale: 0 — 100'

N

GEOTECH
CONSULTANTS, INC.

1993 GROUNDWATER FLOW DIRECTION MAP
GARDEN PLAZA & FIFTH and PARK BUILDING
PARK AVENUE N. at N. 6th STREET
RENTON, WASHINGTON

Job No:	Date:		Plate:
99136E	September 1999		5



LEGEND:

MW - 4	
Analyte	
TPH-D	Diesel-range Hydrocarons
TPH-O	Oil-range Hydrocarbons
NR	Not Reported
NT	Not Tested

Results are reported in parts per million (ppm)

Approximate Scale: 0 — 100'

N

GEOTECH CONSULTANTS, INC.

GROUNDWATER SAMPLE RESULTS MAP
GARDEN PLAZA & FIFTH and PARK BUILDING
PARK AVENUE N. at N. 6th STREET
RENTON, WASHINGTON

Job No:	Date:		Plate:
99136E	September 1999		6

APPENDIX A

Previous Reports

April 8, 1994

JN 93299IC

G & M Investments
510 Rainier Avenue South
Seattle, Washington 98144

Attention: Michael K. Mastro, Jr.

Subject: Independent Cleanup Report
Garden Plaza and Fifth & Park Property
North Sixth Street at Park Avenue
Renton, Washington

Dear Mr. Mastro:

Geotech Consultants, Inc. has completed initial and supplemental exploration and testing at the intersection of North Sixth Street and Park Avenue in an effort to define the extent of subsurface contamination on the property. The results of our initial and supplemental investigations were presented to you in reports dated November 5, and December 10, 1993, respectively (see references 1 and 2). Briefly, those studies revealed that diesel-range petroleum hydrocarbons were present on the property in the groundwater and soil at levels above the Method A cleanup guidelines as published in the Model Toxics Control Act (MTCA, Chapter 173-340 WAC). The elevated levels of diesel discovered during the investigations appear to be confined to a localized area in the northwest portion of the site and to not migrate off the site.

Additionally, vinyl chloride was reconfirmed in a well completed by Landau and Associates in the northeast corner of the property. The well lies at the upgradient property boundary, and the contamination located there has been attributed to migration from the PACCAR facility located directly across the street and upgradient. Vinyl chloride was not detected in any of the other wells we placed on the site.

Finally, elevated levels of total petroleum hydrocarbons (TPH) in the heavy oil range were discovered along the southeastern border of the site. Groundwater was not contaminated at this location. Further, borings surrounding this location did not discover elevated TPH. This area is very near the parking garage.

Following a one-hour technical guidance meeting on February 10, 1994 with Elaine Atkinson of the Washington Department of Ecology (WDOE), we completed an additional monitoring well at the site to assess the quality of groundwater at the downgradient property boundary.

boundary. Having completed that additional task, and having found no detectable levels of diesel in groundwater or soil at the downgradient property boundary, we have prepared this report for review by the WDOE under the relatively new Independent Remedial Action Program (IRAP) review process. Long-term monitoring of groundwater has been proposed as an institutional control at the site and the diesel-affected soil region discovered in the northwest corner is capped with asphalt. The goal of the submittal is to achieve a no further action (NFA) status for the site.

We appreciate the opportunity to provide continuing environmental consulting services on this project. If you have any questions, please do hesitate to contact us.

Respectfully Submitted,

GEOTECH CONSULTANTS, INC.,

Sean P. O'Brien

Sean P. O'Brien
Environmental Engineer

INDEPENDENT CLEANUP REPORT

Garden Plaza and Fifth & Park Property
North Sixth Street at Park Avenue
Renton, Washington

Section		Page
	EXECUTIVE SUMMARY	1
1.0	PROJECT BACKGROUND/SITE DESCRIPTION	2
1.0.1	Location	2
1.0.2	Topography and Geology	2
1.1	RELEASE INFORMATION/SITE CHARACTERIZATION	3
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1.3	SELECTION OF CLEANUP STANDARDS	5
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1.4.2	Groundwater	5
1.5	INSTITUTIONAL CONTROLS	6
1.6	SAMPLING AND ANALYSIS	6
2.1	GROUNDWATER INVESTIGATION	7

ATTACHMENTS

Table A	Laboratory Results
Table B	Water Level Survey Data
Plate 1	Vicinity Map
Plate 2	Site Exploration Plan
Plate 3	Northwest Corner Site Plan
Plate 4	Site History Overlay
Plate 5	Cross Section A-A'
Appendix A	Individual Remedial Action Report Summary Checklist
Appendix B	Referenced Reports

INDEPENDENT CLEANUP REPORT

Garden Plaza and Fifth & Park Property
North Sixth Street at Park Avenue
Renton, Washington

EXECUTIVE SUMMARY

At the southeast corner of Park Avenue North and North Sixth Street, the subject property encompasses two office buildings and a parking garage. The two site office buildings are more commonly known as Garden Plaza and Fifth & Park. The site is bordered on the north by North Sixth Street, on the east by Garden Avenue North, on the south by North Fifth Street, and on the west by Park Avenue North. The Pacific Car and Foundry (PACCAR) Superfund site lies east of the subject site, across Garden Avenue North.

Environmental studies on the site have been conducted previously by Landau and Associates, Inc., Rittenhouse Zeman and Associates (RZA), and Earth Consultants, Inc. (ECI). These studies were conducted in 1988 and in the spring and summer of 1989. We refer the reviewer of this report to pages 2 through 4 of reference 1 for more specific details regarding the findings of those previous studies. In summary, petroleum hydrocarbon contamination was discovered in soil and groundwater at various locations in the northwest quarter of the property. Additionally, vinyl chloride was discovered in a monitoring well completed by Landau in the northeast corner of the site.

Based upon our review of the previous work completed on the subject property by these other consultants, and upon our unique staff knowledge of the site (a member of our staff worked on this project in 1988), we completed 13 additional borings (11 were converted to monitoring wells) at the site in an effort to define the extent of contamination. Our studies, completed between October of 1993 and February of 1994, revealed localized diesel contamination in groundwater and soil approximately as depicted on Plate 3. Referring to Table A, the groundwater sampled and analyzed most recently from monitoring well MW-4 contained levels of diesel at 6.2 parts per million (ppm). During our initial study in November of 1993, its concentrations were 35 ppm. Soil sampled and analyzed from this same location did not contain detectable levels of diesel. Our analysis of a soil sample from boring B-12, located 25 feet north of B-4/MW-4, at 10 feet deep revealed 300 ppm diesel, slightly elevated above the Method A cleanup level of 200 ppm published in the Model Toxics Control Act (MTCA, Chapter 173-340 WAC). Groundwater sampled and analyzed from boring and monitoring well MW-12 revealed non-detectable levels of petroleum hydrocarbons. Elevated total petroleum hydrocarbons (TPH) were discovered in the soil along the southeastern corner of the parking garage. The elevated TPH discovered along the southeastern corner of the garage have been confirmed to be localized by additional exploration in that area; it does not appear to affect the groundwater.

Past uses of the subject property reveal obvious potential contributors to the petroleum contamination discovered in the northwest quarter of the property, including a Shell Heating Oil Distributor and Bruce's Welding located in this area (see Plate 4, Site History Overlay). The presence of vinyl chloride has been attributed to the PACCAR Superfund site located directly to the east and hydrologically upgradient from the contaminated well. The subject well lies at the upgradient site property boundary, and vinyl chloride is a well documented contaminant on the PACCAR site.

1.0 PROJECT BACKGROUND/ SITE DESCRIPTION

1.0.1 Location

A. Site Name

The subject property is known as the Garden Plaza and the Fifth & Park office buildings. The two office structures and a parking garage are the only buildings that occupy the site.

B. Street Address

The property is on the southeast corner of the intersection of North Sixth Street and Park Avenue North in Renton, Washington. The zip code is 98055.

C. Phone Number

The phone number is (206) 393-4707, and Stephen Ryan of Boeing Environmental Affairs is the contact person.

D. Map of Site Location

The Vicinity Map, attached as Plate 1, illustrates the location of the property and the surrounding area within a one-mile radius of the site.

1.0.2 Topography and Geology

A. Site Diagrams

Attached to this report, the following plates illustrate relevant site features and the location of contaminants discovered on the site.

Plate 1	Vicinity Map
Plate 2	Site Exploration Plan
Plate 3	Northwest Corner Site Plan
Plate 4	Site History Overlay
Plate 5	Cross Section A-A'

B Site Soil Types

The subject property is a short distance from the south end of Lake Washington. It is located on delta sediments from the Cedar River, and its subsurface stratigraphy is discontinuous and highly variable laterally and vertically. We refer the reviewer to referenced reports 1 and 2, located in Appendix B, for the specific soil stratigraphy encountered in the various borings completed for our investigations. In general, the borings completed for this study encountered alternating layers of silty sand and sandy silt, with varying amounts of gravel in some of the layers. Up to 3 feet of fill material was encountered on the property as well.

1.1 RELEASE INFORMATION/SITE CHARACTERIZATION

The subject property is currently developed with two office buildings and a parking garage. Diesel contamination was discovered in the soil and groundwater in the northwest corner of the property, as illustrated in Plate 3. The diesel contamination discovered on the site does not appear to be the result of the property's current uses, as no diesel is stored on it. From approximately 1943 until 1967, a heating oil distributor occupied the northwest corner of the property. Bruce's welding shop occupied an area very near the contaminated site from 1960 until 1979, and the Renton Boilerworks also occupied property close to the contamination (see plate 4). While the source of the contamination is not known, and may never be known, it is probable that in part or whole, the above named businesses contributed to the diesel contamination.

A total of 13 borings were drilled on the property by Geotech Consultants, Inc. Eleven of the borings were converted to monitoring wells to assess groundwater. Eight of the 13 borings were placed in the northwest quarter of the site. Selected soil samples from each boring were submitted to the project laboratory for analysis, initially by WTPH-HCID, and then the appropriate quantification analysis. WTPH-Diesel was used where necessary. Additionally, groundwater samples from each of the wells placed on the site were analyzed in a similar fashion.

Following the field work and laboratory analysis, the approximate limits of diesel contamination noted on Plate 3 were identified. It is interesting to note that soil from boring B-12 (MW-12) contained elevated levels of diesel, while the groundwater from MW-12 did not contain diesel residuals. Also, the groundwater from well MW-4 (B-4) contained elevated levels of diesel, while the soil sampled from this boring did not contain diesel contamination. The measured direction of groundwater flow across the site is toward the west-northwest (see Plate 2).

The potential exists for an area of "source soils" hydrologically upgradient from the diesel-affected groundwater discovered in MW-4. As visible in Plates 2 and 3, four monitoring wells surround MW-4, and all of these wells have revealed non-detectable levels of diesel. The Fifth & Park office building lies on the east and upgradient side of MW-4. It is possible that the source soils lie beneath this building. We were not able to assess this area for obvious reasons. Diesel-contaminated groundwater apparently does not migrate off the site at this location, as revealed from exploration at boring location B-13 (MW-13).

In summary, we discovered an apparent isolated area of soil contamination at B-12, and groundwater contamination at MW-4. The areal and vertical extent of diesel-affected soil and groundwater, as discovered through our explorations, is illustrated in Plate 3. The groundwater contamination does not appear to migrate off the property as documented through exploration at location MW-13.

The property lies in a well-developed mixed use zoning neighborhood. As the diesel-affected groundwater does not appear to migrate off the property, there is no known potential threat to public health or the environment.

1.2 PREVIOUS INVESTIGATIONS

As noted in earlier sections of this report, previous studies of this property have been conducted by Earth Consultants, Inc. (ECI), Rittenhouse-Zeman and Associates (RZA, now RZA-AGRA), and Landau and Associates, Inc.. These studies were completed in 1988 and 1989. We have included copies of the work completed by RZA and Landau in Appendix B. Reports completed by Earth Consultants, Inc. were not available for our review. However, Fred Cole, currently a senior engineering hydrogeologist with Geotech Consultants, Inc. was employed by ECI on this project in 1988. Mr. Cole recalled that most of the reports completed by ECI for this site were geotechnical in nature. Mr. Cole did note that isolated areas of diesel contamination were discovered during site work in 1988. Mr. Cole helped to select appropriate locations for exploration during our initial studies in late 1993.

1.3 SELECTION OF CLEANUP STANDARDS

The site soil and groundwater analytical results were compared to the Method A cleanup levels established by the Model Toxics Control Act (MTCA, Chapter 173-340 WAC). The area of detected soil contamination appears to be limited to a localized region near B-12. Additional areas of soil contamination may lie beneath or very near the Fifth & Park building, but we were not able to confirm this speculation. Groundwater contamination was confirmed at MW-4. Four additional wells placed to the north, northeast, south, and west revealed non-detectable levels of diesel. In particular, MW-13 was placed to the west of MW-4, at the downgradient property boundary, and it revealed non-detectable levels of diesel. This finding indicates that the diesel contamination noted in the groundwater at MW-4 apparently does not migrate off the property.

1.4 REMEDIAL ACTIONS AND RATIONALE FOR SELECTION

A groundwater monitoring program has been initiated. To date, groundwater has been sampled and analyzed on three separate occasions to note any changes in concentrations at MW-4.

1.4.1 Soil

Diesel-affected soil at boring B-12 tested at 300 parts per million (ppm), slightly elevated above the maximum 200 ppm Method A cleanup level. However, groundwater at this location was not found to be contaminated. The surface above the location of B-12 is paved with asphalt, thus surface water infiltration through the zone of soil contamination at this location is less likely to be a contributing factor to groundwater contamination. Based upon the surface "cap", the relatively low concentrations of diesel in the soil and the apparently localized extent of the detected soil contamination, no further remediation is planned.

It is important to note at this time that there is a possibility that contaminated soil remains upgradient and perhaps adjacent to or beneath the Fifth & Park building. If this is the case, these "source soils" may be the on-going contributor to the detected groundwater contamination at MW-4.

1.4.2 Groundwater

Groundwater containing elevated levels of diesel have been identified at the location of MW-4. As noted previously, groundwater contamination was not identified in four wells placed to the north, northeast, south, and west of MW-4. We were not able to explore the area to the east of MW-4 as the Fifth & Park building lies a short distance

to the east. As the diesel-affected groundwater appears to be localized at MW-4, a groundwater monitoring program has been initiated to note changes of diesel concentrations over time. Sampling of the five wells in the area of concern will occur on a quarterly basis until three successive quarters indicate that the levels of diesel have been reduced through natural degradation to below cleanup guidelines.

1.5 INSTITUTIONAL CONTROLS

The contamination in both the soil and groundwater has been left in place. Elevated levels of diesel in soil remain beneath an asphalt-paved driveway. Additionally, diesel-affected soil may remain beneath the north end of the Fifth & Park building. The confirmed and suspected areas of soil contamination are "capped," which reduces the potential of migration.

Presently, groundwater does not appear to migrate off-site. As an institutional control, continued monitoring will be conducted to note any changes in the current levels of diesel in groundwater.

1.6 SAMPLING AND ANALYSIS

A. Initial sampling locations were determined based upon a review of previous site work and our knowledge of the site and past activities.

B. A description of sampling procedures, including soil sampling methods, well installation procedures, well development and purging procedures, etc. is presented in reference 1.

C. All laboratory reports, including chain-of-custody documentation, are presented with references 1 and 2.

D. Plate 3 and Table A reviewed together indicate location and sample identification.

E. Again, we refer the reviewer to Table A for depth and location of soil and water samples collected and analyzed for this project.

F. Soil samples were taken at 5-foot intervals in each boring initially. Each sample was subjected to field screening tests including sensidyne reagent tubes for volatile fraction hydrocarbons, and "water sheen" testing in a glass jar for heavier hydrocarbon fractions. Soil samples were also collected from directly above the static groundwater level.

G Soil profile boring logs are provided in references 1 and 2.

H Table B presents a summary of groundwater leveling survey data.

2.1 GROUNDWATER INVESTIGATION

Plate 2 presents a groundwater contour map. Table B includes the survey data utilized to complete Plate 2. The hydraulic conductivity at the location of diesel contamination in the northwest corner of the site is estimated to be 1.0×10^{-2} cm/sec. (0.01 cm/sec) to 1.0×10^{-1} (0.10 cm/sec).

Plate 5 presents cross section A-A', drawn through MW-4 and MW-13.

Groundwater treatment is not being conducted on the site at the present time.

TABLE A

LABORATORY RESULTS

SOIL AND GROUNDWATER

Sample No.	Medium	Depth	Analysis	Date	Results/Comments
93295-B1-2	soil	10	WTPH-HCID	10/11/93	ND gas, diesel, and oil
93295-B2-2	soil	10	WTPH-HCID	10/11/93	Oil-range hydrocarbons
			EPA 418.1		420 ppm TPH
93295-B2-3	soil	15	EPA 418.1	10/11/93	48 ppm TPH
93295-B3-1	soil	5	WTPH-HCID	10/11/93	ND gas, diesel, and oil
93295-B4-2	soil	10	WTPH-Diesel	10/11/93	< 25 ppm diesel
93295-B4-3	soil	15	WTPH-HCID	10/11/93	ND gas, diesel, and oil
93295-B5-3	soil	15	WTPH-HCID	10/11/93	ND gas, diesel, and oil
93295-B6-2	soil	10	EPA 8240	10/11/93	ND all Volatile Organic Compounds (VOCs)
93295-B6-3	soil	15	EPA 418.1	10/11/93	< 25 ppm TPH
93295-B7-2	soil	10	WTPH-HCID	10/11/93	ND gas, diesel, and oil
93295-B8-2	soil	10	WTPH-HCID	11/19/93	ND gas, diesel, and oil
93295-B9-2	soil	10	WTPH-HCID	11/19/93	ND gas, diesel, and oil
93295-B10-2	soil	10	WTPH-HCID	11/19/93	Oil range hydrocarbons
			EPA 418.1		93 ppm TPH
93295-B11-2	soil	10	WTPH-HCID	11/19/93	ND gas, diesel, and oil
93295-B12-2	soil	10	WTPH-HCID	11/19/93	Diesel range hydrocarbons
			WTPH-Diesel		300 ppm diesel
93295-B13-2	soil	10	WTPH-HCID	2/23/94	ND gas, diesel, and oil
93295-MW1	water	6.54	WTPH-HCID	10/11/93	ND gas, diesel, and oil
			EPA 8240		ND all VOCs
93295-MW2	water	6.57	WTPH-HCID	10/11/93	ND gas, diesel, and oil
93295-MW3	water	5.19	WTPH-HCID	10/11/93	ND gas, diesel, and oil
93295-MW4	water	10.73	WTPH-HCID	10/11/93	diesel detected
			WTPH-Diesel		35 ppm diesel
			WTPH-Diesel	11/19/93	6.2 ppm diesel
			WTPH-Diesel	2/23/94	6.5 ppm diesel
93295-MW5	water	9.33	WTPH-HCID	10/11/93	ND gas, diesel, and oil
93295-MW6	water	14.04	WTPH-HCID	10/11/93	ND gas, diesel, and oil
			EPA 8240	10/11/93	ND all VOCs
93295-MW7	water	8.29	WTPH-HCID	10/11/93	ND gas, diesel, and oil
LMW-2D	water	6.59	WTPH-HCID	10/11/93	ND gas, diesel, and oil
93295-MW10	water	6.96	WTPH-Diesel	11/19/93	< 25 ppm diesel
93295-MW11	water	9.33	WTPH-Diesel	11/19/93	< 25 ppm diesel
93295-MW12	water	8.44	WTPH-Diesel	11/19/93	< 25 ppm diesel
93295-MW13	water	9.29	WTPH-HCID	2/23/94	ND gas, diesel, and oil

TABLE A

NOTES

(1) ppm denotes concentrations in parts per million.
(2) ND denotes analyte not detected.
(3) Detection limits for WTPH-HCID test are <20 ppm gas,
< 50 ppm diesel,
< 100 ppm oil.
(4) VOCs are volatile organic compounds per EPA Method 8240 (see lab reports).
(5) MTCA Method A Cleanup guidelines for Diesel are 1.0 ppm in water and 200 ppm in soil.

TABLE B - WATER LEVEL SURVEY DATA

Monitoring Well	Elevation of "MP"	Depth to Water	Elevation of Water
Survey Data Collected October 23, 1993			
LMW-2D	27.21	6.59	20.62
MW-1	27.61	6.54	21.07
MW-2	27.86	6.57	21.29
MW-3	24.71	5.19	19.52
MW-4	29.36	10.73	18.63
MW-5	27.96	9.33	18.63
MW-6	32.68	14.04	18.64
MW-7	27.70	8.29	19.41
Survey Data Collected March 11, 1994			
MW-4	29.36	9.34	20.02
MW-10	27.06	6.96	20.10
MW-11	29.49	9.33	20.16
MW-12	28.39	8.44	19.95
MW-13	29.29	9,29	20.00

Notes:

(1) Elevations and depths are in feet and refer to the City of Renton NGVD datum (8th and Park survey reference point).

(2) Depth to water was measured from the north side of well casing.

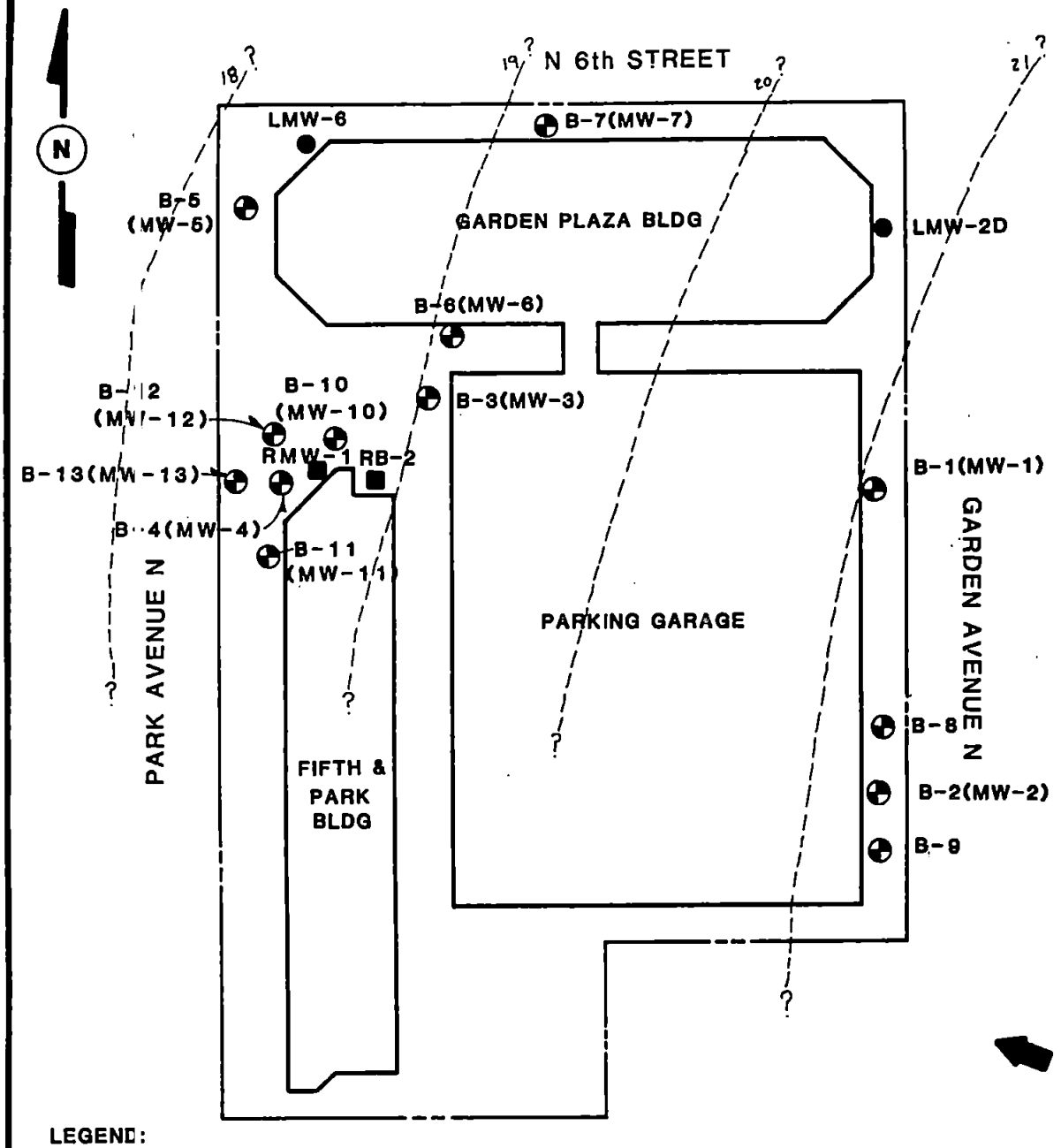


GEOTECH CONSULTANTS

VICINITY MAP

PARK AVENUE N AT N 6th STREET
RENTON, WA

Job No.:	Date:	Logged By:	Plate:
93299E	NOV 1993		1



LEGEND:

- EXPLORATION LOCATIONS BY RZA (1989)
- EXPLORATION LOCATIONS BY LANDAU (1989)
- BORING/MONITORING WELLS BY GEOTECH CONSULTANTS OCT 1993 -FEB 1994
- MEASURED DIRECTION OF GROUNDWATER MOVEMENT BELOW SITE
- APPROXIMATE GROUNDWATER CONTOUR ELEVATION LINES

0 100 200

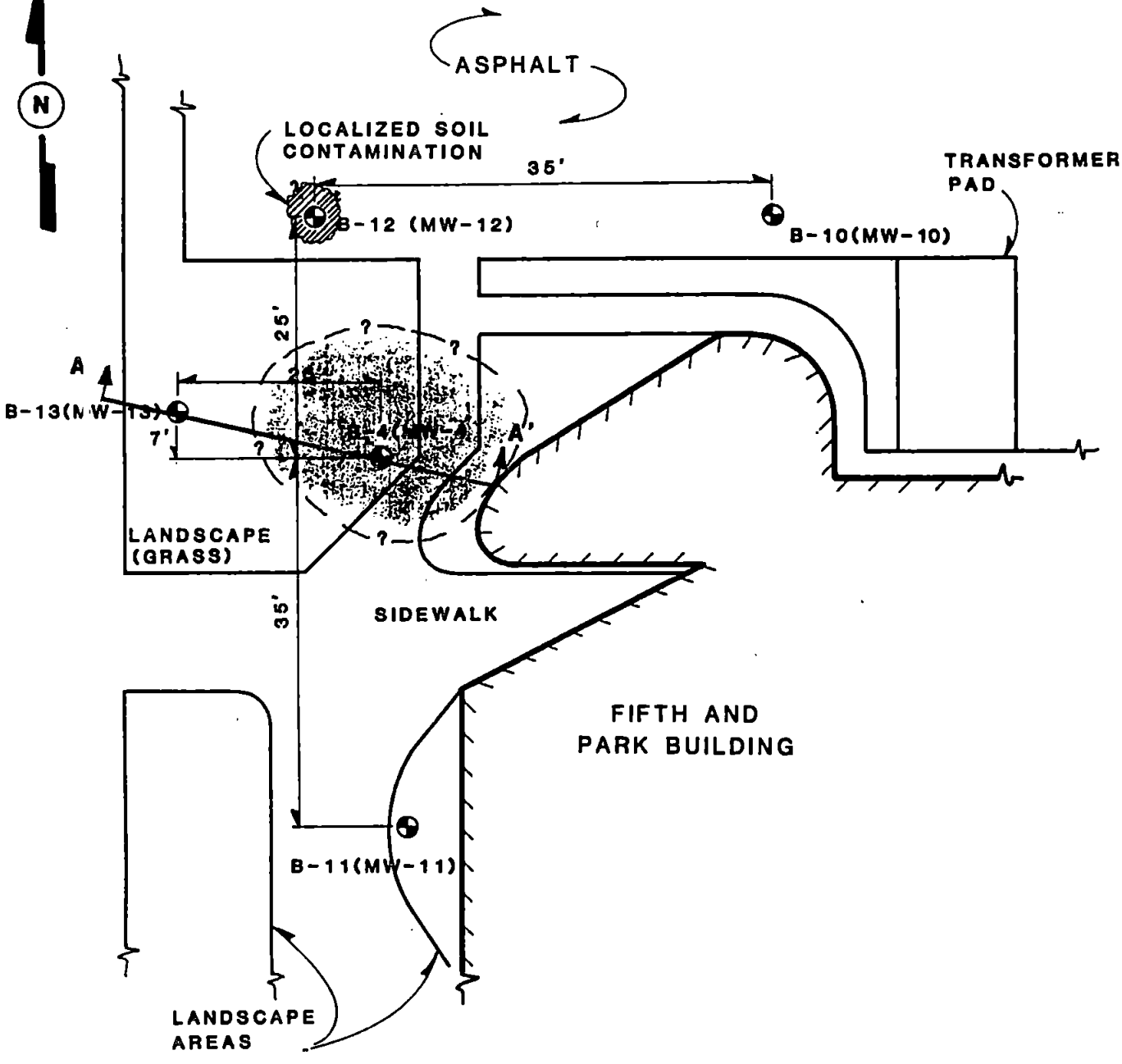
SCALE IN FEET

GEOTECH CONSULTANTS

SITE EXPLORATION PLAN

PARK AVENUE N AT N 6th STREET
RENTON, WA

Job No.:	Date:		Plate:
93299E	NOV 1993		2



LEGEND:

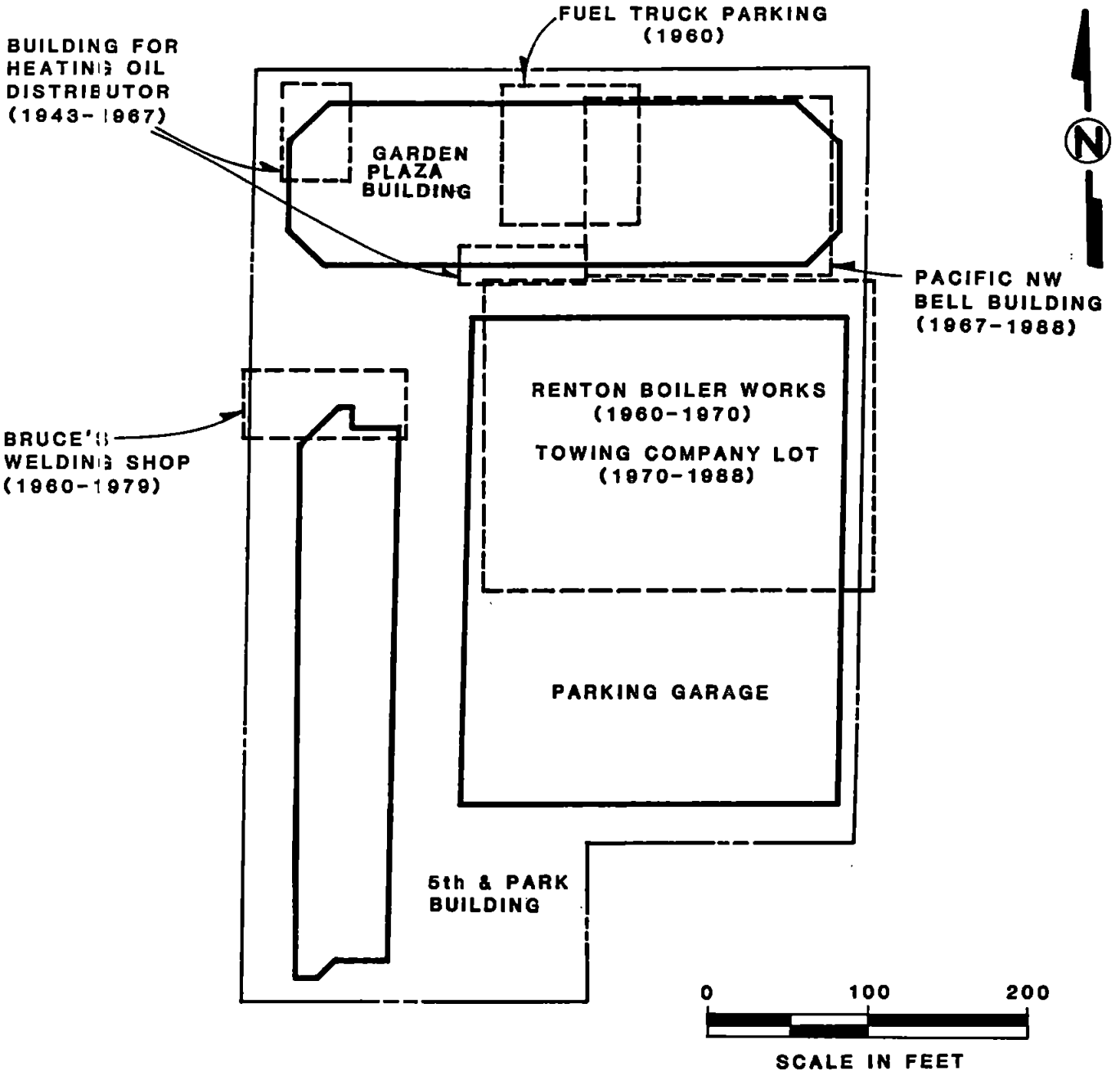
APPROXIMATE BORING/MONITORING WELL LOCATIONS

PROBABLE LIMITS OF DIESEL-AFFECTED GROUNDWATER

GEOTECH CONSULTANTS

NORTHWEST CORNER SITE PLAN
PARK AVENUE AT N 6th STREET
RENTON, WA

Job No.:	Date:		Plate:
93299IE	MAR 1994	NTS	3



LEGEND:

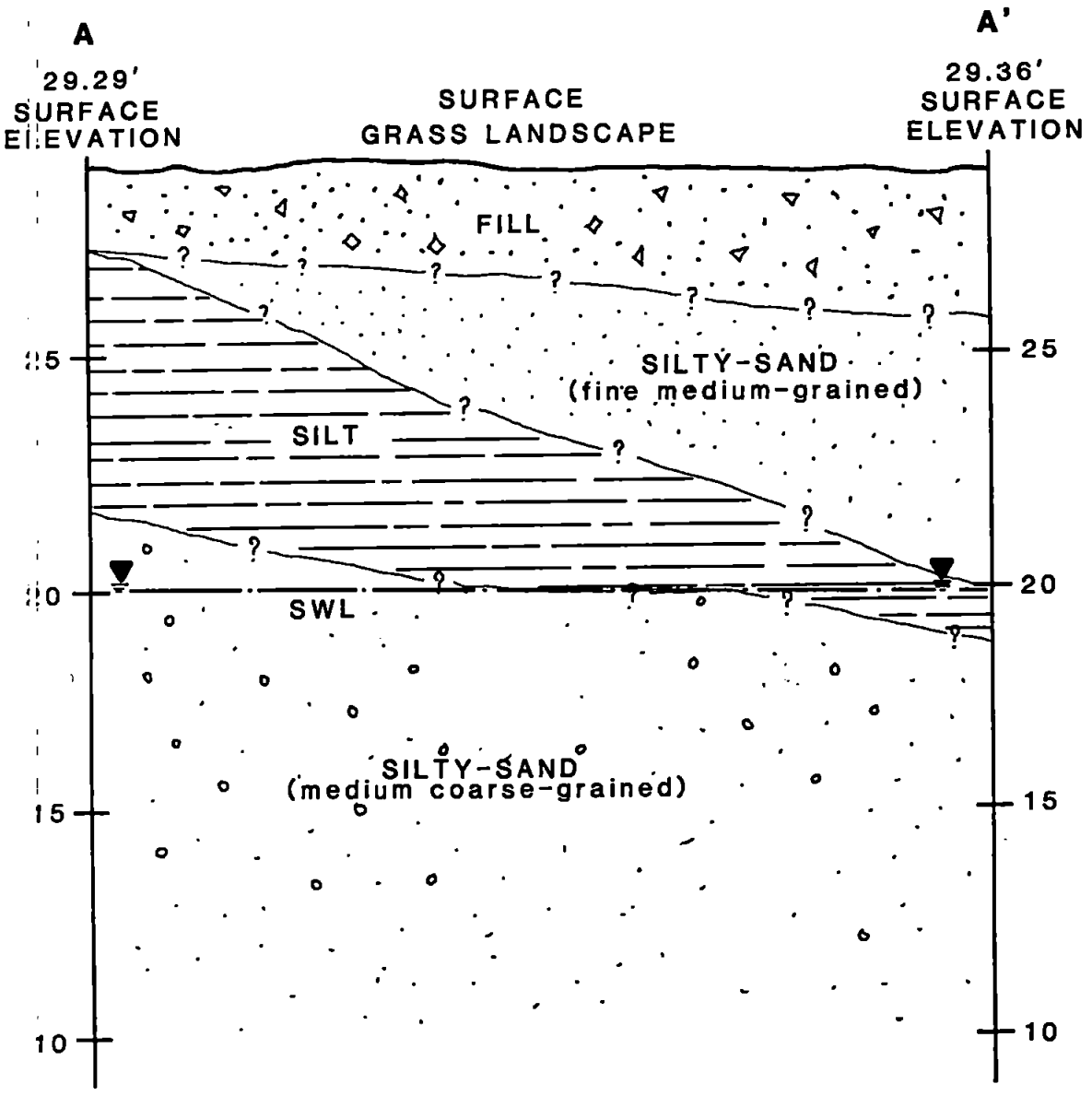
——— OUTLINE OF EXISTING BUILDINGS

– – – – OUTLINE OF FORMER FEATURES

GEOTECH CONSULTANTS

SITE HISTORY OVERLAY
PARK AVENUE AT N 6th STREET
RETON, WA

Job No.:	Date:		Plate:
93299 IC	MAR 1994		4



GEOTECH
CONSULTANTS

CROSS SECTION A-A'

PARK AVENUE AT N 6th STREET

RENTON, WA

Job No.:	Date:	SCALE:	Plate:
93299IC	APR 1994	NTS	5

APPENDIX A

Independent Remedial Action Report Summary Checklist

Independent Remedial Action Report Summary

This report summary is an important part of the Independent Remedial Action Report. Please complete the summary and submit it with your Independent Remedial Action Report. If this document does not accompany your cleanup report, or if it is not fully completed, your report cannot enter the review process necessary for Ecology to provide you with a "no further action" determination, or to remove your site from the hazardous sites lists.

FOR ECOLOGY USE ONLY			
ERTS No.	TCP I.D. No.	Date Received	☐ NFA ☐ SHA Referral ☐ Interim Action ☐ Emergency Action
Reviewed by		Initial Investigation (Date)	

PLEASE PRINT CLEARLY OR TYPE

Complete all of the following:

GENERAL INFORMATION

Name of Site Owner: The Boeing Company	Phone: 393-4707
Address: P.O. Box 3707, M.S. 7E-EJ / Seattle, Wa 98124-2207	
Authorized Contact: Stephen D. Ryan	Phone:
Name of Facility Operator	Phone
Address	
Authorized Contact	Phone
Name of Consultant: Sean P. O'Brien	Phone: (206) 747-5618
Name of Firm: Geotech Consultants, Inc.	
Address: 13256 NE 20th St., Ste 16	

Please indicate which of the above persons completed this report. If the report was completed by someone other than listed above, please provide their name, address, and a daytime phone.

Report completed by Consultant: Sean P. O'Brien

REPORT INFORMATION

Type of Report *(check one)*

- ☐ Combined release and independent remedial action report
- ☐ Independent remedial action report
- ☐ Interim Action Report
- ☐ Final Cleanup Action Report

Is this a Leaking Underground Storage Tank (LUST) report? Yes ☐ No ☒

Date release was reported to Ecology: N/A

Date cleanup was completed:

FACILITY INFORMATION

Site Name: Garden Plaza / Fifth and Park Buildings:

Other Names (*the site may be known as*): Boeing - Renton

Site Contact Person If Other Than Owner/Operator (*This must be a person who is on-site during normal working hours and is authorized and qualified to answer questions about the site, or a person who is available during normal business hours and has knowledge about the site and the remediation.*)

Name _____ Phone _____

Site Mailing Address (*or site contact mailing address*)

Site Location Address (*including zip code*)

Closest City | County (*where site is located*)

Township ____ Range ____ Section ____ Quarter-Quarter ____ Meridian ____

Longitude: Degree ____ Minute ____ Second ____

Latitude: Degree ____ Minute ____ Second ____

Ownership and Operator Type Complete the table below by checking the appropriate box to identify the type of owner and operator for the facility. (*For example, if the property owner is a port district and the operator a private individual, then check the boxes under owner identification column in the municipal, code #2 row, and under the operator identification column in the private party, code #1 row.*)

Ownership/OperatorType	Code #	Owner Identification	Operator Identification
Private Party	1	✓	✓
Municipal (Public)	2		
County	3		
Federal	4		
State	5		
Tribal	6		
Mixed	7		
Other	8		
Unknown	9		
Public Entity Acquisition through Bankruptcy	10		
Financial Institution Acquisition through Bankruptcy	11		

Standard Industrial Classification (SIC) Codes. List all that apply. If none apply, or if you don't know your SIC code, list activities conducted at the site, e.g., automotive repair and maintenance, construction equipment storage, etc.

Boeing Office Buildings + parking garage

Hazardous Substance Management Practice(s). The hazardous substance(s) cleaned up from the site was the result of which of the following sources, activities, or actions? Please circle all that apply to the facility.

1 = Drug Lab
2 = Drum
3 = A Leaking Impoundment
4 = Improper Handling
5 = Landfill
6 = Land application
7 = Pesticide application
8 = Pesticide Disposal
9 = A Spill
10 = Storm Drain
11 = Leaking Tank:
a - below ground; b - above ground
12 = Unknown

RELEASE INFORMATION

Date of Release *(if known)*	Date of Discovery	Are there any drinking water systems affected? Yes ☐ No ☒ Unknown ☐
If drinking water systems are affected, are the systems public, private, or both? *(circle one)*	If drinking water systems are affected, has alternate drinking water been provided? Yes ☐ No ☐ Unknown ☐	

General Hazardous Substance Categories Using the contaminants listed below, complete the table. *(A more detailed description of the contaminants can be found in Appendix A of the guidance.)*

Contaminants. For each of the applicable contaminants, enter the appropriate letter designating the status of the contaminants: C = Confirmed or S = Suspected *(Contaminant status definitions are defined in Appendix A of the guidance.)*

Affected Media	Halogenated Organic Compounds	Metals - Priority Pollutants	Metals - Other	Polychlorinated Bi-Phenyls (PCBs)	Pesticides/Herbicides	Petroleum Products	Phenolic Compounds	Non-Halogenated Solvents	Dioxins	Polynuclear Aromatic Hydrocarbons (PAH)	Reactive Wastes	Corrosive Wastes	Radioactive Wastes	Conventional Contaminants - Organics	Conventional Contaminants - Inorganic	Base/Neutral Organic Compounds	Asbestos
Ground Water						X											
Surface Water																	
Drinking Water																	
Soil						X											
Air																	

CLEANUP INFORMATION

Indicate cleanup level methods used by completing Table 5-A below. *(Check all that apply)*

TABLE 5-A

	Soil	Ground Water	Air	Surface Water
Method A	✓	✓		
B			N/A	N/A
C				
Have these levels been met throughout the site? *(circle only one)*	YES (NO)	YES (NO)	YES NO	YES NO

CLEANUP INFORMATION (continued)

Indicate the treatment methods used by completing Tables 5-B through 5-D below. *(Check all that apply)*

TABLE 5-B

	Destruction or Detoxification				Media Transfer		
	Carbon Adsorption[1]	Biological Treatment	Chemical Destruction	Incineration	Air Stripping/ Air Sparging	Aeration/Vapor Extraction	Thermal Desorption
Soil	-NA-				-NA-		
Ground Water				-NA-		-NA-	-NA-
Surface Water				-NA-		-NA-	-NA-
Air		-NA-				-NA-	
Wastes	-NA-				-NA-	-NA-	-NA-

[1]Carbon followed by regeneration; use of granular activated carbon followed by landfilling would be classified in these tables as volume reduction and off-site landfill.

TABLE 5-C

	Immobilization		Reuse/Recycling[2]	Separation/Volume Reduction		
	Vitrification	Solidification/ Stabilization		Solvent Extraction	Soil Washing	Physical Separation[3]
Soil						
Ground Water	-NA-	-NA-		-NA-	-NA-	
Surface Water	-NA-	-NA-		-NA-	-NA-	
Wastes						

[2]For example, reuse of free petroleum product recovered in a pump and treat system.
[3]For example, oil/water separators.

TABLE 5-D

	Land Disposal/Containment		Institutional Controls	Others
	Containment or On-site Landfill	Off-site Landfill		Specify treatment method
Soil				
Ground Water		-NA-		
Surface Water	-NA-	-NA-		
Wastes				

LUST SITE INFORMATION

Type of product released *(check one)*
Leaded Gas ☐ Diesel ☐ Waste Oil ☐
Unleaded Gas ☐ Heating Oil ☐ Other ☐ (Identify _____)

Approx. Tank Size: _____ gals

Was free product encountered?
Yes ☐ No ☐

ENVIRONMENTAL INDICATORS

Answer the following questions as they are applicable to your site:

How many cubic yards of soil have been treated? _____

Where soil treatment was conducted, was it done **on-site, off-site, or both**? *(circle one)*

How many cubic yards of soil have been disposed of off-site? _____ *(Calculate these quantities of soil while the soil is in place, prior to any excavation and/or treatment.)*

Identify the off-site location(s) where soil was disposed. _____

_____

If ground water pump and treatment was conducted, how many gallons of ground water have been treated to date? _____ gals.

How many years is the ground water extraction system expected to continue in operation? _____ yrs.

APPENDIX B

Referenced Reports

1) Geotech Consultants, Inc. Subsurface Exploration and Testing, Garden Plaza and Fifth Park Property, Renton, Washington. November 5, 1993. 15pps., Tables, Plates and Lab reports.

2) Geotech Consultants, Inc. Supplemental Subsurface Exploration and Testing, same site. December 10, 1993. Tables, Plates, Lab reports.

3) Rittenhouse-Zeman and Associates. Environmental Evaluation Boeing Building 7-13, 500 Park Avenue North, Renton, Washington. 1989. partial report.

4) Landau Associates, Inc. Final Report - Property Assessments; E and H Properties (Renton), Prepared for Boeing Environmental Affairs. July 24, 1989.

OnSite
Environmental Inc.

February 25, 1994
Lab Traveler #:02-070

Sean O'Brien
GeoTech Consultants
13256 NE 20th Street, Suite 16
Bellevue, WA 98005

Dear Sean:

Enclosed are the results of the analyses of samples submitted on February 23, 1994 from Project 93299E-1C.

We appreciate this opportunity to be of service to you on this project. If you have any questions regarding this report, please feel free to call me.

Sincerely,

Judith T. Colina

Judith T. Colina
Project Chemist

Enclosures

Date of Report: February 25, 1994
Samples Submitted: February 23, 1994
Lab Traveler: 02-070
Project: 93299E-1C

WTPH-HCID

Date Extracted: 2-24-94
Date Analyzed: 2-24-94

Matrix: Soil

Client ID	GC Characterization	o-terphenyl Surrogate Recovery
MW-13-3	<20 ppm Gasoline range hydrocarbons <50 ppm Diesel range hydrocarbons <100 ppm Oil range hydrocarbons	109%

Quality Assurance

Method Blank	<20 ppm Gasoline range hydrocarbons <50 ppm Diesel range hydrocarbons <100 ppm Oil range hydrocarbons	96%

COMPANY Geotech Consultants

PROJECT # 93299E-1C

PROJECT NAME Gordon Plaza

MANAGER Sean

PM JTC

OnSite Environmental Inc
14924 NE 31st CIRCLE, REDMOND, WA 98052
PHONE (206) 883-3881 FAX (206) 885-4603

REQUESTED TURNAROUND?

TRAVELER # 02-070

Dash	Sample Number	Date Sampled	Time Sampled	Type	# Jars	WTPH-HCID	WTPH-G/BTEX	WTPH-G	WTPH-D	WTPH-418.1			DRY WEIGHT	Comments
						Analysis Required								
1	MW-13-3					X								10-11½ feet

Submitted Fred Cole Date 2-23-94 Received by [signature] Date 2.23.94

Firm Geotech Consultants Inc Time 4:25 Firm OSE Time 4:25

Submitted _____ Date _____ Received by _____ Date _____

Firm _____ Time _____ Firm _____ Time _____

OnSite
Environmental Inc.

April 5, 1994
Lab Traveler #:03-005

Sean O'Brien
GeoTech Consultants
13256 NE 20th Street, Suite 16
Bellevue, WA 98005

Dear Sean:

Enclosed are the results of the analyses of samples submitted on March 2, 1994 from Project 93299IC.

We appreciate this opportunity to be of service to you on this project. If you have any questions regarding this report, please feel free to call me.

Sincerely,

Judith T. Colina
Project Chemist

Enclosures

Date of Report: April 5, 1994
Samples Submitted: March 2, 1994
Lab Traveler: 03-005
Project: 93299IC

TPH-HCID

Date Extracted: 3-3-94
Date Analyzed: 3-3-94

Matrix: Water

Client ID	GC Characterization	o-terphenyl Surrogate Recovery
93299-MW13	<.20 ppm Gasoline range hydrocarbons <.50 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	90%

Quality Assurance

Method Blank	<.20 ppm Gasoline range hydrocarbons <.50 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	89%

Date of Report: April 5, 1994
Samples Submitted: March 2, 1994
Lab Traveler: 03-005
Project: 93299IC

WTPH-D

Date Extracted: 3-3-94
Date Analyzed: 3-3-94

Matrix: Water
Units: mg/L (ppm)

Client ID	Dilution Factor	TPH	o-terphenyl Surrogate Recovery
93299-MW4	.02	6.5	105%

Date of Report: April 5, 1994
Samples Submitted: March 2, 1994
Lab Traveler: 03-005
Project: 93299IC

WTPH-D
QUALITY ASSURANCE

Date Extracted: 3-3-94
Date Analyzed: 3-3-94

Matrix: Water
Units: mg/L (ppm)

	Dilution Factor	TPH	o-terphenyl Surrogate Recovery
Method Blank	.02	<.5	89%
Sample: 03-005-1	.02	6.46	105%
Duplicate	.02	4.21	96%
RPD		42%R	

R-Sample/dup RPD out of control due to free product present in the sample.

COMPANY Geotech

PROJECT # 93299 EIC

PROJECT NAME 93299

MANAGER Sean O'Brien

PM JC

OnSite Environmental Inc.
14524 NE 21st CIRCLE, REDMOND, WA 98052
PHONE (206) 883-3881 FAX (206) 885-4603

REQUESTED TURNAROUND?

TRAVELER # 03 - 005

Dash	Sample Number	Date Sampled	Time Sampled	Type	# Jars	WTPH-HCID	WTPH-G/BTEX	WTPH-G	WTPH-D	WTPH-418.1			DRY WEIGHT	Comments
1	93299-MW4	3-1		water	1 liter				X					
2	93299-MW13	3-1		water	1 liter	X								

Submitted Sean P. O'Brien Date 3-2 Received by [signature] Date 3/2/94

Firm Geotech Time 2:30 Firm On Site Env. Time 2:30 pm

Submitted _____ Date _____ Received by _____ Date _____

November 5, 1993

JN 93299E

G & M Investments
510 Rainier Avenue South
Seattle, Washington 98144

Attention: Michael K. Mastro

REPORT: Subsurface Exploration and Testing
Garden Plaza and Fifth and Park Property
North Sixth Street at Park Avenue
Renton, Washington

Dear Mr. Mastro:

Geotech Consultants, Inc. has completed drilling, installation of groundwater monitoring wells, and laboratory analysis of soil and groundwater samples from the subject site. This report, prepared in accordance with our proposal dated August 20, 1993, summarizes our approach to the project along with results and conclusions.

Work conducted on the property by Earth Consultants, Inc. (ECI), Rittenhouse-Zeman and Associates (RZA), and Landau Consultants in 1988-1989 indicated petroleum hydrocarbons and vinyl chloride were present in the soils and groundwater at levels above the current Method A cleanup guidelines published in the Model Toxics Control Act (MTCA, Chapter 173-340 WAC). Our current project involvement was directed at verifying the presence of these contaminants on the site.

Results of our recent field sampling and laboratory analyses confirm the presence of various contaminants at three distinct locations on the site. The specific contaminants and locations are summarized below. Refer to Plate 2, Site Exploration Plan for orientation.

1) Diesel-range petroleum hydrocarbons were discovered in groundwater at the location of monitoring well MW-4. The levels were elevated above the current Method A cleanup guidelines.

2) Heavy-oil-range petroleum hydrocarbons in excess of the MTCA cleanup level were discovered in soils at the location of boring B-2.

3) Vinyl chloride in groundwater resampled from Landau's monitoring well LMW-2D was reported above the cleanup guidelines. Vinyl chloride was not detected in the monitoring wells installed by our firm to test for vinyl chloride.

This report provides greater detail regarding the findings of this study. Regarding further action on the site, it would be premature at this time to formulate a remediation strategy, as the full areal extent of the contamination is not yet known. Recommendations are provided at the end of the report.

We appreciate the opportunity to be of service on this project and trust that the information provided here will be of value in your site management efforts. We look forward to continuing to provide service on this project. If you have any questions, please do not hesitate to contact us.

Respectfully Submitted,

GEOTECH CONSULTANTS, INC.

James R Finley Jr.

James R. Finley, Jr., P.E.
Principal

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"REPORT: Subsurface Exploration and Testing"
Prepared for G & M Investments
(JN 93299E)

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APPENDIX A - Laboratory Reports with Chain of Custody Forms

PROJECT DESCRIPTION

The site is located at the southeast corner of Park Avenue North and North Sixth Street, and encompasses two office buildings and a parking garage. Immediately east of the site, across Garden Plaza is a U.S. Environmental Protection Agency (EPA) Superfund site known as PACCAR (Pacific Car and Foundry). The Vicinity Map, Plate 1, illustrates the general location of the site.

Project Background

Environmental studies on the site have been conducted previously by Landau and Associates, Inc., Rittenhouse-Zeman and Associates (RZA), and Earth Consultants Inc. (ECI). These studies were conducted in 1988 and in the spring and summer of 1989.

The following information has been compiled from review of available reports completed for the site:

* The site has had a complex development history over the last 50 years.
  - Site was mostly vacant or agricultural land in 1936.
  - A Shell heating oil distributor existed at the northwest corner of the site in 1943. From 1950-1967 the heating oil distribution was operated by Sunset Coal and Oil.
  - The Renton Boilerworks site occupied the east-central portion of the property from 1960-1970, and was replaced with a towing company lot until 1988.
  - Pacific Northwest Bell (PNB) operated in a maintenance building circa 1968, on the northeast portion of the site.

- The Fifth and Park Building was constructed in 1979.

- The PNB building was razed and the Garden Plaza building and garage were constructed in 1988.

* Earth Consultants, Inc. completed work on the site in 1988, and encountered petroleum contamination on the property.

  - A soil sample collected and analyzed from the center of the Garden Plaza building area contained 1,200 parts per million (ppm) total petroleum hydrocarbons (TPH).

  - A water sample collected from the northwest corner of the Garden Plaza building area contained 20 ppm diesel in 1988.

  - The ECI report concluded that the contamination they encountered in 1988 "represents isolated, relatively small volume spills which are limited in extent."

* Personnel currently employed with Geotech Consultants, Inc., worked for ECI in 1988, and were assigned to this project while pilings were installed for the Garden Plaza Building. Fred Cole, senior environmental geologist recalls the location of underground storage tanks on the property as follows:

  - Two 10,000-gallon capacity diesel tanks were removed from a location to the immediate south of the front entrance steps to the Garden Plaza building.

  - A fuel oil tank with a capacity of approximately 500 gallons was discovered along the south side of the Garden Plaza building, as illustrated on Plate 2.

- A heating oil tank with a capacity of approximately 1,000 gallons was discovered along the east side of the parking garage.

* RZA completed an environmental evaluation of the Fifth and Park Building in 1989. The RZA evaluation involved drilling nine soil borings around the building and installing one groundwater monitoring well.

  - A groundwater sample from the monitoring well (RMW-1, see Plate 2) contained 13 ppm TPH.

  - Two soil samples from one RZA boring at the north side of the Fifth and Park building, near the monitoring well RMW-1, indicated TPH at 4,700 and 1,300 ppm.

* Landau collected and analyzed groundwater from a series of wells they installed on the site in 1989.

  - Results of analysis on a water sample from LMW-2D (see Plate 2) revealed 45 parts per billion (ppb) vinyl chloride. Subsequent analysis in 1992 revealed 89 ppb vinyl chloride.

  - Total petroleum hydrocarbons (TPH) in a groundwater sample from LMW-6 were measured at 56 ppm.

The PACCAR site to the east of the property has been designated a Superfund site with the WDOE as the lead agency. Review of a report prepared by Hart Crowser in 1988 suggests that vinyl chloride was a common contaminant detected on the neighboring PACCAR site. The measured direction of groundwater was found to be to the west in general. Further, the extent of off-site contaminant migration from the PACCAR site has not been determined.

In summary, petroleum hydrocarbon contamination was discovered in soil and groundwater at various locations in the northwest quarter of the property. Additionally, vinyl chloride was discovered in groundwater at the northeast corner of the property.

Current Phase of Work

Utilizing the information summarized above along with the locations of the various explorations completed in the past, our exploration program was directed at verifying the previously detected contamination and, to a lesser degree, more clearly defining the areal extent of contaminant-affected areas.

METHODOLOGY/SCOPE OF WORK

Our scope of work for the project included the following tasks:

Review of Previous Reports

This task included a review and summary of past work completed on the subject property by other workers. This task was completed prior to our field work and was used to guide our placement of exploratory locations.

Drilling and Sampling

On October 6 and 7, 1993, an environmental engineer from our firm visited the site and directed the drilling of seven borings at the locations shown on Plate 2, Site Exploration Plan.

Three borings (B-1, B-2, and B-6) were drilled to test for vinyl chlorides. Borings B-1 and B-2 were placed along the eastern property line, while Boring B-6 was placed in the north-central portion of the property. Four additional borings (B-3, B-4, B-5, and B-7) were completed in the northwest portion of the site to explore for petroleum hydrocarbons.

Equipment employed for the drilling consisted of a truck-mounted rig, equipped with 4-inch-inner-diameter hollow stem augers. The soils were sampled with a standard penetration sampler driven 18 inches at 5-foot intervals using a 140-pound hammer in general accordance with ASTM Method D-1586.

Samples were transferred from the sampler directly to sterilized glass jars with teflon-sealed lids furnished by the laboratory. Samples were stored in an iced chest at the site and taken to the laboratory in this conditions in an effort to preserve sample integrity by minimizing excessive dissipation of volatile fraction hydrocarbons. Each jar was labeled as to boring number, sample depth, field personnel, etc. EPA-recommended sample management protocol including maintenance of chain-of-custody documentation was observed at each stage of the project.

During drilling a field log was made by the project environmental engineer for each boring. Information recorded versus corresponding depth included soil classification (Unified Soil Classification System), color, texture, moisture, seepage zones, odors, iridescent sheens, etc.

Monitoring Well Installation

At the completion of each soil boring a groundwater monitoring well was installed in each of the seven borings. Monitoring well design and construction methods conformed to requirements and specifications outlined in WAC 173-360. As illustrated schematically on Plate 10 appended to this report, the well screen in each of the installations was positioned so as to span the maximum and minimum range of the anticipated seasonal groundwater fluctuation, thus facilitating representative sampling of water at any time during the year. The annulus of each well casing was sand packed 2 to 3 feet above well screens; a bentonite seal was placed above the sand and carried to within 2 feet of the ground surface to prevent infiltration of surface contamination along the well casing. A non-shrinking cement grout was used to stabilize the upper section of each well. A protective casing with provisions for locking access to the well head was also provided.

Groundwater Sampling

Prior to sampling, a piston lift-type portable pump was used to purge each well by removing a minimum of three well volumes of water. This procedure was intended to assure that

samples obtained from the wells would be representative of ambient groundwater conditions in the surrounding water-bearing strata.

Following developmental purge pumping, a sterilized stainless steel bailer was used to extract a groundwater sample from each of the wells. Samples were poured into labeled glassware furnished by the laboratory. Samples were stored in an iced chest on site and transported to the lab in this condition. As with the soil samples, chain of custody documentation was observed at each stage of the project.

Water Level Survey

Information regarding direction of groundwater movement and hydraulic gradient is frequently useful in assessing risk or evaluating possible alternative sources of water-borne contaminants.

To determine relative water levels in each of the wells, our field hydrogeologic staff used the following procedure:

* Self-leveling level was used to determine the elevation of a measuring point or "MP" on the top of each PVC well casing to an accuracy of 0.01 foot, a standard specified for such work by the U.S. Geological Survey. A survey reference point was set at Landau well LMW-2D at 27.21 feet.

* A steel tape was used to sound the depth to groundwater from the measuring point (MP) in each well to an accuracy of 0.01 foot. To calculate the elevation of the water table in each well, the depth to water from the MP was subtracted from the elevation of the MP.

* Through interpolation of plotted relative water table elevations for each well on a scale map, approximate contours of equal elevation on the water table were obtained. As groundwater is known to flow from areas of higher potential toward areas of lower potential along lines "normal" (right angles) to such contours, the direction of flow and approximate gradient was deduced by this method.

Laboratory Analysis

Based upon previously detected contaminants on the property, the following set of analyses were conducted on selected soil and groundwater samples:

WTPH-HCID for Petroleum Hydrocarbons

In accordance with published Washington Department of Ecology (WDOE) documents including Publications 90-52 (Guidance for Site Checks and Site Assessments) and 91-30 (Guidance for Remediation of Releases from USTs), all soil and water samples were initially analyzed by the hydrocarbon identification test (WTPH-HCID). This analysis will identify the type of hydrocarbons, if any, that are present in the sample. Detection limits for soil are 20 ppm for gasoline, 50 ppm for diesel, and 100 ppm for heavy oil. In water samples, detection limits are 0.2 ppm for gas, 0.5 ppm for diesel, and 1.0 ppm for the oil range.

The HCID test is a qualitative test. Based upon the results of the analysis by HCID, further analysis may be warranted and the proper test may be selected for quantification. For this study, it was necessary to further analyze for total petroleum hydrocarbons by EPA Method 418.1, as well as analyzing for diesel constituents by WTPH-Diesel.

Volatile Organic Compounds

Based upon results of previous workers on the site, a volatile organic analysis (VOA) was conducted in accordance with EPA Method 8240 on selected soil and water samples. Additionally, we resampled Landau monitoring well LMW-2D and tested the water sample for volatile organic compounds (VOCs).

FINDINGS

Surface

The subject property is a large rectangular parcel of land comprising one city block in Renton, Washington. The site is bounded on the north by North 6th Street, on the east by

Garden Avenue North, on the south by North 5th Street, and on the west by Park Avenue North. The general location of the site is illustrated in the Vicinity Map, Plate 1.

The site is developed with the seven-story Garden Plaza office building, the three-story Fifth and Park building, and a three-story parking garage. Land use in the general vicinity of the property is zoned industrial to the north and east, and business and residential to the south and west. More specifically, the site is bordered as follows:

NORTH: The Boeing Commercial Airplane Division--Renton Facility (BCA-Renton) owns the property to the north of the site, across North 6th Street. The property is undeveloped and utilized as a parking lot.

EAST: Garden Avenue North defines the eastern border of the site. The Pacific Car and Foundry (PACCAR) Superfund site is located on the east side of Garden Avenue North.

SOUTH: North 5th Street lies along the southern border of the site. Older single-family residences line the south side of North 5th Street.

WEST: Park Avenue North marks the western property line. Little Tokyo restaurant, an automotive repair shop and single-family residences are located on the west side of Park Avenue North.

Topographically, the site is relatively flat, with slight local relief limited to building fill and landscape berms.

Observations during Drilling

As previously noted, in an effort to verify existing conditions in specific areas of the site, seven borings were drilled at the locations noted on Plate 2. Please refer to the individual boring logs appended as Plates 3 through 9 for specific conditions encountered at each location.

Soil

In general, subsurface conditions beneath the subject site consist of alternating layers of loose silty sand and sandy silt, with lenses of clayey silt noted in some borings.

Soil samples were collected at 5-foot intervals in each boring, unless otherwise noted on the individual boring logs. Each sample was subjected to headspace analysis using field screening techniques to assess potential hydrocarbon vapor concentrations in soil. Hydrocarbon concentrations are recorded on the boring logs next to each sample.

A petroleum hydrocarbon odor was noted during drilling of Boring B-4. Petroleum odors were not noted while drilling other borings.

Groundwater

Groundwater was encountered between 7 and 12 feet during drilling of the seven borings, depending on the location. Monitoring wells were installed in all of the borings. The depth to groundwater was measured in each of the wells, and the results are reflected in the Water Level Survey, Table B.

A petroleum sheen was noted on saturated soil samples extracted from Boring B-4, and also along the wet inner rod assembly upon withdrawal of the sampler. During groundwater sampling of monitoring well MW-4 (location B-4), a characteristic petroleum odor was noted in the purge water and in the sample water.

Water Level Survey

As described earlier in the report, a precision water level survey was completed at the site using all seven existing wells and the Landau well LMW-2D. As noted in Table B, and on the individual boring logs, groundwater was encountered between 5 and 14 feet. The results of the water table survey presented in Table B suggest that the direction of shallow-seated groundwater flow beneath the subject site at the time of our field study was generally from the east toward the west.

Laboratory Analysis

Table A provides a summary of the results of laboratory analysis on soil and groundwater samples selected for testing.

As noted in Table A, soil collected from boring B-2 revealed "heavy oil" petroleum hydrocarbons. Additional analysis by EPA Method 418.1 found 420 parts per million (ppm) total petroleum hydrocarbons (TPH) at a depth of 10 feet, decreasing to 48 ppm at a depth of 15 feet.

Diesel was detected in groundwater from monitoring well MW-4 at 38 ppm. Additionally, vinyl chloride remains in groundwater at the location of Landau well LMW-2D.

CONCLUSIONS/RECOMMENDATIONS

Soil

The results presented in Table A suggest that residual concentrations of petroleum hydrocarbons in the heavy-oil range exist at the location of boring B-2. At 10 feet in depth, the level of contamination was 420 ppm, which exceeds the current cleanup guideline of 200 ppm established in the Model Toxics Control Act (MTCA, Chapter 173-340 WAC).

It is possible that the discovery of heavy oil in soil at the location of Boring B-2 is a small, localized event. The location of Boring B-2 is very near the parking garage development area. The lower floor of the parking garage is approximately 8 feet beneath the elevation of Boring B-2.

It is important to note that the heavy oil contamination noted in soils at 10 feet was not detected in groundwater at this location. In the current use of the site and surrounding area, it does not appear that the affected region is a hazard to human health or the environment.

Groundwater

Diesel

Petroleum hydrocarbon contamination in the diesel range exists at the location of monitoring well MW-4 (B-4). Levels were analyzed at 38 ppm, which is well above the MTCA standard of 1 ppm.

Diesel fuel is not presently stored or used on the site. As derived from the Project Background section of this report, numerous past potential sources of the residual diesel contamination exist. The full extent of the groundwater-affected regions is not currently known. Further, it is not known whether a region of soil remains somewhere hydrologically upgradient which may be a continuing source of groundwater contamination.

Additional exploration in the area of monitoring well MW-4 would be necessary to more clearly define the areal extent of the diesel contamination.

Total Petroleum Hydrocarbons (TPH)

Groundwater from Landau well LMW-6 was found to contain 56 ppb TPH in 1989. We were unable to access this well for our study. In view of the fact that we were unable to resample LMW-6, uncertainty remains at this location, and we consider this location to be potentially contaminated with TPH in groundwater at this time. Future sampling of this well could serve to clarify the condition of groundwater at this location.

Vinyl Chloride

Our explorations for this study did not encounter vinyl chloride contamination. However, resampling of Landau well LMW-2D revealed levels of vinyl chloride at 7.5 ppb, which is above the MTCA Method A regulatory cleanup level of 0.2 ppb.

It is highly probable that the vinyl chloride contamination initially detected by Landau and Associates in 1989 at LMW-2D, and still present in 1993, is attributable to off-site migration from the PACCAR Superfund site located to the east. Supporting data for this hypothesis include the following:

1) The measured direction of groundwater flow in the area, according to a Hart Crowser water level survey in 1989, as well as our own water level survey, is generally from the east to the west (southwest in some areas). More importantly, this means that groundwater flows <u>from</u> the PACCAR site <u>toward</u> the subject property.

2) The Landau well LMW-2D is located along the upgradient side of the site property, meaning that it is less likely that on-site development would have contributed to the elevated levels of vinyl chloride detected.

3) Finally, as summarized in a Hart Crowser report in 1986, "common volatile compounds detected (on the PACCAR site) include benzene and <u>vinyl chloride</u>."

At this time, it would be premature to formulate a plan of action for remediation of the affected areas. Additional exploration would need to be completed before a competent remediation strategy could be drafted. This may be accomplished by drilling a series of exploratory borings around the location of Boring B-4 (MW-4) in an effort to define the areal extent of diesel-impacted groundwater. Additionally, it may be prudent to place two borings at the location of Boring B-2, one to the north and one to the south, to confirm the presumed limited extent of the heavy-oil-affected soil at this location.

We also recommend that **all** available reports completed for this property be collected into one central file for review. This should include all documents completed by Earth Consultants, Inc., Rittenhouse-Zeman and Associates and Landau Associates, along with any other work. Review of these documents, along with selected additional exploration, as mentioned above, would aid greatly in defining the extent of contamination, along with potential sources of the contamination. In this regard, such review could potentially save the client time and money by incorporating all data compiled for this site into a future remediation strategy.

LIMITATIONS

This report has been prepared for the exclusive use of Mike Mastro, G & M Investments, and their representatives, for specific application to this site. Our work for this project was conducted in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area, and in accordance with the terms and conditions of our proposal dated August 20, 1993. No other warranty, expressed or implied, is made.

If new information is developed in future site work which may include excavations, borings, studies, etc., Geotech Consultants, Inc. must be retained to reevaluate the conclusions of this report and to provide amendments as required. We accept no responsibility or liability for independent interpretations or opinions formulated by reviewers of this document.

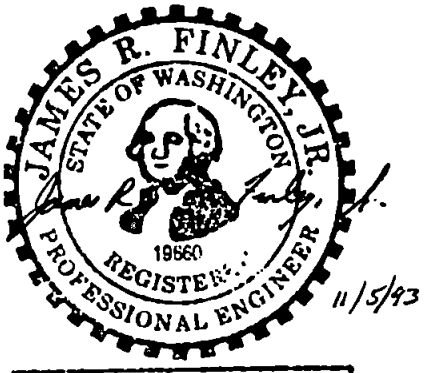
We appreciate the opportunity to be of service on this project and trust that the information provided here will be of value in management and planning efforts. If you have any questions or if we may be of further service, please do not hesitate to contact us.

Respectfully Submitted,

GEOTECH CONSULTANTS, INC.

Sean P. O'Brien

Sean P. O'Brien
Environmental Engineer



EXPIRES 8/17/95

James R. Finley, Jr., P.E.
Principal

REFERENCES

(1) Hart Crowser, Inc., December 5, 1986. Site Assessment Soil and Groundwater Quality, PACCAR Facility, Renton, Washington. Prepared for PACCAR Defense Systems, J-1639-02.

(2) Rittenhouse-Zeman and Associates, 1989. Environmental Evaluation Boeing Building 7-13, 500 Park Avenue North, Renton, Washington.

(3) Landau Associates, Inc., July 24, 1989. Final Report - Property Assessments; E and H Properties (Renton), Prepared for Boeing Environmental Affairs.

TABLE A - LABORATORY RESULTS

Sample No.	Medium	Depth	Analysis	Results/Comments
93299-B1-2	soil	10	WTPH-HCID	< 20 ppm gas < 50 ppm diesel < 100 ppm oil range
93299-B2-2	soil	10	WTPH-HCID EPA 418.1	Oil-range hydrocarbons 420 ppm TPH
93299-B2-3	soil	15	EPA 418.1	48 ppm TPH
93299-B3-1	soil	5	WTPH-HCID	ND gas, diesel, and oil
93299-B4-2	soil	10	WTPH-Diesel	< 25 ppm diesel
93299-B4-3	soil	15	WTPH-HCID	ND gas, diesel, and oil
93299-B5-3	soil	15	WTPH-HCID	ND gas, diesel, and oil
93299-B6-2	soil	10	EPA 8240	ND Volatile Organic Compounds (VOCs)
93299-B6-3	soil	15	EPA 418.1	< 25 ppm TPH
93299-B7-2	soil	10	WTPH-HCID	ND gas, diesel, and oil
93299-MW1	water	6.54	WTPH-HCID EPA 8240	ND gas, diesel, and oil ND all VOCs
93299-MW2	water	6.57	WTPH-HCID EPA 8240	ND gas, diesel, and oil ND all VOCs
93299-MW3	water	5.19	WTPH-HCID	ND gas, diesel, and oil
93299-MW4	water	10.73	WTPH-HCID WTPH-Diesel	diesel detected 35 ppm diesel

TABLE A (Continued)

Sample No.	Medium	Depth	Analysis	Results/Comments
93299-MW5	water	9.33	WTPH-HCID	ND gas, diesel, and oil
93299-MW6	water	14.04	WTPH-HCID	ND gas, diesel, and oil
			EPA 8240	ND all VOCs
93299-MW7	water	8.29	WTPH-HCID	ND gas, diesel, and oil
LMW-2D	water	6.59	EPA 8240	7.5 ppb vinyl chloride

Notes:

1) Ppm denotes concentrations in parts per million
2) Ppb denotes concentrations in parts per billion
3) ND denotes non-detectable levels of analyte
4) VOCs (Volatile Organic Compounds) may be referenced in Appendix A - Laboratory Reports.

TABLE B - WATER LEVEL SURVEY

Well No.	Elevation of "MP"	Depth to Water	Elevation of Water
LMW-2D	27.21	6.59	20.62
MW-1	27.61	6.54	21.07
MW-2	27.86	6.57	21.29
MW-3	24.71	5.19	19.52
MW-4	29.36	10.73	18.63
MW-5	27.96	9.33	18.63
MW-6	32.68	14.04	18.64
MW-7	27.70	8.29	19.41

Notes:

1) Elevations and depths are in feet and refer to the City of Renton NGVD datum (8th and Park survey reference point).

2) Depth to water was measured from the north side of well casing.

BORING 1 (Monitoring Well 1)

Moisture Content (%)	Sample	Blows per Foot	USCS	Description
				TOPSOIL in planter area over
				Tan, silty SAND, moist
5	1	5	SM	-becomes tannish brown, very loose (HC < 10 ppm)
				-becomes gray
10	2	7	ML	Gray, sandy SILT lens (HC < 10 ppm)
				Gray, silty SAND, medium grained, wet, loose
15	3	5	SM	(HC < 10 ppm)
20	4	3	ML	Gray, clayey SILT, wet (saturated), soft, low to meduim plasticity (HC < 10 ppm)
25	5	10	SM	Gray, coarse SAND with silt, wet (saturated), loose (HC < 10 ppm)
30	6	9	PT	(HC < 10 ppm) Dark brown PEAT
35	7	9	SM	Gray, silty SAND, wet, loose (HC < 10 ppm)
40				

Test boring was terminated at 36.5 feet below grade on 10-6-93 and completed as a monitoring well.

Groundwater was encountered at approximately 6.5 feet during drilling

Note:-HC denotes hydrocarbon concentrations as measured during field work in the headspace of a plastic bag.
-Ppm denotes parts per million.

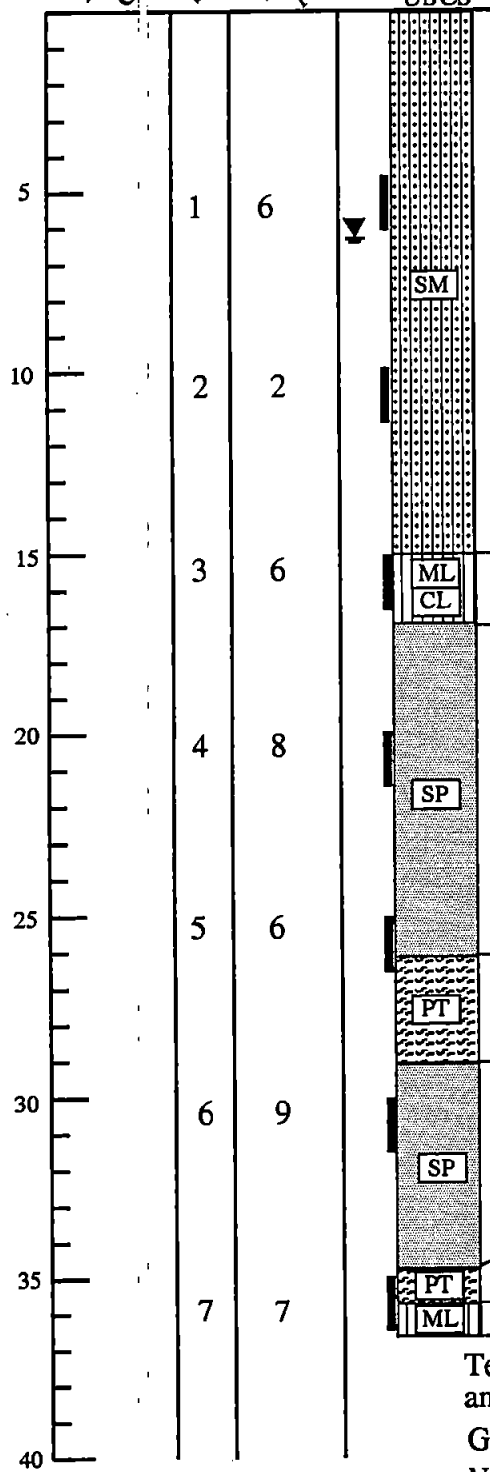
GEOTECH
CONSULTANTS, INC.

TEST BORING LOG

RENTON, WA

Job No:	Date:	Logged by:	Plate:
93299E	NOV 1993	SPO	3

BORING 2 (Monitoring Well 2)



Test boring was terminated at 36.5 feet below grade on 10-6-93 and completed as a monitoring well.

Groundwater was encountered at approximately 6.5 feet during drilling

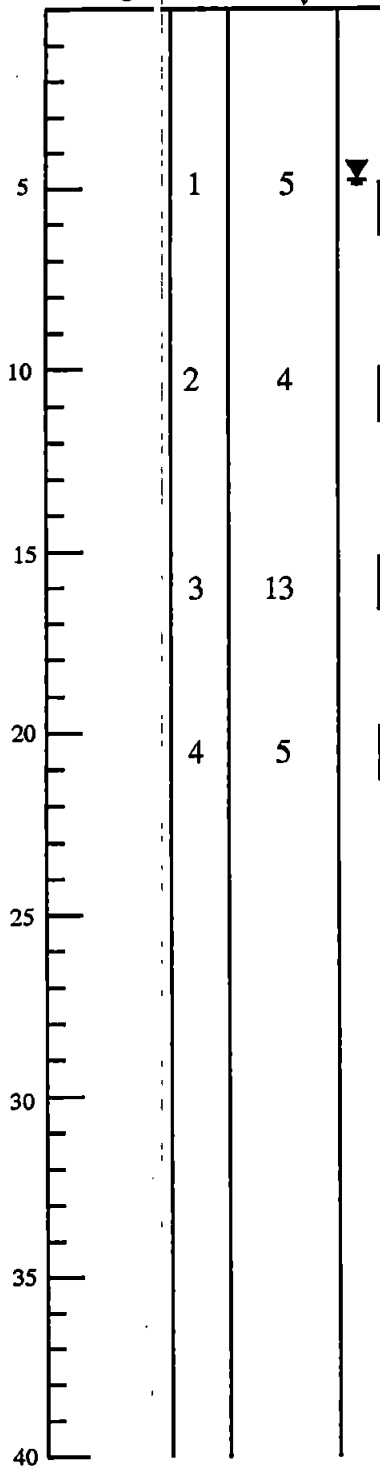
Note:-HC denotes hydrocarbon concentrations as measured during field work in the headspace of a plastic bag.
-Ppm denotes parts per million.

GEOTECH
CONSULTANTS, INC.

TEST BORING LOG
PARK AVENUE N AT N 6th STREET
RENTON, WA

Job No:	Date:	Logged by:	Plate:
93299E	NOV 1993	SPO	4

BORING 3 (Monitoring Well 3)



USCS	Description
FILL	Asphalt surface over- Sandy GRAVEL with cobbles (FILL) Construction debris noted.
SM	Gray, silty, fine grained SAND, moist, very loose (HC < 10ppm)
ML CL	Gray, clayey SILT (HC < 10 ppm)
SM	Gray, medium grained SAND with a trace of silt, wet (saturated), loose (HC < 10ppm)
	(HC < 10 ppm)

Test boring was terminated at 21.5 feet below grade on 10-6-93 and completed as a monitoring well.

Groundwater was encountered at approximately 5 feet during drilling

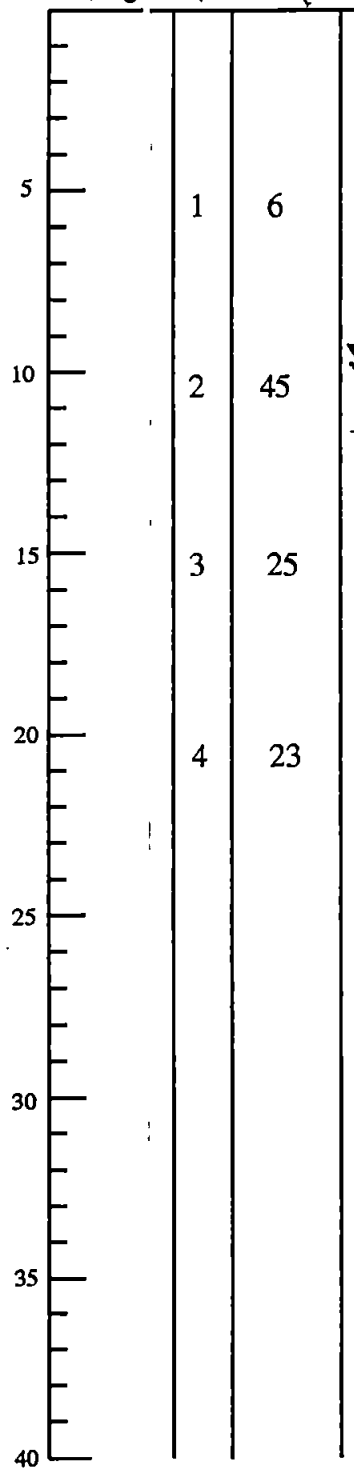
Note:-HC denotes hydrocarbon concentrations as measured during field work in the headspace of a plastic bag.
-Ppm denotes parts per million.

GEOTECH
CONSULTANTS, INC.

TEST BORING LOG
PARK AVENUE N AT N 6th STREET
RENTON, WA

Job No:	Date:	Logged by:	Plate:
93299E	NOV 1993	SPO	5

BORING 4 (Monitoring Well 4)



USCS	Description
FILL	Grass landscape area over- Brown, silty, sandy GRAVEL (FILL) (construction debris noted:metal, nails)
SM	Gray, silty SAND, moist to wet, loose (HC < 10 ppm)
ML	Brown, sandy SILT with gravel, moist (Hydrocarbon odor noted)
	Gray, medium to coarse SAND with a trace of silt, wet (saturated), medium dense
SM	

Test boring was terminated at 21.5 feet below grade on 10-7-93 and completed as a monitoring well.

Groundwater was encountered at approximately 10.5 feet during drilling

Petroleum odor noted in soil below 8 feet. Petroleum sheen noted in water in sampler and on inner rod assembly at time of withdrawal.

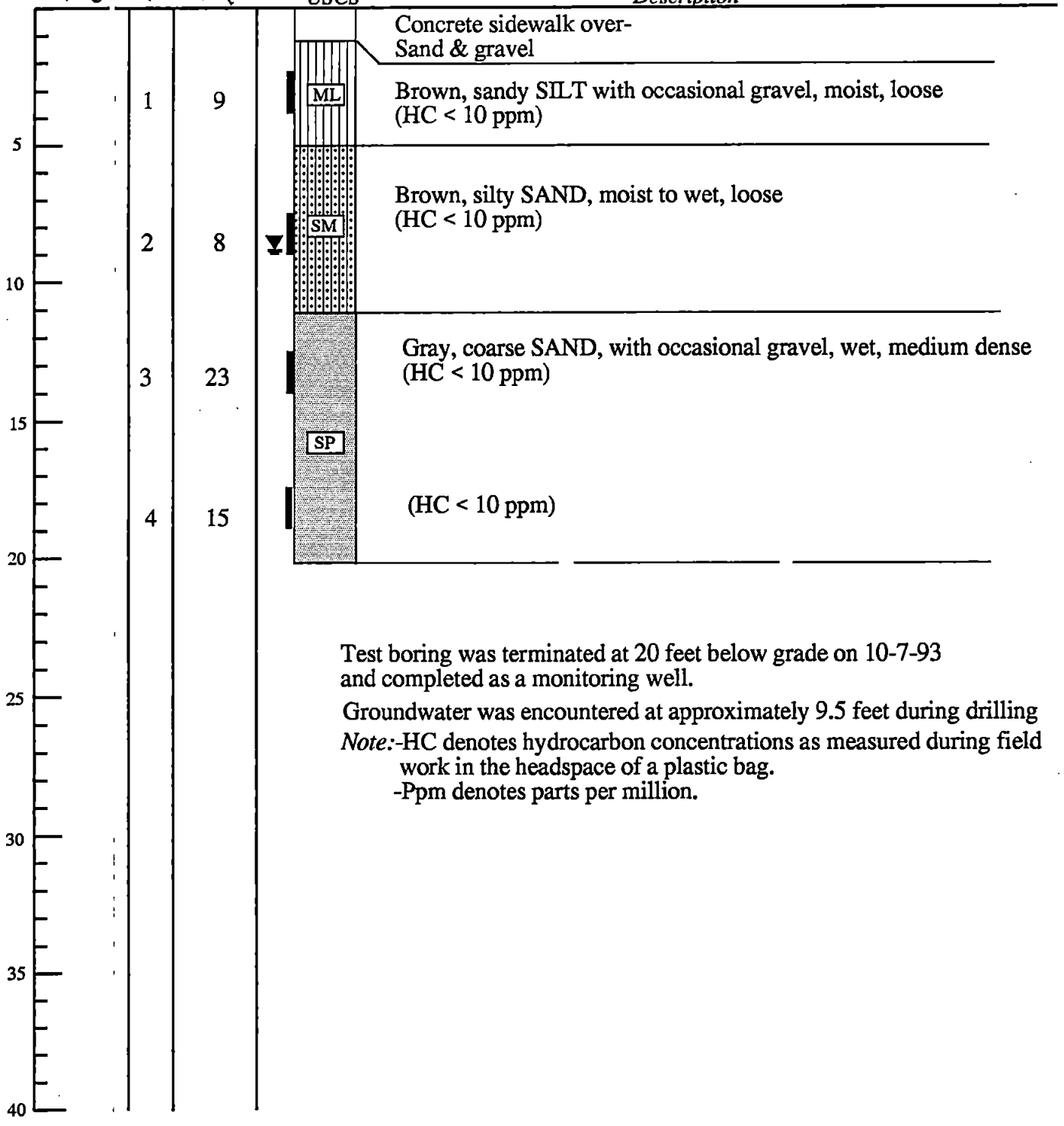
Note:-HC denotes hydrocarbon concentrations as measured during field work in the headspace of a plastic bag.
-Ppm denotes parts per million.

GEOTECH
CONSULTANTS, INC.

TEST BORING LOG
PARK AVENUE N AT N 6th STREET
RENTON, WA

Job No:	Date:	Logged by:	Plate:
93299E	NOV 1993	SPO	6

BORING 5 (Monitoring Well 5)



Test boring was terminated at 20 feet below grade on 10-7-93 and completed as a monitoring well.

Groundwater was encountered at approximately 9.5 feet during drilling

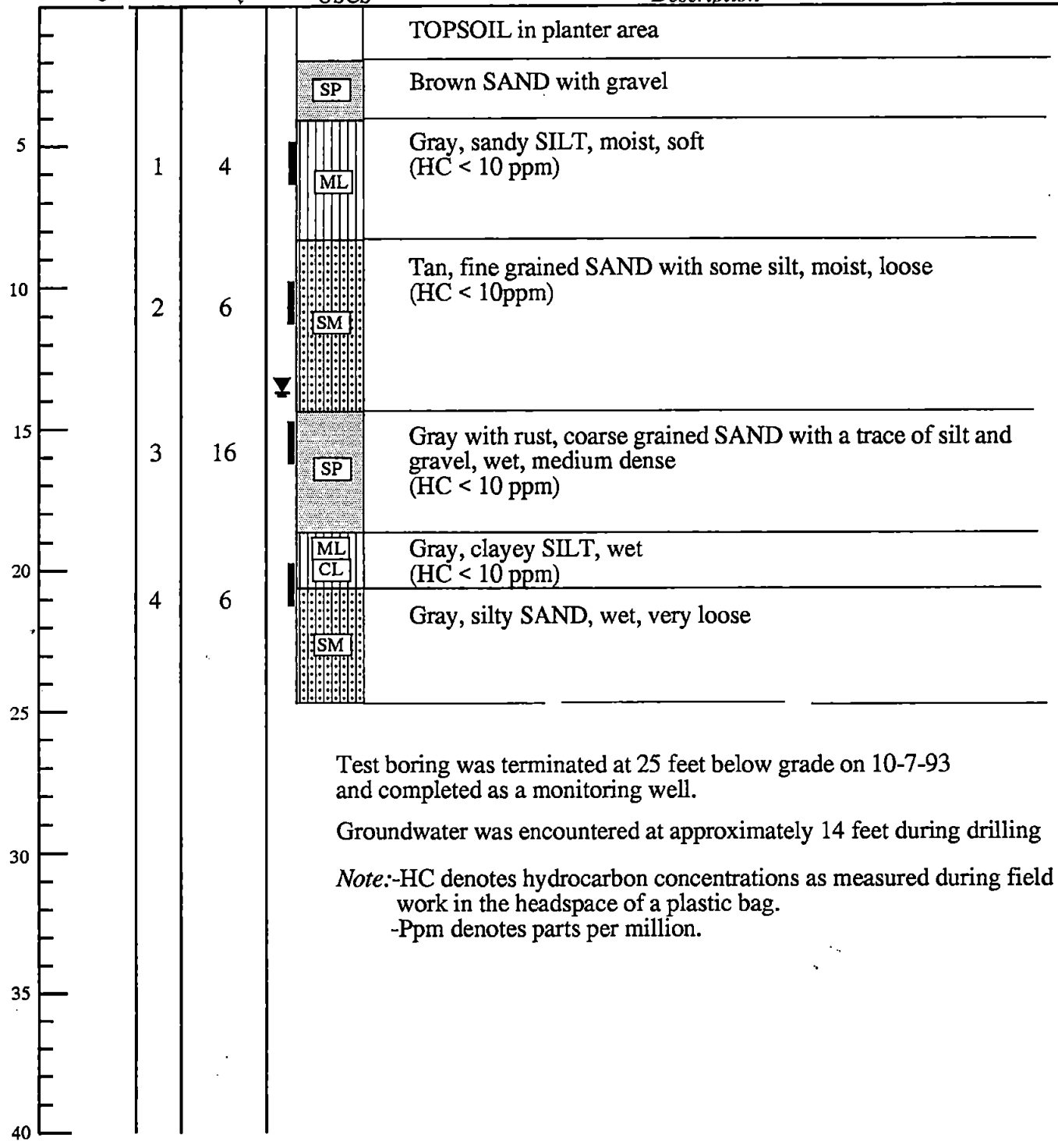
Note:-HC denotes hydrocarbon concentrations as measured during field work in the headspace of a plastic bag.
-Ppm denotes parts per million.

GEOTECH
CONSULTANTS, INC.

TEST BORING LOG
PARK AVENUE N AT N 6th STREET
RENTON, WA

Job No:	Date:	Logged by:	Plate:
93299E	NOV 1993	SPO	7

BORING 6 (Monitoring Well 6)



Test boring was terminated at 25 feet below grade on 10-7-93 and completed as a monitoring well.

Groundwater was encountered at approximately 14 feet during drilling

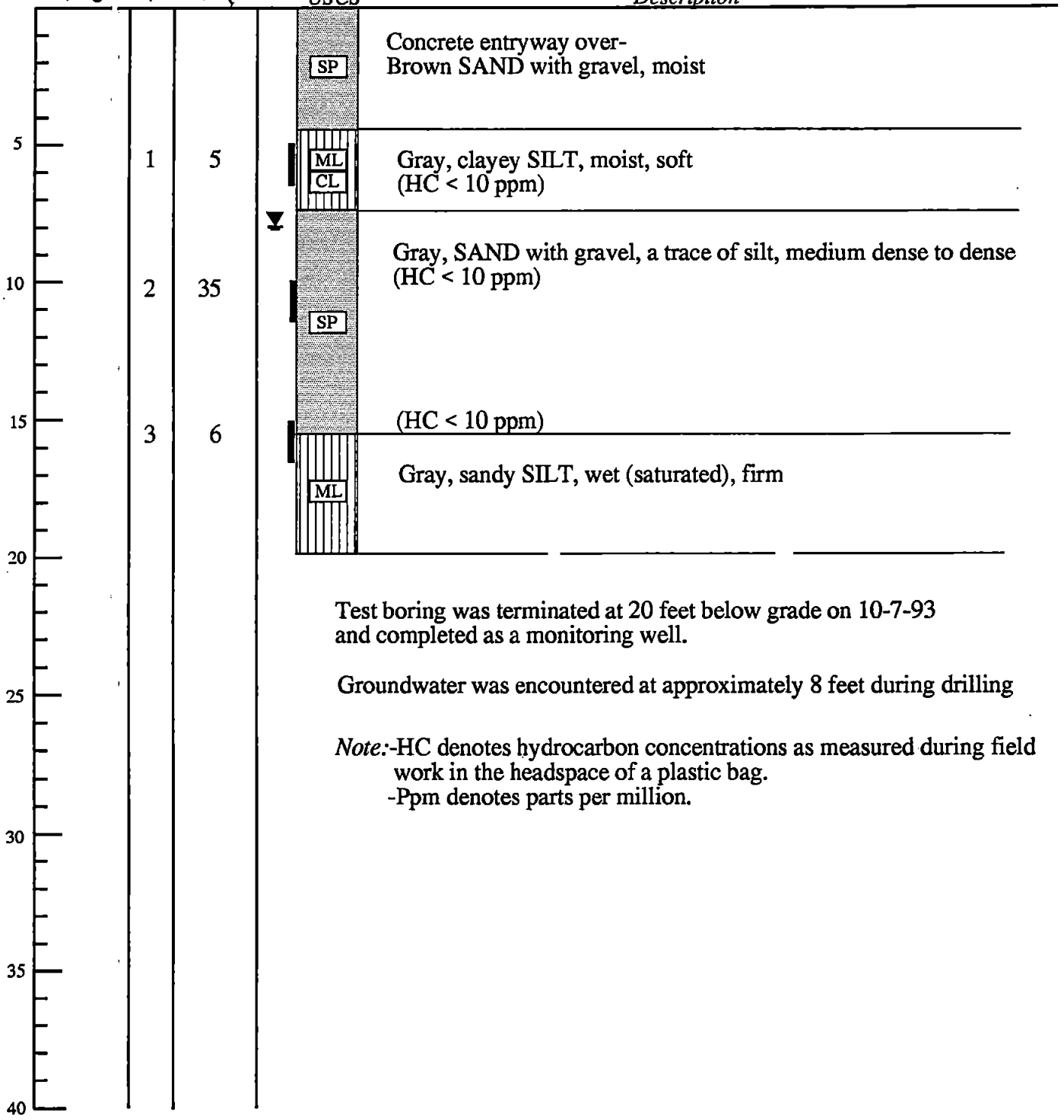
Note:-HC denotes hydrocarbon concentrations as measured during field work in the headspace of a plastic bag.
-Ppm denotes parts per million.

GEOTECH
CONSULTANTS, INC.

TEST BORING LOG
PARK AVENUE N AT N 6th STREET
RENTON, WA

Job No:	Date:	Logged by:	Plate:
93299E	NOV 1993	SPO	8

BORING 7 (Monitoring Well 7)



Test boring was terminated at 20 feet below grade on 10-7-93 and completed as a monitoring well.

Groundwater was encountered at approximately 8 feet during drilling

Note:-HC denotes hydrocarbon concentrations as measured during field work in the headspace of a plastic bag.
-Ppm denotes parts per million.

GEOTECH
CONSULTANTS, INC.

TEST BORING LOG
PARK AVENUE N AT N 6th STREET
RENTON, WA

Job No:	Date:	Logged by:	Plate:
93299E	NOV 1993	SPO	9

APPENDIX A

Reports of Laboratory Results

Chain of Custody Documentation Forms

Date of Report: October 14, 1993
Samples Submitted: October 11, 1993
Lab Traveler: 10-020
Project: 93299E

Matrix: Soil
Date Extracted: October 11, 1993
Date Analyzed: October 11, 1993

WTPH-HCID

Sample Number	GC Characterization	o-terphenyl Surrogate Recovery
93299-B1-2	<20 ppm Gasoline range hydrocarbons <50 ppm Diesel range hydrocarbons <100 ppm Oil range hydrocarbons	96%
93299-B2-2	Oil range hydrocarbons	104%
93299-B3-1	<20 ppm Gasoline range hydrocarbons <50 ppm Diesel range hydrocarbons <100 ppm Oil range hydrocarbons	94%
93299-B4-3	<20 ppm Gasoline range hydrocarbons <50 ppm Diesel range hydrocarbons <100 ppm Oil range hydrocarbons	94%
93299-B5-3	<20 ppm Gasoline range hydrocarbons <50 ppm Diesel range hydrocarbons <100 ppm Oil range hydrocarbons	94%
93299-B7-2	<20 ppm Gasoline range hydrocarbons <50 ppm Diesel range hydrocarbons <100 ppm Oil range hydrocarbons	93%

Quality Assurance

Method Blank	<20 ppm Gasoline range hydrocarbons <50 ppm Diesel range hydrocarbons <100 ppm Oil range hydrocarbons	93%

Date of Report: October 14, 1993
Samples Submitted: October 11, 1993
Lab Traveler: 10-020
Project: 93299E

Matrix: Soil
Units: mg/Kg (ppm)
Date Extracted: October 13, 1993
Date Analyzed: October 14, 1993

WTPH 418.1

Sample Number	Dilution Factor	Total Petroleum Hydrocarbons
93299-B2-2	5	**420**

QUALITY ASSURANCE

	Dilution Factor	Total Petroleum Hydrocarbons
Method Blank	5	<25
Sample: 10-025-4	5	359
Duplicate	5	354
RPD		1.3%

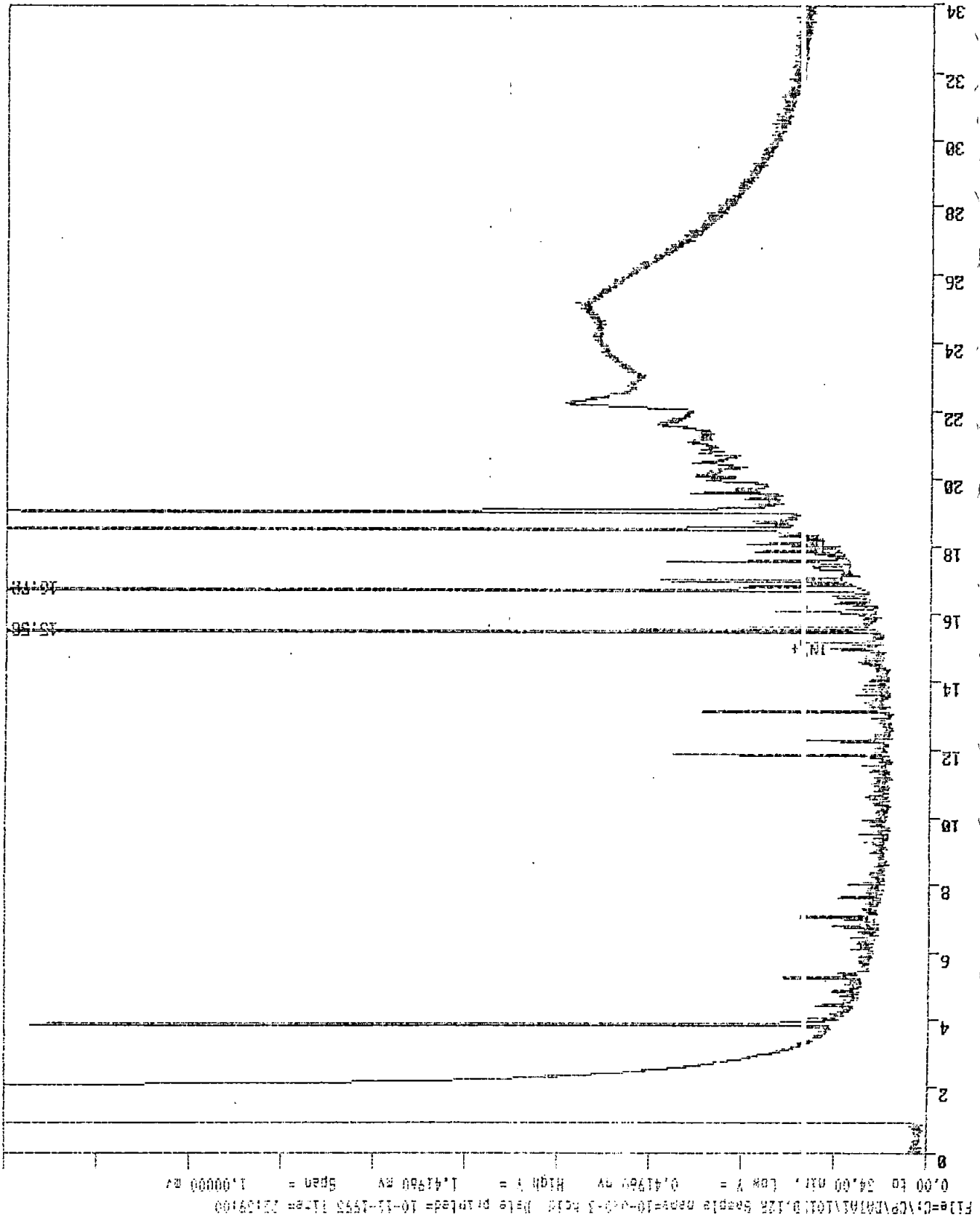
Date of Report: October 14, 1993
Samples Submitted: October 11, 1993
Lab Traveler: 10-020
Project: 93299E

Date Analyzed: October 13,1993

RESULTS OF DRY WEIGHT

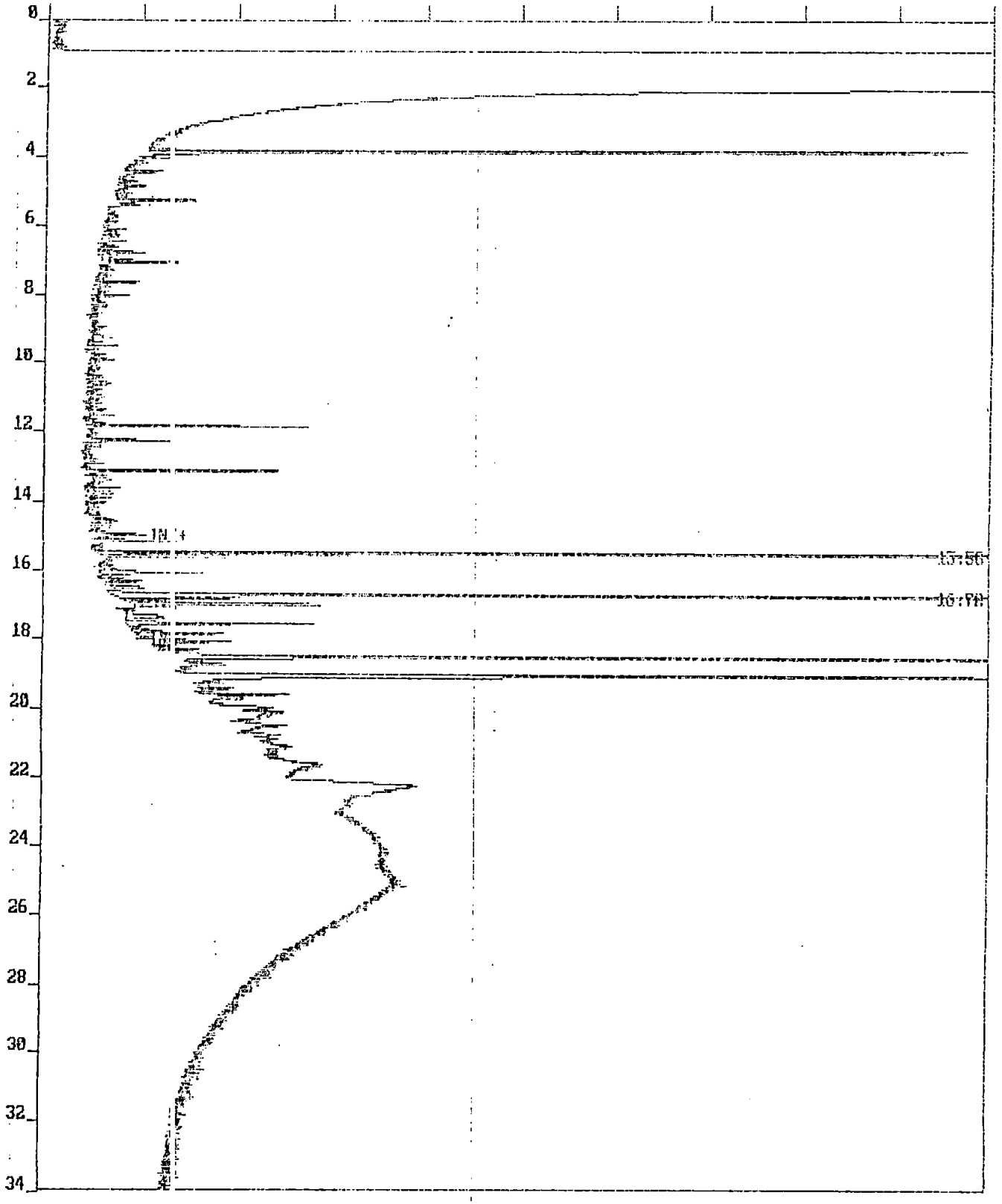
Sample Number	Moisture
93299-B2-2	13%

Sample: 932991 - B2-2
Method: WTPH-HCID



File=C:\CP\DATA\101\0.12R Sample name=10-[illegible]-3 hcl2 Date printed= 10-11-1993 Time= 22:39:00

0.00 to 34.00 min. Low Y = 0.41960 mv High Y = 1.41960 mv Span = 1.00000 mv



Method: WTPH - HCL

[illegible]

COMPANY Grette

PROJECT # 93299E

PROJECT NAME 93299

MANAGER Sean O'Brien

TRAVELER # JTC

OnSite Environmental Inc.
2859 152nd Ave. NE, Redmond, WA 98052
Phone (206) 883-3881 Fax (206) 885-4603

REQUESTED TURNAROUND?

10-020

Dash	Sample Number	Date	Type	# Jars	WTPH-HCID	WTPH-418.1/BTEX	WTPH-418.1	WTPH-418.1	WTPH-418.1	VOA (8240)	DRY WEIGHT	Comments
-1	93299-B1-2	10-6	Soil	1	✓							
-2	-B1-4			1						✓		
-3	-B2-2			1	✓				⊗		⊗	⊗ 418.1 requested by Sean O'Brien 10-12-93 JC
-4	-B2-4			1						✓		
-5	-B3-1	10-6		1	✓							
-6	-B4-3	10-7		1	✓							
-7	-B5-3			1	✓							
-8	-B6-2			1						✓		
-9	-B7-2			1	✓							

Submitted Sean O'Brien Date 10-11-93 Received by Andrea L Day Date 10/11/93

Firm Grette Time 2:15 Firm OnSite Environmental Time 2:15

Submitted _____ Date _____ Received by _____ Date _____

Firm _____ Time _____ Firm _____ Time _____

Date of Report: October 14, 1993
Samples Submitted: October 12, 1993
Lab Traveler: 10-023
Project: 93299E

Matrix: Water
Date Extracted: October 13, 1993
Date Analyzed: October 13, 1993

TPH-HCID

Sample Number	GC Characterization	o-terphenyl Surrogate Recovery
93299-MW 1	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	89%
93299-MW 2	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	80%
93299-MW 3	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	86%
93299-MW 4	Diesel range hydrocarbons	F
93299-MW 5	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	79%
93299-MW 6	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	90%
93299-MW 7	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	89%
Quality Assurance		
Method Blank	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	89%

F-Surrogate recovery data not available due to the high concentration in the sample.

Date of Report: October 14, 1993
Samples Submitted: October 12, 1993
Lab Traveler: 10-023
Project: 93299E

Matrix: Water
Units: mg/L (ppm)
Date Extracted: October 13, 1993
Date Analyzed: October 13, 1993

WTPH-D

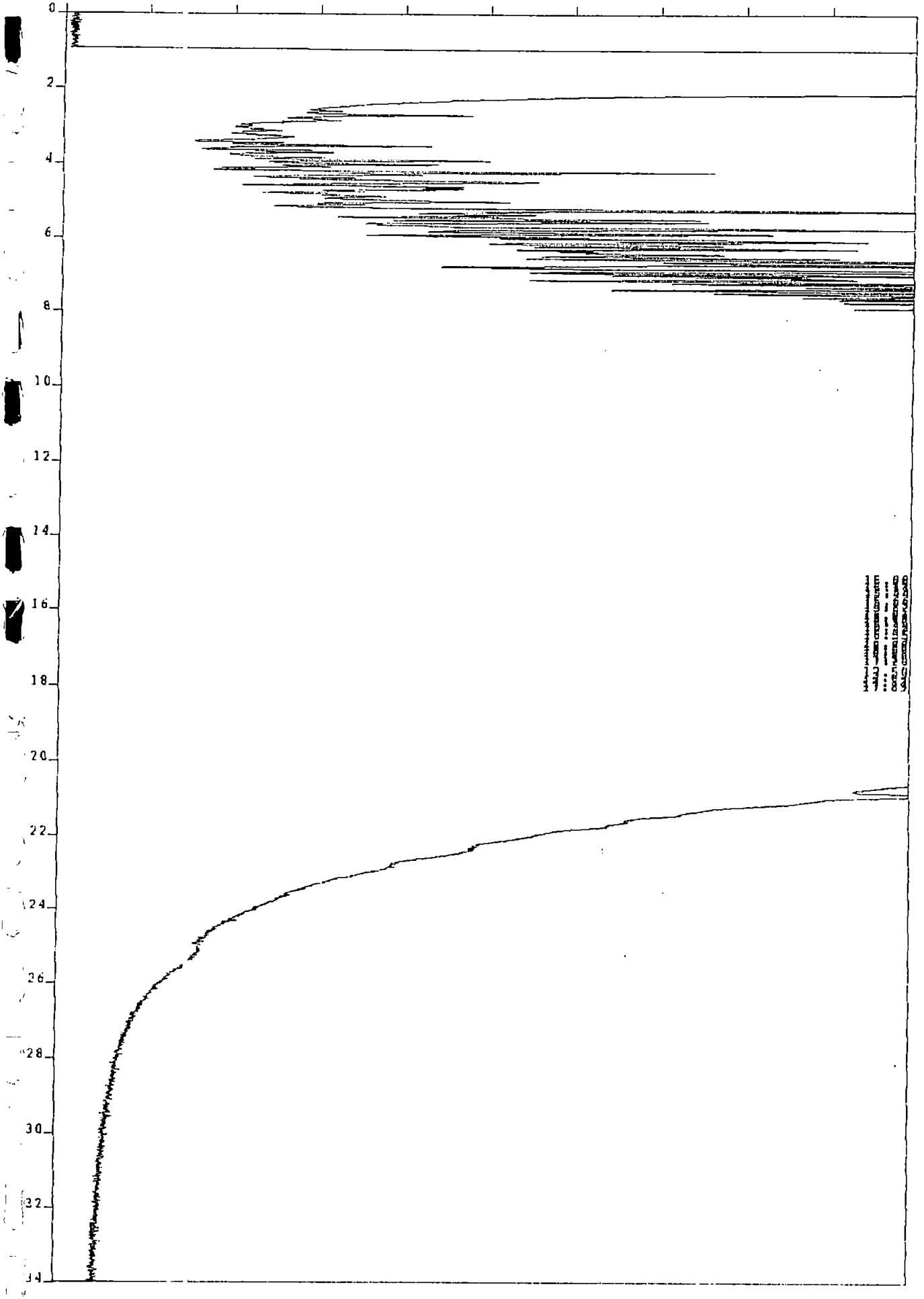
Sample Number	Dilution Factor	TPH	o-terphenyl Surrogate Recovery
93299-MW4	.02	35	F

QUALITY ASSURANCE

	Dilution Factor	TPH	o-terphenyl Surrogate Recovery
Method Blank	.02	<.5	89%
Sample: 10-023-1	.02	<.5	89%
Duplicate	.02	<.5	84%
RPD		0%	

F-Surrogate recovery data not available due to the high concentration in the sample.

File=B:\1013D.22R Sample name=10-023-4 hcid Date printed= 10-14-1993 Time= 08:44:24
0.00 to 34.00 min Low Y = 0.41577 mv High Y = 1.41577 mv Span = 1.00000 mv



Sample: 03209 - MW4
Method: HCID

COMPANY Geotech

PROJECT # 93299 E

PROJECT NAME 93299

MANAGER Sean O'Brien

TRAVELER # JC

OnSite Environmental Inc.

2950 152nd Ave. NE, Redmond, WA 98052

Phone (206) 883-3881 Fax (206) 885-4603

REQUESTED TURNAROUND? Normal

10-025

Dash	Sample Number	Date	Type	# Jars	WTPH-HCID	WTPH-G/BTEX	WTPH-G	WTPH-D	WTPH-418.1	VOA (8240) (esp. Vinyl Chloride)	DRY WEIGHT	Comments
-1	93299- MW1	10-12-93	water	4 1 liter Voas	✓					✓		Please advise
-2	- MW2				✓			⊗		✓		me with HCID
-3	- MW3				✓							results; so that
-4	- MW4 *				✓			⊗				we may proceed
-5	- MW5				✓							w/ proper quantification
-6	- MW6				✓					✓		analysis -
-7	- MW7				✓							TNT
												Sean
												⊗ Diesel analysis requested on 93299-MW4 by Sean O'Brien 10-14-93 JC

Submitted Sean P. O'Brien — Date 10-12-93 — Received by B Wilder — Date 10/13/93

Firm Geotech Consultants, Inc. — Time 3:40 pm — Firm OSE — Time 3:40 pm

Submitted _____ — Date _____ — Received by _____ — Date _____

Firm _____ — Time _____ — Firm _____ — Time _____

Date of Report: October 19, 1993
Samples Submitted: October 14, 1993
Lab Traveler: 10-028
Project: 93299E

Matrix: Soil
Units: mg/Kg (ppm)
Date Extracted: October 14, 1993
Date Analyzed: October 14, 1993

WTPH-D

Sample Number	Dilution Factor	TPH	o-terphenyl Surrogate Recovery
9329-B4-2	1	<25	69%

Date of Report: October 19, 1993
Samples Submitted: October 14, 1993
Lab Traveler: 10-028
Project: 93299E

Matrix: Soil
Units: mg/Kg (ppm)
Date Extracted: October 14, 1993
Date Analyzed: October 14, 1993

WTPH-D
QUALITY ASSURANCE

	Dilution Factor	TPH	o-terphenyl Surrogate Recovery
Method Blank	1	<25	95%
Sample: 10-027-3	1	<25	90%
Duplicate	1	<25	85%
RPD		0%	

	Dilution Factor	TPH	o-terphenyl Surrogate Recovery
Spiked @ 99.4 ppm			
Spike Blank	1	84.4	113%
Percent Recovery		84%	
Spike Blank Duplicate	1	77.7	101%
Percent Recovery		78%	
RPD		8.3%	

Date of Report: October 19, 1993
Samples Submitted: October 14, 1993
Lab Traveler: 10-028
Project: 93299E

Matrix: Soil
Units: mg/Kg (ppm)
Date Extracted: October 15, 1993
Date Analyzed: October 15, 1993

WTPH 418.1

Sample Number	Dilution Factor	Total Petroleum Hydrocarbons
93299-B2-3	5	**48**

WTPH 418.1

QUALITY ASSURANCE

	Dilution Factor	Total Petroleum Hydrocarbons
Method Blank	5	<25
Sample: 93299-B2-3	5	48
Duplicate	5	38
RPD		23%

Date of Report: October 19, 1993
Samples Submitted: October 14, 1993
Lab Traveler: 10-028
Project: 93299E

Date Analyzed: October 14, 1993

RESULTS OF DRY WEIGHT

Sample Number	Moisture
93299-B4-2	19%
93299-B2-3	34%

COMPANY Geotech

PROJECT # 93299E

PROJECT NAME 93299

MANAGER Sean O'Brien

PM JC

OnSite Environmental Inc.

14924 NE 31st CIRCLE. REDMOND. WA 98052
PHONE (206) 883-3881 FAX (206) 885-4603

REQUESTED TURNAROUND?

TRAVELER # 10-028

Dash	Sample Number	Date Sampled	Time Sampled	Type	# Jars	WTPH-HCID	WTPH-GBTEX	WTPH-G	WTPH-D	WTPH-418.1			DRY WEIGHT	Comments
-1	93299-B4-2	10-7		Soil	1				✓				X	
-2	93299-B2-3	10-6		Soil	1					✓			X	

Submitted Sean P. O'Brien Date 10-14-93 Received by B Wolla Date 10/14/93

Firm Geotech Consultants, Inc. Time 11:25 Firm OSE Time 11:25

Submitted _____ Date _____ Received by _____ Date _____

Firm _____ Time _____ Firm _____ Time _____

SOUND ANALYTICAL SERVICES, INC.

On - Site Environmental
Project: 93299E

Lab No. 35458
October 19, 1993

Lab Sample No. 35458-3 Client ID: 93299-B6-2

Volatile Organics Per EPA Method 8240
Date Extracted: 10-15-93
Date Analyzed: 10-15-93

Compound	Concentration ug/kg	PQL	Flag
Chloromethane	ND	10	
Bromomethane	ND	10	
Vinyl Chloride	ND	10	
Chloroethane	ND	10	
Methylene Chloride	13	5.0	B1
Acetone	18	25	B1, J
Carbon Disulfide	ND	5.0	
1,1-Dichloroethene	ND	5.0	
1,1-Dichloroethane	ND	5.0	
1,2-Dichloroethene (Total)	ND	5.0	
Chloroform	ND	5.0	
1,2-Dichloroethane	ND	5.0	
2-Butanone	ND	25	
1,1,1-Trichloroethane	ND	5.0	
Carbon Tetrachloride	ND	5.0	
Vinyl Acetate	ND	25	
Bromodichloromethane	ND	5.0	
1,2-Dichloropropane	ND	5.0	
Cis-1,3-Dichloropropene	ND	5.0	
Trichloroethene	ND	5.0	
Dibromochloromethane	ND	5.0	
1,1,2-Trichloroethane	ND	5.0	

ND - Not Detected
PQL - Practical Quantitation Limit

Continued . . . . .

report is issued solely for the use of the person or company to whom it is addressed. This laboratory accepts responsibility only for the due performance of analysis in accordance with industry acceptable practice. In no event shall Sound Analytical Services, Inc. or its employees be responsible for consequential or special damages in any kind or in any amount.

SOUND ANALYTICAL SERVICES, INC.

On - Site Environmental
Project: 93299E

Lab No. 35458
October 19, 1993

Lab Sample No. 35458-3 Client ID: 93299-B6-2

8240 Continued . . .

Compound	Concentration ug/kg	PQL	Flag
Benzene	ND	5.0	
Trans-1,3-Dichloropropene	ND	5.0	
Bromoform	ND	5.0	
4-Methyl-2-Pentanone	ND	25	
2-Hexanone	ND	5.0	
Tetrachloroethene	ND	5.0	
1,1,2,2-Tetrachloroethane	ND	5.0	
Toluene	2.2	5.0	J
Chlorobenzene	ND	5.0	
Ethyl Benzene	ND	5.0	
Styrene	ND	5.0	
Total Xylenes	ND	5.0	

ND - Not Detected
PQL - Practical Quantitation Limit

Volatile Surrogates

Surrogate Compound	Percent Recovery	Flags	Control Limits Water	Soil
Toluene - D8	105		88 - 110	81 - 117
Bromofluorobenzene	93		86 - 115	74 - 121
1,2-Dichloroethane-D4	102		76 - 114	70 - 121

This report is issued solely for the use of the person or company to whom it is addressed. This laboratory accepts responsibility only for the due performance of analysis in accordance with industry acceptable practice. In no event shall Sound Analytical Services, Inc. or its employees be responsible for consequential or special damages in any kind or in any amount.

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

QUALITY CONTROL REPORT
VOLATILE ORGANICS PER EPA METHOD 8240

Client: On - Site Environmental
Lab No: 35428qc
Units: ug/kg
Date: October 19, 1993
Blank No: Z3768

Date Extracted: 10-15-93
Date Analyzed: 10-15-93

METHOD BLANK

Compound	Result	PQL	Flags
Chloromethane	ND	10	
Bromomethane	ND	10	
Vinyl Chloride	ND	10	
Chloroethane	ND	10	
Methylene Chloride	1.5	5	J
Acetone	1.3	25	J
Carbon Disulfide	ND	5	
1,1-Dichloroethene	ND	5	
1,1-Dichloroethane	ND	5	
1,2-Dichloroethene (Total)	ND	5	
Chloroform	ND	5	
1,2-Dichloroethane	ND	5	
2-Butanone	ND	25	
1,1,1-Trichloroethane	ND	5	
Carbon Tetrachloride	ND	5	
Vinyl Acetate	ND	25	
Bromodichloromethane	ND	5	
1,2-Dichloropropane	ND	5	
Cis-1,3-Dichloropropene	ND	5	
Trichloroethene	ND	5	
Dibromochloromethane	ND	5	
1,1,2-Trichloroethane	ND	5	
Benzene	ND	5	
Trans-1,3-Dichloropropene	ND	5	
Bromoform	ND	5	
4-Methyl-2-Pentanone	ND	25	
2-Hexanone	ND	5	
Tetrachloroethene	ND	5	
1,1,2,2-Tetrachloroethane	ND	5	
Toluene	ND	5	
Chlorobenzene	ND	5	
Ethyl Benzene	ND	5	
Styrene	ND	5	
Total Xylenes	ND	5	

ND - Not Detected
PQL - Practical Quantitation Limit

This report is issued solely for the use of the person or company to whom it is addressed. This laboratory accepts responsibility only for the due performance of analysis in accordance with industry acceptable practice. In no event shall Sound Analytical Services, Inc. or its employees be responsible for consequential or special damages in any kind or in any amount.

SOUND ANALYTICAL SERVICES, INC.

QUALITY CONTROL REPORT

VOLATILE ORGANICS PER EPA METHOD 8240

Client: On - Site Environmental
Lab No: 35428qc
Date: October 19, 1993
Blank No: Z3768

Volatile Surrogates

Surrogate Compound	Percent Recovery	Flags	Control Limits Water	Soil
Toluene - D8	98		88 - 110	81 - 117
Bromofluorobenzene	100		86 - 115	74 - 121
1,2-Dichloroethane-D4	94		76 - 114	70 - 121

This report is issued solely for the use of the person or company to whom it is addressed. This laboratory accepts responsibility only for the due performance of analysis in accordance with industry acceptable practice. In no event shall Sound Analytical Services, Inc. or its employees be responsible for consequential or special damages in any kind or in any amount.

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS
4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: On - Site Environmental Date: October 21, 1993

Report On: Analysis of Water Lab No.: 35498
Page 1 of 6

IDENTIFICATION:
Samples Received on 10-13-93
Project: 93299E

ANALYSIS:

Lab Sample No. 35498-1 Client ID: 93299-MW1

Volatile Organics Per EPA Method 8240
Date Analyzed: 10-19-93

Compound	Concentration ug/L	PQL	Flag
Chloromethane	ND	10	
Bromomethane	ND	10	
Vinyl Chloride	ND	10	
Chloroethane	ND	10	
Methylene Chloride	ND	5	
Acetone	ND	25	
Carbon Disulfide	ND	5	
1,1-Dichloroethene	ND	5	
1,1-Dichloroethane	ND	5	
1,2-Dichloroethene (Total)	ND	5	
Chloroform	ND	5	
1,2-Dichloroethane	ND	5	
2-Butanone	ND	25	
1,1,1-Trichloroethane	ND	5	
Carbon Tetrachloride	ND	5	
Vinyl Acetate	ND	25	
Bromodichloromethane	ND	5	
1,2-Dichloropropane	ND	5	
Cis-1,3-Dichloropropene	ND	5	
Trichloroethene	ND	5	
Dibromochloromethane	ND	5	
1,1,2-Trichloroethane	ND	5	

ND - Not Detected
PQL - Practical Quantitation Limit

Continued . . . . .

...and is based solely for the use of the person or company to whom it is addressed. This laboratory accepts responsibility only for the due performance of analysis in accordance with

SOUND ANALYTICAL SERVICES, INC.

On - Site Environmental
Project: 93299E
Page 2 of 6
Lab No.: 35498
October 21, 1993

Lab Sample No. 35498-1 Client ID: 93299-MW1

8240 Continued . . .

Compound	Concentration ug/L	PQL	Flag
Benzene	ND	5	
Trans-1,3-Dichloropropene	ND	5	
Bromoform	ND	5	
4-Methyl-2-Pentanone	ND	25	
2-Hexanone	ND	5	
Tetrachloroethene	ND	5	
1,1,2,2-Tetrachloroethane	ND	5	
Toluene	ND	5	
Chlorobenzene	ND	5	
Ethyl Benzene	ND	5	
Styrene	ND	5	
Total Xylenes	ND	5	

ND - Not Detected
PQL - Practical Quantitation Limit

Volatile Surrogates

Surrogate Compound	Percent Recovery	Flags	Control Limits Water	Control Limits Soil
Toluene - D8	105		88 - 110	81 - 117
Bromofluorobenzene	93		86 - 115	74 - 121
1,2-Dichloroethane-D4	101		76 - 114	70 - 121

Continued . . .

report is issued solely for the use of the person or company to whom it is addressed. This laboratory accepts responsibility only for the due performance of analysis in accordance with

SOUND ANALYTICAL SERVICES, INC.

On - Site Environmental
Project: 93299E
Page 3 of 6
Lab No. 35498
October 21, 1993

Lab Sample No. 35498-2 Client ID: 93299-MW2

Volatile Organics Per EPA Method 8240
Date Analyzed: 10-19-93

Compound	Concentration ug/L	PQL	Flag
Chloromethane	ND	10	
Bromomethane	ND	10	
Vinyl Chloride	ND	10	
Chloroethane	ND	10	
Methylene Chloride	ND	5	
Acetone	ND	25	
Carbon Disulfide	ND	5	
1,1-Dichloroethene	ND	5	
1,1-Dichloroethane	ND	5	
1,2-Dichloroethene (Total)	ND	5	
Chloroform	ND	5	
1,2-Dichloroethane	ND	5	
2-Butanone	ND	25	
1,1,1-Trichloroethane	ND	5	
Carbon Tetrachloride	ND	5	
Vinyl Acetate	ND	25	
Bromodichloromethane	ND	5	
1,2-Dichloropropane	ND	5	
Cis-1,3-Dichloropropene	ND	5	
Trichloroethene	ND	5	
Dibromochloromethane	ND	5	
1,1,2-Trichloroethane	ND	5	

ND - Not Detected
PQL - Practical Quantitation Limit

Continued . . . . .

...the use of the person or company to whom it is addressed. This laboratory accepts responsibility only for the due performance of analysis in accordance with

SOUND ANALYTICAL SERVICES, INC.

On - Site Environmental
Project: 93299E
Page 4 of 6
Lab No. 35498
October 21, 1993

Lab Sample No. 35498-2 Client ID: 93299-MW2

8240 Continued . . .

Compound	Concentration ug/L	PQL	Flag
Benzene	ND	5	
Trans-1,3-Dichloropropene	ND	5	
Bromoform	ND	5	
4-Methyl-2-Pentanone	ND	25	
2-Hexanone	ND	5	
Tetrachloroethene	ND	5	
1,1,2,2-Tetrachloroethane	ND	5	
Toluene	ND	5	
Chlorobenzene	ND	5	
Ethyl Benzene	ND	5	
Styrene	ND	5	
Total Xylenes	ND	5	

ND - Not Detected
PQL - Practical Quantitation Limit

Volatile Surrogates

Surrogate Compound	Percent Recovery	Flags	Control Limits Water	Control Limits Soil
Toluene - D8	104		88 - 110	81 - 117
Bromofluorobenzene	92		86 - 115	74 - 121
1,2-Dichloroethane-D4	102		76 - 114	70 - 121

Continued . . .

...liable to the use of the person or company to whom it is addressed ...sole responsibility only for the due performance of analysis in accordance with ...

SOUND ANALYTICAL SERVICES, INC.

On - Site Environmental
Project: 93299E
Page 5 of 6
Lab No. 35498
October 21, 1993

Lab Sample No. 35498-3 Client ID: 93299-MW6

Volatile Organics Per EPA Method 8240
Date Analyzed: 10-19-93

Compound	Concentration ug/L	PQL	Flag
Chloromethane	ND	10	
Bromomethane	ND	10	
Vinyl Chloride	ND	10	
Chloroethane	ND	10	
Methylene Chloride	ND	5	
Acetone	ND	25	
Carbon Disulfide	ND	5	
1,1-Dichloroethene	ND	5	
1,1-Dichloroethane	ND	5	
1,2-Dichloroethene (Total)	ND	5	
Chloroform	ND	5	
1,2-Dichloroethane	ND	5	
2-Butanone	ND	25	
1,1,1-Trichloroethane	ND	5	
Carbon Tetrachloride	ND	5	
Vinyl Acetate	ND	25	
Bromodichloromethane	ND	5	
1,2-Dichloropropane	ND	5	
Cis-1,3-Dichloropropene	ND	5	
Trichloroethene	ND	5	
Dibromochloromethane	ND	5	
1,1,2-Trichloroethane	ND	5	

ND - Not Detected
PQL - Practical Quantitation Limit

Continued . . . . .

ry acceptable practice. In no event shall Sound Analytical Services, Inc. or its employees be responsible for consequential or special damages in any kind or in any amount.

SOUND ANALYTICAL SERVICES, INC.

On - Site Environmental
Project: 93299E

Lab No. 35498
October 21, 1993

Lab Sample No. 35498-3 Client ID: 93299-MW6

8240 Continued . . .

Compound	Concentration ug/L	PQL	Flag
Benzene	ND	5	
Trans-1,3-Dichloropropene	ND	5	
Bromoform	ND	5	
4-Methyl-2-Pentanone	ND	25	
2-Hexanone	ND	5	
Tetrachloroethene	ND	5	
1,1,2,2-Tetrachloroethane	ND	5	
Toluene	ND	5	
Chlorobenzene	ND	5	
Ethyl Benzene	ND	5	
Styrene	ND	5	
Total Xylenes	ND	5	

ND - Not Detected
PQL - Practical Quantitation Limit

Volatile Surrogates

Surrogate Compound	Percent Recovery	Flags	Control Limits Water	Control Limits Soil
Toluene - D8	104		88 - 110	81 - 117
Bromofluorobenzene	95		86 - 115	74 - 121
1,2-Dichloroethane-D4	100		76 - 114	70 - 121

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS
4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: On - Site Environmental Date: October 23, 1993

Report On: Analysis of Water Lab No.: 35671
Page 1 of 2

IDENTIFICATION:
Sample Received on 10-21-93
Project: 93299E

ANALYSIS:

Lab Sample No. 35671-1 Client ID: 93299-LMW2D

Volatile Organics Per EPA Method 8240
Date Analyzed: 10-22-93

Compound	Concentration ug/L	PQL	Flag
Chloromethane	ND	10	
Bromomethane	ND	10	
* Vinyl Chloride	7.5	10	J
Chloroethane	ND	10	
Methylene Chloride	6.3	5	
Acetone	ND	25	
Carbon Disulfide	ND	5	
1,1-Dichloroethene	ND	5	
1,1-Dichloroethane	ND	5	
1,2-Dichloroethene (Total)	ND	5	
Chloroform	ND	5	
1,2-Dichloroethane	ND	5	
2-Butanone	ND	25	
1,1,1-Trichloroethane	ND	5	
Carbon Tetrachloride	ND	5	
Vinyl Acetate	ND	25	
Bromodichloromethane	ND	5	
1,2-Dichloropropane	ND	5	
Cis-1,3-Dichloropropene	ND	5	
Trichloroethene	ND	5	
Dibromochloromethane	ND	5	
1,1,2-Trichloroethane	ND	5	

ND - Not Detected
PQL - Practical Quantitation Limit

Continued . . . . .

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SOUND ANALYTICAL SERVICES, INC.

On - Site Environmental
Project: 93299E
Page 2 of 2
Lab No. 35671
October 23, 1993

Lab Sample No. 35671-1 Client ID: 93299-LMW2D

8240 Continued . . .

Compound	Concentration ug/L	PQL	Flag
Benzene	ND	5	
Trans-1,3-Dichloropropene	ND	5	
Bromoform	ND	5	
4-Methyl-2-Pentanone	ND	25	
2-Hexanone	ND	5	
Tetrachloroethene	ND	5	
1,1,2,2-Tetrachloroethane	ND	5	
Toluene	ND	5	
Chlorobenzene	ND	5	
Ethyl Benzene	ND	5	
Styrene	ND	5	
Total Xylenes	ND	5	

ND - Not Detected
PQL - Practical Quantitation Limit

Volatile Surrogates

Surrogate Compound	Percent Recovery	Flags	Control Limits Water	Soil
Toluene - D8	101		88 - 110	81 - 117
Bromofluorobenzene	91		86 - 115	74 - 121
1,2-Dichloroethane-D4	102		76 - 114	70 - 121

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

DATA QUALIFIER FLAGS

ND: Indicates that the analyte was analyzed for but was not detected. The associated numerical value is the practical quantitation limit, corrected for sample dilution.

J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

C: The identification of this analyte was confirmed by GC/MS.

B1: This analyte was also detected in the associated method blank. The reported sample results have been adjusted for moisture, final extract volume, and/or dilutions performed during extract preparation. The analyte concentration was evaluated prior to sample preparation adjustments, and was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).

B2: This analyte was also detected in the associated method blank. However, the analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).

E: The concentration of this analyte exceeded the instrument calibration range.

D: The reported result for this analyte is calculated based on a secondary dilution factor.

A: This TIC is a suspected aldol-condensation product.

M: Quantitation Limits are elevated due to matrix interferences.

S: The calibration quality control criteria for this compound were not met. The reported concentration should be considered an estimated quantity.

X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.

X2: Contaminant does not appear to be "typical" product. Further testing is suggested for identification.

X3: Identification and quantification of peaks was complicated by matrix interference; GC/MS confirmation is recommended.

X4: RPD for duplicates outside QC limits. Sample was re-analyzed with similar results. Sample matrix is nonhomogeneous.

X4a: RPD for duplicates outside QC limits due to analyte concentration near the method practical quantitation limit/detection limit.

X5: Matrix spike was diluted out during analysis.

X6: Recovery of matrix spike outside QC limits. Sample was re-analyzed with similar results.

X7: Recovery of matrix spike outside QC limits. Matrix interference is indicated by blank spike recovery data.

X7a: Recovery and/or RPD values for MS/MSD outside QC limits due to high contaminant levels.

X8: Surrogate was diluted out during analysis.

X9: Surrogate recovery outside QC limits due to matrix composition.

X10: Surrogate recovery outside QC limits due to high contaminant levels.

COMPANY Geotech

PROJECT # 93299E

PROJECT NAME 93299

MANAGER Sean O'Brien

TRAVELER # JTC

OnSite Environmental Inc.

2050 152nd Ave. NE, Redmond, WA 98052

Phone (206) 883-3881 Fax (206) 885-4603

REQUESTED TURNAROUND?

10-020

Dash	Sample Number	Date	Type	# Jars	WTPH-HCID	WTPH-G/BTEX	WTPH-G	WTPH-D	WTPH-418.1	VOA (8240)	DRY WEIGHT	Comments
-1	93299-B1-2	10-6	Soil	1	✓					✓		
-2	-B1-4			1	✓					✓		
-3	-B2-2			1	✓				⊗		⊗	⊗ 418.1 requested by Sean O'Brien 10-12-93 JC
-4	-B2-4			1	✓					✓		
-5	-B3-1	10-6		1	✓							
-6	-B4-3	10-7		1	✓							
-7	-B5-3			1	✓							
-8	-B6-2			1	✓					✓		
-9	-B7-2			1	✓							

Submitted Sean O'Brien Date 10-11-93 Received by Barbara A Day Date 10/11/93

Firm Geotech Time 2:15 Firm OnSite Environmental Time 2:15

Submitted ____ Date ____ Received by ____ Date ____

Firm ____ Time ____ Firm ____ Time ____

COMPANY Geotech

PROJECT # 93299 E

PROJECT NAME 93299

MANAGER Sean O'Brien

TRAVELER #

OnSite Environmental Inc.

2859 152nd Ave. NE, Redmond, WA 98052
Phone (206) 883-3881 Fax (206) 885-4603

EQ ED TURNAROUND?

Dash	Sample Number	Date	Type	# Jars	WTPH-HCID	WTPH-G/BTEX	WTPH-G	WTPH-D	WTPH-418.1	VOA (8240) (esp. vinyl chlorids)		DRY WEIGHT	Comments
	Judi to Sean												
	93299- MW1 diesel 0.5 diesel gas 0.2 gas 1.0 waste 1	10-12-93	water	1 liter 4 Voas	✓					✓			Please advise
	- MW2				✓					✓			me with HCID
	- MW3				✓								results; so that
	- MW4 gas CO.2 waste <1.0 diesel Hit 35ppm				✓								we may proceed
	- MW5				✓								w/ proper quantification
	- MW6				✓					✓			analysis -
	- MW7				✓								TNT
													Sean

Submitted Sean P. O'Brien Date 10-12-93 Received by B Wilder Date 10/13/93

Firm Geotech Consultants, Inc. Time 3:40 pm Firm OSE Time 3:40 pm

Submitted _____ Date _____ Received by _____ Date _____

Firm _____ Time _____ Firm _____ Time _____

IPA Cotti

PROJECT # 93299E

PROJECT NAME 93299

MANAGER Sean O'Brien

PM

OnSite Environmental Inc.
14924 NE 31st CIRCLE, REDMOND, WA 98052
PHONE (206) 883-3881 FAX (206) 885-4603

REQUESTED TURNAROUND?

TRAVELER #

Dash	Sample Number	Date Sampled	Time Sampled	Type	# Jars	WTPH-HCID	WTPH-G/BTEX	WTPH-G	WTPH-D	WTPH-418.1			DRY WEIGHT	Comments
						Analysis Required								RESULTS: 10-18-93
	93299-B4-2	10-7		Soil	1				✓					~~Judi to Sean~~ Diesel → <25 ppm
	93299-B2-3	10-6		Soil	1					✓				→ 48 ppm

Submitted Sean P. O'Brien Date 10-14-93 Received by BOWDEN Date 10/14/93

Firm GeoTech Consultants, Inc. Time 11:25 Firm OSE Time 11:25

Submitted _____ Date _____ Received by _____ Date _____

Firm _____ Time _____ Firm _____ Time _____

COMPANY Geotech

PROJECT # 93299E

PROJECT NAME 93299

MANAGER Sean O'Brien

PM _____

OnSite Environmental Inc.

14924 NE 31st CIRCLE, REDMOND, WA 98052

PHONE (206) 885-3881 FAX (206) 885-4603

REQUESTED TURNAROUND?

TRAVELER #

Dash	Sample Number	Date Sampled	Time Sampled	Type	# Jars	WTPH-HCID	WTPH-G/BTEX	WTPH-G	WTPH-D	WTPH-418.1	vinyl chloride only by (8240) VOA	DRY WEIGHT	Comments
	93299-LMW2D	10-20-93	—	Water	~~7~~ 3 Voas						X		RUSH ANALYSIS!!

Submitted Sean P. O'Brien Date 10-20-93 Received by _____ Date 10/20/93

Firm Geotech Consultants, Inc. Time 4:20 pm Firm OnSite Environmental Time 4:35

Submitted Ted Cole Date 10-20-93 Received by _____ Date _____

Firm Geotech Consultants Inc Time 4:35 Firm _____ Time _____

GEOTECH
CONSULTANTS, INC.

13256 N.E. 20th St. Northup Way), Suite 16
Bellevue, WA 98005
(206) 747-5618
FAX 747-8561

December 10, 1993

JN 93299E-2

G & M Investments
5100 Rainier Avenue South
Seattle, Washington 98144

Attention: Michael K. Mastro

REPORT: Supplemental Subsurface Exploration and Testing
Garden Plaza and Fifth and Park Property
North Sixth Street at Park Avenue
Renton, Washington

Dear Mr. Mastro:

Geotech Consultants, Inc. has completed supplemental drilling, installation of groundwater monitoring wells, and laboratory analysis of soil and groundwater samples from the subject site. This report, prepared in accordance with our proposal dated November 10, 1993, summarizes our approach to the project along with results and conclusions.

Results of our original field sampling and laboratory analyses, presented to you in a report dated November 5, 1993, confirmed the presence of elevated levels of petroleum hydrocarbons at two locations and vinyl chloride at one distinct location on the site. Work completed for this phase of the project was intended to further delineate the areal and vertical extent of the petroleum hydrocarbon-affected regions discovered during our original work.

The results of this most recent site work confirm that the previously discovered petroleum hydrocarbon-affected regions are confined to small localized areas. Our field exploration and sampling along with laboratory analysis indicates that residual petroleum hydrocarbons discovered previously in soil at the location of boring B-2 are confined to that area and have not impacted groundwater at that location. Additionally, diesel-affected groundwater present at the location of monitoring well MW-4 at levels above the Method A cleanup guidelines (MTCA, Chapter 173-340) appears to be limited to the approximate area shown on Plate 3. Sampling and analysis of monitoring well MW-4 for this phase of the

project showed a significant decrease in diesel-range hydrocarbons since the initial sampling activities in October.

Based upon the localized extent of the contaminated regions, there does not appear to be a need for active remediation. The levels and extent of contamination, in our opinion, do not pose "an unacceptable threat to human health and the environment." We recommend that a long-term monitoring approach be implemented in the area of monitoring well MW-4. This would include sampling wells MW-4, MW-10, MW-11, and MW-1 on a quarterly basis until three successive sampling efforts indicate levels of diesel-range hydrocarbons in MW-4 have decreased through natural degradation to below cleanup guidelines or until a steady-state or stable condition has been achieved.

We appreciate the opportunity to be of continuing service on this project and trust that the information provided here will be of value in your site management efforts. We look forward to continuing to provide service on this project. If you have any questions, please do not hesitate to contact us.

Respectfully Submitted,

GEOTECH CONSULTANTS, INC.

Sean P. O'Brien by RME

Sean P. O'Brien
Environmental Engineer

REPORT: Additional Subsurface Exploration and Testing

Garden Plaza and Fifth and Park Property
North Sixth Street at Park Avenue
Renton, Washington

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REPORT: Additional Subsurface Exploration and Testing

Garden Plaza and Fifth and Park Property
North Sixth Street at Park Avenue
Renton, Washington

PROJECT DESCRIPTION

The site is located at the southeast corner of Park Avenue North and North Sixth Street, and encompasses two office buildings and a parking garage. Immediately east of the site, across Garden Avenue North is a U.S. Environmen-tal Protection Agency (EPA) Superfund site known as PACCAR (Pacific Car and Foundry). The Vicinity Map, Plate 1, illustrates the general location of the site.

Our previous work, as stated in our report to you dated November 5, 1993, confirmed petroleum hydrocarbon contamination at two locations on the site. Groundwater contaminated by diesel fuel was found at the location of monitoring well MW-4, and heavy oil was noted in soil at the location of boring B-2. A monitoring well, identified as LMW-2D, was also sampled and analyzed at that time for the presence of vinyl chloride identified in a previous study (see Reference 3). Results of our sampling indicated the continuing presence of vinyl chloride at concentrations above current regulatory clean-up levels but at lower concentrations than previously reported.

Our exploration program for this phase of the project was directed at more clearly defining the areal and vertical extent of the petroleum-affected areas.

METHODOLOGY/SCOPE OF WORK

Our scope of work for the project included the following tasks:

Drilling and Sampling

On November 17 and 18, 1993, an environmental engineer from our firm visited the site and observed the drilling of five additional borings (B-8 through B-12) at the locations shown on Plate 2, Site Exploration Plan.

Two borings (B-8 and B-9) were drilled in the immediate vicinity of boring B-2 to test for heavy-oil-range hydrocarbons in the soils. Three additional borings (B-10, B-11, and B-12) were completed surrounding the location of monitoring well MW-4. These three borings were converted to monitoring wells to sample groundwater.

Equipment employed for the drilling consisted of a truck-mounted drilling rig, equipped with 4-inch-inner-diameter hollow stem augers. The soils were sampled with a standard penetration sampler driven 18 inches at 5-foot intervals using a 140-pound hammer in general accordance with ASTM Method D-1586.

Samples were transferred from the sampler directly to sterilized glass jars with teflon-sealed lids furnished by the laboratory. Samples were stored in an iced chest at the site and taken to the laboratory in this conditions in an effort to preserve sample integrity by minimizing excessive dissipation of volatile fraction hydrocarbons. Each jar was labeled as to boring number, sample depth, field personnel, etc. EPA-recommended sample management protocol including maintenance of chain-of-custody documentation was observed at each stage of the project.

During drilling a field log was made by the project environmental engineer for each boring. Information recorded versus corresponding depth included soil classification (Unified Soil Classification System), color, texture, moisture, seepage zones, odors, iridescent sheens, etc.

Monitoring Well Installation

At the completion of soil borings B-10, B-11, and B-12 a groundwater monitoring well was installed. Monitoring well design and construction methods conformed to requirements and specifications outlined in WAC 173-160. As illustrated schematically on Plate 9 appended to this report, the well screen in each of the installations was positioned so as to span the maximum and minimum range of the anticipated seasonal groundwater fluctuation, thus facilitating representative sampling of water at any time during the year. The annulus of each well casing was sand packed 2 to 3 feet above well screens; a bentonite seal was placed above the sand and carried to within 2 feet of the ground surface to

prevent infiltration of surface contamination along the well casing. A non-shrinking cement grout was used to stabilize the upper section of each well. A protective casing with provisions for locking access to the well head was also provided.

Groundwater Sampling

Prior to sampling, a piston lift-type portable pump was used to purge each well by removing a minimum of three well volumes of water. This procedure was intended to assure that samples obtained from the wells would be representative of ambient groundwater conditions in the surrounding water-bearing strata.

Following developmental purge pumping, a sterilized stainless steel bailer was used to extract a groundwater sample from each of the wells. Samples were poured into labeled glassware furnished by the laboratory. Samples were stored in an iced chest on site and transported to the lab in this condition. As with the soil samples, chain of custody documentation was observed at each stage of the project.

Laboratory Analysis

Based upon our previous work on the site property, the following set of analyses were conducted on selected soil and groundwater samples:

WTPH-HCID for Petroleum Hydrocarbons (Soil)

In accordance with published Washington Department of Ecology (WDOE) documents including Publications 90-52 (Guidance for Site Checks and Site Assessments) and 91-30 (Guidance for Remediation of Releases from USTs), all selected soil samples were initially analyzed by the hydrocarbon identification test (WTPH-HCID). This analysis identifies the type of hydrocarbons, if any, that are present in the sample. Detection limits for soil are 20 ppm for gasoline, 50 ppm for diesel, and 100 ppm for heavy oil.

The HCID test is a qualitative test. Based upon the results of the HCID analysis, further analysis was requested. EPA Method 418.1 was conducted on a sample from boring B-10, and WTPH-Diesel was conducted on a sample from boring B-12.

WTPH-Diesel Extended Range (Water)

The extended-range diesel analysis quantifies hydrocarbon compounds from C12 to C30, including diesel-range hydrocarbons and some heavier oil-range hydrocarbons. Each of the water samples collected from MW-4, MW-10, MW-11, and MW-12 were analyzed by the WTPH-Diesel-extended test. The lower detection limit in water for this test is 0.5 parts per million (ppm).

FINDINGS

Surface

The subject property is a large rectangular parcel of land comprising one city block in Renton, Washington. The site is bounded on the north by North 6th Street, on the east by Garden Avenue North, on the south by North 5th Street, and on the west by Park Avenue North. The general location of the site is illustrated on the Vicinity Map, Plate 1.

The site is developed with the seven-story Garden Plaza office building, the three-story Fifth and Park building, and a three-story parking garage. Land use in the general vicinity of the property is zoned industrial to the north and east, and business and residential to the south and west. More specifically, the site is bordered as follows:

NORTH: The Boeing Commercial Airplane Division--Renton Facility (BCA-Renton) owns the property to the north of the site, across North 6th Street. The property is undeveloped and utilized as a parking lot.

EAST: Garden Avenue North defines the eastern border of the site. The Pacific Car and Foundry (PACCAR) Superfund site is located on the east side of Garden Avenue North.

SOUTH: North 5th Street lies along the southern border of the site. Older single-family residences line the south side of North 5th Street.

WEST: Park Avenue North marks the western property line. Little Tokyo restaurant, an automotive repair shop and single-family residences are located on the west side of Park Avenue North.

Topographically, the site is relatively flat, with slight local relief limited to building fill and landscape berms.

Observations during Drilling

As previously noted, five additional borings (B-8 through B-12) were drilled at the locations noted on Plate 2. Please refer to the individual boring logs appended as Plates 4 through 8 for specific conditions encountered at each location.

Soil

In general, subsurface conditions beneath the subject site consist of alternating layers of loose, silty sand and sandy silt, with lenses of clayey silt noted in some borings.

Soil samples were collected at 5-foot intervals in each boring, unless otherwise noted on the individual boring logs. Each sample was subjected to headspace analysis using field screening techniques to assess potential hydrocarbon vapor concentrations in soil. Hydrocarbon concentrations are recorded on the boring logs next to each sample.

Petroleum odors were not noted while drilling the borings.

Groundwater

During drilling of the five borings, groundwater was encountered between 7 and 12 feet, depending on the location and relative elevation of the borings. Monitoring wells were installed in three of the borings. The depth to groundwater was measured in each of the wells, and the results are reflected on the boring logs.

Laboratory Analysis

Table A provides a summary of the results of laboratory analysis on soil and groundwater samples selected for testing.

As noted in Table A, residual petroleum hydrocarbons were noted in soil from boring B-10 and boring B-12. No detectable levels of diesel were found in the groundwater samples submitted from MW-10, MW-11, or MW-12. MW-4 was resampled and the results of analysis indicated 6.2 ppm diesel.

CONCLUSIONS/RECOMMENDATIONS

Soil

Based upon observations made during field exploration, along with results of sampling and analysis, it appears that residual petroleum hydrocarbon contamination in soils identified on the property is limited to small localized areas.

In our earlier study we reported a concentration of 420 ppm heavy-oil-range hydrocarbons at 10 feet in boring B-2. Borings B-8 and B-9, placed approximately 10 feet to the north and south of boring B-2 did not reveal detectable levels of petroleum hydrocarbons.

Elevated levels of diesel-range and heavy-oil-range hydrocarbons were discovered in soils at the location of boring B-10 and B-12 during this phase of the study. Heavy-oil-range hydrocarbons from boring B-10 were detected at 93 ppm by EPA Method 418.1 for total petroleum hydrocarbons (TPH). This level is less than the 200 ppm cleanup guideline set in the MTCA Method A criteria. Diesel-range hydrocarbons elevated at 300 ppm were detected in soil from boring B-12. This level does not represent a significant elevation above the cleanup guideline of 200 ppm. Groundwater was not impacted at these two locations.

Groundwater

The diesel-affected groundwater detected at the location of monitoring well MW-4 in our earlier study appears to be a localized occurrence. Groundwater extracted from monitoring wells MW-10, MW-11, and MW-12 did not reveal detectable levels of diesel-range hydrocarbons. The contamination does not appear to extend to these areas.

The introduction to the Model Toxics Control Act, Chapter 173-340 WAC states, "Eliminating all risks at a contaminated site often is not possible. And since any level of exposure to a hazardous substance is assumed to result in some risk, "clean" generally means that a site is cleaned up to the point that contamination no longer poses an unacceptable threat to human health or the environment."

Based on the current use of the site and surrounding area, it does not appear that the affected regions of the property pose an unacceptable threat to human health or the environment. As such, using MTCA definitions, the subject property may be considered "clean." However, as a diligent effort, we recommend that a quarterly monitoring program be implemented to document potential seasonal fluctuations and natural degradation over time.

The monitoring program may be discontinued at a time when three consecutive sampling efforts indicate that petroleum hydrocarbon levels have decreased to below the cleanup guidelines or until a stable or "steady-state" condition has been achieved. The monitoring should include monitoring well MW-4, MW-10, MW-11, and MW-12.

Because the Garden Plaza site has been impacted by vinyl chloride contamination in groundwater from a probable off-site source, we recommend annual resampling of LMW-2D and analysis for vinyl chloride in an effort to monitor the effectiveness of remediation activities at the PACCAR facility to the east.

Monitoring well LMW-6, located in the northwest corner of the site, has not been resampled or analyzed. In 1989, groundwater extracted from LMW-6 contained 56 ppm TPH. We recommended sampling of this well for the current study, but were unable to access the well in a timely fashion. It is still our opinion that it would be prudent to resample this well. We recommend that LMW-6 be resampled during the first round of quarterly monitoring.

LIMITATIONS

This report has been prepared for the exclusive use of Mike Mastro, G & M Investments, and their representatives, for specific application to this site. Our work for this project was conducted in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area, and in accordance with the terms and conditions of our proposal dated November 10, 1993. No other warranty, expressed or implied, is made.

If new information is developed in future site work which may include excavations, borings, studies, etc., Geotech Consultants, Inc. must be retained to reevaluate the conclusions of this report and to provide amendments as required. We accept no responsibility or liability for independent interpretations or opinions formulated by reviewers of this document.

We appreciate the opportunity to be of service on this project and trust that the information provided here will be of value in management and planning efforts. If you have any

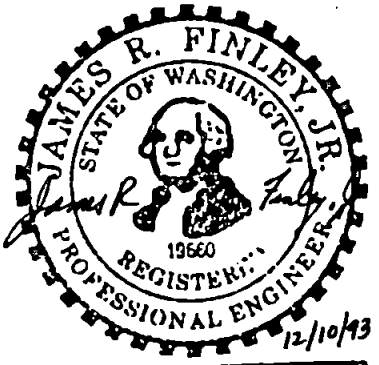
questions or if we may be of further service, please do not hesitate to contact us.

Respectfully Submitted,

GEOTECH CONSULTANTS, INC.

Sean P. O'Brien by RME

Sean P. O'Brien
Environmental Engineer



James R. Finley, Jr., P.E.
Principal

REFERENCES

(1) Hart Crowser, Inc., December 5, 1986. Site Assessment Soil and Groundwater Quality, PACCAR Facility, Renton, Washington. Prepared for PACCAR Defense Systems, J-1639-02.

(2) Rittenhouse-Zeman and Associates, 1989. Environmental Evaluation Boeing Building 7-13, 500 Park Avenue North, Renton, Washington.

(3) Landau Associates, Inc., July 24, 1989. Final Report - Property Assessments; E and H Properties (Renton), Prepared for Boeing Environmental Affairs.

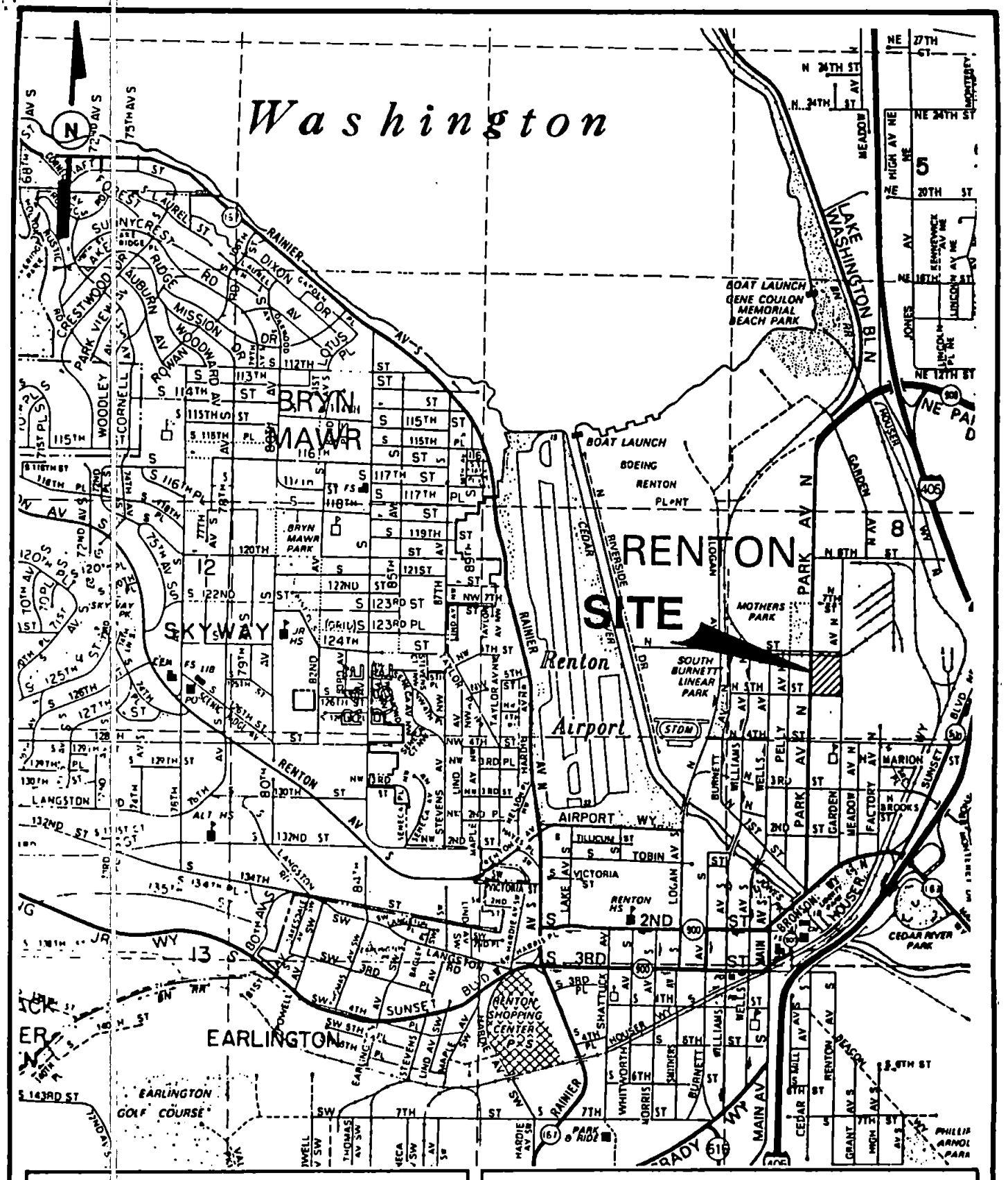
(4) Geotech Consultants, Inc., November 5, 1993, Subsurface Exploration and Testing, Garden Plaza and Fifth and Park Property, 14 pps., 10 Plates, Lab reports.

TABLE A - LABORATORY RESULTS

Sample No.	Medium	Depth	Analysis	Results/Comments
93299-B8-2	soil	10	WTPH-HCID	ND gas, diesel, and oil
93299-B9-2	soil	10	WTPH-HCID	ND gas, diesel, and oil
93299-B10-2	soil	10	WTPH-HCID EPA 418.1	Oil range hydrocarbons 93 ppm TPH
93299-B11-2	soil	10	WTPH-HCID	ND gas, diesel, and oil
93299-B12-2	soil	10	WTPH-HCID WTPH-Diesel	Diesel range hydrocarbons 300 ppm Diesel
93299-MW4	water		WTPH-Diesel	6.2 ppm
93299-MW10	water		WTPH-Diesel	None detected
93299-MW11	water		WTPH-Diesel	None detected
93299-MW12	water		WTPH-Diesel	None detected

Notes:

1) Ppm denotes concentrations in parts per million
2) Ppb denotes concentrations in parts per billion
3) ND denotes non-detectable levels of analyte
4) HCID detection limits
   - 20 ppm gas
   - 50 ppm diesel
   - 100 ppm oil range
5) WTPH-Diesel detection limits 0.5 ppm

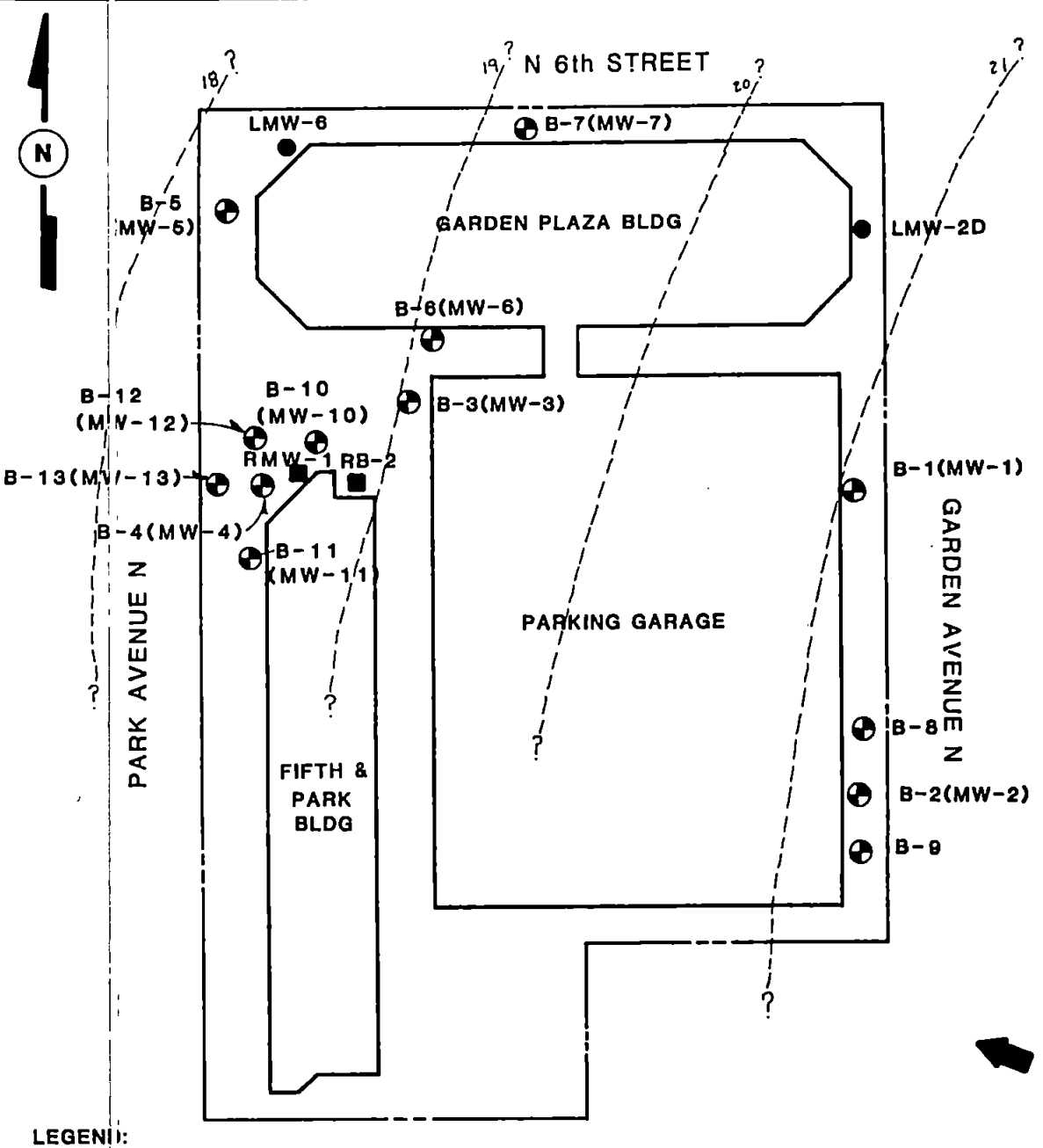


GEOTECH CONSULTANTS

VICINITY MAP

PARK AVENUE N AT N 6th STREET
RENTON, WA

Job No.:	Date:	Logged By:	Plate:
93299E	NOV 1993		1



LEGEND:

- EXPLORATION LOCATIONS BY RZA (1989)
- EXPLORATION LOCATIONS BY LANDAU (1989)
- BORING/MONITORING WELLS BY GEOTECH CONSULTANTS OCT 1993 -FEB 1994
- MEASURED DIRECTION OF GROUNDWATER MOVEMENT BELOW SITE
- APPROXIMATE GROUNDWATER CONTOUR ELEVATION LINES

0 100 200

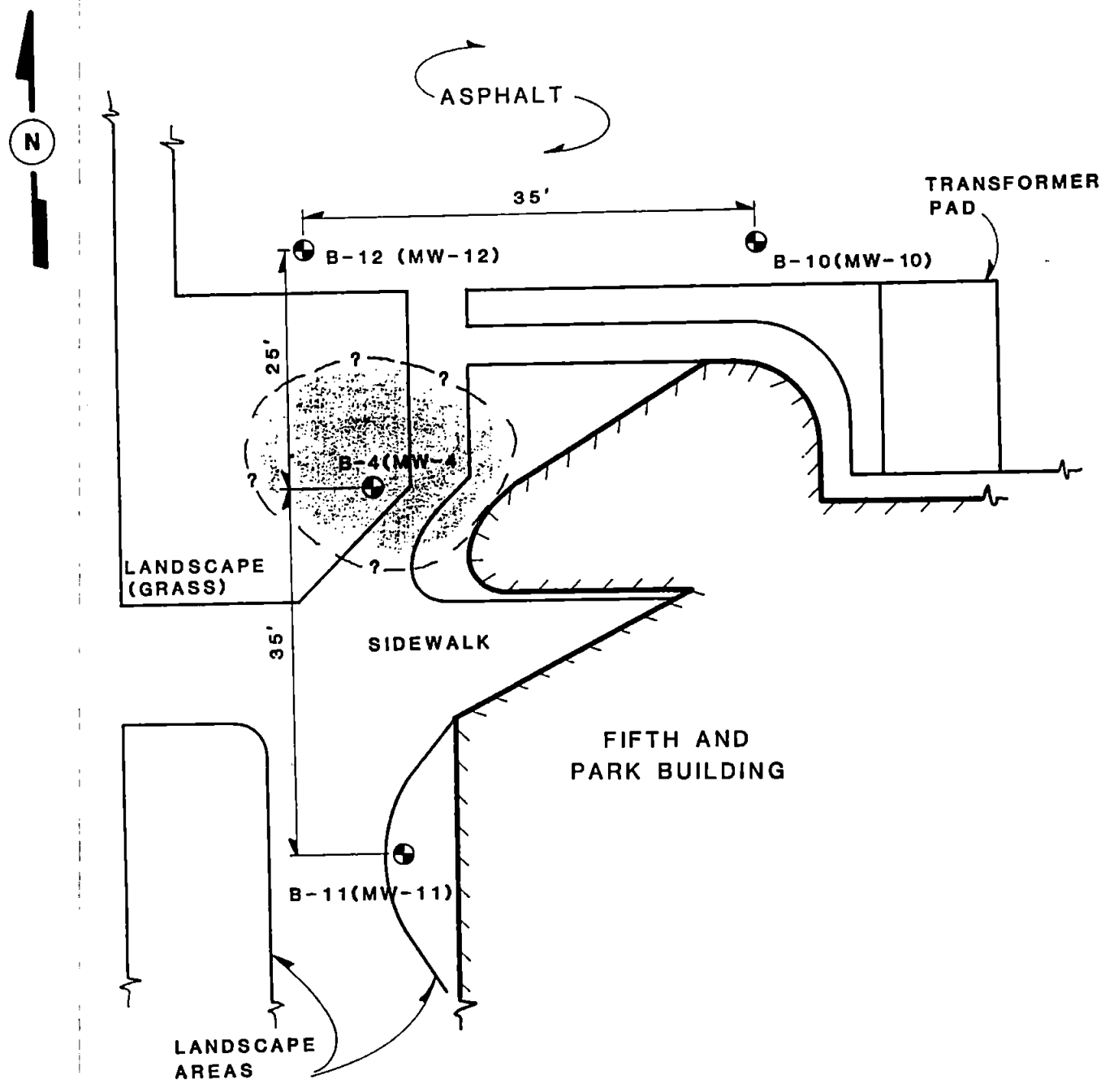
SCALE IN FEET

GEOTECH CONSULTANTS

SITE EXPLORATION PLAN

PARK AVENUE N AT N 6th STREET RENTON, WA

Job No.:	Date:		Plate:
93299E	NOV 1993		2



LEGEND:

APPROXIMATE BORING/MONITORING WELL LOCATIONS

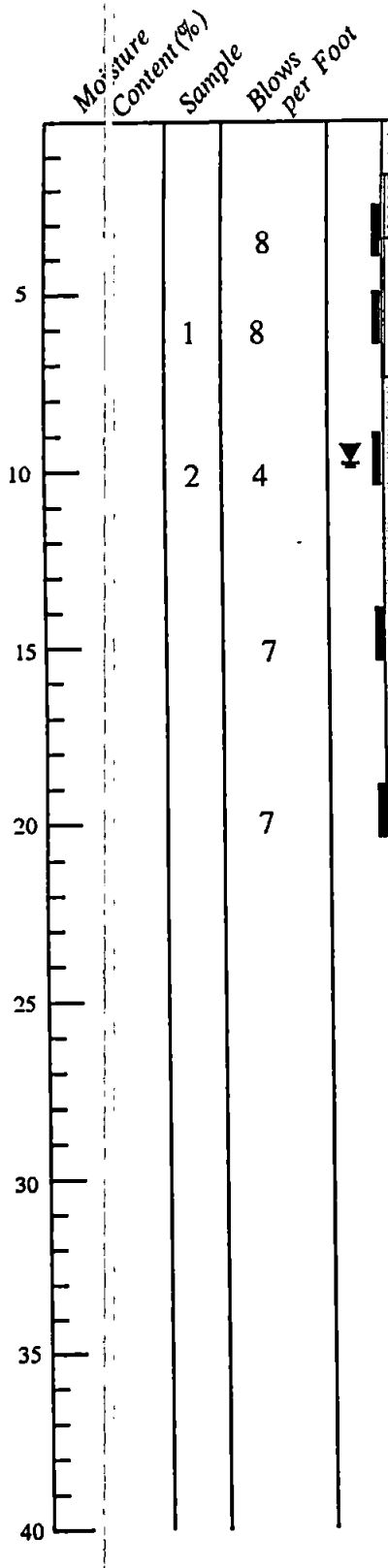
PROBABLE LIMITS OF DIESEL-AFFECTED GROUNDWATER

GEOTECH CONSULTANTS

NORTHWEST CORNER SITE PLAN
PARK AVENUE AT N 6th STREET
RENTON, WA

Job No.:	Date:		Plate:
93299E	DEC 1993	NTS	3

BORING 8



USCS	Description
FILL	Landscape area, construction debris noted (FILL)
SM	Brown, silty SAND, moist, loose (HC < 10 ppm)
ML	Brownish gray mottled with orange, sandy SILT, wet,firm (HC < 10 ppm)
SP SM	Gray, silty, fine grained SAND, wet, very loose (HC < 10ppm)
	-becomes medium grained, less silty (HC < 10ppm)
SM	Gray, silty SAND, wet, loose (HC < 10 ppm)

Test boring was terminated at 20.5 feet below grade on 11-17-93 Groundwater was encountered at approximately 10 feet during drilling.

Note: -HC denotes hydrocarbon concentrations as measured during field work in the headspace of a plastic bag.

-ppm denotes parts per million.

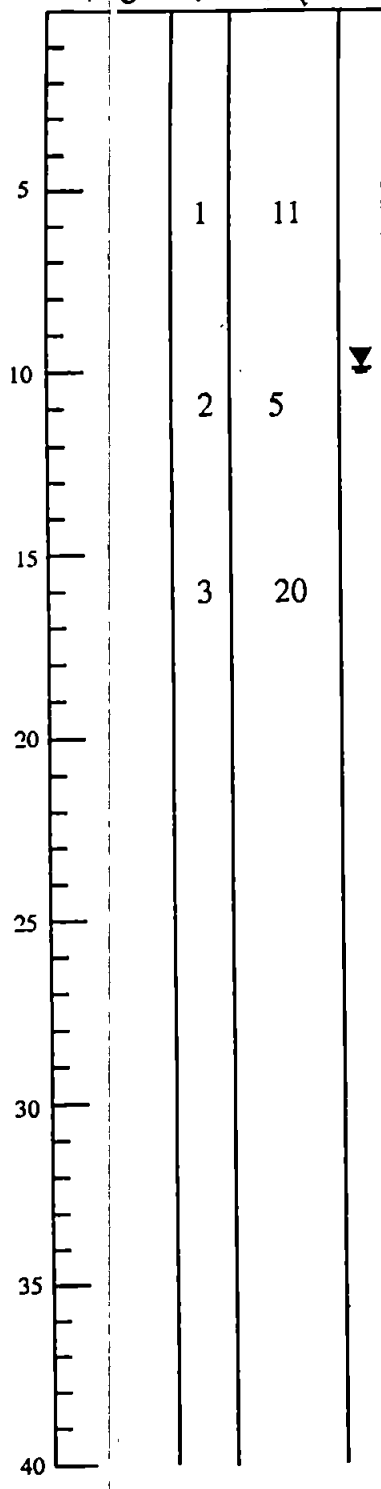
GEOTECH CONSULTANTS, INC.

TEST BORING LOG

PARK AVENUE N. AT N. 6th STREET
RENTON, WA

Job No:	Date:	Logged by:	Plate:
93299E-2	DEC 1993	SPO	4

BORING 9



USCS	Description
	Landscape area
SM	Brown, mottled with orange, silty SAND, moist to wet, loose (HC < 10 ppm)
ML	Gray, sandy SILT, wet, loose (HC < 10 ppm)
	(HC < 10 ppm)
SP	Gray, medium grained SAND, wet, medium dense (HC < 10 ppm)

Test boring was terminated at 16.5 feet below grade on 11-17-93 Groundwater was encountered at approximately 10 feet during drilling.

Note: -HC denotes hydrocarbon concentrations as measured during field work in the headspace of a plastic bag.

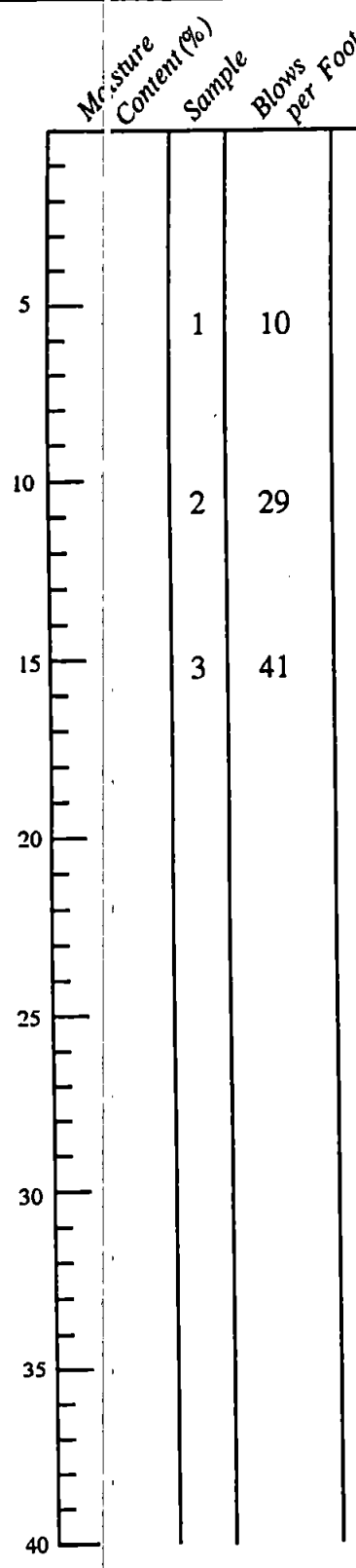
-ppm denotes parts per million.

GEOTECH
CONSULTANTS, INC.

TEST BORING LOG
PARK AVENUE N. AT N. 6th STREET
RENTON, WA

Job No:	Date:	Logged by:	Plate:
93299E-2	DEC 1993	SPO	5

BORING 10 (Monitoring Well 10)



USCS	Description
	Asphalt, concrete, crushed rock base
ML	Tannish brown, SILT, moist, firm
ML	-becomes sandy, moist, loose (HC < 10 ppm)
SM	Gray, silty, fine to medium grained SAND, wet (HC < 10 ppm)
ML SM	Gray, sandy SILT and silty, medium to coarse grained SAND, wet, dense (HC < 10 ppm)
SP	Gray, medium grained SAND, saturated

Test boring was terminated at 25 feet below grade on 11-17-93 and completed as a monitoring well.

Groundwater was encountered at approximately 10 feet during drilling.

Note: -HC denotes hydrocarbon concentrations as measured during field work in the headspace of a plastic bag.

-ppm denotes parts per million.

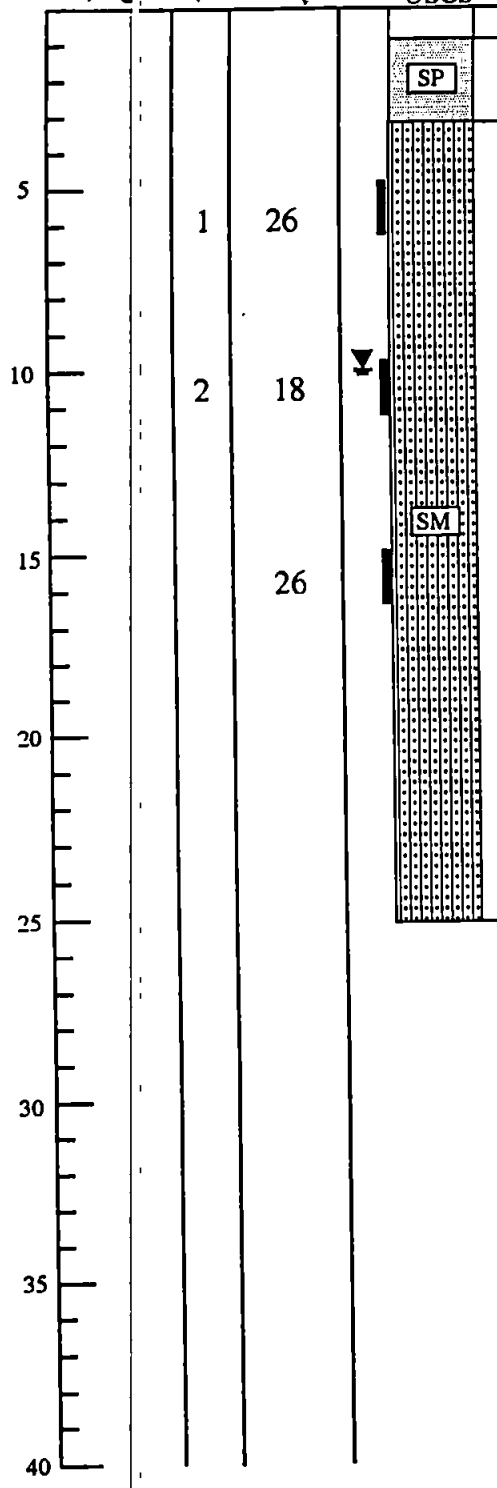
GEOTECH CONSULTANTS, INC.

TEST BORING LOG

PARK AVENUE N. AT N. 6th STREET
RENTON, WA

Job No:	Date:	Logged by:	Plate:
93299E-2	DEC 1993	SPO	6

BORING 11 (Monitoring Well 11)



Test boring was terminated at 25 feet below grade on 11-17-93 and completed as a monitoring well.

Groundwater was encountered at approximately 10 feet during drilling.

Note: -HC denotes hydrocarbon concentrations as measured during field work in the headspace of a plastic bag.

-ppm denotes parts per million.

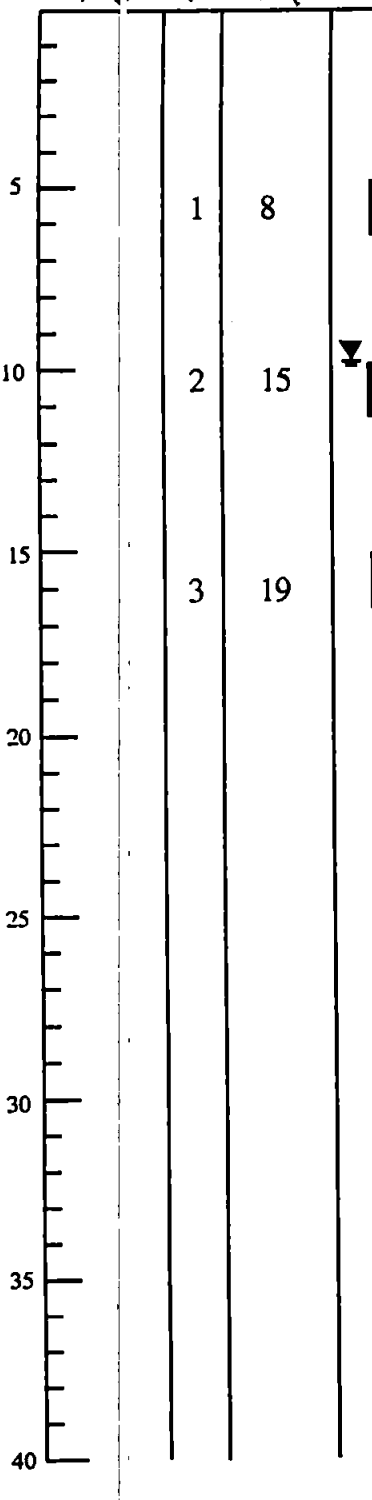
GEOTECH CONSULTANTS, INC.

TEST BORING LOG

PARK AVENUE N. AT N. 6th STREET
RENTON, WA

Job No:	Date:	Logged by:	Plate:
93299E-2	DEC 1993	SPO	7

BORING 12 (Monitoring Well 12)



Test boring was terminated at 25 feet below grade on 11-17-93 and completed as a monitoring well.

Groundwater was encountered at approximately 10 feet during drilling.

Note: -HC denotes hydrocarbon concentrations as measured during field work in the headspace of a plastic bag.

-ppm denotes parts per million.

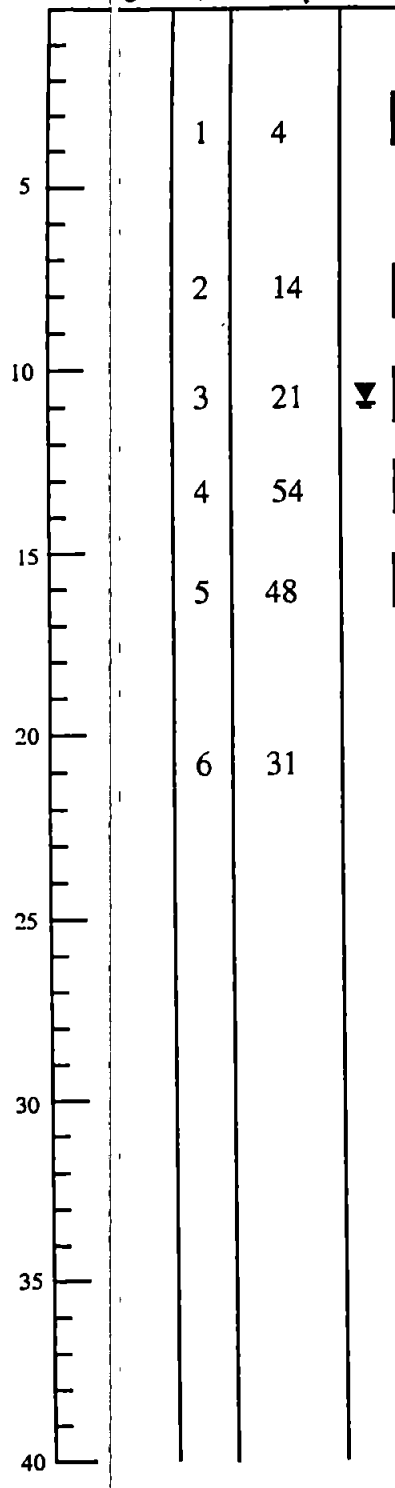
GEOTECH
CONSULTANTS, INC.

TEST BORING LOG

PARK AVENUE N. AT N. 6th STREET
RENTON, WA

Job No:	Date:	Logged by:	Plate:
93299E-2	DEC 1993	SPO	8

BORING 13 (Monitoring well 13)



USCS	Description
FILL	Dark brown, silty SAND with gravel (FILL)
ML	Light gray/brown with orange mottling SILT with scattered organics, non plastic, moist, loose
SP	Light brown SAND with layers of silt, silty gravel and gravel, occasional wood fragments, moist, medium-dense to dense
	-becomes gray

Test boring was terminated at 21.5 feet below grade on 2-22-94 and completed as a monitoring well.

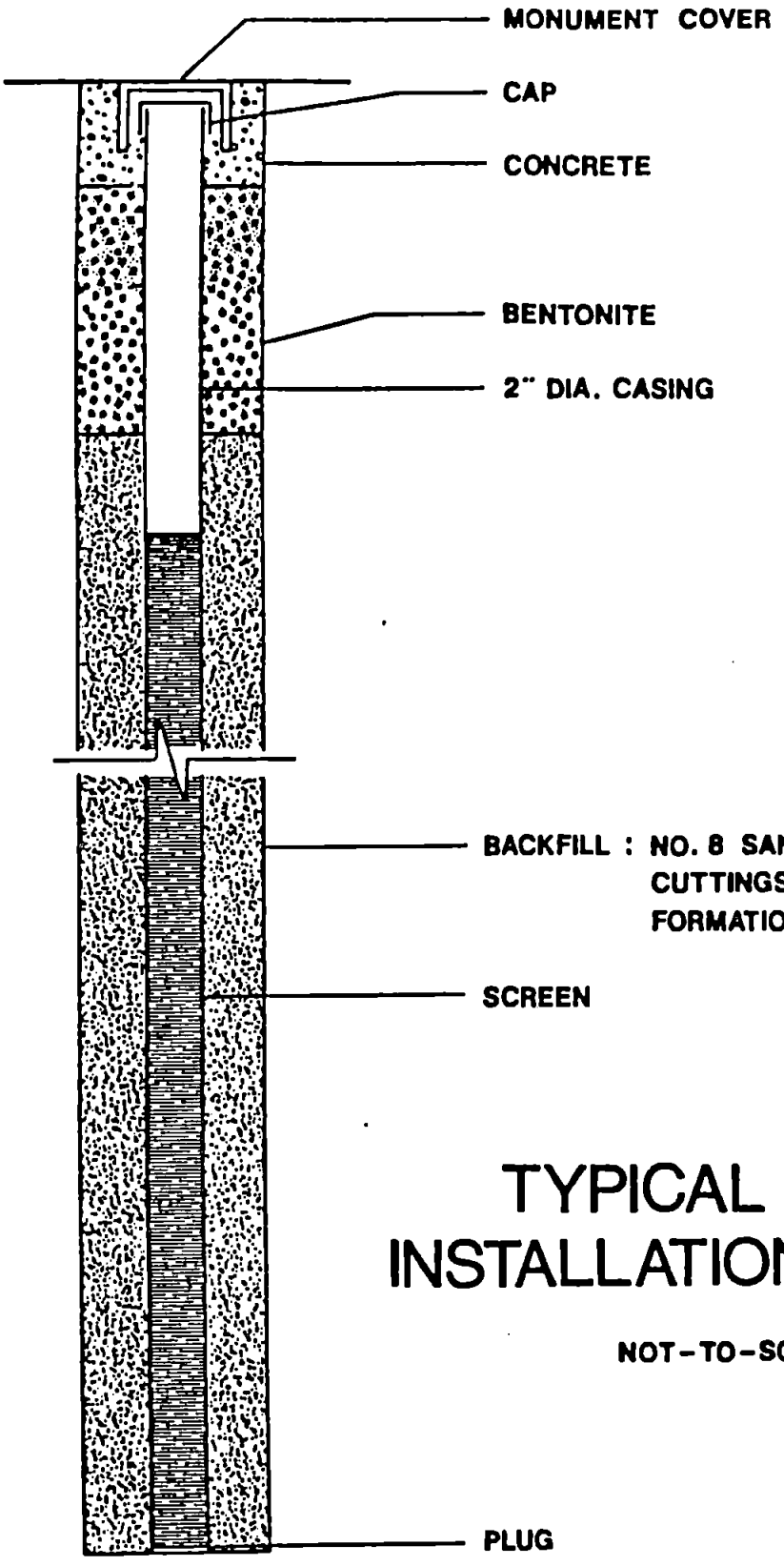
Groundwater seepage was encountered at 11 feet during drilling.

Installed 2 inch diameter well to 20 feet. The bottom 10 feet slotted. Sand packed from bottom to 7 feet. 5 foot bentonite clay seal upper 2 feet concrete.

GEOTECH
CONSULTANTS, INC.

TEST BORING LOG
PARK AVENUE N AT N 6th STREET
RENTON, WA

Job No:	Date:	Logged by:	Plate:
93299EIC	MAR 1994	FC	9



TYPICAL WELL INSTALLATION DESIGN

NOT-TO-SCALE

GEOTECH CONSULTANTS

PARK AVENUE N AT N 6th STREET
RENTON, WA

Job No.:	Date:		Plate:
93299E	NOV 1993		10

APPENDIX

1) Lab reports with Chain of Custody

OnSite
Environmental Inc.

December 1, 1993
Lab Traveler #:11-054

Sean O'Brien
GeoTech Consultants
13256 NE 20th Street, Suite 16
Bellevue, WA 98005

Dear Sean:

Enclosed are the results of the analyses of samples submitted on November 19, 1993 from Project 93299E-2.

We appreciate this opportunity to be of service to you on this project. If you have any questions regarding this report, please feel free to call me.

Sincerely,

Judi T. Colina
Project Chemist

Enclosures

REC 2 1993

14924 NE 31st Circle • Redmond, WA 98052 • (206) 883-3881 • Fax (206) 885-4603

Date of Report: December 1, 1993
Samples Submitted: November 19, 1993
Lab Traveler: 11-054
Project: 93299E-2

Matrix: Soil
Date Extracted: November 19, 1993
Date Analyzed: November 19, 1993

WTPH-HCID

Sample Number	GC Characterization	o-terphenyl Surrogate Recovery
93299-B8-2	<20 ppm Gasoline range hydrocarbons <50 ppm Diesel range hydrocarbons <100 ppm Oil range hydrocarbons	138%
93299-B9-2	<20 ppm Gasoline range hydrocarbons <50 ppm Diesel range hydrocarbons <100 ppm Oil range hydrocarbons	133%
93299-B10-2	Oil range hydrocarbons	144%
93299-B11-2	<20 ppm Gasoline range hydrocarbons <50 ppm Diesel range hydrocarbons <100 ppm Oil range hydrocarbons	137%
93299-B12-2	Diesel range hydrocarbons Oil range hydrocarbons[Q]	120%
Quality Assurance		
Method Blank	<20 ppm Gasoline range hydrocarbons <50 ppm Diesel range hydrocarbons <100 ppm Oil range hydrocarbons	139%

Q-Predominantly oil range hydrocarbons present in the sample.

Date of Report: December 1, 1993
Samples Submitted: November 19, 1993
Lab Traveler: 11-054
Project: 93299E-2

Matrix: Soil
Units: mg/Kg (ppm)
Date Extracted: November 24, 1993
Date Analyzed: November 24, 1993

WTPH-D

Sample Number	Dilution Factor	TPH	o-terphenyl Surrogate Recovery
93299-B12-2	1	300[G]	90%

G-Hydrocarbons in the sample quantified from C12 - C30.

Date of Report: December 1, 1993
Samples Submitted: November 19, 1993
Lab Traveler: 11-054
Project: 93299E-2

Matrix: Soil
Units: mg/Kg (ppm)
Date Extracted: November 24, 1993
Date Analyzed: November 24, 1993

WTPH-D
QUALITY ASSURANCE

	Dilution Factor	TPH	o-terphenyl Surrogate Recovery
Method Blank	1	<25	106%
Sample: 11-068-1	1	1020	F
Duplicate	1	904	F
RPD		12	

	Dilution Factor	TPH	o-terphenyl Surrogate Recovery
Spiked @ 100 ppm			
Spike Blank	1	104	116%
Percent Recovery		104%	
Spike Blank Duplicate	1	98.7	116%
Percent Recovery		99%	
RPD		5.2	

F-Surrogate recovery data not available due to the high concentration in the sample.

Date of Report: December 1, 1993
Samples Submitted: November 19, 1993
Lab Traveler: 11-054
Project: 93299E-2

Matrix: Soil
Units: mg/Kg (ppm)
Date Extracted: November 22, 1993
Date Analyzed: November 22, 1993

WTPH 418.1

Sample Number	Dilution Factor	Total Petroleum Hydrocarbons
93299-B10-2	5	**93**

WTPH 418.1

QUALITY ASSURANCE

	Dilution Factor	Total Petroleum Hydrocarbons
Method Blank	5	<25
Sample: 11-060-2	5	808
Duplicate	5	648
RPD		22

Date of Report: December 1, 1993
Samples Submitted: November 19, 1993
Lab Traveler: 11-054
Project: 93299E-2

Date Analyzed: November 22, 1993

RESULTS OF DRY WEIGHT

Sample Number	% Moisture
93299-B10-2	18
93299-B12-2	10

COMPANY Geotech

PROJECT # 93299E-2

PROJECT NAME 93299E

MANAGER Sean O'Brien

PM JC

OnSite Environmental Inc.

14924 NE 31st CIRCLE, REDMOND, WA 98052
PHONE (206) 883-3881 FAX (206) 885-4603

REQUESTED TURNAROUND?

TRAVELER # 11-054

Dash	Sample Number	Date Sampled	Time Sampled	Type	# Jars	WTPH-HCID	WTPH-G/BTEX	WTPH-G	WTPH-D Ext. (8015)	WTPH-413.1			DRY WEIGHT	Comments
						Analysis Required								call with results and potential further analysis — TNT (Flo)
-1	93299-BE-2	11-17		Soil	1	X								
-2	B9-2	11-17			1	X								
-3	B10-2 (B10-2)	11-18			1	X				X			X	
-4	B11-2	11-18			1	X								
-5	B12-2	11-18			1	X			X				X	
														X Requested by Sean O'Brien 11/22/93 BJ

Submitted Sean P. O'Brien Date _____ Received by Sandra L. Fay Date 11/19/93

Firm _____ Time _____ Firm On-Site Environmental Time 1:00

Submitted _____ Date _____ Received by _____ Date _____

Firm _____ Time _____ Firm _____ Time _____

OnSite
Environmental Inc.

December 1, 1993
Lab Traveler #:11-071

Sean O'Brien
GeoTech Consultants
13256 NE 20th Street, Suite 16
Bellevue, WA 98005

Dear Sean:

Enclosed are the results of the analyses of samples submitted on November 24, 1993 from Project 93299E-2.

We appreciate this opportunity to be of service to you on this project. If you have any questions regarding this report, please feel free to call me.

Sincerely,

Judi T. Colina
Project Chemist

Enclosures

Date of Report: December 1, 1993
Samples Submitted: November 24, 1993
Lab Traveler: 11-071
Project: 93299E-2

Matrix: Water
Units: mg/L (ppm)
Date Extracted: November 29, 1993
Date Analyzed: November 29, 1993

WTPH-D

Sample Number	Dilution Factor	TPH	o-terphenyl Surrogate Recovery
93299-MW4	.02	6.2[Q]	104%
93299-MW10	.02	<.5	90%
93299-MW11	.02	<.5	90%
93299-MW12	.02	<.5	84%

WTPH-D
QUALITY ASSURANCE

	Dilution Factor	TPH	o-terphenyl Surrogate Recovery
Method Blank	.02	<.5	88%
Sample: 93299-MW12	.02	<.5	84%
Duplicate	.02	<.5	79%
RPD		0	

Q-Hydrocarbons in the sample quantified from C12 - C30 as diesel fuel #2.

COMPANY Geotech

PROJECT # 93299E-2

PROJECT NAME 93299E

MANAGER Sean OBrien

PM JC

OnSite Environmental Inc.
14524 NE 31st CIRCLE, REDMOND, WA 98052
PHONE (206) 883-3881 FAX (206) 885-4603

REQUESTED TURNAROUND?

TRAVELER # 11-071

Dash	Sample Number	Date Sampled	Time Sampled	Type	# Jars	WTPH-HCID	WTPH-G/BTEX	WTPH-G	WTPH-D extended range	WTPH-418.1			DRY WEIGHT	Comments
-1	93299 - MW 4	11-24		water	1 liter				X					4 vials
-2	- MW 10								X					
-3	- MW 11								X					
-4	- MW 12								X					

Submitted Sean P. OBrien Date 11-24 Received by [signature] Date 11/24/93

Firm Geotech Consultants, Inc. Time 3:45 Firm On-Site Environmental Time 3:45

Submitted _____ Date _____ Received by _____ Date _____

Firm _____ Time _____ Firm _____ Time _____

Final Report

PROPERTY ASSESSMENTS
E & H PROPERTIES
(RENTON, KENT, AUBURN, DUWAMISH)
KING COUNTY, WASHINGTON

Prepared for

Boeing Environmental Affairs

Prepared by

Landau Associates, Inc.
P.O. Box 1029
Edmonds, WA 98020-1029

July 24, 1989

EXECUTIVE SUMMARY

Property assessments were performed by Landau Associates, Inc. at seven properties (E&H Properties) being considered for purchase by Boeing. The properties are located in south King County, in the cities of Renton, Auburn, Kent, and Tukwila. The properties all contain recently constructed office buildings, currently leased by The Boeing Company.

The assessments focused on review of past and present uses of the properties for information that may suggest potential environmental problems or risks to the subject properties. Our investigation included analyses of historic maps and air photos, review of relevant agency files, review of available previous reports, property reconnaissances, and sampling and testing of soil and ground water (at the four Renton properties).

At three of the properties (Auburn, Kent, and Duwamish), no evidence of significant environmental problems or risks was found. At the four properties in Renton, past usage activities and previous reports information suggest that hydrocarbon releases to soil and ground water may have occurred in the past. In addition, the Renton properties were determined to be located hydrogeologically downgradient of the PACCAR superfund site, where previous investigations have discovered contamination of shallow and deeper ground water.

A Work Plan entitled "Soil and Ground Water Investigation, E&H Properties Assessment, Renton, Washington" was prepared by Landau Associates in June 1989. This plan outlined a field sampling and

laboratory analysis program designed to investigate reported and suspected contamination at the Renton properties.

Soil and ground water sampling and laboratory analyses were conducted in June and July 1989. Results of these investigations confirmed that: 1) the Renton properties are downgradient of the PACCAR site, 2) ground water from one of the seven wells installed for our investigation (LMW-2D) along Garden Avenue North contains vinyl chloride, 3) petroleum hydrocarbons are present in ground water at the Garden Plaza property, and 4) low concentrations of acetone, tetrachloroethene, and bis(2-ethylhexyl)phthalate are also present in soil at isolated locations.

The vinyl chloride concentration encountered in ground water at Well LMW-2D was 45 parts per billion (ppb). The adjacent shallow well (LMW-2S) at this location did not show a detectable level of vinyl chloride. The occurrence of vinyl chloride in ground water beneath the Garden Plaza property is consistent with findings at the PACCAR site.

Petroleum hydrocarbons were found in ground water in the northwest corner of the Garden Plaza property at Well LMW-6, indicating the probable presence of diesel or heating oil. This is consistent with historical site usage (i.e., a heating oil distributor). Neither the full extent of the vinyl chloride or petroleum hydrocarbon presence was determined during our investigation.

Both the vinyl chloride concentration detected in Well LMW-2D and total petroleum hydrocarbons in Well LMW-6 are in exceedance of Federal Environmental Protection Agency (EPA) or Washington

State Department of Ecology (Ecology) criterion or guidelines. Estimation of cleanup costs for these compounds was not performed as part of this study.

Soil samples collected and tested at an area of soil staining north of the cabinet shop located at the northwest corner of Garden Avenue North and North 5th Street showed trace amounts of tetrachloroethene and bis(2-ethylhexyl) phthalate. The low concentrations, and probable limited extent, do not suggest that a serious problem exists at that location.

Because all buildings on the properties are relatively new (all constructed after 1979), it is unlikely that equipment containing PCBs is present, or that asbestos occurs in significant quantities. Accordingly, inspections of the buildings themselves were not performed as part of this study.

Additional field investigation activities are not recommended at this time, except for one additional round of ground water sampling at selected Renton wells to further quantify concentrations presented in this report.

1.0 INTRODUCTION

1.1 PURPOSE AND NATURE OF REPORT

This report presents the results of seven property assessments performed by Landau Associates, Inc. for The Boeing Company (Boeing) through its Environmental Affairs division. The seven subject properties, which are being considered for purchase by Boeing, are located in south King County, Washington. The property assessments were authorized to evaluate potential environmental risk due to the presence of dangerous wastes and/or other potentially hazardous materials. These activities were undertaken by Boeing as part of its due diligence property review, to satisfy the "innocent purchaser" provisions of the Superfund Amendments and Reauthorization Act of 1986 [42 U.S.C. 9601 (35)(A)(i)], and the Washington Model Toxic Control Act (RCW 70.105B).

1.2 SCOPE OF SERVICES

Boeing authorized Landau Associates to provide the required consulting services in early June 1989. The scope of services performed included:

Review Background Information

- Review historical maps and aerial photographs;
- Review underground storage tank records; and
- Review public file information on storage or disposal of dangerous wastes and hazardous materials; including federal, state, and local agency files and databases for information regarding underground storage tanks, hazardous chemical spills, PCB transformers, and nearby dangerous waste sites.

Conduct Property Reconnaissances

- Observe property grounds and structures;
- Interview individuals familiar with the properties and their usage and history;
- Document visible evidence of disposal, spills, or questionable waste management practices; and
- Perform the above on adjacent or nearby properties.

Conduct Field Activities

- Analyze existing environmental information;
- Develop a work plan detailing number and type of samples to be collected, sampling procedures, and the analytical testing program; and
- Implement work plan.

Prepare Assessment Report

- Synthesize collected historical information and develop history of property use;
- Summarize collected agency information;
- Summarize conditions observed during property reconnaissance;
- Summarize field activities, analytical results, and interpretations; and
- Develop and present conclusions and recommendations.

1.3 LOCATION OF PROPERTIES

The properties are all located in south King County. Their general locations are shown on Figure 1.1. Four of the properties are in close proximity to each other within the City of Renton. The other three properties are in the cities of Auburn, Kent, and Tukwila.

The Renton properties are discussed first in Section 2.0, followed by the Auburn property (Section 3.0), the Kent Space Center East property (Section 4.0), and the Tukwila (Duwamish) property (Section 5.0).

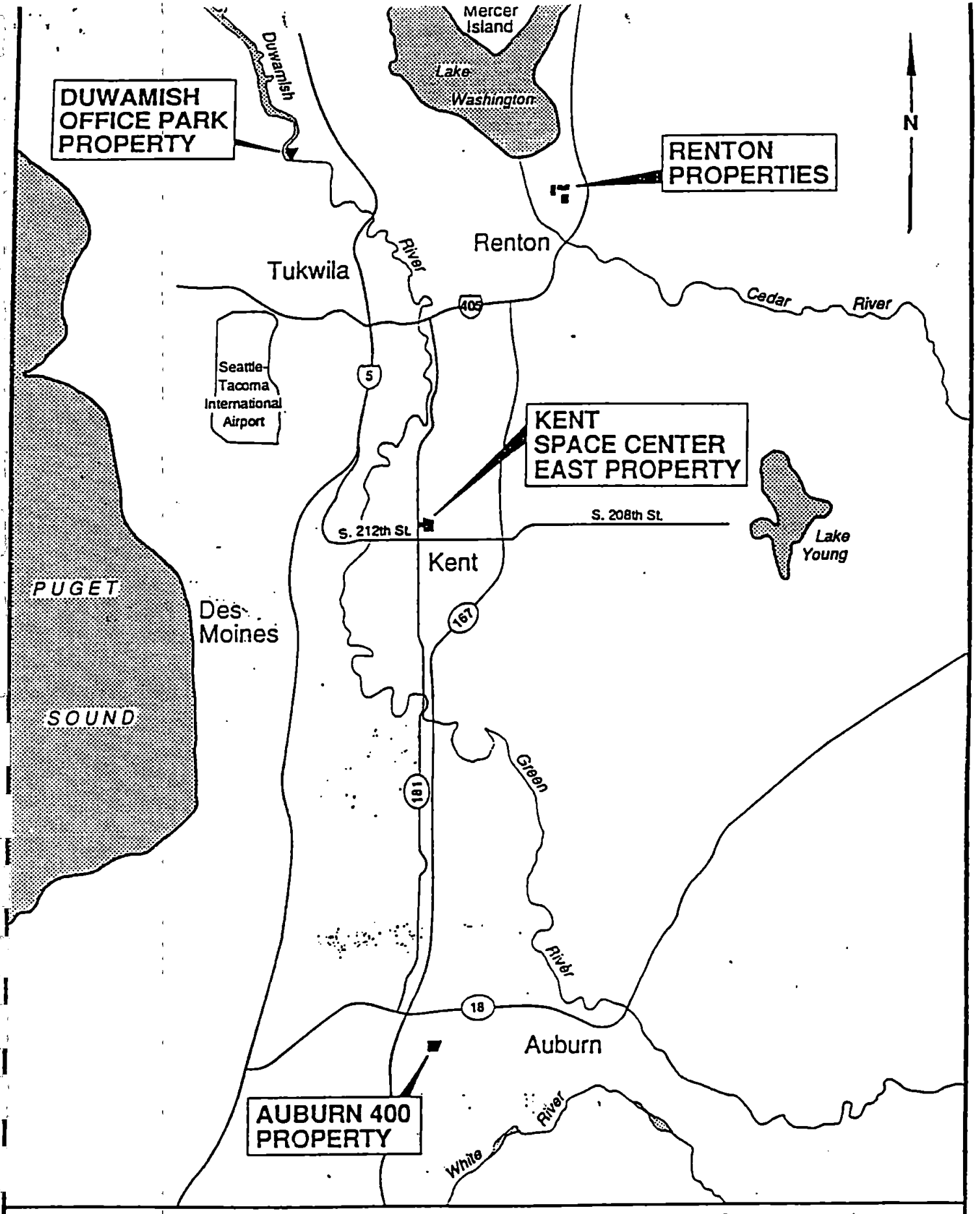
1.4 USE OF REPORT

This property assessment report has been prepared for the exclusive use of The Boeing Company. Our report is intended to provide Boeing with an understanding of present environmental conditions, and potential soil and/or ground water problems. The report is based upon data and information obtained during visits by Landau Associates' personnel to the properties identified herein, and is based solely upon the condition of the property on the dates of these visits, supplemented by information and data obtained by Landau Associates and described herein.

In evaluating the properties, Landau Associates has relied in good faith upon representations and information furnished by the individuals noted in the report with respect to existing property conditions and the historic uses of the property to the extent that they have not been contradicted by site observations or data obtained from other sources. Accordingly, Landau Associates accepts no responsibility for any deficiency, misstatements, or inaccuracy contained in this report as a result of misstatements, omissions, misrepresentations, or fraudulent acts of persons interviewed. In addition, Landau Associates cannot accept liability for any loss, injury, claim or damage arising directly or indirectly from any use or reliance on this report.

Landau Associates has performed the services described in this report in accordance with the generally accepted environmental science practices for property assessments in effect in the Seattle, Washington area at the time the work was performed. This warranty stands in lieu of all other warranties, expressed or implied.

While this report can be used as a guide by Boeing, it must be understood that it is neither a rejection nor an endorsement of the properties. It must also be understood that changing circumstances in the environment and in the use of the property can alter the conclusions and information contained in this report.


DUWAMISH OFFICE PARK PROPERTY
RENTON PROPERTIES
KENT SPACE CENTER EAST PROPERTY
AUBURN 400 PROPERTY
Mercer Island
Lake Washington
Duwamish
River
Renton
Tukwila
405
5
Seattle-Tacoma International Airport
Cedar River
S. 212th St.
S. 208th St.
Lake Young
Kent
PUGET SOUND
Des Moines
167
181
Green River
18
Auburn
White River
N
Source: Kroll Map Company, Metro 4-6.
0 1 2 4
Scale in Miles
LANDAU ASSOCIATES, INC.
Vicinity Map
E & H Properties

2.0 RENTON PROPERTIES

2.1 PROPERTY DESCRIPTIONS

Address

Renton 600 Building
600 North Sixth Street
(Boeing ID: 7-20)
Renton, Washington

BCAG 10-13 Bldg

Fifth and Park Building
500 Park Avenue North
(Boeing ID: 7-13)
Renton, Washington

800 Park Ave N
Boeing Renton Facility

Garden Plaza Building
535 Park Avenue North
(Boeing ID: 7-16)
Renton, Washington

Park Plaza Building
635 Park Avenue North
(Boeing ID: 7-18)
Renton, Washington

Legal Descriptions

Legal descriptions and plat maps for all four properties are included in Appendix A.

General Descriptions

The four properties are all located in Renton, Washington. A Site Plan showing the locations of the Renton properties and associated buildings is presented on Figure 2.1.

Current property developments and use are as follows:

Renton 600 Building Property: Seven-story office building with a two-story parking garage.

Fifth and Park Building Property: Three-story office building.

Garden Plaza Building Property: Seven-story office building with a three-story parking garage.

Park Plaza Building Property: Two separate parcels with a seven-story office building on the west parcel and a three-story parking garage on the east parcel. The structures are connected via a sky bridge which crosses Park Avenue North.

2.2 SETTING

2.2.1 Land Use/Zoning

According to the City of Renton zoning map, the properties are located on land zoned for either business use (Park Plaza Building, Garden Plaza Building, and Fifth and Park Building), or heavy industrial use (Renton 600 Building). Land use in the general vicinity of the property is zoned industrial (Boeing Commercial Airplane Division Renton Facility [BCA-Renton] to the north and PACCAR to the east), and business and residential to the south and west of the properties.

2.2.2 Topography/Drainage

The properties are located in the Cedar River valley; valley sidewalls are located approximately one-half mile to the northeast and one mile to the west. The valley is drained by the Cedar River

which lies one-half mile to the southwest and discharges into Lake Washington. Runoff from the properties enters into the City of Renton storm sewer system and eventually discharges into Lake Washington. The properties are essentially flat, with slight local relief limited to building fill and landscape berms.

Much of the area now occupied by BCA-Renton was once covered by Lake Washington. Rechannelization of the Cedar River and completion of the Chittenden Locks (in Ballard), in about 1917, resulted in a drop in lake level of 8 to 10 feet and a redefinition of river and lake shorelines.

The original natural outlet for Lake Washington, the Black River, once meandered through the Renton airport property and discharged to the Duwamish River near Tukwila. The Cedar River, which once also drained to the Duwamish River (via the Black River) was rechannelized to provide a steady source of fresh water to Lake Washington. The original Black River channel has since been filled along most of its entire length.

2.2.3 Geology/Hydrogeology

Geology

The Cedar River Valley was created during the last ice age by glacial erosion. The erosion and resultant deposition of sediment resulted in the formation of a large delta at the mouth of the Cedar River. The delta deposits consist of coarse sand and gravel near the mouth of the river, and finer sands and silts away from

in the vicinity of the wells. Well field drawdown extends approximately 800 feet from the wells or about 1,500 feet south of the subject properties (CH2M Hill 1984). Studies of drawdown at increased pumping rates did not significantly change the limits of drawdown (RH2 Engineering 1987).

According to the Ecology well logs (Ecology 1989), there are no registered domestic users of ground water within one-half mile of the properties.

In the vicinity of the subject properties, ground water conditions have been studied at the PACCAR facility (Hart Crowser 1986) and BCA-Renton (Landau Associates, Inc. 1989). An aquifer consisting primarily of alluvial and deltaic sands and silts exists beneath these facilities to a depth of at least 100 feet. Ground water occurs between 6 and 12 feet below the ground surface and no major aquitards are present to this 100 foot depth. Ground water flow is generally to the west, towards the Cedar River. Slight seasonal variations occur.

2.3 BACKGROUND INFORMATION

2.3.1 Historical Summary

Information Sources

Property history was developed from:

- 1971 and 1987 Kroll maps;
- 1927 Sanborn map;
- 1940 Metsker map;

- Historic aerial photographs from 1936, 1946, 1960, 1964, 1967, 1970, 1974, 1977, 1981 and 1985;
- City of Renton Building Department records;
- Boeing file information;
- Other consultant reports; and
- General knowledge of the areas history.

Vicinity History

At the turn of the century, land use in the vicinity of the properties was mostly agricultural. Industrialization started soon thereafter with the 1907 development of the PACCAR site as a foundry and heavy equipment manufacturer. Shipping activities and rail transport of coal were established at the southern end of Lake Washington by the early 1930s, and by the early 1940s the Boeing-Renton Plant was producing airplanes.

Most of the vacant or agricultural land near the properties had been converted to residential, commercial, or industrial use by the 1950s. Since then, land use essentially has not changed, although development has intensified.

Property History

Property histories are presented for each parcel as follows (the Garden Plaza and Fifth and Park Building properties are combined):

Renton 600 Building Property: This property was undeveloped until 1936. In 1946, two one-story office buildings with radio

towers (apparently identical to the radio tower building identified at the Park Plaza Building property) were in existence along the western edge of the parcel. From 1960 until 1981, the property was developed as a mobile home park, with two commercial buildings facing North 6th Street. By 1985, the property had been cleared except for a single small building left over from the mobile home park development. The Renton 600 Building was constructed in 1986. Construction of the Renton 600 Building occurred well after the partial ban on use of asbestos in building materials (1977) and use of PCBs in new transformers and capacitors (1979); therefore, these materials should not be contained in this building.

Fifth and Park and Garden Plaza Building Properties: The block that these buildings occupy has had a complex history of development over the last 50 years. The following text highlights the past usage of the properties, and Figure 2.2 shows the approximate locations of past features relative to the present-day buildings.

The block was mostly vacant or agricultural land in 1936, except for a single residence along Park Avenue. A Shell heating oil distributor reportedly existed at the northwest part of the block in 1943 (Rittenhouse-Zeman & Associates, Inc. [RZA] 1989). A possible fuel storage tank with an above ground pipe can be observed on the Renton Boiler Works site (1946 aerial photograph), along with possible surface staining. From 1950 until 1967, the

heating oil distribution facility was operated by Sunset Coal and Oil (RZA 1989).

A 1960 aerial photograph shows two above-ground storage tanks at the west end of what is now the Garden Plaza Building. Possible fuel delivery trucks are noted nearby. In 1968, the fuel storage facility is gone and replaced by a Pacific Northwest Bell (PNB) maintenance building and parking lot.

Bruce's Welding operated a shop on Park Avenue just south of the PNB yard from before 1960 to approximately 1979. In the 1970 aerial photograph, the Renton Boiler Works appears to have been replaced by a towing company lot.

The block remained essentially unchanged between 1977 and 1981, when a cabinet shop (Custom Cabinet Sales) was built in the southeast corner. In 1979, the Fifth and Park Building was constructed, and in 1988; the PNB building was razed and the rest of the property cleared for construction of the Garden Plaza Building and parking garage. Construction of the Fifth and Park and Garden Plaza Buildings, and the parking garage, occurred after the partial ban on use of asbestos in building materials (1977) and use of PCBs in new transformers and capacitors (1979); therefore, these materials should not be contained in these buildings. The 1989 RZA study included an inspection for asbestos and PCBs; their conclusion was that the building is free of these materials.

Park Plaza Building Property: The location of the present day parking garage (east parcel) was the location of a residential duplex from 1929 until 1958 (ECI 1988). From 1958 until 1970, the east parcel was used as a parking lot. A 1970 aerial photograph shows a building on the portion of the property adjacent to Garden Avenue North. According to the 1987 Kroll map, this building was used as a tavern. The (tavern) building was demolished in 1988 for construction of the parking garage.

The west parcel where the Park Plaza Building is now located was undeveloped in the 1936 aerial photograph. By 1946, a one-story building with a radio tower, along with a union and recreation hall, was constructed on the property (ECI 1988). The City of Renton used these buildings and the property as a recreational park and equipment storage yard until late 1987 when the Park Plaza Building was constructed. Construction of the parking garage and Park Plaza Building occurred well after the partial ban on use of asbestos in building materials (1977) and use of PCBs in new transformers and capacitors (1979); therefore, these materials should not be contained in this building.

2.3.2 Agency Information

Information Sources

The following agency contacts were made to identify environmental concerns about the subject properties and vicinity:

- Ecology - Regional Files,
- Ecology - List of Hazardous Waste Cleanup Sites,
- Ecology - Underground Storage Tank Program,
- Ecology - Northwest Regional Inspector Knowledge,
- EPA - CERCLIS List,
- EPA - RCRA Generators List,
- King County Health Department, and
- City of Renton Fire Department.

Property Information

Ecology's underground storage tank (UST) program has records of two heating oil tanks at the Park Plaza Building property. These tanks are registered as having a volume of less than 1000 gallons each and are approximately two years old. Due to their recent age, tank tightness tests were not performed.

The Renton Fire Department has a record of one UST removal in 1987 at the Fifth and Park Building. No contamination or other concerns were noted on the tank removal record. The contents of the tank were not specified.

No other environmentally-related files or concerns about any of the properties were noted in the agency information.

Vicinity Information

The adjacent PACCAR facility is on Ecology's list of cleanup sites, and also on the EPA CERCLIS list. The PACCAR site is discussed in more detail within Section 2.3.3 of this report.

The EPA list of RCRA generators includes numerous facilities which either treat, store, or dispose of hazardous waste in the Renton area. However, only one, Kenny's Auto Rebuild (which is an automotive repair and painting shop located between the Park Plaza parking garage and the Garden Plaza Building [see Figure 2.1]), is close enough to have a potential impact on the properties. This site is also discussed within Section 2.3.3.

2.3.3 Existing Environmental Reports

Property Reports

There are several environmental reports concerning the subject properties. The Park Plaza property received an environmental audit conducted by Earth Consultants, Inc. in 1988 (ECI 1988). The audit concluded: "Based on our review of the development and use history, results of (our) geotechnical study and examination of existing conditions, no evidence exists that hazardous, toxic or dangerous substances are present on the site in quantities or concentrations exceeding normal background levels for the region."

The Garden Plaza Building and adjacent parking garage property were the subject of a preliminary environmental evaluation by ECI

(ECI 1988a). The environmental evaluation was conducted in conjunction with a geotechnical investigation for the Garden Plaza Building (prior to its construction). Samples of soil were obtained from two borings, and samples of water were obtained from three borings drilled during the ECI studies. The soil samples were analyzed for oil and grease and total petroleum hydrocarbons (TPH). The ground water samples were analyzed for benzene, toluene, and xylenes (BTX), and gasoline/diesel content.

One ECI soil sample from the center of the Garden Plaza Building contained 1,200 ppm TPH, which is above the Ecology (draft) cleanup guideline of 200 parts per million (ppm). The ECI ground water samples from the northeast and northwest corners of the building area contained 4.0 and 20.0 ppm diesel, respectively. The 20.0 ppm diesel concentration is also above Ecology's (draft) cleanup guideline of 15 ppm. The ECI report concluded: "Based on our review of the historical data, geotechnical study results, and preliminary chemical analysis, it is our opinion that any contaminants presently existing on the site represent isolated, relatively small volume spills which are limited in extent."

The Fifth and Park Building recently received an environmental evaluation by Rittenhouse-Zeman & Associates, Inc. (RZA 1989). The RZA evaluation involved drilling nine soil borings around the building and installing one ground water monitoring well (MW-1, Figure 2.1) near the building's northwest corner. A ground water sample from the monitoring well was found to contain 13 ppm TPH.

No volatile or semi-volatile hazardous substance list compounds were detected in the ground water sample.

Two soil samples from one RZA boring at the north side of the building near the monitoring well indicated TPH at 4,700 and 1,300 ppm. No PCBs, total halogens, or EP toxicity metals were detected above Federal Hazardous Waste criteria. The RZA report concluded: "It appears that shallow soils and ground water on the subject property have been impacted by petroleum product migration from former sites of nearby fuel distributors or service station operations located to the north or northwest." not likely due to flow direction.

Vicinity Reports

Environmental reports concerning sites in the immediate vicinity of the E&H properties are limited to the PACCAR facility. The PACCAR site has been designated as a Superfund site by the EPA; Ecology has been designated as the lead agency for the site investigation and cleanup. The PACCAR property occupies 82 acres to the east of the Renton E&H properties. The facility has been in operation since 1907 as a foundry and manufacturer of heavy transportation equipment. The facility closed in 1988 and is presently partially dismantled. Relevant points from a summary report are presented below (Hart Crowser 1986):

- Potential sources of contaminants were identified as spills and tank leaks from above or below ground storage tanks containing fuels and solvents. Also, fill materials containing heavy metals were deposited on the site, as well as PCB-containing transformers.

- Site soils contain elevated levels of heavy metals including lead, chromium, nickel, zinc, arsenic, barium, copper and cadmium. Site soils also contain elevated levels of polynuclear aromatic hydrocarbons (PAHs) and low concentrations of PCBs.

- Site ground water in both shallow wells (less than 20 feet) and deep wells (greater than 25 feet) contain volatile and semi-volatile compounds and metals. Common volatile compounds detected include benzene and vinyl chloride; common semi-volatile contaminants include PAHs, chlorinated benzenes and phenolic compounds. In addition, arsenic was detected in ground water in both shallow and deep wells at concentrations exceeding the maximum contaminant level (MCL).

- Pumping from the City of Renton well field is not thought to be effecting the migration of contaminants from the PACCAR site.

- The extent of offsite migration of contaminants has not been determined.

2.4 SITE INVESTIGATIONS

2.4.1 Site and Vicinity Reconnaissance

Each of the four properties, and adjacent properties, were inspected by Landau Associates personnel on June 9, 1989. Observations were made concerning property uses and features of environmental interest. The reconnaissance was documented by field notes, video camera, and photographs.

No environmental concerns were noted on any of the four properties. All buildings are new and appear well maintained. The following environmental concerns were noted in the vicinity of the properties (see Figure 2.1):

- Walt's Automotive (located at the southeast corner of Burnett and North 6th Street): This facility has two gasoline pumps which appear to be fed by underground storage tanks. The City of Renton Fire Department was called on this matter and stated that the tanks had been removed in the last month and no contamination was noted during removal (Gordon 1989).

- Gary's Automotive and B & L Best Automotive (both located on Park Avenue across from the Garden Plaza and Fifth and Park Buildings): These facilities have the potential for petroleum product releases, but are located hydrogeologically down-gradient or cross gradient from any of the properties. The Renton Fire Department stated that Gary's Automotive is a "very clean operation" (Gordon 1989).

- Renton School District Maintenance and Bus Storage Yard (located immediately south of the Fifth and Park Building): According to Ecology (UST program), the school district facility has one UST. The facility is located hydrogeologically cross gradient to the Fifth and Park Building.

- Kenny's Auto Rebuild (located at the northeast corner of Park Avenue North and North 6th Street): This facility is a listed RCRA generator of dangerous waste. A 55-gallon drum labeled "hazardous waste" was observed in the rear of the facility. The drum did not have any containment structure and spillage of what appeared to be paint lacquer was noted on the side of the drum. It is possible that past and present operations from this facility have caused releases of paint wastes or other substances to the soil and/or ground water.

- Custom Cabinet Sales (located at the northwest corner of Garden Avenue North and North Fifth Streets): Custom Cabinet Sales is a cabinet manufacturer and is located immediately upgradient of the Fifth and Park Building. A drum storage area was noted on the north side of the building. The drums were labeled as containing "Unicoat Sealant". White staining from what appears to be runoff from the drum storage area was observed on a patch of soil approximately 50 square feet in size. This white staining extended onto the Garden Plaza property. In addition, a petroleum hand pump was observed in the front parking lot of the cabinet shop. The Renton Fire Department reported that an UST on the Custom Cabinet Sales site contained diesel fuel, but had recently been purged dry and will be removed soon, reportedly after the tenants lease (Custom Cabinet Sales) expires (Gordon 1989).

- PACCAR: As noted earlier, the PACCAR facility is located east of Garden Avenue North. Section 2.3.3 contains a summary of conditions at the PACCAR facility.

2.4.2 Sampling and Testing

Sampling Program

A total of seven monitoring wells, including one well point, were installed at five locations on the properties during the period of June 29 through July 7, 1989. Ground water samples and water level measurements were obtained from each well and from a pre-existing well on BCA-Renton property. Subsurface soil samples were obtained from each boring and selected samples were submitted for analyses. Two soil samples were submitted for analyses from the area of white staining observed north of Custom Cabinet Sales.

Monitoring well and soil sample locations are presented on Figure 2.1. Appendix B contains the boring logs and well as-builts. Appendix C contains a description of well installation and sampling procedures, and Appendix D contains copies of the chain-of-custody forms. Laboratory reports are contained in Appendix E.

Field Observations

Subsurface materials encountered during drilling consist primarily of fine sands and silts, with layers of peat and gravel. No unusual fill material was noted, except for metal debris in Boring LMW-1S. No unusual odors or sheens were noted on any of the soil samples obtained. Field screening on freshly obtained samples with a Photovac TIP photoionization meter (10.2 eV lamp, calibrated to isobutylene) did not indicate above background readings, except on two samples in which readings of 2 to 3 ppm above background

were noted. These two samples were from LMW-1D at a depth of 32.5 feet and from LMW-2D at a depth of 8.5 feet. The two samples were submitted for volatile organic analysis in addition to total petroleum hydrocarbons.

The TIP meter also registered readings of 3 to 10 ppm above background during installation of the casing for Well Point LMW-6. A petroleum hydrocarbon odor was noted during ground water sampling at this location. No sheen was noted on the purge water or sample.

At the time of sampling, stains were no longer visible at the surface soil sampling location (No. 3) north of the cabinet shop, and no visible or olfactory signs of contamination were noted during sampling procedures.

Analytical Results

Results of the laboratory analyses are summarized in Tables 2.1 through 2.3. The TPH results are presented in Table 2.1, and volatile and semi-volatile analyses are presented in Table 2.2. Selected ground water samples were analyzed for priority pollutant metals, these results are presented in Table 2.3. Because field investigations encountered no sludges or unusual fill material, no soils were analyzed for metals.

Summary of Results

Total petroleum hydrocarbons (TPH) were detected in only one soil sample (in Boring LMW-7, east of the Park Plaza Building).

This sample was taken from a depth of 5.5 to 7.0 feet and contained 160 ppm TPH, which is below the current Ecology (draft) cleanup guideline of 200 ppm. The occurrence probably represents an isolated event as deeper samples from the same boring contained no TPH, and no TPH was detected in the ground water sample from that monitoring well.

The ground water sample from Well LMW-6 was the only well with detectable levels of TPH. The location of Well LMW-6 is close to the former location of the heating oil distributor (see Figure 2.2); thus the TPH in this well may be related to past spillage of heating oil. The water sample from Well LMW-6 did not contain any detectable volatile organic compounds (VOCs), which should be present if the petroleum source was a lighter fuel (i.e., gasoline). In addition, reports of prior analyses of ground water at the Garden Plaza Building indicate "diesel" constituents (ECI 1988a).

The volatile organic analyses revealed methylene chloride at low concentrations in two soil samples; one from Boring LMW-2D, and the surface sample from the soil staining area noted near the cabinet shop. In addition, the cabinet shop surface sample contained low concentrations of tetrachloroethene. Neither of these constituents were detected in the deeper soil sample taken at the cabinet shop location. It should be noted that methylene chloride is a common laboratory contaminant; however, it was not

detected in the laboratory blanks associated with analyses of these two samples (see Appendix E).

Acetone was reported in two subsurface soil samples (LWM-1D at 32.5 feet and LMW-2D at 8.5 feet) and, although also a common laboratory contaminant, was not detected in the associated laboratory blanks. The levels that were detected were elevated above what is typical of laboratory or bottle contamination (no solvents were used in the field). If these acetone values do represent true field concentrations, because of the high solubility of acetone in water, some acetone would be expected in ground water samples from those two wells. However, no acetone was noted in these ground water samples.

Vinyl chloride was detected in the ground water sample from Well LMW-2D at a concentration of 45 parts per billion (ppb), which is similar in values reported at the PACCAR site. The present drinking water MCL for vinyl chloride is 2 ppb. In addition, a low concentration of chloroform was reported in the same sample. Chloroform has not been reported as a significant contaminant at the PACCAR site.

The semi-volatile constituent bis(2-ethylhexyl)phthalate was detected in the two soil samples from the cabinet shop and from ground water samples (LWM-2S and LMW-4). This compound is often found in urban areas and is a common laboratory contaminant at the trace concentrations reported for these samples.

The analytical data for priority pollutant metals received to date indicates ground water under the properties has not been adversely affected by metallic sources of contamination. Metals that were detected above the laboratory detection limit include arsenic, lead, nickel, and zinc; however, concentrations are well below the MCL. Although arsenic was detected in four out of five samples, the concentrations are an order of magnitude less than those detected at PACCAR, and thus may reflect background conditions. Metals results for antimony and thallium were not available at the time of this report. The data for these two metals will be provided in a supplemental letter or report.

Ground Water Elevations

Following completion of well installation, the static water level in each well was measured and the elevation of each well surveyed. Table 2.4 presents the ground water elevation data; Figure 2.3 shows ground water elevation contours in the vicinity of the E&H properties. The data indicate that ground water flow is in a westerly direction, as indicated by previous studies, and confirms PACCAR as being upgradient from the E&H properties.

A slight depression of the water table is evident near Well LMW-6 (approximately 3 feet lower than expected for that location). The cause of this may be the storm sewer line located approximately 20 feet north of the well point. The sewer line runs along North 6th Street and is encased in a gravel backfill (Lumbert 1989). The

gravel backfill may act to dewater the sewer line and may be causing a local drawdown effect. The sewer line slopes to the west and discharges to a METRO lift station at the corner of Logan and Burnet, and eventually discharges to the Cedar River.

The ground water elevations for the deep monitoring wells (LMW-1D and 2D) are slightly lower than ground water elevations measured in the adjacent shallow wells. This reflects a slight downward gradient between the two screened intervals.

2.5 CONCLUSIONS AND RECOMMENDATIONS

Conclusions:

- No evidence was found to suggest any releases of dangerous wastes or hazardous materials from current usage of any of the properties.
- The properties were found to be located hydrogeologically downgradient of the PACCAR site where elevated levels of arsenic and vinyl chloride have been detected in shallow (<20 feet) and deep (25 to 40 feet) ground water monitoring wells along Park Avenue North.
- Because of the recent construction of these buildings (1979 to 1988), neither asbestos nor PCBs should be contained in the structures. The Fifth and Park building was constructed in 1979 and may have a somewhat higher possibility of containing these materials; however, a building survey by Rittenhouse Zeman & Associates (RZA 1989) did not reveal the presence of either of these two substances.
- For the Renton 600 and Park Plaza properties:
  - No evidence was found to suggest that releases of dangerous wastes or hazardous materials occurred from (historical) uses of these properties.
  - Soils and ground water sampling on these properties indicate no significant levels of any of the parameters analyzed (TPH, VOCs, semi-volatiles).
- For the Fifth and Park and Garden Plaza properties:

- Review of historical uses of these properties revealed sources of potential releases of hydrocarbons.

- Recent investigations reported detections of petroleum hydrocarbons in subsurface soil and ground water beneath the properties.

- No TPH in exceedance of Ecology (draft) guidelines was found in soil samples taken from the properties during this investigation. TPH was found in ground water only at Well Point LMW-6, which is located at the northwest corner of the Garden Plaza property, near where a previous investigation had reported finding diesel fuel in ground water. Definition of the extent of hydrocarbons in ground water in the vicinity of the Garden Plaza Building would require additional investigation.

- Ground water flow in the area of Well LMW-6 is generally in a westerly direction; however, a nearby storm sewer line may locally influence the rate and direction of movement.

- In Well LMW-2D, vinyl chloride was detected at 45 ppb, which is similar to levels found at the PACCAR site. This suggests that PACCAR contamination may have migrated beneath the Garden Plaza property, but may be limited to the deeper aquifer. The extent of this migration is not known.

- Significant surface soil contamination (0 to 2 feet) was not encountered on the parking garage property north of Custom Cabinet Sales.

Recommendations:

o Analytical results for VOCs are not conclusive because sampling occurred almost immediately after well installation which may affect the quality of the sample. For this reason, we recommend verification of these results through an additional round of ground water sampling at a later date.

o Drum handling procedures at Custom Cabinet Sales should be monitored periodically. If future releases occur on or near Boeing property, action should be taken to mitigate the release and assure that future releases do not occur.

o The physical condition of the monitoring wells on the subject properties should be periodically checked. Any damage should

be immediately repaired. Wells which are no longer needed must be properly abandoned per WAC 173-160.

- Installation details concerning the two underground storage tanks at the Park Plaza Building should be reviewed for compliance with current UST regulations. The two tanks should also be added to Boeing's tank inventory records.

- It is also recommended that the City of Renton UST coordinator be contacted after removal of the UST at Custom Cabinet Sales. If a release has occurred, it should be determined if Boeing property has been impacted.

Other:

- Results of analyses for the metals antimony and thallium in ground water were not available at the time of report preparation. These results will be submitted when they become available.

TABLE 2.1
TOTAL PETROLEUM HYDROCARBONS (TPH) IN
SOIL AND GROUND WATER
RENTON PROPERTIES

Soil Samples		Ground Water Samples	
Well Identifier and Sample Depth(a)	TPH(b) (ppm)	Well Identifier	TPH(b) (ppm)
		LMW-1S	ND
LMW-1D/5.5	ND		
LMW-1D/8.5	ND		
LMW-1D/32.5	ND		
		LMW-2S	NA
LMW-2D/5.5	ND		
LMW-2D/7.0	ND		
LMW-2D/8.5	ND		
LMW-2D/32.5	ND		
LMW-4/4.0	ND	LMW-4	ND
LMW-4/5.5	ND		
LMW-4/7.0	ND		
		LMW-6	56
LMW-7/5.5	160	LMW-7	ND
LMW-7/7.0	ND		
LMW-7/12.5	ND		
		HC-10-71-C	ND
		Equipment Blank #1	ND
		Equipment Blank #2	ND

ND = Not detected (less than 20 ppm [soil]; less than 0.5 ppm [water]).
NA = Not analyzed.

NOTES:
a) Sample ID for soil samples is the boring number and beginning of sample interval. For example, LMW-1D/5.5 is the sample from Boring LMW-1D beginning at a depth of 5.5 feet. The sample interval is 1.5 feet.
b) TPH was determined by EPA method 418.1.

TABLE 2.2
SUMMARY OF DETECTED VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUNDS IN SOIL AND GROUND WATER, RENTON PROPERTIES

Well Identifier and Sample ID	Medium	Volatile Organics Compounds (VOC)(a) Methylene Chloride (ppb)	Acetone (ppb)	Vinyl Chloride (ppb)	1,1-Dichloro-ethene (ppb)	Tetra Chloro-ethene (ppb)	Chloroform (ppb)	Semi-Volatile Organics (ABN)(a) Phthalates (Total) ppb
LMW-1S	Water	<1	<5	<1	<1	<1	<1	NA
LMW-1D	Water	<1	<5	<1	<1	<1	<1	NA
LMW-1D/32.5	Soil	<2	82	<2	<2	<2	<2	
LMW-2S	Water	<1	<5	<1	<1	<1	<1	3
LMW-2D	Water	<1	<5	45	<1	<2	1	NA
LMW-2D/8.5	Soil	4	51	<2	<2	<2	<2	NA
3S/0.0	Soil	4	<9	<2	<2	6	<2	1868
3S/2.0	Soil	<2	<10	<2	<2	<2	<2	130
LMW-4	Water	<1	<5	<1	1	<1	<1	5
LMW-6	Water	<1	<5	<1	<1	<1	<1	NA
LMW-7	Water	<1	<5	<1	<1	<1	<1	NA
HC-10-71-C	Water	<1	<5	<1	<1	<1	<1	NA
Equipment Blank #1		<1	<5	<1	<1	<1	<1	NA
Equipment Blank #2		<1	<5	<1	<1	<1	<1	NA

NOTES:
NA = Not analyzed

a) VOCs were determined by EPA method 8240. ABNs were determined by EPA method 8270.
b) Sample ID for soils is the boring number followed by the beginning of the 1.5' sample interval, except for Sample 3 which included a 0.5' sample interval.

TABLE 2.3
SUMMARY OF DETECTED PRIORITY POLLUTANT METALS IN GROUND WATER,
RENTON PROPERTIES

Analyte	Monitoring Well Identifier LMW-1S ppb	LMW-1D ppb	LMW-2S ppb	LMW-2D ppb	LMW-4 ppb	Equipment Blank ppb	MCL(1) ppb
Arsenic	10	5	9	<5	8	<5	50
Antimony(2)	NA	NA	NA	NA	NA	NA	None
Cadmium	<1	<1	<1	<1	<1	<1	10
Chromium	<1	<1	<1	<1	<1	<1	50
Copper	<1	<1	<1	<1	<1	<1	None
Lead	<5	5	<5	<5	<5	<5	50
Mercury	<1	<1	<1	<1	<1	<1	2
Nickel	<2	2	4	<2	<2	<2	None
Selenium	<5	<5	<5	<5	<5	<5	10
Silver	<1	<1	<1	<1	<1	<1	50
Thallium(2)	NA	NA	NA	NA	NA	NA	None
Zinc	16	15	14	28	4	6	None

NOTES:

(1) MCL = Maximum Contaminant Level, EPA Primary Drinking Water Standards (Source: 40 CFR 141)
(2) Results for antimony and thallium not available at the time of this report. This data will be provided as a supplement.

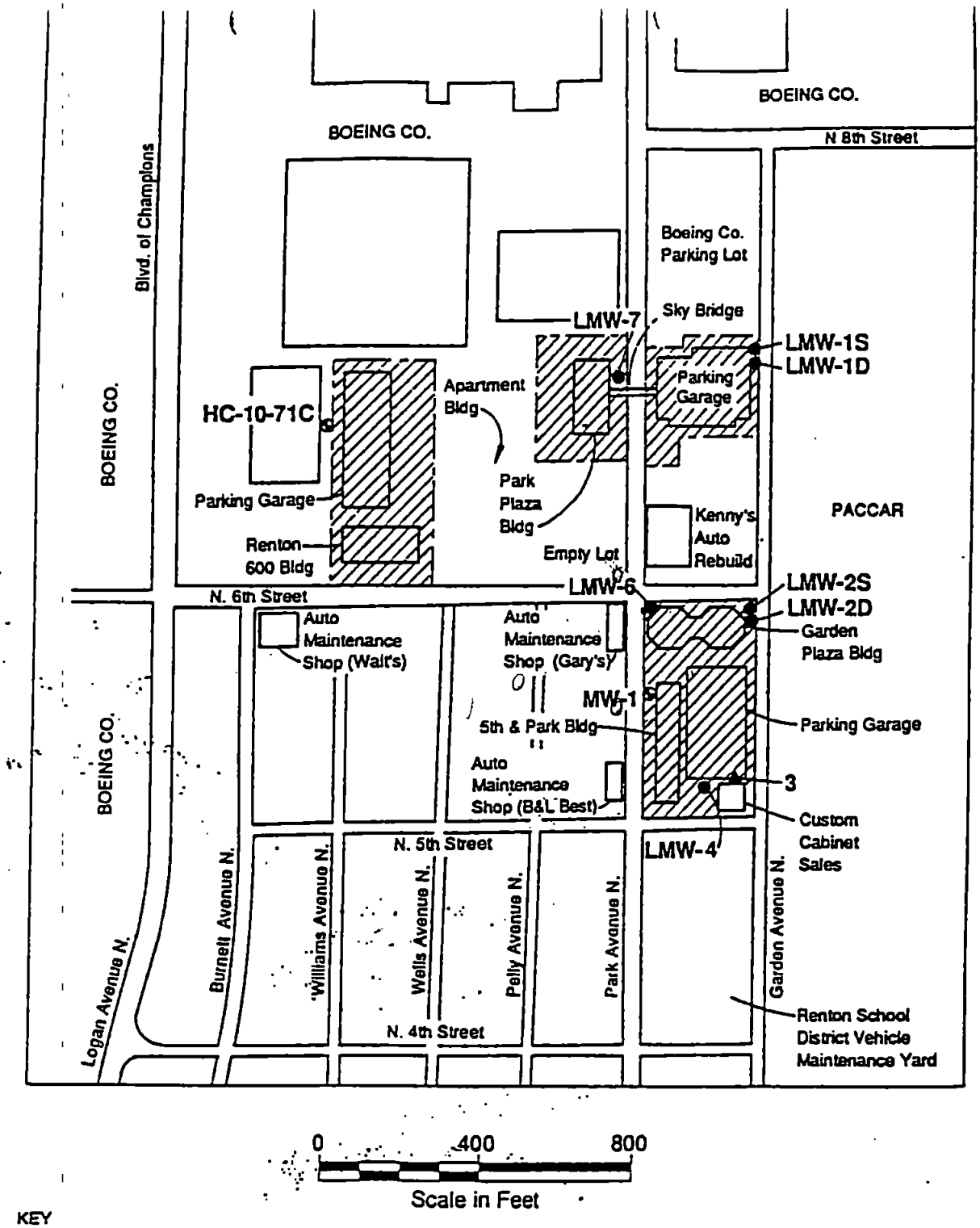
NA = Not available
ppb = parts per billion

TABLE 2.4
GROUND WATER ELEVATION DATA
RENTON PROPERTIES

Well Identifier	Elevation of Top of Well Casing(a)	Depth to Water(b)	Water Elevation 7/7/89
LMW-1S	28.30	6.38	21.92
LMW-1D	28.26	6.42	21.84
LMW-2S	27.13	5.48	21.65
LMW-2D	27.21	6.31	20.90
LMW-4	24.61	3.84	20.77
LMW-6	30.51	10.95	19.56
LMW-7	27.74	7.00	20.74
HC-10-71C	27.14	8.41	18.73(c)

NOTES:

a) Elevations and depths are in feet and refer to the City of Renton NGVD datum (8th and Park survey reference point). Refer to Appendix B for well installation details.
b) Depth to water is measured from top of well casing.
c) Measured on July 12, 1989.



KEY

Boeing Company Leased Property

Property Boundary

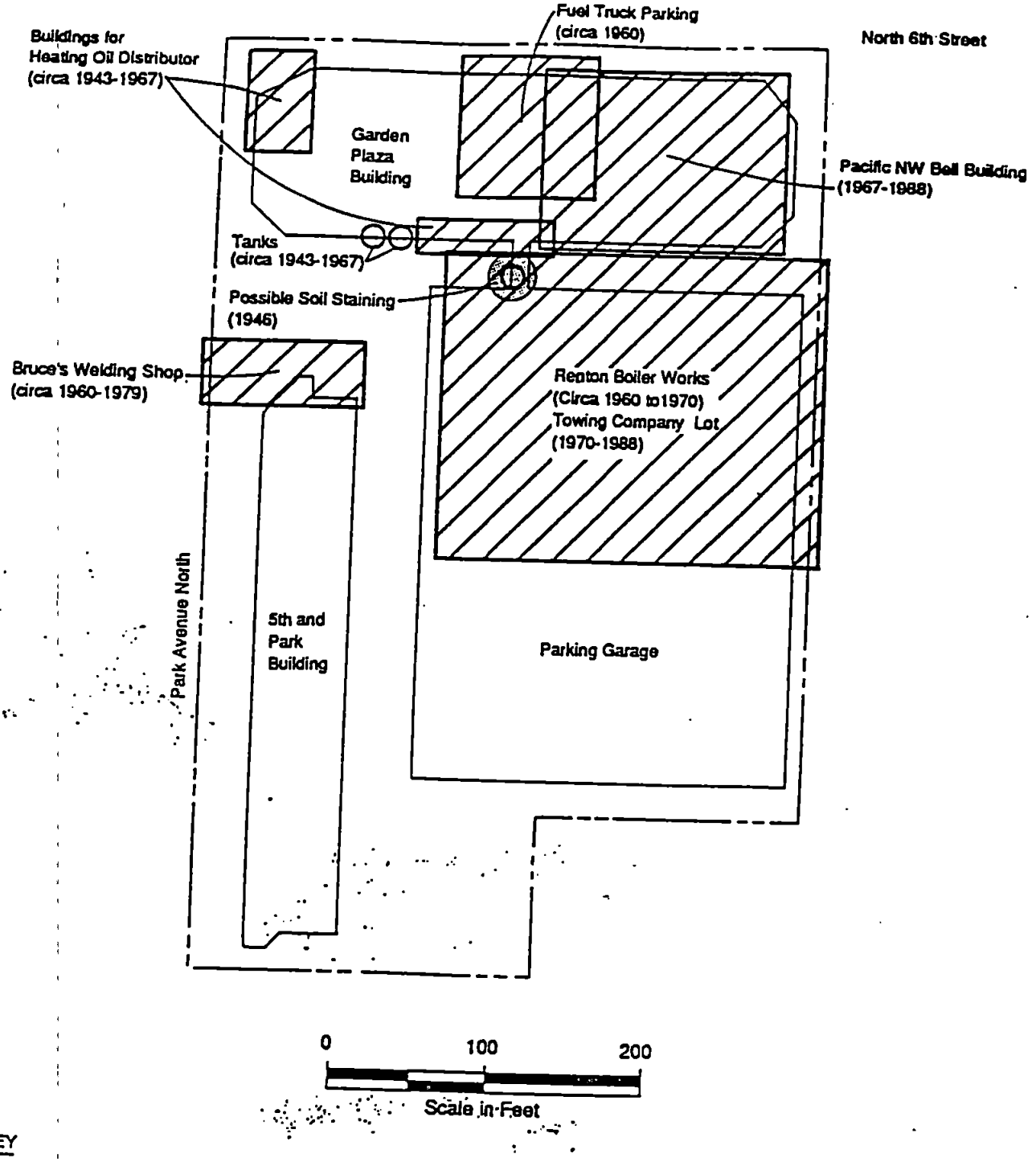
HC-10-71C — Location and Identification of Existing Monitoring Well Installed by Others

LMW-6 — Location and Identification of Monitoring Well or Well Point Installed by Landau Associates, Inc., 1989

3 — Location and Identification of Surface Soil Sample

LANDAU ASSOCIATES, INC.	Site Plan Renton Properties

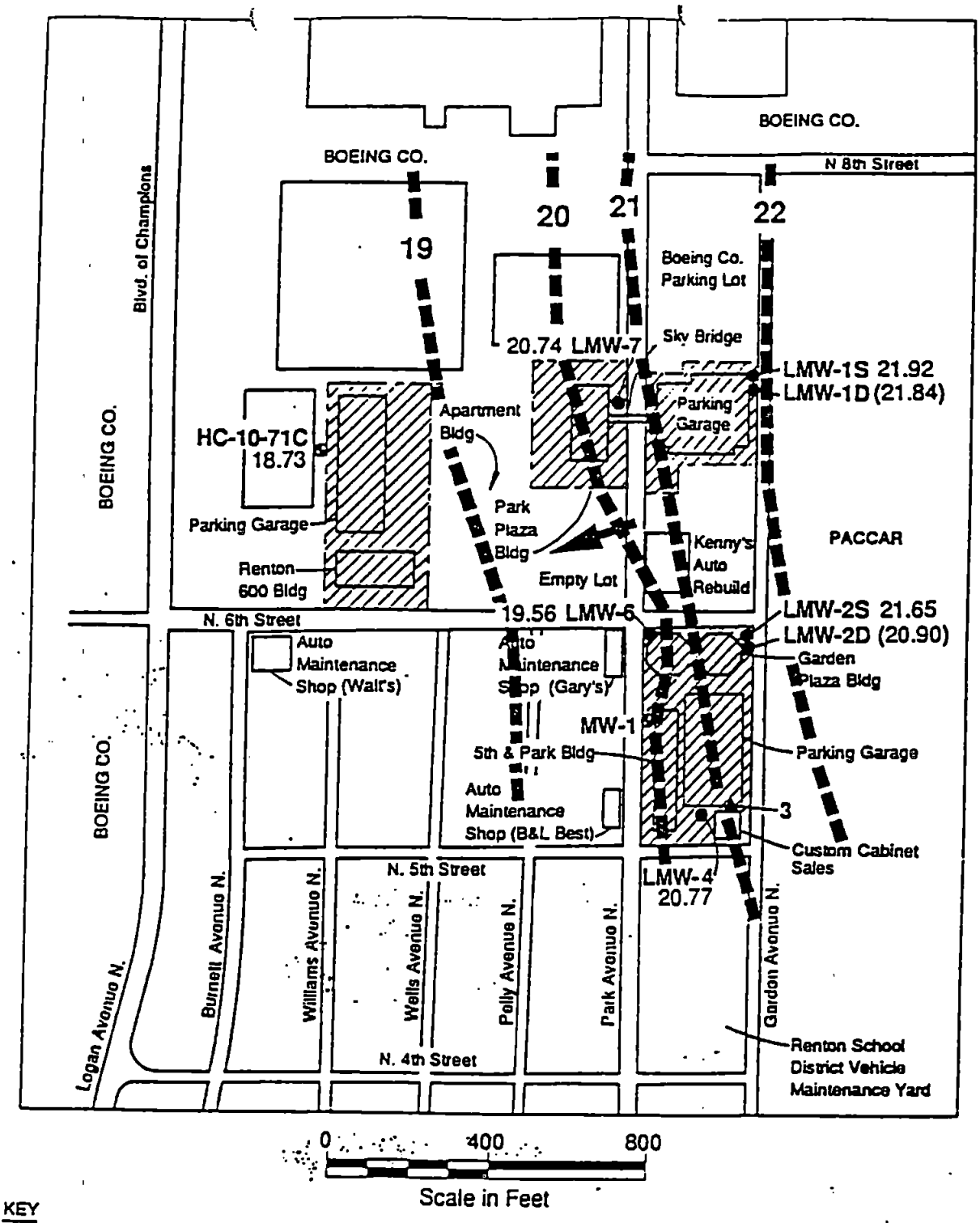
Figure 2.1



Source: Aerial Photographs from Walker and Associates, 1936, 1946, 1960, 1964, 1967, 1970, 1977, 1981, and 1985; and Rittenhouse-Zeman and Associates, 1989.

LANDAU ASSOCIATES, INC.	Past Usage at Garden Plaza and 5th and Park Buildings, Renton Properties

Figure 2.2



KEY

- Boeing Company Leased Property
- Property Boundary
- 19 — Ground Water Elevation Contours, in Feet (City of Renton Datum)
- 21.92 — Ground Water Elevation, Shallow Monitoring Well
- (21.84) — Ground Water Elevation, Deep Monitoring Well
- HC-10-71C — Location and Identification of Existing Monitoring Well Installed by Others
- LMW-6 — Location and Identification of Monitoring Well or Well Point Installed by Landau Associates, Inc., 1989
- 3 — Location and Identifcation of Surface Soil Sample
- General Direction of Ground Water Flow

LANDAU ASSOCIATES, INC.

Ground Water Elevation Contours, Renton Properties, July 10, 1989

Figure 2.3

REFERENCES

CH2M Hill, 1984. Report on Well Field Protection Study, City of Renton, Washington.

Earth Consultants, Inc., 1979. Letter to Fifth and Park Avenue Company, September 20.

_____, 1985. Letter to Mr. Gene Horbach, c/o Lance Mueller & Associates, AIA. May 1.

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Hart Crowser, Inc., 1986. Site Assessment Soil and Ground Water Quality, PACCAR Facility, Renton, Washington. Prepared for PACCAR Defense Systems, December 5. J-1639-02.

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Renton Fire Department, City of, 1989. Personal communication with Gary Gordon, Hazardous Waste Division, to Thomas Colligan, Landau Associates, Inc. June 21.

RH2 Engineering, 1987. Analysis Report for the City of Renton Cedar Valley Aquifer Test Conducted June 24-26.

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Washington Department of Ecology, 1989. Well Logs, T23N, R5E, Sec. 8, on file in Redmond, Washington (NW District Office).

APPENDIX B

Groundwater Monitoring Reports

January 8, 1999

JN 94356E

The Boeing Company
P.O. Box 3707, MS 7E-EJ
Seattle, Washington 98124-2207

Attention: Stephen D. Ryan, Environmental Affairs

Subject: **Groundwater Sampling - Seventh Round**
Garden Plaza and Fifth and Park Property
Renton, Washington

Dear Mr. Ryan:

In accordance with the Boeing Contract Number ENV-4-94 REN-046, Geotech Consultants, Inc., has completed the third episode of groundwater sampling at the subject property. As the contract specifies, we will complete biannual sampling through 1999.

Three (3) monitoring wells at the property, MW-4, MW-12, and MW-14, were sampled on November 25, 1998, and the groundwater samples were submitted to the project laboratory for analysis using Method WTPH-Diesel extended for petroleum hydrocarbons in the diesel and oil range. The laboratory results for diesel-and oil-range hydrocarbons were reported separately by the project laboratory. As noted in the report dated February 5, 1997, the wells were not sampled in the Spring of 1996, so we will be completing an additional round of sampling at the end of this project. Ten (10) sampling rounds will be completed for this project. The table below summarizes the sampling completed to date.

Summary Table
Sample Data and Laboratory Analysis Results

			WTPH-D extended (ppm)[1]	
Well ID	**Date Sampled**	**Depth to water (feet)**	**Diesel**	**Oil**
MW-4	2/22/95	8.23	2.2	NR[2]
	8/25/95	10.27	9.9	NR
	10/1/96	9.68	1.4	NR
	1/20/97	7.52	<0.5	<1.0
	10/31/97	9.34	0.69	<0.5
	04/09/98	6.84	0.31	<0.5
	11/25/98	7.25	<0.20	<0.5
MW-13[3]	2/22/95	not completed	---	---
	8/25/95	well destroyed	---	---
MW-12[4]	8/25/95	9.83	0.68	NR

Well ID	Date Sampled	Depth to water (feet)	WTPH-D extended (ppm)[1] Diesel	Oil
	10/1/96	9.36	<0.5	NR
	1/20/97	6.59	<0.5	<1.0
MW-12[4]	10/31/97	8.45	<0.5	<1.0
	04/09/98	8.21	<0.25	<0.5
	11/25/98	8.65	<0.20	<0.5
MW-14	2/22/95	7.39	<0.5	NR
	8/25/95	9.15	0.53	NR
	10/1/96	8.75	<0.5	NR
	1/20/97	6.72	<0.5	<1.0
	10/31/97	8.40	<0.5	<1.0
	04/09/98	8.16	<0.25	<0.5
	11/25/98	8.60	<0.20	<0.5
Method Detection Limit			0.5 ppm	1.0 ppm
Method A Cleanup Standards[5]			1.0 ppm	1.0 ppm

Notes:

1. ppm denotes concentrations in parts per million.
2. NR signifies not reported. Concentrations of oil-range hydrocarbons are reported in most recent analysis.
3. Unable to complete due to damage to well from construction activities.
4. MW-12 replaces MW-13 for the remainder of the project.
5. Cleanup standards published in the Model Toxics Control Act, MTCA, Chapter 173-340 WAC.

As presented in the above table, the results of the laboratory analyses indicate that diesel-range hydrocarbons in samples from all three wells were not detected above method detection limits.

Attached please find the project laboratory report of the 11/25 samples, the chain-of-custody documentation, and the project laboratory's Quality Assurance and Quality Control and Methodology Statement.

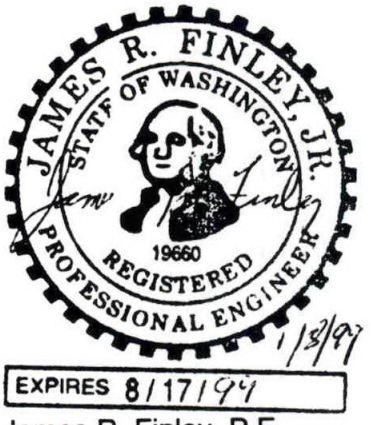
We appreciate the opportunity to be of continuing service on this project. If you have any questions or if we may be of additional service, please do not hesitate to call.

Respectfully submitted,

GEOTECH CONSULTANTS, INC.

David Bair

David Bair
Environmental Engineer



EXPIRES 8/17/99

James R. Finley, P.E.
Principal

DLB/JRF: alt

Attachments

cc: Mike Mastro, Sr.

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

7110 38th Drive SE
Lacey, Washington 98503

Mobile Environmental Laboratories
Environmental Sampling Services

Telephone: 360-459-4670
Fax: 360-459-3432

December 8, 1998

Dave Bair
Geotech Consultants Inc.
13256 NE 20th Street
Suite 16
Bellevue, WA 98005

DEC 1 0 1998

Dear Mr. Bair:

Please find enclosed the analytical data report for the Garden Plaza Project in Renton, Washington. Water samples were analyzed for Diesel and Oil by NWTPH-Dx/Dx Extended on December 1, 1998.

The results of these analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. An invoice for this work is also enclosed.

TEG Northwest appreciates the opportunity to have provided analytical services to Geotech Consultants for this project. It was a pleasure working with you, and we are looking forward to the next opportunity to work together.

Sincerely,

Sherry L. Chilcutt
Senior Chemist

QA/QC FOR ANALYTICAL METHODS

GENERAL

The TEG Northwest Laboratory quality assurance and quality control (QA/QC) procedures are conducted following the guidelines and objectives which meet or exceed certification/-accreditation requirements of California DOHS, Washington DOE, and Oregon DEQ. The Quality Control Program is a consistent set of procedures which assures data quality through the use of appropriate blanks, replicate analyses, surrogate spikes, and matrix spikes, and with the use of reference standards that meet or exceed EPA standards.

When analyses are taking place on-site with the mobile lab, the need for Field Blanks or Travel/Trip Blanks is eliminated. If there is going to be a delay before sample preparation for analysis, the sample is stored at 4^{o} C.

ANALYTICAL METHODS

TEG Northwest Labs use analytical methodologies which are in conformity with U. S. Environmental Protection Agency (EPA), Washington DOE, and Oregon DEQ methodologies. When necessary and appropriate due to the nature or composition of the sample, TEG may use variations of the methods which are consistent with recognized standards or variations used by the industry and government laboratories.

TPH-Gasoline, TPH-Diesel
(Gasoline and/or Diesel, Modified EPA 8015, NWTPH-Gx and NWTPH-Dx)

A check standard is run at the beginning of the day. 1) A close standard is run at the end of the day. 2) Both open and close standards must be within 15% of the continuing calibration curve value. All samples are prepared with a surrogate spike, and the recovery must be between 65% and 135% unless high sample concentrations interfere with the determination of the recovery percentage. A duplicate sample is run at a rate of 1 per 10 samples. At least 1 method blank is run per 20 samples analyzed.

TEG NW SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

TEG Job Number: S81125-1
Client: GEOTECH CONSULTANTS
Client Job Name: GARDEN PLAZA
Client Job Number: 94356E

Analytical Results						DUPL
NWTPH-Dx, mg/l		MTH BLK	MW-4	MW-12	MW-14	MW-14
Matrix	Water	Water	Water	Water	Water	Water
Date extracted	Reporting	12/01/98	12/01/98	12/01/98	12/01/98	12/01/98
Date analyzed	Limits	12/01/98	12/01/98	12/01/98	12/01/98	12/01/98
Kerosene/Jet fuel	0.20	nd	nd	nd	nd	nd
Diesel/Fuel oil	0.20	nd	nd	nd	nd	nd
Heavy oil	0.50	nd	nd	nd	nd	nd
Surrogate recoveries:						
Fluorobiphenyl		104%	104%	104%	102%	102%
o-Terphenyl		106%	107%	107%	104%	105%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
M - matrix interference
J - estimated value
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES

581125-1

CHAIN-OF-CUSTODY RECORD

CLIENT: Geotech Consultants, Inc.
ADDRESS: 13256 NE 20th St., #16
PHONE (425) 747-5618 FAX: (425) 747-8561
CLIENT PROJECT #: 9435GE PROJECT MANAGER: Dave Bair

DATE: 11-25-98 PAGE 1 OF 1
PROJECT NAME: Garden Plaza
LOCATION: Renton
COLLECTOR: GCI/DLB DATE OF COLLECTION 11-25

Sample Number	Depth	Time	Sample Type	Container Type	VOA 601/8010	VOA 602/8020	VOA 624/8240	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH (8015 (diesel)	TPH 8015 (g & d)	PAH 610/8100	PEST/PCBs 8080	HEX CHROME	ORGANIC LEAD	TOTAL LEAD	pH	ASBESTOS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
MW-4			W	500ml X2						X												
MW-12			W	"						X												
MW-14			W	"						X												

RELINQUISHED BY (Signature) DATE/TIME RECEIVED BY (Signature) DATE/TIME
Dand Bair 11-25/2:01 Val Shaw 11/25/98 1400
RELINQUISHED BY (Signature) DATE/TIME RECEIVED BY (Signature) DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS
☐ TEG DISPOSAL @ $2.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT
TOTAL NUMBER OF CONTAINERS
CHAIN OF CUSTODY SEALS Y/N/NA
SEALS INTACT? Y/N/NA
RECEIVED GOOD COND./COLD
NOTES:

LABORATORY NOTES:
STD TAT
5 Days

May 14, 1998

JN 94356E

The Boeing Company
P.O. Box 3707, MS 7E-EJ
Seattle, Washington 98124-207

Attention: Stephen D. Ryan, Environmental Affairs

Subject: **Groundwater Sampling - Fifth Round**
Garden Plaza and Fifth and Park Property
Renton, Washington

Dear Mr. Ryan:

In accordance with the Boeing Contract Number ENV-4-94 REN-046, Geotech Consultants, Inc., has completed the fifth episode of groundwater sampling at the subject property. As the contract specifies, we will complete biannual sampling through 1999.

Three monitoring wells at the property — MW-4, MW-12, and MW-14 — were sampled on April 9, 1998, and the groundwater samples were submitted to the project laboratory for analysis by the WTPH-Diesel extended range test. The laboratory results for diesel- and oil-range hydrocarbons were reported separately by the project laboratory. The Laboratory Reports are presented in an attached appendix, along with EPA-recommended chain-of-custody documentation. As noted in the report dated February 5, 1997, the wells were not sampled in the Spring of 1996, and as such, we will be completing an additional round of sampling at the end of this project. Ten (10) sampling rounds will be completed for this project. The table below summarizes the sampling completed to date.

Summary Table
Sample Data and Laboratory Analysis Results

Well ID	Date Sampled	Depth to water (feet)	WTPH-D extended (ppm)[1]	
			Diesel	Oil
MW-4	2/22/95	8.23	2.2	NR[2]
	8/25/95	10.27	9.9	NR
	10/1/96	9.68	1.4	NR
	1/20/97	7.52	<0.5	<1.0
	10/31/97	9.34	0.69	<0.5
	04/09/98	6.84	0.31	<0.5
MW-13[3]	2/22/95	not completed	---	---
	8/25/95??	well destroyed	---	---

Well ID	Date Sampled	Depth to water (feet)	WTPH-D extended (ppm)[1]	
			Diesel	Oil
MW-12[4]	8/25/95	9.83	0.68	NR
	10/1/96	9.36	<0.5	NR
	1/20/97	6.59	<0.5	<1.0
	10/31/97	8.45	<0.5	<1.0
	04/09/98	8.21	<0.25	<0.5
MW-14	2/22/95	7.39	<0.5	NR
	8/25/95	9.15	0.53	NR
	10/1/96	8.75	<0.5	NR
	1/20/97	6.72	<0.5	<1.0
	10/31/97	8.40	<0.5	<1.0
	04/09/98	8.16	<0.25	<0.5
Method Detection Limit[5]			0.5 ppm	1.0 ppm
Method A Cleanup Standards[6]			1.0 ppm	1.0 ppm

Notes:

1. ppm denotes concentrations in parts per million.
2. NR signifies not reported. Concentrations of oil-range hydrocarbons are reported in most recent analyses.
3. Unable to complete due to damage to well from construction activities.
4. MW-12 replaces MW-13 for the remainder of the project.
5. Recently adopted analytical methods have reduced the new Method Detection Limits to 0.25 ppm for diesel and 0.5 ppm for oil.
6. Cleanup standards published in the Model Toxics Control Act, MTCA, Chapter 173-340 WAC.

As presented in the above table, the results of the laboratory analyses indicate that groundwater sampled at MW-4 contained detectable concentrations of diesel-range hydrocarbons, below the level found during the previous rounds of sampling and still below current cleanup standards. In the other two wells, no discernible change has occurred and concentrations have remained below method detection limits. We replaced a faulty cap at MW-14 during this sampling round.

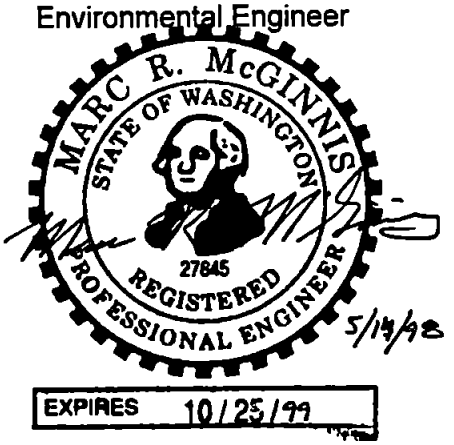
We appreciate the opportunity to be of continuing service on this project. If you have any questions, or if we may be of additional service, please do not hesitate to call.

Respectfully submitted,

GEOTECH CONSULTANTS, INC.

David Bair

David Bair
Environmental Engineer



EXPIRES 10/25/99

Marc R McGinnis, P.E.
Associate

DB/MRM: alt

Attachments

cc: Mike Mastro

APPENDIX

Laboratory Results

OnSite
Environmental Inc.
Analytical Testing and Mobile Laboratory Services

April 13, 1998

4

Dave Bair
GeoTech Consultants
13256 NE 20th Street, Suite 16
Bellevue, WA 98005

Re: Analytical Data for Project 94356E
Laboratory Reference No. 9804-053

Dear Dave:

Enclosed are the analytical results and associated quality control data for samples submitted on April 9, 1998.

The standard policy of OnSite Environmental Inc., is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Chemist

Enclosures

Date of Report: April 13, 1998
Samples Submitted: April 9, 1998
Lab Traveler: 04-053
Project: 94356E

NWTPH-Dx

Date Extracted:	4-10-98
Date Analyzed:	4-10-98
Matrix:	Water
Units:	mg/L (ppm)

Client ID:	MW-4	MW-12	MW-14
Lab ID:	04-053-01	04-053-02	04-053-03
Diesel Fuel C12-C24:	0.31	ND	ND
PQL:	0.25	0.25	0.25
Oil C24-C34:	ND	ND	ND
PQL:	0.50	0.50	0.50
Surrogate Recovery:			
o-Terphenyl	89%	89%	90%
Flags:	X		

Date of Report: April 13, 1998
Samples Submitted: April 9, 1998
Lab Traveler: 04-053
Project: 94356E

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	4-10-98
Date Analyzed:	4-10-98
Matrix:	Water
Units:	mg/L (ppm)
Lab ID:	MB0410W1
Diesel Fuel C12-C24:	ND
PQL:	0.25
Oil C24-C34:	ND
PQL:	0.50
Surrogate Recovery:	
o-Terphenyl	94%

Flags:

Date of Report: April 13, 1998
Samples Submitted: April 9, 1998
Lab Traveler: 04-053
Project: 94356E

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted:	4-10-98	
Date Analyzed:	4-10-98	
Matrix:	Water	
Units:	mg/L (ppm)	
Lab ID:	04-061-01	04-061-01 DUP
Diesel Fuel C12-C24:	ND	ND
PQL:	0.25	0.25
RPD:	N/A	
Surrogate Recovery:		
o-Terphenyl	85%	60%

Flags:

Date of Report: April 13, 1998
Samples Submitted: April 9, 1998
Lab Traveler: 04-053
Project: 94356E

NWTPH-Dx
SB/SBD QUALITY CONTROL

Date Extracted:	4-7-98	
Date Analyzed:	4-7-98	
Matrix:	Water	
Units:	mg/L (ppm)	
Spike Level:	1.00 ppm	
Lab ID:	SB0407W1	SB0407W1 DUP
Diesel Fuel C12-C24:	0.786	0.712
PQL:	0.25	0.25
Percent Recovery:	79	71
RPD:	9.9	
Surrogate Recovery:		
o-Terphenyl	77%	75%

Flags:

OnSite Environmental Inc.

DATA QUALIFIERS AND ABBREVIATIONS

A - Due to high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

D - Data from 1:____ dilution.

E - The value reported exceeds the quantitation range, and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

G - Insufficient sample quantity for duplicate analysis.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeniety. The sample was re-extracted and re-analyzed with similar results.

L - Quantitated from C7-C34 as diesel fuel #2.

M - Predominantly _____ range hydrocarbons present in the sample.

N1 - Hydrocarbons in the gasoline range (C7-toluene) are present in the sample which are elevating the diesel result.

O1 - Hydrocarbons in the heavy oil range (>C24) are present in the sample which are elevating the diesel result.

P1 - Hydrocarbons in the diesel range (C12-C24) are present in the sample which are elevating the oil result.

Q - The RPD of the results between the two columns is greater than 25.

R - Hydrocarbons outside the defined gasoline range are present in the sample.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

X - Unidentified peaks in the C12-C24 range impacting the result.

Z - Interferences were present which prevented the quantitation of the analyte below the detection limit reported.

ND - Not Detected
MRL - Method Reporting Limit
PQL - Practical Quantitation

Chain of Custody

OnSite Environmental Inc.
14924 NE 31st Circle • Redmond, WA 98052
Fax: (425) 885-4603 • Phone: (425) 883-3881

Company: Geotech Consultants
Project No.: 94356E
Project Name: Boeing Renton
Project Manager: Dave Bair

Turn Around Requested (Check One)
- ☐ Same Day
- ☐ 24 Hours
- ☐ 48 Hours
- ☒ Standard
- ☐ _____ (other)

Project Chemist: DB

Laboratory No.

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8240/624/8260	Halogenated Volatiles by 8260	Semivolatiles by 8270/625	PAHs by 8270/625	PCB's by 8081/608	Total RCRA Metals (8)	TCLP Metals	VPH	EPH	% Moisture
1	MW-4	4-9		W	1			X										
2	MW-12	4-9		W	1			X										
3	MW-14	4-9		W	1			X										

RELINQUISHED BY	DATE	RECEIVED BY	DATE
D Bair	4-9-98		4/9/98
FIRM: GCI	TIME: 1251	FIRM: OnSite Environ	TIME: 12:51 pm
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

COMMENTS:

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November 25, 1997

JN 94356E

The Boeing Company
P.O. Box 3707, MS 7E-EJ
Seattle, Washington 98124-207

Attention: Stephen D. Ryan, Environmental Affairs

Subject: **Groundwater Sampling - Fourth Round**
Garden Plaza and Fifth and Park Property
Renton, Washington

Dear Mr. Ryan:

In accordance with the Boeing Contract Number ENV-4-94 REN-046, Geotech Consultants, Inc., has completed the third episode of groundwater sampling at the subject property. As the contract specifies, we will complete biannual sampling through 1999.

Three monitoring wells at the property, MW4, MW-12, and MW-14, were sampled on October 31, 1997, and the groundwater samples were submitted to the project laboratory for analysis by the WTPH-Diesel extended range test. The laboratory results for diesel-and oil-range hydrocarbons were reported separately by the project laboratory. As noted in the report dated February 5, 1997, the wells were not sampled in the Spring of 1996, and as such, we will be completing an additional round of sampling at the end of this project. Ten (10) sampling rounds will be completed for this project. The table below summarizes the sampling completed to date.

Summary Table
Sample Data and Laboratory Analysis Results

Well ID	Date Sampled	Depth to water (feet)	WTPH-D extended (ppm)[1]	
			Diesel	Oil
MW-4	2/22/95	8.23	2.2	NR[2]
	8/25/95	10.27	9.9	NR
	10/1/96	9.68	1.4	NR
	1/20/97	7.52	<0.5	<1.0
	10/31/97	9.34	0.69	<0.5
MW-13[3]	2/22/95	not completed	---	---
	8/25/95	well destroyed	---	---
MW-12[4]	8/25/95	9.83	0.68	NR
	10/1/96	9.36	<0.5	NR
	1/20/97	6.59	<0.5	<1.0
	10/31/97	8.45	<0.5	<1.0

Well ID	Date Sampled	Depth to water (feet)	WTPH-D extended (ppm)[1]	
			Diesel	Oil
MW-14	2/22/95	7.39	<0.5	NR
	8/25/95	9.15	0.53	NR
	10/1/96	8.75	<0.5	NR
	1/20/97	6.72	<0.5	<1.0
	10/31/97	8.40	<0.5	<1.0
Method Detection Limit			0.5 ppm	1.0 ppm
Method A Cleanup Standards[5]			1.0 ppm	1.0 ppm

Notes:

1. ppm denotes concentrations in parts per million.
2. NR signifies not reported. Concentrations of oil-range hydrocarbons are reported in most recent analysis.
3. Unable to complete due to damage to well from construction activities.
4. MW-12 replaces MW-13 for the remainder of the project.
5. Cleanup standards published in the Model Toxics Control Act, MTCA, Chapter 173-340 WAC.

As presented in the above table, the results of the laboratory analyses indicate that groundwater sampled at MW-4 contained detectable concentrations of diesel-range hydrocarbons, which is an increase since the previous round of sampling. However, the concentration is still below current cleanup standards. In the other two wells, no discernible change has occurred and concentrations have remained below method detection limits.

We appreciate the opportunity to be of continuing service on this project. If you have any questions or if we may be of additional service, please do not hesitate to call.

Respectfully submitted,

GEOTECH CONSULTANTS, INC.

Stephen Rosales

Stephen Rosales, M.Sc.
Environmental Engineer

11-25-97

Marc R McGinnis, P.E.
Associate

MARC R. McGINNIS
STATE OF WASHINGTON
27845
REGISTERED
PROFESSIONAL ENGINEER

EXPIRES 10/25/99

SR/MRM:alt

Attachments

cc: Mike Mastro

OnSite Environmental Inc.
Analytical Testing and Mobile Laboratory Services

November 7, 1997

Stephen Rosales
GeoTech Consultants
13256 NE 20th Street, Suite 16
Bellevue, WA 98005

Re: Analytical Data for Project 94356E
Laboratory Reference No. 9711-002

Dear Stephen:

Enclosed are the analytical results and associated quality control data for samples submitted on November 3, 1997.

The standard policy of OnSite Environmental Inc., is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Chemist

Enclosures

Date of Report: November 7, 1997
Samples Submitted: November 3, 1997
Lab Traveler: 11-002
Project: 94356E

NWTPH-Dx

Date Extracted:	11-04-97
Date Analyzed:	11-04-97
Matrix:	Water
Units:	mg/L (ppm)

Client ID:	MW-4	MW-12	MW-14
Lab ID:	11-002-1	11-002-2	11-002-3
Dilution Factor:	0.02	0.02	0.02
Diesel Fuel C12-C24:	0.69	ND	ND
PQL:	0.5	0.5	0.5
Oil C24-C34:	ND	ND	ND
PQL:	1.0	1.0	1.0
Surrogate Recovery: o-Terphenyl	68%	64%	63%
Flags			

Date of Report: November 7, 1997
Samples Submitted: November 3, 1997
Lab Traveler: 11-002
Project: 94356E

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	11-04-97
Date Analyzed:	11-04-97
Matrix:	Water
Units:	mg/L (ppm)

Lab ID:	MB1104W1
Dilution Factor:	0.02
Diesel Fuel C12-C24:	ND
PQL:	0.5
Oil C24-C34:	ND
PQL:	1.0
Surrogate Recovery:	59%
o-Terphenyl	

Date of Report: November 7, 1997
Samples Submitted: November 3, 1997
Lab Traveler: 11-002
Project: 94356E

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted:	11-04-97
Date Analyzed:	11-04-97
Matrix:	Water
Units:	mg/L (ppm)

Lab ID:	11-002-3	11-002-3 DUP
Diesel Fuel C12-C24:	ND	ND
PQL:	0.5	0.5
RPD:	NA	
Surrogate Recovery: o-Terphenyl	63%	71%

Date of Report: November 7, 1997
Samples Submitted: November 3, 1997
Lab Traveler: 11-002
Project: 94356E

NWTPH-Dx
SB/SBD QUALITY CONTROL

Date Extracted: 10-31-97
Date Analyzed: 10-31-97

Matrix: Water

Units: mg/L (ppm)

Spike Level: 2.0 ppm

Lab ID:	SB1031W1	SB1031W1 DUP
Diesel Fuel C12-C24:	1.6	1.6
PQL:	0.5	0.5
Percent Recovery:	80%	80%
RPD:	0	
Surrogate Recovery:	80%	85%
o-Terphenyl		

OnSite Environmental Inc.

DATA QUALIFIERS AND ABBREVIATIONS

A - Due to high sample concentration, amount spiked insufficient for meaningful MS/MSD data recovery.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD outside control limits due to analyte concentration within five times the quantitation limit.

D - Data from 1:____ dilution.

E - Value reported exceeds the quantitation range. Value is an estimate.

F - Surrogate recovery data not available due to the high concentration in the sample.

G - Insufficient sample quantity for duplicate analysis.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD outside control limits due to sample inhomogeniety. Sample re-extracted and re-analyzed with similar results.

L - Quantitated from C7-C34 as diesel fuel #2.

M - Predominantly _____ range hydrocarbons present in the sample.

N - Hydrocarbons in the gasoline range (C7-toluene) present in the sample.
N1 - Hydrocarbons in the gasoline range (C7-toluene) present in the sample which are elevating the diesel result.

O - Hydrocarbons in the heavy oil range (>C24) present in the sample.
O1 - Hydrocarbons in the heavy oil range (>C24) present in the sample which are elevating the diesel result.

R - Hydrocarbons outside defined gasoline range present in the sample.

S - Surrogate recovery data not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - Matrix Spike/Matrix Spike Duplicate RPD outside control limits due to matrix effects.

V - Matrix Spike/Matrix Spike Duplicate recoveries outside control limits due to matrix effects.

Z - Interferences were present which prevented the quantitation of the analyte below the detection limit reported.

ND - Not Detected

MRL - Method Reporting Limit

PQL - Practical Quantitation

Chain Of Custody

OnSite Environmental Inc.
14924 NE 31st Circle • Redmond, WA 98052
Fax: (206) 885-4603 • **Phone: (206) 883-3881**

Turn Around Requested

(Check One)

- ☐ Same Day
- ☐ 24 Hours
- ☒ 48 Hours
- ☐ Standard
- ☐ _____ (other)

Project Chemist: DB

Laboratory No.

Company: Geotech Consultants, Inc.
Project No: 94356 E
Project Name: Garden Plaza and Fifth and Park Property
Project Manager: S. Rosales

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	#of Cont.	WTPH-HCID	WTPH-G/BTEX	WTPH-D extended	WTPH-418.1	Volatiles by 8240/624	Volatiles by 8260	Chlorinated Volatiles by 8240/8260/624	Semivolatiles by 8270/625	PAHs by 8270/625	PCB's by 8080/608	Total RCRA Metals (8)	TCLP Metals	% Moisture
1	MW-4	10/31/97		H_2O				X										
2	MW-12	10/31/97		↓				X										
3	MW-14	10/31/97		↓				X										

RELINQUISHED BY	DATE	RECEIVED BY	DATE
S. Rosales	11/3/97	[illegible]	11/3/97
FIRM: Geotech Consultants	TIME	FIRM: O.S.E. Environ.	TIME
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

COMMENTS:

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Chain Of Custody

Page _____ of _____

OnSite Environmental Inc.
14924 NE 31st Circle • Redmond, WA 98052
Fax: (206) 885-4603 • **Phone: (206) 883-3881**

Turn Around Requested (Check One)
- ☐ Same Day
- ☐ 24 Hours
- ☑ 48 Hours
- ☐ Standard
- ☐ _____ (other)

Project Chemist:

Laboratory No. 11-002

Company: Geotech Consultants, Inc.
Project No: 94356 E
Project Name: Garden Plaza and Fifth Ave Park Property
Project Manager: S. Rosales

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	#of Cont.	WTPH-HCID	WTPH-G/BTEX	WTPH-D extended	WTPH-418.1	Volatiles by 8240/624	Volatiles by 8260	Chlorinated Volatiles by 8240/8260/624	Semivolatiles by 8270/625	PAHs by 8270/625	PCB's by 8080/608	Total RCRA Metals (8)	TCLP Metals	% Moisture
	MW-4	10/31/97		H_2O				X										
	MW-12	10/31/97		↓				X										
	MW-14	10/31/97		↓				X										

RELINQUISHED BY	DATE	RECEIVED BY	DATE
D Rosales	11/3/97		11/3/97
FIRM: Geotech Consultants	TIME	FIRM: C.S. Testing	TIME
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

COMMENTS:

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February 5, 1997

JN 94356E

The Boeing Company
P.O. Box 3707, MS 7E-EJ
Seattle, Washington 98124-207

Attention: Stephen D. Ryan, Environmental Affairs

Subject: **Groundwater Sampling - Third Round**
Garden Plaza and Fifth and Park Property
Renton, Washington.

Dear Mr. Ryan:

In accordance with Boeing Contract Number ENV-4-94 REN-046, Geotech Consultants, Inc. has completed the third episode of groundwater sampling at the subject property. As the contract specifies, we will complete bi-annual sampling through 1999.

Three monitoring wells at the property—MW-4, MW-12 (replaced MW-13 in August 1995) and MW-14—were sampled on January 20, 1996, and the groundwater samples were submitted to the project laboratory for analysis by the WTPH-Diesel extended range test. For this round of analysis, the laboratory reported the concentrations of diesel-range hydrocarbons and the oil-range hydrocarbons separately. This has resulted in the creation of a slightly different results summary table than has been used in the past groundwater sampling reports. The table below summarizes the sampling completed to date. Please note that the wells were not sampled in the Spring of 1996, and as such we will complete an additional sampling episode at the end of this project. At the completion of this project, ten sampling episodes will have been completed.

RESULTS OF LABORATORY ANALYSIS

WELL NUMBER	DATE	DEPTH TO WATER	WTPH-Dext	
			Diesel-Range	Oil-Range
MW-4	2/22/95	8.23 feet	2.2 ppm[1]	NR[2]
	8/25/95	10.27 feet	9.9 ppm	NR
	10/1/96	9.68 feet	1.4 ppm	NR
	1/20/97	7.52 feet	<0.5 ppm	<1.0 ppm
MW-13	2/22/95	not completed[3]	--	--
	8/25/96	well destroyed	--	--
MW12[4]	8/25/96	9.83 feet	0.68 ppm	NR
	10/1/96	9.36 feet	<0.5 ppm	NR
	1/20/97	6.59 feet	<0.5 ppm	<1.0 ppm
MW-14	2/22/95	7.39 feet	<0.5 ppm	NR
	8/25/95	9.15 feet	0.53 ppm	NR
	10/1/96	8.75 feet	<0.5 ppm	NR
	1/22/97	6.72 feet	<0.5 ppm	<1.0 ppm
METHOD A CLEANUP STANDARD[5]			1.0 ppm	

Notes:

1. ppm denotes concentrations in parts per million.
2. NR denotes not reported. Concentrations of oil-range hydrocarbons are reported in most recent analysis.
3. Unable to complete due to damage to well from construction activities.
4. MW-12 replaces MW-13 for the remainder of the project.
5. Cleanup standards published in the Model Toxics Control Act, MTCA, Chapter 173-340 WAC.

Review of the summary table reveals that the concentrations of TPH in the sample from MW-4 decreased to below method detection levels for the first time. In the other two wells, the concentrations of TPH remained below method detection levels.

We appreciate the opportunity to be of continuing service on this project. If you have any questions or if we may be of additional service, please do not hesitate to contact us.

Respectfully submitted,

GEOTECH CONSULTANTS, INC.

Timothy A. Johnson
Environmental Geologist

Marc R. McGinnis, P.E.
Associate

TAJ/MRM:ant

Attachments

cc: Mike Mastro

OnSite
Environmental Inc.
Analytical Testing and Mobile Laboratory Services

January 29, 1997

Tim Johnson
GeoTech Consultants
13256 NE 20th Street, Suite 16
Bellevue, WA 98005

Re: Analytical Data for Project 93299E
Laboratory Reference No. 9701-074

Dear Tim:

Enclosed are the results of the analyses, and associated quality control data, of samples submitted on January 23, 1997.

The standard policy of OnSite Environmental Inc., is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

Karl P. Hornyik
Project Chemist

Enclosures

Date of Report: January 29, 1997
Samples Submitted: January 23, 1997
Lab Traveler: 01-074
Project: 93299E

WTPH-D

Date Extracted: 1-24-97
Date Analyzed: 1-24-97

Matrix: Water
Units: mg/L (ppm)

Client ID	Lab ID	Dilution Factor	TPH-Diesel C12-C24	TPH-Oil C24-C34	Surrogate Recovery*	Diesel PQL	Oil PQL	Flags
MW 12	01-074-1	0.02	ND	ND	76%	0.5	1.0	
MW 4	01-074-2	0.02	ND	ND	82%	0.5	1.0	
MW 14	01-074-3	0.02	ND	ND	84%	0.5	1.0	

* o-Terphenyl

Date of Report: January 29, 1997
Samples Submitted: January 23, 1997
Lab Traveler: 01-074
Project: 93299E

WTPH-D
METHOD BLANK QUALITY CONTROL

Date Extracted: 1-24-97
Date Analyzed: 1-24-97

Matrix: Water
Units: mg/L (ppm)

Lab ID	Dilution Factor	TPH-Diesel C12-C24	TPH-Oil C24-C34	Surrogate Recovery*	Diesel PQL	Oil PQL
MB0124W1	0.02	ND	ND	74%	0.5	1.0

* o-Terphenyl

Date of Report: January 29, 1997
Samples Submitted: January 23, 1997
Lab Traveler: 01-074
Project: 93299E

WTPH-D
DUPLICATE QUALITY CONTROL

Date Extracted: 1-22-97
Date Analyzed: 1-22-97

Matrix: Water
Units: mg/L (ppm)

Lab ID	Dilution Factor	Total Petroleum Hydrocarbons	Surrogate Recovery*	Diesel MRL
01-068-1	0.02	ND	88%	0.50
01-068-1 DUP	0.02	ND	89%	0.50
RPD		NA		

* o-Terphenyl

Date of Report: January 29, 1997
Samples Submitted: January 23, 1997
Lab Traveler: 01-074
Project: 93299E

WTPH-D
SB/SBD QUALITY CONTROL

Date Extracted: 1-22-97
Date Analyzed: 1-23-97

Matrix: Water
Units: mg/L (ppm)

Lab ID	Dilution Factor	Spike Level ppm	Total Petroleum Hydrocarbons	Percent Recovery	Surrogate Recovery*	Diesel PQL
SB0122W1	0.02	2.0	2.08	104%	97%	0.5
SB0122W1 DUP	0.02	2.0	2.73	137%	107%	0.5
RPD			27%			

* o-Terphenyl

Chain Of Custody

Page 1 of 1

OnSite Environmental Inc.

14924 NE 31st Circle • Redmond, WA 98052

Fax: (206) 885-4603 • **Phone: (206) 883-3881**

Turn Around Requested (Check One)

- ☐ Same Day
- ☐ 24 Hours
- ☐ 48 Hours
- ☒ Standard
- ☐ _____ (other)

Project Chemist: KPH

Laboratory No. 01-074

Company: Geotech

Project No: ~~43246E~~ 94356

Project Name: Renton

Project Manager: Tim Thompson

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	#of Cont.	WTPH-HCID	WTPH-G/BTEX	WTPH-D Extended	WTPH-418.1	Volatiles by 8240/624	Volatiles by 8260	Chlorinated Volatiles by 8240/8260/624	Semivolatiles by 8270/625	PAHs by 8270/625	PCB's by 8080/608	Total RCRA Metals (8)	TCLP Metals								% Moisture
1	MW 12	1/20	13:15	H_2O	1			X																	
2	MW 4	1/20	13:40	H_2O	1			X																	
3	MW 14	1/20	14:10	H_2O	1			X																	

RELINQUISHED BY	DATE	RECEIVED BY	DATE
Timothy A Sothan	1/23/97	Krista Hanson	1/23/97
FIRM GCT	TIME 12:05	FIRM O.E.	TIME 13:05
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

COMMENTS:

DIS ION O: V nSite Yello ort C nk - C py

November 6, 1996

JN 94356E

The Boeing Company
P.O. Box 3707, MS 7E-EJ
Seattle, Washington 98124-2207

Attention: Stephen D. Ryan, Environmental Affairs

Subject: **Groundwater Sampling - Third Round**
Garden Plaza near Fifth and Park Property
Renton, Washington

Dear Mr. Ryan:

In accordance with Boeing Contract Number ENV-4-94 REN-046, Geotech Consultants, Inc. has completed the third episode of groundwater sampling on the subject property. As the contract specifies, we will complete bi-annual sampling through 1999.

Monitoring wells MW-4, MW-12 (replaced MW-13 in August 1995) and MW-14 were sampled on October 1, 1996, and the groundwater samples were submitted to the project laboratory for analysis by the WTPH-Diesel extended range test. The attached laboratory report supplements this letter. The table below summarizes the sampling completed to date. Please note that the wells were not sampled in the Spring of 1996, and therefore we will complete an additional sampling episode at the end of this project. A total of ten sampling episodes will be completed.

RESULTS OF LABORATORY ANALYSIS

WELL NUMBER	DATE	DEPTH TO WATER	WTPH-D ext.
MW-4	2/22/95	8.23 feet	2.2 ppm[1]
	8/25/95	10.27 feet	9.9 ppm
	10/1/96	9.68 feet	1.4 ppm
MW-13	2/22/95	not completed[2]	NA
	8/25/96	well destroyed	NA
MW12[3]	8/25/96	9.83 feet	0.68 ppm
	10/1/96	9.36 feet	<0.5 ppm
MW-14	2/22/95	7.39 feet	<0.5 ppm
	8/25/95	9.15 feet	0.53 ppm
	10/1/96	8.75 feet	<0.5 ppm
METHOD A CLEANUP STANDARD[4]			**1.0 ppm**

Notes:

1. ppm denotes concentrations in parts per million.
2. Unable to complete due to damage to well from construction activities.
3. MW-12 replaces MW-13 for the remainder of the project.
4. Cleanup standards published in the Model Toxics Control Act, MTCA, Chapter 173-340 WAC.

Review of the summary table reveals a significant decrease in the levels of diesel-range TPH in Well MW-4 since our earlier sampling episode in August 1995. This may be due to a number of variables including, but not limited to, natural biodegradation and seasonal fluctuations in the groundwater table.

We appreciate the opportunity to be of continuing service to you on this project. If you have any questions, or if we may be of additional service, please do not hesitate to contact us.

Respectfully submitted,

GEOTECH CONSULTANTS, INC.

Sean P. O'Brien
Environmental Engineer

James R. Finley, P.E.
Principal

SPO/JRF:ant

Attachment

cc: Mike Mastro

OnSite
Environmental Inc.
Analytical Testing and Mobile Laboratory Services

October 4, 1996

Sean O'Brien
GeoTech Consultants
13256 NE 20th Street, Suite 16
Bellevue, WA 98005

Re: Analytical Data for Project 93299E
Laboratory Reference No. 9610-006

Dear Sean:

Enclosed are the results of the analyses, and associated quality control data, of samples submitted on October 2, 1996.

The standard policy of OnSite Environmental Inc., is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

Karl P. Hornyik
Project Chemist

Enclosures

Date of Report: October 4, 1996
Samples Submitted: October 2, 1996
Lab Traveler: 10-006
Project: 93299E

WTPH-D

Date Extracted: 10-02-96
Date Analyzed: 10-03-96

Matrix: Water
Units: mg/L (ppm)

Client ID	Lab ID	Dilution Factor	TPH-Diesel C12-C24	TPH-Oil C24-C34	Surrogate Recovery*	Flags	Diesel MRL	Oil MRL
MW4	10-006-1	0.02	**1.5**	**ND**	108%		0.50	1.0
MW12	10-006-2	0.02	**ND**	**ND**	118%		0.50	1.0
MW14	10-006-3	0.02	**ND**	**ND**	104%		0.50	1.0

* o-Terphenyl

Date of Report: October 4, 1996
Samples Submitted: October 2, 1996
Lab Traveler: 10-006
Project: 93299E

WTPH-D
METHOD BLANK QUALITY CONTROL

Date Extracted: 10-2-96
Date Analyzed: 10-3&4-96

Matrix: Water
Units: mg/L (ppm)

Lab ID: MB1002W1

	Dilution Factor	Total Petroleum Hydrocarbons	Surrogate Recovery*	Flags	MRL
Method Blank	0.02	ND	120%		0.50

* o-Terphenyl

Date of Report: October 4, 1996
Samples Submitted: October 2, 1996
Lab Traveler: 10-006
Project: 93299E

WTPH-D
DUPLICATE QUALITY CONTROL

Date Extracted: 10-2-96
Date Analyzed: 10-3&4-96

Matrix: Water
Units: mg/L (ppm)

Lab ID: 10-007-1

	Dilution Factor	Total Petroleum Hydrocarbons	Surrogate Recovery*	Flags	MRL
Sample	0.02	0.704	99%		0.50
Duplicate	0.02	0.773	101%		0.50
RPD		9.3%			

* o-Terphenyl

Date of Report: October 4, 1996
Samples Submitted: October 2, 1996
Lab Traveler: 10-006
Project: 93299E

WTPH-D
SB/SBD QUALITY CONTROL

Date Extracted: 10-02-96
Date Analyzed: 10-3&4-96

Matrix: Water
Units: mg/L (ppm)

Lab ID: SB1002W1

	Dilution Factor	Total Petroleum Hydrocarbons	Percent Recovery	Surrogate Recovery*	Flags	MRL
Spike @ 2 ppm	0.02	1.59	80%	124%		0.50
Spike Duplicate	0.02	1.60	80%	128%		0.50
RPD		0.90%				

* o-Terphenyl

Chain Of Custody

OnSite Environmental Inc.
14924 NE 31st Circle • Redmond, WA 98052
Fax: (206) 885-4603 • **Phone: (206) 883-3881**

Turn Around Requested (Check One)
- ☐ Same Day
- ☐ 24 Hours
- ☐ 48 Hours
- ☒ Standard
- ☐ _____ (other)

Project Chemist: KPH

Laboratory No. 10-006

Company: Geotech Consultants, Inc.
Project No: 13299E
Project Name: Park Avenue at N. 6th St.
Project Manager: Sean O'Brien

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	#of Cont.	WTPH-HCID	WTPH-G/BTEX	WTPH-D Extended Diesel Blank	WTPH-418.1	Volatiles by 8240/624	Volatiles by 8260	Chlorinated Volatiles by 8240/8260/624	Semivolatiles by 8270/625	PAHs by 8270/625	PCB's by 8080/608	Total RCRA Metals (8)	TCLP Metals	% Moisture
1	MW4	10/1/96	16:00	H_2O	1			X										
2	MW12	10/1/96	15:40	H_2O	1			X										
3	MW14	10/1/96	16:30	H_2O	1			X										

RELINQUISHED BY	DATE	RECEIVED BY	DATE
Timothy Dahlin	10/2/96	Teresa Henson	10/2/96
FIRM GCI	TIME	FIRM OSE	TIME 10:34
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

COMMENTS:

RECEIVED
OCT 10 1996
GeoTech
CONSULTANTS

DISTRIBUTION: OnSite Yellow Copy - Client Pink - Project Copy

September 20, 1995

JN 94356E-2

The Boeing Company
P.O. Box 3707, MS 7E-EJ
Seattle, Washington 98124-2207

Attention: Stephen D. Ryan, Environmental Affairs

Subject: **Groundwater Sampling - Second Episode**
Garden Plaza and Fifth and Park Property
Renton, Washington

Dear Mr. Ryan:

Geotech Consultants, Inc. has completed the second episode of groundwater sampling on the subject property. We will perform bi-annual sampling on the property through 1999. This work is accomplished in accordance with Boeing Contract Number ENV-4-94 REN-046.

Three monitoring wells on the property (MW-4, MW-12, and MW-14) were sampled on August 25, 1995, and the groundwater samples were submitted to the project laboratory for analysis by the WTPH-Diesel extended range test. The attached laboratory report completes this letter. Please note that the three monitoring wells scheduled for this bi-annual sampling were MW-4, MW-13, and MW-14. Since our first sampling episode in February of 1995, MW-13 has apparently been destroyed. We were unable to locate the well, as street widening improvements have been completed and it appears that the well is covered with a sidewalk. We will utilize MW-12 as the third well for our future bi-annual sampling. MW-12 lies approximately 25 feet to the northeast of the previous location of MW-13, and it is the closest and most logical choice for replacement.

RESULTS OF LABORATORY ANALYSIS

Well Number	Date	Depth to Water	WTPH-D ext.
MW-4	2/22/95	8.23 feet	2.2 ppm [1]
	8/25/95	10.27 feet	9.9 ppm
MW-13	2/22/95	not completed [2]	-----
	8/25/95	unable to locate well	-----

Well Number	Date	Depth to Water	WTPH-D ext.
MW-12 [3]	8/25/95	9.33 feet	0.68 ppm
MW-14	2/22/95	7.39 feet	< 0.50 ppm
	8/25/95	9.15 feet	0.53 ppm
Method A Cleanup Guideline [4]			**1.0 ppm**

Notes:

(1) ppm denotes concentrations in parts per million.
(2) Unable to complete due to damage to well from construction activities.
(3) MW-12 replaces MW-13 for the remainder of the project.
(4) Cleanup guideline is published in the Model Toxics Control Act, Chapter 173-340, Washington Administrative Code.

In comparison to the February of 1995 sampling episode, this recent sampling episode reveals an increase of TPH-Diesel levels in MW-4. Referring to the table, levels of diesel in MW-4 are elevated from 2.2 ppm in February of 1995 to 9.9 ppm in August of 1995. The water level dropped over 2 feet through the dry summer months.

We appreciate the opportunity to be of continuing service on this project. If you have any questions, or if we may be of further service, please do not hesitate to contact us.

Respectfully submitted,
GEOTECH CONSULTANTS, INC.

Sean P. O'Brien
Environmental Engineer

James R. Finley, Jr., P.E.
Principal

JAMES R. FINLEY, JR. STATE OF WASHINGTON 19660 REGISTERED PROFESSIONAL ENGINEER
9/20/95
EXPIRES 8/17/97

SPO/JRF:jcv
Enclosure: Laboratory Report

OnSite Environmental Inc.

August 30, 1995
Lab Traveler #:08-082

Sean O'Brien
GeoTech Consultants
13256 NE 20th Street, Suite 16
Bellevue, WA 98005

Dear Sean:

Enclosed are the results of the analyses of samples submitted on August 25, 1995 from Project 94356E.

We appreciate this opportunity to be of service to you on this project. If you have any questions regarding this report, please feel free to call me.

Sincerely,

Wendy Linn McLeod
Project Chemist

Enclosures

RECEIVED
SEP 0 1 1995
GEOTECH
CONSULTANTS

Date of Report: August 30, 1995
Samples Submitted: August 25, 1995
Lab Traveler: 08-082
Project: 94356E

WTPH-D (extended)

Date Extracted: 8-28-95
Date Analyzed: 8-28 & 29-95

Matrix: Water
Units: mg/L (ppm)

Client ID	Lab ID	Dilution Factor	Total Petroleum Hydrocarbons	Surrogate Recovery	Flags	MRL
94356-MW4	08-082-1	0.02	**9.9**	84%	L	0.50
94356-MW12	08-082-2	0.02	**0.68**	80%	L	0.50
94356-MW14	08-082-3	0.02	**0.53**	80%	L	0.50

L-Quantitated from C7-C34 as diesel fuel #2.

Date of Report: August 30, 1995
Samples Submitted: August 25, 1995
Lab Traveler: 08-082
Project: 94356E

WTPH-D
METHOD BLANK QUALITY CONTROL

Date Extracted: 8-28-95
Date Analyzed: 8-28 & 29-95

Matrix: Water
Units: mg/L (ppm)

Lab ID: MB0828W1

	Dilution Factor	Total Petroleum Hydrocarbons	Surrogate Recovery	Flags	MRL
Method Blank	0.02	ND	87%		0.50

Date of Report: August 30, 1995
Samples Submitted: August 25, 1995
Lab Traveler: 08-082
Project: 94356E

WTPH-D
DUPLICATE QUALITY CONTROL

Date Extracted: 8-28-95
Date Analyzed: 8-28 & 29-95

Matrix: Water
Units: mg/L (ppm)

Lab ID: 08-082-3

	Dilution Factor	Total Petroleum Hydrocarbons	Surrogate Recovery	Flags	MRL
Sample	0.02	0.529	80%		0.50
Duplicate	0.02	0.514	85%		0.50
RPD		NA			

COMPANY Geotech

PROJECT # 94356E

PROJECT NAME BOEING

MANAGER Sean O'Brien

PM WLM

OnSite Environmental Inc.

14924 NE 31st Circle, Redmond, WA 98052
Phone (206) 883-3881 Fax (206) 885-4603

REQUESTED TURNAROUND?

TRAVELER # 08-082

Dash	Sample Number	Date Sampled	Time Sampled	Type	# Jars	WTPH-HCID	WTPH-G/BTEX	WTPH-G	WTPH-D (extended)	WTPH-418.1			DRY WEIGHT	Comments
						Analysis Required								
1	94356 - MW4	8-25		water	11 liter				X					
2	94356 - MW12	"		"	"				X					
3	94356 - MW14	"		"	"				X					

Submitted Sean J. O'Brien Date 8-25 Received by Teresa Hanson Date 8/25

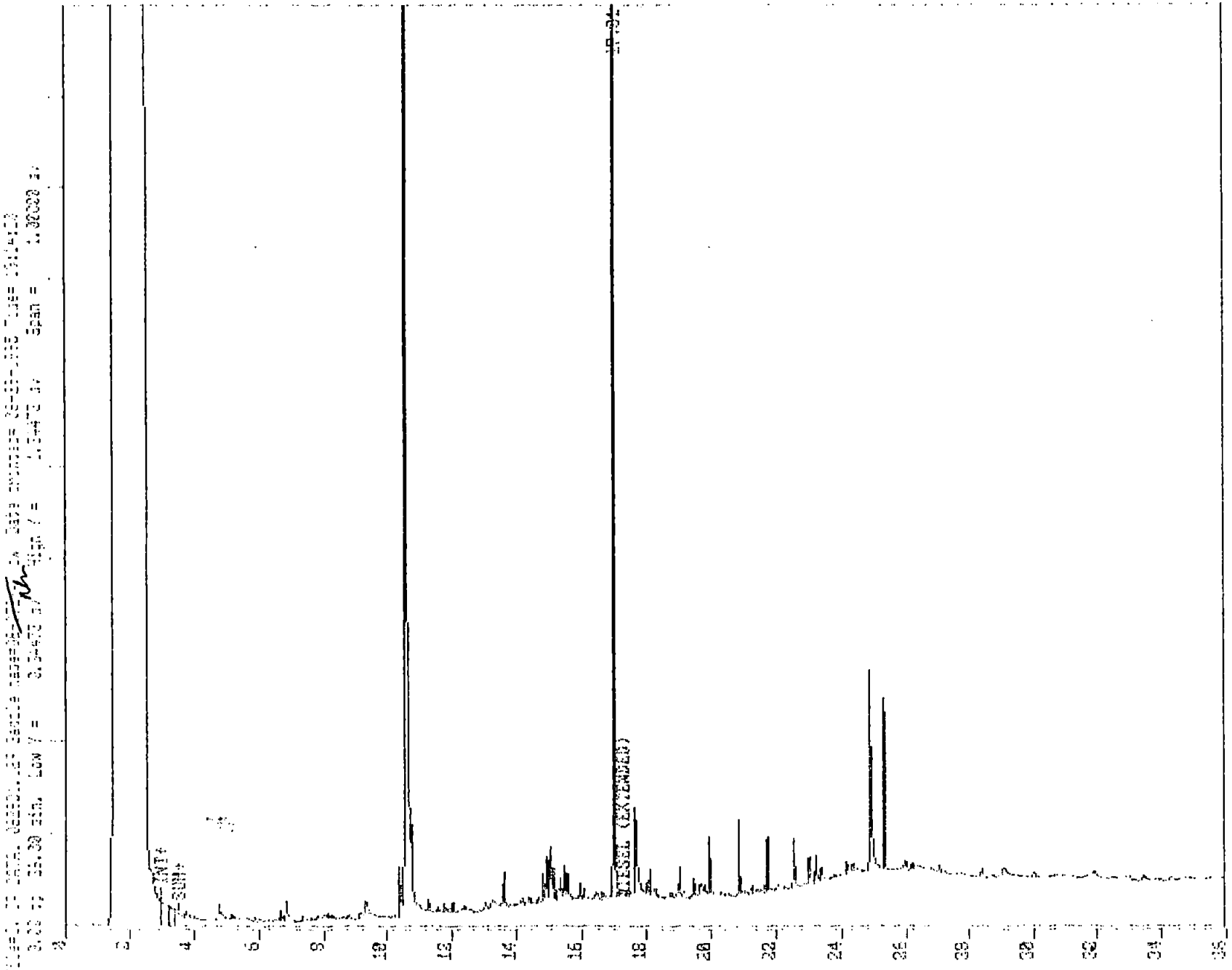
Firm Geotech Time 1:50pm Firm OSE Time 1:50pm

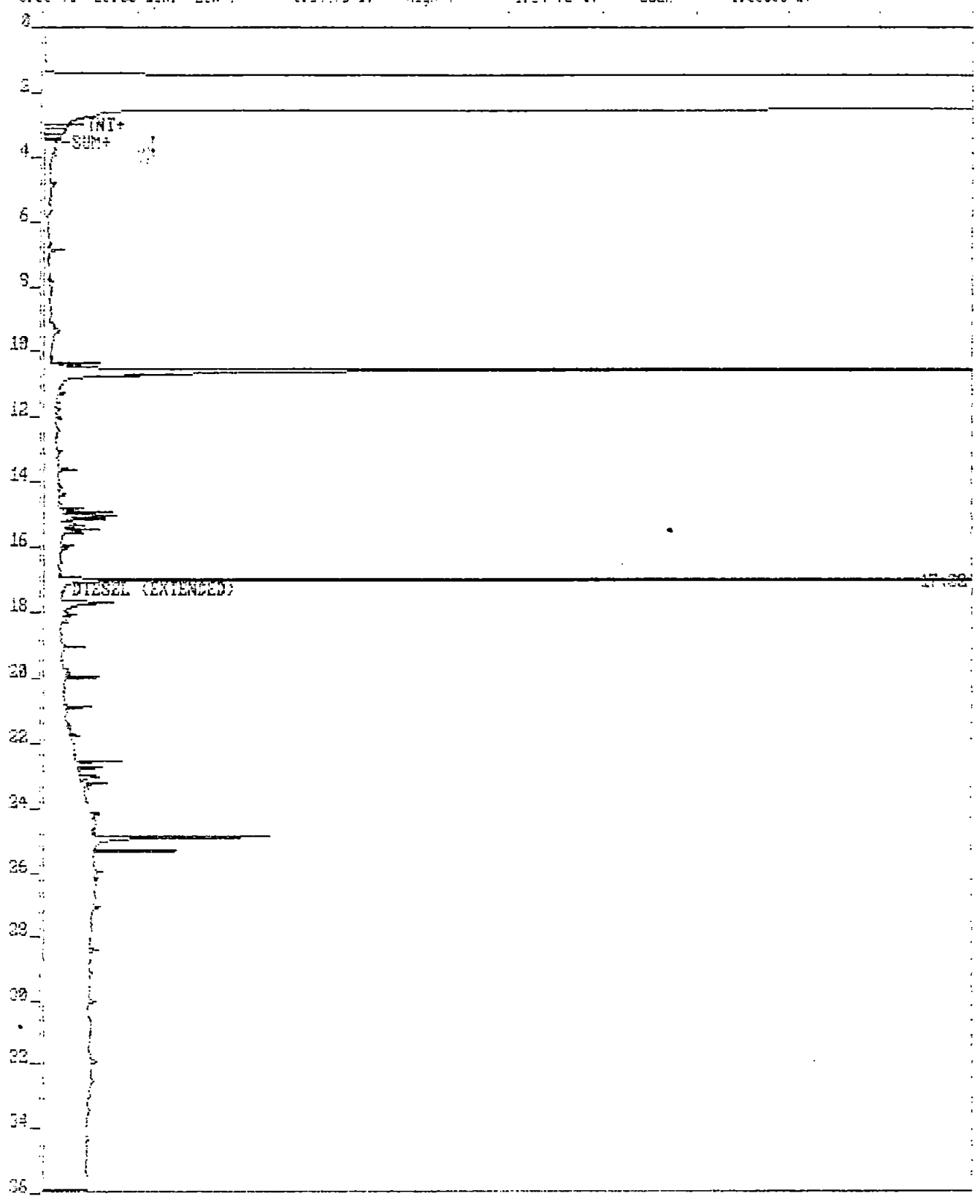
Submitted _____ Date _____ Received by _____ Date _____

Firm _____ Time _____ Firm _____ Time _____

Sample: 94356-MW4
Method: WTPH-D(EXT)

Sample: 94356-MW12
Method: WTPH-D (ext.)





Sample: 943356-MW14
Method: WTPH-D (ext.)

March 3, 1995

JN 94356E-1

The Boeing Company
P.O. Box 3707, MS 7E-EJ
Seattle, Washington 98124-2207

Attention: Stephen D. Ryan, Environmental Affairs

Subject: **Groundwater Sampling**
Garden Plaza and Fifth and Park Property
Renton, Washington

Dear Mr. Ryan:

Geotech Consultants, Inc. has completed the first episode of groundwater sampling on the subject property. We will complete biannual sampling on the property through 1999. This work is being completed in accordance with Boeing Contract Number ENV-4-94 REN-046.

Three monitoring wells on the property (MW-4, MW-13, and MW-14) were sampled on February 22, 1995, and the samples were submitted to the project laboratory for analysis by WTPH-Diesel extended range. The laboratory reports are attached to complete this letter.

RESULTS OF LABORATORY ANALYSIS

Well No.	Date	Depth to Water	WTPH-D extended
MW-4	2/22/95	8.23 feet	2.2 ppm
MW-13	2/22/95	not completed	< 0.50 ppm
MW-14	2/22/95	7.39 feet	< 0.50 ppm

Note:
ppm denotes concentrations in parts per million.

The levels presented in the table represent a reduction in diesel concentrations in two of the three monitoring wells. The last sampling episode was completed in February of 1994, at which time the levels of diesel were 6.2 ppm in MW-4, less than 0.50 ppm in MW-13 (unchanged), and 2.9 ppm in MW-14. According to the Model Toxics Control Act (MTCA), Chapter 173-340 WAC, the Method A cleanup guideline for diesel in water is 1.0 part per million (ppm).

Monitoring Well MW-13, which lies along the downgradient western property line, west of MW-4, has been severely damaged by the road widening project currently being completed. At the time of our visit, the monument cover could not be located, and the PVC well pipe has been broken. A rock was in the top of the well, preventing surface infiltration. Our field engineer covered the well and placed a marker next to the pipe. We informed Stephen Ryan of Boeing and suggested that the well should be saved for future monitoring.

We appreciate the opportunity to be of continuing service on this project. If you have any questions, or if we may be of further service, please do not hesitate to contact us.

Respectfully Submitted,

GEOTECH CONSULTANTS, INC.

Sean P. O'Brien
Environmental Engineer

James R. Finley, Jr., P.E.
Principal

SPO/JRF:jcv

Attachments (4)

cc: Mike Mastro
Gene Horbach

OnSite Environmental Inc.

February 27, 1995
Lab Traveler #:02-058

Sean O'Brien
GeoTech Consultants
13256 NE 20th Street, Suite 16
Bellevue, WA 98005

Dear Sean:

Enclosed are the results of the analyses of samples submitted on February 23, 1995 from Project 94356E.

We appreciate the opportunity to be of service to you on this project. If you have any questions regarding this report, please feel free to call me.

Sincerely,

Judith T. Colina

Judith T. Colina
Project Chemist

Enclosures

RECEIVED
MAR 0 1 1995
GEOTECH
CONSULTANTS

OnSite Environmental Inc.

Date of Report: February 27, 1995
Samples Submitted: February 23, 1995
Lab Traveler: 02-058
Project: 94356E

WTPH-D (extended)

Date Extracted: 2-23-95
Date Analyzed: 2-23-95

Matrix: Water
Units: mg/L (ppm)

Client ID	Dilution Factor	TPH	o-terphenyl Surrogate Recovery
94356-MW4	0.020	2.2[L]	94%
94356-MW13	0.020	<0.50[L]	81%
94356-MW14	0.020	<0.50[L]	86%

L-Quantitated from C12-C30 as diesel fuel #2.

Date of Report: February 27, 1995
Samples Submitted: February 23, 1995
Lab Traveler: 02-058
Project: 94356E

WTPH-D
QUALITY ASSURANCE

Date Extracted: 2-23-95
Date Analyzed: 2-23-95

Matrix: Water
Units: mg/L (ppm)

	Dilution Factor	TPH	o-terphenyl Surrogate Recovery
Method Blank	0.020	<0.50	80%
Sample: 02-057-2	0.020	<0.50	74%
Duplicate	0.020	<0.50	80%
RPD		NA	

COMPANY Geotech

PROJECT # 24356E

PROJECT NAME Garden Plaza

MANAGER Sean O'Brien

PM JTC

OnSite Environmental Inc.

14924 NE 31st Circle, Redmond, WA 98052
Phone (206) 883-3881 Fax (206) 885-4603

REQUESTED TURNAROUND?

TRAVELER # 02-058

Dash	Sample Number	Date Sampled	Time Sampled	Type	# Jars	WTPH-HCID	WTPH-G/BTEX	WTPH-G	WTPH-D Extended	WTPH-418.1			DRY WEIGHT	Comments
	24356-MW4	2-23		Water	11 1L				X					
	-MW13	↓		↓	↓				X					
	-MW14								X					

Submitted Sean J. O'Brien Date 2-23 Received by Bonnie Date 2-23

Firm Geotech Time 1:50 Firm OSE Time 1:50

Submitted _____ Date _____ Received by _____ Date _____

Firm _____ Time _____ Firm _____ Time _____

APPENDIX C

Voluntary Cleanup Report Summary

Voluntary Cleanup Program

Washington State - Department of Ecology - Toxics Cleanup Program

Site Summary

This Summary is a required component of your request for assistance under the Voluntary Cleanup Program

Which of the following apply?

[ ]	Requesting assistance on a planned cleanup
[ ]	Requesting assistance on an ongoing cleanup.
[x]	Requesting review of a completed cleanup.

Note: If you submitted your Request for Assistance (ECY 020-74) previously without a Site Summary (this form) or this is a revised Site Summary, Please provide this completed form to Ecology at least five (5) working days prior to the meeting/site visit/documentation review (whichever comes first).

A) Site Identification:

Name of Site: Garden Plaza and Fifth and Park Property

Alternate Name(s) for Site: Boeing Renton

Street Address of Site: 500 and 535 Park Avenue North

City: Renton State: WA Zip: 98055

County: King UBI Number:

Mailing Address (if different from above):

City: State: Zip:

Township 23N Range 5E Section 8 Quarter-Quarter SE-SW

If Known:

Latitude: Degree 47 Minute 29 Second 29

Longitude: Degree 122 Minute 12 Second 05

Method used to calculate Latitude and Longitude: Topo!

How large (in acres) is the site? 4.83 acres

Please attach two maps to this form.

1) An area map, showing general location of the site in relation to surrounding bodies of water, cities, highways, and streets. (Please mark site location.)
2) A site diagram showing surrounding cross-streets, labeled building outlines, sampling and well locations, etc.

B) Person/Organization Making Request for Assistance/Review:

Name: Timothy A. Johnson

Firm: Geotech Consultants, Inc

Street Address: 13256 Northeast 20th Street, Suite 16

City: Bellevue State: WA Zip: 98005

Telephone Number: (425) 747-5618 Extension:

Fax Number: (425) 747-8561 e-mail address:

Which best describes your involvement with the site? (Check as many as apply.)

Current Owner ☐ Former Owner ☐ Potential Purchaser ☐
Current Operator ☐ Former Operator ☐ Other (specify) ☒
Environmental Consultant for JM Investments
Attorney for
Insurance Carrier for
Other (specify) for

C) Release Information:

Date of Release (if known): N/A Date of Discovery: 1989
Drinking Water: Number of Drinking Water Supply Wells within 1/2 mile None
Are there any drinking water systems affected? ☐ yes ☒ no
If yes, has alternate drinking water been provided? ☐ yes ☐ no
If Drinking Water systems are affected, are the systems public, private, or both?
Aquatics: Are there an creeks, streams, ponds, wetlands, or shorelands...
on or adjacent to the site? ☐ yes ☒ no
Within 1/4 mile of the site? ☐ yes ☒ no
Where are they located?
Are they impacted by contamination from the site? ☐ yes ☐ no

General Hazardous Substance Categories: Please complete the chart below. List the contaminants known or suspected at the site prior to cleanup, and mark the appropriate medium (i.e. soil) with: **C** (confirmed and above MTCA); **B** (confirmed but below MTCA); **S** (suspected); N/A (not-applicable); **O** (tested and not present); or **U** (unknown).

Contaminant	Class *(for office Use*	Affected Soil	Media: Ground-Water	Surface Water	Air	Sediment	Date of Release *(if known)*
Example: Lead		C	O	S	U	S	1967-82
1) Petroleum Prod.		C	B	N/A	N/A	N/A	
2)							
3)							
4)							
5)							
6)							

D) Report Information of Assessment or Remediation Work Done to Date

Assessment:

Has site assessment work been done at this site? yes ☒ no ☐ In-progress ☐
If yes, when? 1993 Were results reported to Ecology? yes ☒ no ☐ Date April 1994
Describe: (list reports in "E" below)

Phase II environmental site assessments were completed by several consultants. Petroleum contaminated soil and groundwater were identified. WDOE issued a no further action determination in 1994 with deed restrictions and groundwater monitoring required. Groundwater from three monitoring wells has been sampled and analyzed semi-annually since 1995. TPH results have decreased to well below MTCA method A cleanup levels in the last two sampling events.

Remediation:

Has any site cleanup work been done at the site? yes ☐ no ☒ in-progress ☐
If yes, please continue to answer the remaining questions in this section to the best of your ability.

When was the cleanup work done?
Were results reported to Ecology? yes ☐ no ☐ date
Describe: (list reports in "E" below)

Does contamination remain on-site after cleanup activities? yes ☐ no ☐
If yes, describe: (list reports in "E" below)

For each contaminant listed in ***Part C) Release Information (above)***, please describe the quantity of the contaminant (in pounds) which was removed or treated as a result of the cleanup activities:

Contaminant	Class *(for office Use*	Pounds of Contaminant: Incinerated	Washed	Removed	Treated	*Contained)*
Example: Lead		10	20	40	10	60
1)						
2)						
3)						
4)						
5)						
6)						
7)						
8)						
9)						
10)						
11)						
12)						

As a result of the cleanup:
How many acres of land were returned to ***unrestricted*** use?
How many acres of land were returned to ***restricted*** use?
How many cubic feet of contaminated soil was remediated or contained?
How many gallons of contaminated soil was remediated or contained?
How many people are now at reduced risk as a result of the cleanup action?
How many pounds of potential pollution was prevented as a result of the cleanup action?

Methods/Treatments Used	Soil	Groundwater	Surface Water	Drinking Water	Air	Wastes
Method A						
Method B						
Method C						
Have these levels been met through the site ? Y or N						
Destruction or Detoxification						
Carbon Adsorption[1]	N/A					N/A
Biological Treatment					N/A	
Chemical Destruction						
Incineration		N/A	N/A	N/A		
[1]Carbon followed by regeneration: use of granular activated carbon followed by landfilling would be classified in these tables as volume reduction and off-site landfill						
Media Transfer						
Air stripping/Air Sparging	N/A					N/A
Aeration/Vapor Extraction		N/A	N/A	N/A	N/A	
Thermal Desorption		N/A	N/A	N/A		N/A
Immobilization						
Vitrification		N/A	N/A	N/A		
Solidification/Stabilization		N/A	N/A	N/A		
Reuse/Recycling[2]						
Specify						
[2]For example, reuse of free petroleum product recovered in a pump and treat system.						
Separation/Volume Reduction						
Solvent Extraction		N/A	N/A	N/A		
Soil Washington		N/A	N/A	N/A		
Physical Separation[3]						
[3]For example, oil/water separators.						
Land Disposal/Containment						
Containment or On-site Landfill			N/A			
Off-site Landfill		N/A	N/A	N/A		
Institutional Controls	X	X				
Specify	Deed Restricti on	Monitoring				
Others						
Specify Treatment Method						

E) Documentation:

Please list titles of all site reports below. Include name of consulting firm and year completed. (If there is not enough room for the entire list, please attach additional page(s) as necessary.)

Title:	By:	Date
Final Report, Property Assessments E& H Properties	Landau Associates, Inc	July 24, 1989
Subsurface Exploration and Testing	Geotech Consultants, Inc	November 5, 1993
Supplemental Subsurface Exploration and Testing	Geotech Consultants, Inc	December 10, 1993
Independent Cleanup Report	Geotech Consultants, Inc	April 8, 1994

Is additional information concerning the contaminants treated or removed, or cleanup or remediation methods used available in a data base? yes ☐ no ☒ If yes, what programming software is use?
Is a copy included for our use? yes ☐ no ☐

F) Property Type: Commercial ☐ Industrial ☐ Residential ☐ Other ☒ (Please specify) Office
Property currently being used? yes ☒ no ☐
Plans for change in use? yes ☐ no ☒ If yes, please specify:

G) Standard Industrial Classification (SIC) Codes:

List all that apply. If none apply, or if you don't know your SIC code, list activities conducted at the site (i.e. automotive repair and maintenance, construction equipment storage, etc.).

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H) Dangerous Waste Facilities:

Does the facility have a dangerous waste identification number? yes ☐ no ☒
If yes, what is the number? WAD

I) Tank Information:

Complete this table for ALL tanks, whether underground (UST) or aboveground (AST), including unregulated tanks.
(*Unleaded, leaded diesel, bunker-C, waste oil, heating oil, aviation fuel, other (identify))
(** Tank status: Left in Place, Removed, Closed in Place)

Tank ID	AST/UST	Size	Was Free Product encountered?		In Excavation	**Tank Status
			*Product	On GW		

J) Owner/Operator History
Type (code) of Owner/Operator (for below):
Private **(1)** Municipal **(2)** County **(3)** Federal **(4)** State **(5)** Tribal **(6)** Mixed **(7)** Other **(8)** Unknown **(9)**
Public Entitle Acquisition via Bankruptcy **(11)**

1) Current Site Owner: The Boeing Company		Type: 1
Street Address: P.O. Box 3707, Mail Stop 7E-EJ		
City: Seattle	State: WA	ZIP: 98124-2207
Contact Persons (if different than owner, above): Stephen D. Ryan		
Street Address:		
City:	State:	ZIP:
Telephone Number: (206) 393 - 4707	Extension:	
Fax Number:	e-mail address:	
Dates of Ownership: 1994	to present	

2) Current Facility Operator: The Boeing Company		Type: 1
Street Address: Same as above		
City:	State:	ZIP:
Contact Persons (if different than owner, above):		
Street Address:		
City:	State:	ZIP:
Telephone Number:	Extension:	
Fax Number:	e-mail address:	
Dates of Operation: Same as above	to	

3) Former Site Owner: E & H Investments		Type: 1
Street Address: P.O. Box 598		
City: Bellevue	State: WA	ZIP: 98009
Contact Persons (if different than owner, above): Eugene Horbach		
Street Address:		
City:	State:	ZIP:
Telephone Number:	Extension:	
Fax Number:	e-mail address:	
Dates of Ownership:	to	

4) Former Facility Operator:		Type:
Street Address:		
City:	State:	ZIP:
Contact Persons (if different than owner, above):		
Street Address:		
City:	State:	ZIP:
Telephone Number:	Extension:	
Fax Number:	e-mail address:	
Dates of Operation:	to	

K) Other Involved Parties:
(Please photocopy and attach copies if additional parties are involved)

1) Environmental Consultant: Timothy A. Johnson		
Representing: JM Investments		
Firm: Geotech Consultants, Inc		
Street Address: 13256 Northeast 20th Street, Suite 16		
City: Bellevue	State: WA	ZIP: 98005
Telephone Number: (425) 747-5618	Extension:	
Fax Number: (425) 747-8561	e-mail address:	

2) Site Control Person if other than Owner/Operator. (This must be a person who is on-site during normal working hours and is authorized and qualified to answer questions about the site, or a person who is available during normal business hours and has knowledge about the site and the remediations.		
Name:		
Relation to site/owner/operator:		
Firm:		
Street Address:		
City:	State:	ZIP:
Telephone Number:	Extension:	
Fax Number:	e-mail address:	
Dates of involvement with site:	to:	

3) Name:		
Relation to site/owner/operator:		
Firm:		
Street Address:		
City:	State:	ZIP:
Telephone Number:	Extension:	
Fax Number:	e-mail address:	
Dates of involvement with site:	to:	

4) Name:		
Relation to site/owner/operator:		
Firm:		
Street Address:		
City:	State:	ZIP:
Telephone Number:	Extension:	
Fax Number:	e-mail address:	
Dates of involvement with site:	to:	