South Park Landfill

Remedial Investigation/ Feasibility Study

Prepared for

City of Seattle
South Park Property Development, LLC

July 2017

PUBLIC REVIEW DRAFT

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Detailed Historical Analysis

Appendix A
Detailed Historical Analysis

A description of the historical operations within the approximate South Park Landfill (Landfill) boundary as shown in the Remedial Investigation/Feasibility Study (RI/FS) Work Plan (Farallon 2010b) is based on historical information available in the King County Solid Waste Division (KCSWD) files (SPU 1997) and aerial photographs. This information was originally summarized in the *South Park Custodial Landfill Environmental Site Investigation Data Gaps Memorandum* (AESI 1998). Aerial photographs of the Landfill and surrounding parcels are presented in this appendix and are available from the following dates: 1936, 1941, 1946, 1948, 1951, 1953, 1956, 1960, 1963, 1967, 1969, 1974, 1977, 1980, 1982, 1985, 1990, 1992, 1995, 1996, 1997, 2000, 2002, and 2004. The following sections provide a brief description of the historical operations at the Landfill and the surrounding areas. A general timeline of the historical operations is provided in this appendix, as well as in Table 4.1 of this RI/FS.

1936 and Earlier

The First Addition River Park and Tax Lot 5, which are now occupied by the Seattle Public Utilities (SPU) South Recycling and Disposal Station (SRDS) and the South Park Property Development, LLC (SPPD) undeveloped parcel, were added to the King County (County) tax rolls via foreclosure in 1922 and 1927, respectively. The northwestern portion of the Landfill, which is now mostly occupied by the Kenyon Industrial Park (KIP) and the 7901 2nd Avenue South (7901) property, historically was part of Tax Lot 7.

Disposal of garbage and rubbish was reported in 1934 on the present day KIP and SPPD parcels (SPU 1997). The earliest available aerial photograph (1936) indicates that there were two areas of active solid waste disposal occurring in the northwest corner (present-day KIP/7901 parcels) and the southern portion (present-day SPPD parcel) of the Landfill (Figure A.1). The areas of active disposal were bordered by South Kenyon Street to the north, Occidental Avenue South to the west, and South Sullivan Street to the south. The approximately 8.6 acres of solid waste initially consisted of residential waste from south Seattle and north King County, but also later included commercial and industrial waste. City of Seattle (City) records from the early 1930s also indicated that sawdust fill was placed in the southern disposal area, to the south of the present-day South Sullivan Street alignment (Seattle Engineering Department 1934). The remaining areas of the Landfill were unused and densely vegetated, and the surrounding areas consisted of scattered agricultural parcels and undeveloped land.

A drainage ditch traversed the western boundary of the Landfill (present-day West Ditch), connecting to a drainage channel to the north of South Kenyon Street that ultimately discharged to the Duwamish Waterway. The historical West Ditch location is indicated on Figure A.1 based on modifications from topographic surveys conducted in 1899 (Bortleson, et al. 1980). The areas to the north of South Kenyon Street and the Landfill were reportedly used to deposit dredge material from the Duwamish Waterway. U.S. Army Corps of Engineers

(USACE) documentation, dated 1970, provided dredging contracts for the time period between 1931 and 1968. The USACE plan, titled *Duwamish Waterway Seattle Harbor, Condition – Nov. 30, 1935,* indicated that there were dredge disposal sites to the north of South Kenyon Street, between 1st Avenue South and 2nd Avenue South. Contract W.869 eng.894, dated January 11, 1936 (AESI 1998) also indicated that dredge material was deposited on the parcels belonging to the City and the County.

1936 to 1941

By 1941, the approximate limits of the northwest disposal area expanded southward and the southern disposal area expanded to the northwest and southeast (Figure A.2). The surrounding properties remained primarily agricultural, with residential properties to the east and southeast of the Landfill. The partially completed West Marginal Way South (State Route [SR] 99) can be identified to the northeast of the Landfill in Figure A.2.

1941 to 1951

Between 1941 and 1946 the northwest disposal area started to expand to the southeast, into the parcel now occupied by the present-day SRDS. Open burning of solid waste was apparent in this area. In addition, the extent of solid waste in the southern disposal area expanded to the northwest, but appeared to be covered with vegetation by 1946 (Figure A.3). By 1948, a majority of the disposal activities were occurring primarily in the northwestern disposal area where open burning of solid waste continued to be apparent, although not as extensive as 1946 (Figure A.4; AESI 1998). In the 1948 aerial photograph, buildings that were in the southeastern portion of the present-day SRDS parcel have been removed in apparent preparation for future disposal activities in 1951 (Figure A.4).

According to the KCSWD information, the City purchased the First Addition River Park parcel and Tax Lot 7 in 1951. In the 1951 aerial photograph, an auto-wrecking yard or used vehicle sales lot was located to the south of South Kenyon Street, which included part of the previous northwest disposal area (Figure A.5). Also in 1951, active disposal in the northwest area moved to the southeast into present-day SRDS and SPPD parcels and was bound by West Marginal Way South to the east. In the 1951 aerial photograph, a plume of smoke is visible, which appears to originate from the southeast active disposal area and move to the southwest, off of the photograph.

1951 to 1956

In 1953, an auto-wrecking yard was located to the north of South Cloverdale Street and extended across the southern disposal area (Figure A.6). An auto-wrecking yard was also located to the west of the Landfill, just to the east of 1st Avenue South. The 1953 aerial photograph shows evidence of soil disturbance consistent with the construction of unpaved parking and driveways, and a small building, on the former Glitsa American, Inc. (Glitsa),

property to the northeast of the Landfill. This is the first evidence of soil disturbance on this parcel.

The northwest corner of Tax Lot 7 was purchased by John Farrell in 1953 from the Ripley Family, with the stipulation that he waived the right to file claims related to the burning of solid waste at the Landfill. In the 1953 aerial (Figure A.6), filling of the swale begins from the east as Mr. Farrell began to acquire more useable land for his auto yard. In 1955 John Farrell purchased the parcel containing the northwest disposal area.

Based on the 1956 aerial photograph (Figure A.7), active disposal in the northwest area moved further to the southeast and was bound by West Marginal Way South to the east.

In the 1956 aerial photograph, solid waste burning areas were visible at the base of the active disposal area accessed from West Marginal Way South and the northern area accessed by South Kenyon Street (Figure A.7). In addition, a depression, which appeared to be filled with ponded liquid, was located southeast of the active disposal area (Figure A.7).

The former agricultural parcels surrounding the Landfill were developed by 1956 (Figure A.7). An auto-wrecking yard was located to the north of South Cloverdale Street and extended across the southern disposal area. The auto-wrecking yard to the north of South Cloverdale Street expanded across former agricultural parcels to 1st Avenue South and Mr. Farrell was continuing to clear and fill the swale. An area to the west of Occidental Avenue South appeared to be a log sorting yard. According to Washington State Highway Commission SR 509 Burien to JCT. P.S.H. No. 1 Right-of-Way plans (WSDOT 1957), gas stations were located on parcels along 1st Avenue South at Occidental Avenue South and South Kenyon Street. At the former Glitsa property, the 1956 aerial photograph indicates additional clearing related to the construction and operation of a small private facility (Auto Top and Trim). An auto-wrecking yard was also located to the south of South Kenyon Street, which included part of the northwest disposal area. Continued auto wrecking activities are evident to the west and east of the swale on the KIP property.

1956 to 1960

According to KCSWD files, the County purchased Tax Lot 5 (present-day SPPD parcel) in 1957, and in 1958 the City began leasing the property for rubbish disposal (SPU 1997). Also in 1958, the County deeded a portion of the southwest corner of the property to the State of Washington for highway development. The 1960 aerial photograph (Figure A.8) indicates that the northern disposal area continued to expand southward, connecting to the southern disposal area. Active disposal primarily occurred in the central portion of the Landfill, where open burning took place. The auto-wrecking yard to the south of South Kenyon Street expanded westward, bound by 1st Avenue South to the west.

The 1960 aerial photograph indicates the presence of an industrial warehouse building (circa 1959) on the former Glitsa property to the northeast of the Landfill. The former Glitsa property was owned by Farwest Paint Manufacturing Company until 1978. The property had a

7,500-gallon Stoddard-solvent underground storage tank (UST) located to the east of the warehouse building that was installed in 1964 (Environmental Associates 2009a).

Additional dredge material was disposed of north of South Kenyon Street (approximately 667,055 cubic yards of material from maintenance dredging activities from October 14 to November 30, 1957) as documented by USACE records, which include correspondence from the General Construction Company.

1960 to 1969

The burning of rubbish in the Landfill was halted in approximately 1961 (Farallon 2010b) and, by 1963 (Figure A.9), the Landfill capacity began to diminish. Landfill operations included the placement and compaction of rubbish, fire control by watering, and soil movement (AESI 1998). The East-West Channel was constructed across the southern part of the Landfill by 1963. In September 1965 and October 1966, the County deeded the land located along the present-day SPPD parcel boundary (along 5th Avenue South and South Sullivan Street) for roadway development (SPU 1997). The SRDS was built in 1966 (shown a year later on Figure A.10), when the Landfill stopped receiving municipal solid waste (SPU 1997; Ecology and Environment 1988), and completed in 1967.

The 1967 aerial photograph (Figure A.10) shows the East-West Channel on the present-day SPPD parcel, extending from 5th Avenue South to the West Ditch. The active disposal of fill continued in several areas to the north of the East-West Channel, while, to the south, grading activities were completed. The auto-wrecking yard to the north of South Cloverdale Street continued operations and moved eastward. This resulted in the abandonment of a portion of South Sullivan Street. Development for the present-day KIP, south of South Kenyon Street, began as the eastern portion of the auto-wrecking yard migrated westward and two buildings were constructed, one on the present-day KIP parcel and the other on the 7901 parcel.

In 1968, the County extended the City's lease for the present-day SPPD parcel for the disposal of clean fill and earthen material for an additional 10 years (SPU 1997). Filling and grading activities continued on the present-day SPPD parcel as shown on the 1969 aerial photograph (Figure A.11). Filling activities on the adjacent triangular parcel to the east of 5th Avenue South appear at this time, but there is no indication that the City or County controlled this property, and filling activities were not related to the Landfill, as the Landfill stopped receiving waste in 1966. Also during this time, South Sullivan Street relocated approximately 150 feet north of its original position onto the southern portion of the former southern disposal area. To the southwest of the Landfill, the SR 509 and South Cloverdale Street interchange was completed and the two gas stations located along 1st Avenue South (at South Kenyon Street and Occidental Avenue South) were abandoned. To the northeast of the Landfill, commercial developments increased. On the KIP property, the auto-wrecking yard continued to expand into the swale.

1969 to 1980

Activity at the Landfill appeared to decrease after 1969. City sewer records show the KIP subsurface drainage system (KIP main stormwater line) was completed beneath the KIP in 1971. The KIP main stormwater line currently receives the West Ditch discharge. Cement kiln dust (CKD) was likely used as fill during the installation of the KIP main stormwater line. It was observed in several soil gas monitoring probes installed in the vicinity of the KIP main stormwater line as part of this RI/FS. In addition, CKD fill was likely placed to the north of South Kenyon Street, where it was found to be as much as 12 feet thick in the vicinity of the former South Kenyon Street Bus Yard (AMEC 2009a). CKD was also found in the Renton Effluent Transfer System (RETS) soil borings; therefore, it is suspected that CKD may also have been used as fill on the parcels to the east of 5th Avenue South and east of the Landfill.

The 1974 aerial photograph (Figure A.12) indicates that grading activities continued at the Landfill on the present-day SPPD parcel. By 1974, the auto-wrecking yard to the south of South Kenyon Street was abandoned, the swale was completely filled in, the parcel was paved, and additional buildings were built. To the north of South Kenyon Street, the former South Kenyon Street Bus Yard was occupied by vehicles and containers owned by Newton Auto Parts and Wrecking in 1975, B&G Auto Wrecking from 1980 to 1996, and Bry's Auto Wrecking in 2002 (AMEC 2009a). To the east of 5th Avenue South there were several additional commercial developments on the parcel, which was previously filled with CKD.

In 1976, the City submitted a request to purchase the SPPD parcel (SPU 1997).

In 1977 (Figure A.13), the present-day SPPD parcel contained a storage area. The former log sort yard, to the southwest of the Landfill, was developed into the Northstar Ice Equipment facility. In 1978, the City's lease of the SPPD parcel expired (SPU 1997). Negotiations between the County and the City continued until 1984 (SPU 1997). In 1980 (Figure A.14), the storage area in the northwest portion of the present-day SPPD parcel expanded and included drum storage. There was also additional filling and grading north of the East-West Channel. An extension of 2nd Avenue South was also created along the western border of the present-day SRDS parcel at this time.

1980 to 1997

The 1982 aerial photograph (Figure A.15) shows the present-day SPPD parcel, south of the East-West Channel, as mostly vegetated, and the northwestern portion as used for storage. The auto-wrecking yard to the north of South Cloverdale Street was abandoned and developed into the Emerson Power Products facility.

As of 1984, the northwestern portion of the present-day SPPD parcel was used primarily for leased storage. County records show that approximately 22,000 square feet of property was leased to United Motor Freight, Inc., The lease was modified in June 1984 to a total of 66,000 square feet to be used for truck and trailer storage. The 1985 aerial photograph (Figure A.16) confirms the presence of trucks and trailers in this area. Between 1985 and 1986,

United Motor Freight, Inc., Tacoma-Seattle Trailer Repair, and Razore Enterprises, Inc., were granted leases for the northwestern portion of the present-day SPPD parcel. Tacoma-Seattle Trailer Repair and Razore Enterprises, Inc., notified the County of their intent to terminate their leases in December 1987 and September 1989, respectively. In 1986, Liberty Service Corporation purchased the northwest corridor of Tax Lot 7 from John Farrell. In 1987, approximately 4,500 square feet of the eastern portion of the present-day SPPD parcel was leased to Herb Young Trucking for truck, trailer, and equipment parking. Surrounding commercial and industrial properties continued to develop, including the Cloverdale Business Park to the south of the Landfill. The parcel to the north of South Kenyon Street continued to be used as an auto-wrecking yard and storage area.

The leased areas of the present-day SPPD parcel continued to expand throughout the 1990s. Bainbridge Trucking leased approximately 20,000 square feet of property for yard space in 1993. In 1994, Certified Leasing was granted a lease of 20,000 square feet in the northwest portion of the present-day SPPD parcel, and Joe Alexander leased 32,000- and 9,000-square-foot areas for truck storage in the eastern portion of the present-day SPPD parcel. Subsequent lessees also included Chicken and Egg Productions (10,000 square feet, January 1995) and Ryder Truck Rental (10,000 square feet, February 1996). Certified Leasing notified the County of their intent to terminate their lease in June 1996. The 1990 (Figure A.17), 1992 (Figure A.18), 1995 (Figure A.19), 1996 (Figure A.20), and 1997 (Figure A.21) aerial photographs confirm the use of the present-day SPPD parcel for storage. Dense vegetation covered areas of the present-day SPPD parcel that were not used for storage or access roads. Parcels surrounding the Landfill otherwise remained essentially unchanged between 1985 and 1997 (WHPacific, Inc. 1997).

1997 to Present

The 2000 aerial photograph (Figure A.22) shows that the present-day SPPD property was no longer being leased for storage. The County was actively pursuing the sale of the property at this time. The 2002 aerial photograph (Figure A.23) shows that the parcel to the north of South Kenyon Street was no longer being used as an auto-wrecking yard and was instead used as a bus yard (former South Kenyon Street Bus Yard). No other significant changes were documented at the Landfill or the surrounding parcels in 2004 (Figure A.24). The northeast corner of the KIP parcel was purchased by John Hill from Janice Farrell in 2005. Later that year, it was again sold, this time to 7901 2nd Avenue South, LLC. The present-day SPPD parcel was sold to the SPPD in 2006. The parcel was later cleared of vegetation and crushed concrete was added to amend the grade before the parcel was leased for equipment storage.

In 2008, the northwest corner of the KIP parcel was purchased by Harsch Investment Properties, LLC from Statewide Mortgage Service Corporation.

Presently, the former South Kenyon Street Bus Yard, north of South Kenyon Street, is being redeveloped for the South Transfer Station. As part of the new construction, the petroleum-impacted soil and CKD fill to the north of South Kenyon Street was removed (AMEC 2009b).

Table

Table A.1
Historical Operations and Owners

Date	Current Parcels	Owner	Activity	Aerial Photograph[1]
1936 and Earlier				
1922	SRDS	King County	First Addition River Park (South Recycling and Disposal Station [SRDS]) added to King County Tax Rolls via foreclosure (SPU 1997).	
1927	SPPD	King County	Tax Lot 5 (South Park Property Development [SPPD]) added to King County Tax Rolls via foreclosure (SPU 1997).	
1934	KIP, SPPD	King County	Reported dumping of garbage and rubbish on Kenyon Industrial Park (KIP) and SPPD parcels and sawdust fill on southern portion of SPPD parcel (Seattle Engineering Department 1934).	
1936 to 1941				
1936	KIP, SPPD	King County	Active dumping of refuse on KIP and SPPD parcels.	X
1941	KIP, SPPD	King County	Continued active dumping of rubbish on KIP and SPPD parcels. Open burning of refuse was occurring.	X
1941 to 1951				
1946	SRDS	King County	Active dumping of rubbish expanded onto SRDS parcel. Open burning of refuse was occurring	X
1948	SRDS, KIP, SPPD	King County	Open burning of rubbish was documented (AESI 1998).	X
1951	SRDS, KIP	City of Seattle	First Addition River Park (SRDS) and Tax Lot 7 (KIP) were purchased by the City of Seattle out of Tax Title Status (SPU 1997). Auto-wrecking evident on northwest KIP.	X
1951 to 1956				
1953	KIP	John Farrell	John Farrell purchased the northwest corner of Tax Lot 7 (KIP) from the Ripley family; waived right to file claims related to burning of rubbish (SPU 1997).	X
1955	KIP	John Farrell	John Farrell purchased the rest of the parcel containing the northwest disposal area (and potentially 7901 2nd Avenue South) from the City of Seattle.	
1956	SRDS, KIP, SPPD	City of Seattle and King County	Auto-wrecking yards developed on the SPPD parcel. Aerial photograph evidence of active burning of rubbish on SRDS parcel.	X
1956 to 1960				
1957	SPPD	King County	King County (Health Department) purchased Tax Lot 5 (SPPD) out of Tax Title Status (SPU 1997).	
1958	SPPD	King County	King County leased SPPD property to City of Seattle for rubbish disposal (10-year period). Deeded southwest portion of Tax Lot 5 (SPPD) to the State of Washington for SR 509 (SPU 1997).	
1960	SRDS, SPPD	City of Seattle and King County	Expansion of active dumping of rubbish on SRDS and SPPD parcels. Aerial photograph evidence of active burning of rubbish.	X
1960 to 1969				
1961	SRDS, SPPD	City of Seattle and King County	Reported end of rubbish burning (Farallon 2010b).	
1963	SRDS, KIP, SPPD	City of Seattle and King County	Filling and grading activities on SRDS, KIP, and SPPD parcels.	X
1965 to 1966	SPPD	King County	King County deeded eastern portions of SPPD parcel to the City of Seattle for streets (SPU 1997).	
1966	SRDS	City of Seattle	SRDS parcel stopped receiving rubbish (SPU 1997; Ecology and Environment, Inc. 1988).	
1967	SRDS	City of Seattle	SRDS completed and opened.	X
1967	KIP	City of Seattle	Initial development of KIP (two buildings).	X
1967	SPPD	King County	East-West Channel constructed.	X
1967	KIP, SPPD	City of Seattle and King County	Continued filling and grading activities on KIP and SPPD parcels.	X
1968	SPPD	King County	City of Seattle renewed its lease from King County for clean fill and earthen material disposal for 10-year period (SPU 1997).	
1969	SPPD	King County	Continued filling and grading activities on SPPD parcel. Re-alignment of South Sullivan Street.	X

Table A.1
Historical Operations and Owners

Date	Current Parcels	Owner	Activity	Aerial Photograph[1]
1969 to 1980				
1974	KIP	City of Seattle	Completion of development of KIP (total of four buildings, as well as paved surfaces across entire parcel). Completion of KIP main stormwater line.	X
1974	SPPD	King County	Grading activities continue on SPPD parcel.	X
1976	SPPD	King County	City of Seattle submitted request to purchase the SPPD parcel (SPU 1997).	
1977	SPPD	King County	A portion of the SPPD parcel was used for storage. Filling and grading was occurring on the property.	X
1978	SPPD	King County	City of Seattle's lease of SPPD parcel expired (SPU 1997).	
1979 to 1984	SPPD	King County	Negotiations between King County and City of Seattle for purchase of SPPD parcel (SPU 1997).	
1980	SPPD	King County	Continued storage on SPPD parcel.	X
1980 to 1997				
1982	SPPD	King County	Continued storage on SPPD parcel.	X
1984	SPPD	King County	King County leased the SPPD parcel to multiple entities (AESI 1998).	
1985	SPPD	King County	Continued leased storage on SPPD parcel.	X
1986	KIP	Liberty Service Corporation	Northwest corner of Tax Lot 7 (KIP) purchased by Liberty Service Corporation from John Farrell (King County 2016).[2]	
1990	SPPD	King County	Continued leased storage on SPPD parcel.	X
1992	SPPD	King County	Continued leased storage on SPPD parcel.	X
1995	SPPD	King County	Continued leased storage on SPPD parcel.	X
1996	SPPD	King County	Continued leased storage on SPPD parcel.	X
1997	SPPD	King County	Continued leased storage on SPPD parcel.	X
1997	KIP	Statewide Mortgage Service Corporation	Northwest corner of KIP parcel purchased by Statewide Mortgage Service Corporation from Liberty Service Corporation via foreclosure (King County 2016).[2]	X
1997 to Present				
2000	SPPD	King County	SPPD parcel no longer leased for storage; King County actively pursued sale of parcel.	X
2002	SPPD	King County	No activity.	X
2004	SPPD	King County	No activity.	X
2005	KIP	John Hill	Northeast corner of KIP parcel purchased by John Hill from Janice Farrell (King County 2016).[2]	
2005	KIP	7910 2nd Avenue South, LLC	Northeast corner of KIP parcel purchased by 7901 2nd Ave S, LLC from John Hill (King County 2016).[2]	
2006	SPPD	SPPD	SPPD parcel sold to SPPD in June 2006 (Farallon 2010b). Parcel was cleared of vegetation and crushed concrete was added to amend the grade.	
2008	KIP	Harsch Investment Properties, LLC	Northwest corner of KIP parcel purchased by Harsch Investment Properties, LLC from Statewide Mortgage Service Corporation (King County 2016).[2]	

Notes:
1 Aerial photographs are presented in Appendix A.
2 Information taken from the King County Parcel Viewer (http://www.kingcounty.gov/operations/gis/propresearch/parcelviewer.aspx) in October 2011.

City of Seattle Ordinance No. 121306

City of Seattle Legislative Information Service

Information retrieved on May 29, 2014 7:57 PM

Council Bill Number: 114695
Ordinance Number: 121306

AN ORDINANCE authorizing the transfer of jurisdiction over certain real property located in Seattle adjacent to the South Recycling and Disposal Station from the Fleets and Facilities Department to Seattle Public Utilities upon payment of $200,000.

Status: Passed
Date passed by Full Council: October 6, 2003
Vote: 8-0 (Excused: Compton)
Date filed with the City Clerk: October 15, 2003
Date of Mayor's signature: October 14, 2003
(about the signature date)

Date introduced/referred to committee: September 15, 2003
Committee: Finance, Budget, Business and Labor
Sponsor: DRAGO

Index Terms: LAND-ACQUISITION, SEATTLE-PUBLIC-UTILITIES, TRANSFER-STATIONS, SOLID-WASTE

Fiscal Note: Fiscal Note to Council Bill No. 114695

Text

ORDINANCE _____

AN ORDINANCE authorizing the transfer of jurisdiction over certain real property located in Seattle adjacent to the South Recycling and Disposal Station from the Fleets and Facilities Department to Seattle Public Utilities upon payment of $200,000.

WHEREAS, certain real property described in Section 1 (the "Property") was acquired by deed from King County in 1965 and accepted by Ordinance 94258 for general corporate purposes; and

WHEREAS, Seattle Public Utilities has requested jurisdiction over the Property for the purpose of improving its solid waste operations; and

WHEREAS, no other proposals for the use of the Property were received from City departments or other public agencies; and

WHEREAS, the price to be paid for transfer of jurisdiction over the Property to Seattle Public Utilities takes into consideration the appraised value of the Property and estimated costs of environmental remediation; and

WHEREAS, the proposed transfer of jurisdiction has been reviewed by the Fleets and Facilities Department's Real Estate Services and the

City's Real Estate Oversight Committee, both of which approve the proposed transfer; NOW, THEREFORE,

BE IT ORDAINED BY THE CITY OF SEATTLE AS FOLLOWS:

Section 1. The Director of the Fleets and Facilities Department is hereby authorized to transfer to Seattle Public Utilities, and the Director of Seattle Public Utilities is hereby authorized to accept for purposes of solid waste operations, jurisdiction over the real property legally described as follows:

Those portions of Government Lots 2 and 4 in Section 32, Township 24 North, Range 4 East W. M., King County, Washington, as follows:

A strip of land, 60 feet in width, lying between lines and lines extended, the west line being 60 feet west of, as measured at right angles to and parallel with the following described east line: Beginning on the north line of said section, 264 feet east from the northwest corner thereof; thence south 16(31'06" east, 547.61 feet; thence easterly to intersect a point on a line drawn south 2(03'26"west from a point on the north line of said section, 73.81 feet west of the west line of Geo. Holt Donation Claim No. 51, said point being 516.36 feet south of said north line; thence continuing easterly along said line to the west line of said Donation Claim and the true point of beginning; thence south along the west line of said Donation Claim to an intersection with a line distant 30 feet south of and parallel with the south line of Block 6, 1st Addition to River Park, according to the plat thereof recorded in Volume 8 of Plats, page 65, Records of King County, Washington.

Except that portion thereof described as follows:

Beginning at the intersection of the westerly line of 2nd Avenue South as established by Ordinance No. 80494 with the north line of said Section 32; thence south 0(03'30" west along the westerly line of said 2nd Avenue South 515.825 feet; thence north 89(43'54"east 20 feet to the true point of the beginning; thence south 0(03'30"west 234 feet; thence north 89(43'54" east 20 feet; thence north 0(03'30" east 234 feet; thence south 89(43'54" west 20 feet to the true point of beginning.

And,

A strip of land, 30 feet in width, lying between lines and lines extended, the south line being 30.00 feet south of, as measured at right angles to and parallel with the following described north line: Beginning at the intersection of the west line of Geo. Holt Donation Claim No. 51 with the south line of Block 6, 1st Addition to River Park, according to the plat thereof recorded in Volume 8 of Plats, page 65, Records of King County, Washington; thence easterly along said south line of said block to the southeast corner of Lot 1, said Block 6.

Section 2. The transfer of jurisdiction authorized herein shall occur upon Seattle Public Utilities' deposit of the sum of Two Hundred Thousand Dollars ($200,000) in the Unrestricted Subaccount of the Cumulative Reserve Subfund (00164), in accordance with SMC 5.80.030.

Section 3. This ordinance shall take effect and be in force thirty (30) days from and after its approval by the Mayor, but if not approved and returned by the Mayor within ten (10) days after presentation, it shall take effect as provided by Municipal Code Section 1.04.020.

Passed by the City Council the ____ day of _____, 2003, and signed by me in open session in authentication of its passage this _____ day of _____, 2003.

_____

President _____of the City Council

Approved by me this ____ day of _____, 2003.

_____

Gregory J. Nickels, Mayor

Filed by me this ____ day of _____, 2003.

_____

City Clerk

(Seal)

John Kennedy/et

PMA 4251 Ordinance.doc

July 14, 2003

version #4

ATTACHMENT 1

PRELIMINARY REPORT

PMA 4251

EVALUATION OF REUSE AND DISPOSAL OPTIONS OF TWO STRIPS OF LAND

Resolution 29799 directs the Executive is to make its recommendations on the reuse or disposal of excess property on a case by case basis, using the Procedures for Evaluation of the Reuse and Disposal of the City's Real Property adopted by that resolution. Additionally, the Resolution identifies guidelines that are to be considered in making a recommendation. This report addresses each of

the guidelines outlined in Resolution 29799 in support of the recommendation.

Property Management Area: Two strips of land, one 30-foot wide and one 60 foot-wide, adjacent to the South Recycling and Disposal Station (PMA#3670).

BACKGROUND INFORMATION

Legal Description: Those portions of Government Lots 2 and 4 in Section 32, Township 24 North, Range 4 East W. M., King County, Washington, described as follows:

A strip of land, 60 feet in width, lying between lines and lines extended, the west line being 60 feet west of, as measured at right angles to and parallel with the following described east line: Beginning on the north of said section, 264 feet east from the northwest corner thereof; thence south 16(31'06" east, 547.61 feet; thence easterly to intersect a point on a line drawn south 2(03'26"west from a point on the north line of said section, 73.81 feet west of the west line of Geo. Holt Donation Claim No. 51, said point being 516.36 feet south of said north line; thence continuing easterly along said line to the west line of said Donation Claim and the true point of beginning; thence south along the west line of said Donation Claim to an intersection with a line distant 30 feet south of and parallel with the south line of Block 6, 1st Addition to River Park, according to the plat thereof recorded in Volume 8 of Plats, page 65, Records of King County, Washington.

Except that portion thereof described as follows:

Beginning at the intersection of the westerly line of 2nd Avenue South as established by Ordinance No. 80494 with the north line of said Section 32; thence south 0(03'30" west along the westerly line of said 2nd Avenue South 515.825 feet; thence north 89(43'54"east 20 feet to the true point of the beginning; thence south 0(03'30"west 234 feet; thence north 89(43'54" east 20 feet; thence north 0(03'30" east 234 feet; thence south 89(43'54" west 20 feet to the true point of beginning.

And,

A strip of land, 30 feet in width, lying between lines and lines extended, the south line being 30.00 feet south of, as measured at right angles to and parallel with the following described north line: Beginning at the intersection the west line of Geo. Holt Donation Claim No. 51 with the south line of Block 6, 1st Addition to River Park, according to the plat thereof recorded in Volume 8 of Plats, page 65, Records of King County, Washington; thence easterly along said south line of said block to the southeast corner of Lot 1, said Block 6.

Physical Description and Related Factors: The two rectangular strips of land contain a combined total of 42,120 square feet and abut the existing South Recycling and Disposal Station Transfer in an "L" shape.

GUIDELINE A: CONSISTENCY

The analysis should consider the purpose for which the property was originally acquired, funding sources used to acquire the property, terms and conditions of original acquisition, the title or deed conveying the property, or any other contract or instrument by which the City is bound or to which the property is subject, and City, state or federal ordinances, statues and regulations.

The subject parcels were acquired by deed from King County in 1965 and accepted by Ordinance 94258. The ordinance indicates the purpose of the acquisition was in connection with the Garbage Utility receiving and transfer station provided for under Ordinance 94095 (1965). However, the properties were accepted for General Corporate Purposes and, therefore, jurisdiction is currently with FFD, with one exception. As shown on the attached map, a portion of the sixty feet wide strip was conveyed for sanitary sewer purposes by Ordinance 105330 in 1976.

Guideline B: Compatibility and Suitability

The recommendation should reflect an assessment of the potential for use of the property in support of adopted Neighborhood Plans, as or in support of low-income housing, in support of economic development, in support of affordable housing, for park or open space; in support of Sound Transit Link Light Rail station area development; as or in support of child care facilities, and in support of other priorities reflected in adopted City policies.

Context. These two narrow parcels abut two boundaries of the South Recycling and Disposal Station. They also abut the King County landfill site to the south and west, which has been periodically under consideration for economic development. The siting and dimensions of the parcels limit the usability of the site.

Range of Options. The Seattle Public Utilities (SPU) requested the properties in support of ongoing operations of the South Recycling and Disposal Station and/or expansion and reconfiguration of the facility as a re-use, recycle, self-haul operation. No other City Departments and public agencies expressed any interest in the subject properties during the circulation process. Other than City use, the most likely use would be consolidation with the County's property for future development. Due to zoning, adjoining uses, and physical characteristics, the parcels are unsuitable for development in support of other priorities reflected in adopted City policies such as housing or childcare.

Guideline C: Other Factors

The recommendation should consider the highest and best use of the property, compatibility of the proposed use with the physical characteristics of the property and with surrounding uses, timing and term of the proposed use, appropriateness of the consideration to be received, unique attributes that make the property hard to replace, potential for consolidation with adjacent public property to accomplish future goals and objectives, conditions in the real estate market, and known environmental factors that make affect the value of the property.

Highest and Best Use: An appraisal was conducted for the property in January 1999, and updated in August 2001. The appraiser concluded that the highest and best use of the property would be for industrial warehouse use.

Compatibility with the physical characteristics: The physical characteristics of the property, specifically the narrow width, would not support uses except in conjunction with either of the adjoining properties.

Compatibility with surrounding uses: Utilization as an expanded transfer station or recycling facility will be compatible with the surrounding industrial nature of the area and will allow the City to maintain the parcels in a relatively undeveloped state.

Potential for Consolidation with adjacent public property:

The Transfer of Jurisdiction will, in effect, consolidate the parcels with existing Seattle Public Utilities property at the South Recycling and Disposal Station.

Timing and Term of Proposed Use: SPU is entering into a Master Plan for solid waste collection and disposal which will drive the specific use for the site as either a re-use, recycle, self-haul operation or expansion of the existing operation for solid waste transfer. SPU has identified funding for the transfer of jurisdiction.

Appropriateness of the consideration: An appraisal report, dated 08/03/2001, indicated the value of the property to be $380,000. The report assumed the site to be free and clear of all contamination and toxic materials, because no environmental or soil survey was provided to the appraiser. FFD and SPU negotiated an adjusted transfer value of $200,000 based on remediation cost projections made by SPU staff familiar with clean-up expenses.

Known environmental factors:

Intense industrial use have left their residue throughout the Duwamish corridor, with contamination resulting from discharges, spills, dust and dredging. Contamination is especially hazardous in the corridor because the pollutants move via groundwater and surface water runoff.

Guideline D: Sale

The recommendation should evaluate the potential for selling the property to non-City public entities and to members of the general public.

The only other public entity is King County. The County owns a former landfill site to the south and west of the subject parcels. Given the request from SPU for the property to meet its solid waste operations needs, this option is not recommended.

RECOMMENDATION

The Real Estate Oversight Committee recommends that the Council approve a transfer of jurisdiction over the property from the Fleets and Facilities Department to Seattle Public Utilities upon deposit of the compromised value, $200,000, into the Cumulative Reserve Fund.

PROPERTY REVIEW PROCESS DETERMINATION FORM

Property Name:	PMA 4251 Two strips of land, 30 feet and 60 feet wide in the NW 1/4 of Sec 32, Twn 24N , Rng 4 E.W.M., King County, Washington		
Address:	Adjacent to South Transfer Station (PMA 3670)		
PMA ID:	4251	Subject Parcel #:	21623 and 21624
Dept./Dept ID:	FFD	Current Use:	Unused
Area (Sq. Ft.):	42,120 sq. ft.	Zoning:	IG2U/65'
Est. Value:	$380,000 less remediation	Assessed Value:	No tax account number

PROPOSED USES AND RECOMMENDED USE

Department/Governmental Agencies:	Proposed Use:
Seattle Public Utilities	Expansion of recycling facility
Other Parties wishing to acquire:	Proposed Use:
None	Not applicable

RES'S RECOMMENDED USE: Transfer to SPU for recycling facility

PROPERTY REVIEW PROCESS DETERMINATION (circle appropriate response)

1.) Is more than one City dept/Public Agency wishing to acquire?	No / Yes	15
2.) Are there any pending community proposals for Reuse/ Disposal?	No / Yes	10
3.) Have citizens, community groups and/or other interested parties contacted the City regarding any of the proposed options?	No / Yes	10
4.) Will consideration be other than cash?	No / Yes	10

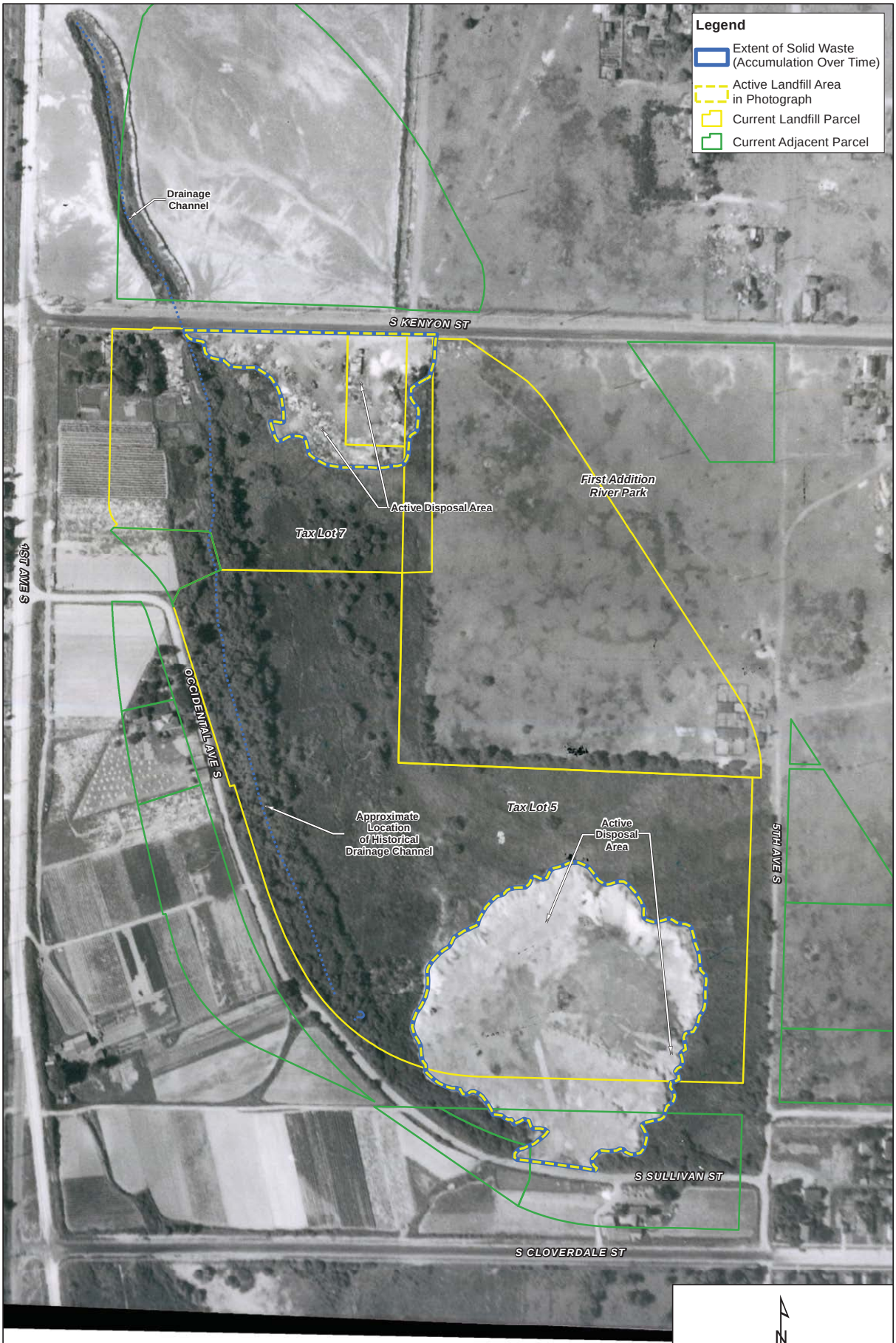
5.) Is Sale or Trade to a private party being recommended?	No / Yes	25
6.) Will the proposed use require changes in zoning/other reg's?	No / Yes	20
7.) Is the estimated Fair Market Value between $250,000-$1,000,000?	No / Yes	10
8.) Is the estimated Fair Market Value over $1,000,000?	No/ Yes	45
Total Number of Points Awarded for "Yes" Responses:		10

Property Classification for purposes of Disposal review: Simple / Complex (circle one) (a score of 45+ points results in "Complex" classification)

Signature: John Kennedy Department: FFD Date: 08/17/2001

Attachment 1 - South Recycling and Disposal Station

Figures



Notes:
· Tax parcels provided by King County Geographic Information Systems Center.
· Aerial imagery provided by Seattle Public Utilities.

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South Park Landfill
Seattle, Washington

Figure A.1
Site Aerial Photograph 1936

I:\GIS\Projects\COS-SPARK\MXD\RIFS\RIFS_2017\Appendix A\A.1 Site Aerial Photo 1936.mxd
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Figure A.2
Site Aerial Photograph 1941

I:\GIS\Projects\COS-SPARK\MXD\RIFS\RIFS_2017\Appendix A\A.2 Site Aerial Photo 1941.mxd
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Figure A.3
Site Aerial Photograph 1946

I:\GIS\Projects\COS-SPARK\MXD\RIFS\RIFS_2017\Appendix A\A.3 Site Aerial Photo 1946.mxd
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· Aerial imagery provided by Washington Department of Natural Resources.

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Figure A.4
Site Aerial Photograph 1948

I:\GIS\Projects\COS-SPARK\MXD\RIFS\RIFS_2017\Appendix A\A.4 Site Aerial Photo 1948.mxd
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Figure A.5
Site Aerial Photograph 1951

I:\GIS\Projects\COS-SPARK\MXD\RIFS\RIFS_2017\Appendix A\A.5 Site Aerial Photo 1951.mxd
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Figure A.6
Site Aerial Photograph 1953

I:\GIS\Projects\COS-SPARK\MXD\RIFS\RIFS_2017\Appendix A\A.6 Site Aerial Photo 1953.mxd
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Figure A.7
Site Aerial Photograph 1956

I:\GIS\Projects\COS-SPARK\MXD\RIFS\RIFS_2017\Appendix A\A.7 Site Aerial Photo 1956.mxd
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Figure A.8
Site Aerial Photograph 1960

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Figure A.9
Site Aerial Photograph 1963

I:\GIS\Projects\COS-SPARK\MXD\RIFS\RIFS_2017\Appendix A\A.9 Site Aerial Photo 1963.mxd
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Figure A.10
Site Aerial Photograph 1967

I:\GIS\Projects\COS-SPARK\MXD\RIFS\RIFS_2017\Appendix A\A.10 Site Aerial Photo 1967.mxd
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Figure A.11
Site Aerial Photograph 1969

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Figure A.12
Site Aerial Photograph 1974

I:\GIS\Projects\COS-SPARK\MXD\RIFS\RIFS_2017\Appendix A\A.12 Site Aerial Photo 1974.mxd
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Figure A.13
Site Aerial Photograph 1977

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Figure A.14
Site Aerial Photograph 1980

I:\GIS\Projects\COS-SPARK\MXD\RIFS\RIFS_2017\Appendix A\A.14 Site Aerial Photo 1980.mxd
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Figure A.15
Site Aerial Photograph 1982

I:\GIS\Projects\COS-SPARK\MXD\RIFS\RIFS_2017\Appendix A\A.15 Site Aerial Photo 1982.mxd
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Figure A.16
Site Aerial Photograph 1985

I:\GIS\Projects\COS-SPARK\MXD\RIFS\RIFS_2017\Appendix A\A.16 Site Aerial Photo 1985.mxd
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Figure A.17
Site Aerial Photograph 1990

I:\GIS\Projects\COS-SPARK\MXD\RIFS\RIFS_2017\Appendix A\A.17 Site Aerial Photo 1990.mxd
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Figure A.18
Site Aerial Photograph 1992

I:\GIS\Projects\COS-SPARK\MXD\RIFS\RIFS_2017\Appendix A\A.18 Site Aerial Photo 1992.mxd
9/28/2017

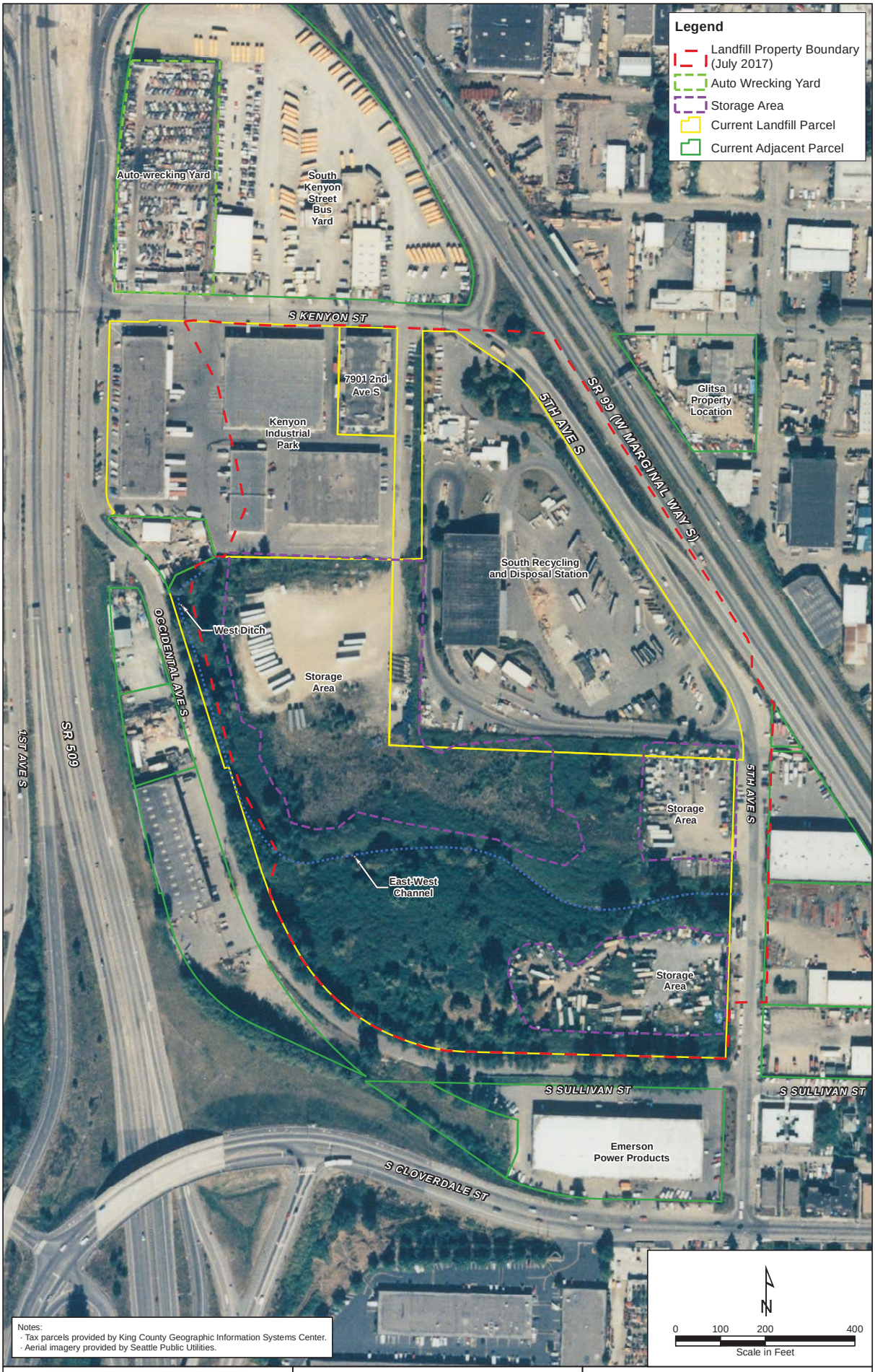

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Figure A.19
Site Aerial Photograph 1995

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Figure A.20
Site Aerial Photograph 1997

I:\GIS\Projects\COS-SPARK\MXD\RIFS\RIFS_2017\Appendix A\A.20 Site Aerial Photo 1997.mxd
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Figure A.21
Site Aerial Photograph 2000

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Figure A.22
Site Aerial Photograph 2002

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Figure A.23
Site Aerial Photograph 2004

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9/28/2017

Glitsa Property Questions Memorandum

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Two Union Square
601 Union Street, Suite 600
Seattle, WA 98101
tel: 206.292.2078 fax: 206.682.7867

Memorandum

To: Jerome Cruz, PM, Northwest Regional Office, Washington State Department of Ecology

Copies: South Park Landfill Group: Sheila Strehle (City of Seattle), Joe Hicker (King County), and Rob Howie (South Park Property Development, LLC)

From: Teri A. Floyd, Ph.D. and Gretchen Heavner, Ph.D., Floyd|Snider

Date: November 21, 2014

Project No: COS-SPARK

Re: **Glitsa Property Questions**

INTRODUCTION

This memorandum is in response to your October 28, 2014 email (below) in which you commented on materials that you were reviewing and asked for further information on the Glitsa property:

> Hi Teri,
>
> During my review of the draft RI/FS report and older documents, I came across maps which point to the Glitsa property as part of the landfill.
>
> In fact, some of the older landfill boundary maps include this area on the east side of SR99. I have attached a compilation of this information, as well a fairly recent documented discovery of buried drums containing paint waste at the Glitsa property and an aerial taken in 1967 which I am guessing to be buried drums.
>
> Since I was not involved with the site before 2012, could you give me some background or response on the possible extent of the landfill on the Glitsa property and other areas east of SR99? It is important that Ecology understand this as soon as possible, as it has bearing on whether Ecology would still proceed with the consent decree language we discussed in our last meeting.
>
> Thanks, Jerome

We have now gone through our records at Floyd|Snider, Aspect Consulting, the City of Seattle (City), and King County. This memorandum is a concise summary of our findings with attached aerials and other documents to add to the materials you already have.

QUESTIONS AND RESPONSES

Q1: There are maps that "point to the Glitsa property as part of the landfill." Provide background or response on the possible extent of the landfill on the Glitsa property.

RESPONSE: The Glitsa property is not part of the South Park Landfill as evidenced by analysis of aerial maps, examination of property records, and review of boring logs.

We have investigated the question of whether landfilling related to the South Park Landfill (the Landfill) occurred on the Glitsa property. Our review included the following documentation (materials that were not in the Remedial Investigation/Feasibility Study [RI/FS] are available and can be added to RI/FS appendices if desired):

- Aerial photos
- Ownership records, including information on facility operations
- Geotechnical and monitoring well logs

Information about the Landfill itself is presented in the RI/FS in Section 4.0 and in Appendix A (aerials and property records) and Appendix B (boring logs).

Original AESI Figure

An older Associated Earth Science, Inc. (AESI) report (1998) contains a figure that suggests that the landfill might have extended east of State Route (SR) 99 onto the Glitsa property. The figure legend indicates that the landfill boundary illustrated in the figure is an approximation based on aerial photographs and boring logs, and a related section of the text (Section 1.4.3) states that "[a] small area northeast of the landfill, across West Marginal Way South, appeared to have been used for dumping." As shown in the AESI figure, the figure author was John Strunk, now of Aspect Consulting. John was interviewed related to the figure, and confirmed that it was part of an early Data Gaps Investigation Work Plan and was based on a conservative review of aerial photos and soil borings in which AESI flagged *any* area with disturbed soil as a data gap to be filled. Further review was performed between 1998 and the date of submittal of the 2010 RI/FS Work Plan by Farrallon Consulting. With the approval of the RI/FS Work Plan, Ecology accepted the refined landfill boundary shown in the Work Plan. The refined boundary does not extend to the far (east) side of SR 99; therefore, the research compiled between 1998 and 2010 was not included in the RI/FS.

This memorandum includes a concise overview of that research and additional historical information.

Aerial Photographs

The RI/FS contains 20 aerials from 1936 to 2004. We have acquired additional aerials from 1948, 1951, 1953, and 1956. Analysis of the aerials is clearer with the overlay of the individual lots that

comprise today's extent of the Glitsa property. Fourteen aerial photographs from 1946 through 2011 are presented as Figures 1 through 14. A review of the 1953 and 1956 aerials (Figures 4 and 5) indicates that, while there is disturbance of the soil, there is no indication of mounding or depressions awaiting fill. Rather the disturbance looks like unpaved parking and driveways, consistent with the operations listed in the Polk Directories (Attachment A). A review of the 1936, 1941, 1946, 1948, and 1951 aerial photographs indicates that there was no soil disturbance on the Glitsa property prior to 1953, and thus no indication of landfilling during that time.

Property Records

The Glitsa property has historically consisted of Lots 1 through 18 and 56 through 62 of Block 18 (shown on Figures 1 through 14 of this memorandum) and the vacated street end of South Monroe Street between 5th Avenue South and SR 99.

1. Between 1925 and 1948, the lots were unused and sat on the King County Delinquent Tax Rolls.
2. In 1948, the City acquired Lots 12 through 18 and 56 through 62. The City sold the lots to a private owner in 1956; however, by 1953 (when the property is first shown with disturbed soil), the lot is in use as a commercial facility operated by a private party (variously, as Auto Top and Trim Company, M.B. Barker, and Austin's Welding). There is no indication of soil disturbance until the construction of the small building that houses Auto Top and Trim in 1953. High-quality photographs of the business show the soil disturbance to correspond to unpaved parking and driveways (Figures 4 and 5 and the property record in Attachment A).
3. In 1951, Lots 1 through 11 were sold to a private party, which would become Farwest Paint Manufacturing Company (Farwest Paint) by 1959. They continue to operate there until 1977 when they move to a larger facility.

In summary, the Glitsa property has been in private hands since the 1950s. The only aerials with visible soil disturbance clearly show this disturbance to be consistent with the construction and operation of a small private facility (Auto Top and Trim) beginning in 1953.

Table 1 shows the property ownership for lots, and references from the Polk Directories are listed in Attachment A.

Boring Logs

There are no monitoring wells located on Lots 12 through 18 and Lots 56 through 62 at the Glitsa property. The only boring logs referenced that were present within or near the Glitsa property are shown on Figure 3-1 of the AESI (1998) report. These were WSDOT boring logs 63, 64, 65, 66, H-49, and H-50 (refer to Attachment B). The only material identified that was not native soil or soil fill was found in boring 65 and consisted of "Fill – Concrete Chunks" from 2.0 to 4.5 feet below ground surface. The soil borings for MW-30 and MW-31 (located next to the Glitsa property in the S Kenyon Street ROW) also indicate that waste was not found; the boring logs (present in the

RI) indicate native soil and soil fill. The Renton Effluent Transfer System (RETS) boring logs on the other side (the landfill side) of SR 99 do indicate the presence of waste (glass, brick, and wire are typical) at the Landfill.

In summary, wastes indicative of landfill activity were not identified in the soil borings and monitoring well logs on or near the Glitsa property.

Q2: There is a "recent documented discovery of buried drums containing paint waste at the Glitsa property" and an aerial taken in 1967 which might show buried drums.

RESPONSE: The buried paint waste drums are present in the areas of the Glitsa property where the Farwest Paint Manufacturing Company operated from 1959 to 1977.

A review of aerials and Glitsa site history does not indicate a connection between the paint waste drums and the Landfill. Rather, the current property owner, the Tenor Company LLC, posits that the wastes are related to Farwest Paint, who occupied the site from 1959 to 1977, at which time they moved to larger facilities in Tukwila (Tenor 2014). Aerials (Figures 1 through 14) show that the area of buried paint wastes are within the area owned and operated by Farwest Paint.

You also commented that a feature on the 1967 aerial photo might be buried drums. We added a to-scale 55-gallon drum to the legend of the 1967 photo. Note that the drum is much smaller than the hummocky structure. We believe, after reviewing the aerials, that the hummocky pattern in the 1967 photo is simply vegetation (large shrubs).

Q3: In a conversation held after we received your email, you proposed that the South Park Landfill PLP Group test MW-30 and MW-31 for Stoddard solvents and that, if found, this would be "proof" of contamination from Glitsa in these wells.

RESPONSE: The PLP Group believes that Stoddard solvent is unrelated to the trichloroethene (TCE), dichloroethene (DCE), and vinyl chloride (VC) found in MW-30 and MW-31 and sampling for it would, therefore, not be informative.

It is unlikely that the Farwest Paint wastes and/or the Stoddard solvents[1] cleanups that have been performed on the Glitsa property are directly related to the VC in MW-30 and MW-31. As discussed in Section 5.7.2 of the RI/FS, the presence of TCE, DCE, and VC in Lots 1 through 11 indicates that TCE was used on-site. TCE and DCE were found in MW-6, a shallow perched zone well on Lot 11. Because there is no route from the Landfill to the perched zone at MW-6, the presence of the solvent here is clear indication of use on the Farwest Paint/Glitsa lots. DCE and VC are also present in LAR2 (Lot 5), which appears to be downgradient of MW-6.

[1]Stoddard solvents is a petroleum-based solvent that does not generally contain chlorinated solvents. Benzene, toluene, ethylbenzene, and xylenes (BTEX) and total petroleum hydrocarbons (TPH) measurements are the standard analytical tests for tracking stoddard solvents; therefore, chlorinated solvents such as TCE, DCE, and VC may not have been analyzed for.

The specific location of the buried paint wastes and Stoddard solvents release are too far downgradient to be the direct source of contamination to MW-30/MW-31. The TCE and DCE contamination at MW-6 is much closer to this location.

In summary, the available information supports Tenor's belief that the Stoddard solvents release and the buried paint wastes are a remnant of operations by Farwest Paint and Glitsa. We do not find any association with the Landfill.

Q4: Provide background or response on the possible extent of the landfill on "other areas east of SR99." These were marked in red on the attachments to your email.

RESPONSE: The area shown in Figure B-3 from the AESI report and labeled as City Landfill 1943–1955, and mentioned in the highlighted text from the AESI Data Gaps Report, is simply a mistake, and is not a City landfill.

AESI incorrectly located a Polk Directory reference at 200 S Kenyon Street on the wrong corner. 200 S South Kenyon Street is west (not east) of SR 99 (West Marginal Way). During 1943 to 1955, the property labeled as City Landfill on the AESI figure is a private residence. The actual location of 200 S Kenyon Street in the Polk Directory from that time period is also a bit confusing as it appears to be on the north side of S Kenyon Street. It is actually located on the southwest corner of S Kenyon Street and West Marginal Way (as shown in photographs of that time period) and is the entrance into the Landfill (and included in the extent of Landfill in the RI/FS).

CONCLUSION

The foregoing discussion addresses your questions regarding the Landfill boundary. The information above does not indicate a need to alter the extent of refuse boundary as shown in the RI/FS. If desired, the PLP Group can add the additional aerials, property records, and soil boring logs to the appendices of the RI/FS when it is finalized.

REFERENCES

Associated Earth Sciences, Inc. (AESI). 1998. *South Park Custodial Landfill Environmental Site Investigation Data Gaps Memorandum*. Prepared by AESI for King County. Bainbridge Island, Washington. 27 July.

Tenor Company LLC (Tenor). 2014. Letter to Donna Musa, Washington State Department of Ecology, from Duane Bartel, Tenor Company LLC re: Site Hazard Assessment—Glitsa American Inc. 15 August.

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Figure 6 Glista and Farwest Paint Parcel–1960
Figure 7 Glitsa and Farwest Paint Parcel–1963
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Figure 14 Glitsa and Farwest Paint Parcel–2011

LIST OF ATTACHMENTS

Attachment A Property Record
Attachment B Boring Logs

Table

Table 1
Ownership History

Date	Current Parcels	Owner
12/12/1916	Lots 1 to 33 and 38 to 62, Block 18, First Addition to River Park	F.W. and Jennie S. Baker
1/20/1925	Lots 1 to 62, Block 18, First Addition to River Park	King County Delinquent Tax Rolls
1/19/1948	Lots 12 to 18 and 56 to 62, Block 18, First Addition to River Park	City of Seattle
4/16/1951	Lots 1 to 11, Block 18, First Addition to River Park	Russell Rathbone, Jr.
4/30/1951	Lots 1 to 11, Block 18, First Addition to River Park	A.F. Sulak
5/7/1956	Lots 12 to 18 and 56 to 62, Block 18, First Addition to River Park	Malcolm B. Barker
3/26/1957	Lots 12 to 18 and 56 to 62, Block 18, First Addition to River Park	Paul D. and Helen E. Coles
11/29/1958	Lots 1 to 3, Block 18, First Addition to River Park	Fred D. McKenzie and Charles R. Terhune
11/29/1958	Lots 4 to 8, Block 18, First Addition to River Park	Far West Land Corporation
11/29/1958	Lots 9 to 11, Block 18, First Addition to River Park	Fred D. McKenzie
9/15/1965	Lots 1 to 3, Block 18, First Addition to River Park	Fred D. McKenzie
6/9/1966	Lots 4 to 8, Block 18, First Addition to River Park	Fred D. McKenzie
9/22/1969	Lots 12 to 18 and 56 to 62, Block 18, First Addition to River Park	Glenn Van Dyke
10/1/1984	Lots 1 to 11, Block 18, First Addition to River Park	Edgar J. and Maude B. Hodgson
11/5/1984	Lots 12 to 18 and 56 to 62, Block 18, First Addition to River Park	Jon and Joanne Van Dyke
5/1/1986	Lots 12 to 18 and 56 to 62, Block 18, First Addition to River Park	Diamonds & Rust Equipment, Inc.
11/5/1986	Lots 12 to 18 and 56 to 62, Block 18, First Addition to River Park	Edgar J. and Maude B. Hodgson
12/27/1990	Lots 1 to 11, Block 18, First Addition to River Park	Holly Bartel and Skye Bartel Trust
1/30/1992	Lots 12 to 18 and 56 to 62, Block 18, First Addition to River Park	Holly Bartel and Skye Bartel Trust
2/20/2002	Lots 1 to 11, Block 18, First Addition to River Park	Hodgson-Glitsa Real Estate Limited Partnership
2/20/2002	Lots 12 to 18 and 56 to 62, Block 18, First Addition to River Park	Hodgson-Glitsa Real Estate Limited Partnership
9/26/2003	Lots 1 to 16 and 57 to 62, Block 18, First Addition to River Park	Tenor Company LLC

Figures

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327 S. Kenyon St
Seattle, Washington

Figure 1
Glitsa and Farwest Paint Parcel–1946

I:\GIS\Projects\COS-SPARK\MXD\Glitsa Issue\Figure 1 Glitsa and Far West Paint Parcel 1946.mxd
11/19/2014

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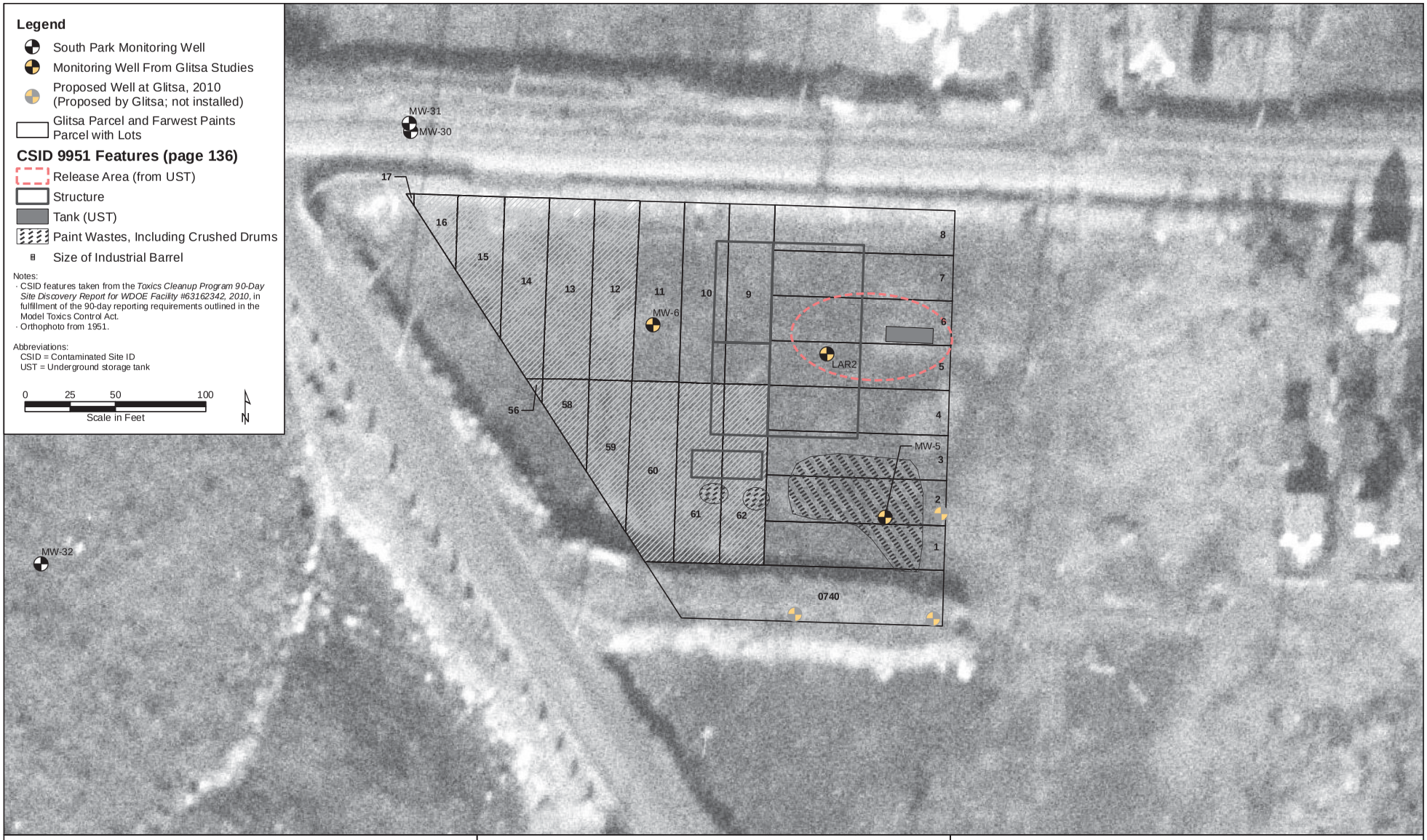
327 S. Kenyon St
Seattle, Washington

Figure 2
Glitsa and Farwest Paint Parcel–1948

I:\GIS\Projects\COS-SPARK\MXD\Glitsa Issue\Figure 2 Glitsa and Far West Paint Parcel 1948.mxd
11/19/2014



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327 S. Kenyon St
Seattle, Washington

Figure 3
Glitsa and Farwest Paint Parcel–1951

I:\GIS\Projects\COS-SPARK\MXD\Glitsa Issue\Figure 3 Glitsa and Far West Paint Parcel 1951.mxd
11/19/2014

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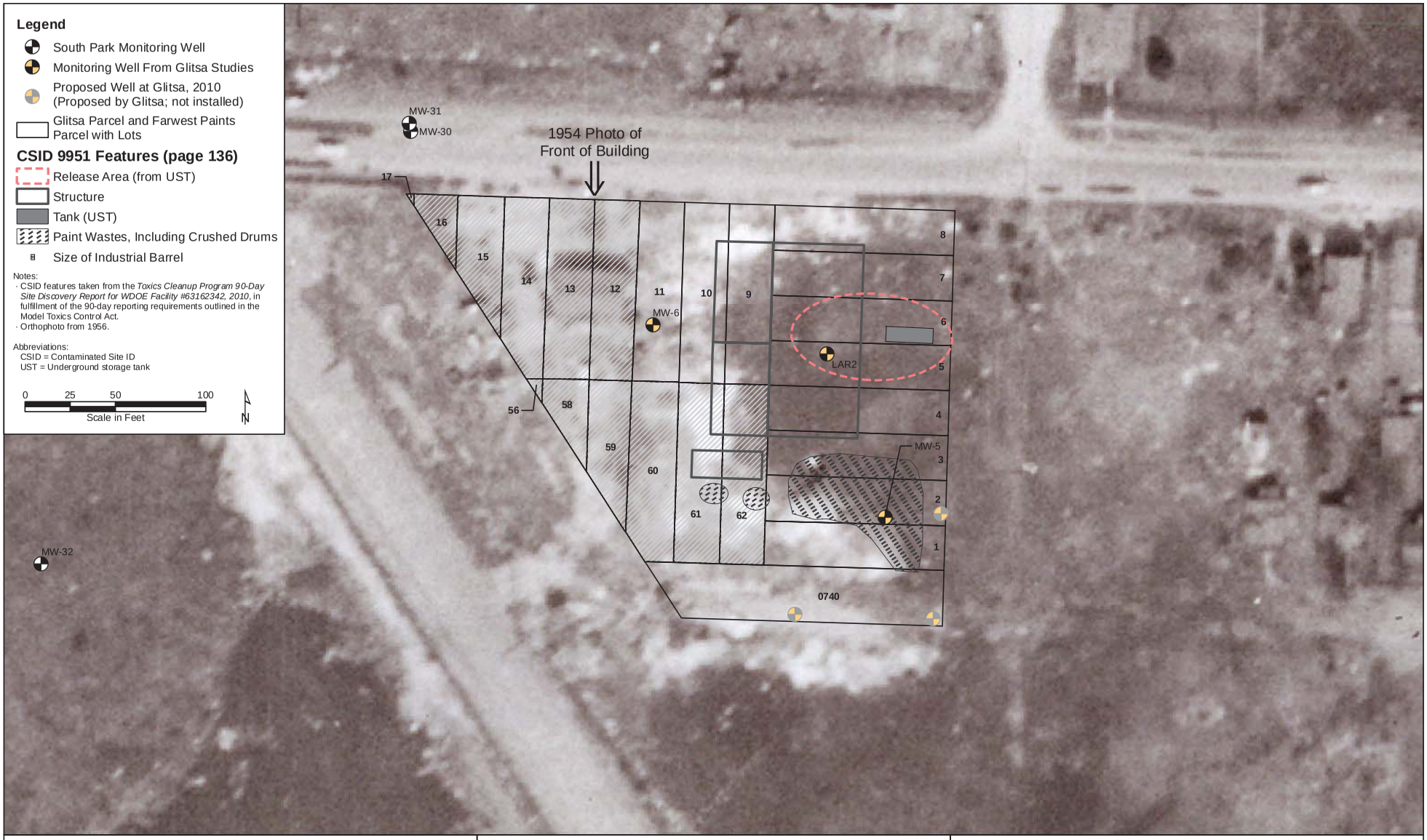
Figure 4
Glitsa and Farwest Paint Parcel–1953

I:\GIS\Projects\COS-SPARK\MXD\Glitsa Issue\Figure 4 Glitsa and Far West Paint Parcel 1953.mxd
11/19/2014



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Seattle, Washington

Figure 5
Glitsa and Farwest Paint Parcel–1956

I:\GIS\Projects\COS-SPARK\MXD\Glitsa Issue\Figure 5 Glitsa and Far West Paint Parcel 1956.mxd
11/19/2014

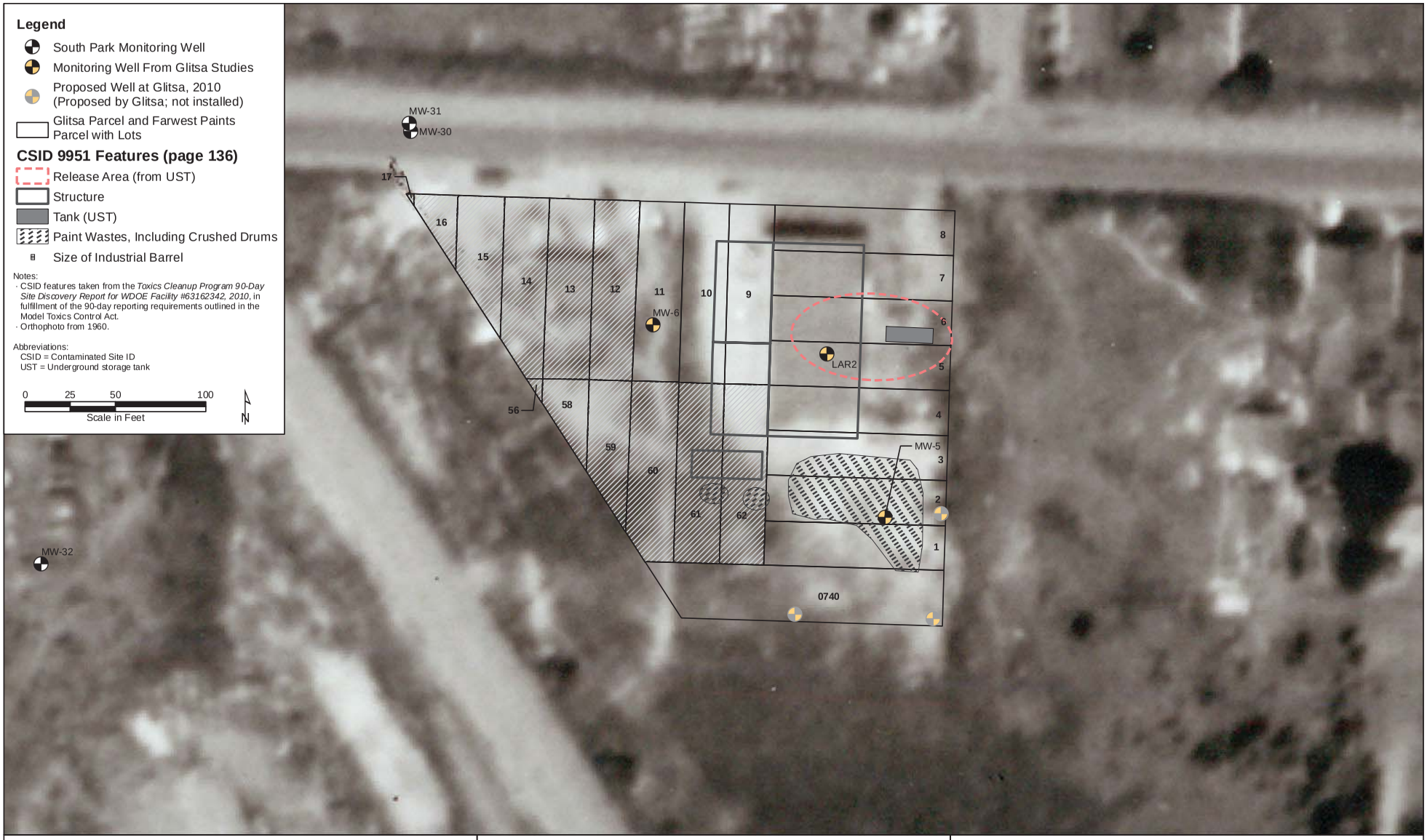

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Figure 6
Glista and Farwest Paint Parcel–1960

I:\GIS\Projects\COS-SPARK\MXD\Glitsa Issue\Figure 6 Glitsa and Far West Paint Parcel 1960.mxd
11/19/2014

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Figure 7
Glitsa and Farwest Paint Parcel–1963

I:\GIS\Projects\COS-SPARK\MXD\Glitsa Issue\Figure 7 Glitsa and Far West Paint Parcel 1963.mxd
11/19/2014

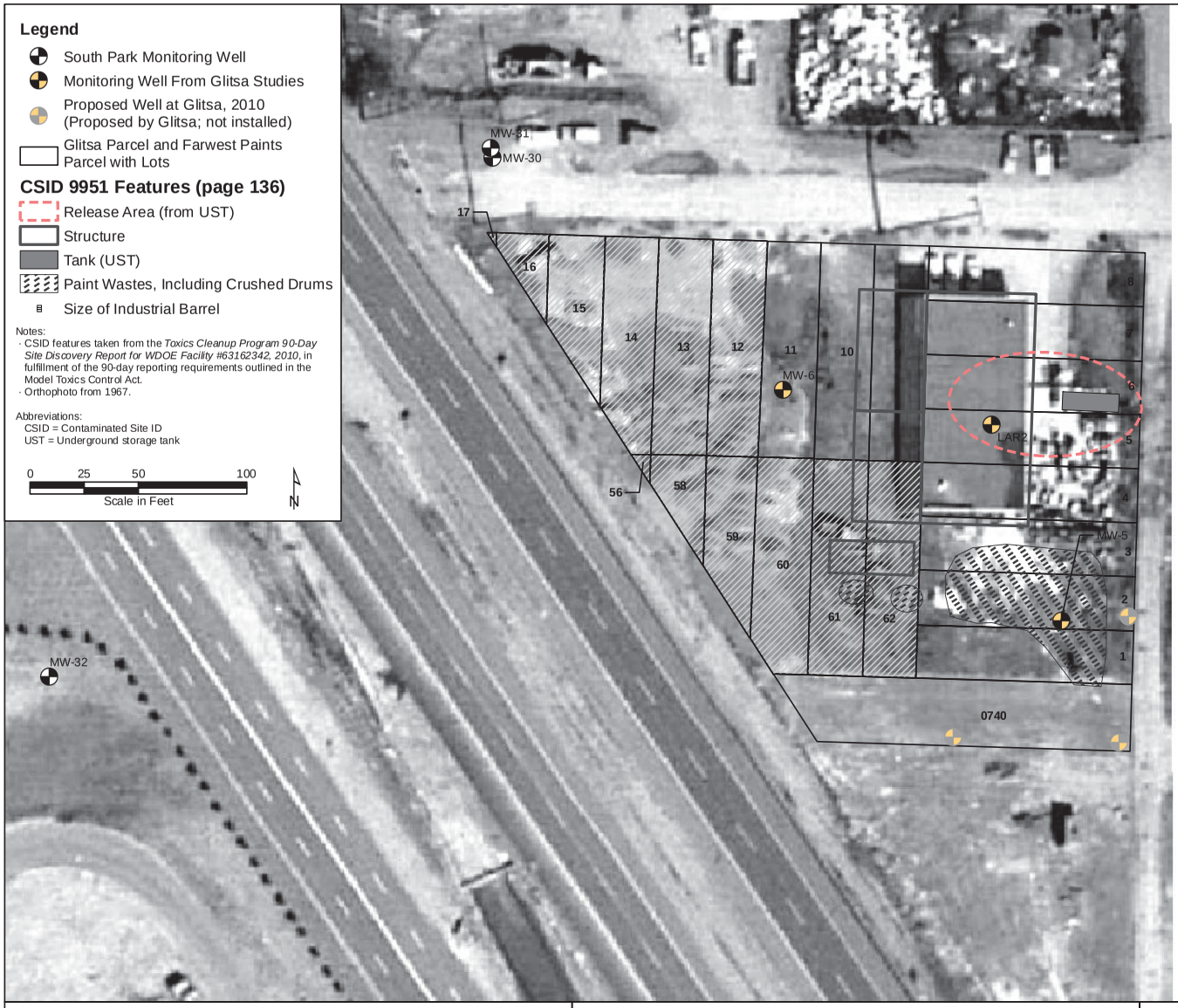

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Figure 8
Glitsa and Farwest Paint Parcel–1967

I:\GIS\Projects\COS-SPARK\MXD\Glitsa Issue\Figure 8 Glitsa and Far West Paint Parcel 1967.mxd
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Figure 9
Glitsa and Farwest Paint Parcel–1974

I:\GIS\Projects\COS-SPARK\MXD\Glitsa Issue\Figure 9 Glitsa and Far West Paint Parcel 1974.mxd
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Figure 10
Glitsa and Farwest Paint Parcel–1977

I:\GIS\Projects\COS-SPARK\MXD\Glitsa Issue\Figure 10 Glitsa and Far West Paint Parcel 1977.mxd
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Figure 11
Glitsa and Farwest Paint Parcel–1980

I:\GIS\Projects\COS-SPARK\MXD\Glitsa Issue\Figure 11 Glitsa and Far West Paint Parcel 1980.mxd
11/19/2014

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Figure 12
Glitsa and Farwest Paint Parcel–1992

I:\GIS\Projects\COS-SPARK\MXD\Glitsa Issue\Figure 12 Glitsa and Far West Paint Parcel 1992.mxd
11/19/2014

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Figure 13
Glitsa and Farwest Paint Parcel–2004

I:\GIS\Projects\COS-SPARK\MXD\Glitsa Issue\Figure 13 Glitsa and Far West Paint Parcel 2004.mxd
11/19/2014

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Figure 14
Glitsa and Farwest Paint Parcel–2011

I:\GIS\Projects\COS-SPARK\MXD\Glitsa Issue\Figure 14 Glitsa and Far West Paint Parcel 2011.mxd
11/19/2014

Attachment A
Property Record

FOLIO 3668

PERMIT No. 420-289

DATE 4-53

ADDITION 1st add to River Park

Section 32 Twp. 24 Range 4 East Block 1 E Tract or Lot 12-18

257- Kenyon St

Lots 12 to 18 incl. Also
Less W Marg Way
Lot 56 - 62 incl. Ly
at W Marginal Way
Less St Hwy

Fee Owner

Condition of Exterior C Interior C Foundation G Floors

USE
- 1 No. Stories
- No. Stores
- 1 No. Rooms
- Basement
- 1 No. Offices
- No. Apartments
- 1 rm. 2 rm. 3 rm.
- 4 rm. 5 rm. 6 rm.

ROOF CONSTRUCTION
- ✓ Frame Lam.
- Mill Construction
- Rein. Concrete
- No. Trusses
- Wood Steel

ROOFING MATERIAL
- Tar and Gravel
- Or Comp

FLOOR FINISHES
- Fir Maple
- Oak 2" x 6" T&G
- Lino. 1" x 6" T&G
- ✓ Carpet
- Terrazzo
- Rassolith
- Tile
- Or

Tile Total: Baths Ft. Walls; Sq. Ft. Floors; Sq. Ft. Walls; Lin. Ft. Dr. Bds.

Less Total: Sq. Ft. Floors; Sq. Ft. Walls; Lin. Ft. Dr. Bds.

Kit'ns Ft. Walls

- 2 No. Fixtures
- 1 Toilets
- Tubs, Leg or Pens.
- 1 Basins, Ped.
- Sinks
- Urinals
- Showers (Tub) (Stall)
- Laundry Trays
- H.W. Tank Ft. Drains
- Sprink. Sys. No. Hds.

TYPE OF CONSTRUCTION
- 1 Frame
- 1 Single Double
- Ordinary Masonry
- Mill Construction
- Class A Rein. Con.
- Stru. Steel and Con.
- Tile Brick
- Con. Rein. Con.

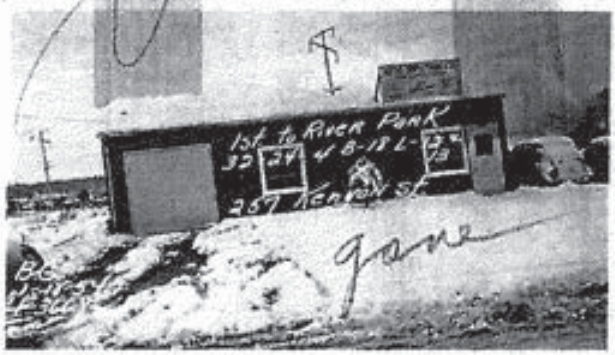
Good Med. Cheap ✓

Date Built 1953 ☒ Finished ☐ Unfinished ☐ Remodeled

Effective Age Years Future Life Years

Dep. for Cond. Dep. for Ob. Dep. for Ec. Total 5%

FOUNDATION
- Mud Sills
- Post and Pier
- Brick
- Concrete
- Pile



HEATING
- ✓ Stove
- Pipeless Furnace
- Gravity H. A.
- Air Cond., Fan
- Areola
- 1-Pipe Steam
- 2-Pipe St. or Vapor
- Hot Water
- Oil Burner
- Coal Stoker

WIRING
- ✓ Knobs & Tube
- Flat Cable
- Conduit
- Fuses Wiring
- Range Wiring
- No. Outlets

BASEMENT
- Full %
- Sub-Basement
- Size
- Garage No. Cars
- Floors
- Finished
- Living Rooms
- Service Rooms

Main building $
Other Buildings $
Total $ 1967-250-A065
Assessed Value 50% $
Sup. Building A. V. $
Total $

ELEVATORS
- Pass. Freight
- Auto. Elec.
- Man. Hyd.
- Man.

EXTERIOR WALL CONSTR.
- ✓ Single Double
- ✓ 2" x 4" Stud Walls
- 2" x 2" Stud Walls
- Brick Walls
- Brick With Pilasters
- Concrete Walls
- Con. With Pilasters
- Tile Walls
- Rein. Con. Stel.
- Filler Walls
- Laminated Walls

INTERIOR WALLS
- Stud and Plaster
- Lum. Plastered
- Ply Wood
- Ceiled
- Plaster Board
- Painted
- Stain Varnish
- Kalsomine
- Whitewashed
- ✓ Unfinished

GAS STATIONS
- Frame
- Metal
- Masonry
- Plastered or Ceiled
- Floors

SERVICE BUILDING
- Frame
- Metal
- Masonry
- Plastered or Ceiled
- Floors

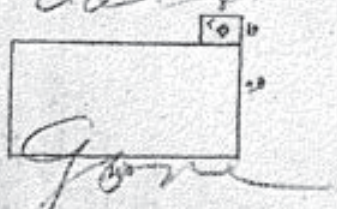
TANKS, ETC., LIST
- Hoists: Elect. Hyd.

DOCKS AND PIERS
- Treated Piles and Timbers
- Untreated
- Treated Piles only
- Average Length
- Paved

C. H.
S. B. B 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

GROUND FLOOR AREA 848

TOTAL FLOOR AREA



EXTERIOR FACING
- ✓ Siding Shingles
- Stakes Stucco
- Brick Veneer
- cedar Kind
- Stone Cast S.
- Terra Cotta
- Struct. Glass
- Trim

INTERIOR TRIM
- Fir
- Mah. Oak
- Metal
- Doors
- Windows
- Stained
- Varnished
- Painted
- ✓ Unfinished

FLOOR CONSTRUCTION
- Joist Con.
- O. C. Flat Bridg.
- Mill Construction
- Rein. Con.

off 6 Bowl

Other Buildings	Construction	Floor	Roof	Stories	Dimensions	S.F. Area	Factor	Value	% Dep.	Deprec.	Net Value
Garage								$		$	$
								$		$	$
								$		$	$
								$		$	$

Polk Directory References for 257 S. Kenyon Street from 1953 through 1967:

- 1953 – Barker M B
- 1954 – Auto Top & Trim Co.
- 1956 – Vacant
- 1958 – Austin's Wldg
- 1959 – Austin's Wldg
- 1960 – Austin's Wldg
- 1961-62 – Austin's Wldg
- 1963 – Vacant
- 1964 – Vacant
- 1965 – Vacant
- 1966 – Farwest Wrecking Co Lot 2 (this is next door to Farwest Paint Manufacturing located on Lots 1-11 of Block 18 with an address of 327 Kenyon)
- 1967 – Farwest Wrecking Co Lot 2

Attachment B
Boring Logs

VB9741 _borings.dwg xref: [illegible] 07/28/98 1:1

Approimate Limit of Refuse

King County Landfill Boundary

#24 WSDOT Geotechnical Boring Location

APPROXIMATE SCALE IN FEET

0 500 1000

Reference: Aerial Photograph – 1990

ASSOCIATED EARTH SCIENCES, INC	179 Madrone Lane North Bainbridge Island, WA 98110 (206) 780-9370 FAX: (206) 780-9438 811 5th Avenue, Suite 100 Kirkland, WA 98033 (425) 827-7701 FAX: (425) 827-5424	DATE: 07/28/98 DESIGNED/DWN: JJS/PSB	**WSDOT Geotechnical Borings - SR 509 & SR 99** South Park Custodial Landfill King County, Washington	PROJECT NO. VB9741 FIGURE NO. 3-1

JOB NO. L-7425 HWY. NO. 99 SHEET 1 OF 1

SECTION S 124th st to Holden st.

STA. 707+75 OFFSET 45.0' Rt ELEV. +1.5'

EQUIPMENT Hand tools DATE 9-20-82

INSPECTOR H.C. HOLE NO. H-50

4 Lines = 1.0'

DEPTH	BLOWS PER FOOT	PROFILE	TUBE SAMPLE NO	DESCRIPTION OF MATERIAL
0				Fill
				ACP (core #23)
0.4				CSTC
0.7				Similar to SS # 2
1.0				
				brown moist med dense sl silty sandy fine to coarse GRAVEL
1.8				Similar to SS # 1
				grey moist med dense sl gravelly silty fine to medium SAND
				No free water
				End of Boring - 1.8'

DOT Form 350-017 Revised 8/78

JOB NO. L-7425 HWY. NO. 99 SHEET 1 OF 1

SECTION S 124th St To Holden st.

STA. 701+90 OFFSET 53.0' Rt ELEV.

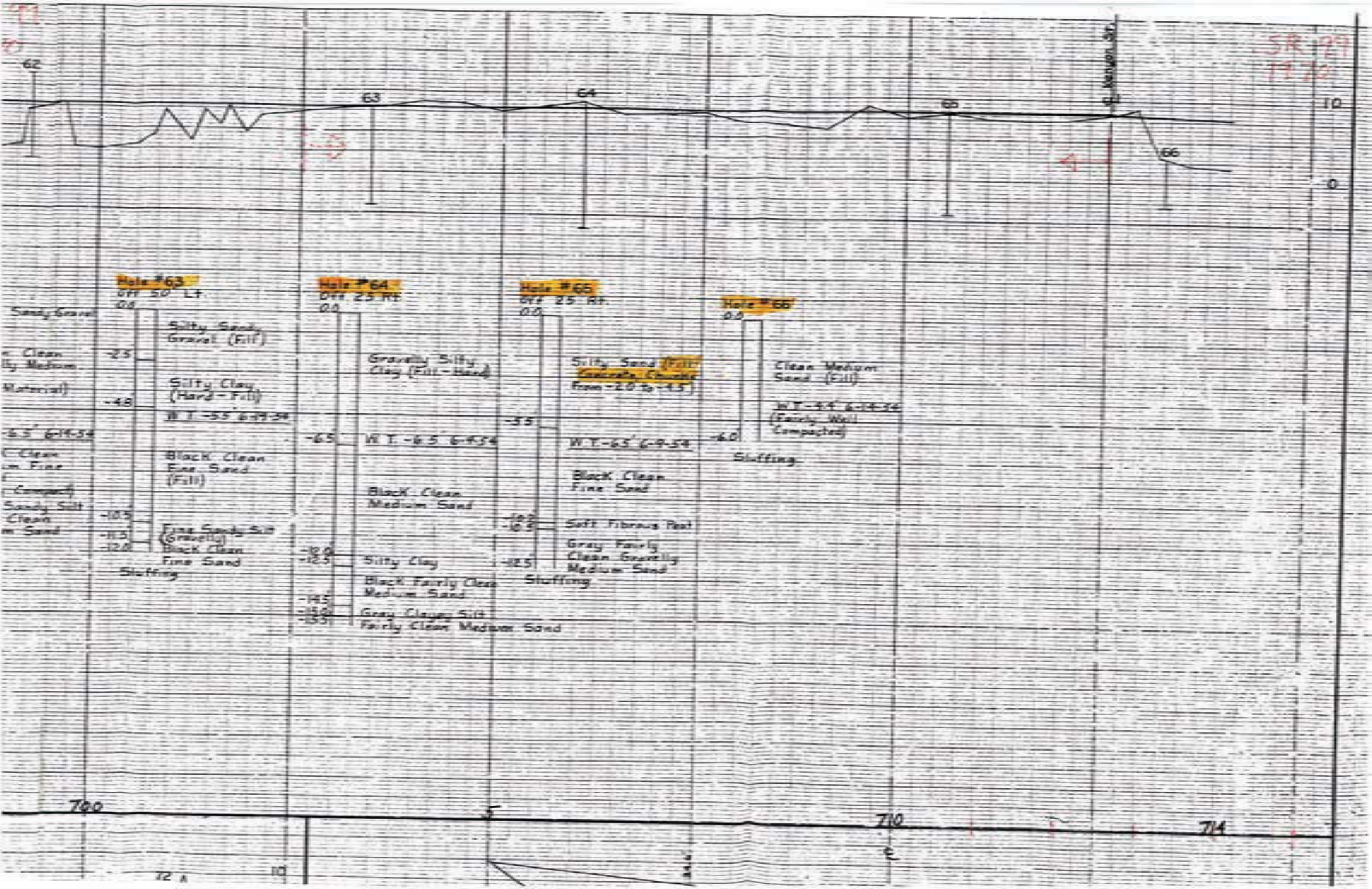
EQUIPMENT Hand tools DATE 9-20-82

INSPECTOR H.C. HOLE NO. H-49

4 Lines = 1.0'

DEPTH	BLOWS PER FOOT	PROFILE	TUBE SAMPLE NO.	DESCRIPTION OF MATERIAL
0				Fill in Shoulder
0.2				ACP
				CSTC
0.65				Similar to SS # 2
				grey moist med dense sl gravelly silty fine to medium SAND
2.0				
2.5				mottled moist med stiff gravelly sandy SILT
				No free Water
				End of Boring - 2.5'

DOT Form 350-017 Revised 8/78


SR 129
1970
62
63
64
65
66
10
0
Hole #63
Off 50' Lt.
0.0
Sandy Gravel
Silty Sandy Gravel (Fill)
-2.5
Silty Clay (Hard - Fill)
-4.8
W.T. -5.5' 6-19-54
-6.5' 6-14-54
Black Clean Fine Sand (Fill)
-10.5
-11.5
-12.0
Fine Sandy Silt (Gravelly)
Black Clean Fine Sand
Stuffing
Hole #64
Off 25' Rt.
0.0
Gravelly Silty Clay (Fill - Hard)
-6.5
W.T. -6.5' 6-9-54
Black Clean Medium Sand
-10.0
-12.5
Silty Clay
Black Fairly Clean Medium Sand
-14.5
-15.0
-15.5
Gray Clayey Silt
Fairly Clean Medium Sand
Hole #65
Off 25' Rt.
0.0
Silty Sand (Fill)
Colorado Clay
from -2.0 to -4.5
-5.5
W.T. -6.5' 6-9-54
Black Clean Fine Sand
-10.0
-10.5
Soft Fibrous Peat
Gray Fairly Clean Gravelly Medium Sand
-12.5
Stuffing
Hole #66
0.0
Clean Medium Sand (Fill)
W.T. -9.4' 6-14-54
(Fairly Well Compacted)
-6.0
Stuffing
700
710
714

Historical RETS Borings

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Remedial Investigation/Feasibility Study
South Park Landfill
Seattle, Washington

Figure 2.8
Previous Site Explorations

I:\GIS\Projects\COS-SPARK\MXD\RIFS\Fig 2_08 Previous Site Explorations.mxd
5/30/2014

HONG CONSULTING ENGINEERS, INC.

SHEET 1 OF 1

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

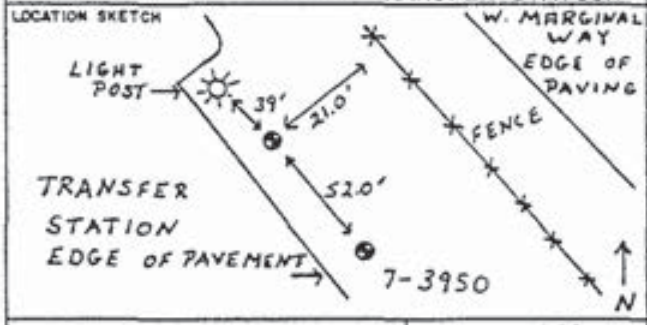
JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-4000

PROJECT NAME METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START TIME	FINISH TIME
WATER LEVEL	10'		14.5'			
TIME	1307		1356		1140	1400
DATE	2-11-86		2-11-86		DATE 2-11-86	DATE 2-11-86
CASING DEPTH						

DATUM: SURFACE | ELEVATION: 16'

SURFACE CONDITION: GRASS COVER
HNu BACKGROUND = "B"

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION / DESCRIPTION	
					0			FILL SILTY SAND - brown, fine to medium; little fine to coarse gravel	
1 / SPT	2.5 / 4.0	16 / 14 / 12	18 / 12	2 / –				SAND AND GRAVEL - brown, iron staining, medium to coarse; gravel fine to coarse; glass and other debris	1305
2 / SPT	5.0 / 6.5	3 / 5 / 8	18 / 14	2 / –	5			INTERBEDDED SAND AND SILT - brown and gray, fine to medium; wood debris, plastic debris	1310
3 / SPT	7.5 / 9.0	6 / 3 / 6	18 / 7	2 / –				SAND AND DEBRIS - black, fine to medium; paper; wire debris	1343
4 / SPT	10.0 / 11.5	30 / 4 / 4	18 / 12	3 / –	10	SEAL W.L. 13:07		SAND - black, fine to medium; some silt; last 6 in. of sample wood fibre, straw, concrete debris	1400
				15 / 15					
5 / SPT	12.5 / 14.0	6 / 3 / 5	18 / 18	8 / –				INTERBEDDED SAND AND SILT - dark gray to dark brown, fine to medium; poorly laminated; moist; wire in tip, fiberous debris at top	1415
				2 / 20%	15	W.L. 13:56			
								END OF HOLE bubbling sound from hole, methane reading off 4% scale, variable, 20% ± at base of hole. Pulled out of hole, hole sloughed to 10', bentonite seal 9.0 - 10.0', used one full bucket, backfilled hole with cuttings, bentonite to surface	
					20				

DRILLING CONTRACTOR: SUBTERRANEAN
DRILLER: CW
BY: SHE
DATE: 2-11-86
CHKD BY: SH

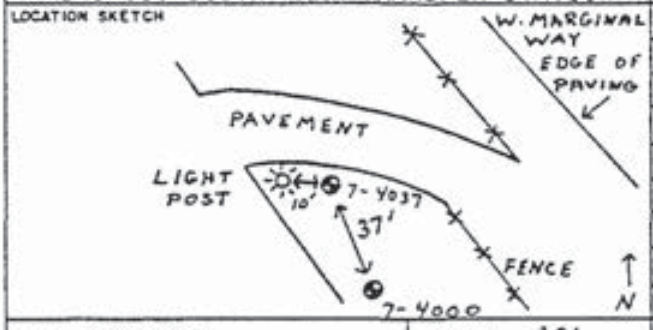
HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-4037

PROJECT NAME METRO ETS-7

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
150 LB. SAFETY HAMMER DROPPED 30 INCHES

					START	FINISH
WATER LEVEL	11'		16'		TIME	TIME
TIME	1520		1540		1420	1600
DATE	2-11-86		2-11-86		DATE	DATE
CASING DEPTH					2-11-86	2-11-86

DATUM SURFACE | ELEVATION 16'

SURFACE CONDITION: GRASS COVER
HNu BACKGROUND <1.0

DRILLING CONTRACTOR SUBTERRANEAN | DRILLER C.W. | BY SHE | DATE 2-11-86 | CHKD BY SH

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	CLASSIFICATION / DESCRIPTION	
					0	FILL	
						SAND - brown, fine to coarse; some gravel; fine to coarse; debris	
1 / SPT	2.5 / 4.0	10 / 22 / 16	18 / 8	1 / –		SAND - brown, medium to coarse; some gravel, fine to coarse; concrete at tip brick and other debris	1455
2 / SPT	5.0 / 6.5	16 / 13 / 18	18 / 8	1 / –	5	SAND - brown, medium to coarse; trace gravel, fine; trace silt; brick fragments and other debris	1500
3 / SPT	7.5 / 9.0	10 / 50	7 / 6	2 / –		SAND AND GRAVEL - brown, fine to coarse; brick and shell fragments; other debris shoe refusal at 8.0 feet, auger drilled beyond	1505
				15 / 0			
4 / SPT	10.0 / 11.5	4 / 9 / 14	18 / 6	2 / –	10	SAND AND GRAVEL - dark brown, medium to coarse; wood debris	1525
						WL 1540 SEAL	
5 / SPT	12.5 / 14.0	3 / 5 / 10	18 / 18	10 / –		INTERBEDDED SAND AND SILTY SAND - dark gray, fine to coarse; fine beds; poorly laminated; trace fine gravel	1530
6 / SPT	15.0 / 16.5	5 / 5 / 7	18 / 18	3 / –	15	SILT - light brown and gray beds; some fine sand at top; poorly laminated; woody debris	1540
						WL 15:40	
7 / SPT	17.5 / 19.0	2 / 5 / 6	18 / 18			SANDY SILT - dark brown, fine; trace woody debris; fine to medium sand at tip	1550
8 / SPT	19.0 / 20.5	6 / 9 / 8	18 / 18			SAND - dark gray, fine to medium; volcanic clasts and quartz; trace silt	1600
				3 / 0	20		

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

JOB NO. 8546 | CLIENT: URS/METRO | BORING NO. 7-4037

PROJECT NAME: METRO ETS-7

LOCATION SKETCH

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 lb. SAFETY HAMMER DROPPED 30 INCHES

					START	FINISH
WATER LEVEL	11'		16'		TIME	TIME
TIME	1520		1540		1420	1600
DATE	2-11-86		2-11-86		DATE 2-11-86	DATE 2-11-86
CASING DEPTH						

DATUM: SURFACE | ELEVATION: 16'

SURFACE CONDITION

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	NUMBER OF RINGS	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION	DESCRIPTION
								END OF HOLE - total depth measured at 17.0' inside auger, 3 feet plus of heave, seal at 11.5 - 12.0 feet, sloughed below seal, backfilled with cuttings to surface	

DRILLING CONTRACTOR: SUBTERRANEAN

DRILLER: CW

BY: SHE | DATE: 2-11-86 | CHKD BY: SH

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

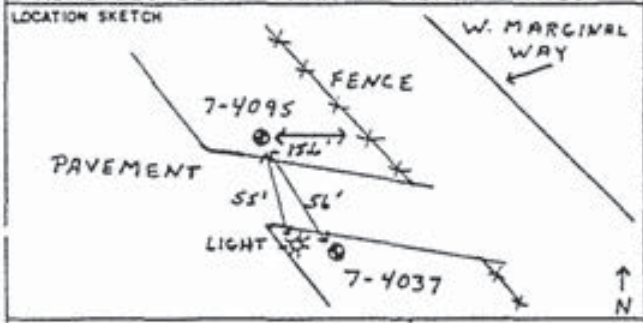
JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-4095

PROJECT NAME METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



				START	FINISH
WATER LEVEL	11'		15.5'	TIME	TIME
TIME	0912		0943	0830	1000
DATE	2-12-86		2-12-86	DATE	DATE
CASING DEPTH				2-12-86	2-12-86

DATUM SURFACE | ELEVATION 17'

SURFACE CONDITION GRASS COVER

HNu BACKGROUND <1.0 ("B")

DRILLING CONTRACTOR SUBTERRANEAN | DRILLER CW

BY SHE | DATE 2-12-86 | CHKD BY SH

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION DESCRIPTION	
								FILL	
					0			SAND - brown, medium; some gravel	
1 / SPT	2.0 / 3.5	22 / 21 / 13	18 / 8	1 / —				SAND - brown, fine to coarse; some fine gravel; brick, glass, metal fragments	0900
2 / SPT	4.5 / 6.0	5 / 3 / 3	18 / 6	1 / —				SAND - mottled brown, dark yellow, fine to coarse; some fine gravel; abundant glass	0910
					5				
3 / SPT	7.0 / 8.5	1 / 1 / 1	18 / 10	1 / —				SAND - as above; glass, metal and possible gypsum wallboard debris; odor	0915
4 / SPT	9.5 / 11.0	11 / 24 / 23	18 / 13	12 / —				SAND - as above; brick	
					10	WL 0912		SAND - dark gray, fine to medium; trace silt; volcanic and quartz clasts; wet	0930
5 / SPT	12.0 / 13.5	6 / 5 / 5	18 / 14	8 / —		SEAL		SAND - as above; 2 inch silt interbed at tip; trace gravel; poorly laminated	
6 / SPT	14.5 / 16.0	2 / 5 / 9	18 / 18	8 / —				SAND - dark brown, fine to coarse; top 6 inches	
				1 / 0	15			SILT - brown; poorly laminated, with occasional organic laminations	0945
7 / SPT	17.0 / 18.5	6 / 11 / 14	18 / 18	3 / —				INTERBEDDED SAND AND SILT - dark gray, fine to medium; laminated; moist	0955
					20				

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

LOCATION SKETCH

JOB NO. 8546 | CLIENT URS/Metro | BORING NO. 7-4095

PROJECT NAME METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

					START	FINISH
WATER LEVEL	11'		15.5'		TIME	TIME
TIME	0912		0943		0830	1000
DATE	2-12-86		2-12-86		DATE	DATE
CASING DEPTH					2-12-86	2-12-86

DATUM SURFACE | ELEVATION 17'

SURFACE CONDITION

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HN4 / CH4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION	DESCRIPTION
					20				
8 / SPT	20.5 / 22.0	3 / 6 / 18	18 / 13	1 / —				INTERBEDDED SILT AND SAND - dark gray; bedded and laminated	1005
								END OF HOLE measured depth at end of drilling 20.5'; bentonite seal placed at 11.5-12.0'; hole sloughed below seal, backfilled with cuttings above seal to surface	
					25				

DRILLING CONTRACTOR SUBTERRANEAN

DRILLER CW

BY SHE | DATE 2-12-86 | CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

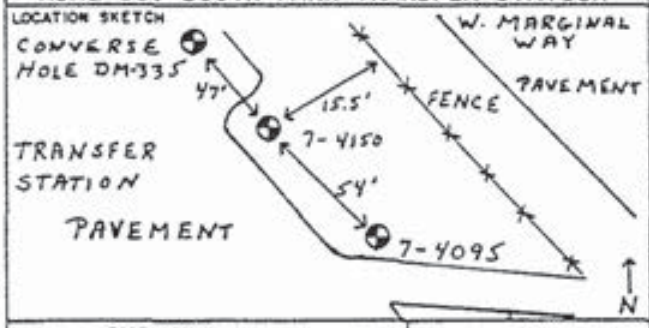
JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-4150

PROJECT NAME: METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START	FINISH
WATER LEVEL	12.5'		16'		TIME	TIME
TIME	1106		1143		1015	1200
DATE	2-12-86		2-12-86		DATE	DATE
CASING DEPTH					2-12-86	2-12-86

DATUM: SURFACE | ELEVATION: 18'

SURFACE CONDITION: GRASS COVER
HNu BACKGROUND <1.0 ("B")

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH_4	DEPTH IN FEET	CLASSIFICATION DESCRIPTION	
					0	FILL	
1 / SPT	2.0 / 3.5	50	6 / 14	B / –		SAND - brown, fine to medium; trace fine gravel; brick, glass, concrete; bit refusal in first 6 inches, rest of recovery is slough	1050
2 / SPT	4.5 / 6.0	28 / 20 / 15	18 / 8	B / –	5	SAND - brown, fine to medium; trace gravel; brick, concrete	1105
3 / SPT	7.0 / 8.5	14 / 12 / 20	18 / 5	B / –		SAND - as above; brick	
						NOTE: bit chattering at 9'	
4 / SPT	9.5 / 11.0	6 / 9 / 14	18 / 18	2 / –	10	SAND - dark gray, fine medium; trace fine gravel volcanic clasts, quartz; wet; naptha odor; glass fragment	1120
				1 / 0	SEAL		
5 / SPT	12.0 / 13.5	16 / 12 / 10	18 / 18	25 / –	WL 1106	INTERBEDDED SAND AND SILT - dark gray, fine to medium; fining toward tip; plant debris in silt	1130
				10-20 / 0		NOTE: petroleum odor noted at 14'	
6 / SPT	14.5 / 16.0	9 / 12 / 10	18 / 18	2 / –	15	SILT - brown; laminated; some woody debris and organic laminae; trace clay; naptha odor, probably from slough	1140
7 / SPT	17.0 / 18.5	5 / 8 / 22	18 / 18	8 / –		SILT - brown; laminated; woody debris; root tubes; organic rich laminations; trace of sand and clay laminations	1150
8 / SPT	19.5 / 21.0	2 / 3 / 8	18 / 18	B / –	20	SILT - brown; almost fine sand; trace of plant debris, top 12 inches	

DRILLING CONTRACTOR: SUBTERRANEAN
DRILLER: CW
BY: SHE
DATE: 2-12-86
CHKD BY: SH

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

LOCATION SKETCH

JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-4150

PROJECT NAME: METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

					START	FINISH
WATER LEVEL	12.5'	16'			TIME	TIME
TIME	1106	1143			1015	1200
DATE	2-12-86	2-12-86			DATE	DATE
CASING DEPTH					2-12-86	2-12-86

DATUM: SURFACE | ELEVATION: 18'

SURFACE CONDITION

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HN_4 / CH_4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION	DESCRIPTION	
					20			SAND	dark gray, fine to medium; volcanic and quartz grains, last 6 inches	1200
9 / SPT	22.0 / 23.5	5 / 11 / 16	18 / 18	0 / –				SAND -	dark gray, fine to medium; volcanic and quartz clasts; trace of plant debris	1215
					25			END OF HOLE	total depth measured at 18 feet, 5' of heave?; water level at 16"; hole sloughed to 11.0; bentonite seal at 10.5-11.0'; hole filled with cuttings to surface	

SUBTERRANEAN

DRILLING CONTRACTOR: CW

DRILLER:

BY: SHE | DATE: 2-12-86 | CHKD BY: SH

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

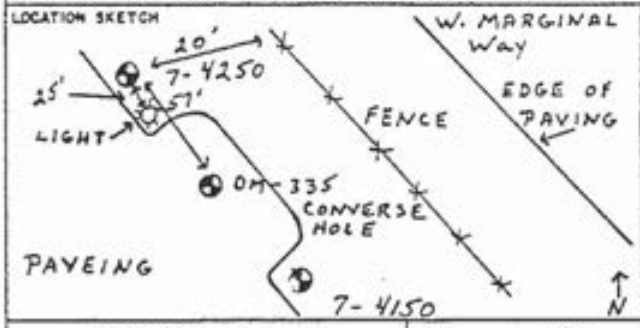
JOB NO. 8546 | CLIENT: URS/METRO | BORING NO. 7-4250

PROJECT NAME: METRO EIS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START TIME	FINISH TIME
WATER LEVEL	11'		15'			
TIME	1415		1447		1345	1510
DATE	2-12-86		2-12-86		DATE 2-12-86	DATE 2-12-86
CASING DEPTH						

DATUM: SURFACE | ELEVATION: 16'

SURFACE CONDITION: GRASS COVER
HNu BACKGROUND < 1.0 ("B")

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION DESCRIPTION	
					0			FILL SAND - brown, fine to medium; trace silt; some fine to coarse gravel	
1 / SPT	2.5 / 4.0	14 / 20 / 26	18 / 8	8 / 1				GRAVEL AND SAND - brown to gray, fine and coarse; brick fragments	1405
2 / SPT	5.0 / 6.5	12 / 21 / 15	18 / 14	1 / —	5			SAND - dark gray, fine to coarse; some fine gravel; iron staining; glass, concrete	1415
				1 / 0					
3 / SPT	7.5 / 9.0	6 / 4 / 4	18 / 14	1 / —				SAND - dark gray, fine to coarse; some silt at top; trace fine gravel; volcanic and quartz grains; wet	1420
4 / SPT	10.0 / 11.5	7 / 10 / 12	18 / 18	1 / —	10	WL 1415		SAND - dark gray, fine to medium; fining toward tip; trace gravel; volcanic and quartz grains; indistinct laminations at tip; wet	1430
5 / SPT	12.5 / 14.0	1 / 1 / 5	18 / 18	1 / —				SILT - gray; trace fine sand; little wood debris, organic laminations; laminated	1440
6 / SPT	15.0 / 16.5	2 / 5 / 6	18 / 16	1 / —	15			SAND - dark gray, fine; trace silt at tip; volcanic and quartz grains	1450
				1 / .5					
7 / SPT	17.5 / 19.0	3 / 5 / 5	18 / 18	1 / —				SAND - gray, fine; some silt laminations; laminated; poorly sorted	
					20				

DRILLING CONTRACTOR: SUBTERRANEAN
DRILLER: CW
BY: SHE
DATE: 2-12-86
CHKD BY: SH

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING	KING CO. SOUTH PARK TRANSFER STATION
JOB NO.	8546
CLIENT	URS/METRO
PROJECT NAME	METRO ETS-7
BORING NO.	7-4250
LOCATION SKETCH	
DRILLING METHOD:	HOLLOW STEM AUGER
SAMPLING METHOD:	STANDARD PENETRATION TEST 140 LB. SAFETY HAMMER DROPPED 30"

					START	FINISH
WATER LEVEL	11'		15'		TIME	TIME
TIME	1415		1447		1345	1510
DATE	2-12-86		2-12-86		DATE	DATE
CASING DEPTH					2-12-86	2-12-86

DATUM SURFACE ELEVATION 16'

SUBTERRANEAN

DRILLING CONTRACTOR CW

DRILLER

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HN4 / CH4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION / DESCRIPTION
8 / SPT	20.0 / 21.5	5 / 9 / 19	18 / 18	1 / —	20			SURFACE CONDITION SAND - dark gray, fine to medium; fine at top, medium at tip; trace of plant fiber
				8 / 0				
								END OF HOLE - total depth measured at 17', 3' of heave, water level 15' inside auger, hole sloughed to 14.5', bentonite seal at 14.0 - 14.5', backfilled with cuttings to surface
					25			NOTE - On starting next hole, auger found to be plugged with bentonite. Believe that bentonite bridged on putting seal in this hole. There is, therefore, probably little or no seal in this hole.

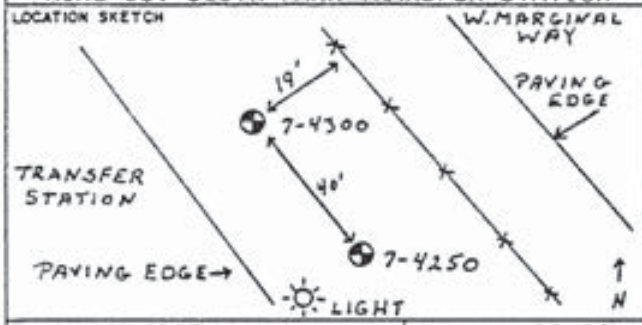
BY SHE DATE 2-12-86 CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

SHEET 1 OF 1

LOCATION OF BORING	KING CO. SOUTH PARK TRANSFER STATION
JOB NO.	8546
CLIENT	URS/METRO
PROJECT NAME	METRO ETS-7
BORING NO.	7-4300
DRILLING METHOD	HOLLOW STEM AUGER
SAMPLING METHOD	STANDARD PENETRATION TEST 140 LB. SAFETY HAMMER DROPPED 30 INCHES
DATUM	SURFACE
ELEVATION	14.0'
SURFACE CONDITION	GRASS COVER HNu BACKGROUND < 1.0 ("B")

LOCATION SKETCH



					START	FINISH
WATER LEVEL	6'		12.5'		TIME	TIME
TIME	0918		1000		0900	1030
DATE	2-13-86		2-13-86		DATE	DATE
CASING DEPTH					2-13-86	2-13-86

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	CLASSIFICATION / DESCRIPTION
					0	FILL
						SAND - dark brown, fine to coarse; some fine to coarse gravel; glass
1 / SPT	2.5 / 5.0	12 / 48 / 23	18 / 18	1 / —		SAND - dark brown, fine to coarse; some fine gravel; yellow clinker, glass, wood, brick 0910
2 / SPT	5.0 / 6.5	18 / 11 / 7	18 / 5	1 / —	5	SAND AND GRAVEL - black, fine to coarse; wood debris, other material; wet 0925
						WL 0918
3 / SPT	7.5 / 9.0	7 / 11 / 14	18 / 16	1 / —		SAND - dark gray, fine to medium; trace of fine gravel; trace of plant debris 0935
				B / 0		
4 / SPT	10.0 / 11.5	2 / 3 / 5	18 / 18	1 / —	10	SILTY CLAY - brown, laminated; little clay in bottom 6"; wood debris and organic laminations; root burrowing in last 6 inches below ½ inch organic horizon 0950
						SEAL
5 / SPT	12.5 / 14.0	2 / 3 / 8	18 / 12	1 / —		SANDY SILT - dark gray, fine; trace clay; laminated; volcanic clasts; abundant plant debris 1000
6 / SPT	15.0 / 16.5	9 / 22 / 9	18 / 18	1 / —	15	SILTY SAND - dark gray, fine grained; laminated; plant debris at top 1010
7 / SPT	17.5 / 19.0	— / — / —	18 / 18	1 / —		SAND - dark gray, fine to medium; trace silt laminations; volcanic and quartz grains
				B / 0		
					20	END OF HOLE - hole sloughed to 11 feet, bentonite seal at 11.0 - 11.5 feet, backfilled with cuttings; total depth measured at 14' inside auger

DRILLING CONTRACTOR CW
DRILLER
BY SHE
DATE 2-12-86
CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

SHEET 1 OF 1

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

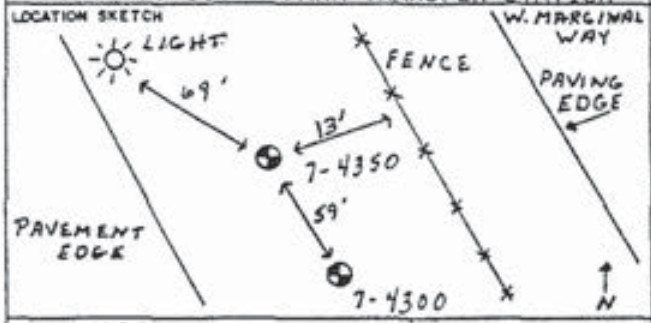
JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-4350

PROJECT NAME METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START	FINISH
WATER LEVEL	NOT MEASURED				TIME	TIME
TIME					1100	1300
DATE					DATE	DATE
CASING DEPTH					2-13-86	2-13-86

DATUM SURFACE | ELEVATION 13'

SURFACE CONDITION GRASS COVER

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HN_4 / CH_4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION / DESCRIPTION	
					0			FILL	
1 SPT	2.5 / 4.0	2,6 / 12 / 7	18 / 6	— / —				SAND - dark brown, fine to coarse; trace fine gravel; ceramic, glass, brick, clinker debris	1125
2 SPT	5.0 / 6.5	2 / 2 / 2	18 / 14	— / —	5			CLAYEY SILT - gray, mottled; plant debris and organic laminations; root traces; bioturbation; glass at top	1140
3 SPT	7.5 / 9.0	6 / 9 / 10	18 / 18					SAND - dark gray, fine to medium; laminated; trace fine gravel; volcanic and quartz grains; some shells possible	1155
4 SPT	10.0 / 11.5	1 / 1 / 1	18 / 18	— / 0	10	SEAL		CLAYEY SILT - brown, laminated; abundant plant debris and organic laminations; mottled, probable root turbations	1205
5 SPT	12.5 / 14.0	3 / 4 / 4	18 / 18					SANDY SILT - gray to brown at top; little clay and abundant organic laminations at top; grading to fine sandy silt at base; glass fragment in middle	1215
6 SPT	15.0 / 16.5	2 / 2 / 4	18 / 18		15			SAND AND SILT - gray and brown, fine to medium; poorly laminated; volcanic and quartz grains; silt forms discrete layer parallel to core barrel; glass	1230
7 SPT	16.5 / 18.0	6 / 7 / 13	18 / 18					SAND AND SILT - dark gray, fine to medium; laminated; silt layer parallel to barrel, possibly scrapped off hole side on way down	1240
					20			END OF HOLE - hole sloughed to 11 feet, bentonite seal 10.5 - 11.0 feet, backfilled with drill cuttings to surface	

DRILLING CONTRACTOR SUBTERRANEAN
DRILLER CM
BY SHE
DATE 2-13-86
CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

SHEET 1 OF 1

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

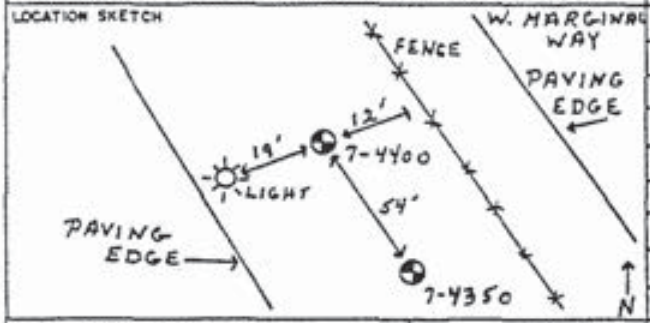
JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-4400

PROJECT NAME METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START	FINISH
WATER LEVEL	10.7	10.8			TIME	TIME
TIME	1520	1530			1400	1530
DATE	2-13-86	2-13-86			DATE	DATE
CASING DEPTH					2-13-86	2-13-86

DATUM SURFACE | ELEVATION 12.5'

SURFACE CONDITION: GRASS COVER
HNu UNAVAILABLE

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	CLASSIFICATION / DESCRIPTION	
					0	FILL	
						SAND - brown, gray, fine to medium; some fine to coarse gravel	
1 / SPT	2.5 / 4.0	1 / 2 / 4	18 / 12			SAND - brown, fine to medium; trace silt; brick, glass; charcoal at tip	1440
2 / SPT	5.0 / 6.5	6 / 8 / 18	18 / 6		5	SILTY SAND - brown, fine to coarse; trace gravel; glass	1455
3 / SPT	7.5 / 9.0	5 / 7 / 4	18 / 18			SAND - dark gray, fine to medium; trace of plant debris; poorly laminated; volcanic grains	1500
4 / SPT	10.0 / 11.5	3 / 3 / 3	18 / 18		10	CLAYEY SILT - light brown; blocky structure; laminated; abundent organic lamination; plant fragments	1530
5 / SPT	12.5 / 14.0	1 / 1 / 1	18 / 18			SANDY SILT - gray, fine; laminated; plant fragments and laminations; soft sediment deformation	1545
6 / SPT	15.0 / 16.5	2 / 5 / 8	18 / 18		15	SAND - dark gray, fine to medium; trace silt in laminations; volcanic and quartz grains plant debris	
7 / SPT	16.5 / 18.0	6 / 13 / 15	18 / 18	0		SAND - as above, top 12 inches	1555
						SILTY SAND - dark gray, fine; trace of wood fragments	
					20	END OF HOLE - total depth measured at 14.6 inside auger; hole sloughed to 11.5', bentonite seal 11.0' - 11.5', backfilled with cuttings to	

WL
SEAL

DRILLING CONTRACTOR SUBTERRANEAN
DRILLER CH
BY SHE
DATE 2-13-86
CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

SHEET 1 OF 1

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

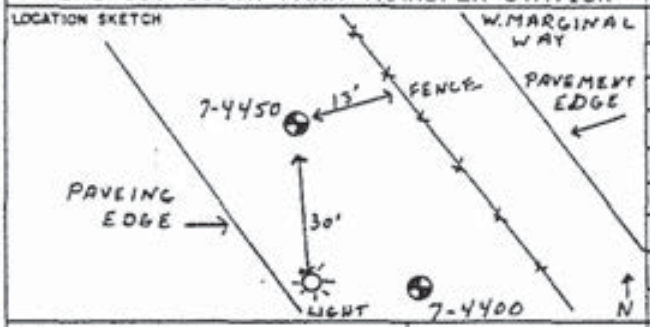
JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-4450

PROJECT NAME METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START	FINISH
WATER LEVEL	6.5'		10.4'		TIME	TIME
TIME	0900		0950		0830	1015
DATE	2-14-86		2-14-86		DATE	DATE
CASING DEPTH					2-14-86	2-14-86

DATUM SURFACE | ELEVATION 11.5'

SURFACE CONDITION GRASS COVER
HNu UNAVAILABLE

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	CLASSIFICATION / DESCRIPTION	
					0	FILL	
						SAND - brown, fine to coarse; little fine to coarse gravel; brick fragments	
1 / SPT	2.0 / 3.5	8 / 4 / 4	18 / 4			SAND - brown, fine to coarse; some fine to coarse gravel; concrete and crushed rock	0855
2 / SPT	4.5 / 6.0	4 / 11 / 26	18 / 14		5	SILTY SAND - brown, fine to medium; some fine gravel; rusty stain in places; black and wet at tip; glass	0905
3 / SPT	7.0 / 8.5	4 / 2 / 4	18 / 18			SAND - dark gray, fine to medium; volcanic and quartz grains; minor iron stain	
						SILT - gray; some fine sand; laminated; plant debris; laminations	0915
4 / SPT	9.5 / 11.0	2 / 2 / 2	18 / 18		10	CLAYEY SILT - brown; laminated; blocky structure; abundant plant debris	0930
5 / SPT	12.0 / 13.5	1 / 5 / 5	18 / 18			SANDY SILT - gray; laminated; trace of plant debris; clayey at top; soft sediment deformation, mud diaper at top	0945
				— / 0			
6 / SPT	14.5 / 16.0	1 / 2 / 5	18 / 18		15	SILTY SAND - dark gray, fine to medium; laminated; sand only at tip; glass; cedar chunk	1000
7 / SPT	16.5 / 18.0	8 / 14 / 13	18 / 18			SAND - dark gray, fine; some silt in places; volcanic, quartz grains	1010
					20	END OF HOLE - total depth measured inside auger 15.3 feet; hole backfilled with cuttings to surface	

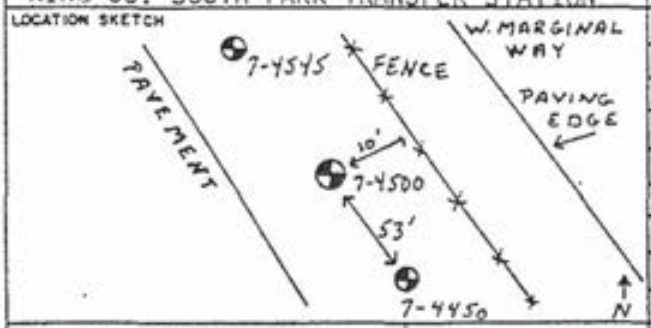
DRILLING CONTRACTOR SUBTERRANEAN
DRILLER CW
BY SHE
DATE 2-14-86
CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

SHEET 1 OF 1

LOCATION OF BORING	KING CO. SOUTH PARK TRANSFER STATION
JOB NO.	8546
CLIENT	URS/METRO
PROJECT NAME	METRS ETS-7
BORING NO.	7-4500
DRILLING METHOD	HOLLOW STEM AUGER
SAMPLING METHOD	STANDARD PENETRATION TEST 140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START TIME	FINISH TIME
WATER LEVEL	10.0'		11.3'			
TIME	1140		1200		1045	1200
DATE	2-14-86		2-14-86		DATE 2-14-86	DATE 2-14-86
CASING DEPTH						

DATUM SURFACE ELEVATION 11.5'

SURFACE CONDITION GRASS COVER
HNu UNAVAILABLE

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION / DESCRIPTION	
					0			FILL	
								SAND - brown; fine to medium; some fine to coarse gravel	1110
1 / SPT	2.5 / 4.0	10 / 4 / 2	18 / 3					SAND - brown, rusty staining, fine to medium; glass, brick, other debris, aluminum, wire	
2 / SPT	5.0 / 6.5	7 / 7 / 8	18 / 10		5			SAND - dark gray, fine to medium; trace of plant debris; volcanic and quartz grains	1120
3 / SPT	7.5 / 9.0	1 / 2 / 2	18 / 18					SAND - as above; trace fine gravel; trace plant debris	1130
4 / SPT	10.0 / 11.5	1 / 2 / 3	18 / 18		10	WL 1140		SAND - as above, 9 inches; glass fragments	
								CLAYEY SILT - brown; laminated; abundant organic debris and laminae	1140
5 / SPT	12.5 / 14.0	2 / 2 / 3	18 / 18					SILT - gray, well laminated; trace organic debris	1150
6 / SPT	15.0 / 16.5	8 / 12 / 11	18 / 18		15			INTERBEDDED SAND AND SILT - dark gray, fine to medium; laminated; volcanic and quartz grains; trace plant debris	1205
7 / SPT	16.5 / 18.0	3 / 4 / 13	18 / 18					SAND - dark gray, fine; poorly laminated; volcanic and quartz grains	1215
								END OF HOLE - total depth 14.1 feet measured inside auger. 4 feet of heave. Hole backfilled with cuttings to surface	
					20				

DRILLING CONTRACTOR SUBTERRANEAN
DRILLER CW
BY SHE
DATE 2-14-86
CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

SHEET 1 OF 1

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

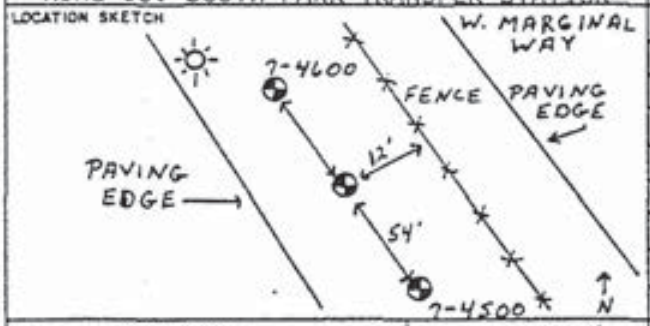
JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-4545

PROJECT NAME METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START	FINISH
WATER LEVEL	11.0'		11.2'		TIME	TIME
TIME	1425		1435		1400	1500
DATE	2-14-86		2-14-86		DATE 2-14-86	DATE 2-14-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 11.5'

SURFACE CONDITION: GRASS COVER
HNu UNAVAILABLE

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HN_u / CH_4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION DESCRIPTION
					0			FILL
								SAND - brown, fine to coarse; some fine to coarse gravel
1 / SPT	2.5 / 4.0	4 / 15 / 7	18 / 4					SAND - brown, fine to coase; plant debris; brick 1410
2 / SPT	5.0 / 6.5	2 / 9 / 6	18 / 0		5			Driller reports thinking he was on metal; cuttings are sand as above
3 / SPT	7.5 / 9.0	10 / 8 / 7	18 / 12					SAND - dark gray, fine to medium; trace fine gravel; some silt, rust stain; glass; plant debris; brick fragments 1420
4 / SPT	10.0 / 11.5	2 / 2 / 3	18 / 18		10	WL N25		CLAYEY SILT - brown; laminated; abundant plant debris and organic laminae; sandy to top 1430
5 / SPT	12.5 / 14.0	1 / 1 / 1	18 / 18					SILT - gray; laminated; wood and other plant debris 1440
6 / SPT	15.0 / 16.5	8 / 12 / 21	18 / 18		15			SAND - dark gray, fine; trace silt; volcanic and quartz grains
7 / SPT	16.5 / 18.0	4 / 16 / 23	18 / 18					SAND - as above
								END OF HOLE - total depth measured at 16.9 feet inside auger. Hole backfilled with cuttings to surface
					20			

DRILLING CONTRACTOR SUBTERRANEAN
DRILLER CW
BY SHE
DATE 2-14-86
CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

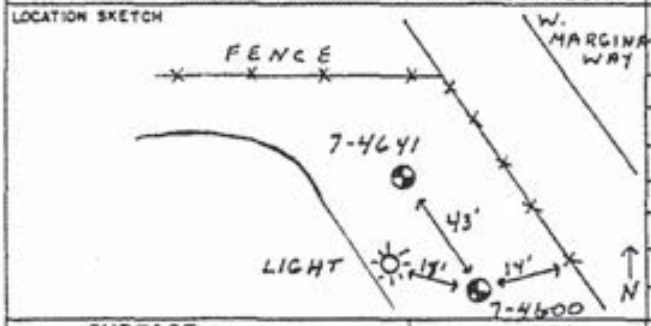
JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-4600

PROJECT NAME METRO ETS -7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START	FINISH
WATER LEVEL	10.9'		15		TIME	TIME
TIME	0845		0910		0800	0930
DATE	2-17-86		2-17-86		DATE	DATE
CASING DEPTH					2-17-86	2-17-86

DATUM SURFACE | ELEVATION 14'

SURFACE CONDITION: GRASS COVER
HNu UNAVAILABLE

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HN_4 / CH_4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION / DESCRIPTION	
					0			FILL	
								SAND - brown, fine to coarse; some fine to coarse gravel	
1 / SPT	2.0 / 3.5	3 / 2 / 1	18 / 7					SAND - brown, iron staining, fine to coarse; trace fine gravel; wire, other debris	0830
2 / SPT	4.5 / 6.0	1 / 1 / 1	18 / 4		5			SAND - as above; glass, other debris	0835
3 / SPT	7.0 / 8.5	5 / 6 / 7	18 / 8					SAND - dark gray, fine to medium; volcanic and quartz grains; wet	0840
4 / SPT	9.5 / 11.0	1 / 1 / 1	18 / 18		10			SILT AND SAND INTERBEDDED - dark gray to gray; fine to medium; laminated; trace of plant debris; faint fuel oil odor	0850
				— / 0		WL 0845			
5 / SPT	12.0 / 13.5	4 / 1 / 2	18 / 18					CLAYEY SILT - brown; laminated; blocky structure; abundant plant matter; trace fine sand at top; tight, moist	0900
6 / SPT	14.5 / 16.0	1 / 1 / 2	18 / 18		15			SILT - gray; laminated; plant stems abundant	0910
7 / SPT	17.5 / 19.0	3 / 3 / 6	18 / 18					SILT - as above; fine to medium sand bed at base	0920
					20			END OF HOLE: Total depth measured as 15.5 feet inside auger; hole bottom mushy, but no water table; hole backfilled with cuttings to surface	

DRILLING CONTRACTOR SUBTERRANEAN
DRILLER CN
BY SHE
DATE 2-17-86
CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

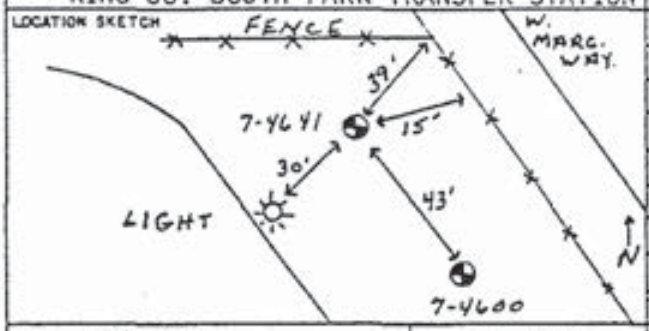
JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-4641

PROJECT NAME METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START	FINISH
WATER LEVEL	11'	10.7'	15.7'		TIME	TIME
TIME	1020	1055	1105		1000	1130
DATE	2-17-86	2-17-86	2-17-86		DATE	DATE
CASING DEPTH					2-17-86	2-17-86

DATUM SURFACE | ELEVATION 14'

SURFACE CONDITION: GRASS COVER
HNu BACKGROUND = "B"

DRILLING CONTRACTOR SUBTERRANEAN
DRILLER CW
BY SHE
DATE 2-17-86
CHKD BY SH

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	CLASSIFICATION / DESCRIPTION	
					0	FILL	
1 / SPT	2.5 / 4.0	17 / 21 / 10	18 / 8	0 / —		SAND - brown, some iron staining, fine to medium ; some fine to coarse gravel; wire, other debris; dry	1030
2 / SPT	5.0 / 6.5	6 / 5 / 3	18 / 1	— / —	5	SAMPLE TO SMALL TO PROPERLY LOG - one large chunk of what appears to be pumice, plus sand debris	1040
3 / SPT	7.5 / 9.0	3 / 4 / 4	18 / 6	B / —		SAND - dark gray, fine to medium; trace of plant debris; volcanic quartz grains; wet	1045
4 / SPT	10.0 / 11.5	1 / 1 / 1	18 / 12	B / —	10	SAND - as above; glass and small bit of fill incorporated into middle of sample; wet	1050
				B / 0	WL 1055		
5 / SPT	12.5 / 14.0	1 / 1 / 1	18 / 18	B / —		CLAYEY SILT - gray with black organic laminations; silt at top, laminated; at tip blocky with abundant plant fibers; organic odor; moist	1100
6 / SPT	15.0 / 16.5	3 / 4 / 5	18 / 18		15	INTERBEDDED SILT AND SAND - gray, laminated; fine; trace of plant debris; wet	1115
7 / SPT	18.5 / 20.0	2 / 2 / 4	18 / 18		20	SANDY SILT - gray, laminated; fine; trace of plant debris; wet	1125
						END OF HOLE: Total depth 16.6 feet inside auger; hole backfilled to surface with cuttings	

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	MW-30	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling, / Hollow Stem Auger
Sampling Method: Dames & Moore

Ground Surface Elev: 17.60' NAVD88
Depth to Water: 10.8' BGS (ATD)
Start/Finish Date: 6/15/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
	Concrete seal, 0'-2'; 2-inch diameter schedule 40 PVC casing, 0'-8'; Hydrated bentonite chips, 2'-6'; #2/12 sand filter pack, 6'-13'; 2-inch diameter schedule 40 PVC 10-slot screen, 8'-13'; 6/15/2011; PVC endcap; Slough						Loose, slightly moist, brown, trace to slightly silty SAND (SP-SM); fine to medium sand, predominantly fine.	
5		S-1		0.0	1 1 1			5
		S-2		0.0	1 1 1		Loose, slightly moist, brown, slightly silty SAND (SP-SM); with frequent, thin SILT (ML) lamina.	
10		S-3		0.0	1 1 1		Loose, wet, brown, slightly silty SAND (SP-SM); trace fine gravel.	10
							Soft, wet, gray, clayey SILT (ML).	
							Loose, wet, black, slightly silty to silty SAND (SP-SM). Gravelly.	
		S-4		0.0	2 1 1		Loose, wet, black SAND (SP) with 2" gray SILT (ML) pockets.	
15		S-5		0.0	3 4 6		Loose, wet, black SAND (SP); fine to medium sand.	15
							Bottom of boring at 16.5' below ground surface.	

Sampler Type:
- No Recovery
- 3.25" OD D&M Split-Spoon Ring Sampler

PID - Photoionization Detector (Headspace Measurement)
- Static Water Level
- Water Level (ATD)

Logged by: AET
Approved by: JJS
Figure No. B- 26

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	MW-31	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling, / Hollow Stem Auger
Sampling Method: Dames & Moore

Ground Surface Elev: 17.58' NAVD88
Depth to Water: 11' BGS (ATD)
Start/Finish Date: 6/15/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
	Concrete seal, 0'-2'						Loose, slightly moist, brown, slightly silty SAND (SP-SM); fine sand.	
5	2-inch diameter schedule 40 PVC casing, 0'-18'	S-1		0.0	3 3 3			5
		S-2		0.0	3 3 4		Loose, slightly moist, dark gray SAND (SP); fine to medium sand.	
10	Hydrated bentonite chips, 2'-16' ▽ 6/15/2011	S-3		0.0	4 4 3		Wet.	10
							Stiff, wet, gray SILT (ML); with wood debris.	
15		S-4		0.0	3 5 8		Medium dense, wet, dark gray to black SAND (SP); trace silt; fine to medium sand.	15
	#2/12 sand filter pack, 16'-26'							
20	2-inch diameter schedule 40 PVC 10-slot screen, 18'-23'	S-5		0.0	4 6 8			20
	PVC endcap							
25		S-6		0.0	5 9 9			25
							Bottom of boring at 26' below ground surface.	

Sampler Type:
- No Recovery
- 3.25" OD D&M Split-Spoon Ring Sampler

PID - Photoionization Detector (Headspace Measurement)
- Static Water Level
- Water Level (ATD)

Logged by: AET
Approved by: JJS
Figure No. B- 27

5th Avenue Properties Ownership History Memorandum

20 YEARS FLOYD | SNIDER
strategy ▪ science ▪ engineering

Two Union Square
601 Union Street, Suite 600
Seattle, WA 98101
tel: 206.292.2078 fax: 206.682.7867

Memorandum

To: Teri Floyd, Project Manager, Floyd|Snider

Copies: South Park Landfill files; Appendix to RI

From: Lisa Meoli, Historian, Floyd|Snider

Date: June 16, 2016

Project No: COS-SPARK

Re: **5th Avenue Properties Ownership History**

Floyd|Snider completed historical property ownership research for three parcels located east of 5th Avenue South immediately adjacent to the South Park Landfill (Landfill) as shown in Figure 1. The properties include the following:

- 8230 5th Avenue South, Tax Parcel No. 7883600005
- 8250 5th Avenue South, Tax Parcel No. 7883600350
- 500 South Sullivan Street, Tax Parcel No. 7883600600

A question arose during the South Park Landfill Remedial Investigation that related to the ownership of three properties along 5th Avenue South, specifically whether the properties were in private ownership or owned by the City of Seattle or King County. Aerials (1936, 1941, 1947, 1953, April and June 1956, and 1963) indicate that, prior to the 1960s, the properties saw very little activity other than the construction of an early segment of SR 99 (East Marginal Way) along the eastern boundary in the mid- to late 1940s. However, starting in the mid-1960s and continuing through the late 1970s, land disturbance, apparent filling and grading, and construction of facilities are apparent in the aerials. This, in combination with logs from soil borings and test pits indicating unclassified fill, cement kiln dust, and general solid waste (bricks, glass, etc.), suggests that these properties were likely filled during this time. Representative aerials are shown in Figure 2. All available aerials are presented in Appendix A of the Remedial Investigation/Feasibility Study (RI/FS), and all available soil and test pit borings are presented in Appendix B of the RI/FS.

Ownership research was performed at Seattle Municipal Archives (SMA) and King County Archives (KCA). To confirm King County and/or City of Seattle ownership during the period of active landfill operations, historical deed abstracts documenting property transaction data over time were obtained from the SMA microfilm collection (refer to Attachment 1). Deed abstracts include an auditor file number, which is essential for locating warranty deeds and/or other real

estate transaction documentation at KCA, and information garnered is used in establishing a timeline of ownership. Documents recorded in King County on or after August 1, 1991 are typically available online. Documents recorded prior to 1991 are on microfilm and are only available at KCA.

Floyd|Snider requested warranty deeds and other real estate transaction records targeting the 1950s until 1980s; therefore, records included in this memorandum are not inclusive of all deeds available at KCA. Recent warranty deeds, post-1980s, were obtained from the King County Recorder's Office records database available online (refer to Attachment 2). Original plat maps retained at KCA for South Park and River Park were also obtained (refer to Attachment 3).

The summary below includes the history of ownership for each property researched by address, parcel number, plat name, and block and lot numbers. For purposes of this memorandum, only lots included within the current parcel boundaries were included. Refer to Figure 1 for current parcel boundaries and the historical block and lot lines.

8230 5TH AVENUE SOUTH: TAX PARCEL NO. 7883600005

The property located at 8230 5th Avenue South consists of a 1.3-acre property currently owned by JYS4, LLC. The property is located within the River Park Plat - Block 5, Lots 21-24 and South Park Plat - Block 1, Lots 1-6.

River Park Plat - Block 5, Lots 21 through 24

According to the deed abstract, Lots 21 through 24 were privately owned from 1920 until 1929. From 1929 to 1940, King County owned Lots 21 through 24. In 1940, Lots 21 through 24 were conveyed to the City of Seattle for street purposes. Sometime between 1940 and 1948, Lots 21 through 24 were conveyed back to King County until 1955. From 1955 until 1988, Lots 21 through 24 were privately owned. In 1988, an easement was conveyed to the City of Seattle for a storm drain on a portion of Lot 24. According to more recent King County tax assessor records, Lots 21 through 24 have remained privately owned from 1988 until present day.

South Park Plat - Block 1, Lots 1 through 6

According to the deed abstract and warranty deed records, a private owner purchased Lots 1 through 6 from Commercial Waterway District #1 in 1953. Lots 1 through 6 remained privately owned from 1953 until 1980. According to more recent King County tax assessor records, Lots 1 through 6 have remained privately owned from 1980 until 2016.

8250 5TH AVENUE SOUTH - TAX PARCEL NO. 7883600350

The property located at 8250 5th Avenue South consists of 2.4 acres and is currently owned by Ness Manitowoc Property, LLC. The property is located within the South Park Plat - Block 2, Lots 1

through 11 (the northern portion of the block) and Lots 34 through 48 (the southern portion of the block).

South Park - Block 2, Lots 1 through 11

According to the deed abstract, Lots 1 through 11 were first purchased from the Commercial Waterway District #1 in 1953. Lots 1 through 11 remained privately owned until 1958. In 1958, the State of Washington purchased Lots 8 through 11. Lots 8 and 9 were conveyed back to private ownership in 1964. From 1958 until 1965, Lots 10 and 11 were owned by the State of Washington. Per the deed abstract, Lots 1 through 11 were privately owned from 1965 until 1988. According to more recent King County tax assessor records, Lots 1 through 11 have remained privately owned from 1988 until 2016.

South Park – Block 2, Lots 34 through 48

According to the deed abstract, Lots 34 through 48 were purchased from King County by a private owner in 1955, less a portion for street use. Lots 34 through 48 remained privately owned until 1965. In 1965, Lots 34 through 38 were conveyed to the State of Washington-Seattle Freeway, presumably for roadway construction until 1973. In 1973, Lots 34 through 48 were conveyed back to private ownership until 1988. Based on more recent King County tax assessor records, Lots 34 through 48 have remained privately owned from 1988 until 2016.

500 SOUTH SULLIVAN STREET: TAX PARCEL NO. 7883600600

The property located at 500 South Sullivan Street consists of a 1.9-acre property currently owned by White Sands, LLC. The property is located within South Park Plat, Block 3, Lots 1 through 19 (the northern portion of the block) and Block 3, Lots 27 through 48 (the southern portion of the block).

South Park Plat - Block 3, Lots 1 through 19

According to the deed abstract, Lots 1 through 16 were purchased from King County by a private owner in 1968. From 1968 until 1988, Lots 1 through 16 remained privately owned. According to more recent King County tax assessor records, Lots 1 through 16 have remained privately owned from 1988 until 2016.

City of Seattle purchased Lots 17 through 19 from King County in 1948. In 1954, Lots 17 through 19 were purchased by a private owner. According to deed abstracts, Lots 17 through 19 were privately owned from 1954 until 1988. However, a portion of Lots 17 through 19 were conveyed to the State of Washington for roadway use in 1958 and 1965. In 1985, an easement was conveyed to King County Metro for a sewer interceptor pipeline.

South Park Plat – Block 3, Lots 27 through 48

According to the deed abstract, Lots 27 through 48 have been privately owned since 1951. In 1973 and 1986, an easement was conveyed to King County Metro for a sewer interceptor pipeline. According to more recent King County tax assessor records, Lots 27 through 48 have remained privately owned from 1988 until present day.

FIGURES

Figure 1 5th Avenue South Properties Historical Lot Lines (in a 2015 Aerial)

Figure 2 Time-Lapse Aerial Photographs of 5th Avenue South Properties

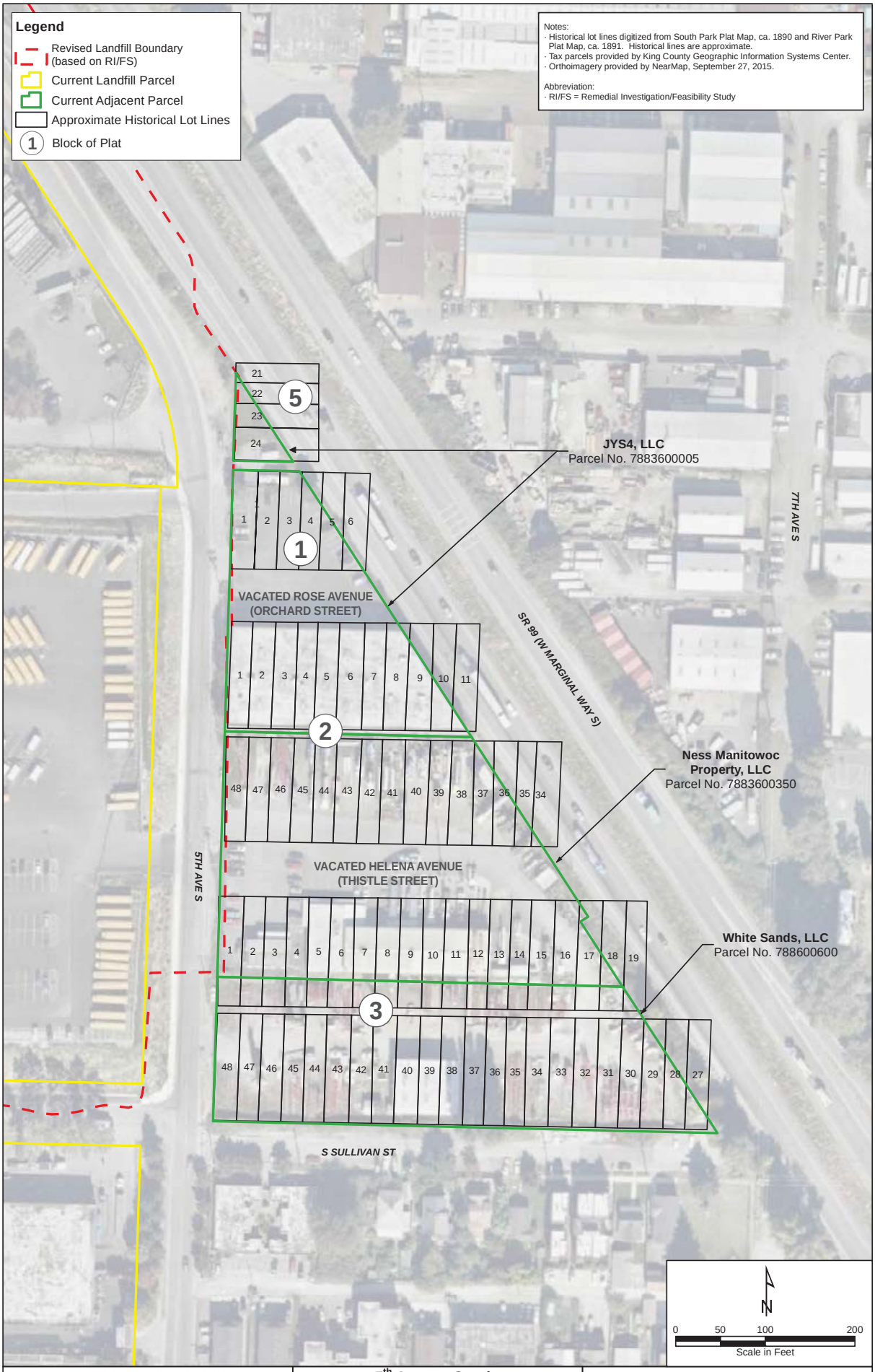
ATTACHMENTS

Attachment 1 Deed Abstracts

Attachment 2 Warranty Deeds and Real Estate Records

Attachment 3 Plat Maps

Figures



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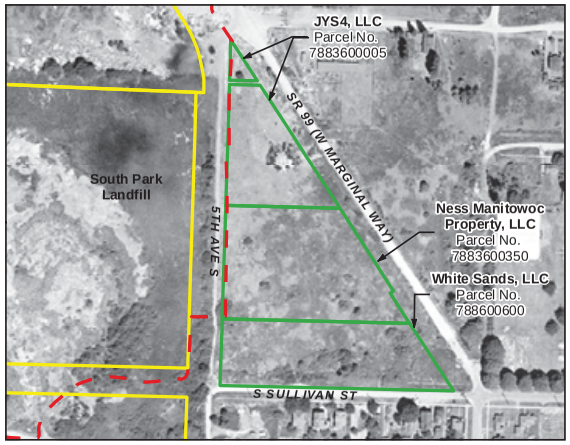
5th Avenue South Properties Ownership History South Park Landfill Seattle, Washington

Figure 1
5th Avenue South
Properties Historical Lot Lines

I:\GIS\Projects\COS-SPARK\MXD\RIFS\RIFS_2016\Appendix A\Figure 1 5th Avenue Properties Historical Lot Lines.mxd
6/15/2016



1948

1963

1967

1969

Historical Property Notes

1948: South Park Landfill is operational. Segment of SR 99 (West Marginal Way) installed; properties cleared, but not active.

1963: South Park Landfill is operational. Segment of SR 99 (West Marginal Way) expanding; properties not active; owned by private party.

1967: South Park Landfill is closed and capped with soil. SR 99 (West Marginal Way) in use; properties are starting to undergo development.

1969: South Park Landfill is closed and capped with soil. Segment of SR 99 (West Marginal Way) in use; activities on 5th Avenue South properties continue; southern most property developed.

1974: South Park Landfill is closed and capped with soil. SR 99 (West Marginal Way) in use; two southern most parcels developed; soils on northern parcel still disturbed.

Legend

- Revised Landfill Boundary (based on RI/FS)
- Current Landfill Parcel
- Current Adjacent Parcel

Notes:
- Tax parcels provided by King County Geographic Information Systems Center.
- Orthoimagery provided by NearMap, September 27, 2015.

Abbreviation:
- RI/FS = Remedial Investigation/Feasibility Study

1974

N

0 150 300 600

Scale in Feet

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5th Avenue South Properties Ownership History
South Park Landfill
Seattle, Washington

Figure 2
Time Lapse Aerial Photographs
of the 5th Avenue South Properties

I:\GIS\Projects\COS-SPARK\MXD\RIFS\RIFS_2016\Appendix A\Figure 2 Time Lapse Aerial Photographs of the 5th Avenue South Properties.mxd
6/15/2016

Attachment 1
Deed Abstracts

THE CITY OF SEATTLE — South Park Addition, Plat Book Vol. 4 Page 87 — Block No. 1

	NAME OF GRANTOR	PART OF LOT			NAME OF GRANTEE	ADDRESS OF GRANTEE	DATE REC'D. M D Y	DATE EXP. M D Y	ASSESSOR'S FILE NO.
1									
2	Commercial Waterway Dist			Decl	C. V. Sather & wife Marcia H.		11 27 18	11 5 18	
3									
4	2	Do		WD	Theodore Jensen		11 10 18	11 10 18	
5	Commercial Waterway Dist			Decl	Laurence A. Wedekohle & wife Hazel (M)		3 1 73	3 6 73	
6	4			WD					
7									
8									
9									
10									
11									
12									
13									
14									
15	5			2C	Marcia H. Sather, wid		5 5 59	6 5 59	
16									
17									
18	5			WD	King County & wife Margaret				
19									
20									
21				QC	Victor W. and Walline, Pltf		7 21 64		177859
22									
23									
24	21		12345678	QC	Victor W. and Walline, Pltf; Earl A. Westlund & Shirlette Kirk		7 21 64		177859
25	Est Edgar Sather, dec				Marcia H. Sather, wife				
26	20				Marcia H. Sather				
27							8 1 64		176359
28									
29							5 6 65		216402
30									
31									
32									
33									
34	Earl A. Westlund				De Witt C. Kirby, sh.		1 18 66		173494
35	20				De Witt C. Kirby, Shirlette K. Peterson, Victor W. Westlund, Earl A. Westlund		8 9 67		217849
36	21		12345	QC	Victor Westlund & Earl A. Westlund		5 1 70	5 14 70	660935
37	18			WD	Hugh S. Ferguson Co., Inc., a Wash Corp		7 24 70	7 30 70	667878
38	Albert L. Jensen				Ruth C. Jensen, wife		5 15 74		217052
39									
40									
41	37			WD	Tagum M. Long & wife Anne L.		1 15 75		7501210038
42	Verna J. Henderson	$43,500		Contr	Frank R. De Bruyn & wife Sonia V.		4 14 76		7604280082
43	Ruth C. Jensen								
44									
45									
46	37		123456	WD	Ellenwood Corp			5 5 75	7507100277
47	Laura J. Westlund			QC	Victor W. Westlund & spouse		9 13 76		7610200806
48	City of Seattle	all that ptn of 10 ft alley		Quiet Title	Frank R. De Bruyn and Sonia V. De Bruyn		8 8 88		SC 87447
49		lying adj to the N of vac							
50	blk 1 of sd blk and bounded on the E by S 7th St;								
51	W by E m/n of W Marginal Way S								
52									

THE CITY OF SEATTLE — South Park Addition, Plat Book Vol. 4 Page 87 — Block No.

	Name of Grantor	Part of Lot	Block No.	Name of Grantee	Address of Grantee	Date Rec.	Amount
1							
2	Commercial Waterway Dist.			C. W. Sather and Marcia N.			
3							
4				Andrew Jensen			
5	Commercial Waterway Dist.			Duncan C. Wakefield and Hugh (?)			
6		All that pto of the		Clara J. Washington			
7		Ely 65 feet per=d A lying					
8		Sly of a line having a					
9		bearing of S 31 24 E and					
10		extended from a pt opposite					
11		Highway Engr's Sta. 604+					
12		50 feet in 100' Wly when					
13		and at r/a for the c/l					
14		of of highway to a pt of					
15		intersection with the					
16		Ely bndry ln of sd parcel					
17		A PARCEL 2: That pto of					
18		the SW 1/4 NW 1/4 that pto					
19		of S 1/2 of the Broken					
20		Ave. adj. and lies Wly					
21		of West Marginal Way					
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
41							
42							
43							
44							
45							
46							
47							
48	City of Seattle	All that pto of 10 ft alley		Frank R. De Bruyn and Ionia V. De Bruyn			
49		lying adj to the N of our					
50		bdy L of sd blk and bounded on the E by S 5th St;					
51		W by E rgn of V Marginal Way					
52							

THE CITY OF SEATTLE

Smith's Park Addition, Plat Book Vol. 4 Page 87 Vacated Block No. 1

Vacated Block No. 1

NAME OF GRANTOR	PARCEL OF LOT	NOTE OF MORTGAGE	NAME OF GRANTEE	ADDRESS OF GRANTEE	DATE REC'D M D Y	DATE SATISFIED M D Y	AUDITOR'S FILE NO.
[illegible]	[illegible]		1 Lyman Long + wife Omer L				1 1079 79 0214 0848
2			2				
3			3				
Frank E. De Bruyn [illegible]	1 0345		4 Rose Street Associates				2 167 79 0316 0217
5			5				
6			6				
7			7				
8			8 Huff Petroleum Co Frank E. Huff + wife Gayle M				3 047 80 0403 0173
9 Huff Petroleum Company, Inc			9 Frank E. Huff + Alice B. Huff, his wife				4 103 81 0416 0837
10 Gayle M., hwf			10 Judgment + from L., hwf, his wife				4 285 81 0515 0088
11			11 Huff Petroleum Co + Frank E. Huff + Gayle M., hwf				4 235 81 0507 0499
12 Alice B. Huff			12 King H. Snadquist + Jean L. Snadquist				1 231 85 0504 0204
13			13				3 185 85 0326 0803
14			14				
15			15				
16			16				
17			17				
18			18				
19			19				
20			20				
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22			22				
23			23				
24			24				
25			25				
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32			32				
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37			37				
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39			39				
40			40				
41			41				
42			42				
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44			44				
45			45				
46			46				
47			47				
48			48				
49			49				
50			50				
51			51				
52			52				

THE CITY OF SEATTLE

South Park Addition, Plat Book Vol. 4 Page 87

Block No. 2

Block No.

	Name of Grantor	Part of Lot	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40	Instrument of Conveyance		Name of Grantee	Address of Grantee	Date Inst. W D Y	Date Recorded M D Y	Auditors File No.
1	John F. Huckleberry & Patricia J., hwf.	That por of the W½ of vac blk 2, South Park, Vol 4 pg 87, lying and E of vac Rose Street (formerly Orchard St) and the [illegible] as platted as lots 1 through 11 incl, all lying W'ly of the S'ly margin of that tt of land conveyed to State of Washington for Pacific State Highway #1, under instr recdd under Aud #[illegible]	1 2 3 4 5 6 7 8 9 10 11 12 13	QC	1	Albert Hughes & Iva, hwf.		2 9 65	3 1 65	5819067
2					2					
3					3					
4					4					
5	Dale T. Adams & Arlene R., hwf.	Do	1 2 3 4 5 6 7 8 9 10 11 12 13	QC	5	Albert Hughes and Iva, hwf.		2 24 65	3 1 65	5819068
6	Diane E. Adams, a sgle woman	Do	1 2 3 4 5 6 7 8 9 10 11 12 13	QC	6	Albert Hughes and Iva, hwf.		2 24 65	3 1 65	5819069
7	1-6	Do	1 2 3 4 5 6 7 8 9 10 11 12 13	WD	7	Clem Lavry + Opal, hwf + Jeff Investment Co, a Wash Corp.		3 8 65	3 10 65	5853079
8					8					
9	[illegible]	[illegible]		[illegible] Correction Deed	9	[illegible]		[illegible]	[illegible]	[illegible]
10	David W. Davis	That ptn of the W½ of [illegible] vac blk 2 and the W½ of vac Rose St., (ferly Orchard St adj), lying E of W Marginal Wy, South Park; except that ptn cyd to the State of Wn by deed No 4652649 and except the E 70 ft of the N 91 ft thref. This deed is given to correct the record & clear the title to sty growing out of a mistake in the legal des contained in deed No 6048162			10	Patricia G. Davis		12 15 66	1 19 67	6130182
11					11					
12					12					
13					13					
14					14					
15					15					
16	Chester W. O'Dell + Bernice, hwf	E 70' of N 91' of W½ of vac blk 2, lying W'ly of the S'ly of vac Rose Street adj	DDH	WD	16	Anke Liberato + Josephine, hwf.		7 15 68	7 26 68	6383799
17				—	17			—	—	—
18					18					
19					19					
20	Patricia G. Davis, formerly Davis, ex rel	That ptn of the W½ of vac blk 2, [illegible] N½ of vac blk 2, [illegible] and the S½ of vac Rose St adj (formerly Orchard St) lying E of Marginal Way (Pacific Highway #1) as set forth in [illegible] Except the E 70' of the N 131' of the above described parcel	[illegible]	WD	20	Anke Liberato + Josephine, hwf		12 29 69	1 12 70	6383
21					21			1 8 69	1 29 69	6463076
22	—				22			—	—	—
23	16	Lots 16 to 18	DDH	WD	23	Lance Schubert + Dorothy L, hwf		11 17 71	11 22	8002
24	12 [illegible] 20, 30, 36	Lots 20 to 22	DDH	[illegible]	24	Do		11 17 71	11 22	8003
25	PAGE 91	Lots 24 to 26, vac of ADJ [illegible] ALLEY ADJ. Tgw ment		[illegible]	25	RUBY M. NEWTON, SGL		1 17 73	3 21	5 0068
26	RUBY M. NEWTON, SGL	Tgw pow vac of [illegible] Alley adj, vac blk 2 exc pow [illegible] 31 & 32 [illegible] pow for lv marginal way Cause 515467 [illegible]		WD CONT	26	MANITOU INVESTMENT COMPANY, INC		1 17 73	6 15	0004
27				—	27			-		
28				-	28			-		
29				-	29			-		
30				-	30			-		
31				-	31			-		
32	7	Desc lns 1-4	1 2 3 4 5 6 7 8 9 10 11 12 13	WD	32	Lyman M. Long		7 1 50	8 07	21 0586
33	26, an Oregon City Tax lot	The plat, vac [illegible]	[illegible]	[illegible]	33	The Manitowoc Company, Inc		12 29 50	5 06	27 0375
34	- do -	- do	[illegible]	[illegible] QC	34	The Manitowoc Company, Inc.		12 29 50	5 06	29 0379
35	33+34	- do -	[illegible]	[illegible] WD	35	Manitowoc Equipment Corp		10 7 53	5 11	17 0961
36	Clem Lavry + Opal, hwf	The S½ of vac alley adj [illegible]	[illegible]	WD	36	Lance Schubert + Dorothy, hwf		4 10 54	5 04	17 0022
37	Jeff Investment Co, and Sgd	[illegible]			37					
38	35	[illegible]			38					
39	36	[illegible]	[illegible]	[illegible]	39	[illegible]		[illegible]	[illegible]	[illegible]
40	38	[illegible]	[illegible]	WD	40	The Manitowoc Company, Inc.		[illegible]	[illegible]	[illegible]
41	40	[illegible]	[illegible]	[illegible]	41	Manitowoc Western Sales, Inc.		[illegible]	[illegible]	[illegible]
42					42					
43					43					
44					44					
45					45					
46					46					
47					47					
48					48					
49					49					
50					50					
51					51					
52					52					

THE CITY OF SEATTLE

South Park Addition, Plat Book Vol. 4 Page 2-7

Block No.

Vacated Block No. 2

Page 1

	Name of Grantor	Front of Lot	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	Nature of Conveyance	Name of Grantee	Address of Grantee	Date Inst. M D Y	Date Received M D Y	Auditor's File No.
1									
2	Commercial Waterway Dist. No. 1			Deed	Clarence Niederhold & wf Hazel		10 7 58	11 25 58	4965762
3									
4	Seattle Varg Co.				Clarence L. Niederhold & wife Hazel				4965762
5	2			WD	John E Weiler & wf Helen Ruth		2 17 50	2 23 50	3993383
6									
7	Commercial Water Way Dist. No. 1			Deed	Clarence L. Niederhold & wf Hazel		3 14 53	3 19 53	5326712
8	To E.W. Luther & wf Minnie M.	do		WD	Albert Vaughan & wife J.		4 28 53	5 5 53	4341484
9	King County	Auditor & cf Deed		Deed	Clem Le Doux		5 11 50	10 26 53	4394121
10	To Safe Investment Co.				Safe Investment Corp.		2 15 54	3 9 54	[illegible]
11	Trans. King Co.							5 17 55	[illegible]
12					M.B. Parker & E.W. Luther	Deed Minnie Luther, wife	10 10 50	3 30 54	[illegible]
13	5				Minnie M. Luther			5 17 55	[illegible]
14					State of Washington	Prim St Hwy #1, S 118th St to Jct SSH No 1-K	9 27 51	11 22 51	4152444
15									
16									
17									
18									
19									
20									
21	e wf Opal 9/4 10			Deed	State of Washington	(Prim St Hwy #1, S 118 St to Jct SSH N 1-k)	10 10 58	11 14 58	4965542
22									
23									
24									
25									
26	5			WD	State of Washington	Do	10 7 58	11 14 58	4965539
27									
28									
29									
30				WD	Elem LaVoy & wf Opal		1 21 51	2 7 51	4997947
31									
32									
33	Trans of King County			Trans Deed	Ruby M. Newton		10 31 68	10 31 68	6025908
34	30								
35									
36	5			WD	Safe Investment Co.		5 8 59	6 16 61	5296198
37	Grace Mainwaring			QC	William H. Mainwaring, atty in fact		6 15 61	7 26 61	5449909
38					William H. Mainwaring		6 16 61	6 26 61	5445990
39									
40	5			WD	Dale K. Adams		6 15 61	7 26 61	5449920
41									
42									
43	Diane F. Adams	do.		Deed	Do.				5316655
44	36431			QC	Chester W. O'Dell & Bonnie, hwf		12 15 63	1 6 63	5614997
45	Sheriff of King Co.			Sheriff Deed	John Amschalestone		4 14 64	4 15 64	5723693
46									
47									
48	45 & Patricia G. hwf	Do		QC	David W. Davis & Patricia D. hwf		9 28 64	10 2 64	5773[illegible]
49	11 & 12			Sheriff Deed	Dale K. Adams, Trustee in Bankruptcy	(Davis)	5 6 65	[illegible]	
50									
51									
52									

THE CITY OF SEATTLE — South Park Addition, Plat Book Vol. ___ Page ___ — Block No. ___ — Re-vacated Block No. 2

	NAME OF GRANTOR	PART OF LOT	NATURE OF INSTRUMENT	NAME OF GRANTEE	ADDRESS OF GRANTEE	DATE REC. M D Y	DATE EXEC. M D Y	AUDITOR'S FILE NO.
1	King County	See plat for St	Vacation	City of Seattle		11 10 48	12 7 48	3966194
2								
3	City of Seattle	Assessor for Wenatchee St	Vacation	Mr. & Barbara C. W. Sather		11 14 57	11 14 57	4492611
4								
5	Clem LaVoy and Opal			Safe Investment Co.		6 25 58	3 9 58	4824776
6	Opal M. Sather			Marcia M. Sather, now Cagle		11 14 57		4492611
7	Clem LaVoy & wf Opal	All that ptn of lots 23 to 48 incl, tgr ptns of Vac streets and a leys adj, as would attach thrto by operation of law, lying NEly of a ln drwn plm and 80' dist SEly when meas at r/a frm the C/L of Prim St. Hwy # 1, S. 118th St to Jet Sec. St Hwy N 1-k exc any part lying withi. W Marginal Way.	Deed	State of Washington	(Prim St Hwy # 1, S 118 to Jet	10 10 58	11 14 58	4966542
8	Safe Investment Co							
9								
10								
11								
12			Vacation	Clem La Voy + wf Opal		1 2 59	1 27 59	4960447
13								
14	Trees of King County		Deed Sect	Ruby M. Newton		11 31 8 10	34 8 6	4925008
15								
16	King Co.		Vacation Sect	State of Washington			9 26 60	5205490
17								
18								
19								
20	12		Vacation WD	Safe Investment Co		5 25 59	6 11 61	5214175
21								
22								
23			Vacation					
24								
25								
26								
27								
28	6, 12, 20		Vacation Re-vacated	Ruby M Newton, sgl		1 17 73	7 30 2 15	7401100005 0008
29								
30	14		WD	SAFE INVESTMENT CO INC CLEM LAVOY + OPAL, HUSB & WIFE		1 25 73	7 30 2 15	0025
31	14	N 84' of Lots 1 thru 12, for S½ of vac alley	WD	Hamilton Investment Company, Inc		2 13 73	7 30 3 36	0203
32								
33	14 & 28		WD	Hamilton Investment Co, Inc		1 17 73	7 30 2 15	7707786436 0004
34								
35								
36								
37								
38								
39	6	S 34', E 10 plus lying	Vacation Re-vacated	Clem La Voy + Safe Investment Co.		12 26 73	7401130299 7401130511	
40								
41	So Clem La Voy + wf Opal		Deed	Hydyne Enterprises, Inc		1 3 77	7702010084	
42							1 27 74	7402090005
43								
44								
45								
46								
47	Safe Investment Company	NE ¼ 21' of Lot 3	Deed	Ametro		12 14 73	7401104177	
48								
49	23		QC	The Manteuse Company, Inc		9 1 78	7812120069	
50								
51								
52								

THE CITY OF SPRINGFIELD — South Park Addition, Plat Book Vol. 4 Page 22 — Block No. 2

Block No. 2

	Name of Grantor	Part of Lot	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40	Kind of Deed		Name of Grantee	Address of Grantee	Date Deed M D Y	Number's File No.
1	Monitor Investment Co., an Oregon Corp.	[illegible]	[illegible]	Deed	1	The Monitowr Company, Inc.		12 24 80	8206490378
2	—			—	2			—	
3	— do.	— do.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	Qc	3	The Monitowr Company, Inc.		12 24 80	8206490379
4	143	— do.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	Qc	4	Monitor Equipment Corp.		10 7 93	8311190901
5	4	[illegible]	[illegible]	Deed	5	Mitco		11 7 90	8811131140
6	—			—	6				
7	Pacific Telephone Co.	[illegible]	[illegible]		7				
8			[illegible]	Deed	8	Mitco		1 10 82	8201060505
9	—	[illegible]			9				
10					10				
11	—			—	11	—		—	—
12	4	[illegible]	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	WD	12	Marionwest Company, Inc.		8 2 80	8004171168
13					13				
14	13	— do.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	QC	14	Marionwest Western Company, Inc.		[illegible] 88	8806270830
15					15				
16					16				
17					17				
18					18				
19					19				
20					20				
21					21				
22					22				
23					23				
24					24				
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THE CITY OF SEATTLE

River Park ADDITION BLOCK No. 5

PLATTED BY _____ PLAT BOOK VOL. 7 PAGE 41 FILED FOR RECORD _____

LOTS	PART OF LOT	Number of Instrument	Date of Instrument M D Y	Date Recorded M D Y	Recorded Vol. Page	NAME OF GRANTOR	NAME OF GRANTEE	ADDRESS OF GRANTEE
1 2 3 4 5 6 7 8 9 10 11 12							Addie Warburton Breitgam	
12							W. D. Lambeth	
15 16 17 18					7693		Corlene Hess Tallard et al.	
1930							Reliance Loan & Trust Co	
							J. A. White	
							W. B. Wilson	
								737 Moran St
						Geo. J. Wattles	Stephens Carpenter	
						Geo. J. Smith	Fred Verchuren	1019 - 3rd Ave
						Emma B. Fuller		
							P. S. Moran	
							Search Trust & Sav Co	
							Citizens Bank of Georgetown	
							King County	
							City of Seattle	STREET PURPOSES
							Ada J. Foute	
							City of Seattle	
							E. W. Sutter	5303-47th S.W.
							Grover A. Post	
							E. W. Sutter	
							Clarence E. Wickersham & wife Hazel M.	
							City of Seattle	
							Clark Anderson & Blanche, hus	
							Clarence E. Wickersham & wife Hazel M.	
							State of Wash.	
							William C. Pierce	
							Richard B. Rice & wife Lillian	
							Overlook Transfer Co., Inc., a corp	
							King Dunham & wife Margaret	
							Chester B. Cone, and his wife	
							Chester B. Cone, Dunham, Inc., a corp., Trustee	
							Marie N. Sutter,	
							Marie N. Sutter	
							George W. Foute	

THE CITY OF SEATTLE

Knier Park ADDITION BLOCK No. 5

PLATTED BY PLAT BOOK VOL. 7 PAGE 41 FILED FOR RECORD

	Part of Lot	Nature of Instrument	Date of Instrument M D Y	Date Recorded M D Y	Recorded Vol. Page	Name of Grantor	Name of Grantee	Address of Grantee
1						Pet Ruth Theodore Westlund, Died	De Witt C. Kirby, Petr	
2		WD	1 14 66	2 24 66	5992279	George W. Foutz, exp of	aaron P. Litowitz + John + Fay, both mar.	
3								
4								
5		Doc Solar		8 9 66	6172494	Pet Ruth Theodore Westlund, Decd	De Witt Kirby, Carolyn K. Patterson, Victor W. Westlund, Earl A. Westlund	
6		WD	8 13 69	8 25 69	6515600	Kingdon (King) J. Dunham + marjorie, hwf	Richard B. Walters + Phyllis A, hwf	
7		WD	10 27 69	11 6 69	6582240	Richard D. Rice + Sole, hwf	Richard B. Walters + Phyllis A, hwf	
8		QC	5 1 70	5 14 70	6650349	Chester D. Lee Anthony, Sgle	Victor W. Westlund + Earl A. Westlund, their exp set	
9		WD	9 23 71	11 30	0339	Overland Transfer Co. Inc. a corp. Victor W. Hay, Pres	D. Lee Morris + Eloise Ann, hwf.	
10		WD	4 2 82	6 24	0288	Sigle Schwartz	Frank R. De Bruyn + wife Gloria V.	
11		QC	9 13 76	76 10	200307	Laura J. Westlund (Brown, Arthur)	Victor W. Westlund, exp set	
12		QC	5 4 77	77 05	040866	Chrystle O. Walters	Richard B. A. Walters	
13		QC	5 4 77	77 05	040867	Chrystle O. Walters	D. Lee Morris + wife Eloise Ann	
14								
15		WD	1 10 79	1 24	0940	Victor W. Westlund, Earl A. Westlund, exp of Ruth Theodore Westlund, Decd + Victor W. Hay, Pres. of Overland Transfer Co. Inc. a corp.	Tyrnn Long + wife Anne L.	
16								
17		MAD	2 19 79	3 16	0311	10	Rock Street Associates	
18		WD	3 14 80	6 24	0174	Hampton Victor + Fay + wife Christa Hampton	Huff Petroleum Co. + Frank D. Huff + wife Gayle M.	
19		WD	4 28 80	8 14	0229		Frank R. De Bruyn + wife Gloria V.	
20		QC	4 28 81	5 14	0629	Huff Petroleum Company, Inc.	Frank D. Huff + Gayle M. Huff, hwf	
21		QC	4 28 81	8 10	0567	Gayle M. Huff + Frank D. Huff, hwf	Harold L. Fuller + Alice B., hwf int + Roy H. Sundquist + Joan L., hwf int	
22		QC	3 8 85	5 23	0803	Harold L. Fuller + Alice B., hwf	Roy H. Sundquist + Joan L. Sundquist	
23		WD	6 26 86	7 11	0220	Richard B. Walters, wife Roy H. Sundquist & Joan L., hwf & Frank D. Huff & Gayle M., hwf	Richard T. Fuller + Alice E., hwf	
24		Storm Drain ESMT	9 27 88	89 10	05 0288		City of Seattle	
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28						*****	*****	
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17 Ptn of Lot 17, daf: Beg at the Intersection of the S ...gin of S Souther St w/ the NEly mgn of Primary State Hwy No 1 (aka W Marginal Way S); th E alg the N ...of sd lot 17 a dist of 7.581'; th S 57 03 04.5 W to sd NEly mgn of Primary State Hwy No 1; th N 34 43 03.2 W alg sd NEly mgn 7.3171' to the beg

also a temporary construction w/r

26 Ptn of Blk 5 daf: Beg at the SW cor of sd Blk 5; th E alg the S ln of sd blk, 9.02'; th N 57 03 04.5 E 48.09' to the SWly mgn of Primary State Hwy No 1 (aka W Marginal Way S); th N 34 43 03.2 W 28' alg sd SWly mgn; th S 57 03 04.5 W 39.66' to the W ln of sd blk; th S alg sd W ln 27.92' to the beg.

Storm Drain ESMT 9 28 88 89 01 30 0984 — Tyrnn Long & Anne L. Long — City of Seattle

Acceptance ESMT

Rose L. Rose & Anne B., wif — Ray H. Sundquist & Joan L., wif

Pinkette Rinkle, wif

Attachment 2
Warranty Deeds and Real Estate Records

VOL 4249 PAGE 232

5395825

RECORDED
VOL. ..... PAGE ..... REQUEST OF

1962 MAR 7 PM 1 29

ROBERT A. MORRIS AUDITOR
KING COUNTY, WASH.
DEPUTY

FILED for Record at Request of
Name Eric F. Dunham
Address 5533 A. Wesley

WASHINGTON TITLE INSURANCE COMPANY
SEATTLE, WASHINGTON

Mail to

Send Tax Statement to

Statutory Warranty Deed

Auditors file No. 5395825

FORM L86

Statutory Warranty Deed

THE GRANTOR S, CLARENCE L. WIEDERHOLD AND HAZEL M. WIEDERHOLD, his wife

for and in consideration of Ten Dollars and other valuable consideration

in hand paid, conveys and warrants to KING DUNHAM and MARGARET DUNHAM, his wife

the following described real estate, situated in the County of King, State of Washington: Parcel one- (1)

South fifty (50) feet of vacated Block One (1) measured along the West line lying West of West Marginal Way, and the North one-half of vacated Orchard Street, now Rose Street, ALL in South Park Addition, according to plat thereof recorded in volume 4 of plats, page 87, records of said county.

Parcel two (2)-

Lots one (1), two (2), three (3) and four (4), Block five (5), River Park Addition according to plat thereof recorded in volume 7 of plats, page 41, records of said county.

Subject to any unpaid charges for water furnished to said premises by the City of Seattle or for installation of water or sewer service by said city.

4.05
5.50

This deed is given in fulfillment of a real estate contract of sale dated March 25, 1953 and is accepted by the purchaser as such, and is subject to any taxes or assessments that have accrued against said property since said date and is also subject to any liens or encumbrances that may have been placed on the property through the acts of the grantee.

Dated this twenty-fifth day of March 1953.

SALES TAX PAID ON CONTRACT AFF. No. 11125
A. A. TREMPER, KING COUNTY TREASURER
BY M. E. Weinmann DEPUTY

Clarence L. Wiederhold (SEAL)
CLARENCE L. WIEDERHOLD
Hazel M. Wiederhold (SEAL)
HAZEL M. WIEDERHOLD

STATE OF WASHINGTON,
County of King } ss.

On this day personally appeared before me CLARENCE L. WIEDERHOLD and HAZEL M. WIEDERHOLD, his wife to me known to be the individuals described in and who executed the within and foregoing instrument, and acknowledged that they signed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 25th day of March 1953.

Alberta Lemon
Notary Public in and for the State of Washington, residing at Seattle.

VOL 481 PAGE 598

6698678

Pioneer-National Title Insurance Company
WASHINGTON TITLE DIVISION

REAL ESTATE CONTRACT

THIS CONTRACT, made and entered into this 24th day of September, 1970

between KING DUNHAM and MARGARET DUNHAM, his wife

hereinafter called the "seller," and HUGH S. FERGUSON CO. Inc, a Washington Corporation

hereinafter called the "purchaser."

WITNESSETH: That the seller agrees to sell to the purchaser and the purchaser agrees to purchase from the seller the following described real estate, with the appurtenances, in King County, State of Washington:

The south 50 feet of vacated Block 1, measured along the west line, lying west of West Marginal Way and the north half of vacated Orchard Street (now Rose Street), All in South Park Addition, according to plat recorded in Volume 4 of Plats, page 87, in King County, Washington.

The terms and conditions of this contract are as follows: The purchase price is Nine Thousand Nine Hundred Sixty and no/100 ($ 9,960.00) Dollars, of which Two Thousand Eight Hundred Sixty and no/100 ($ 2,860.00) Dollars have been paid, the receipt whereof is hereby acknowledged, and the balance of said purchase price shall be paid as follows:

One Hundred Twenty and no/100 ($ 120.00) Dollars or more at purchaser's option, on ~~of/~~ the 2nd day of January 19 71 and One Hundred Twenty and no/100 ($ 120.00) Dollars, or more at purchaser's option, on or before the 1st day of each succeeding calendar month until the balance of said purchase price shall have been fully paid. The purchaser further agrees to pay interest on the diminishing balance of said purchase price at the rate of 7½ per cent per month from the 1st day of October 19 70, which interest shall be deducted from each installment payment and the balance of each payment applied in reduction of principal. All payments to be made hereunder shall be made at or at such other place as the seller may direct in writing.

Purchaser agrees to make no payments on the principal balance due on this contract during the year 1970; and

Purchaser further agrees to make an additional payment of $2,000.00 on January 11, 1971.

SALES-TAX-PAID
E122734
SEP 29 1970
KING COUNTY, WASH.
W. D. WILLIAMS
EXCISE COUNTY TREASURER

As referred to in this contract, "date of closing" shall be October 1, 1970

(1) The purchaser assumes and agrees to pay before delinquency all taxes and assessments that may at or when grantor and grantee hereafter become a lien on said real estate; and if by the terms of this contract the purchaser has assumed payment of any mortgage, land contract or other encumbrance, or has assumed payment of or agreed to purchase subject to, any taxes or assessments on said real estate, the purchaser agrees to pay the same before delinquency.

(2) The purchaser agrees, until the purchase price is fully paid, to keep the buildings now and hereafter placed on said real estate insured to the actual cash value thereof against loss or damage by both fire and windstorm in a company acceptable to the seller and for the seller's benefit, as his interest may appear, and to pay all premiums therefor and to deliver all policies and renewals thereof to the seller.

(3) The purchaser agrees that full inspection of said real estate has been made and that neither the seller nor his assigns shall be held to any covenant respecting the condition of any improvements thereon nor shall the purchaser or seller or the assigns of either be held to any covenant or agreement for alterations, improvements or repairs unless the covenant or agreement relied on is contained herein or is in writing and attached to and made a part of this contract.

(4) The purchaser assumes all hazards of damage to or destruction of any improvements now on said real estate or hereafter placed thereon, and of the taking of said real estate or any part thereof for public use; and agrees that no such damage, destruction or taking shall constitute a failure of consideration. In case any part of said real estate is taken for public use, the portion of the condemnation award remaining after payment of reasonable expenses of procuring the same shall be paid to the seller and applied as payment on the purchase price herein unless the seller elects to allow the purchaser to apply all or a portion of such condemnation award to the rebuilding or restoration of any improvements damaged by such taking. In case of damage or destruction from a peril insured against, the proceeds of such insurance remaining after payment of the reasonable expense of procuring the same shall be devoted to the restoration or rebuilding of such improvements within a reasonable time, unless purchaser elects that said proceeds shall be paid to the seller for application on the purchase price herein.

(5) The seller has delivered, or agrees to deliver within 15 days of the date of closing, a purchaser's policy of title insurance in standard form, or a commitment therefor, issued by Pioneer National Title Insurance Company, insuring the purchaser to the full amount of said purchase price against loss or damage by reason of defect in seller's title to said real estate as of the date of closing and containing no exceptions other than the following:

a. Printed general exceptions appearing in said policy form;

b. Liens or encumbrances which by the terms of this contract the purchaser is to assume, or as to which the conveyance hereunder is to be made subject; and

c. Any existing contract or contracts under which seller is purchasing said real estate, and any mortgage or other obligation, which seller by this contract agrees to pay, none of which for the purpose of this paragraph (5) shall be deemed defects in seller's title.

(6) If seller's title to said real estate is subject to an existing contract or contracts under which seller is purchasing said real estate, or any mortgage or other obligation, which seller is to pay, seller agrees to make such payments in accordance with the terms thereof, and upon default, the purchaser shall have the right to make any payments necessary to remove the default, and any payments so made shall be applied to the payments next falling due the seller under this contract.

(7) The seller agrees, upon receiving full payment of the purchase price and interest in the manner above specified, to execute and deliver to purchaser a statutory warranty deed to said real estate, excepting any part thereof hereafter taken for public use, free of encumbrances except any that may attach after date of closing through any person other than the seller, and subject to the following:

Easements, restrictions and reservations of record.

(8) Unless a different date is provided for herein, the purchaser shall be entitled to possession of said real estate on date of closing and to retain possession so long as purchaser is not in default hereunder. The purchaser covenants to keep the buildings and other improvements on said real estate in good repair and not to permit waste and not to use, or permit the use of, the real estate for any illegal purpose. The purchaser covenants to pay all service, installation or construction charges for water, sewer, electricity, garbage or other utility services furnished to said real estate after the date purchaser is entitled to possession.

(9) In case the purchaser fails to make any payment herein provided or to maintain insurance, as herein required, the seller may make such payment or effect such insurance, and any amounts so paid by the seller, together with interest at the rate of 10% per annum thereon from date of payment until repaid, shall be repayable by purchaser on seller's demand, all without prejudice to any other right the seller might have by reason of such default.

(10) Time is of the essence of this contract, and it is agreed that in case the purchaser shall fail to comply with or perform any condition or agreement hereof or to make any payment required hereunder promptly at the time and in the manner herein required, the seller may elect to declare all the purchaser's rights hereunder terminated, and upon his doing so, all payments made by the purchaser hereunder and all improvements placed upon the real estate shall be forfeited to the seller as liquidated damages, and the seller shall have right to re-enter and take possession of the real estate, and no waiver by the seller of any default on the part of the purchaser shall be construed as a waiver of any subsequent default.

Service upon purchaser of all demands, notices or other papers with respect to forfeiture and termination of purchaser's rights may be made by United States Mail, postage pre-paid, return receipt requested, directed to the purchaser at his address last known to the seller.

(11) Upon seller's election to bring suit to enforce any covenant of this contract, including suit to collect any payment required hereunder, the purchaser agrees to pay a reasonable sum as attorney's fees and all costs and expenses in connection with such suit, which sums shall be included in any judgment or decree entered in such suit.

If the seller shall bring suit to procure an adjudication of the termination of the purchaser's rights hereunder, and judgment is so entered, the purchaser agrees to pay a reasonable sum as attorney's fees and all costs and expenses in connection with such suit, and also the reasonable cost of searching records to determine the condition of title as of the date such suit is commenced, which sums shall be included in any judgment or decree entered in such suit.

IN WITNESS WHEREOF, the parties hereto have executed this instrument as of the date first written above.

Hugh S. Ferguson Co., Inc. (SEAL)

by: Vice-Pres (SEAL)

King Dunham (SEAL)

Margaret Dunham (SEAL)

STATE OF WASHINGTON,

County of King

On this day personally appeared before me King Dunham and Margaret Dunham

to me known to be the individual s described in and who executed the within and foregoing instrument, and acknowledged that they signed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this day of September, 1970

Notary Public in and for the State of Washington,

residing at Seattle

LAWRENCE E. FIELD NOTARY PUBLIC

FILED for Record at Request of
SECURITY TITLE CO.
SEATTLE, WASH.

RECEIVED
SEP 30 8 00 AM '70

TO PLEASE MAIL
EWING & CLARK INC.
133 DEXTER NO.
SEATTLE, WN. 98109

Pioneer National Title Insurance Company
WASHINGTON TITLE DIVISION
Filed for Record at Request of

PN TI

THIS SPACE RESERVED FOR RECORDER'S USE

8498678

A-930

REAL ESTATE CONTRACT

For Unimproved Property

THIS CONTRACT, made this 15th day of January, 1975 between

HUGH S. FERGUSON CO., INC., a Washington corporation hereinafter called the "seller" and

TYNNN M. LONG and ANNE L. LONG, his wife hereinafter called the "purchaser,"

WITNESSETH: The seller agrees to sell to the purchaser, and the purchaser agrees to purchase of the seller the following described real estate with the appurtenances, situate in King County, Washington:

The south 50 feet of the vacated Block 1, measured along the west line, lying west of West Marginal Way and the north half of vacated Orchard Street (now Rose Street), All in South Park Addition according to plat recorded in Volume 4 of Plats, page 87, in King County, Washington, containing 11,000 square feet more or less.

Free of incumbrances, except that until June 30, 1975 seller reserves the right to continue to place fill material on the property consistent with the manner seller has previously followed; provided that the surface shall be reasonably graded and shall not be brough to a grade higher than 5th Ave. So. and seller shall indemnify and save purchaser harmless from all liabilities on account of such filling.

On the following terms and conditions: The purchase price is TWELVE THOUSAND AND NO/100---------- ----------($12,000.00) dollars, of which THREE THOUSAND FIVE HUNDRED AND NO/100----------$3,500.00) dollars has been paid, the receipt whereof is hereby acknowledged, and the purchaser agrees to pay the balance of said purchase price as follows:

In monthly installments of One hundred seventy five dollars ($175.00) or more at purchaser's option, including interest computed on diminishing principal balances at the rate of 8 1/2% per annum from date of this contract until the purchase price is fully paid, which installments shall be paid on or before the first day of each month commencing the first day of February 1975, and continuing until the purchase price with interest if fully paid.

E289487
JAN 20 1975

The purchaser may enter into possession January 20, 1975

The property has been carefully inspected by the purchaser, and no agreements or representations pertaining thereto, or to this transaction, have been made, save such as are stated herein.

The purchaser agrees: to pay before delinquency all taxes and assessments assumed by him, if any, and any which may, as between grantor and grantee, hereafter become a lien on the premises; not to permit waste; and not to use the premises for any illegal purpose. If the purchaser shall fail to pay before delinquency any such taxes or assessments, the seller may pay them, and the amounts so paid shall be deemed part of the purchase price and be payable forthwith with interest at the rate of per cent per annum until paid, without prejudice to any other right of the seller by reason of such failure.

The purchaser assumes all risk of the taking of any part of the property for a public use, and agrees that any such taking shall not constitute a failure of consideration, but all moneys received by the seller by reason thereof shall be applied as a payment on account of the purchase price, less any sums which the seller may be required to expend in procuring such moneys.

~~If seller's title to said real estate is subject to an existing contract or contracts under which seller is purchasing said real estate, or any mortgage or other obligation, which seller is to pay, seller agrees to make such payments in accordance with the terms thereof, and upon default, the purchaser shall have the right to make any payments necessary to remove the default, and any payments so made shall be applied to the payments next falling due the seller under this contract.~~

The seller agrees, upon full compliance by the purchaser with his agreements herein, to execute and

7501210028

deliver to the purchaser a Statutory Warranty deed to the property, excepting any part which may have been condemned, free of incumbrances except those above mentioned, and any that may accrue hereafter through any person other than the seller.

~~The seller agrees to furnish a Pioneer National Title Insurance Company standard form purchaser's title policy when the purchaser shall have paid showing the title to said property with liability the same as the above purchase price, free from incumbrances except any which are assumed by the purchaser or as to which the conveyance hereunder is not to be subject.~~

Time is of the essence hereof, and in the event the purchaser shall fail to comply with or perform any condition or agreement hereof promptly at the time and in the manner herein required, the seller may elect to declare all of the purchaser's rights hereunder terminated. Upon the termination of the purchaser's rights, all payments made hereunder, and all improvements placed upon the premises shall be forfeited to the seller as liquidated damages, and the seller shall have the right to re-enter and take possession of the property; and if the seller after such forfeiture shall commence an action to procure an adjudication of the termination of the purchaser's rights hereunder, the purchaser agrees to pay the expense of searching the title for the purpose of such action, together with all costs and a reasonable attorney's fee.

Service upon purchaser of all demands, notices or other papers with respect to forfeiture and termination of purchaser's rights may be made by United States Mail, postage pre-paid, return receipt requested, directed to the purchaser at his address last known to the seller.

In Witness Whereof the parties have signed and sealed this contract the day and year first above written.

Hugh S. Ferguson Co., Inc.

By ..... Pres ..... (Seal)

By ..... Vice Pres ..... (Seal)

..... (Seal)

Tyran H. Long

..... (Seal)

Anne L. Long

SEAL HUGH S. FERGUSON CO. INC. CORPORATE 1955 WASHINGTON

STATE OF WASHINGTON
County of King } ss.

On this 15th day of January A. D. 19 75, before me, the undersigned, a Notary Public in and for the State of Washington duly commissioned and sworn personally appeared Hugh S. Ferguson and G. J. Colin to me known to be the President and Vice President ~~xxxxxx~~ respectively, of HUGH S. FERGUSON CO., INC. the corporation that executed the foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that they are authorized to execute said instrument and that the seal affixed is the corporate seal of said corporation.

WITNESS my hand and official seal hereto affixed the day and year in this certificate above written.

NOTARY PUBLIC STATE OF WASHINGTON ALLEN R. BALLARD EXPIRES 8-1-78

Notary Public in and for the State of Washington
residing at Seattle

(Acknowledgment by Corporation, Washington Title Insurance Company Form 1 [illegible])

STATE OF WASHINGTON,
County of King } ss.

I, the undersigned, a notary public in and for the state of Washington, hereby certify that on this 22 day of January 1975 personally appeared before me Lyman W. Long and Alma A. Long to me known to be the individuals described in and who executed the foregoing instrument, and acknowledged that they signed and sealed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

Given under my hand and official seal the day and year last above written.

Notary Public in and for the state of Washington, residing at Seattle.

FILED for Record at Request of
SAFECO TITLE INS. CO.
SEATTLE, WASH.

RECORDED
AT REQUEST OF
75 JAN 21 AM 8 00
ELECTION-KING CO. WN
DEPUTY

THIS SPACE RESERVED FOR RECORDER'S USE

TO

Pioneer National Title Insurance Company
WASHINGTON TITLE DIVISION
Filed for Record at Request of

7501210028

322339 1/2

SECURITY TITLE INSURANCE COMPANY
OF WASHINGTON

THIS SPACE RESERVED FOR RECORDER'S USE

RECORDED
AT ..... REQUEST OF
1970 FEB 25 AM 8 30
DIRECTOR
ELECTIONS, KING CO. WN
..... DEPUTY

Filed for Record at Request of
MAIL TO:
SAFECO TITLE
ESCROW DEPT.

NAME ESCROW # 22358-JHD

ADDRESS

CITY AND STATE

FILED for Record at Request of
SAFECO TITLE INS. CO.
SEATTLE, WASH.

7502250037

STATUTORY WARRANTY DEED

THE GRANTOR KING DUNHAM and MARGARET DUNHAM, his wife

for and in consideration of Ten Dollars and other considerations

in hand paid, conveys and warrants to HUGH S. FERGUSON CO., Inc., a Washington Corporation

as Grantee, the following described real estate, situated in the County of KING
State of Washington:

The south 50 feet of vacated Block 1, measured along the west line, lying west of West Marginal Way and the north half of vacated Orchard Street (now Roy Street), ALL in South Park Addition, according to plat recorded in Volume 4 of Plats, page 87, in King County, Washington.

Subject to easements, restrictions and reservations of record.

The Deed is given in fulfillment of that certain Real Estate Contract dated September 24, 1970 between the Grantors herein as Sellers and the Grantees herein as the Purchaser.

E 122734

E122734

SAFECO TITLE INSURANCE COMPANY

Dated this 24th day of September, 1970

King Dunham (SEAL)
Margaret Dunham (SEAL)

STATE OF WASHINGTON
} ss.
County of King

On this 24 day of September, 1970, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared

King Dunham and Margaret Dunham

to me known to be the individual described in and who executed the foregoing instrument, acknowledged to me that they signed and sealed this said instrument as their free and voluntary act and deed for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 24 day of September, 1970

Lawrence E. Auld
Notary Public in and for the State of Washington,
residing at Seattle

14 1826.53

REVENUE STAMPS

PIONEER NATIONAL TITLE INSURANCE

A TICOR COMPANY

Filed for Record at Request of

TO Suburban Lands, Inc.
245 N.W. Gilman Blvd.
Issaquah, Washington 98027

7509100277

THIS SPACE RESERVED FOR RECORDER'S USE

RECORDED
AT ..... REQUEST OF

1975 SEP 10 AM 8 30

DIRECTOR-RECORDS & ELECTIONS-KING CO. WN
DEPUTY

FILED FOR RECORD AT REQUEST OF
PIONEER NATL TITLE INS. CO.
719 SECOND AVE.
SEATTLE, WASHINGTON 98104

SALES TAX
1318703
SEP - 9
FORM L57A

Quit Claim Deed

(CORPORATE FORM)

THE GRANTOR HUGH S. FERGUSON COMPANY, a Washington Corporation

for and in consideration of TEN DOLLARS and other valuable considerations

conveys and quit claims to THE ELLENSWOOD CORPORATION, a Washington corporation

the following described real estate, situated in the County of King

State of Washington including any interest therein which grantor may hereafter acquire:
as hereto attached:

The South 50 feet of vacated Block 1, measured along the West line, lying West of West Marginal Way and the North half of vacated Orchard Street (now Rose Street), All in South Park Addition, according to plat recorded in Volume 4 of Plats, page 87, in King County, Washington.

ALSO:

The South 235 feet of Tract 33 and the South 100 feet of Tract 32; EXCEPT the east 30 feet of Tract 32, conveyed to King County for road by deeds recorded under Auditor's File Nos. 1581145 and 2773610; Moore's Five Acre Tracts, according to plat recorded in Volume 9 of Plats, page 28, in King County, Washington.

ALSO:

Lots 1, 2, 3, 4, 5 and 6, in Block 2 of Boitano's Supplemental Addition to the City of Georgetown, as per plat recorded in Volume 14 of Plats, page 33, records of King County; EXCEPT that portion thereof condemned in King County Superior Court Cause No. 64064 for Ellis Avenue as provided by Ordinance No. 375 of the City of Georgetown; Situate in the City of Seattle County of King, State of Washington.

PORTION OF THIS DOCUMENT ARE POOR QUALITY FOR FILMING

7509100277

IN WITNESS WHEREOF, said corporation has caused this instrument to be executed by its proper officers and its corporate seal to be hereunto affixed this 21st day of July, 1975

HUGH S. FERGUSON COMPANY

By _____ President.

By _____ Secretary.

STATE OF WASHINGTON }
ss.
County of King

On this 12 day of August, 1975, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared GENE J. COHEN and ROBERT B. ALLISON to me known to be the President and Secretary, respectively, of HUGH S. FERGUSON COMPANY the corporation that executed the foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that they were authorized to execute the said instrument and that the seal affixed is the corporate seal of said corporation.

Witness my hand and official seal hereto affixed the day and year first above written.

_____
Notary Public in and for the State of Washington, residing at Kent Wa

PIONEER NATIONAL TITLE INSURANCE

A TICOR COMPANY

719 SECOND AVENUE • SEATTLE, WASHINGTON 98104 • TELEPHONE 602-6600

DISCLOSURE FORM

King County Ordinance No. 1490 requires the following disclosure or alternative waiver form be completed prior to entry into a binding agreement to purchase. Three copies of each disclosure or alternative waiver must be prepared. One copy shall be retained by the prospective vendor; one copy shall be retained by the prospective purchaser. If the prospective purchaser enters into a binding agreement to purchase, the vendor shall file the third copy with the King County Department of Records and Elections when other documents are recorded.

A violation by any vendor or vendor's agent of any provision of Ordinance No. 1490 may result in assessment of a civil penalty in an amount not to exceed $750.00 for each violation.

NOTICE TO PURCHASER

If there is no reasonable access to a public sanitary sewer system from the parcel you are thinking of buying, you must install a private sewer system approved by the King County Department of Health in order to build a house or any structure which will be used for human habitation. No building permits are issued for parcels which cannot have access to approved public or approved private sewer systems. No permit will be issued for and no septic tank systems may be located on this parcel unless it has been subjected to a percolation test within one year prior to application for a building permit. Even if a timely percolation test has been made, no permit will be issued and no septic tank system may be located on this parcel if the Department of Health has not approved the plan for and approved the installation of the private sewer system. Before you enter into an agreement to purchase this parcel, you should contact the King County Department of Health to determine the procedures for installing a private sewer system.

Your seller may have had a percolation test made on the parcel by a registered civil or sanitary engineer or certificated sewage disposal system designer. If so, the face and the conclusions of the test appear below.

SELLER'S REPRESENTATIONS

PERCOLATION TEST. Seller must complete either Statement A or Statement B as appropriate.

A. My agent (Name of Agent)_____, a registered civil or santiary engineer or certificated sewage disposal system designer, has conducted percolation tests on this parcel: (Legal Description)

The percolation test was conducted on (Date)_____. From the tests, my agent concluded that a septic tank system could ___ could not ___ be installed on this parcel in conformance with standards set by King County and in effect at the date of the test.

I represent that the statements above are true.

Seller's Signature _____ Date _____

B. No percolation tests have been conducted on this parcel: (Legal Description)

I have no knowledge or information from which a determination can be made as to whether a septic tank system may be installed on this parcel, except as follows: (To be completed by seller).

I represent that the statements above are true.

Seller's Signature _____ Date _____

BUYER'S SIGNATURE

I have read this stacement and understand its contents.

Prospective Purchaser's Signature _____ Date _____

WAIVER (IN THE ALTERNATIVE)

I have read this disclosure form and understand its contents. I waive vendor's disclosure:

☒ Unconditionally

or ☐ Upon the condition this sale will not be closed unless this parcel is subjected to a percolation test which meets the requirements of the King County Department of Health.

Prospective Purchaser's Signature _____ Date Aug 12 - 1975

7509100277

16901627 (9)

THIS SPACE RESERVED FOR RECORDER'S USE

1976 SEP 20 AM 8 30

DIRECTOR
RECORDS & ELECTIONS
KING COUNTY, WASH.

First American Title
INSURANCE COMPANY

Filed for Record at Request of

Name: VICTOR WESTLUND
Address: Rt-1 Box 102
City and State: TONASKET, WASH. 98855

7610200306

Quit Claim Deed

THE GRANTOR LAURA J. WESTLUND

for and in consideration of Ten Dollars and other good and valuable consideration

conveys and quit claims to VICTOR W. WESTLUND, as his separate estate

the following described real estate, situated in the County of KING State of Washington, together with all after acquired title of the grantor(s) therein:

That portion of vacated Block 1, South Park, according to plat thereof recorded in Volume 4 of Plats, Page 87, lying westerly of West Marginal Way;
Together with the North 1/2 of vacated Orchard Street (now Rose Street) adjoining said Block 1 on the south;
and Together with the South 1/2 of vacated alley adjoining said Block 1 on the North; and
EXCEPT the South 50 feet thereof.

And the Grantor, for herself, her heirs, legal representatives and assigns, hereby covenants with the grantee, his heirs and assigns, that she has not made, done, committed, executed or suffered, any act or acts, thing or things, whatsoever, by means of which the above described land, or the title thereto, or any part thereof, now is, or may at any time hereafter be, impeached, charged or encumbered in any manner whatsoever since April 22, 1976.

NO SALES TAX
Aff. No. 137563
1 1976
OFFICE OF THE COMPTROLLER
King County, Washington
By _____ Deputy

Dated this 13th day of September, 1976.

Laura J. Westlund
LAURA J. WESTLUND

STATE OF WASHINGTON, }
County of KING } ss.

On this day personally appeared before me LAURA J. WESTLUND

to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that she signed the same as her free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 13th day of September, 1976.

Carole M. Parsons
Notary Public in and for the State of Washington, residing at Okanogan

WA-24

SAFECO TITLE INSURANCE COMPANY
1100 SECOND AVENUE · SEATTLE, WASHINGTON 98101 · 623-0870

322339DH

THIS SPACE RESERVED FOR RECORDER'S USE

1979 NOV 29 AM 8 30

ELECTION - KING CO. WN.
DEPUTY

Filed for Record at Request of

MAIL TO:

NAME People Mortgage Co

ADDRESS 322339DH

CITY AND STATE P.O. Box 1788
Seattle Wa 98111
Attn Commercial Loan Ck

$10.00

A 242672 9

Warranty Fulfillment Deed
(CORPORATE FORM)

THE GRANTOR HUGH S. FERGUSON CO., INC., a Washington corporation

for and in consideration of Ten Dollars and other good and valuable consideration

in hand paid, conveys and warrants to TYRNN M. LONG and ANNE L. LONG, his wife

the following described real estate, situated in the County of King, State of Washington:

The south 50 feet of the vacated Block 1, measured along the west line, lying west of West Marginal Way and the north half of vacated Orchard Street (now Rose Street) All in South Park Addition according to plat recorded in Volume 4 of Plats, page 87, in King County, Washington, containing 11,000 square feet more or less.

322339H 7911280421

STATE OF Washington
DEPT. OF REVENUE NOV 27 '79
Conveyance Tax
10.00
RB 10369

SALES VERIFICATION CONTRACT APP. NO. E289487
KING CO. RECORDS DIVISION
BY J. Tourkoff, DEPUTY

E-289487

This deed is given in fulfillment of that certain real estate contract between the parties hereto, dated January 13, 1975, and conditioned for the conveyance of the above described property, and the covenants of warranty herein contained shall not apply to any title, interest or encumbrance arising by, through or under the purchaser in said contract, and shall not apply to any taxes, assessments or other charges levied, assessed or becoming due subsequent to the date of said contract.

IN WITNESS WHEREOF, said corporation has caused this instrument to be executed by its proper officers and its corporate seal to be hereunto affixed this day of

Hugh S. Ferguson Co., Inc.

By President

By Asst Secretary

STATE OF WASHINGTON, } ss.
County of KING

On this 16 day of JAN. 1975, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared HUGH S. FERGUSON and KEITH R. BALDWIN to me known to be the President and ASS'T. Secretary, respectively, of Hugh S. Ferguson Co. the corporation that executed the foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that authorized to execute the said instrument and that the seal affixed is the corporate seal of said corporation.

Witness my hand and official seal hereto affixed the day and year in this certificate above written.

Notary Public in and for the State of Washington residing at Mercer Island

TI.-142 R2 2/74

® TIFCO Insurance Company of Texas, registered trademark owner.

EXECUTOR'S DEED

The Grantor, Chester D. McMillin, Executor of Estates of Clarence L. Wiederhold and Hazel M. Wiederhold, deceased, for and in consideration of the distribution of the estate of the decedents above-named conveys and quit claims to Victor W. Westlund and Earl A. Westlund, as their separate estates by inheritance, the following described real estate, situated in the County of King, State of Washington, including any interest therein, which grantor may hereafter acquire:

An undivided one-half interest in:

(a) Lots 20 to 24, inclusive, Block 5, River Park, An Addition to Seattle, according to plat thereof recorded in Volume 7 of Plats, page 41

(b) That portion of vacated Block 1, South Park, according to plat thereof recorded in Volume 4 of Plats, page 87, lying westerly of West Marginal Way;
Together with the north one-half of vacated Orchard Street (now Rose Street) adjoining said Block 1 on the south; and
Together with the South one-half of vacated alley adjoining said Block 1 on the north; and
Except the south 50 feet thereof.

DATED this 1st day of May 1970.

Chester D. McMillin, Executor of Estates of Clarence L. Wiederhold and Hazel M. Wiederhold, deceased.

STATE OF WASHINGTON)
) SS.
COUNTY OF KING)

On this 1st day of May, 1970, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared Chester D. McMillin, Executor of the Estates of Clarence L. Wiederhold and Hazel M. Wiederhold, deceased, to me known to be the individual described in and who executed the foregoing instrument, and acknowledged to me that he signed and sealed this said instrument as his free and voluntary act and deed for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 1st day of May 1970.

Notary Public in and for the State of Washington, residing at Seattle

NO SALES TAX
EXCISE TAX
AFF NO.
MAY 14 1970
M. J. WILLIAMS

Filed for Record May 14 1970 11 AM
Request of Earl A. Westlund
EDWARD J. LOGAN, Recorder

169016-27

THIS SPACE RESERVED FOR RECORDER'S USE.

1976 20 AM 8 30

DIRECTOR RECORDS & ELECTIONS KING COUNTY, WASH.

2.00

7610200307

First American Title
INSURANCE COMPANY

Filed for Record at Request of

Name Victor Westlund [redacted]

Address Rt 1 Box 102 [redacted]

City and State Tonasket, Wash 98855

Quit Claim Deed

THE GRANTOR LAURA J. WESTLUND

for and in consideration of Ten Dollars and other good and valuable consideration

conveys and quit claims to VICTOR W. WESTLUND, as his separate estate

the following described real estate, situated in the County of KING State of Washington, together with all after acquired title of the grantor(s) therein:

Lots 20 to 24, inclusive. Block 5, River Park, An Addition to Seattle, according to plat thereof recorded in Volume 7 of Plats, page 41.

And the Grantor, for herself, her heirs, legal representatives and assigns, hereby covenants with the grantee, his heirs and assigns, that she has not made, done, committed, executed or suffered, any act or acts, thing or things, whatsoever, by means of which the above described land, or the title thereto, or any part thereof, now is, or may at any time hereafter be, impeached, charged or encumbered in any manner whatsoever since April 22, 1976.

NO SALES TAX
AFF. No. 375638
SEP 13 1976
OFFICE OF THE COMPTROLLER
By: Deputy

Dated this 13th day of September, 1976

Laura J. Westlund
LAURA J. WESTLUND

STATE OF WASHINGTON, } ss.
County of KING

On this day personally appeared before me LAURA J. WESTLUND

to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that she signed the same as her free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 13th day of September, 1976

Notary Public in and for the State of Washington, residing at Renton

WA-24

CHECK FOR RECORD AT REQUEST OF
PIONEER NATL TITLE INS. CO.
1218 SECOND AVE. SEATTLE, WA 98104

REAL ESTATE CONTRACT

A 23C 5/C 11-10

5.00
5

7902140940

THIS CONTRACT, made and entered into this 10th day of January, 1979

between VICTOR W. WESTLUND and EARL A. WESTLUND, EACH AS SEPARATE ESTATE, AS TO AN UNDIVIDED ONE-HALF INTEREST and MARCIA N. CAGLE, AS SEPARATE ESTATE, AS TO AN UNDIVIDED ONE-HALF INTEREST, WHO ACQUIRED TITLE AS MARCIA N. SATHER hereinafter called the "seller," and ~~TWANN~~ TWANN LONG and ANNE L. LONG, husband and wife

hereinafter called the "purchaser,"

WITNESSETH: That the seller agrees to sell to the purchaser and the purchaser agrees to purchase from the seller the following described real estate, with the appurtenances, in KING County, State of Washington:

PARCEL A:

Lots 20 to 24, inclusive, Block 5, RIVER PARK, according to the plat recorded in Volume 7 of Plats, page 41, in King County, Washington, EXCEPT that portion lying within West Marginal Way South.

PARCEL B:

That portion of vacated Block 1, SOUTH PARK, according to the plat recorded in Volume 4 of Plats, page 87, in King County, Washington, lying Westerly of West Marginal Way; EXCEPT the South 50 feet thereof.

The terms and conditions of this contract are as follows: The purchase price is TWELVE THOUSAND NINE HUNDRED & NO/100--- ($ 12,900.00---) Dollars, of which THREE THOUSAND TWO HUNDRED & NO/100--- ($ 3,200.00----) Dollars have been paid, the receipt whereof is hereby acknowledged, and the balance of said purchase price shall be paid as follows: TWO HUNDRED THREE & 73/100--- ($203.73) Dollars, or more at purchaser's option, on or before the 14th day of March, 19 79, and TWO HUNDRED THREE & 73/100--- ($203.73) Dollars, or more at purchaser's option, on or before the 14th day of each succeeding calendar month until the balance of said purchase price shall have been fully paid. The purchaser further agrees to pay interest on the diminishing balance of said purchase price at the rate of 9.500 per cent per annum from the 14th day of February, 1979, which interest shall be deducted from each installment payment and the balance of each payment applied in reduction of principal.

KING COUNTY
EXCISE TAX PAID
FEB 13 1979
F0520581

All payments to be made hereunder shall be made at
or at such other place as the seller may direct in writing.
As referred to in this contract, "date of closing" shall be February 14, 1979

(1) The purchaser assumes and agrees to pay before delinquency all taxes and assessments that may as between grantor and grantee hereafter become a lien on said real estate; and if by the terms of this contract the purchaser has assumed payment of any mortgage, contract or other encumbrance, or has assumed payment of or agreed to purchase subject to, any taxes or assessments now a lien on said real estate, the purchaser agrees to pay the same before delinquency.

(2) The purchaser agrees, until the purchase price is fully paid, to keep the buildings now and hereafter placed on said real estate insured to the actual cash value thereof against loss or damage by both fire and windstorm in a company acceptable to the seller and for the seller's benefit, as his interest may appear, and to pay all premiums therefor and to deliver all policies and renewals thereof to the seller.

(3) The purchaser agrees that full inspection of said real estate has been made and that neither the seller nor his assigns shall be held to any covenant respecting the condition of any improvements thereon nor shall the purchaser or seller or the assigns of either be held to any covenant or agreement for alterations, improvements or repairs unless the covenant or agreement relied on is contained herein or is in writing and attached to and made a part of this contract.

(4) The purchaser assumes all hazards of damage to or destruction of any improvements now on said real estate or hereafter placed thereon, and of the taking of said real estate or any part thereof for public use; and agrees that no such damage, destruction or taking shall constitute a failure of consideration. In case any part of said real estate is taken for public use, the portion of the condemnation award remaining after payment of reasonable expenses of procuring the same shall be paid to the seller and applied as payment on the purchase price herein unless the seller elects to allow the purchaser to apply all or a portion of such condemnation award to the rebuilding or restoration of any improvements damaged by such taking. In case of damage or destruction from a peril insured against, the proceeds of such insurance remaining after payment of the reasonable expense of procuring the same shall be devoted to the restoration or rebuilding of such improvements within a reasonable time, unless purchaser elects that said proceeds shall be paid to the seller for application on the purchase price herein.

(5) The seller has delivered, or agrees to deliver within 15 days of the date of closing, a purchaser's policy of title insurance in standard form, or a commitment therefor, issued by PIONEER NATIONAL TITLE INSURANCE COMPANY, insuring the purchaser to the full amount of said purchase price against loss or damage by reason of defect in seller's title to said real estate as of the date of closing and containing no exceptions other than the following:

a. Printed general exceptions appearing in said policy form;

b. Liens or encumbrances which by the terms of this contract the purchaser is to assume, or as to which the conveyance hereunder is to be made subject; and

c. Any existing contract or contracts under which seller is purchasing said real estate, and any mortgage or other obligation, which seller by this contract agrees to pay, none of which for the purpose of this paragraph (5) shall be deemed defects in seller's title.

(6) If seller's title to said real estate is subject to an existing contract or contracts under which seller is purchasing said real estate, or any mortgage or other obligation, which seller is to pay, seller agrees to make such payments in accordance with the terms thereof, and upon default, the purchaser shall have the right to make any payments necessary to remove the default, and any payments so made shall be applied to the payments next falling due the seller under this contract.

(7) The seller agrees, upon receiving full payment of the purchase price and interest in the manner above specified, to execute and deliver to purchaser a statutory warranty deed to said real estate, excepting any part thereof hereafter taken for public use, free of encumbrances except any that may attach after date of closing through any person other than the seller, and subject to the following:

SUBJECT TO: Restrictions, reservations, easements, covenants, conditions, agreements and slope rights of record.

7902140940

(8) Unless a different date is provided for herein, the purchaser shall be entitled to possession of said real estate on date of closing and to retain possession so long as purchaser is not in default hereunder. The purchaser covenants to keep the buildings and other improvements on said real estate in good repair and not to permit waste and not to use, or permit the use of, the real estate for any illegal purpose. The purchaser covenants to pay all service, installation or construction charges for water, sewer, electricity, garbage or other utility services furnished to said real estate after the date purchaser is entitled to possession.

(9) In case the purchaser fails to make any payment herein provided or to maintain insurance, as herein required, the seller may make such payment or effect such insurance, and any amounts so paid by the seller, together with interest at the rate of 10% per annum thereon from date of payment until repaid, shall be repayable by purchaser on seller's demand, all without prejudice to any other right the seller might have by reason of such default.

(10) Time is of the essence of this contract, and it is agreed that in case the purchaser shall fail to comply with or perform any condition or agreement hereof or to make any payment required hereunder promptly at the time and in the manner herein required, the seller may elect to declare all the purchaser's rights hereunder terminated, and upon his doing so, all payments made by the purchaser hereunder and all improvements placed upon the real estate shall be forfeited to the seller as liquidated damages, and the seller shall have right to re-enter and take possession of the real estate; and no waiver by the seller of any default on the part of the purchaser shall be construed as a waiver of any subsequent default.

Service upon purchaser of all demands, notices or other papers with respect to forfeiture and termination of purchaser's rights may be made by United States Mail, postage pre-paid, return receipt requested, directed to the purchaser at his address last known to the seller.

(11) Upon seller's election to bring suit to enforce any covenant of this contract, including suit to collect any payment required hereunder, the purchaser agrees to pay a reasonable sum as attorney's fees and all costs and expenses in connection with such suit, which sums shall be included in any judgment or decree entered in such suit.

If the seller shall bring suit to procure an adjudication of the termination of the purchaser's rights hereunder, and judgment is so entered, the purchaser agrees to pay a reasonable sum as attorney's fees and all costs and expenses in connection with such suit, and also the reasonable cost of searching records to determine the condition of title at the date such suit is commenced, which sums shall be included in any judgment or decree entered in such suit.

IN WITNESS WHEREOF, the parties hereto have executed this instrument as of the date first written above.

X ~~IRWIN LONG~~ JANIS LONG

X ANNE L. LONG

X VICTOR W. WESTLIND (SEAL)

X ~~EARL A. WESTLIND~~ (SEAL)

X (SEAL)

MARCIA N. CAGLE, by Jon W. Sather, as her attorney-in-fact

MARCIA N. CAGLE By Jon W. Sather Her Attorney-in-Fact

STATE OF WASHINGTON, } ss.

County of King

On this day personally appeared before me Victor Westlind & Earl A. Westlind

to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that they signed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 6th day of February, 1979

Rosalie Parker

Notary Public in and for the State of Washington

residing at Kirkland

230290-DN

PIONEER NATIONAL TITLE INSURANCE

A TICOR COMPANY

Filed for Record at Request of

AFTER RECORDING MAIL TO:

PIONEER NATIONAL TITLE INSURANCE

719 SECOND AVENUE

SEATTLE, WA 98104

THIS SPACE RESERVED FOR RECORDER'S USE

1979 FEB 14 AM 8 30

0550

STATE OF WASHINGTON

County of King

On this 26th day of January, A.D. 19 79, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn personally appeared JON W. SATHER

to me known to be the individual who executed the foregoing instrument as attorney in fact of MARCIA N. CAGLE

therein described, and acknowledged to me that he signed and sealed the said instrument as such attorney in fact for said principal, freely and voluntarily, for the uses and purposes therein mentioned, and on oath stated that the power of attorney authorizing the execution of this instrument has not been revoked and that the said MARCIA N. CAGLE is now living.

WITNESS my hand and official seal hereto affixed the day and year in this certificate first above written.

Sheila J. Wood

Notary Public in and for the State of Washington

residing at Bothell

(Acknowledgement by Attorney in Fact. Pioneer National Title Insurance Co. Form L 30)

7902140910

PIONEER NATIONAL TITLE INSURANCE COMPANY

Filed for Record at Request of

AFTER RECORDING MAIL TO:
Earl A. Westlund
12731 Kirkgate N.E.
Kirkland, Wa. 98033

KING COUNTY
NO EXCISE TAX
MAY 17 1983
E0721012

83051310842

FORM L58F

Statutory Warranty Deed

THE GRANTOR S, VICTOR W. WESTLUND and EARL A. WESTLUND, each as separate estate, as to an undivided one-half interest and MARCIA N. CAGLE, as separate estate, as to an undivided one-half interest., who acquired title as MARCIA N. SATHER

for and in consideration of TEN AND NO/100TH'S----------DOLLARS ($10.00)

in hand paid, conveys and warrants to TYRNN LONG AND ANNE L. LONG, Husband and Wife

the following described real estate, situated in the County of King, State of Washington:

PARCEL A:

Lots 20 to 24, inclusive, Block 5, RIVER PARK, according to the plat recorded in Volume 7 of Plats, page 41, in King County, Washington, EXCEPT that portion lying within West Marginal Way South.

PARCEL B:

That portion of vacated Block 1, SOUTH PARK, according to the plat recorded in Volume 4 of Plats, page 87, in King County, Washington, lying Westerly of West Marginal Way; EXCEPT the South 50 feet thereof.

RECORDED
MAY 31 1 35 PM '83

This deed is given in fulfillment of that certain real estate contract between the parties hereto, dated January 10, 1979, and conditioned for the conveyance of the above described property, and the covenants of warranty herein contained shall not apply to any title, interest or encumbrance arising by, through or under the purchaser in said contract, and shall not apply to any taxes, assessments or other charges levied, assessed or becoming due subsequent to the date of said contract.

Real Estate Excise Tax was paid on this sale or stamped exempt on February 13, 1979. Rec. No. E#-520581

Dated this 10th day of January, 1979.

MARCIA N. CAGLE
BY JON W. SATHER
HER ATTORNEY-IN-FACT

Marcia N. Cagle, by Jon W. Sather
her attorney-in-fact

Victor W. Westlund (SEAL)

Earl A. Westlund (SEAL)

STATE OF WASHINGTON,
County of King } ss.

On this day personally appeared before me [illegible]

to me known to be the individual s described in and who executed the within and foregoing instrument, and acknowledged that they signed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 6 day of [illegible]

Notary Public in and for the State of Washington, residing at Kirkland

On this 26th day of January, A.D. 19 79, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn personally appeared JON W. SATHER to me known to be the individual who executed the foregoing instrument as attorney in fact of MARCIA N. CAGLE therein described, and acknowledged to me that he signed and sealed the said instrument as such attorney in fact for said principal, freely and voluntarily, for the uses and purposes therein mentioned, and on oath stated that the power of attorney authorizing the execution of this instrument has not been revoked and that the said MARCIA N. CAGLE is now living.

WITNESS my hand and official seal hereto affixed the day and year in this certificate first above written.

Sheila J. Wood

Notary Public in and for the State of Washington

residing at Bothell

(Acknowledgment by Attorney in Fact. Pioneer National Title Insurance Co. Form L 30)

8305310542

Unofficial Document

199901190081

Unofficial Document

After Filing Return To:
Malcolm A Moore
Davis Wright Tremaine LLP
2600 Century Square
1501 Fourth Avenue
Seattle, Washington 98101-1688

9901190081

SPECIAL WARRANTY DEED

Grantor:

Long, Anne L , individually and as personal representative of the Estate of Tyrnn M Long

Grantee:

Long, Anne L , as her separate estate

Abbreviated Legal Description (lot, block and plat name, or section-township-range)

That portion of the following parcels lying west of the westerly margin of Primary State Highway No 1 (West Marginal Way), Lots 20 to 24, inclusive, Block 5, River Park, according to the plat thereof recorded in Volume 7 of Plats, page 41, in King County, Washington, vacated Block 1, vacated alley adjoining said Block 1 on the north, the north half of vacated Block 2, vacated Orchard Street (now Rose Street) lying between said Block 1 and said Block 2, and the north half of vacated alley adjoining lots platted as Lots 1 through 13, Block 2, all in South Park according to the plat thereof recorded in Volume 4 of Plats, page 87, in King County, Washington

Assessor's Property Tax Parcel Account Number(s): APN 788360-0005

990119-0081 07:29:00 AM KING COUNTY RECORDS 003 SS 10.00

E1662519 01/19/99 .00 .00

Unofficial Copy

9901190081

SPECIAL WARRANTY DEED

THE GRANTOR, Anne L Long, individually and as nonintervention personal representative of the estate of Tyrnn M Long, under King County, Washington Superior Court Cause No 96-4-05206-7 SEA, without consideration and in partial distribution of the estate, grants, bargains, sells, conveys and confirms to Anne L Long, as her separate estate, Grantee, the following described real estate situated in the County of King, State of Washington, together with all after acquired title of the Grantor therein

> That portion of the following parcels lying west of the westerly margin of Primary State Highway No 1 (West Marginal Way), Lots 20 to 24, inclusive, Block 5, River Park, according to the plat thereof recorded in Volume 7 of Plats, page 41, in King County, Washington, vacated Block 1, vacated alley adjoining said Block 1 on the north, the north half of vacated Block 2, vacated Orchard Street (now Rose Street) lying between said Block 1 and said Block 2, and the north half of vacated alley adjoining lots platted as Lots 1 through 13, Block 2, all in South Park according to the plat thereof recorded in Volume 4 of Plats, page 87, in King County, Washington

The Grantor, for herself and for her successors in interest, does by these presents expressly limit the covenants of this deed to those herein expressed, and excludes all covenants arising or to arise by statutory or other implication, and does hereby covenant that, against all persons whomsoever lawfully claiming or to claim by, through or under said Grantor and not otherwise, she, as personal representative, will forever warrant and defend the said described real estate

Unofficial Document

DATED January 13, 1999

Anne L Long, individually and as personal representative of the Estate of Tyrnn M Long

STATE OF WASHINGTON)
) ss
COUNTY OF KING)

On this 13th day of January, 1999, before me, a Notary Public in and for the State of Washington, personally appeared Anne L Long, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person who executed this instrument and acknowledged it to be her free and voluntary act and deed, individually and as personal representative, for the uses and purposes mentioned in the instrument

IN WITNESS WHEREOF, I have hereunto set my hand and official seal the day and year first above written

ANNETTE GILLILAND NOTARY PUBLIC STATE OF WASHINGTON COMMISSION EXPIRES JANUARY 8, 2001

NOTARY PUBLIC in and for the State of Washington, residing at Edmonds
My appointment expires 1/8/2001
Print Name ANNETTE GILLILAND

9901190081

Unofficial Document

Return Address:
Mrs. Anne L. Long
17520 S.E. 60th
Bellevue, WA 98006-5910

19991008000548
PAGE 001 OF 005
10/08/1999 10:00
KING COUNTY, WA

PETER GULICK QCD 12.00

E1715018
10/08/1999 10:00
KING COUNTY, WA
TAX $0.00
SALE $0.00

PAGE 001 OF 004

Document Title(s): **Quit Claim Deed**

Grantor(s):

1. Anne L. Long, an unmarried person

Grantee(s):

1. Tytanic LLC, a Washington limited liability company

Legal Description:

1. Abbreviated form:
   Por. Prentice Reserve, River Park, Vol. 7, p. 41.
   Lots 5 to 8, 13 to 19, por. of Lot 20, Bl. 12; Lots 11 to 20, 38 to 46, Bl. 13; and Lots 20 to 24, Bl. 5, River Park, Vol.7, p.41.
   Lots 9 to 16, Bl. 7, East South Park, Vol. 14, p. 13.
   Vac. Block 1, Por. Vac. Block 2, Lots 1 to 13, Block 2, South Park, Vol. 4, p.87.
   Por. G.L. 1, S.32, T.24, R.4 EWM.

2. Additional legal description is on Exhibit A, attached to this document

Assessor's Property Tax Parcel Account Number(s):
732790-6900-02; 732790-6930-04; 732790-7020-03; 732790-1045-07; 732790-1055-04; 732790-1095-06; 732790-1215-01; 732790-0915-06; 788360-0005-09; 218500-0590-09; 218500-0610-05; 322404-9002-09; 322404-9004-07 and 322404-9037-08.

ORIGINAL

QUIT CLAIM DEED

The Grantor, **Anne L. Long**, an unmarried person, for and in consideration of One Dollar and other consideration, conveys and quit claims to the **Tytanic LLC**, a Washington limited liability company, the real estate described on Exhibit A, attached hereto and made a part hereof as though here fully set forth, situated in the County of King, State of Washington, together with all after-acquired title to the Grantor therein.

DATED: October 1, 1999.

Anne L. Long

STATE OF WASHINGTON
COUNTY OF KING

I certify that I know or have satisfactory evidence that **Anne L. Long** is the person who appeared before me, and said person acknowledged that she signed this instrument and acknowledged it to be her free and voluntary act for the uses and purposes mentioned in the instrument.

Dated: October 1, 1999.

NOTARY PUBLIC
[Print or Type Notary Name Here]
STATE OF WASHINGTON
PETER V. GULICK
My Commission Expires Feb. 14, 2001

Peter V. Gulick
Notary Public
My appointment expires: 2/14/01

Unofficial Document

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10/08/1999 10:00
KING COUNTY, WA
PETER GULICK QCD 12.00

EXHIBIT A

8025 10th Avenue S. Parcel:

The south 260 feet of the Prentice Reserve and the west 100 feet of the north 100 feet of the south 360 feet of the Prentice Reserve and the south 120 feet of the north 360 feet of the east 300 feet of the west 400 feet of the Prentice Reserve, according to the plat of River Park Addition as recorded in Volume 7 of Plats, page 41, records of King County, Washington;
TOGETHER WITH an easement for road purposes over the south 22 feet of the north 251 feet of the west 400 feet of said Prentice Reserve as set forth in instrument recorded under King County Recording No. 8112040712.

10th and S. Dakota Parcel:

Lots 5, 6, 7 and 8, Block 12, River Park according to the Plat thereof recorded in Volume 7 of Plats, page 41, records of King County, Washington.

CP on South Elmgrove Parcel:

Lots 13 through 19, inclusive, and that portion of Lot 20 lying west of the west line of Government Lot 1, Section 32, Township 24 North, Range 4 East, W.M., in Block 12, River Park according to the Plat thereof recorded in Volume 7 of Plats, page 41, records of King County, Washington.
TOGETHER WITH Lot 9, Block 7, East South Park, according to the plat recorded in Volume 14 of Plats, page 13, records of King County, Washington.

TMF on S. Elmgrove Parcel:

Lots 11 through 20, inclusive, and Lots 38 through 46, inclusive, all in Block 13, River Park according to the Plat thereof recorded in Volume 7 of Plats, page 41, records of King County, Washington;
TOGETHER WITH the west 112.75 feet of the south 100 feet of the north 300 feet of Government Lot 1, Section 32, Township 24 North, Range 4 East, W.M.;
EXCEPT portions thereof condemned in King County Superior Court Cause No. 82673 for Commercial Waterway District No. 1.

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KING COUNTY, WA
PETER GULICK QCD 12.00

5th Avenue S. Parcel:

That portion of the following parcels lying west of the westerly margin of Primary State Highway No. 1 (West Marginal Way):
Lots 20 to 24, inclusive, Block 5, River Park, according to the plat thereof recorded in Volume 7 of Plats, page 41, in King County, Washington;
Vacated Block 1, vacated alley adjoining said Block 1 on the north, the north half of vacated Block 2, vacated Orchard Street (now Rose Street) lying between said Block 1 and said Block 2, and the north half of vacated alley adjoining lots platted as Lots 1 through 13, Block 2, all in South Park according to the plat thereof recorded in Volume 4 of Plats, page 87, in King County, Washington.

1049 S. Elmgrove Parcel:

Lots 10, 11, 12 and 13, Block 7, East South Park, according to the plat thereof recorded in Volume 14 of Plats, page 13, records of King County, Washington.

1055 S. Elmgrove Parcel:

Lots 14, 15 and 16, Block 7, East South Park, according to the plat thereof recorded in Volume 14 of Plats, page 13, records of King County, Washington.

1046 S. Elmgrove Parcel:

The east 65 feet of the west 112.75 feet of the south 130 feet of the north 490 feet of Government Lot 1 in Section 32, Township 24 North, Range 4 East, W.M., in King County, Washington:
EXCEPT portion appropriated for commercial Waterway District No. 1, under Superior Court Cause No. 82673.

1054-56 S. Elmgrove Parcel:

That portion of Government Lot 1, Section 32, Township 24 North, Range 4 East, W.M., in King County, Washington, described as follows:
Beginning at point of intersection of the southwesterly line of right of way of Commercial Waterway District No. 1 and the centerline of Elmgrove Street as platted in East South Park, according to the plat thereof recorded in Volume 14 of Plats, page 13, records of King

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KING COUNTY, WA
PETER GULICK QCD 12.00

County, Washington, produced, said point being 44.199 feet west of the intersection of said centerline with the centerline of 12th Avenue South as platted in said East South Park; thence N89°23'W along said centerline of Elmgrove Street produced 55.801 feet; thence N0°39'34"E 47.462 feet to the southwesterly line of said Commercial Waterway District No. 1 right of way; thence S49°E 73.256 feet along said right of way line to point of beginning;

Also beginning at the northwest corner of said Government Lot 1; thence S0°39'34"W along the west line of said Government Lot, 490 feet; thence S89°23'E 112.75 feet to the true point of beginning; continuing thence S89°23'E 12.25 feet; thence north parallel to the west line of said Government Lot 46.66 feet to the southwesterly line of Commercial Waterway District No.1; thence along said southwesterly line N49°W 16.07 feet; thence south parallel to the west line of said Government Lot 57.79 feet to the true point of beginning.

8111 - 10th Avenue S. Parcel

The north 2 feet of Lot 2 and all of Lots 3 and 4, Block 10, River Park Addition according to the Plat thereof recorded in Volume 7 of Plats, page 41, records of King County, Washington.

Unofficial Document

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KING COUNTY, WA
PETER GULICK QCD 12.00

CHICAGO TITLE INS. CO.
REF# 1348248-6

③

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CHICAGO TITLE D 74.00
PAGE-001 OF 003
12/07/2012 14:40
KING COUNTY, WA

WHEN RECORDED RETURN TO
JYS4, LLC
1845 72ND AVENUE SE
MERCER ISLAND, WASHINGTON 98040

E2578094
12/07/2012 14:40
KING COUNTY, WA
TAX $48,866.00
SALE $2,745,000.00

PAGE-001 OF 001

CHICAGO TITLE COMPANY

001348248

BARGAIN AND SALE DEED

THE GRANTOR
TYTANIC LLC, A WASHINGTON LIMITED LIABILITY COMPANY

for and in consideration of TEN AND 00/100 Dollars ($ 10.00)

in hand paid, bargains, sells, and conveys to
JYS4, LLC, A WASHINGTON LIMITED LIABILITY COMPANY

the following described real estate situated in the County of KING State of Washington:

THAT PORTION OF THE FOLLOWING PARCELS LYING WEST OF THE WESTERLY MARGIN OF PRIMARY STATE HIGHWAY NO. 1 (WEST MARGINAL WAY):
LOTS 20 THROUGH 24, BLOCK 5, RIVER PARK, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 7 OF PLATS, PAGE 41, UNDER RECORDING NUMBER 72269, IN KING COUNTY, WASHINGTON;
VACATED BLOCK 1, VACATED ALLEY ADJOINING SAID BLOCK 1 ON THE NORTH, THE NORTH HALF OF VACATED BLOCK 2, VACATED ORCHARD STREET (NOW ROSE STREET) LYING BETWEEN SAID BLOCK 1 AND BLOCK 2, AND THE NORTH HALF OF VACATED ALLEY ADJOINING LOTS PLATTED AS LOTS 1 THROUGH 13, BLOCK 2, ALL IN SOUTH PARK, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 4 OF PLATS, PAGE 67, UNDER RECORDING NUMBER 45931, IN KING COUNTY, WASHINGTON.

SUBJECT TO: EXCEPTIONS SET FORTH ON ATTACHED EXHIBIT "A" AND BY THIS REFERENCE MADE A PART HEREOF AS IF FULLY INCORPORATED HEREIN.

Abbreviated Legal: A PTN LOTS 22-24, BLK 5, VOL 7 OF PLATS, PG 41; & A PTN OF BLK 1 & BLK 2, VOL 4 OF PLATS, PG 67

Tax Account Number: 788360-0005

Dated: DECEMBER 3, 2012

TYTANIC LLC

ANNE L. FAUST FORMERLY KNOWN AS
ANNE L. LONG

Anne L. Faust
~~ANNE L. LONG~~, CO-MANAGER

KATHLEEN M. LONG FORMERLY KNOWN AS
KATHLEEN M. SMITH

~~KATHLEEN M. SMITH,~~ CO-MANAGER

9LPB15 12/2009 KMS

Unofficial Document

STATE OF ARIZONA ss Maricopa COUNTY OF

I CERTIFY THAT I KNOW OR HAVE SATISFACTORY EVIDENCE THAT ANNE L. ~~LONG~~ FAUST IS THE PERSON WHO APPEARED BEFORE ME, AND SAID PERSON ACKNOWLEDGED THAT SHE SIGNED THIS INSTRUMENT, ON OATH STATED THAT SHE WAS AUTHORIZED TO EXECUTE THE INSTRUMENT AND ACKNOWLEDGED IT AS CO-MANGER OF TYTANIC LLC TO BE THE FREE AND VOLUNTARY ACT OF SUCH PARTY FOR THE USES AND PURPOSES MENTIONED IN THE INSTRUMENT.

DATED: ~~Nov~~ Dec 4, 2012

CATHY MORENO
Notary Public—Arizona
Maricopa County
Expires 08/06/2013

Cathy Moreno
NOTARY SIGNATURE

PRINTED NAME: Cathy Moreno
NOTARY PUBLIC IN AND FOR THE STATE OF ARIZONA
RESIDING AT 1412 E Wesleyan Dr. Tempe Az 85282
MY APPOINTMENT EXPIRES 8/6/13.

STATE OF WASHINGTON ss COUNTY OF KING

I CERTIFY THAT I KNOW OR HAVE SATISFACTORY EVIDENCE THAT KATHLEEN M. ~~SMITH~~ LUND IS THE PERSON WHO APPEARED BEFORE ME, AND SAID PERSON ACKNOWLEDGED THAT SHE SIGNED THIS INSTRUMENT, ON OATH STATED THAT SHE WAS AUTHORIZED TO EXECUTE THE INSTRUMENT AND ACKNOWLEDGED IT AS CO-MANAGER OF TYTANIC LLC TO BE THE FREE AND VOLUNTARY ACT OF SUCH PARTY FOR THE USES AND PURPOSES MENTIONED IN THE INSTRUMENT.

DATED: 12/5/12

NOTARY SIGNATURE

PRINTED NAME: Shelley M. Anderson
NOTARY PUBLIC IN AND FOR THE STATE OF WASHINGTON
RESIDING AT Seattle
MY APPOINTMENT EXPIRES 9/25/14.

SHELLEY M. ANDERSON
COMMISSION EXPIRES
NOTARY
PUBLIC
9-25-14
STATE OF WASHINGTON

xpage/rlm/4-8-97

Unofficial Document

CHICAGO TITLE COMPANY

EXHIBIT A

Escrow No.: 1348248

SUBJECT TO:

EASEMENT CONDEMNED IN KING COUNTY SUPERIOR COURT AND THE TERMS AND CONDITIONS THEREOF:

IN FAVOR OF:	MUNICIPALITY OF METROPOLITAN SEATTLE
PURPOSE:	CONSTRUCTION, OPERATION, MAINTENANCE, REPAIR AND REPLACEMENT OF A SEWER INTERCEPTOR PIPELINE
AREA AFFECTED:	A NORTHEASTERLY PORTION OF SAID PREMISES
CAUSE NUMBER:	85-2-18485-8

EASEMENT AND THE TERMS AND CONDITIONS THEREOF:

GRANTEE:	CITY OF SEATTLE, A MUNICIPAL CORPORATION
PURPOSE:	STORM DRAIN, WITH NECESSARY APPURTENANCES
AREA AFFECTED:	A PORTION OF SAID PREMISES LYING WITHIN BLOCK 5, RIVER PARK
RECORDED:	JANUARY 30, 1989
RECORDING NUMBER:	8901300984

RELINQUISHMENT OF ACCESS TO STATE HIGHWAY NUMBER 1 AND OF LIGHT, VIEW AND AIR BY DEED TO THE STATE OF WASHINGTON:

RECORDED:	NOVEMBER 14, 1958
RECORDING NUMBER:	4965539

CONDEMNATION OF ACCESS TO STATE HIGHWAY NUMBER 1 AND OF LIGHT, VIEW AND AIR BY KING COUNTY DECREE TO THE STATE OF WASHINGTON:

ENTERED:	DECEMBER 10, 1957
SUPERIOR COURT CAUSE NUMBER:	515467

UNRECORDED LEASEHOLDS, IF ANY, RIGHTS OF VENDORS AND HOLDERS OF SECURITY INTERESTS ON PERSONAL PROPERTY INSTALLED UPON SAID PROPERTY AND RIGHTS OF TENANTS TO REMOVE TRADE FIXTURES AT THE EXPIRATION OF THE TERM.

MATTERS DISCLOSED BY A SURVEY OF SAID PREMISES BY BARGHAUSEN CONSULTING ENGINEERS, INC., DATED OCTOBER 5, 2012, UNDER JOB NO.15968 AS FOLLOWS:

A. LOCATION OF FENCES IN RELATION TO THE WEST, NORTHEAST, AND SOUTH LINES OF THE LAND;
B. ENCROACHMENT OF CONCRETE PAD 0.7 FEET WEST OF THE WEST LINE INTO THE RIGHT OF WAY OF 5TH AVENUE S;
C. ENCROACHMENT OF FENCED AREAS 3.5 FEET WEST OF THE WEST LINE INTO THE RIGHT OF WAY OF 5TH AVENUE S;
D. MAILBOXES ENCROACHMENT ACROSS THE WEST LINE ONTO THE LAND.

Unofficial Copy

CHICAGO TITLE INS. CO.
REF# 1348248-6

This instrument prepared by and after recording return to:

Aaron D Walley
U.S. BANK N.A.
COLLATERAL DEPARTMENT
P. O. BOX 5308
PORTLAND OR 97228-5308

20121207001977
CHICAGO TITLE DT 226.00
PAGE-001 OF 010
12/07/2012 14:40
KING COUNTY, WA

0608849299

WASHINGTON DEED OF TRUST, SECURITY AGREEMENT AND ASSIGNMENT OF RENTS AND LEASES (INCLUDING FIXTURE FILING UNDER UNIFORM COMMERCIAL CODE)

Grantor(s): JYS4, LLC

Grantees: U.S. BANK N.A., as Beneficiary
U.S. BANK TRUST COMPANY, N.A., as Trustee

Legal Description: Ptn of Lots 22-24, Blk 5, Vol 7 of Plts, Pg 41, & a ptn of Blk 1 & 2, Vol 4 of Plts, pg 87

(Additional on page 2)

Assessor's Tax Parcel or Account Number: 788360-0005-09

Reference Number of documents assigned or released: NOT APPLICABLE

This Washington Deed of Trust, Security Agreement and Assignment of Rents and Leases (Including Fixture Filing Under Uniform Commercial Code) (**"Deed of Trust"**) is made and entered into by the undersigned borrower(s), guarantor(s) and/or other obligor(s)/pledgor(s) (collectively the **"Grantor"**) in favor of U.S. BANK TRUST COMPANY, N.A., having a mailing address at 555 SW OAK, PORTLAND, OR 97204 (the **"Trustee"**), for the benefit of U.S. BANK N.A. (the **"Beneficiary"**), as of the date set forth below.

ARTICLE I. CONVEYANCE/MORTGAGED PROPERTY

1.1 Grant of Deed of Trust/Security Interest. IN CONSIDERATION OF FIVE DOLLARS ($5.00) cash in hand paid by the Trustee to the Grantor, and the financial accommodations from the Beneficiary to the Grantor as described below, the Grantor has bargained, sold, conveyed and confirmed, and hereby bargains, sells, conveys and confirms, unto Trustee, its successors and assigns, for the benefit of the Beneficiary, the Mortgaged Property (defined below) to secure all of the Grantor's Obligations (defined below) to the Beneficiary. The intent of the parties hereto is that the Mortgaged Property secures all Obligations of the Grantor to the Beneficiary, whether now or hereafter existing, between the Grantor and the Beneficiary or in favor of the Beneficiary, including, without limitation, the Note (as herein defined) and, except as otherwise specifically provided herein, any loan agreement, guaranty, mortgage, trust deed, lease or other agreement, document or instrument, whether or not enumerated herein, which specifically evidences or secures any of the indebtedness evidenced by the Note (together and individually, the **"Loan Documents"**). The parties further intend that this Deed of Trust shall operate as a security agreement with respect to those portions of the Mortgaged Property which are subject to Article 9 of the Uniform Commercial Code.

1.2 "Mortgaged Property" means all of the following, whether now owned or existing or hereafter acquired by the Grantor, wherever located: all the real estate described below or in **Exhibit A** attached hereto (the **"Land"**), together with all buildings, structures, standing timber, timber to be cut, fixtures, equipment, inventory and furnishings used in connection with the Land and improvements; all materials, contracts, drawings and personal property relating to any construction on the Land; and all other improvements now or hereafter constructed, affixed or located thereon (the **"Improvements"**) (the Land and the Improvements collectively the **"Premises"**); TOGETHER with any and all easements, rights-of-way, licenses, privileges, and appurtenances thereto, and any and all leases or other agreements for the use or occupancy of the Premises, all the rents, issues, profits or any proceeds therefrom and all security deposits and any guaranty of a tenant's obligations thereunder (collectively the **"Rents"**); all awards as a result of

condemnation, eminent domain or other decrease in value of the Premises and all insurance and other proceeds of the Premises.

The Land is described as follows (or in Exhibit A hereto if the description does not appear below):

See Attached Exhibit A

1.3 "Obligations" means all loans by the Beneficiary to JYS4, LLC including those loans evidenced by a note or notes dated 12/07/12, in the initial principal amount(s) of $1,400,000.00, and any extensions, renewals, restatements and modifications thereof and all principal, interest, fees and expenses relating thereto (the **"Note"**); and also means all the Grantor's debts, liabilities, obligations, covenants, warranties, and duties to the Beneficiary, whether now or hereafter existing or incurred, whether liquidated or unliquidated, whether absolute or contingent, which arise out of the Loan Documents, and principal, interest, fees, expenses and charges relating to any of the foregoing, including, without limitation, costs and expenses of collection and enforcement of this Deed of Trust, and attorneys' fees of both inside and outside counsel. The interest rate and maturity of such Obligations are as described in the documents creating the indebtedness secured hereby.

1.4 Homestead. The Premises are not (are)(are not) the homestead of the Grantor. If so, the Grantor releases and waives all rights under and by virtue of the homestead exemption laws of the State of Washington.

1.5 Deed of Trust Secures Commercial Loan. The Grantor and the Beneficiary hereby agree that the Obligations secured by this Deed of Trust constitute a commercial loan and are not made primarily for personal, family or household purposes.

1.6 Mortgaged Property Not Agricultural Property. The Grantor hereby represents and warrants that the Mortgaged Property is not used primarily for agricultural purposes.

1.7 Deed of Trust Does Not Secure Environmental Indemnities. Notwithstanding anything to the contrary set forth herein or in any other Loan Document, this Deed of Trust shall not secure the obligations of the Grantor or any other obligor under that certain Unsecured Real Estate Environmental Indemnity dated as of even date herewith made by the Grantor in favor of the Beneficiary (the **"Environmental Indemnity Agreement"**) or the substantial equivalent of the obligations arising under the Environmental Indemnity Agreement. All of such obligations (and the substantial equivalents thereof) shall constitute the separate, unsecured, full recourse obligations of the Grantor and any other obligor identified therein and shall not be deemed to be evidenced by the Note or secured by this Deed of Trust.

1.8 Construction Loan. ☐ If checked here, this Deed of Trust secures an obligation incurred for the construction of an improvement on land, including the acquisition cost of the land.

ARTICLE II. WARRANTIES AND COVENANTS

In addition to all other warranties and covenants of the Grantor under the Loan Documents which are expressly incorporated herein as part of this Deed of Trust, including the covenants to pay and perform all Obligations, and while any part of the credit granted the Grantor under the Loan Documents is available or any Obligations of the Grantor to the Beneficiary are unpaid or outstanding, the Grantor continuously warrants to the Beneficiary and the Trustee and agrees as follows:

2.1 Warranty of Title/Possession. The Grantor warrants that it has sole and exclusive title to and possession of the Premises, excepting only the following **"Permitted Encumbrances"**: restrictions and easements of record, and zoning ordinances (the terms of which are and will be complied with, and in the case of easements, are and will be kept free of encroachments), taxes and assessments not yet due and payable and those Permitted Encumbrances set forth on **Exhibit B** attached hereto (except that if no **Exhibit B** is attached, there will be no additional Permitted Encumbrances). The lien of this Deed of Trust, subject only to Permitted Encumbrances, is and will continue to be a

valid first and only lien upon all of the Mortgaged Property.

2.2 Maintenance; Waste; Alteration. The Grantor will maintain the Premises in good and tenantable condition and will restore or replace damaged or destroyed improvements with items of at least equal utility and value. The Grantor will not commit or permit waste to be committed on the Premises. The Grantor will not remove, demolish or materially alter any part of the Premises without the Beneficiary's prior written consent, except the Grantor may remove a fixture, provided the fixture is promptly replaced with another fixture of at least equal utility. The replacement fixture will be subject to the priority lien and security of this Deed of Trust.

2.3 Transfer and Liens. The Grantor will not, without the prior written consent of the Beneficiary, which may be withheld in the Beneficiary's sole and absolute discretion, either voluntarily or involuntarily (a) sell, assign, lease or transfer, or permit to be sold, assigned, leased or transferred, any part of the Premises, or any interest therein; or (b) pledge or otherwise encumber, create or permit to exist any mortgage, pledge, lien or claim for lien or encumbrance upon any part of the Premises or interest therein, except for the Permitted Encumbrances. Beneficiary has not consented and will not consent to any contract or to any work or to the furnishing of any materials which might be deemed to create a lien or liens superior to the lien of this Deed of Trust.

2.4 Escrow. After written request from the Beneficiary, the Grantor will pay to the Beneficiary sufficient funds at such time as the Beneficiary designates, to pay (a) the estimated annual real estate taxes and assessments on the Premises; and (b) all property or hazard insurance premiums when due. Interest will not be paid by the Beneficiary on any escrowed funds. Escrowed funds may be commingled with other funds of the Beneficiary. All escrowed funds are hereby pledged as additional security for the Obligations.

2.5 Taxes, Assessments and Charges. To the extent not paid to the Beneficiary under 2.4 above, the Grantor will pay before they become delinquent all taxes, assessments and other charges now or hereafter levied or assessed against the Premises, against the Beneficiary based upon this Deed of Trust or the Obligations secured by this Deed of Trust, or upon the Beneficiary's interest in the Premises, and deliver to the Beneficiary receipts showing timely payment.

2.6 Insurance. The Grantor will continually insure the Premises against such perils or hazards as the Beneficiary may require, in amounts, with acceptable co-insurance provisions, not less than the unpaid balance of the Obligations or the full replacement value of the Improvements, whichever is less. The policies will contain an agreement by each insurer that the policy will not be terminated or modified without at least thirty (30) days' prior written notice to the Beneficiary and will contain a mortgage clause acceptable to the Beneficiary; and the Grantor will take such other action as the Beneficiary may reasonably request to ensure that the Beneficiary will receive (subject to no other interests) the insurance proceeds from the Improvements. The Grantor hereby assigns all insurance proceeds to and irrevocably directs, while any Obligations remain unpaid, any insurer to pay to the Beneficiary the proceeds of all such insurance and any premium refund; and authorizes the Beneficiary to endorse the Grantor's name to effect the same, to make, adjust or settle, in the Grantor's name, any claim on any insurance policy relating to the Premises. The proceeds and refunds will be applied in such manner as the Beneficiary, in its sole and absolute discretion, determines to rebuilding of the Premises or to payment of the Obligations, whether or not then due and payable.

2.7 Condemnation. Any compensation received for the taking of the Premises, or any part thereof, by a condemnation proceeding (including payments in compromise of condemnation proceedings), and all compensation received as damages for injury to the Premises, or any part thereof, shall be applied in such manner as the Beneficiary, in its sole and absolute discretion, determines to rebuilding of the Premises or to payment of the Obligations, whether or not then due and payable.

2.8 Assignments. The Grantor will not assign, in whole or in part, without the Beneficiary's prior written consent, the rents, issues or profits arising from the Premises.

2.9 Right of Inspection. The Beneficiary may at all reasonable times enter and inspect the Premises.

2.10 Waivers by Grantor. To the greatest extent that such rights may then be lawfully waived, the Grantor hereby agrees for itself and any persons claiming under the Deed of Trust that it will waive and will not, at any time, insist upon or plead or in any manner whatsoever claim or take any benefit or advantage of (a) any exemption, stay, extension or moratorium law now or at any time hereafter in force; (b) any law now or hereafter in force providing for the valuation or appraisement of the Premises or any part thereof prior to any sale or sales thereof to be made pursuant to any provision herein contained or pursuant to the decree, judgment or order of any court of competent jurisdiction; (c) to the extent permitted by law, any law now or at any time hereafter made or enacted granting a right to redeem from foreclosure or any other rights of redemption in connection with foreclosure of, or exercise of any power of sale under, this Deed of Trust; (d) any statute of limitations now or at any time hereafter in force; or (e) any right to require marshalling of assets by the Beneficiary.

2.11 Assignment of Rents and Leases. The Grantor assigns and transfers to the Beneficiary, as additional security for the Obligations, all right, title and interest of the Grantor in and to all leases which now exist or hereafter may be executed by or on behalf of the Grantor covering the Premises and any extensions or renewals thereof, together with all Rents, it being intended that this is an absolute and present assignment of the Rents. Notwithstanding that this assignment constitutes a present assignment of leases and rents, the Grantor may collect the Rents and manage the Premises, but only if and so long as a default has not occurred. If a default occurs, the right of Grantor to collect the Rents and to manage the Premises shall thereupon automatically terminate and such right, together with other rights, powers and authorizations contained herein, shall belong exclusively to the Beneficiary. This assignment confers upon the Beneficiary a power coupled with an interest and cannot be revoked by the Grantor. Upon the occurrence of a default, the Beneficiary, at its option without notice and without seeking or obtaining the appointment of a receiver or taking actual possession of the Premises may (a) give notice to any tenant(s) that the tenant(s) should begin making payments under their lease agreement(s) directly to the Beneficiary or its designee; (b) commence a foreclosure action and file a motion for appointment of a receiver; or (c) give notice to the Grantor that the Grantor should collect all Rents arising from the Premises and remit them to the Beneficiary upon collection and that the Grantor should enforce the terms of the lease(s) to ensure prompt payment by tenant(s) under the lease(s). All Rents received by the Grantor shall be held in trust by the Grantor for the Beneficiary. All such payments received by the Beneficiary may be applied in any manner as the Beneficiary determines to payments required under this Deed of Trust, the Loan Documents and the Obligations. The Grantor agrees to hold each tenant harmless from actions relating to tenant's payment of Rents to the Beneficiary.

2.12 Fixture Filing. From the date of its recording, this Deed of Trust shall be effective as a financing statement filed as a fixture filing under the Uniform Commercial Code with respect to the Improvements and for this purpose the name and address of the debtor is the name and address of the Grantor as set forth in this Deed of Trust and the name and address of the secured party is the name and address of the Beneficiary as set forth in this Deed of Trust. The Mortgaged Property includes goods which are or may become so affixed to real property as to become fixtures. If any of the Mortgaged Property is of a nature such that a security interest therein can be perfected under the Uniform Commercial Code, this Deed of Trust shall also constitute the grant of a security interest to the Beneficiary and serve as a Security Agreement, and Grantor authorizes the filing of any financing statements and agrees to execute other instruments that may be required for the further specification, perfection or renewal of such security interest.

ARTICLE III. RIGHTS AND DUTIES OF THE BENEFICIARY

In addition to all other rights (including setoff) and duties of the Beneficiary under the Loan Documents which are expressly incorporated herein as a part of this Deed of Trust, the following provisions will also apply:

3.1 Beneficiary Authorized to Perform for Grantor. If the Grantor fails to perform any of the Grantor's duties or covenants set forth in this Deed of Trust, the Beneficiary may perform the duties or cause them to be performed, including, without limitation, signing the Grantor's name or paying any amount so required, and the cost, with interest at the default rate set forth in the Loan Documents, will immediately be due from the Grantor to the Beneficiary from the date of expenditure by the Beneficiary to date of payment by the Grantor, and will be one of the Obligations secured by this Deed of Trust. All acts by the Beneficiary are hereby ratified and approved, and the Beneficiary will not be liable for any acts of commission or omission, nor for any errors of judgment or mistakes of fact or law.

ARTICLE IV. DEFAULTS AND REMEDIES

The Beneficiary may enforce its rights and remedies under this Deed of Trust upon default. A default will occur if the Grantor fails to comply with the terms of any Loan Documents (including this Deed of Trust or any guaranty by the Grantor) or a demand for payment is made under a demand loan, or the Grantor defaults on any other mortgage affecting the Land, or if any other obligor fails to comply with the terms of any Loan Documents for which the Grantor has given the Beneficiary a guaranty or pledge, or if there shall be a default under the Unsecured Real Estate Environmental Indemnity of even date herewith by Borrower or any other Indemnitor identified therein. Upon the occurrence of a default, then subject only to any statutes conferring upon the Grantor the right to notice and an opportunity to cure, the Beneficiary may declare the Obligations to be immediately due and payable.

4.1 Remedies. In addition to the remedies for default set forth below and in the other Loan Documents, including acceleration, the Beneficiary upon default will have all other rights and remedies for default available by law or equity. Upon a default, Beneficiary may exercise the following remedies:

(a) Enforcement of Assignment of Rents and Leases. To the fullest extent permitted by applicable law, Beneficiary may:

(i) terminate the license granted to Grantor to collect the Rents (regardless of whether Beneficiary or Trustee

shall have entered into possession of the Mortgaged Property), collect and sue for the Rents in Beneficiary's own name, give receipts and releases therefor, and after deducting all expenses of collection, including reasonable attorneys' fees, apply the net proceeds thereof to any Obligations as Beneficiary may elect;

(ii) make, modify, enforce, cancel or accept surrender of any leases, evict tenants, adjust Rents, maintain, decorate, refurbish, repair, clean, and make space ready for renting, and otherwise do anything Beneficiary reasonably deems advisable in connection with the Mortgaged Property;

(iii) apply the Rents so collected to the operation and management of the Mortgaged Property, including the payment of reasonable management, brokerage and attorneys' fees, or to the Obligations; and

(iv) require Grantor to transfer and deliver possession of all security deposits and records thereof to Beneficiary.

(b) Power of Sale. Beneficiary may require the Trustee, and the Trustee is hereby authorized and empowered, to enter and take possession of the Premises and to sell all or part of the Mortgaged Property, at public auction, to the highest bidder for cash or such equivalent form of payment as may be permitted by applicable law, free from equity of redemption, and any statutory or common law right of redemption, homestead, dower, marital share, and all other exemptions, after giving notice of the time, place and terms of such sale and of the Mortgaged Property to be sold, by advertising the sale of the property in such manner and at such times as may be required by applicable law. The Trustee shall execute a conveyance to the purchaser conveying to the purchaser all the right, title and interest in the real and personal property sold at the trustee's sale which the Grantor had or had power to convey at the time of execution of this Deed of Trust and such right, title and interest therein as the Grantor may have thereafter acquired, and the Trustee shall deliver possession to the purchaser, which the Grantor warrants shall be given without obstruction, hindrance or delay. To the extent permitted by applicable law, the Trustee may sell all or any portion of the Mortgaged Property, together or in lots or parcels, and may execute and deliver to the purchaser or purchasers of such property a conveyance as described above. The Trustee shall receive the proceeds thereof and shall apply the same as follows: (a) first, the expense of the sale, including a reasonable charge by the Trustee and by his or her attorneys; (b) second, to the payment of the Obligations herein secured, in such order as Beneficiary shall elect, and to the extent permitted by applicable law any balance of said Obligations may be the subject of immediate suit; and (c) third, should there be any surplus, Trustee will deposit such surplus, if any, less the clerk's filing fee, with the clerk of the superior court of the county in which the sale took place. To the extent permitted by applicable law, the sale or sales by Trustee of less than the whole of the Mortgaged Property shall not exhaust the power of sale herein granted, and the Trustee is specifically empowered to make successive sales under such power until the whole of the Mortgaged Property shall be sold; and if the proceeds of such sale or sales of less than the whole of the Premises shall be less than the aggregate of the Obligations and the expenses thereof, this Deed of Trust and the lien, security interest and assignment hereof shall remain in full force and effect as to the unsold portion of the Mortgaged Property; provided, however, that Grantor shall never have any right to require the sale or sales of less than the whole of the Mortgaged Property, but Beneficiary shall have the right at its sole election, to request the Trustee to sell less than the whole of the Mortgaged Property. Beneficiary may bid and become the purchaser of all or any part of the Mortgaged Property at any such sale, and the amount of Beneficiary's successful bid may be credited on the Obligations.

(c) Judicial and Other Relief. Beneficiary or Trustee may proceed by a suit or suits in equity or at law, whether for the specific performance of any covenant or agreement herein contained or in aid of the execution of any power herein granted, or for any foreclosure hereunder or for the sale of the Mortgaged Property under the judgment or decree of any court or courts of competent jurisdiction.

(d) Entry on Premises; Tenancy at Will.

(i) Beneficiary may enter into and upon and take possession of all or any part of the Mortgaged Property, and may exclude Grantor, and all persons claiming under Grantor, and its agents or servants, wholly or partly therefrom; and, holding the same, Beneficiary may use, administer, manage, operate, and control the Mortgaged Property and may exercise all rights and powers of Grantor in the name, place and stead of Grantor, or otherwise, as the Beneficiary shall deem best; and in the exercise of any of the foregoing rights and powers Beneficiary shall not be liable to Grantor for any loss or damage thereby sustained unless due solely to the willful misconduct or gross negligence of Beneficiary.

(ii) In the event of a trustee's or other foreclosure sale hereunder and if at the time of such sale Grantor or any other party (other than a tenant under a Lease as to which the Beneficiary shall have expressly subordinated the lien of this Deed of Trust as hereinabove set out) occupies the portion of the Mortgaged Property so sold or any part thereof, such occupant shall on the twentieth day after the sale become the tenant of the purchaser at such sale, which tenancy, unless otherwise required by applicable law, shall be a tenancy from day to day, terminable at the will

of such purchaser, at a reasonable rental per day based upon the value of the portion of the Premises so occupied (but not less than any rental theretofore paid by such tenant, computed on a daily basis). An action of forcible detainer shall lie if any such tenant holds over a demand in writing for possession of such portion of the Premises.

(e) Receiver. Beneficiary may make application to a court of competent jurisdiction, as a matter of strict right and without notice to Grantor or regard to the adequacy of the Mortgaged Property for the repayment of the Obligations, for appointment of a receiver of the Mortgaged Property, and Grantor does hereby irrevocably consent to such appointment. Any such receiver shall have all necessary and proper powers and duties of receivers in similar cases, including the full power to rent, maintain and otherwise operate the Mortgaged Property upon such terms as may be approved by the court.

(f) Remedies Cumulative, Concurrent and Nonexclusive. If the Obligations are now or hereafter further secured by chattel mortgages, other deeds of trust, security agreements, pledges, contracts of guaranty, assignments of leases, or other security, then to the fullest extent permitted by applicable law, Beneficiary may, at its option, exhaust its remedies under any one or more of said instruments and this Deed of Trust, either concurrently or independently, and in such order as Beneficiary may determine. Beneficiary shall have all rights, remedies and recourses granted in the Loan Documents and available to it at law or equity (including, without limitation, those granted by the Uniform Commercial Code), and to the fullest extent permitted by applicable law, same (a) shall be cumulative, concurrent, and nonexclusive, (b) may be pursued separately, successively or concurrently against Grantor or others obligated for the Obligations, or any part thereof or against any one or more of them, or against the Mortgaged Property, at the sole discretion of Beneficiary, and (c) may be exercised as often as occasion therefor shall arise, it being agreed by Grantor that the exercise of or failure to exercise any of same shall in no event be construed as a waiver or release thereof or of any other right, remedy or recourse.

(g) Waiver by the Beneficiary. The Beneficiary may permit the Grantor to attempt to remedy any default without waiving its rights and remedies hereunder, and the Beneficiary may waive any default without waiving any other subsequent or prior default by the Grantor. Furthermore, delay on the part of the Beneficiary in exercising any right, power or privilege hereunder or at law will not operate as a waiver thereof, nor will any single or partial exercise of such right, power or privilege preclude other exercise thereof or the exercise of any other right, power or privilege. No waiver or suspension will be deemed to have occurred unless the Beneficiary has expressly agreed in writing specifying such waiver or suspension.

(h) Attorneys' Fees and Other Costs. Attorneys' fees and other costs incurred in connection with this Deed of Trust (including without limitation, the cost of any appraisal which may be obtained in conjunction with any foreclosure or deficiency judgment proceedings) may be recovered by the Beneficiary and included in any sale made hereunder or by judgment of foreclosure.

ARTICLE V. TRUSTEE

5.1 Action by Trustee. The Trustee named herein shall be clothed with full power to act when action hereunder shall be required, and to execute any conveyance of the Mortgaged Property. In the event that the substitution of the Trustee shall become necessary for any reason, the substitution of a trustee in the place of that named herein shall be sufficient. The term "Trustee" shall be construed to mean "Trustees" whenever the sense requires. The necessity of the Trustee herein named, or any successor in trust, making oath or giving bond, is expressly waived.

5.2 Employment of Agents. The Trustee, or any one acting in it's stead, shall have, in it's discretion, authority to employ all property agents and attorneys in the execution of this trust and/or in the conducting of any sale made pursuant to the terms hereof, and to pay for such services rendered out of the proceeds of the sale of the Mortgaged Property, should any be realized; and if no sale be made or if the proceeds of sale be insufficient to pay the same, then, to the fullest extent permitted by applicable law, Grantor hereby undertakes and agrees to pay the cost of such services rendered to said Trustee. Trustee may rely on any document believed by it in good faith to be genuine. All money received by the Trustee shall, until used or applied as herein provided, be held in trust, but need not be segregated (except to the extent required by law), and the Trustee shall not be liable for interest thereon.

5.3 Indemnification of Trustee. If the Trustee shall be made a party to or shall intervene in any action or proceeding affecting the Mortgaged Property or the title thereto, or the interest of the Trustee or Beneficiary under this Deed of Trust, the Trustee and Beneficiary shall be reimbursed by Grantor, immediately and without demand, for all reasonable costs, charges and attorneys' fees incurred by them or either of them in any such case, and the same shall be secured hereby as a further charge and lien upon the Mortgaged Property.

5.4 Successor Trustee. In the event of the death, refusal, or of inability for any cause, on the part of the Trustee named herein, or of any successor trustee, to act at any time when action under the forgoing powers and trust may be required, or for any other reason satisfactory to the Beneficiary, the Beneficiary is authorized, either in its own name or

through an attorney or attorneys in fact appointed for that purpose, by written instrument duly recorded, to name, substitute and appoint a successor or successors to execute this trust, such appointment to be evidenced by writing, duly acknowledged; and when such writing shall have been recorded in each county in which the Land is located, the substituted trustee named therein shall thereupon be vested with all the right and title, and clothed with all the power of the Trustee named herein and such like power of substitution shall continue so long as any part of the debt secured hereby remains unpaid. Any successor Trustee may be replaced, at the option of the Beneficiary, by the original Trustee or a successor Trustee previously replaced, each such substitution to be made as herein provided.

ARTICLE VI. MISCELLANEOUS

In addition to all other miscellaneous provisions under the Loan Documents which are expressly incorporated as a part of this Deed of Trust, the following provisions will also apply:

6.1 Term of Deed of Trust. This Deed of Trust shall continue in full force and effect until the Mortgaged Property has been reconveyed by the Trustee.

6.2 Time of the Essence. Time is of the essence with respect to payment of the Obligations, the performance of all covenants of the Grantor and the payment of taxes, assessments, and similar charges and insurance premiums.

6.3 Subrogation. The Beneficiary will be subrogated to the lien of any mortgage or other lien discharged, in whole or in part, by the proceeds of the Note or other advances by the Beneficiary, in which event any sums otherwise advanced by the Beneficiary shall be immediately due and payable, with interest at the default rate set forth in the Loan Documents from the date of advance by the Beneficiary to the date of payment by the Grantor, and will be one of the Obligations secured by this Deed of Trust.

6.4 Choice of Law. This Deed of Trust will be governed by the laws of the state in which the Mortgaged Property is located. For all other purposes, the choice of law specified in the Loan Documents will govern.

6.5 Severability. Invalidity or unenforceability of any provision of this Deed of Trust shall not affect the validity or enforceability of any other provision.

6.6 Entire Agreement. This Deed of Trust is intended by the Grantor and the Beneficiary as a final expression of this Deed of Trust and as a complete and exclusive statement of its terms, there being no conditions to the full effectiveness of this Deed of Trust. No parol evidence of any nature shall be used to supplement or modify any terms.

6.7 Joint Liability; Successors and Assigns. If there is more than one Grantor, the liability of the Grantors will be joint and several, and the reference to "Grantor" shall be deemed to refer to each Grantor and to all Grantors. The rights, options, powers and remedies granted in this Deed of Trust and the other Loan Documents shall extend to the Beneficiary and to its successors and assigns, shall be binding upon the Grantor and its successors and assigns, and shall be applicable hereto and to all renewals, amendments and/or extensions hereof.

6.8 Indemnification. Except for harm arising from the Beneficiary's or the Trustee's willful misconduct, the Grantor hereby indemnifies and agrees to defend and hold the Beneficiary and the Trustee harmless from any and all losses, costs, damages, claims and expenses (including, without limitation, attorneys' fees and expenses) of any kind suffered by or asserted against the Beneficiary or the Trustee relating to claims by third parties arising out of the financing provided under the Loan Documents or related to the Mortgaged Property excepting the Beneficiary's failure to perform its obligations under the Real Estate Environmental Indemnity Agreement or the exercise by the Beneficiary or the Trustee of any of their respective powers, rights and remedies under this Deed of Trust. To the fullest extent permitted by applicable law, this indemnification and hold harmless provision will survive the termination of the Loan Documents and the satisfaction of this Deed of Trust and Obligations due the Beneficiary.

6.9 Notices. Except as otherwise provided by applicable law, notice of any record shall be deemed delivered when the record has been (a) deposited in the United States Mail, postage pre-paid, (b) received by overnight delivery service, (c) received by telex, (d) received by telecopy, (e) received through the internet, or (f) when personally delivered.

6.10 Release of Rights of Dower, Homestead and Distributive Share. Each of the undersigned hereby relinquishes all rights of dower, homestead and distributive share in and to the Mortgaged Property and waives all rights of exemption as to any of the Mortgaged Property.

6.11 Copy. The Grantor hereby acknowledges the receipt of a copy of this Deed of Trust, together with a copy of each promissory note secured hereby, and all other documents executed by the Grantor in connection herewith.

6.12 Usury Savings Clause. Notwithstanding anything herein or in the Note to the contrary, no provision contained herein or in the Note which purports to obligate the Grantor to pay any amount of interest or any fees, costs or expenses which are in excess of the maximum permitted by applicable law, shall be effective to the extent that it

calls for the payment of any interest or other sums in excess of such maximum. All agreements between the Grantor and the Beneficiary, whether now existing or hereafter arising and whether written or oral, are hereby limited so that in no contingency, whether by reason of demand for payment of or acceleration of the maturity of any of the indebtedness secured hereby or otherwise, shall the interest contracted for, charged or received by the Beneficiary exceed the maximum amount permissible under applicable law. If, from any circumstance whatsoever, interest would otherwise be payable to the Beneficiary in excess of the maximum lawful amount, the interest payable to the Beneficiary shall be reduced to the maximum amount permitted under applicable law; and if from any circumstance the Beneficiary shall ever receive anything of value deemed interest by applicable law in excess of the maximum lawful amount, an amount equal to any excessive interest shall at the Beneficiary's option, be refunded to the Grantor or be applied to the reduction of the principal balance of the indebtedness secured hereby and not to the payment of interest or, if such excessive interest exceeds the unpaid balance of principal indebtedness secured hereby, such excess shall be refunded to the Grantor. This paragraph shall control all agreements between the Grantor and the Beneficiary.

6.13 Riders. The rider(s) attached hereto and recorded together with this Deed of Trust are hereby fully incorporated into this Deed of Trust. [Check applicable box(es)] ☐ Condominium Rider ☐ Second Deed of Trust Rider ☐ Construction Loan Rider ☐ Other(s) (Specify) _____

IN WITNESS WHEREOF, the undersigned has/have executed this Deed of Trust as of DECEMBER 7, 2012.

(Individual Grantor) _____ (Individual Grantor) _____

Printed Name N/A Printed Name N/A

JYS4, LLC

Grantor Name (Organization)

a Washington limited liability company

By _____

Name and Title Demetre H Pallis, Managing Member

By _____

Name and Title _____

(Grantor Address)

1845 72nd Avenue SE

Mercer Island, WA 98040

(Beneficiary Address)

555 SW OAK

PORTLAND, OR 97204

[NOTARIZATION(S) ON NEXT PAGE]

Unofficial Document

Unofficial Copy

Acknowledgment in Individual Capacity

STATE OF _____ }
COUNTY OF _____ } ss.

I certify that I know or have satisfactory evidence that N/A
[Name(s) of Person(s)]

is/are the person(s) who appeared before me, and said person(s) acknowledged that he/she/they signed this instrument and acknowledged it to be his/her/their free and voluntary act for the uses and purposes mentioned in the instrument.

Dated: _____

(Seal or Stamp)

Printed Name: _____
Title: _____
My appointment expires: _____

Acknowledgment in Representative Capacity

STATE OF WA
COUNTY OF King } ss.

I certify that I know or have satisfactory evidence that Demetre H Pallis
[Name(s) of Person(s)]

is/are the person(s) who appeared before me, and said person(s) acknowledged that he/she/they signed this instrument, on oath stated that he/she/they was/were authorized to execute the instrument and acknowledged it as the Managing Member
(Type of authority, e.g., officer, trustee, etc)

of JYS4, LLC
(Name of party on behalf of whom instrument was executed)

to be the free and voluntary act of such party for the uses and purposes mentioned in the instrument.

Dated: 12/5/12

(Seal or Stamp) SHELLEY M. ANDERSON NOTARY PUBLIC COMMISSION EXPIRES 9-25-14 STATE OF WASHINGTON

Printed Name: Shelley M. Anderson
Title: Escrow Officer
My appointment expires: 9/25/14

EXHIBIT A TO DEED OF TRUST
(Legal Description)

Grantor/Trustor: JYS4, LLC

Trustee: U.S. BANK TRUST COMPANY, N.A.

Beneficiary: U.S. BANK N.A.

Legal Description of Land:

THAT PORTION OF THE FOLLOWING PARCELS LYING WEST OF THE WESTERLY MARGIN OF PRIMARY STATE HIGHWAY NO. 1 (WEST MARGINAL WAY):
LOTS 20 THROUGH 24, BLOCK 5, RIVER PARK, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 7 OF PLATS, PAGE 41, UNDER RECORDING NUMBER 72269, IN KING COUNTY, WASHINGTON;
VACATED BLOCK 1, VACATED ALLEY ADJOINING SAID BLOCK 1 ON THE NORTH, THE NORTH HALF OF VACATED BLOCK 2, VACATED ORCHARD STREET (NOW ROSE STREET) LYING BETWEEN SAID BLOCK 1 AND BLOCK 2, AND THE NORTH HALF OF VACATED ALLEY ADJOINING LOTS PLATTED AS LOTS 1 THROUGH 13, BLOCK 2, ALL IN SOUTH PARK, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 4 OF PLATS, PAGE 87, UNDER RECORDING NUMBER 45931, IN KING COUNTY, WASHINGTON.

Property Located At: 8230 5th Ave S, Seattle, WA 98108

Vested As: JYS4, LLC, a Washington limited liability company

Unofficial Document

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02/25/2015 03:00
King County, WA

Unofficial Document

RETURN ADDRESS:

Steven J. Christophersen
Ameritas Life Insurance Corp.
5900 O Street
Lincoln, Nebraska 68510
Loan No. 3141876

ASSIGNMENT OF RENTS AND LEASES

GRANTOR(S):	JYS4, LLC
GRANTEE(S):	AMERITAS LIFE INSURANCE CORP.
ABBREVIATED LEGAL DESCRIPTION:	PTN. OF LOTS 20-24, BLK 5, RIVER PARK, VOL. 7, PG 41, & PTN. OF BLK 1 & BLK 2, SOUTH PARK, VOL 4, PG 87 (SEE PAGE 9 FOR FULL LEGAL DESCRIPTION)
ASSESSOR'S TAX PARCEL NO(S):	7883600005

THIS ASSIGNMENT is made this 25TH day of February, 2015, by JYS4, LLC, a Washington limited liability company (herein called the "Assignor"), whose mailing address is 1845 72nd Avenue SE, Mercer Island, Washington 98040, to Ameritas Life Insurance Corp., a a Nebraska corporation (herein called the "Assignee"), whose mailing address is 5900 O Street, Lincoln, Nebraska 68510.

W I T N E S S E T H:

FOR VALUE RECEIVED, Assignor hereby absolutely and unconditionally grants, transfers and assigns to Assignee the immediate and continuing right to receive and collect the rents, income and profits (collectively the "Rents") arising out of or payable from the real property ("Premises") described as follows:

See attached Exhibit A
which is incorporated herein by this reference

and all leases and agreements for the leasing, use or occupancy of the Premises, now heretofore or hereafter entered into, whether oral or written or whether for a definite term or month-to-month, including subleases thereof and tenancies following attornment (collectively "Leases"), together with all guarantees therefor and all renewals, replacements and extensions thereof, together with all payments derived therefrom including, but not limited to, claims for the recovery of damages

Recorded at the request of
FIDELITY NATIONAL TITLE
MAJOR ACCOUNTS
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done to the Premises or for the abatement of any nuisance existing thereon, claims for damages resulting from default under said Leases whether resulting from acts of insolvency or acts of bankruptcy or otherwise, and lump sum payments for the cancellation of said Leases or the waiver of any obligation or term thereof prior to the expiration date and the return of any insurance premiums or ad valorem tax payments made in advance and subsequently refunded, and all security deposits, damage deposits and other funds paid to Assignor by all lessees under the Leases, whether lump sum or in installments, all for the purpose of securing the following (herein collectively referred to as the "Indebtedness Secured Hereby"):

A. Payment of the indebtedness evidenced by that certain Promissory Note (including any extensions, replacements, modifications or renewals thereof) in the principal sum of One Million Five Hundred Thousand No/100 Dollars ($1,500,000.00), dated of even date herewith, executed and delivered by the Assignor and payable to the order of Assignee (the "Note"), secured by a Deed of Trust, Security Agreement and Fixture Filing Statement (referred to herein as the "Deed of Trust") of the same date from Assignor to Assignee covering the Premises, filed for record in the King County Recorder's Office.

B. Payment, performance and discharge of each and every obligation, covenant and agreement of Assignor herein and in said Note, Deed of Trust and any other instrument(s) or document(s) evidencing or securing the indebtedness evidenced by the Note (collectively the "Security Documents").

C. Payment of future advances deemed necessary or desirable by Assignee to protect and preserve the Premises or the Leases or Rents, whether such advances are made pursuant to this Assignment or any other Security Document.

AND TO PROTECT THE SECURITY OF THIS ASSIGNMENT, ASSIGNOR AGREES:

1. Performance of Leases. To faithfully abide by, perform and discharge each and every obligation, covenant and agreement under any Leases of the Premises to be performed by the landlord thereunder; to enforce or secure the performance of each and every obligation, covenant, condition and agreement of said Leases by the tenants thereunder to be performed; not to borrow against, pledge or assign any rentals due under said Leases, or anticipate the Rents thereunder or reduce the amount of the Rents and other payments thereunder; not to waive, excuse, condone or in any manner release or discharge the tenants thereunder of or from the obligations, covenants, conditions and agreements by said tenants to be performed under the Leases or to permit the tenant to assign or sublet its interest in the Lease unless required to do so by the terms of the Lease; not to terminate the Leases or accept a surrender thereof or a discharge of the tenant unless required to do so by the terms of the Lease; and not to consent to a subordination of the interest of the tenants thereunder to any party other than Assignee and then only if specifically required to do so by the Assignee.

2. Subsequent Leases. No new Leases will be executed or Lease extensions, amendments or modifications granted by the Assignor after the date hereof with respect to all or any portion of the Premises without prior written

approval of Assignee as to the standard form, terms and conditions of such Leases or Lease extensions, amendments or modifications.

3. Protect Security. The Assignee shall have the right at Assignor's sole cost and expense, to appear in and defend any action or proceeding arising under, growing out of or in any manner connected with the Leases or the obligations, duties or liabilities of the landlord thereunder, and Assignor agrees to pay all costs and expenses of Assignee, including attorney's fees in a reasonable sum, in any such action or proceeding in which the Assignee in its sole discretion may appear, together with interest at the Default Rate as provided in the Note, from the date incurred or advanced until paid.

4. Representations. Assignor represents and warrants that it is now the absolute owner of said Rents with full right and title to assign the same; that there are no outstanding assignments or pledges of the Leases or Rents; that there are no existing defaults under the provisions of any of the Leases on the part of any party to the Leases; that no Rents have been waived, anticipated, discounted, compromised or released, except as disclosed to Assignee in writing on the rent roll prepared by Assignor and delivered to Assignee contemporaneously herewith; and that the tenants under the Leases have no defenses, setoffs or counterclaims against Assignor.

5. Present Assignment. This Assignment shall constitute a perfected, absolute and present assignment of the Leases and Rents. Assignor shall have the right to collect (but not prior to accrual) all of the Rents, and to retain, use and enjoy the same unless and until a default shall occur in the payment when due of interest or principal under the Note or until any other default shall occur hereunder or under the Note, Deed of Trust or under any other Security Document.

6. Remedies.

(a) Upon or at any time after default in the payment of any Indebtedness Secured Hereby or in the performance of any obligation, covenant or agreement contained herein or in said Note, Deed of Trust or any Security Document or if any representation or warranty herein or given by Assignor in connection with the Indebtedness Secured Hereby proves to be untrue, the Assignee may declare all Indebtedness Secured Hereby immediately due and payable, may revoke the privilege granted Assignor hereunder to collect the Rents, and may, at its option, without notice, either in person or by agent, with or without taking possession of or entering the Premises, with or without bringing any action or proceeding, or by a receiver to be appointed by a court, collect all of the Rents payable under the Leases, enforce the payment thereof and exercise all of the rights of the Assignor under the Leases and all of the rights of the Assignee hereunder, and may enter upon, take possession of, manage and operate said Premises, or any part thereof; may cancel, enforce or modify the Leases, and fix or modify Rents, and do any acts which the Assignee deems proper to protect the security hereof with or without taking possession of said Premises, and may apply the same to the costs and expenses of operation, management and collection,

including reasonable attorney's fees, to the payment of the expenses of any agent appointed by Assignee, to the payment of taxes, assessments, insurance premiums and expenditures for the upkeep of the Premises, to the performance of the landlord's obligation under the Leases and to any Indebtedness Secured Hereby all in such order as the Assignee may determine. The entering upon and taking possession of said Premises, the collection of such Rents, and the application thereof as aforesaid, shall not cure or waive any default or waive, modify or affect notice of default under said Deed of Trust or invalidate any act done pursuant to such notice nor in any way operate to prevent the Assignee from pursuing any remedy which it now or hereafter may have under the terms or conditions of said Deed of Trust or the Note secured thereby or any other Security Document or other instrument securing the same.

(b) Assignee shall have all other rights and remedies available at law or in equity. All rights and remedies provided herein shall be cumulative and concurrent and shall be in addition to the rights and remedies provided Assignee as Beneficiary under the Deed of Trust. The exercise by Assignee of any one of such remedies provided Assignee under this Assignment or under the Deed of Trust shall not be deemed to be exclusive of any one of the other remedies available to Assignee and shall in no way limit or prejudice any other legal or equitable remedies available to Assignee. In the event of any inconsistency between the terms of this Assignment, the Deed of Trust or any of the Security Documents, the terms of the Deed of Trust shall control; however, this provision shall not be deemed to limit, abrogate, restrict or impair any provision contained in this Assignment or in the Security Documents which provides for more extensive or expansive obligations, requirements or restrictions by or upon Assignor or more extensive or expansive rights or remedies of Assignee, than are contained in this Assignment.

7. No Liability for Assignee. The Assignee shall not be obligated to perform or discharge, nor does it hereby undertake to perform or discharge any obligation, duty or liability under the Leases nor shall this Assignment operate to place responsibility for the control, care, management or repair of the Premises upon the Assignee nor for the carrying out of any of the terms and conditions of said Leases; nor shall it operate to make the Assignee responsible or liable for any waste committed on the Premises, or for any dangerous or defective condition of the Premises, or, to the extent allowed by law, for any negligence in the management, upkeep, repair or control of said Premises resulting in loss or injury or death to any tenant, licensee, employee or stranger nor liable for laches or failure to collect the Rents.

8. Assignor Hold Assignee Harmless. The Assignor shall, and does hereby agree, to indemnify and to hold Assignee harmless for, from and against any and all liability, loss or damage which it may or might incur under the Leases or under or by reason of this Assignment and of and from any and all claims and demands whatsoever which may be asserted against it by reason of any alleged obligations or undertakings on its part to perform or discharge any of the terms, covenants or agreements contained in said Leases. Should the

Assignee incur any such liability, or in the defense of any such claims or demands, the amount thereof, including costs, expenses and reasonable attorney's fees, together with interest thereon at the Default Rate provided for in the Note, shall be secured hereby, shall be added to the Indebtedness Secured Hereby, and Assignor shall reimburse the Assignee therefor immediately upon demand, and upon the failure of Assignor to do so, the Assignee may declare all Indebtedness Secured Hereby immediately due and payable.

9. Authorization to Tenant. The tenants under the Leases are hereby irrevocably authorized and directed to recognize the claims of Assignee or any receiver appointed hereunder without investigating the reason for any action taken by the Assignee or such receiver, or the validity or the amount of indebtedness owing to the Assignee, or the existence of any default in the Note, Deed of Trust, any Security Document or under or by reason of this Assignment, or the application to be made by the Assignee or such receiver. Assignor hereby irrevocably directs and authorizes the tenants to pay to Assignee or such receiver all sums due under the Leases and consents and directs that said sums shall be paid to Assignee or such receiver in accordance with the terms of its receivership without the necessity for a judicial determination that a default has occurred hereunder or under the Deed of Trust or that Assignee is entitled to exercise its rights hereunder, and to the extent such sums are paid to Assignee or such receiver, the Assignor agrees that the tenant shall have no further liability to Assignor for the same. The sole signature of the Assignee or such receiver shall be sufficient for the exercise of any rights under this Assignment and the sole receipt of the Assignee or such receiver for any sums received shall be a full discharge and release therefor to any such tenant or occupant of the Premises. Checks for all or any part of the rentals collected under this Assignment shall upon notice from the Assignee or such receiver be drawn to the exclusive order of the Assignee or such receiver.

10. Assignee Attorney-In-Fact. Assignor hereby irrevocably appoints Assignee and its successors and assigns as its agent and attorney in fact, which appointment is coupled with an interest, to exercise any rights or remedies hereunder and to execute and deliver during the term of this Assignment such instruments as Assignee may deem necessary to make this Assignment and any further assignment effective.

11. Subsequent Leases. That until the Indebtedness Secured Hereby shall have been paid in full, Assignor will deliver to the Assignee executed copies of any and all other and future Leases upon all or a part of the said Premises and agrees to make, execute and deliver unto Assignee upon demand and at any time or times, any and all assignments and other instruments sufficient to assign such Leases and the Rents thereunder to Assignee or that the Assignee may deem to be advisable for carrying out the true purposes and intent of this Assignment. From time to time on request of the Assignee, the Assignor agrees to furnish Assignee with a rent roll of the Premises disclosing current tenancies, rents payable, and such other matters as Assignee may reasonably request.

12. No Mortgagee in Possession. Nothing herein contained and no actions taken pursuant to this Assignment shall be construed as constituting the Assignee a "Mortgagee in Possession".

13. Continuing Rights. The rights and powers of Assignee hereunder shall continue and remain in full force and effect until all Indebtedness Secured Hereby, including any deficiency remaining after a foreclosure sale are paid in full, and shall continue after commencement of a foreclosure action (or a trustee's sale) and after foreclosure sale and until expiration of the equity of redemption if the Assignee be the purchaser at the foreclosure sale.

14. Successors and Assigns. This Assignment and each and every covenant, agreement and provision hereof, shall be binding upon the Assignor and its successors and assigns including, without limitation, each and every record owner of the Premises or any other person having an interest therein and shall inure to the benefit of the Assignee and its successors and assigns. As used herein the words "successors and assigns" shall also be deemed to mean the heirs, executors, representatives and administrators of any natural person who is a party to this Assignment.

15. Governing Law. This Assignment is made pursuant to and shall be governed by the laws of the State of Washington.

16. Validity Clause. It is the intent of this Assignment to confer to Assignee the rights and benefits hereunder to the full extent allowable by law. The unenforceability or invalidity of any provision hereof shall not render any other provision or provisions herein contained unenforceable or invalid. Any provisions found unenforceable shall be severable from this Assignment.

17. Notices. Any notice which any party hereto may desire or may be required to give to any other party, shall be effective if made in the same manner for notices given pursuant to the Deed of Trust.

18. Attorney's Fees. Assignor agrees to pay to Assignee upon demand any collection expenses, court costs and reasonable attorneys' fees (whether or not suit is commenced) which may be incurred in the collection or enforcement of this Assignment or any part hereof or any of the Security Documents; and in the event suit is brought to enforce payment hereof, that such expenses, costs and fees be determined by a court sitting without a jury. Attorneys' fees shall include any such fees incurred in any bankruptcy, appellate or related ancillary or supplemental proceedings, whether before or after final judgment related to the enforcement or defense of this Assignment.

19. Security Deposits. The Assignor agrees on demand to transfer to the Assignee any security deposits held by Assignor under the terms of the Leases. Assignor agrees that such security deposits may be held by the Assignee without any allowance of interest thereon to Assignee, shall become the absolute property of the Assignee under any circumstances where Assignee exercises its remedies hereunder, and shall be applied in accordance with the provisions of the Leases. Until Assignee makes such demand and the deposits are paid over to Assignee, the Assignee assumes

no responsibility to the tenants under the Leases for any such security deposit.

20. Perfection. This Assignment shall be deemed perfected, absolute and choate upon the recording of this Assignment.

ASSIGNOR, BY EXECUTION OF THIS ASSIGNMENT, AND ASSIGNEE BY ACCEPTANCE OF THIS ASSIGNMENT, EACH HEREBY IRREVOCABLY WAIVE ALL RIGHTS TO TRIAL BY JURY IN ANY ACTION, PROCEEDING OR COUNTERCLAIM ARISING OUT OF OR RELATING TO THIS ASSIGNMENT AND ANY OTHER LOAN DOCUMENTS, OR THE TRANSACTIONS CONTEMPLATED THEREBY, ANY COURSE OF CONDUCT, COURSE OF DEALING, STATEMENTS (WHETHER VERBAL OR WRITTEN) OR ACTION OF ANY OF THE PARTIES. ASSIGNOR ACKNOWLEDGES THAT THIS WAIVER IS A MATERIAL INDUCEMENT TO HOLDER MAKING THE LOAN WHICH IS THE SUBJECT MATTER OF THIS TRANSACTION. ASSIGNOR FURTHER ACKNOWLEDGES THAT THIS WAIVER HAS BEEN FREELY AND VOLUNTARILY MADE AFTER FULL OPPORTUNITY TO DISCUSS SAME WITH COUNSEL OF ASSIGNOR'S CHOICE.

{Signature Page to Follow}

Unofficial Document

IN WITNESS WHEREOF, Assignor has executed this Assignment on the date set forth below and is effective on the date first set forth above.

ASSIGNOR:

JYS4, LLC,
a Washington limited liability company

By: _____
Demetre H. Pallis
Its: Manager

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

I certify that I know or have satisfactory evidence that Demetre H. Pallis is the person who appeared before me, and said person acknowledged that he signed this instrument, on oath stated that he was authorized to execute the instrument and acknowledged it as the Manager of JYS4, LLC, to be the free and voluntary act and deed of such limited liability company, for the uses and purposes mentioned in the instrument.

WITNESS my hand and official seal hereto affixed on February 24, 2015.

_____
(Signature of Notary)
_____
(Legibly Print or stamp name of Notary)
NOTARY PUBLIC in and for the State of Washington
My Appointment Expires: 10/19/14.

Unofficial Document

Unofficial Document

EXHIBIT A

Legal Description of Property

To Assignment of Rents and Leases

THAT PORTION OF THE FOLLOWING PARCELS LYING WEST OF THE WESTERLY MARGIN OF PRIMARY STATE HIGHWAY NO. 1 (WEST MARGINAL WAY):

LOTS 20 THROUGH 24, INCLUSIVE, BLOCK 5, RIVER PARK, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 7 OF PLATS, PAGE 41, IN KING COUNTY, WASHINGTON;

TOGETHER WITH VACATED BLOCK 1, VACATED ALLEY ADJOINING SAID BLOCK 1 ON THE NORTH, THE NORTH HALF OF VACATED BLOCK 2, VACATED ORCHARD STREET (NOW ROSE STREET) LYING BETWEEN SAID BLOCK 1 AND BLOCK 2, AND THE NORTH HALF OF VACATED ALLEY ADJOINING LOTS PLATTED AS LOTS 1 THROUGH 13, INCLUSIVE, BLOCK 2, ALL IN SOUTH PARK, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 4 OF PLATS, PAGE 87, IN KING COUNTY, WASHINGTON.

SITUATE IN THE CITY OF SEATTLE, COUNTY OF KING, STATE OF WASHINGTON.

Unofficial Copy

20150420000010
US BANK FR 72.00
PAGE-001 OF 001
04/20/2015 08:21
KING COUNTY, WA

When Recorded, Mail To:
JYS4, LLC
1845 72ND AVENUE SE
MERCER ISLAND WA 98040

DEED OF RECONVEYANCE

Prepared by: Marsha Heath File #55-849299-18 Ctr #0013302

U.S. Bank Trust Company, National Association, whose address is 800 Nicollett Mall, Minneapolis, MN 55402, trustee under that certain Washington Deed of Trust, Security Agreement and Assignment of Rents and Leases (Including Fixture Filing Under Uniform Commercial Code) ("Trust Deed"), executed and delivered by JYS4, LLC whose address is 1845 72ND AVENUE SE, MERCER ISLAND WA 98040, as grantor, dated as of December 7, 2012, recorded on December 7, 2012 as No. 20121207001977, Book n/a, Page n/a, in the Mortgage Records of King County, Washington.

Having received from the beneficiary, U.S. Bank National Association, whose address is 800 Nicollett Mall, Minneapolis, MN 55402, under said Trust Deed a written request to reconvey, reciting that the obligation(s) secured by said Trust Deed has been fully paid and performed, hereby does grant, bargain, sell and convey, but without any covenant or warranty, express or implied, to the person or persons legally entitled thereto, all of the estate held by the undersigned in and to said premises by virtue of said Trust Deed.

IN WITNESS WHEREOF, the undersigned trustee has executed this Deed as of April 8, 2015.

TRUSTEE
U.S. Bank Trust Company, National Association
BY: Tracy Kraus
Tracy Kraus, Assistant Commercial Officer

State of OREGON
County of Multnomah

This instrument was acknowledged before me on this 8th day of April, 2015 by Tracy Kraus, Assistant Commercial Officer of U.S. Bank Trust Company, National Association.

Peggy E. Klink
Notary Public for the State of OREGON

OFFICIAL STAMP
PEGGY EILEEN KLINK
NOTARY PUBLIC - OREGON
COMMISSION NO. 928079
MY COMMISSION EXPIRES MAY 20, 2018

RECORDING REQUESTED BY;
REJECTIONS TO BE RETURNED TO:
U.S. Bank, Lending & Foreign Exchange Services
P.O. Box 5308
Portland, OR 97228

This Indenture, Made the 14th day of April A. D. 19~~xx~~ 1964,

between JACK D. PORTER as Sheriff of King County, State of Washington,

party of the first part, and John Mucklestone

the party of the second part:

WITNESSETH, That, whereas, by virtue of a writ of execution issued out of and under the seal of the Superior Court of King County, State of Washington, holding terms at Seattle, dated the 13th day of February, 1963, ~~xxx~~, upon a judgment recovered in said Court on the 13th day of February, 1963, ~~xxx~~, in favor of the plaintiff and against the defendants, in Cause No. 596147 of said Court, entitled

General Electric Credit Corporation, Plaintiff, vs. Dale K. Adams, and the marital community composed of Dale K. Adams and Diane E. Adams, and Hugh Neideffer and Jane Doe Neideffer, his wife, d/b/a Pyramid Company, a partnership, Defendants,

to the Sheriff of King County, Washington, directed and delivered, commanding him to levy upon, seize and take into execution the personal property of said Dale K. Adams and the marital community composed of Dale K. Adams and Diane E. Adams, in said King County and make sale thereof according to law; and if sufficient personal property could not be found, then to make the amount of said judgment, interest and increased interest, costs and increased costs, out of real property of said defendants, not exempt by law, and after diligent search and inquiry said Sheriff was unable to find any personal property of said defendants and thereupon said Sheriff by virtue of said writ of execution duly levied upon and sold, pursuant to due and legal notice of sale first given, at public auction on the 5th day of April, 1963, ~~xxx~~, between the hours of 9 o'clock in the morning and 4 o'clock in the afternoon of that day to wit:—at the hour of ten o'clock A. M., in front of the King County Court House door, in the City of Seattle, King County, State of Washington, all the lands and premises hereinafter described, at which sale said lands and premises were struck off and sold to John Mucklestone

for the sum of Fifty and no/100 ($50.00) - Dollars, lawful money of the United States of America, he being the highest bidder, and said sum of money being the highest and best sum bid therefor. And said Sheriff, after receiving from said purchaser said sum of money so bid, gave to said John Mucklestone such certificate of purchase as is required by law to be given.

AND, WHEREAS, on the 26th day of April, 1963, ~~xxx~~, said Superior Court, by an order duly made and entered of record, confirmed said sale.

5723695

NOW THEREFORE, The said party of the first part, by virtue of said writ of execution, and of said order of confirmation, and in pursuance of the statute in such case made and provided, and for and in consideration of said sum of money paid to Donald R. Sprinkle, the then Sheriff, as aforesaid, by said purchaser at said sale has granted, bargained, sold, conveyed and confirmed, and by these presents does grant, bargain, sell, convey and confirm, unto the said party of the second part, and to his heirs and assigns forever, all those certain lots, pieces or parcels of land, situate, lying and being in King County, State of Washington, bounded and described as follows, to-wit:

That portion of north half of vacated block 2 and south half of vacated Rose Street formerly Orchard Street adjoining, South Park, according to plat recorded in volume 4 of plats, page 87, in King County, Washington; EXCEPT portion conveyed to State of Washington by deed recorded under auditor's file No. 4852649; and EXCEPT the east 70 feet of the north 91 feet thereof;

together with all and singular the tenements, hereditaments and appurtenances thereto belonging.

TO HAVE AND TO HOLD the said premises, with the appurtenances, unto the said party of the second part and to his heirs and assigns forever, as fully and absolutely as said Sheriff can, may or ought to by virtue of said writ, order of confirmation, and the statute in such case made and provided, grant, bargain, sell, convey and confirm the same.

IN WITNESS WHEREOF, the said party of the first part has hereunto set his hand and seal the day and year first above written.

Signed, Sealed and Delivered in presence of

[illegible]

[illegible]

[illegible] SEAL

Sheriff of King County, State of Washington.

State of Washington,
County of King. } ss.

I, William A. Johnston, Deputy County Auditor of King County, State of Washington, duly appointed and sworn, residing at Seattle, in said State, do hereby certify that on this 14th day of April, 1964, ~~19~~, personally appeared before me JACK D. PORTER, to me known to be the individual described in and who, as Sheriff of King County, State of Washington, executed the foregoing instrument, and acknowledged to me that he signed and sealed said instrument as his free and voluntary act and deed for the uses and purposes therein mentioned.

Given under my hand and official seal this 14th day of April, 1964, ~~19~~

KING COUNTY AUDITOR'S SEAL STATE OF WASHINGTON

William A. Johnston

Deputy County Auditor for King County, Washington, residing at Seattle.

Filed for record Apr 15 1964 2:47 p.m.
at request of John Trumbull
ROBERT A. MORRIS, County Auditor

5649069

VOL 4630 PAGE 93

LAWYERS
TITLE INSURANCE
CORPORATION
SEATTLE, WASHINGTON

Filed for Record at Request of

NAME OFELL H. JOHNSON

ADDRESS 900 United Pacific Building

CITY AND STATE Seattle, Washington 98104

FOR RECORD AT THE REQUEST OF
LAWYERS TITLE INSURANCE CORPORATION
SECOND AVENUE SEATTLE 1, WASHINGTON

THIS SPACE RESERVED FOR RECORDER'S USE
VOL. RECORDED
PAGE
REQUEST OF
1965 MAR 1 AM 8 30
ROBERT A. MORRIS AUDITOR
KING COUNTY WASH.
DEPUTY

OHJ:brm

Form L14

Quit Claim Deed

THE GRANTOR, DIANE E. ADAMS, a single woman,

for and in consideration of to clear title

conveys and quit claims to ALBERT HUGHES and IVA HUGHES, his wife,

the following described real estate, situated in the County of King, State of Washington, including any after acquired title:

That portion of the north half of vacated Block 2, South Park, according to plat recorded in Volume 4 of Plats, Page 87, records of King County, Washington; and south half of vacated Rose Street, formerly Orchard Street, adjoining, and also the north half of vacated alley adjoining lots platted as Lots 1 through 13 inclusive, all lying westerly of the southwesterly margin of that tract of land conveyed to State of Washington for Pacific Highway No. 1, under instrument recorded under Auditor's File No. 4965539.

This deed is executed and delivered for the purpose of clearing title to the above-described real estate which was included in an erroneous description of property described in deed filed of record as King County Auditor's File No. 5449710 and in subsequently recorded documents.

Dated this 24th day of February 1965.

NO SALES TAX REQUIRED
AFF. No. 584348
FEB 25 1965
M. J. R. WILLIAMS
King County Wash.
By

Diane E. Adams (SEAL)

(SEAL)

STATE OF WASHINGTON

County of KING

On this 24th day of February 1965, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared

DIANE E. ADAMS,

to me known to be the individual described in and who executed the foregoing instrument, and acknowledged to me that she signed and sealed this said instrument as her free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 24th day of February 1965.

H. O'KEEFE
NOTARY PUBLIC
STATE OF WASHINGTON
COMMISSION EXPIRES MAY 20, 1967

Notary Public in and for the State of Washington, residing at

VOL 4630 PAGE 92

5349068

5349068

LAWYERS
TITLE INSURANCE
CORPORATION
SEATTLE, WASHINGTON

Filed for Record at Request of

Mail to

NAME OFELL H. JOHNSON

ADDRESS 900 United Pacific Building

CITY AND STATE Seattle, Washington 98104

FILED FOR RECORD AT THE REQUEST OF
LAWYERS TITLE INSURANCE CORPORATION
1108 SECOND AVENUE, SEATTLE 1, WASHINGTON

THIS SPACE RESERVED FOR RECORDER'S USE

RECORDED
VOL. ..... PAGE ..... REQUEST OF

1965 MAR 1 AM 8 30

ROBERT A. MORRIS AUDITOR
KING COUNTY, WASH.
DEPUTY

OHJ:brm

Form L14

Quit Claim Deed

THE GRANTORS, DALE K. ADAMS and ARLENE R. ADAMS, his wife,

for and in consideration of to clear title

convey and quit claim to ALBERT HUGHES and IVA HUGHES, his wife,

the following described real estate, situated in the County of King, State of Washington, including any after acquired title:

That portion of the north half of vacated Block 2, South Park according to plat recorded in Volume 4 of Plats, Page 87, records of King County, Washington; and south half of vacated Rose Street, formerly Orchard Street adjoining, and also the north half of vacated alley adjoining lots platted as Lots 1 through 13 inclusive, all lying westerly of the southwesterly margin of that tract of land conveyed to State of Washington for Pacific Highway No. 1, under instrument recorded under Auditor's File No. 4965539.

This deed is executed and delivered for the purpose of clearing title to the above-described real estate which was included in an erroneous description of property described in deed filed of record as King County Auditor's File No. 5449710 and in subsequently recorded documents.

Dated this 24th February 1965.

NO SALES TAX REQUIRED
AFF. No. .....
FEB 25 1965
MARY E. WILLIAMS
King County, Washington

Dale K. Adams (SEAL)

Arlene R. Adams (SEAL)

STATE OF WASHINGTON,

County of KING

On this 24th day of February 1965, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared DALE K. ADAMS and ARLENE R. ADAMS,

to me known to be the individual described in and who executed the foregoing instrument, and acknowledged to me that they signed and sealed this said instrument as their free and voluntary act and deed for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 24th day of February 1965.

H. C. KEEFE NOTARY PUBLIC STATE OF WASHINGTON COMMISSION EXPIRES FEB 22 1967

Notary Public in and for the State of Washington, residing at

5849067

VOL 4630 PAGE 91

LAWYERS
TITLE INSURANCE
CORPORATION
SEATTLE, WASHINGTON

Filed for Record at Request of

NAME OFELL H. JOHNSON

ADDRESS 900 United Pacific Building

CITY AND STATE Seattle, Washington 98104

FILED FOR RECORD AT THE REQUEST OF
LAWYERS TITLE INSURANCE CORPORATION
1208 SECOND AVENUE, SEATTLE 1, WASHINGTON

THIS SPACE RESERVED FOR RECORDER'S USE
RECORDED
VOL.
PAGE
REQUEST OF
1965 MAR 1 AM 8 30
ROBERT A. MORRIS AUDITOR
KING COUNTY WASH.
DEPUTY

OHJ:brm

Form L14

Quit Claim Deed

THE GRANTOR S, JOHN P. MUCKLESTONE and PATRICIA J. MUCKLESTONE, his wife,

for and in consideration of to clear title

convey and quit claim to ALBERT HUGHES and IVA HUGHES, his wife,

the following described real estate, situated in the County of King, State of Washington, including any after acquired title:

That portion of the north half of vacated Block 2, South Park, according to plat recorded in Volume 4 of Plats, Page 87, records of King County, Washington; and south half of vacated Rose Street, formerly Orchard Street adjoining, and also the north half of vacated alley adjoining lots platted as Lots 1 through 13 inclusive, all lying westerly of the southwesterly margin of that tract of land conveyed to State of Washington for Pacific State Highway No. 1, under instrument recorded under Auditor's File No. 4965539.

This deed is executed and delivered for the purpose of clearing title to the above-described real estate which was included in an erroneous description of property described in deed filed of record as King County Auditor's File No. 5449710 and in subsequently recorded documents.

Dated this 9th day of February 1965.

NO SALES TAX REQUIRED
AFF. No. 55 13347
FEB 25 1965
M. R. WILLIAMS
COUNTY TREAS.

John P. Mucklestone (SEAL)

Patricia J. Mucklestone (SEAL)

STATE OF WASHINGTON

County of KING

On this 9th day of February 1965, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared JOHN P. MUCKLESTONE AND PATRICIA J. MUCKLESTONE,

to me known to be the individuals described in and who executed the foregoing instrument, and acknowledged to me that they signed and sealed this said instrument as their free and voluntary act and deed for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 9th day of February 1965.

LENORE CONNERS NOTARY PUBLIC

Lenore Conners
Notary Public in and for the State of Washington, residing at Seattle.

MAR-10-65 00423 5853099 — — DF 2.00

5853099

LAWYERS
TITLE INSURANCE
CORPORATION
SEATTLE, WASHINGTON

Filed for Record at Request of

NAME Bell H. Johnson
ADDRESS 400 Western Pacific Bldg
CITY AND STATE Seattle, Wash 98104

THIS SPACE RESERVED FOR RECORDER'S USE

No. 4633 479

RECORDED
VOL.
PAGE
REQUEST OF
10 3 25
KING COUNTY WASH.
DEPUTY

OHJ:brm

Statutory Warranty Deed

THE GRANTORS, ALBERT HUGHES and IVA F. HUGHES, his wife,

for and in consideration of TEN DOLLARS ($10.00)

in hand paid, conveys and warrants to CLEM LaVOY and OPAL LaVOY, his wife, and SAFE INVESTMENT CO., a Washington corporation, State of Washington, the following described real estate, situated in the County of King

That portion of the north half of vacated Block 2, South Park according to plat recorded in Volume 4 of Plats, Page 87, records of King County, Washington; and south half of vacated Rose Street, formerly Orchard Street adjoining, and also the north half of vacated alley adjoining lots platted as Lots 1 through 13 inclusive, all lying westerly of the southwesterly margin of that tract of land conveyed to State of Washington for Pacific Highway No. 1, under instrument recorded under Auditor's File No. 4965539.

Subject to general taxes for the year 1965 in the amount of $48.03 and subject also to relinquishment of right of access to State Highway and of light, view and air under terms of deed to the State of Washington, recorded November 14, 1958 under Auditor's File No. 4965539

SALES TAX LIEN
PAID
MAR 10 1965
M. J. O. WILLIAMS
KING COUNTY TREASURER
BY O'Brien
REF. No. 15455

Dated this 8th day of March 1965.

Albert Hughes (SEAL)

Iva F. Hughes (SEAL)

STATE OF WASHINGTON
County of KING

On this 8th day of March 1965, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared ALBERT HUGHES and IVA F. HUGHES,

to me known to be the individuals described in and who executed the foregoing instrument, and acknowledged to me that they signed and sealed this said instrument as their free and voluntary act and deed for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 8th day of March 1965.

Notary Public in and for the State of Washington, residing at Seattle.

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2.00

QUIT CLAIM DEED

RECORDED
VOL. ..... PAGE ..... REQUEST OF

6040462

1966 JUN 10 PM 2 10

ROBERT A. MORRIS AUDITOR
KING COUNTY, WASH.
BY ..... DEPUTY

WASHINGTON TITLE INSURANCE COMPANY
SEATTLE, WASHINGTON

FILED for Record at Request of
Name Kenneth Alfred Arnold
Address 15th floor, Hoge Bldg
Seattle, Wash. 98104

Mail to

Send Tax Statement to

JUN-10-66 00343 6040462 — RF

FORM LS8 R

Quit Claim Deed

THE GRANTOR DAVID W. DAVIS

for and in consideration of No consideration

conveys and quit claims to PATRICIA G. DAVIS

the following described real estate, situated in the County of King

State of Washington including any interest therein which grantor may hereafter acquire:

That portion of the north half of vacated Block 2, South Park according to plat recorded in Volume 4 of Plats, page 87, records of King County, Washington; and south half of vacated Rose Street, formerly Orchard Street adjoining, and also the north half of vacated alley adjoining lots platted as Lots 1 through 13 inclusive, all lying westerly of the southwesterly margin of that tract of land conveyed to State of Washington for Pacific Highway No. 1, under instrument recorded under Auditor's File No. 4965539.

This Deed is given to carry out the provisions of that certain divorce decree entered under Cause No. 652,476 in King County, Washington on June 1, 1966. No consideration has been paid and no tax is due.

Notice SALES TAX REQUIRED
AFF. No. 163788
JUN 10 1966
M. J. R. WILLIAMS
COUNTY AUDITOR
STATE OF WASHINGTON

Dated this 1st day of June, 1966.

David W. Davis (SEAL)

..... (SEAL)

County of King } ss.

On this day personally appeared before me DAVID W. DAVIS to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that he signed the same as his free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 1st day of June, 1966.

John E. Wickus

Notary Public in and for the State of Washington, residing at Seattle.

5160 144 6425098

No. 39658

TREASURER'S DEED

STATE OF WASHINGTON
County of King

THIS INDENTURE, *Made this* 21st *day of* October *19* 68 *between* M. J. R. WILLIAMS *as treasurer of King County, State of Washington, the party of the first part, and* RUBY M. NEWTON
2132 5th Ave., Seattle, Washington
party of the second part.

WITNESSETH, *That whereas, at a public sale of real estate, held on the* 25th *day of* September *A. D., 19*68*, pursuant to an order of the Board of County Commissioners of the County of King, State of Washington, duly made and entered, and after having first given due notice of the time, the place and terms of said sale, and whereas, in pursuance of said order of the said Board of County Commissioners, and the laws of the State of Washington, and for and in consideration of the sum of* TWENTY SEVEN THOUSAND AND NO/100--------($27,000.00)----- *DOLLARS, lawful money of the United States of America, to me in hand paid, the receipt whereof is hereby acknowledged, I have this day sold to* RUBY M. NEWTON, Successor in interest of Rex P. Newton, *the following described real estate, and which said real estate is the property of King County, and which is particularly described as follows, to-wit:*

Vacated Lots 39, 40, 41, 42, 43, 44, 85, 86, 87, 88 and portion vacated street and alley adj., Block 2, ALSO
Vacated Lots 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 and portion vacated street and alley adjoining, less portion to State of Washington, Block 3,
SOUTH PARK

the said --RUBY M. NEWTON, Successor in interest of Rex P. Newton *being the highest and best bidder at said sale, and the said sum being the highest and best sum bid at said sale.*

NOW, THEREFORE, *know ye that I,* M. J. R. WILLIAMS, *County Treasurer of said County of King, State of Washington, in consideration of the premises and by virtue of the statutes of the State of Washington, in such cases made and provided, do hereby grant and convey unto* --------
RUBY M. NEWTON, her--------- *heirs and assigns, forever, the said real estate hereinbefore described, as fully and completely as the said party of the first part can by virtue of the premises convey the same.*

Given under my hand and the seal of office this 21st *day of* October *A. D. 19*68

M. J. R. WILLIAMS
County Treasurer
By Charles A. Wright Deputy

Filed for Record Oct 24 1968 11 38
Request of Ruby M. Newton
ROBERTA MORRIS, County Auditor

SECURITY TITLE INSURANCE

Filed for Record at Request of

MAIL TO:
NAME SECURITY TITLE
ESCROW DEPT.
ADDRESS
ESCROW # 3464ARS
CITY AND STATE

FILED for Record at Request of
SECURITY TITLE INS CO.
SEATTLE, WASH.

STATUTORY

THIS SPACE RESERVED FOR RECORDER'S USE
RECORDED
REQUEST OF
1973 FEB 15 AM 8 00
ELECTRONIC, KING CO. WN
DEPUTY

7302150006

THE GRANTOR MARCIA N. CAGLE, formerly MARCIA N. SATHER, as her separate estate, CLEM LaVOY and OPAL LaVOY, his wife, and SAFE INVESTMENT CO., a corporation

for and in consideration of Ten Dollars and other good and valuable consideration

in hand paid, conveys and warrants to RUBY M. NEWTON, a single woman

as Grantee, the following described real estate, situated in the County of King State of Washington

Vacated Lots 31 to 38, inclusive, together with north half of vacated street adjoining and together with the south half of vacated alley adjoining all in vacated Block 2 and vacated Lots 17 to 21 inclusive, together with south half of vacated street adjoining also together with north half of vacated alley adjoining all in vacated Block 3, ALL in South Park, according to plat recorded in Volume 8 of Plats, page 87, records of King County, Washington;
EXCEPT that portion conveyed for street purposes by instrument recorded under Auditor's File No. 3186086, and
EXCEPT portion taken for West Marginal Way under King County Superior Court Cause No. 518467, and
EXCEPT all that portion of the following described parcel "A" lying northeasterly of a line drawn parallel with and 90 feet southwesterly, when measured at right angles from the centerline of Primary State Highway No. 1, South 112th Street to Jct. SR-1-K,
PARCEL "A": Lots 17 to 21 inclusive, ALL in vacated Block 3, South Park, according to plat recorded in Volume 8 of Plats, page 87, in King County Washington, EXCEPT the South 31 feet of said lots 17 to 21 inclusive, and EXCEPT the North half of vacated alley adjoining said vacated Block 3;
EXCEPT those portions thereof lying within West Marginal Way; and
EXCEPT that portion thereof condemned by the State of Washington for highway purposes in King County Superior Court Cause No. 518467 conveyed by deed recorded under Auditor's File No. 5320161.

Grantor reserves an easement over said vacated Lots 31 through 38, inclusive, in vacated Block 2 of South Park and the south half of the vacated alley adjoining to connect with drain over said land by connecting with drain pipe and extending connection over the north line of said land into land adjoining on the north owned by the grantors, Clem LaVoy and Opal LaVoy, his wife, and Safe Investment Co., a corporation.

Recorder's Note: Parts of instrument not dark enough for microfilm.

Legal description attached.

SUBJECT TO: Lease recorded under Recording No. 5336584; Relinquishment of all existing, future or potential easements for access, light, view and air, and all rights of ingress, egress and regress to, from and between said premises and the highway or highways to be constructed on lands condemned by proceedings under King County Superior Court Cause No. 515467 to State of Washington; and, Relinquishment of all existing, future or potential easements for access, light, view and air, and all rights of ingress, egress and regress to, from and between said premises and the highway or highways to be constructed on lands conveyed by Deed recorded under Recording No. 5320164 to The State of Washington.

Dated this 17th day of January, 1973

Safe Investment Co., a corporation

By [illegible] H. Johnson

Harold N. Cagle

Clem LaVoy (SEAL)

Opal LaVoy

STATE OF WASHINGTON } ss.

On this day of January, 1973, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared

Clem LaVoy and Opal LaVoy

to me known to be the individuals described in and who executed the foregoing instrument, and acknowledged to me that they signed and sealed the said instrument as their free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this day of January, 1973

Notary Public in and for the State of Washington, residing at Seattle

SALES TAX PAID FEB 4 1973

TL-1 3/67

STATE OF WASHINGTON
County of King } ss.

On this 19 day of January, 1973, before me personally appeared Tom W. Jayne, who executed the within instrument as Attorney in Fact for Marcia N. Cagle and acknowledged to me that he signed and sealed the same as his free and voluntary act and deed as attorney in fact for Marcia N. Cagle for the uses and purposes therein mentioned, and on oath stated that the power of attorney authorizing the execution of this instrument has not been revoked and that the said Marcia N. Cagle is now living, and is not insane.

Given under my hand and official seal the day and year last above written.
(Seal)

Arthur S. Quigley
(Signature)

Notary Public in and for the State of Washington, residing at Seattle

TL-1 1/63 Security Title Insurance Company of Washington – ACKNOWLEDGMENT – ATTORNEY IN FACT

STATE OF WASHINGTON,
County of King } ss.

On this 19 day of January A. D., 1973 before me personally appeared Odell L. Johnson and Tom W. Jayne, to me known to be the President and Secretary, respectively, of the corporation that executed the within and foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said corporation for the uses and purposes herein mentioned, and on oath stated that they were authorized to execute said instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

Arthur S. Quigley

Notary Public in and for the State of Washington, residing at Seattle

TL-38 1/66 Security Title Insurance Company of Washington – ACKNOWLEDGMENT – CORPORATION

7302150028

RECORDED ... REQUEST OF

Filed for Record 1974 JAN 10 AM 8 00

ELE... KING CO. WN
DEPUTY

NAME

ADDRESS FILED for Record at Reque... of SAFECO TITLE INS. CO.

CITY AND STAT SEATTLE, WASH.

FILED for Record at Request of
SECURITY TITLE INS CO.
SEATTLE, WASH.

STATUTORY

SECURITY TITLE INSURANCE COMPANY

THIS SPACE RESERVED FOR RECORDER'S USE

1973 FEB 15 AM 8 00

430

THE GRANTOR MARCIA E. CACIK, formerly MARCIA N. SATHER, as her separate estate, CLEM LaVOY and OPAL LaVOY, his wife, and SAFE INVESTMENT CO., a corporation

for and in consideration of Ten Dollars and other good and valuable consideration

in hand paid, conveys and warrants to RUBY M. NEWTON, a ... widow

as Grantee, the following described real estate, situated in the County of King State of Washington

Vacated Lots 33 to 38, inclusive, together with north half of vacated street adjoining and together with the south half of vacated alley adjoining all in vacated Block 2 and vacated Lots 17 to 21 inclusive, together with south half of vacated street adjoining and together with north half of vacated alley adjoining all in vacated Block 3, ALL in South Park, according to plat recorded in Volume 4 of Plats, page 87, records of King County, Washington;
EXCEPT that portion conveyed for street purposes by instrument recorded under Auditor's File No. 3186886, and
EXCEPT portion taken for West Marginal Way under King County Superior Court Cause No. 515467, and
EXCEPT the south 31 feet of said lots 17 to 21, inclusive, and
EXCEPT the North half of vacated alley adjoining said vacated Block 3;
EXCEPT those portions thereof lying within West Marginal Way; and
EXCEPT that portion thereof condemned by the State of Washington for highway purposes in King County Superior Court Cause No. 515467 conveyed by deed recorded under Auditor's File No. 5320164;
EXCEPT all that portion of the following described Parcel "A" lying northeasterly of a line drawn parallel with and 90 feet southwesterly, when measured at right angles from the centerline of Primary State Highway No. 1, South 118th Street to Jct. SSH-1-K,
PARCEL "A": Lots 17 to 21 inclusive, ALL in vacated Block 3, South Park, according to plat recorded in Volume 4 of Plats, page 87, in King County, Washington.

NO SALES TAX
Aff. No. 127066
JAN - 9 1974
OFFICE OF THE COMPTROLLER
King County, Washington
By ... Deputy

Grantor reserves an easement over said vacated lots 33 through 38, inclusive, in vacated Block 2 of South Park and the south half of the vacated alley adjoining to connect with drain over said land by connecting with drain pipe and extending connection over the north line of said land into land adjoining on the north owned by the grantors, Clem LaVoy and Opal LaVoy, his wife, and Safe Investment Co., a corporation.

Legal description attached.

SUBJECT TO: Lease recorded under Recording No. 5336584; Relinquishment of all existing, future or potential easements for access, light, view and air, and all rights of ingress, egress and regress to, from and between said premises and the highway or highways to be constructed on lands condemned by proceedings under King County Superior Court Cause No. 513467 to State of Washington; and, Relinquishment of all existing, future or potential easements for access, light, view and air, and all rights of ingress, egress and regress to, from and between said premises and the highway or highways to be constructed on lands conveyed by Deed recorded under Recording No. 5320164 to The State of Washington.

Dated this 17th day of January, 1973

Sice Investment Co., a corporation

Lucile N. Cagle

Clem LaVoy (SEAL)

Opal LaVoy

STATE OF WASHINGTON } ss.

On this day of January, 1973, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared

Clem LaVoy and Opal LaVoy

to me known to be the individuals described in and who executed the foregoing instrument, and acknowledged to me that they signed and sealed the said instrument as their free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this day of January, 1973

Notary Public in and for the State of Washington, residing at Seattle

SALES TAX PAID
FEB 24 1973
R. WILLIAMS

STATE OF WASHINGTON
} ss.
County of King

On this 19 day of January, 1973, before me personally appeared [illegible], who executed the within instrument as Attorney in Fact for Harold N. Cogle and acknowledged to me that he signed and sealed the same as his free and voluntary act and deed as attorney in fact for Harold N. Cogle for the uses and purposes therein mentioned, and on oath stated that the power of attorney authorizing the execution of this instrument has not been revoked and that the said, Harold N. Cogle is now living, and is not insane.

Given under my hand and official seal the day and year last above written.
(Seal)

(Signature)

Notary Public in and for the State of Washington, residing at Seattle

YL-37 1/68 Security Title Insurance Company of Washington – ACKNOWLEDGMENT – ATTORNEY IN FACT

STATE OF WASHINGTON,
} ss.
County of King

On this 19 day of January A. D., 1973 before me personally appeared Opal H. Johnson [illegible], to me known to be the President and Secretary, respectively, of the corporation that executed the within and foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said corporation for the uses and purposes therein mentioned, and on oath stated that they were authorized to execute said instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

Notary Public in and for the State of Washington, residing at Seattle

YL-35 1/68 Security Title Insurance Company of Washington – ACKNOWLEDGMENT – CORPORATION

Pioneer National Title Insurance Company
WASHINGTON TITLE DIVISION

REAL ESTATE CONTRACT

CORPORATE FORM

Recorded 8/14/71
King Co. Aud. # 7108190138

932083

311028-11

THIS CONTRACT, made and entered into this 12th day of August 1971

between O·N·C MOTOR FREIGHT SYSTEM, a California corporation,

hereinafter called the "seller," and RUBY M. NEWTON, a widow,

hereinafter called the "purchaser,"

WITNESSETH: That the seller agrees to sell to the purchaser and the purchaser agrees to purchase from the seller the following described real estate, with the appurtenances, in King County, State of Washington:

See legal description hereto attached and by this reference incorporated herein

7404100032

The terms and conditions of this contract are as follows: The purchase price is EIGHTY-EIGHT THOUSAND FIVE HUNDRED TEN and no/100 ---------- ($ 88,510.00) Dollars, of which Twenty-Five Thousand and no/100 ---------- ($ 25,000.00) Dollars have been paid, the receipt whereof is hereby acknowledged, and the balance of said purchase price shall be paid as follows:

Five Hundred Dollars ---------- ($500.00) Dollars, or more at purchaser's option, on or before the 1st day of September, 19 71, and Five Hundred Dollars ---------- ($500.00) Dollars, or more at purchaser's option, on or before the 1st day of each succeeding calendar month until the balance of said purchase price shall have been fully paid. The purchaser further agrees to pay interest on the diminishing balance of said purchase price at the rate of seven (7) per cent per annum from the 1st day of August, 19 71, which interest shall be deducted from each installment payment and the balance of each payment applied in reduction of principal. All payments to be made hereunder shall be made at 2800 Bayshore Road, Palo Alto, California 94303 or at such other place as the seller may direct in writing.

Notwithstanding other provisions herein to the contrary, the purchase price shall, however, in any event be paid in full, including interest, within seven (7) years, six (6) months hereof, namely, by February 1, 1979, except under provision of balloon payment waiver provisions below described.

See Rider hereto attached for additional provisions hereof.

NO SALES TAX
K056400
APR 9 1974

SALES-TAX-PAID
E153210
AUG 12 1971

As referred to in this contract, the date shall be August 1, 1971

(1) The purchaser agrees to pay before delinquency all taxes and assessments that may as between the parties hereto become a lien on said real estate; and if by the terms of this contract the purchaser has assumed payment of [illegible] contract or other [illegible] payment of or agreed to purchase subject to, any taxes or assessments [illegible] real estate, the purchaser [illegible] the same before delinquency.

(2) The [illegible] purchase price is fully paid, to keep the buildings now and hereafter placed [illegible] insured to the [illegible] or damage by both fire and windstorm in a company acceptable [illegible] the seller's be[illegible] to pay all premiums therefor and to deliver all policies and [illegible] the seller.

(3) The purchaser agrees that full inspection of said real estate has been made and that neither the seller nor his assigns [illegible] to any covenant respecting the condition of any improvements thereon nor shall the purchaser or seller or the assigns of either be held to any covenant or agreement for alterations, improvements or repairs unless the covenant or agreement relied on is contained herein or is in writing and attached to and made a part of this contract.

(4) The purchaser assumes all hazards of damage to or destruction of any improvements now on said real estate or hereafter placed thereon, and of the taking of said real estate or any part hereof for public use, and agrees that such damage, destruction or taking shall constitute a failure of consideration. In case any part of said real estate is taken for public use, the portion of the condemnation award remaining after payment of reasonable expenses of procuring the same shall be paid to the seller and applied as payment on the purchase price herein unless the seller elects to allow the purchaser to apply all or a portion of such condemnation award to the rebuilding or restoration of any improvements destroyed by such taking. In case of damage or destruction from a peril insured against, the proceeds of such insurance remaining after payment of the reasonable expense of procuring the same shall be devoted to the restoration or rebuilding of such improvements within a reasonable time, unless purchaser elects that said proceeds shall be paid to the seller for application on the purchase price herein.

(5) The seller has delivered, or agrees to deliver within 15 days of the date of closing, a purchaser's policy of title insurance in standard form or a commitment therefor issued by Pioneer National Title Insurance Company, insuring the purchaser to the full amount of said purchase price against loss or damage by reason of defect in seller's title to said real estate as of the date of closing and containing no exceptions other than the following:

a. Printed exceptions of the standard coverage policy form;

b. Liens or encumbrances which by the terms of this contract the purchaser is to assume, or as to which the conveyance hereof is to be subject; and

c. Rights of tenants, if any, in possession of said real estate, and any mortgage or other obligation which [illegible] by the purchaser (s) shall be deemed defects or objections [illegible]

Recorder's Note: Portions of this document poor quality for filming.

[illegible]

See legal description hereto attached

7404100032

(8) Unless a different date is provided for herein, the purchaser shall be entitled to possession of said real estate as of date of closing and to retain possession so long as purchaser is not in default hereunder. The purchaser covenants to keep the buildings and other improvements on said real estate in good repair and not to permit waste and not to use or permit the use of the real estate for any illegal purpose. The purchaser covenants to pay all service, installation or connection charges for water, power, electricity, gas or other utility services furnished to said real estate after the date purchaser is entitled to possession.

(9) In case the purchaser fails to make any payment herein provided or to maintain insurance, as herein required, the seller may make such payment or effect such insurance, and any amounts so paid by the seller, together with interest at the rate of 10% per annum thereon from date of payment until repaid, shall be repayable by purchaser on seller's demand, all without prejudice to any other right the seller might have by reason of such default.

(10) Time is of the essence of this contract, and it is agreed that in case the purchaser shall fail to comply with or perform any condition or agreement hereof or to make any payment required hereunder promptly at the time and in the manner herein required, the seller may elect to declare all the purchaser's rights hereunder terminated, and upon his doing so, all payments made by the purchaser hereunder and all improvements placed upon the real estate shall be forfeited to the seller as liquidated damages, and the seller shall have right to re-enter and take possession of the real estate; and no waiver by the seller of any default on the part of the purchaser shall be construed as a waiver of any subsequent default.

Service upon purchaser of all demands, notices or other papers with respect to forfeiture and termination of purchaser's rights may be made by United States Mail, postage pre-paid, return receipt requested, directed to the purchaser at his address last known to the seller.

(11) Upon seller's election to bring suit to enforce any covenant of this contract, including suit to collect any payment required hereunder, the purchaser agrees to pay a reasonable sum as attorney's fees and all costs and expenses in connection with such suit, which sums shall be included in any judgment or decree entered in such suit.

If the seller shall bring suit to procure an adjudication of the termination of the purchaser's rights hereunder, and judgment is so entered, the purchaser agrees to pay a reasonable sum as attorney's fees and all costs and expenses in connection with such suit, and also the reasonable cost of searching records to determine the condition of title at the date such suit is commenced, which sums shall be included in any judgment or decree entered in such suit.

IN WITNESS WHEREOF, the parties hereto have executed this instrument as of the date first written above.

O·N·C MOTOR FREIGHT SYSTEM
a California corporation

By David P. Roush
David P. Roush President

By Burdena Cook
Secretary

Ruby M. Tewlon

STATE OF ~~WASHINGTON~~ CALIFORNIA
County of Santa Clara } ss.

On this 12th day of August 1971, personally appeared David P. Roush and Burdena Cook to me known to be the ---------- President and ---------- Secretary, respectively, of the corporation that executed the foregoing instrument, and acknowledged said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that authorized to execute the said instrument and that the seal affixed is the corporate seal of said corporation.

In Witness Whereof, I have hereunto set my hand and affixed my official seal the day and year first above written.

OFFICIAL SEAL
WANDA M. SUMMERS
NOTARY PUBLIC-CALIFORNIA
SANTA CLARA COUNTY
My Commission Expires Nov. 19, 1972

Wanda M. Summers
Notary Public in and for the State of California
residing at

2300 West Bayshore Rd., Palo Alto, Calif. 94303

TO

Pacific National Title Insurance Company
WASHINGTON STATE DIVISION
Filed for Record at Request of

THIS SPACE RESERVED FOR RECORDER'S USE

LEGAL DESCRIPTION RIDER TO

O·N·C MOTOR FREIGHT SYSTEM-RUBY M. NEWTON CONTRACT

7404100032

The South 515 feet in width as measured from the Northerly margin of Kenyon Street of that portion of Government Lot 16, Section 29, Township 24 North, Range 4 East, W.M., in King County, Washington, described as follows:

Beginning at the Southeast corner of said Government Lot 16, thence Northerly along the Westerly line of George Holt Donation Claim No. 51, a distance of 60.03 feet to the Northerly margin of Kenyon Street; thence North 89°12'59" West along said margin of Kenyon Street 424.52 feet to the true point of beginning of this description; thence North 89°12'59" West 200 feet; thence North 0°01'30" West 217.25 feet to the point of curvature of a curve to the right having a radius of 1810 feet; thence Northeasterly along the arc of said curve to the right 416.07 feet to the point of tangency; thence North 13°08'45" East 201.91 feet; thence South 60°00'00" East to a point which bears North 2°01'25" East from the true point of beginning; thence South 2°01'26" West to the true point of beginning; [redacted]

SUBJECT TO: Last half of general taxes for the year 1971;

Relinquishment of right of access to State Highway and of light, view and air, under terms of Deed to the State of Washington recorded October 23, 1958, Auditor's No. 4957813;

Right, title and interest of O·N·C Motor Freight System presumed from the application which refers to it as the owner of said premises.

-- END OF LEGAL DESCRIPTION --

RIDER TO

O·N·C MOTOR FREIGHT SYSTEM RUBY M. NEWTON CONTRACT

1. Balloon Payment Waiver Provisions.

If none of the following three conditions are possible of fulfillment, even after the exertion of the buyer's best reasonable efforts, then the above-mentioned provision for balloon cash-out payment at the end of said seven years, six months period shall have no effect and the balance of the purchase price shall be paid under the monthly payment plan. Said three conditions are as follows:

a. The buyer's "Burien lot" hereinafter more particularly described cannot be sold within said seven years, six months period on reasonable terms.

b. The buyer's "South Park lot" hereinafter more particularly described cannot be sold within said seven years six months period on reasonable terms.

c. The buyer cannot borrow the necessary funds to make the said balloon cash-out payment from any reasonable source for any reasonable terms.

If said balloon payment cannot be made as above provided and provision for balloon payment should be waived, written proof of the inability to meet all of said three conditions shall be submitted by the buyer to the seller by the date said balloon payment is due.

2. Right of First Refusal Provisions.

The seller now gives the buyer the right of first refusal on the real estate described more particularly on the Rider hereto attached entitled "Legal Description to Right-of-First-Refusal Property." This property consists of approximately 43,215 sq. ft. of real estate, and the seller agrees to notify the buyer of the seller's receipt of a bona fide offer of purchase of said property, which shall be sent by the seller to the buyer at her last known address, by certified mail, return receipt requested.

The buyer shall then have a period of ten (10) days from the date of mailing said notice to notify the seller whether she wishes to purchase said "Right-of-First-Refusal Property" from the seller for the price and terms described in said bona fide offer of purchase notice, and if she does not so notify the seller within said period of time, then the seller is free to sell the property in question to the said bona fide offeror for said price and terms.

This right of first refusal shall be effective for a period of one (1) year from the date hereof, namely, until August 1, 1972, and shall be of no effect after said one-year period.

7404100032

3. Rules of Law Applicable.

This contract shall be governed and enforced by the laws of the State of Washington regardless of where this agreement is signed.

— END OF RIDER —

7404100032

LEGAL DESCRIPTION OF

"RIGHT-OF-FIRST-REFUSAL PROPERTY"

That portion of Government Lot 16, Section 29, Township 24 North, Range 4 east, W.M., in King County, Washington, described as follows:

Beginning at the southeast corner of said Government Lot 16, thence northerly along the westerly line of George Holt Donation Claim No. 51, a distance of 60.03 feet to the northerly margin of Kenyon Street; thence north 89°12'59" west along said margin of Kenyon Street 424.52 feet; to the true point of beginning of this description; thence north 89°12'59" west 200 feet; thence north 0°01'30" west 217.25 feet to the point of curvature of a curve to the right having a radius of 1810 feet; thence northeasterly along the arc of said curve to the right 416.07 feet to the point of tangency; thence north 13°08'45" east 201.91 feet; thence south 60°00'00" east to a point which bears north 2°01'25" east from the true point of beginning; thence south 2°01'25" west to the true point of beginning; EXCEPT that portion lying westerly of the easterly margin of an existing drainage ditch; and EXCEPT the south 515 feet in width as measured from the northerly margin of said Kenyon Street.

SUBJECT TO: Relinquishment of right of access to state highway and of light, view and air, under terms of deed to the State of Washington recorded October 23, 1958, under King County Auditor's File No. 4957813.

7404100032

7404100032

LEGAL DESCRIPTION OF

"BURIEN LOT"

South 1/2 of the Northeast 1/4 of Southwest 1/4 of Northeast 1/4, Section 19, T. 23 N. R. 4 E.,W.M., King County, Washington, lying South of the South line of the North 30 feet of said subdivision, being an unimproved lot 150 x 330 feet with access and drainage problems.

LEGAL DESCRIPTION OF

"SOUTH PARK LOT"

Lots 39 to 48 inclusive and portion of vacated street and alley, Block 2, South Park Addition; and vacated Lots 1 to 16 inclusive and portion of vacated street and alley adjoining, less portion to state of Washington, in Block 3, South Park Addition; being an unimproved tract covering a total of 97,500 square feet, in King County, Washington.

8 00

RECORDED

REQUEST OF

1974 APR 10 AM 8 00

7404100032

FILED for Record at Request of
SAFECO TITLE INS. CO.
SEATTLE, WASH.

FILED FOR RECORD AT REQUEST OF
SAFECO TITLE INSURANCE COMPANY
SECOND AVENUE, SEATTLE, WA

SAFECO

E COMPANY

I USE

Filed for Record at Request of

NAME Tyrnn M. Long

ADDRESS 8726 So. 113th St.

CITY AND STATE Seattle, Wa. 98178

KING COUNTY
EXCISE TAX PAID
JUL 9 1980
E0597829

WARRANTY
~~FULFILLMENT~~
DEED

3.50

THE GRANTOR Clem La Voy and Opal La Voy, his wife, and Safe Investment Company

for and in consideration of Thirty Five Thousand and nO/100 Dollars

in hand paid, conveys and warrants to Tyrnn M. Long

the following described real estate, situated in the County of King, State of Washington:

That portion of the North Half of vacated Block 2, South Park, according to the plat recorded in Volume 4 of Plats, Page 87, in King County, Washington; and South half of vacated Rose Street, formerly Orchard Street adjoining, and also the North Half of vacated alley adjoining Lots platted as Lots 1 through 13, inclusive, all lying westerly of the southwesterly margin of that Tract of Land conveyed to State of Washington for Pacific State Highway N o. 1, under instrument recorded under Auditor's File N o. 4965539, Records of King County, Washington.

This Deed is subject to encumbrances and exceptions stated in Pioneer National Insurance Company report No. A-260779 Re: La Voy-Safe Investment Company / Long dated June 9, 1980

~~This deed is given in fulfillment of that certain real estate contract between the parties hereto, dated — 19 ——; and conditioned for the conveyance of the above described property, and the covenants of warranty herein contained shall not apply to any title, interest or encumbrance arising by, through or under the purchaser in said contract, and shall not apply to any taxes, assessments or other charges levied, assessed or becoming due subsequent to the date of said contract.~~

Dated 7/1, 19 80

Clem La Voy
(Individual)

Opal La Voy
(Individual)

Safe Investment Co.

By Jerome M. Johnson
(President)

By Morse K. Johnson
(Secretary)

STATE OF WASHINGTON
COUNTY OF King } ss.

On this day personally appeared before me Clem La Voy and Opal La Voy, his wife

to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that they signed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this first day of July, 19 80

Marcia L. Shepstead
Notary Public in and for the State of Washington, residing in Renton

STATE OF WASHINGTON
COUNTY OF } ss.

On this 8th day of July, 1980, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared Jerome M. Johnson + Morse K. Johnson ~~and~~ to me known to be the — President and — Secretary, respectively, of the corporation that executed the foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that they are authorized to execute the said instrument and that the seal affixed is the corporate seal of said corporation.

Witness my hand and official seal hereto affixed the day and year first above written.

Gary Schneiderman
Notary Public in and for the State of Washington, residing at Seattle

TL-142 R3 10/75

8007210558 JUL 21 '80 6 45 22 8 RF 3.50

RECORDED THIS DAY

JUL 21 1 40 PM '80

BY THE DIVISION OF
RECORDS & ELECTIONS
KING COUNTY

8007210558

QUITCLAIM DEED

82 06 29 80399 D
REC'D F 4.00
CASHSL +++++4.00
22

The grantor, Manitou Equipment Co., an Oregon corporation incorporated on March 27, 1972, for lawful consideration, conveys and quitclaims to The Manitowoc Company, Inc., a Wisconsin corporation, all interest in the following described real estate:

8206290399

Lots 34 through 48, inclusive, all in vacated Block 2, South Park, according to the plat recorded in Volume 4 of Plats, Page 87, in King County, Washington; together with that portion of the north half of vacated Helena Street adjoining said lots on the south; and together with that portion of the south half of vacated alley adjoining said lots on the north; except those portions of said lots, vacated alley and vacated street conveyed for street purposes by instrument recorded under Auditor's File No. 3186886; and except those portions of said lots, vacated alley and vacated street taken for West Marginal Way under proceedings had in KCSC Cause No. 515467.

Also lots 1 through 19, inclusive, all in vacated Block 3, South Park, according to the plat recorded in Volume 4 of Plats, Page 87, in King County, Washington; together with that portion of the south half of vacated Helena Street adjoining said lots on the north; except the south 31 feet of said lots 1 through 19, inclusive; except those portions of said lots and vacated street conveyed for street purposes by instrument recorded under Auditor's File No. 3186886; except those portions of said lots and vacated street conveyed to the state of Washington by deeds recorded under Auditor's File Nos. 5205490 and 5320164; and except those portions of said lots and vacated street taken

KING COUNTY
RECORDS & ELECTIONS
BY THE DIVISION OF
JUN 29 10 35 AM '82
RECORDED THIS DAY

KING COUNTY
NO EXCISE TAX
JUN 28 1982
E0680378

for West Marginal Way under proceedings had in KCSC
Cause No. 515467

situated in the county of King, state of Washington.

Dated this 24th day of December, 1980.

MANITOU EQUIPMENT CO.

By Arthur T. Church
Arthur T. Church, President

8206290399

STATE OF OREGON)
) SS
COUNTY OF MULTNOMAH)

On this 24th day of December, 1980, before me personally appeared Arthur T. Church, to me known to be the president of the corporation that executed the within and foregoing instrument, and acknowledged said instrument to be the free and voluntary act and deed of said corporation for the uses and purposes therein mentioned, and on oath stated that he was authorized to execute said instrument on behalf of said corporation.

IN WITNESS WHEREOF I have hereunto set my hand and affixed my official seal the day and year first above written.

S. H. Vonell
Notary Public for Oregon
Place of residence:
My commission expires: 12/4/81

8206290399

FILED for Record at Request of

return to miller, nash & yerke
900 SW 5th Ave
Portland Oregon 97204

BARGAIN AND SALE DEED

The grantor, Manitou Investment Co., an Oregon corporation, for lawful consideration in hand paid, bargains, sells and conveys to The Manitowoc Company, Inc., a Wisconsin corporation, the following described real estate:

Lots 34 through 48, inclusive, all in vacated Block 2, South Park, according to the plat recorded in Volume 4 of Plats, Page 87, in King County, Washington; together with that portion of the north half of vacated Helena Street adjoining said lots on the south; and together with that portion of the south half of vacated alley adjoining said lots on the north; except those portions of said lots, vacated alley and vacated street conveyed for street purposes by instrument recorded under Auditor's File No. 3186886; and except those portions of said lots, vacated alley and vacated street taken for West Marginal Way under proceedings had in KCSC Cause No. 515467.

Also lots 1 through 19, inclusive, all in vacated Block 3, South Park, according to the plat recorded in Volume 4 of Plats, Page 87, in King County, Washington; together with that portion of the south half of vacated Helena Street adjoining said lots on the north; except the south 31 feet of said lots 1 through 19, inclusive; except those portions of said lots and vacated street conveyed for street purposes by instrument recorded under Auditor's File No. 3186886; except those portions of said lots and vacated street conveyed to the state of Washington by deeds recorded under Auditor's File Nos. 5205490 and 5320164; and except those portions of said lots and vacated street taken for West Marginal Way under proceedings had in KCSC Cause No. 515467

situated in the county of King, state of Washington.

8206290398

KING COUNTY
RECORDS & ELECTIONS
JUN 29 10 06 AM '82
RECORDED THIS DAY

KING COUNTY
NO EXCISE TAX
JUN 28 1982
E0680377

In 1973, Manitou Investment Co. obtained equitable title to the above-described real estate by a contract of sale executed by Ruby M. Newton. A deed in fulfillment of said contract of sale was recorded July 7, 1977, under Auditor's File No. 7707070936. Title was inadvertently taken in the name of Manitou Investment Company, Inc.

Covenants arising under this deed and RCW 64.04.040 are limited by the restrictions recited in Exhibit A attached hereto, and shall not extend to any claims of right, title or interest that are based upon a bargain and sale deed dated September 1, 1978, and recorded September 12, 1978, under Auditor's File No. 7809120069, wherein Manitou Investment Co. is identified as grantor in the party clause and The Manitowoc Company, Inc., is designated as grantee.

8206290398

Dated this 24th day of December, 1980.

MANITOU INVESTMENT COMPANY, INC.
(a non-existent entity)
MANITOU INVESTMENT CO.

By Arthur T. Church
Arthur T. Church, President of
Manitou Investment Co.

STATE OF OREGON)
) SS
COUNTY OF MULTNOMAH)

On this 24th day of December, 1980, before me personally appeared Arthur T. Church, to me known to be the president of the corporation that executed the within and foregoing instrument, and acknowledged said instrument to be the free and voluntary act and deed of said corporation for the uses and purposes therein mentioned, and on oath stated that he was authorized to execute said instrument on behalf of said corporation.

IN WITNESS WHEREOF I have hereunto set my hand and affixed my official seal the day and year first above written.

Notary Public for Oregon
Place of residence:
My commission expires: 12/4/81

8206290398

EXHIBIT A

Covenants arising under this deed and RCW 64.04.040, whether express or implied, are limited by:

1. Any right, title or interest in the above-described property held by:

a. Manitore Equipment Corp.,

b. Rayou Enterprises, Inc., or

c. Razore Enterprises, Inc.;

2. Rights arising under a deed to the state of Washington recorded September 26, 1960, and August 21, 1961, under auditor's file nos. 5205490 and 5320164;

3. An easement reserved by an instrument recorded February 15, 1973, and January 10, 1974, under auditor's file nos. 7302150008 and 7401100005;

4. The terms and provisions of ordinances numbered 101171 and 102687 of the Seattle Council which established the South Park Action Area, No. 401, Urban Renewal Plan; certified copies of the ordinances are recorded under auditor's file no. 7404020216;

5. Condemnation by the state of Washington of right of access to state highway and of light, view and air, by decree entered May 6, 1958, under case no. 515467;

6. All tax liens on the above-described property;

7. Any liens, encumbrances, defects in the grantor's title or other adverse claims created or suffered at any time by The Manitowoc Company, Inc., or created or suffered by any person, corporation or other entity after 8 a.m. on November 14, 1980.

8206290398

8206290398

FILED for Record at Request of

Return to Miller, Nash & Yerkie
900 SW 5th Ave
Portland, Oregon 97204

PIONEER NATIONAL TITLE INSURANCE

A TICOR COMPANY

Filed for Record at Request of

AFTER RECORDING MAIL TO:

SEATTLE, WA 98104

30719-DC

KING COUNTY
EXCISE TAX PAID
NOV 17 1983
E07199

Special Warranty Deed

(CORPORATE FORM)

THE GRANTOR The Manitowoc Company, Inc.

for and in consideration of Ten Dollars ($10.00) and other valuable consideration ~~Dollars~~ ($xxxxxxxxxxxx), in hand paid, grant s, bargain s, sell s, convey s, and confirm to Manitou Equipment Corp.

the following described real estate, situated in the County of King State of Washington:

Real Estate described on Exhibit A attached hereto and incorporated herein by reference.

The Grantor for itself and for its successors and assigns does by these presents expressly limit the covenants of this deed to those herein expressed, and excludes all covenants arising or to arise by statutory or other implication, and does hereby covenant that against all persons whomsoever lawfully claiming or to claim by, through or under said Grantor and not otherwise, it will forever warrant and defend the said described real estate.

IN WITNESS WHEREOF, said corporation has caused this instrument to be executed by its proper officers and its corporate seal to be hereunto affixed this 7th day of October, A. D., 19 83

THE MANITOWOC COMPANY, INC.

By Ralph Helm
Ralph Helm President

Attest: Charles C. West
Charles C. West Secretary

STATE OF ~~WASHINGTON~~ WISCONSIN, } ss.
County of MANITOWOC }

On this 7th day of October 1983, before me, the undersigned, a Notary Public in and for the State of Wisconsin duly commissioned and sworn, personally appeared Ralph Helm and Charles C. West to me known to be the President and Secretary, respectively, of The Manitowoc Company, Inc. the corporation that executed the foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that they are authorized to execute the said instrument and that the seal affixed is the corporate seal of said corporation.

Witness my hand and official seal hereto affixed the day and year in this certificate above written.

Kenneth R. Ansorage

Notary Public in and for the State of Wisconsin
residing at Manitowoc, Wisconsin
My commission expires November 24, 1985
Kenneth R. Ansorage

8311170937

LOTS 34 THROUGH 48, INCLUSIVE, ALL IN VACATED BLOCK 2, SOUTH PARK, ACCORDING TO THE PLAT RECORDED IN VOLUME 4 OF PLATS, PAGE 87, IN KING COUNTY, WASHINGTON;

TOGETHER WITH THAT PORTION OF THE NORTH HALF OF VACATED HELENA STREET ADJOINING SAID LOTS ON THE SOUTH;

AND TOGETHER WITH THAT PORTION OF THE SOUTH HALF OF VACATED ALLEY ADJOINING SAID LOTS ON THE NORTH;

EXCEPT THOSE PORTIONS OF SAID LOTS, VACATED ALLEY AND VACATED STREET CONVEYED FOR STREET PURPOSES BY INSTRUMENT RECORDED UNDER AUDITOR'S FILE NO. 3186886;

AND EXCEPT THOSE PORTIONS OF SAID LOTS, VACATED ALLEY AND VACATED STREET TAKEN FOR WEST MARGINAL WAY UNDER PROCEEDINGS HAD IN KCSC CAUSE NO. 515467.

ALSO

LOTS 1 THROUGH 19, INCLUSIVE, ALL IN VACATED BLOCK 3, SOUTH PARK, ACCORDING TO THE PLAT RECORDED IN VOLUME 4 OF PLATS, PAGE 87, IN KING COUNTY, WASHINGTON;

TOGETHER WITH THAT PORTION OF THE SOUTH HALF OF VACATED HELENA STREET ADJOINING SAID LOTS ON THE NORTH;

EXCEPT THE SOUTH 31 FEET OF SAID LOTS 1 THROUGH 19, INCLUSIVE;

EXCEPT THOSE PORTIONS OF SAID LOTS AND VACATED STREET CONVEYED FOR STREET PURPOSES BY INSTRUMENT RECORDED UNDER AUDITOR'S FILE NO. 3186886;

EXCEPT THOSE PORTIONS OF SAID LOTS AND VACATED STREET CONVEYED TO THE STATE OF WASHINGTON BY DEEDS RECORDED UNDER AUDITOR'S FILE NOS. 5205490 AND 5320164;

AND EXCEPT THOSE PORTIONS OF SAID LOTS AND VACATED STREET TAKEN FOR WEST MARGINAL WAY UNDER PROCEEDINGS HAD IN KCSC CAUSE NO. 515467.

8311170961

EXHIBIT A

THIS SPACE PROVIDED FOR RECORDER'S USE:

TRANSAMERICA
TITLE INSURANCE COMPANY

FILED FOR RECORD AT REQUEST OF

WHEN RECORDED RETURN TO

Name Harold L. Ness and Alice B. Ness

Address 1125 N.W. 53rd Street

City, State, Zip Seattle, Washington 98107

662688ss

STATUTORY WARRANTY DEED

THE GRANTOR **Manitowoc Western Company, Inc., a Wisconsin corporation,** for and in consideration of **TEN AND NO/100 DOLLARS AND OTHER VALUABLE CONSIDERATION,** in hand paid, conveys and warrants to **Harold L. Ness and Alice B. Ness, husband and wife,** the following described real estate, situated in the County of **King,** State of Washington:

See Legal Description attached hereto and marked Exhibit "A".

9511281359

SUBJECT TO: **Exceptions as shown on the attached Exhibit "B".**

Dated: **November 7, 1995**

FILED FOR RECORD AT REQUEST OF
TRANSAMERICA TITLE INSURANCE CO.
320 108TH AVE. NE
P.O. BOX 1493
BELLEVUE, WA 98009

Manitowoc Western Company, Inc

By: Phil Keener

Its: Treasurer

STATE OF WISCONSIN)
) ss.
COUNTY OF Manitowoc)

On this 8th day of November, 19 95, before me, the undersigned, a Notary Public in and for the State of Wisconsin, duly commissioned and sworn, personally appeared Phil Keener and _____ to me known to be the Treasurer of **Manitowoc Western Company, Inc,** the corporation that executed the foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that _____ authorized to execute the said instrument and that the seal affixed (if any) is the corporate seal of said corporation.

GIVEN under my hand and official seal the day and year above written.

BETTY SAUNDERS NOTARY PUBLIC STATE OF WISCONSIN

Betty Saunders
Notary Public in and for the State of Wisconsin,
residing at 2230 Memorial Drive, Two Rivers, WI
Printed/Typed Name: BETTY SAUNDERS
My appointment expires: 2/5/98

Form 7176-2 Blank Border Stock

E1458484 11/28/95 ~~4700.00~~ 1000000.00

951128-1359 04:03:03 PM KING COUNTY RECORDS 003 PM1 9.00

223906 1/662688-ss

EXHIBIT "A"

LEGAL DESCRIPTION:

LOTS 34 THROUGH 48, ALL IN VACATED BLOCK 2 OF SOUTH PARK, AS PER PLAT RECORDED IN VOLUME 4 OF PLATS, PAGE 87, RECORDS OF KING COUNTY;

TOGETHER WITH THAT PORTION OF THE NORTH 1/2 OF VACATED HELENA STREET ADJOINING SAID LOTS ON THE SOUTH;

AND TOGETHER WITH THAT PORTION OF THE SOUTH 1/2 OF VACATED ALLEY ADJOINING SAID LOTS ON THE NORTH;

EXCEPT THOSE PORTIONS OF SAID LOTS, VACATED ALLEY, AND VACATED STREET CONVEYED TO THE CITY OF SEATTLE FOR STREET PURPOSES BY INSTRUMENT RECORDED UNDER RECORDING NO. 3186886;

AND EXCEPT THOSE PORTIONS OF SAID LOTS, VACATED ALLEY, AND VACATED STREET TAKEN FOR WEST MARGINAL WAY UNDER PROCEEDINGS IN KING COUNTY SUPERIOR COURT CAUSE NO. 515467;

ALSO

LOTS 1 THROUGH 19, ALL IN VACATED BLOCK 3 OF SOUTH PARK, AS PER PLAT RECORDED IN VOLUME 4 OF PLATS, PAGE 87, RECORDS OF KING COUNTY;

TOGETHER WITH THAT PORTION OF THE SOUTH 1/2 OF VACATED HELENA STREET ADJOINING SAID LOTS ON THE NORTH;

EXCEPT THE SOUTH 31 FEET OF SAID LOTS 1 THROUGH 19;

AND EXCEPT THOSE PORTIONS OF SAID LOTS AND VACATED STREET CONVEYED TO THE CITY OF SEATTLE FOR STREET PURPOSES BY INSTRUMENT RECORDED UNDER RECORDING NO. 3186886;

AND EXCEPT THOSE PORTIONS OF SAID LOTS AND VACATED STREET CONVEYED TO THE STATE OF WASHINGTON BY DEEDS RECORDED UNDER RECORDING NOS. 5205490 AND 5320164;

AND EXCEPT THOSE PORTIONS OF SAID LOTS AND VACATED STREET TAKEN FOR WEST MARGINAL WAY UNDER PROCEEDINGS IN KING COUNTY SUPERIOR COURT CAUSE NO. 515467;

SITUATE IN THE CITY OF SEATTLE, COUNTY OF KING, STATE OF WASHINGTON.

9511281359

Unofficial Document

EXHIBIT "B"

1. AGREEMENT AND THE TERMS AND CONDITIONS THEREOF:

RECORDED:	October 3, 1949
RECORDING NO.:	3944125 and 3944136
REGARDING:	Release of Damage Agreement

2. RELINQUISHMENT OF ALL EXISTING, FUTURE OR POTENTIAL EASEMENTS for access, light, view and air, and all rights of ingress, egress and regress to, from and between the land and the highway or highways constructed on lands condemned by proceedings under King County Superior Court.

By:	State of Washington
Cause No.:	515467

3. RELINQUISHMENT OF ALL EASEMENTS existing, future or potential, for access, light, view and air, and all rights of ingress, egress and regress to, from and between the land and the highway or highways to be constructed on land conveyed by deed.

To:	State of Washington
Dated:	September 27, 1957, April 21, 1958 and June 7, 1967
Recorded:	November 22, 1957, September 26, 1960 and August 21, 1961
Recording No.:	4852649, 5205490 and 5320164

4. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:

PURPOSE:	Drainage
AREA AFFECTED:	Over said vacated lots 33 through 38, inclusive, in vacated Block 2 of South Park and the south 1/2 of the vacated alley adjoining to connect with drain over said land by connecting with drain pipe and extending connection over the North line of said land into land adjoining on the North owned by the grantors, Clem Lavoy and Opal Lavoy, his wife, and Safe Investment Co., a corporation
RECORDING NO.:	7302150008 and 7401100005

5. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:

GRANTEE:	Municipality of Metropolitan Seattle
PURPOSE:	A sewer interceptor and a District Heating and Cooling System
AREA AFFECTED:	The Easterly 25 feet more or less of said premises, together with a temporary construction easement over the Easterly 65 feet of said premises
RECORDING NO.:	8511191140

6. Urban Renewal Plan imposed by instrument recorded on April 2, 1974, under Recording No. 7404020216.

7. ALL COVENANTS, CONDITIONS OR RESTRICTIONS OR RESERVATIONS; ALL EASEMENTS OR OTHER SERVITUDES; RIGHTS OR BENEFITS WHICH MAY BE SHOWN ON THE PLAT AFFECTING LAND OUTSIDE THE BOUNDARY DESCRIBED IN SCHEDULE A, if any, disclosed by the recorded documents of Survey recorded under Recording No. 8009159001.

9511281359

Unofficial Document

990518 2491 02:43:00 PM KING COUNTY RECORDS 002 THS 9.00

After recordation return to:
Joseph L. Brotherton
2410 Boyer Ave. E. Suite 1
Seattle, WA 98112

788360-0350

STATUTORY WARRANTY DEED

THE GRANTOR **Harold Ness and Alice Ness, a married couple**, for and in consideration of **TEN DOLLARS** ($10.00), in hand paid, conveys and warrants to **Ness Manitowoc Property, LLC, a Washington Limited Liability Company**, the following described real estate, situated in the County of **King**, State of **Washington**

See Legal Description attached hereto and marked Exhibit "A".
Lots 34 through 48 all in a vacated block 2 of south park

SUBJECT TO: Exceptions of record.

Dated 18th day of May 1999

GRANTOR

Harold Ness
HAROLD NESS

Alice Ness
ALICE NESS

STATE OF WASHINGTON)
) ss
County of King)

I certify that I know or have satisfactory evidence that **Harold Ness and Alice Ness** are the persons who appeared before me, and said persons acknowledged that they signed this instrument and acknowledged it to be their free and voluntary act for the uses and purposes mentioned in the instrument.

Dated this 18th day of May, 1999

BETSY McCARTHY
NOTARY PUBLIC
COMMISSION EXPIRES 11-18-01
STATE OF WASHINGTON

Betsy McCarthy
Notary Public in and for the State of Washington
Residing in Bellevue, WA
My commission expires 11-18-01

C:\WDATA\Ness\Harold\manitowoc statdeed.doc

9905182491

E1685581 05/18/99 .00 .00

Unofficial Document

LEGAL DESCRIPTION:

LOTS 34 THORUGH 48, ALL IN VACATED BLOCK 2 OF SOUTH PARK, AS PER PLAT RECORDED IN VOLUME 4 OF PLATS, PAGE 87, RECORDS OF KING COUNTY;

TOGETHER WITH THAT PORTION OF THE NORTH ½ OF VACATED HELENA STREET ADJOINING SAID LOTS ON THE SOUTH;

AND TOGETHER WITH THAT PORTION OF THE SOUTH ½ OF VACATED ALLEY ADJOINING SAID LOTS ON THE NORTH;

EXCEPT THOSE PORTIONS OF SAID LOTS, VACATED ALLEY, AND VACATED STREET CONVEYED TO THE CITY OF SEATTLE FOR STREET PURPOSES BY INSTRUMENT RECORDED UNDER RECORDING NO. 3186886;

AND EXCEPT THOSE PORTIONS OF SAID LOTS, VACATED ALLEY, AND VACATED STREET TAKEN FOR WEST MARGINAL WAY UNDER PROCEEDINGS IN KING COUNTY SUPERIOR COURT CAUSE NO. 515467;

ALSO

LOTS 1 THROUGH 19, ALL IN VACATED BLOCK 3 OF SOUTH PARK, AS PER PLAT RECORDED IN VOLUME 4 OF PLATS, PAGE 87, RECORDS OF KING COUNTY;

TOGETHER WITH THAT PORTION OF THE SOUTH ½ OF VACATED HELENA STREET ADJOINING SAID LOTS ON THE NORTH;

EXCEPT THE SOUTH 31 FEET OF SAID LOTS 1 THROUGH 19;

AND EXCEPT THOSE PORTIONS OF SAID LOTS AND VACATED STREET CONVEYED TO THE CITY OF SEATTLE FOR STREET PURPOSES BY INSTRUMENT RECORDED UNDER RECORDING NO 3186886.

AND EXCEPT THOSE PORTIONS OF SAID LOTS AND VACATED STREET CONVEYED TO THE STATE OF WASHINGTON BY DEEDS RECORDED UNDER RECORDING NOS. 5205490 AND 5320164;

AND EXCEPT THOSE PORTIONS OF SAID LOTS AND VACATED STREET TAKEN FOR WEST MARGINAL WAY UNDER PROCEEDINGS IN KING COUNTY SUPERIOR COURT CAUSE NO. 515467;

SITUATE IN THE CITY OF SEATTLE, COUNTY OF KING, STATE OF WASHINGTON.

9905182491

When Recorded, Return to:

Department of Planning and Development
700 5th Avenue, Suite 2000
P. O. Box 34019
Seattle, WA 98124-4019

20051208000693
DEPT OF CONSTR COV 35.00
PAGE001 OF 004
12/08/2005 10:37
KING COUNTY, WA

COVENANT GEOLOGIC HAZARD AREA

Grantor: 1) Coast Crane Company 2) _____
Additional on page _____

Grantee: 1) **CITY OF SEATTLE** 2) _____
Additional on page _____

Legal Description (abbreviated): Lots 34-48, Block 2 & lots 1-21, Block 3 South park addition

Additional on: _____

Assessor's Tax Parcel ID#: 7883600350

Reference Nos. of Documents Released or Assigned: _____

8250 5th Avenue South
DPD # 2409187

Unofficial Document

This covenant executed this date in favor of the **City of Seattle/Grantee** (herein "City") by the undersigned **Owner(s)/Grantor** of the within/described real property (owner(s)):

WITNESSETH

WHEREAS, undersigned is (are) the owner(s) of the real property addressed in the records of the Seattle Department of Planning and Development

as 8250 5th Avenue South
described in exhibit "A" (legal description) attached;

and

WHEREAS, owner(s) has (have) obtained approval of land use and construction permits for the property from the City (# Application # 2409187);
WHEREAS, the property is located in a "geologic hazard area" as defined in SMC Chapter 25.09, Regulations for Environmentally Critical Areas;

and

WHEREAS, SMC Chapter 22.800, the Stormwater, Grading and Drainage Control Code requires as a condition of the issuance of land use and construction permits that this covenant be signed, acknowledged, and recorded in the records of King county;
NOW, THEREFORE. Owner(s) agree(s) as follows:

1. Owner(s) will inform his/her successors and assigns of the property described in Exhibit "A" that the property is in a geologic hazard area, that there may be risks associated with development thereon, of any conditions or prohibitions on development imposed by the City, and of any features in this design which will require maintenance or modification to address anticipated soils changes.

2. Owner(s) on his/her own behalf and on behalf of his/her heirs, successors and assigns hereby waives any right to assert any claim against the City for any loss, or damage to people or property either on or off the site resulting from soil movement by reason of or arising out of issuance of the permit(s) by the City for development on the property except only for such losses that may directly result from the sole negligence of the City.

Related to construction permits (#_____,_____);

(CORPORATE OWNER, PARTNERSHIP OWNER, LIMITED LIABILITY COMPANY OWNER/OTHER LEGAL ENTITY OWNER—attach more pages if needed)

Date: 11/18/2005

Coast Crane Company
Owner/Grantor

Coast Crane Company
Printed Name

By [signature]

Brad McKeown
Printed Name

Its Vice President & CFO

State of Washington)
)ss
County of King)

I certify that I know or have satisfactory evidence that Brad McKeown is the person who appeared before me, and said person acknowledged that he/she signed this instrument, on oath stated that he/she was authorized to execute the instrument and acknowledged it as the Vice President & C.F.O. (type of authority, e.g., partner, trustee, title of officer, personal representative, guardian, attorney in fact for a principal, etc.) of Coast Crane Company (name of owner/entity on behalf of whom instrument was executed), to be the free and voluntary act of such party for the uses and purposes mentioned in the instrument.

Date: 11-18-05 Debra K. Grable
NOTARY PUBLIC in and for the State of Washington
Residing at Seattle
My commission expires: 3-9-06

PRINT NAME: Debra K. Grable

DEBRA K. GRABLE
NOTARY PUBLIC
STATE OF WASHINGTON
COMMISSION EXPIRES
MARCH 9, 2006

Use this space for Notary Seal

Unofficial Document

EXHIBIT A TO GEOLOGIC HAZARD COVENANT

COMPLETE LEGAL DESCRIPTION OF PROPERTY SUBJECT TO COVENANT:

LEGAL DESCRIPTION:
VACATED LOTS 34 THRU 48 INCLUSIVE AND PORTION OF VACATED STREET AND ALLEY ADJOINING, BLOCK 2: ALSO VACATED LOTS 1 THRU 21 INCLUSIVE AND PORTION OF VACATED STREET AND ALLEY ADJOINING, LESS THE SOUTH 36' THENCE OF, LESS PORTION TO STATE OF WASHINGTON, BLOCK 3 SOUTH PARK ADDITION BEING AN UNIMPROVED TRACT COVERING A TOTAL OF 97,500 SQUARE FEET IN KING COUNTY, WASHINGTON AS RECORDED IN VOLUME 4 OF PLATS PAGE 87, RECORDS OF KING COUNTY (LEGAL DESCRIPTION DATED AUGUST 1971 AS REVISED OCTOBER 10, 1972).

ASSESSOR PARCEL NO: 7883600350

Unofficial Document

297132

REAL ESTATE CONTRACT

(FORM A-1964)

THIS CONTRACT, made and entered into this 17th day of January, 1973

between RUBY M. NEWTON, a single woman on dates of acquiring title and at all times since

hereinafter called the "seller," and

MANITOU INVESTMENT COMPANY, INC.

hereinafter called the "purchaser,"

WITNESSETH: That the seller agrees to sell to the purchaser and the purchaser agrees to purchase from the seller the following described real estate, with the appurtenances, in King County, State of Washington:

Legal description attached hereto as Exhibit "A" and by this reference made a part hereof.

SUBJECT TO: Lease recorded under Recording No. 6336584; Relinquishment of all existing, future or potential easements for access, light, view and air, and all rights of ingress, egress and regress to, from and between said premises and the highway or highways to be constructed on lands condemned by proceedings under King County Superior Court Cause No. 515467 to State of Washington; Relinquishment of all existing, future or potential easements for access, light, view and air, and all rights of ingress, egress and regress to, from and between said premises and the highway or highways to be constructed on lands conveyed by Deed recorded under Recording No. 5205490 to The State of Washington; and, Relinquishment of all existing, future or potential easements for access, light, view and air, and all rights of ingress, egress and regress to, from and between said premises and the highway or highways to be constructed on lands conveyed by Deed recorded under Recording No. 5320164 to The State of Washington.

The terms and conditions of this contract are as follows: The purchase price is NINETY SEVEN THOUSAND FIVE HUNDRED AND NO/100---------- ($ 97,500.00) Dollars, of which TWENTY-NINE THOUSAND AND NO/100---------- ($ 29,000.00) Dollars have been paid, the receipt whereof is hereby acknowledged, and the balance of said purchase price shall be paid as follows:

SEVEN HUNDRED FIFTY AND NO/100---------- ($ 750.00) Dollars, or more at purchaser's option, on or before the 25th day of January, 19 74, and SEVEN HUNDRED FIFTY AND NO/100---------- ($ 750.00) Dollars or more at purchaser's option, on or before the 25th day of each succeeding calendar month until the balance of said purchase price shall have been fully paid. The purchaser further agrees to pay interest on the diminishing balance of said purchase price at the rate of seven (7%) per cent per annum from the 5th day of February, 1973 which interest shall be deducted from each installment payment and the balance of each payment applied in reduction of principal. Purchaser agrees to pay interest only on a monthly basis during the calendar year 1973 payable on the 25th day of each month commencing with February, 1973.

All payments provided for herein shall be made at or at such other place as the seller may direct in writing.

NOTWITHSTANDING the preceding terms, purchaser agrees to pay this contract in full, together with any accrued interest, within five (5) years from closing.

The removal of soil or other fill material from property adjoining on the south (not property covered in this contract) shall not be deemed by the purchaser herein to be encroachment, trespass or nuisance in relation to lateral support, and this term shall be binding on purchaser.

Seller agrees to furnish purchaser, upon closing, with a Statutory Warranty Deed for the following legally described portion of the above property being purchased:

The north 89 feet of Lots 1 thru 12, Block 3, South Park Addition together with the south eleven (11) feet of the vacated street adjoining on the north, being an unimproved tract in King County, Washington as recorded in Volume 4 of plats page 87, records of King County. (Having an area of twenty-six thousand, seven hundred (26,700) square feet)

As referred to in this contract, "date of closing" shall be February 5, 1973

(1) The purchaser assumes and agrees to pay before delinquency all taxes and assessments that may as between grantor and grantee hereafter become a lien on said real estate; and if by the terms of this contract the purchaser has assumed payment of any mortgage, contract or other encumbrance, or has assumed payment of or agreed to purchase subject to, any taxes or assessments now a lien on said real estate, the purchaser agrees to pay the same before delinquency.

(2) The purchaser agrees, until the purchase price is fully paid, to keep the buildings now and hereafter placed on said real estate insured in the actual cash value thereof against loss or damage by both fire and windstorm in a company acceptable to the seller and for the seller's benefit, as his interest may appear, and to pay all premiums therefor and to deliver all policies and renewals thereof to the seller.

(3) The purchaser agrees this full inspection of said real estate has been made and that neither the seller nor his assigns shall be held to any covenant respecting the condition of any improvements thereon, nor shall the purchaser or seller or the assigns of either be held to any covenant or agreement for alterations, improvements or repairs unless the covenant or agreement relied on is contained herein or is in writing and attached to and made a part of this contract.

(4) The purchaser assumes all hazards of damage to or destruction of any improvements now on said real estate or hereafter placed thereon, and of the taking of said real estate or any part thereof for public use; and agrees that no such damage, destruction or taking shall constitute a failure of consideration. In case any part of said real estate is taken for public use, the portion of the condemnation award remaining after payment of reasonable expenses of procuring the same shall be paid to the seller and applied as payment on the purchase price herein unless the seller elects to allow the purchaser to apply all or a portion of such condemnation award to the rebuilding or restoration of any improvements damaged by such taking. In case of damage or destruction from a peril insured against, the proceeds of such insurance remaining after payment of the reasonable expense of procuring the same shall be devoted to the restoration or rebuilding of such improvements within a reasonable time, unless purchaser elects that said proceeds shall be paid to the seller for application on the purchase price herein.

(5) The seller has delivered, or agrees to deliver within 15 days of the date of closing, a purchaser's policy of title insurance in standard form, or a commitment therefor, issued by Security Title Insurance Company of Washington, insuring the purchaser to the full amount of said purchase price against loss or damage by reason of defect in seller's title to said real estate as of the date of closing and containing no exceptions other than the following:

a. Printed general exceptions appearing in said policy form;

b. Liens or encumbrances of which by the terms of this contract the purchaser is to assume, or as to which the conveyance hereunder is to be made subject; and

c. Any existing contracts or contracts under which seller is purchasing said real estate, and any mortgage or other obligation, which seller by this contract agrees to pay, none of which for the purpose of this paragraph 5 shall be deemed defects in seller's title.

(6) If seller's title to said real estate is subject to an existing contract or contracts under which seller is purchasing said real estate, or any mortgage or other obligation which seller is to pay, seller agrees to make such payments as shall be necessary to keep the same current, and upon default, the purchaser shall have the right to make any payments necessary to prevent default, and any payments so made shall be applied to the payments next falling due the seller under this contract.

(7) [illegible]

RECORDED
FEB 14 1973

(7) The seller agrees, upon receiving full payment of the purchase price and interest in the manner above specified, to execute and deliver to purchaser a statutory warranty fulfillment deed to said real estate, excepting any part thereof hereafter taken for public use, free of encumbrances except any that may attach after date of closing through any person other than the seller, and subject to the following:

Relinquishment under Recording No. 5205490; Relinquishment under King County Superior Court Causes No. 515467; and, Relinquishment under Recording No. 5320164.

(8) Unless a different date is provided for herein, the purchaser shall be entitled to possession of said real estate on date of closing and to retain possession so long as purchaser is not in default hereunder. The purchaser covenants to keep the buildings and other improvements on said real estate in good repair and not to permit waste and not to use, or permit the use of, the real estate for any illegal purpose. The purchaser covenants to pay all service, installation or construction charges for water, sewer, electricity, garbage or other utility services furnished to said real estate after the date purchaser is entitled to possession.

(9) In case the purchaser fails to make any payment herein provided or to maintain insurance, as herein required, the seller may make such payment or effect such insurance, and any amounts so paid by the seller, together with interest at the rate of 10% per annum thereon from date of payment until repaid, shall be repayable by purchaser on seller's demand, all without prejudice to any other right the seller might have by reason of such default.

(10) Time is of the essence of this contract, and it is agreed that in case the purchaser shall fail to comply with or perform any condition or agreement hereof or to make any payment required hereunder promptly at the time and in the manner herein required, the seller may elect to declare all the purchaser's rights hereunder terminated, and upon his doing so, all payments made by the purchaser hereunder and all improvements placed upon the real estate shall be forfeited to the seller as liquidated damages, and the seller shall have right to re-enter and take possession of the real estate, and no waiver by the seller of any default on the part of the purchaser shall be construed as a waiver of any subsequent default.

Service upon purchaser of all demands, notices or other papers with respect to forfeiture and termination of purchaser's rights may be made by United States Mail, postage pre-paid, return receipt requested, directed to the purchaser at his address last known to the seller.

(11) Upon seller's election to bring suit to enforce any covenant of this contract, including suit to collect any payment required hereunder, the purchaser agrees to pay a reasonable sum as attorney's fees and all costs and expenses in connection with such suit, which sums shall be included in any judgment or decree entered in such suit.

If the seller shall bring suit to procure an adjudication of the termination of the purchaser's rights hereunder, and judgment is so entered, the purchaser agrees to pay a reasonable sum as attorney's fees and all costs and expenses in connection with such suit, and also the reasonable cost of searching records to determine the condition of title at the date such suit is commenced, which sums shall be included in any judgment or decree entered in such suit.

IN WITNESS WHEREOF, the parties hereto have executed this instrument as of the date first written above.

Ruby M. Newton (SEAL)
Ruby M. Newton

HANITOU INVESTMENT COMPANY, INC.

By: Arthur J. Chand

By: Jack J. Wabeck

STATE OF WASHINGTON, COUNTY OF KING ss.

On this day personally appeared before me Ruby M. Newton to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that she signed the same as her free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 13th day of February 1973.

Notary Public in and for the State of Washington residing at Seattle

FILED for Record at Request of
SECURITY TITLE INS. CO.
SEATTLE, WASH.

THIS SPACE RESERVED FOR RECORDER'S USE

SECURITY TITLE INSURANCE COMPANY

Filed for Record at Request of

NAME MAIL TO:
ADDRESS PROPERTY OWNER
CITY AND STATE

RECORDED
AT REQUEST OF
1973 FEB 15 AM 8 00
ELECTION COUNTY CLERK
DEPUTY

EXHIBIT "A"

Vacated Lots 34 through 48, inclusive, and portion of vacated street and alley adjoining, vacated Block 2 and vacated Lots 1 through 21, inclusive, and portion of vacated street adjoining vacated Block 3,
EXCEPT the south 11 feet thereof all in South Park, according to plat recorded in volume [illegible] Plats, page [illegible], in King County, Washington;
EXCEPT that portion conveyed for street purposes by instrument recorded under Auditor's File No. 3186856 and
EXCEPT portion taken for West Marginal Way under King County Superior Court Cause No. 515667 and
EXCEPT all that portion of the following described Parcel "A" lying northeasterly of a line drawn parallel with and 50 feet southwesterly, when measured at right angles from the centerline of Primary State Highway No. 1, South 116th Street to Jct. SSH 1-K

PARCEL "A": Lots 17 to 21, inclusive, All in vacated Block 3, South Park, according to plat recorded in Volume 7 of Plats, page 87, in King County, Washington;
EXCEPT those portions thereof lying within West Marginal Way; and
EXCEPT that portion thereof condemned by the State of Washington for highway purposes, in King County Superior Court Cause No. 515667 conveyed by Deed recorded under Auditor's File No. 5320164, and any portion conveyed by Auditor's File No. 5205490;

Recorder's Note: Parts of instrument not dark enough for microfilm.

SECURITY TITLE INSURANCE COMPANY

Filed for Record at Request of

FILED for Record at Request of
SECURITY TITLE INS CO.
SEATTLE, WASH.

THIS SPACE RESERVED FOR RECORDER'S USE
REQUEST OF
1973 FEB 15 AM 8 00
ELECTRA-KING CO. WA.
DEPUTY

NAME
ADDRESS
CITY AND STATE
ESCROW #

STATUTORY WARRANTY DEED

THE GRANTOR RUBY M. NEWTON, a single woman on date of acquiring title and at all times since

for and in consideration of Ten Dollars and other good and valuable consideration

in hand paid, conveys and warrants to CLEM LaVOY and OPAL LaVOY, his wife, as to an undivided one-half interest, and SAFE INVESTMENT CO., a corporation, as to an undivided one-half interest

the following described real estate, situated in the County of King State of Washington:

The south 31 feet of vacated Lots 1 to 16 inclusive, vacated Block 3, South Park, according to plat recorded in Volume 4 of Plats, page 87, in King County, Washington;
TOGETHER WITH the north half of vacated alley adjoining;
EXCEPT portion deeded to State of Washington by deed recorded under Auditor's File No. 5205490, if any.

SUBJECT TO: Relinquishment of all existing, future or potential easements for access, light, view and air, and all rights of ingress, egress and regress to, from and between said premises and the highway or highways to be constructed on lands conveyed by Deed recorded under Recording No. 5205490 to The State of Washington.

SALES TAX PAID
62081-76
FEB 14 1973
M. A. S. WILLIAMS
COUNTY TREASURER

SECURITY TITLE INSURANCE COMPANY
214.50

25th day of January, 1973

Ruby M. Newton (SEAL)
Ruby M. Newton

(SEAL)

STATE OF WASHINGTON
County of King } ss.

On this 25th day of January, 1973 before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared RUBY M. NEWTON

to me known to be the individual described in and who executed the foregoing instrument, and acknowledged to me that she signed and sealed the said instrument as her free and voluntary act and deed for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 25th day of January, 1973

Notary Public in and for the State of Washington,
residing at Seattle

SECURITY TITLE INSURANCE COMPANY
OF WASHINGTON

Filed for Record at Request of

MAIL TO:
NAME SECURITY TITLE
ESCROW DEPT.
ADDRESS ESCROW #
CITY AND STATE

7303300203

THIS SPACE RESERVED FOR RECORDER'S USE

REQUEST OF

1973 MAR 30 AM 8 00

RECORDS & ELECTIONS - KING CO. WN.
DEPUTY

24670-RS

FILED for Record at Request of
SECURITY TITLE INS CO.
SEATTLE, WASH.

Warranty Fulfillment Deed

THE GRANTOR RUBY M. NEWTON, a single woman on dates of acquiring title and at all times since

for and in consideration of Ten Dollars and other good and valuable consideration

in hand paid, conveys and warrants to MANITOU INVESTMENT COMPANY, INC.

the following described real estate, situated in the county of King, State of Washington:

The north 89 feet of Lots 1 thru 12, Block 3, South Park Addition, together with the south 11 feet of the vacated street adjoining on the north, being an unimproved tract in King County, Washington, as recor . in Volume 4 of Plats, page 87, records of King County, Washington.

SALES TAX PAID ON CONTRACT EFF. NO. 206089
W. J. HUGHES, KING COUNTY TREASURER
BY M. Swanson

This deed is given in partial fulfillment of that certain real estate contract between the parties hereto, dated January 17, 1973, and conditioned for the conveyance of the above described property, and the covenants of warranty herein contained shall not apply to any title, interest or encumbrance arising by, through or under the purchaser in said contract, and shall not apply to any taxes, assessments or other charges levied, assessed or becoming due subsequent to the date of said contract.

Sales Tax Paid under E. 206089 2/14/73

Dated 13th day of February, 1973

Ruby M. Newton (SEAL)
Ruby M. Newton (SEAL)

JOHN S. ROBINSON
NOTARY PUBLIC
COMMISSION EXPIRES MAY 25, 1973
STATE OF WASHINGTON

STATE OF WASHINGTON,
ss.
County of King

On this day personally appeared before me Ruby M. Newton

to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that she signed the same as her free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 13th day of February 1973

John S. Robinson
Notary Public in and for the State of Washington, residing at

SECURITY TITLE INSURANCE COMPANY

THIS SPACE RESERVED FOR RECORDER'S USE

RECORDED

1974 JAN 3 AM 11 42

DIRECTOR
RECORDS & ELECTIONS
KING COUNTY, WASH.

Filed for Record at Request of

NAME Ryell H Johnson

ADDRESS 2900 Seattle 1st Nat'l Bk Bldg

CITY AND STATE Seattle Wash. 98124

JAN 3 '74 00108 740103511 — 4 EF

OhJ:brm

Quit Claim Deed

THE GRANTOR, MARCIA N. CAGLE, as her sole and separate estate,

for and in consideration of TEN DOLLARS ($10.00)

conveys and quit claims to CLEM LaVOY and SAFE INVESTMENT CO., a Washington corporation,

the following described real estate, situated in the County of King, State of Washington, including any after acquired title:

The south 31 feet of Lots 17 to 21 inclusive, all in vacated Block 3, South Park, according to plat recorded in Volume 4 of Plats, page 87, in King County, Washington; EXCEPT those portions thereof lying within West Marginal Way; and EXCEPT that portion thereof condemned by the State of Washington for highway purposes, in King County Superior Court Cause No. 515467 conveyed by deed recorded under King County Recording No. 5320164.

F246462
JAN - 3 1974

Dated this 26th day of December 1973.

MARCIA N. CAGLE (SEAL)

By (SEAL)
Her Attorney-in-Fact

STATE OF WASHINGTON,

STATE OF WASHINGTON, } ss.
County of KING

On this 26th day of December, 19 73, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared JON W. SATHER to me known to be the individual described in, and who executed the within instrument for him self and also as the Attorney in Fact for MARCIA N. CAGLE and acknowledged to me that he signed and sealed the same as his own free and voluntary act and deed for him self, and also as the free and voluntary act and deed as Attorney in Fact for said MARCIA N. CAGLE in the capacity and for the uses and purposes therein mentioned, and that said principal is not deceased nor insane.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

Notary Public in and for the State of Washington, residing at Seattle

Security Title Insurance Company of Washington - ACKNOWLEDGMENT - SELF AND ATTORNEY IN FACT

TL-6 1-66

DISCLOSURE FORM

King County Ordinance No. 1490 requires the following disclosure or alternative waiver form be completed prior to entry into a binding agreement to purchase. Three copies of each disclosure or alternative waiver must be prepared. One copy shall be retained by the prospective vendor; one copy shall be retained by the prospective purchaser. If the prospective purchaser enters into a binding agreement to purchase, the vendor shall file the third copy with the King County Department of Records and Elections when other documents are recorded.

A violation by any vendor or vendor's agent of any provision of Ordinance No. 1490 may result in assessment of a civil penalty in an amount not to exceed $250.00 for each violation.

NOTICE TO PURCHASER

If there is no reasonable access to a public sanitary sewer system from the parcel you are thinking of buying, you must install a private sewer system approved by the King County Department of Health in order to build a house or any structure which will be used for human habitation. No building permits are issued for parcels which cannot have access to approved public or approved private sewer systems. No permit will be issued for and no septic tank systems may be located on this parcel unless it has been subjected to a percolation test within one year prior to application for a building permit. Even if a timely percolation test has been made, no permit will be issued and no septic tank system may be located on this parcel if the Department of Health has not approved the plan for and approved the installation of the private sewer system. Before you enter into an agreement to purchase this parcel, you should contact the King County Department of Health to determine the procedures for installing a private sewer system.

Your seller may have had a percolation test made on the parcel by a registered civil or sanitary engineer or certificated sewage disposal system designer. If so, that fact and the conclusions of the test appear below.

SELLER'S REPRESENTATIONS

PERCOLATION TEST. Seller must complete either Statement A or Statement B as appropriate.

A. My agent (Name of Agent) _____, a registered civil or sanitary engineer or certificated sewage disposal system designer, has conducted percolation tests on this parcel: (Legal Description)

The percolation test was conducted on (Date) _____. From the tests, my agent concluded that a septic tank system could ____ could not ____ be installed on this parcel in conformance with standards set by King County and in effect at the date of the test.

I represent that the statements above are true.

Seller's Signature _____ Date _____

B. No percolation tests have been conducted on this parcel: (Legal Description)

I have no knowledge or information from which a determination can be made as to whether a septic tank system may be installed on this parcel, except as follows: (To be completed by seller.)

I represent that the statements above are true.

Seller's Signature _____ Date _____

BUYER'S SIGNATURE

I have read this statement and understand its contents.

Prospective Purchaser's Signature: Sale Investment Co By [illegible] Pres. Date: Jan 3 1974

WAIVER (IN THE ALTERNATIVE)

I have read this disclosure form and understand its contents. I waive vendor's disclosure:

/X/ Unconditionally

Or

/ / Upon the condition this sale will not be closed unless this parcel is subjected to a percolation test which meets the requirements of the King County Department of Health.

Prospective Purchaser's Signature _____ Date: Jan 3 1974

7401030511

SECURITY TITLE INSURANCE COMPANY

THIS SPACE RESERVED FOR RECORDER'S USE

RECORDED

1974 JAN 3 AM 11 42

DIRECTOR
RECORDS & ELECTIONS
KING COUNTY, WASH.

Filed for Record at Request of

NAME Orfell H. Johnson

ADDRESS 2920 Seattle 1st Nat'l Bk Bldg

CITY AND STATE Seattle Wash. 98124

OHJ:brm

Quit Claim Deed

THE GRANTOR, MARCIA N. CAGLE, as her sole and separate estate,

for and in consideration of TEN DOLLARS ($10.00)

conveys and quit claims to CLEM LaVOY and SAFE INVESTMENT CO., a Washington corporation,

the following described real estate, situated in the County of King, State of Washington, including any after acquired title:

The south 31 feet of Lots 17 to 21 inclusive, all in vacated Block 3, South Park, according to plat recorded in Volume 4 of Plats, page 87, in King County, Washington; EXCEPT those portions thereof lying within West Marginal Way; and EXCEPT that portion thereof condemned by the State of Washington for highway purposes, in King County Superior Court Cause No. 515467 conveyed by deed recorded under King County Recording No. 5320164; TOGETHER WITH the north half of the vacated alley adjoining.

TAX
E247720
JAN 17 1974
JACK V. McKENZIE
County Auditor

E246467
JAN - 3 1974

Dated this 26 day of December 1973.

MARCIA N. CAGLE .....(SEAL)

By .....(SEAL)
Her Attorney-in-Fact

STATE OF WASHINGTON,

STATE OF WASHINGTON,
County of KING } ss.

On this 26 day of December, 19 73, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared JON W. SATHER to me known to be the individual described in, and who executed the within instrument for him self and also as the Attorney in Fact for MARCIA N. CAGLE and acknowledged to me that he signed and sealed the same as his own free and voluntary act and deed for him self, and also as the free and voluntary act and deed as Attorney in fact of said MARCIA N. CAGLE in the capacity and for the uses and purposes therein mentioned, and that said principal is not deceased nor insane.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

Notary Public in and for the State of Washington, residing at Seattle

TE-1 (1-68) Security Title Insurance Company of Washington — ACKNOWLEDGMENT — SELF AND ATTORNEY IN FACT

DISCLOSURE FORM

King County Ordinance No. 1490 requires the following disclosure or alternative waiver form be completed prior to entry into a binding agreement to purchase. Three copies of each disclosure or alternative waiver must be prepared. One copy shall be retained by the prospective vendor; one copy shall be retained by the prospective purchaser. If the prospective purchaser enters into a binding agreement to purchase, the vendor shall file the third copy with the King County Department of Records and Elections when other documents are recorded.

A violation by any vendor or vendor's agent of any provision of Ordinance No. 1490 may result in assessment of a civil penalty in an amount not to exceed $250.00 for each violation.

NOTICE TO PURCHASER

If there is no reasonable access to a public sanitary sewer system from the parcel you are thinking of buying, you must install a private sewer system approved by the King County Department of Health in order to build a house or any structure which will be used for human habitation. No building permits are issued for parcels which cannot have access to approved public or approved private sewer systems. No permit will be issued for and no septic tank systems may be located on this parcel unless it has been subjected to a percolation test within one year prior to application for a building permit. Even if a timely percolation test has been made, no permit will be issued and no septic tank system may be located on this parcel if the Department of Health has not approved the plan for and approved the installation of the private sewer system. Before you enter into an agreement to purchase this parcel, you should contact the King County Department of Health to determine the procedures for installing a private sewer system.

Your seller may have had a percolation test made on the parcel by a registered civil or sanitary engineer or certificated sewage disposal system designer. If so, that fact and the conclusions of the test appear below.

SELLER'S REPRESENTATIONS

PERCOLATION TEST. Seller must complete either Statement A or Statement B as appropriate.

A. My agent (Name of Agent) _____, a registered civil or sanitary engineer or certificated sewage disposal system designer, has conducted percolation tests on this parcel: (Legal Description)

The percolation test was conducted on (Date) _____. From the tests, my agent concluded that a septic tank system could ____ could not ____ be installed on this parcel in conformance with standards set by King County and in effect at the date of the test.

I represent that the statements above are true.

Seller's Signature _____ Date _____

B. No percolation tests have been conducted on this parcel: (Legal Description)

I have no knowledge or information from which a determination can be made as to whether a septic tank system may be installed on this parcel, except as follows: (To be completed by seller.)

I represent that the statements above are true.

Seller's Signature _____ Date _____

BUYER'S SIGNATURE

I have read this statement and understand its contents.

Prospective Purchaser's Signature Lake Investment Co By [illegible] Pres. Date Jan 3 1974

WAIVER (IN THE ALTERNATIVE)

I have read this disclosure form and understand its contents. I waive vendor's disclosure:

[X] Unconditionally

Or

[ ] Upon the condition this sale will not be closed unless this parcel is subjected to a percolation test which meets the requirements of the King County Department of Health.

Prospective Purchaser's Signature _____ Date Jan 3 1974

7401030511

7401170294

OHJ:brm

REAL ESTATE CONTRACT

(CORPORATE FORM A-1964)

THIS CONTRACT, made and entered into this 29th day of January 1974,

between SAFE INVESTMENT CO., a Washington corporation, and CLEM LaVOY and OPAL LaVOY, his wife,

hereinafter called the "seller," and [redacted]

RAZORE ENTERPRISES, INC., a Washington corporation,

hereinafter called the "purchaser,"

WITNESSETH: That the seller agrees to sell to the purchaser and the purchaser agrees to purchase from the seller the following described real estate, with the appurtenances, in King County, State of Washington:

PARCEL A: That portion of the south half of vacated Block 3, South Park platted as Lots 25 to 48 inclusive, according to plat recorded in Volume 4 of Plats, page 87, King County, Washington, lying southwesterly of SR 99; TOGETHER WITH south half of the vacated alley adjoining; EXCEPT that portion thereof conveyed to the State of Washington for highway purposes, by deed recorded under King County Recording No. 5320163.

PARCEL B: The south 31 feet of vacated Lots 1 to 16 inclusive, vacated Block 3, South Park, according to plat recorded in Volume 4 of Plats, page 87, in King County, Washington; TOGETHER WITH the north half of vacated alley adjoining; EXCEPT portion deeded to State of Washington by deed recorded under King County Recording No. 5205490.

PARCEL C: The south 31 feet of Lots 17 to 21, inclusive, ALL in vacated Block 3, South Park, according to plat recorded in Volume 4 of Plats, page 87, in King County, Washington, EXCEPT those portions thereof lying within West Marginal Way; and EXCEPT that portion thereof condemned by the State of Washington for highway purposes, in King County Superior Court Cause No. 515467, conveyed by deed recorded under King County Recording No. 5320164, TOGETHER WITH the north half of the vacated alley adjoining.

7402040025

The terms and conditions of this contract are as follows: The purchase price is ----------
EIGHTY-TWO THOUSAND NINE HUNDRED---------- ($82,900.00) Dollars, of which
TWENTY-TWO THOUSAND NINE HUNDRED---------- ($22,900.00) Dollars have been paid, the receipt whereof is hereby acknowledged, and the balance of said purchase price shall be paid as follows.

~~or more at purchaser's option, on or before the day of ($) Dollars, and , 19 , or more at purchaser's option, on or before the day of each succeeding calendar month until the balance of said purchase price shall have been fully paid. The purchaser further agrees to pay interest on the diminishing balance of said purchase price at the rate of per cent per annum from the day of , 19 which interest shall be deducted from each installment payment and the balance of each payment applied in reduction of principal.~~

All payments to be made hereunder shall be made at 2920 Seattle-1st Natl. Bank Bldg, Seattle, WA, or at such other place as the seller may direct in writing.

Purchaser agrees to pay principal and interest as follows:
$20,000.00 on principal, in 1975, on or before February 1, 1975;
$20,000.00 on principal, in 1976, on or before February 1, 1976;
$20,000.00 on principal, in 1977, on or before Febraury 1, 1977.
Interest on diminishing balance of purchase price principal, at the rate of 7-1/2 per cent per annum from February 1, 1974 shall be paid on said dates of payment of said principal payments.

As referred to in this contract, "date of closing" shall be February 1, 1974.

(1) The purchaser assumes and agrees to pay before delinquency all taxes and assessments that may as between grantor and grantee hereafter become a lien on said real estate; and if by the terms of this contract the purchaser has assumed payment of any mortgage, contract or other encumbrance, or has assumed payment of or agreed to purchase subject to, any taxes or assessments now a lien on said real estate, the purchaser agrees to pay the same before delinquency.

(2) The purchaser agrees, until the purchase price is fully paid, to keep the buildings now and hereafter placed on said real estate insured to the actual cash value thereof against loss or damage by both fire and windstorm in a company acceptable to the seller and for the seller's benefit, as his interest may appear, and to pay all premiums therefor and to deliver all policies and renewals thereof to the seller.

(3) The purchaser agrees that full inspection of said real estate has been made and that neither the seller nor his assigns shall be held to any covenant respecting the condition of any improvements thereon nor shall the purchaser or seller or the assigns of either be held to any covenant or agreement for alterations, improvements or repairs unless the covenant or agreement relied on is contained herein or is in writing and attached to and made a part of this contract.

(4) The purchaser assumes all hazards of damage to or destruction of any improvements now on said real estate or hereafter placed thereon, and of the taking of said real estate or any part thereof for public use; and agrees that no such damage, destruction or taking shall constitute a failure of consideration. In case any part of said real estate is taken for public use, the portion of the condemnation award remaining, after payment of reasonable expenses of procuring the same shall be paid to the seller and applied as payment on the purchase price herein unless the seller elects to allow the purchaser to apply all or a portion of such condemnation award to the rebuilding or restoration of any improvements damaged by such taking. In case of damage or destruction from a peril insured against, the proceeds of such insurance remaining after payment of the reasonable expense of procuring the same shall be devoted to the restoration or rebuilding of such improvements within a reasonable time, unless purchaser elects that said proceeds shall be paid to the seller for application on the purchase price herein.

(5) The seller has delivered, or agrees to deliver within 15 days of the date of closing a policy of title insurance in standard form, or a commitment therefor, issued by Security Title Insurance Co[illegible] Bellingham, insuring the purchaser to the full amount of said purchase price against loss or damage by reason of [illegible] seller's title to said real estate as of the date of closing and containing no exceptions other than the following:

a. Printed general exceptions appearing in said policy form;

b. Liens or encumbrances which by the terms of this contract the purchaser is to assume or [illegible] which conveyance hereunder is to be made subject; and

c. Any existing contract or contracts under which seller is purchasing said real estate, and any mortgages or other obligation, which seller by this contract agrees to pay, none of which for the purpose of this paragraph (5) shall be deemed defects in seller's title.

(6) If seller's title to said real estate is subject to an existing contract or contracts under which seller is purchasing said real estate, or any mortgage or other obligation which seller is to pay, seller agrees to make such payments in accordance with the terms thereof, and upon default, the purchaser shall have the right to make any payments necessary to remove the default, and any payments so made shall be applied to the payments next falling due the seller under this contract.

TL-47 & 47

740202025

(7) The seller agrees, upon receiving full payment of the purchase price and interest in the manner above specified, to execute and deliver to purchaser a statutory warranty _____ deed to said real estate, excepting any part thereof hereafter taken for public use, free of encumbrances except any that may attach after date of closing through any person other than the seller, and subject to the following:

Utility easement, conveyed and granted to the Municipality of Metropolitan Seattle, which bears date of December 14, 1973, permanently over and across the northeasterly portion of the above-described property.

7402020125

(8) Unless a different date is provided for herein, the purchaser shall be entitled to possession of said real estate on date of closing and to retain possession so long as purchaser is not in default hereunder. The purchaser covenants to keep the buildings and other improvements on said real estate in good repair and not to permit waste and not to use, or permit the use of, the real estate for any illegal purpose. The purchaser covenants to pay all service, installation or construction charges for water, sewer, electricity, garbage or other utility services furnished to said real estate after the date purchaser is entitled to possession.

(9) In case the purchaser fails to make any payment herein provided or to maintain insurance, as herein required, the seller may make such payment or effect such insurance, and any amounts so paid by the seller, together with interest at the rate of 10% per annum thereon from date of payment until repaid, shall be repayable by purchaser on seller's demand, all without prejudice to any other right the seller might have by reason of such default.

(10) Time is of the essence of this contract, and it is agreed that in case the purchaser shall fail to comply with or perform any condition or agreement hereof or to make any payment required hereunder promptly at the time and in the manner herein required, the seller may elect to declare all the purchaser's rights hereunder terminated, and upon his doing so, all payments made by the purchaser hereunder and all improvements placed upon the real estate shall be forfeited to the seller as liquidated damages, and the seller shall have right to re-enter and take possession of the real estate; and no waiver by the seller of any default on the part of the purchaser shall be construed as a waiver of any subsequent default.

Service upon purchaser of all demands, notices or other papers with respect to forfeiture and termination of purchaser's rights may be made by United States Mail, postage pre-paid, return receipt requested, directed to the purchaser at his address last known to the seller.

(11) Upon seller's election to bring suit to enforce any covenant of this contract, including suit to collect any payment required hereunder, the purchaser agrees to pay a reasonable sum as attorney's fees and all costs and expenses in connection with such suit, which sums shall be included in any judgment or decree entered in such suit.

If the seller shall bring suit to procure an adjudication of the termination of the purchaser's rights hereunder, and judgment is so entered, the purchaser agrees to pay a reasonable sum as attorney's fees and all costs and expenses in connection with such suit, and also the reasonable cost of searching records to determine the condition of title at the date such suit is commenced, which sums shall be included in any judgment or decree entered in such suit.

IN WITNESS WHEREOF, the parties hereto have executed this instrument as of the date first written above.

RAZORE ENTERPRISES, INC.

By Joe Razore President

By Joan Razore Secretary

SAFE INVESTMENT CO.

By Ofell H. Johnson

By Jon W. Sather

Clem LaVoy

Opal LaVoy

MAIL TO:
SAFECO TITLE
ESCROW DEPT.
ESCROW # 25903-RS

STATE OF WASHINGTON, } ss.
County of KING

On this 29th day of January 1974, personally appeared OFELL H. JOHNSON and JON W. SATHER to me known to be the President and Secretary, respectively, of SAFE INVESTMENT CO. the corporation that executed the foregoing instrument, and acknowledged said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that authorized to execute the said instrument and that the seal affixed is the corporate seal of said corporation.

In Witness Whereof, I have hereunto set my hand and affixed my official seal the day and year first above written.

Arthur S. Ruge
Notary Public in and for the State of Washington
residing at Seattle.

STATE OF WASHINGTON, } ss.
County of KING

On this day personally appeared before me CLEM LaVOY And OPAL LaVOY

7402040025

to me known to be the individual s described in and who executed the within and foregoing instrument and acknowledged that they signed the same as their free and voluntary act and deed for the purposes therein mentioned.

Given under my hand and official seal this 29 day of January, 1974.

Sylvia Cummings
Notary Public in and for the State of Washington, residing at Seattle.

TL-14 1 10 Security Title Insurance Company of Washington – ACKNOWLEDGMENT – ORDINARY

SECURITY TITLE INSURANCE COMPANY
OF WASHINGTON

Filed for Record at Request of

NAME _____

ADDRESS _____

CITY AND STATE _____

THIS SPACE RESERVED FOR RECORDER'S USE

1974 FEB 4 AM 8 00

DIRECTOR OF ELECTIONS KING CO. WA
_____ DEPUTY

FILED for Record at Request of
SAFECO TITLE INS. CO.
SEATTLE, WASH.

74 02040125

410

E # 249203.

THIS SPACE RESERVED FOR RECORDER'S USE

FEB 1 1 34 PM '77

RECORDED KC REC

Filed for Record at Request of

Name Jane Rayne

Address 700 - 11 3rd

City and State SEATTLE WA

SALES TAX PAID ON CONTRACT AFF. NO E249203

KING CO. RECORDS DIVISION

BY J. Tourkoff DEPUTY

FEB-1-77 00 3.6 77020106 84 — E KF 3.10

Statutory Warranty Deed

THE GRANTOR Safe Investment Co., a Washington corporation, and Clem La Voy and Opal La Voy, his wife

for and in consideration of Ten dollars

in hand paid, conveys and warrants to Rezore Enterprises, Inc. a Washington corporation.

the following described real estate, situated in the County of King, State of Washington:

PARCEL A: That portion of the south half of vacated Block 3, South Park platted as Lots 25 to 48 inclusive, according to plat recorded in Volume 4 of Plats, page 87, King County, Washington, lying southwesterly of SR 99; TOGETHER WITH south half of the vacated alley adjoining; EXCEPT that portion thereof conveyed to the State of Washington for highway purposes by deed recorded under King County Recording No. 5320163.

PARCEL B: The south 31 feet of vacated Lots 1 to 16 inclusive, vacated Block 3, South Park, according to plat recorded in Volume 4 of Plats, page 87, in King County, Washington; TOGETHER WITH the north half of vacated alley adjoining; EXCEPT portion deeded to State of Washington by deed recorded under King County Recording No. 5205490.

PARCEL C: The south 31 feet of Lots 17 to 21, inclusive, ALL in vacated Block 3, South Park, according to plat recorded in Volume 4 of Plats, page 87, in King County, Washington, EXCEPT those portions thereof lying within West Marginal Way; and EXCEPT that portion thereof condemned by the State ofWashington for highway purposes, in King County Superior Court Cause No. 515467, conveyed by deed recorded under King County Recording No. 5320164, TOGETHER WITH the north half of the vacated alley adjoining.

Subject to the following:

Utility easement, conveyed and granted to the Municipality of Metropolitan Seattle, which bears date of December 14, 1973, permanently over and across the northeasterly portion of the above-described property.

This deed is given in fulfillment of real estate contract executed January 9, 1974 between the parties hereto, and subject to terms and conditions thereof.

Dated this 7th day of January, 19 77

SAFE INVESTMENT CO.

By [signature] Pres. [signature] (SEAL)

By [signature] Secr. [signature] (SEAL)

STATE OF WASHINGTON, } ss.

County of King

On this day personally appeared before me Clem La Voy and Opal La Voy, his wife

to me known to be the individuals described in and who executed the within and foregoing instrument, and acknowledged that they signed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 7th day of January, 19 77

[signature]

Notary Public in and for the State of Washington, residing at Issaquah

STATE OF WASHINGTON,
County of KING } ss.

On this 7th day of January A. D. 19 76
before me personally appeared OFELL H. JOHNSON and JEROME M. JOHNSON
to me known
to be the President and Secretary respectively of the corporation that
executed the within and foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said corporation for the uses and purposes therein mentioned, and on oath stated
that they were authorized to execute said instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

Notary Public in and for the State of Washington, residing at Seattle.

Security Title Insurance Company of Washington — ACKNOWLEDGMENT — CORPORATION

7702010684

JUL-7-77 L00587 770707093 6 — E RF 3.00

SECURITY TITLE INSURANCE COMPANY
OF WASHINGTON

Filed for Record at Request of

NAME UNKNOWN

ADDRESS

CITY AND STATE

THIS SPACE RESERVED FOR RECORDER'S USE

JUL 7 3 27 PM '77

RECORDER'S

Warranty Fulfillment Deed

THE GRANTOR **RUBY H. NEWTON, a single woman on dates of acquiring title and at all times since**

for and in consideration of **Ten Dollars and other good and valuable consideration**

in hand paid, conveys and warrants to **MANITOU INVESTMENT COMPANY, INC.**

the following described real estate, situated in the county of **King**, State of Washington:

Vacated Lots 34 through 40, inclusive, and portion of vacated street and alley adjoining, vacated Block 2 and vacated Lots 1 through 21, inclusive, and portion of vacated street adjoining vacated Block 3,
EXCEPT the south 31 feet thereof all in South Park, according to plat recorded in Volume 4 of Plats, page 87, in King County, Washington;
EXCEPT that portion conveyed for street purposes by instrument recorded under Auditor's File No. 3186886 and
EXCEPT portion taken for West Marginal Way under King County Superior Court Cause No. 515467 and
EXCEPT all that portion of the following described Parcel "A" lying northeasterly of a line drawn parallel with and 10 feet southwesterly, when measured at right angles from the centerline of Primary State Highway No. 1, South 116th Street to Jct. SSH 1-K

PARCEL "A": Lots 17 to 21, inclusive, ALL in vacated Block 3, South Park, according to plat recorded in Volume 4 of Plats, page 87, in King County, Washington;
EXCEPT these portions thereof lying within West Marginal Way; and
EXCEPT that portion thereof condemned by the State of Washington for highway purposes, in King County Superior Court Cause No. 515467 conveyed by Deed recorded under Auditor's File No. 5320164, and any portion conveyed by Auditor's File No. 5205450.

770707036

This deed is given in fulfillment of that certain real estate contract between the parties hereto, dated **January 17**, 19 **73**, and conditioned for the conveyance of the above described property, and the covenants of warranty herein contained shall not apply to any title, interest or encumbrance arising by, through or under the purchaser in said contract, and shall not apply to any taxes, assessments or other charges levied, assessed or becoming due subsequent to the date of said contract.

Dated this **17th** day of **January, 1973**

Ruby M. Newton (SEAL)

(SEAL)

STATE OF WASHINGTON,
County of **King** ss.

On this day personally appeared before me **Ruby M. Newton**

to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that **she** signed the same as **her** free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 13th day of ~~January~~ February, 1973.

SALES TAX PAID ON CONTRACT ATT. NO 208089
KING CO. RECORDS DIVISION
BY E. Granger, DEPUTY

John S. Robinson
Notary Public in and for the State of Washington, residing at Seattle

Unofficial Document

980622-1628 02:45:00 PM KING COUNTY RECORDS DD3 LLO 10.00

98062216 28

After Recording Return To:
Preston Gates & Ellis LLP
701 Fifth Avenue, Suite 5000
Seattle, Washington 98104
Attn: Robert D. Neugebauer

QUIT CLAIM DEED

Grantor: Razore Enterprises, Inc.

Grantee: Josie Razore

Legal Description:
Abbreviated Form: 500 South Sullivan Street, Seattle, WA 98108
Additional legal on Exhibit A to document

Assessor's Tax Parcel ID#: 766620 5336

THE GRANTOR, Razore Enterprises, Inc., a Washington corporation, for and in consideration of ten dollars ($10.00) and other good and valuable consideration, conveys and quit claims to Josie Razore, the real property described on the attached Exhibit A (which is incorporated herein by reference), situated in the County of King, State of Washington, together with all after acquired title of the grantor therein.

Dated June 22, 1998.

RAZORE ENTERPRISES, INC.

By Marie Schulze
Marie Schulze, Vice President

K:\36969\00001\DP\DeedSullivan1.doc

E1620162 06/22/98 11392.00 640000.00

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

I certify that I know or have satisfactory evidence that Marie Schulze is the person who appeared before me, and said person acknowledged that she signed this instrument, on oath stated that she was authorized to execute the instrument and acknowledged it as the Vice President of Razore Enterprises, Inc. to be the free and voluntary act of such person for the uses and purposes mentioned in the instrument.

Dated: June 22, 1998

SUZANNE M. FREBURG
COMMISSION EXPIRES
NOTARY
PUBLIC
MAY 25, 2000
STATE OF WASHINGTON

(Use this space for notarial stamp/seal)

Suzanne M. Freburg
Notary Public
Print Name Suzanne M. Freburg
My commission expires May 25, 2000

9806221628

Unofficial Document

Unofficial Document

EXHIBIT A

Legal Description

Parcel A

That portion of the South half of vacated Block 3, South Park platted as Lots 25 to 48 inclusive, according to plat thereof recorded in Volume 4 of Plats, page 87, King

Unofficial Document

98062221629 03:45:00 PM KING COUNTY RECORDS 003 LLO 10.00

After Recording Return To:
Preston Gates & Ellis LLP
701 Fifth Avenue, Suite 5000
Seattle, Washington 98104
Attn: Robert D. Neugebauer

QUIT CLAIM DEED

Grantor: Josie Razore

Grantee: Paper Fibers, Inc.

Legal Description:
Abbreviated Form: 500 South Sullivan Street, Seattle, WA 98108
Additional legal on Exhibit A to document

Assessor's Tax Parcel ID#: 788360 0600

98062221629

THE GRANTOR, Josie Razore, who has decided to contribute the real property described on the attached Exhibit A (which is incorporated herein by reference), situated in the County of King, State of Washington, to Paper Fibers, Inc., a Washington corporation of which the grantor is the sole owner, conveys and quit claims his entire interest in such real property, together with all after acquired title of the grantor therein, to Paper Fibers, Inc.

Dated June 22, 1998.

Josie Razore

Josie Razore

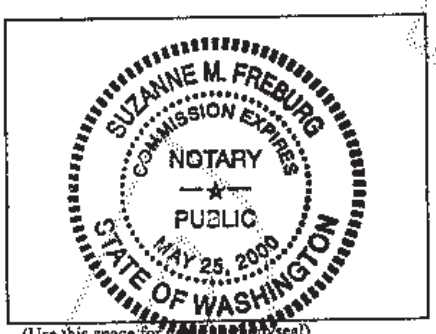
K:\36969\00001\JDP\DeedSullivan2.doc

E1620165 06/22/98 .00 .00

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

I certify that I know or have satisfactory evidence that Josie Razore is the person who appeared before me, and said person acknowledged that he signed this instrument, on oath stated that he was authorized to execute the instrument and acknowledged it to be his free and voluntary act for the uses and purposes mentioned in the instrument.

Dated: June 22, 1998



(Use this space for notarial seal)

Suzanne M. Freburg
Notary Public
Print Name Suzanne M. Freburg
My commission expires May 25, 2000

9806221629

Unofficial Document

EXHIBIT A

Legal Description

Parcel A

That portion of the South half of vacated Block 3, South Park platted as Lots 25 to 48 inclusive, according to plat thereof recorded in Volume 4 of Plats, page 87, King County, Washington, lying southwesterly of SR 99; TOGETHER WITH South half of vacated alleyway adjoining; EXCEPT that portion thereof conveyed to the State of Washington for highway purposes by deed recorded under King County Recording No. 5320163.

SUBJECT to any and all other easements, covenants, and other restrictions of record.

Parcel B

The South 31 feet of vacated Lots 1 to 16 inclusive, vacated Block 3, South Park, according to plat recorded in Volume 4 of Plats, page 87, in King County Washington; TOGETHER WITH North half of vacated alley adjoining; EXCEPT portion deeded to State of Washington by deed recorded under King County Recording No. 5205490.

SUBJECT to any and all other easements, covenants, and other restrictions of record.

Parcel C

The South 31 feet of Lots 17 to 21, inclusive, all in vacated Block 3, South Park, according to plat recorded in Volume 4 of Plats, page 87, in King County Washington; EXCEPT those portions thereof lying within West Marginal Way; and EXCEPT that portion thereof condemned by the State of Washington for highway purposes, in King County Superior Court Cause No. 515467, conveyed by deed recorded under King County Recording No. 5320164; TOGETHER WITH the North half of vacated alley adjoining:

Subject to the following: Utility Easement, conveyed and granted to the Municipality of Metropolitan Seattle, which bears date of December 14, 1973, permanently over and across the northeasterly portion of the above-described property.

SUBJECT to any and all other easements, covenants, and other restrictions of record.

K:\36969\00001\JDP\DeedSullivan2.doc

9806221629

20000218001354
PAGE 001 OF 003
02/18/2000 14:32
KING COUNTY, WA

FIRST AMERICAN WD 10.00

AFTER RECORDING MAIL TO:
First South Properties, L.L.C., A Washington Limited Liability Company
7343 E. Marginal Way S.
Seattle, WA 98108

E1736942
02/18/2000 13:59
KING COUNTY, WA
TAX $11,932.68
SALE $870,375.01

PAGE 001 OF 002

Filed for Record at Request of
First American Title/Seattle (3) 506826-5K
Escrow Number: 46698DG

First American Title Insurance Company

Statutory Warranty Deed

Grantor(s): Paper Fibers, Inc., A Washington Corporation
Grantee(s): First South Properties, L.L.C., A Washington Limited Liability Company
Abbreviated Legal: Lot 1-21 & 25-48, Block 3, South Park, as per Plat recorded in Volume 4 of Plats, Page 87 inclusive, records of KING County, WA
Additional legal(s) on page:
Assessor's Tax Parcel Number(s): 788360-0600-08

2000 021 8001354

THE GRANTOR Paper Fibers, Inc., A Washington Corporation, a corporation for and in consideration of TEN DOLLARS AND OTHER GOOD AND VALUABLE CONSIDERATION in hand paid, conveys and warrants to First South Properties, L.L.C., A Washington Limited Liability company
the following described real estate, situated in the County of KING, State of Washington:
See attached legal description as Exhibit "A" and by this reference made a part hereof.

Subject to: easements, restrictions, reservations and provisions as attached hereto as Exhibit "B".

Dated this 10th day of February, 2000

By Paper Fibers, Inc., A Washington Corporation By

By Nels Johnson Vice President By

NELS JOHNSON, VICE-PRESIDENT

R. GARY THOMAS
COMMISSION EXPIRES
NOTARY
PUBLIC
2-19-03
STATE OF WASHINGTON

STATE OF WASHINGTON }
County of King } SS:

I certify that I know or have satisfactory evidence that NELS JOHNSON is the person who appeared before me, and said person acknowledged that he signed this instrument, on oath stated that he is authorized to execute the instrument and acknowledge it as the VICE PRESIDENT of PAPER FIBERS, INC. A WASH. CORPORATION to be the free and voluntary act of such party for the uses and purposes mentioned in this instrument.
Dated: 2-16-00

Notary Public in and for the State of WASHINGTON
Residing at EDMONDS
My appointment expires: 2-19-03

LPB-10

EXHIBIT "A"

PARCEL A:

THAT PORTION OF THE SOUTH HALF OF VACATED BLOCK 3 OF SOUTH PARK PLATTED AS LOTS 25 TO 48, INCLUSIVE, ACCORDING TO PLAT RECORDED IN VOLUME 4 OF PLATS AT PAGE(S) 87, IN KING COUNTY, WASHINGTON, LYING SOUTHWESTERLY OF SR 99, TOGETHER WITH THE SOUTH HALF OF VACATED ALLEY ADJOINING OR ABUTTING THEREON, WHICH UPON VACATION, ATTACHED TO SAID PREMISES BY OPERATION OF LAW, EXCEPT THAT PORTION CONVEYED TO THE STATE OF WASHINGTON FOR HIGHWAY PURPOSES BY DEED RECORDED UNDER RECORDING NO. 5320163

PARCEL B:

THE SOUTH 31 FEET OF VACATED LOTS 4 TO 16, INCLUSIVE, VACATED BLOCK 3 OF SOUTH PARK, ACCORDING TO PLAT RECORDED IN VOLUME 4 OF PLATS AT PAGE(S) 87, IN KING COUNTY, WASHINGTON;
TOGETHER WITH THE NORTH HALF OF VACATED ALLEY ADJOINING OR ABUTTING THEREON, WHICH UPON VACATION, ATTACHED TO SAID PREMISES BY OPERATION OF LAW;
EXCEPT THAT PORTION CONVEYED TO THE STATE OF WASHINGTON BY DEED RECORDED UNDER RECORDING NO. 5205490

PARCEL C:

THE SOUTH 31 FEET OF LOTS 17 TO 21, INCLUSIVE, VACATED BLOCK 3 OF SOUTH PARK, ACCORDING TO PLAT RECORDED IN VOLUME 4 OF PLATS AT PAGE(S) 87, IN KING COUNTY, WASHINGTON;
EXCEPT THOSE PORTIONS THEREOF LYING WITHIN WEST MARGINAL WAY;
AND EXCEPT THAT PORTION CONDEMNED IN KING COUNTY SUPERIOR COURT CAUSE NO 515467 FOR HIGHWAY PURPOSES, CONVEYED BY DEED RECORDED UNDER RECORDING NO. 5320164;
TOGETHER WITH THE NORTH HALF OF VACATED ALLEY ADJOINING OR ABUTTING THEREON, WHICH UPON VACATION, ATTACHED TO SAID PREMISES BY OPERATION OF LAW

2000 -021- 8001354

Unofficial Document

EXHIBIT "B"

RELINQUISHMENT OF ALL EXISTING AND FUTURE RIGHTS TO LIGHT, VIEW AND AIR, TOGETHER WITH THE RIGHTS OF ACCESS TO AND FROM THE STATE HIGHWAY CONSTRUCTED ON LANDS CONVEYED BY INSTRUMENT.
RECORDED: **SEPTEMBER 26, 1960**
RECORDING NO.: **5205490**
IN FAVOR OF: **THE STATE OF WASHINGTON**
(AS TO PARCEL B)

RELINQUISHMENT OF ALL EXISTING AND FUTURE RIGHTS TO LIGHT, VIEW AND AIR, TOGETHER WITH THE RIGHTS OF ACCESS TO AND FROM THE STATE HIGHWAY CONSTRUCTED ON LANDS CONVEYED BY INSTRUMENT:
RECORDED **AUGUST 21, 1961**
RECORDING NO.. **5320163**
IN FAVOR OF: **THE STATE OF WASHINGTON**
(AS TO PARCEL A)

RELINQUISHMENT OF ALL EXISTING AND FUTURE RIGHTS TO LIGHT, VIEW AND AIR, TOGETHER WITH THE RIGHTS OF ACCESS TO AND FROM THE STATE HIGHWAY CONSTRUCTED ON LANDS CONVEYED BY INSTRUMENT
RECORDED: **AUGUST 21, 1961**
RECORDING NO. **5320164**
IN FAVOR OF. **THE STATE OF WASHINGTON**
(AS TO PARCEL C)

EASEMENT, INCLUDING TERMS AND PROVISIONS CONTAINED THEREIN:
RECORDED. **MARCH 11, 1974**
RECORDING NO : **7403110477**
IN FAVOR OF: **MUNICIPALITY OF METROPOLITAN SEATTLE**
FOR: **A SEWER INTERCEPTOR**
AFFECTS **THE NORTHEASTERLY 21 FEET OF PARCELS B AND C**

WATER SERVICE AGREEMENT AND THE TERMS AND CONDITIONS THEREOF.
BETWEEN: **RAZORE ENTERPRISES**
AND: **CITY OF SEATTLE**

RECORDED **SEPTEMBER 18, 1984**
RECORDING NO **8409180727**

EASEMENT, INCLUDING TERMS AND PROVISIONS CONTAINED THEREIN
RECORDED **FEBRUARY 5, 1986**
RECORDING NO **8602050509**
IN FAVOR OF **MUNICIPALITY OF METROPOLITAN SEATTLE**
FOR. **A SEWER INTERCEPTOR AND A DISTRICT HEATING AND COOLING SYSTEM**
AFFECTS **THE SOUTHWESTERLY 14 FEET OF THE NORTHEASTERLY 35 FEET OF SAID BLOCK 3, LYING SOUTHERLY OF THE NORTH 89 FEET THEREOF AND LYING SOUTHWESTERLY OF THE SOUTHWESTERLY MARGIN OF PRIMARY STATE HIGHWAY NO. 1**

2000 021 8001354

Unofficial Document

AFTER RECORDING MAIL TO
White Sands, L.L.C., a Washington Limited l
1125 NW 53rd Street
Seattle, WA 98107

20000411001312
FIRST AMERICAN WD 10.00
PAGE 001 OF 003
04/11/2000 14:07
KING COUNTY, WA

E1746454
04/11/2000 14:00
KING COUNTY, WA
TAX $21,205.32
SALE $1,191,310.0

PAGE 001 OF 001

Filed for Record at Request of
First American Title/Seattle
Escrow Number 46728DG

First American Title Insurance Company

Statutory Warranty Deed

Grantor(s): First South Properties, L.L.C., a Washington Limited liability company
Grantee(s) White Sands, L.L.C., a Washington Limited liability company
Abbreviated Legal LOTS 1-21 & 25-48, VACATED BLK 3, SOUTH PARK, as per Plat recorded in Volume 4 of Plats, Page 87 inclusive, records of KING County, WA
Additional legal(s) on page.
Assessor's Tax Parcel Number(s) 788360-0600-08

IST AM-S (3)
809127-5

2000 041 1001312

THE GRANTOR First South Properties, LLC, a Washington limited liability company
for and in consideration of 'As part of an I.R.C. Section 1031 Tax Deferred Exchange' in hand paid, conveys and warrants to White Sands, LLC, a Washington limited liability company
the following described real estate, situated in the County of KING, State of Washington
See Attached Exhibit A

Subject to: easements, restrictions, reservations and provisions as attached hereto as Exhibit "B"

Dated this 6th day of April, 2000

By _____

By First South Properties, L.L.C., a Washington Limited liability company

By _____

By _____
Ralph Devin, Manager

STATE OF WASHINGTON }
County of KING } SS:

I certify that I know or have satisfactory evidence that Ralph Devin is the person who appeared before me, and said person acknowledged that he signed this instrument, on oath stated that he is authorized to execute the instrument and acknowledge it as the Manager of First South Properties, L.L.C. to be the free and voluntary act of such party for the uses and purposes mentioned in this instrument.

Dated: April 11, 2000

SUZANNE SCHROEDER
COMM. EXP. 2-2-02
STATE OF WASHINGTON

Suzanne Schroeder
Notary Public in and for the State of WASHINGTON
Residing at REDMOND
My appointment expires: 2/02/2002

LPB-10

EXHIBIT "A"

PARCEL A

THAT PORTION OF THE SOUTH HALF OF VACATED BLOCK 3 OF SOUTH PARK PLATTED AS LOTS 25 TO 48, INCLUSIVE, ACCORDING TO PLAT RECORDED IN VOLUME 4 OF PLATS AT PAGE(S) 87, IN KING COUNTY, WASHINGTON, LYING SOUTHWESTERLY OF SR 99;
TOGETHER WITH THE SOUTH HALF OF VACATED ALLEY ADJOINING OR ABUTTING THEREON, WHICH UPON VACATION, ATTACHED TO SAID PREMISES BY OPERATION OF LAW,
EXCEPT THAT PORTION CONVEYED TO THE STATE OF WASHINGTON FOR HIGHWAY PURPOSES BY DEED RECORDED UNDER RECORDING NO 5320163

PARCEL B

THE SOUTH 31 FEET OF VACATED LOTS 1 TO 16, INCLUSIVE, VACATED BLOCK 3 OF SOUTH PARK, ACCORDING TO PLAT RECORDED IN VOLUME 4 OF PLATS AT PAGE(S) 87, IN KING COUNTY, WASHINGTON,
TOGETHER WITH THE NORTH HALF OF VACATED ALLEY ADJOINING OR ABUTTING THEREON, WHICH UPON VACATION, ATTACHED TO SAID PREMISES BY OPERATION OF LAW,
EXCEPT THAT PORTION CONVEYED TO THE STATE OF WASHINGTON BY DEED RECORDED UNDER RECORDING NO 5205490

PARCEL C

THE SOUTH 31 FEET OF LOTS 17 TO 21, INCLUSIVE, VACATED BLOCK 3 OF SOUTH PARK, ACCORDING TO PLAT RECORDED IN VOLUME 4 OF PLATS AT PAGE(S) 87, IN KING COUNTY, WASHINGTON,
EXCEPT THOSE PORTIONS THEREOF LYING WITHIN WEST MARGINAL WAY,
AND EXCEPT THAT PORTION CONDEMNED IN KING COUNTY SUPERIOR COURT CAUSE NO 515467 FOR HIGHWAY PURPOSES, CONVEYED BY DEED RECORDED UNDER RECORDING NO 5320164,
TOGETHER WITH THE NORTH HALF OF VACATED ALLEY ADJOINING OR ABUTTING THEREON, WHICH UPON VACATION, ATTACHED TO SAID PREMISES BY OPERATION OF LAW

2000 041 1001312

Unofficial Document

Unofficial Copy

EXHIBIT "B"

RELINQUISHMENT OF ALL EXISTING AND FUTURE RIGHTS TO LIGHT, VIEW AND AIR, TOGETHER WITH THE RIGHTS OF ACCESS TO AND FROM THE STATE HIGHWAY CONSTRUCTED ON LANDS CONVEYED BY INSTRUMENT

RECORDED	SEPTEMBER 26, 1960
RECORDING NO	5205490
IN FAVOR OF	THE STATE OF WASHINGTON
(AS TO PARCEL B)	

RELINQUISHMENT OF ALL EXISTING AND FUTURE RIGHTS TO LIGHT, VIEW AND AIR, TOGETHER WITH THE RIGHTS OF ACCESS TO AND FROM THE STATE HIGHWAY CONSTRUCTED ON LANDS CONVEYED BY INSTRUMENT

RECORDED	AUGUST 21, 1961
RECORDING NO	5320163
IN FAVOR OF	THE STATE OF WASHINGTON
(AS TO PARCEL A)	

RELINQUISHMENT OF ALL EXISTING AND FUTURE RIGHTS TO LIGHT, VIEW AND AIR, TOGETHER WITH THE RIGHTS OF ACCESS TO AND FROM THE STATE HIGHWAY CONSTRUCTED ON LANDS CONVEYED BY INSTRUMENT

RECORDED	AUGUST 21, 1961
RECORDING NO	5320164
IN FAVOR OF	THE STATE OF WASHINGTON
(AS TO PARCEL C)	

EASEMENT, INCLUDING TERMS AND PROVISIONS CONTAINED THEREIN:

RECORDED	MARCH 11, 1974
RECORDING NO	7403110477
IN FAVOR OF	MUNICIPALITY OF METROPOLITAN SEATTLE
FOR	A SEWER INTERCEPTOR
AFFECTS	THE NORTHEASTERLY 21 FEET OF PARCELS B AND C

WATER SERVICE AGREEMENT AND THE TERMS AND CONDITIONS THEREOF

BETWEEN:	RAZORE ENTERPRISES
AND	CITY OF SEATTLE
RECORDED:	SEPTEMBER 18, 1984
RECORDING NO	8409180727

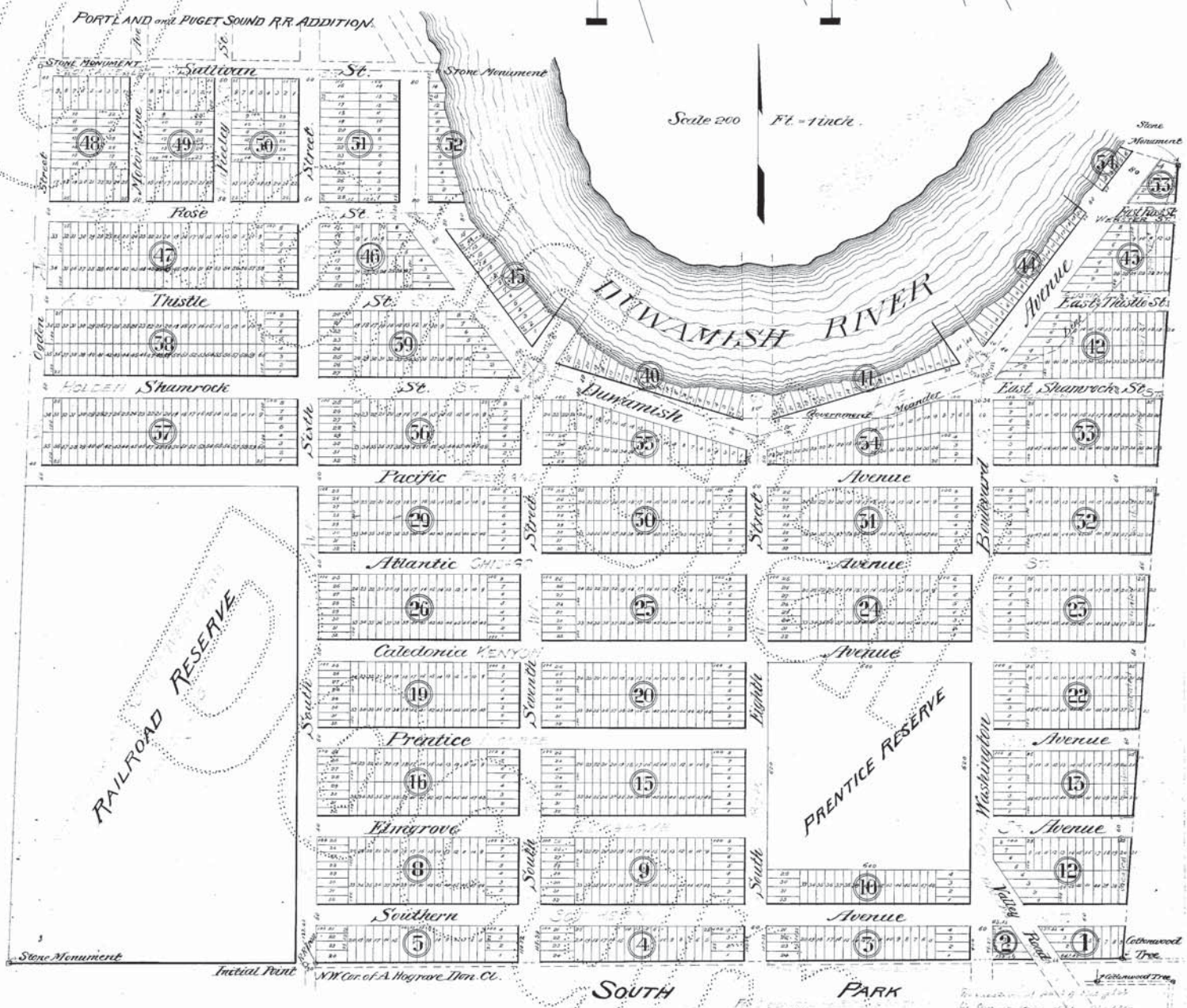
EASEMENT, INCLUDING TERMS AND PROVISIONS CONTAINED THEREIN:

RECORDED	FEBRUARY 5, 1986
RECORDING NO	8602050509
IN FAVOR OF	MUNICIPALITY OF METROPOLITAN SEATTLE
FOR	A SEWER INTERCEPTOR AND A DISTRICT HEATING AND COOLING SYSTEM
AFFECTS	THE SOUTHWESTERLY 14 FEET OF THE NORTHEASTERLY 35 FEET OF SAID BLOCK 3, LYING SOUTHERLY OF THE NORTH 89 FEET THEREOF AND LYING SOUTHWESTERLY OF THE SOUTHWESTERLY MARGIN OF PRIMARY STATE HIGHWAY NO. 1

2000 041 1001312

Attachment 3
Plat Maps

RIVER PARK.



Description.

This plat of "River Park" embraces all the land included in the "George Holt Donation Claim No 51" in Sections 29 and 32, Township 24 North of Range 4 East of the Willamette Meridian in King County, State of Washington. –

The Initial Point is the North West Corner of the "Augustus Hograve Donation Claim No 37", which point is distant 2397 ⅗ ft West of the Cottonwood tree at the South East corner of the said "George Holt Donation Claim No 51" and on the South line thereof. Said Initial point is marked by a piece of railroad iron, and is 30 feet West of the South West Corner of Block 5, as shown on this Plat.

All regular lots are 25 × 100 feet in size. Dimensions of fractional lots and of all streets and Avenues are as indicated on the plat.

Dedication

This is to certify that we, Alexander Prentice and Jane Prentice, his wife, are the owners in fee simple of the "George Holt Donation Claim No 51, in Sections 29 and 32, Township 24 North, of Range 4 East, in King County, State of Washington, and that we do hereby adopt, make and declare this plat of "River Park", dedicating to the public the use of the streets thereon shown. –

In testimony whereof we have hereunto set our hands and seals this 10th day of January A.D. 1891.

In Presence of David Myers, David A. Byers — Alexander Prentice (Seal), Jane Prentice (Seal)

72269.

Filed for record at Request of D. A. Byers Feb 2 1891 at 3 40 o'clock P. M. and recorded in Vol 28 of Plats page 41 Plats Records of King Co. Wash.

County Auditor.

Acknowledgment.

State of Washington } ss
County of King }

On this 10th day of January A.D. 1891, personally appeared before me – David A. Byers – A. Notary Public, Alexander Prentice and Jane Prentice, his wife, well known to me, to be the persons named in and who executed the accompanying Dedication and Plat of "River Park" and upon examination by me, each of said persons did acknowledge for himself and herself, that they executed the same freely and voluntarily for the uses and purposes therein mentioned.

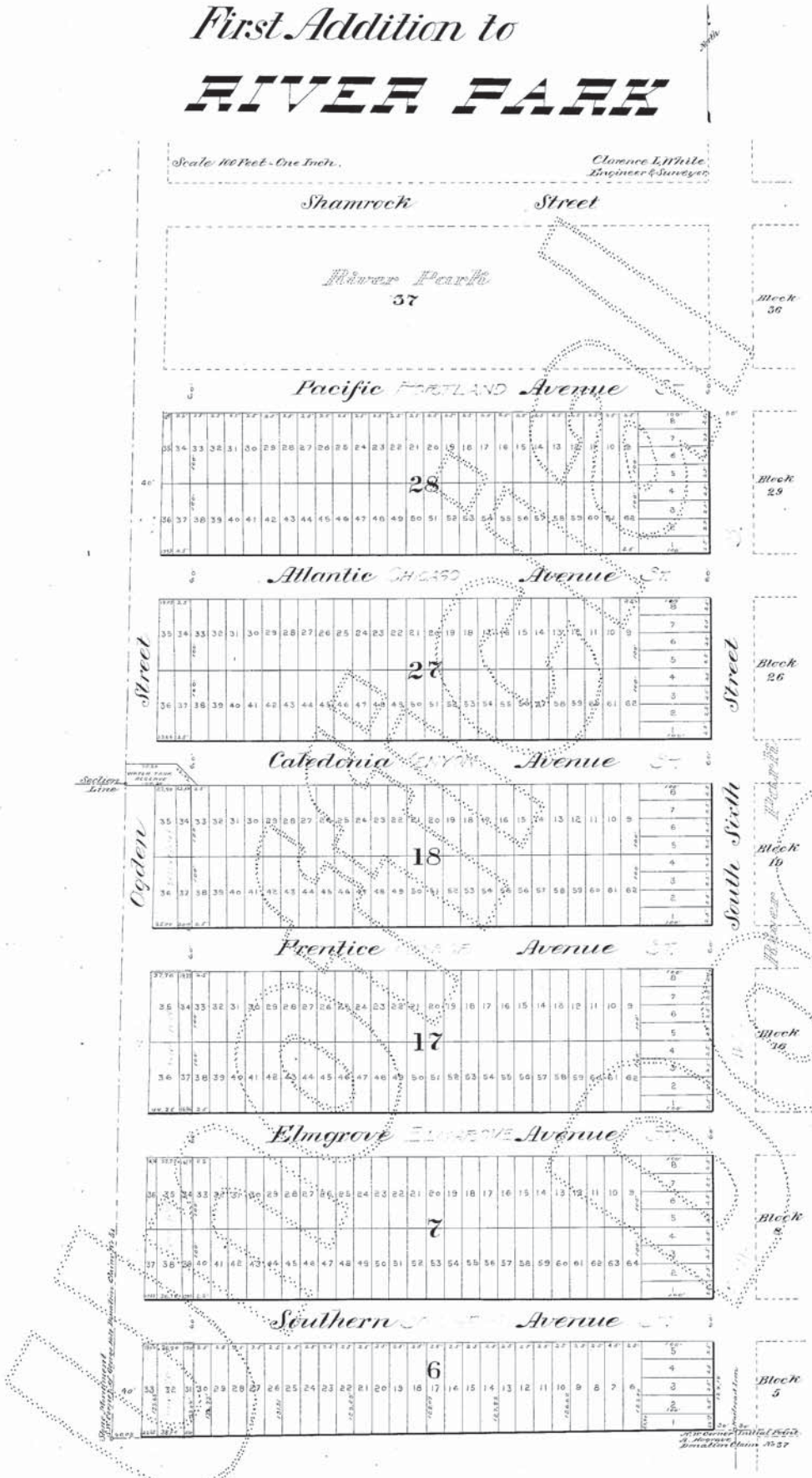
Witness my hand and official seal the date above named.

David A. Byers
Notary Public for State of Washington residing at Seattle.

Notarial Seal. State of Washington

A Extra Rec.

First Addition to RIVER PARK



Description

This plat of the "First Addition to River Park" comprises all of the land included in the block of land designated as "Railroad Reserve" in the plat of River Park. Said plat of River Park being dedicated and acknowledged by Alexander and Jane Prentice the 10th day of January 1884 and recorded in Volume 7 of Plats, page 41 Records of King County Washington. The Initial Point is the North West corner of the Augustus Hograve Donation Claim No 37 which point is distant 2397 ft. ft. west of the cottonwood tree at the South East corner of the George Holt Donation claim No 51 and on the South line thereof. Said initial point is marked by a piece of railroad iron, and is 30 feet East of the South East corner of Block 6 as shown on this plat. All regular lots are 25 by 100 feet in size. Dimensions of fractional lots and of all streets and avenues are as indicated on the plat. The streets in this plat are continuations of similarly named streets in the said plat of River Park.

Dedication

This is to certify that the Reliance Loan and Trust Company, a corporation duly organized and doing business under the laws of the State of Washington is the owner in fee simple of the block of land designated on the plat of River Park as Railroad Reserve, being a portion of the George Holt Donation Claim No 51 in sections 29 and 32 of Township 24 North of Range 4 East in King County, State of Washington, and that said Corporation by Resolution adopted at a meeting of the Trustees of said Corporation regularly called and held did adopt, make and declare this plat of the First Addition to River Park and did dedicate to the public forever the use of the streets and avenues thereon shown, and did authorize the President and Secretary to sign, seal and acknowledge and execute this said plat. In witness whereof the said Corporation has hereunto caused its corporate name and seal to be affixed by its President and Secretary this 25th day of October A.D 1892.

In presence of
I. W. Smith
Ovid A. Byers

The Reliance Loan and Trust Company
By Alexander Prentice, President
By J. A. Gould Secretary

Corporate Seal

Acknowledgment

State of Washington } ss
County of King

On this 25th day of October A.D. 1892, personally appeared before me, Ovid A Byers, a Notary Public, duly commissioned and sworn in and for the State of Washington, Alexander Prentice, President and J. A. Gould, Secretary of the Reliance Loan and Trust Company to me known to be the persons named in and who executed the accompanying dedication and plat of this First Addition to River Park and acknowledged that they executed the same freely and voluntarily as such Officers, for the uses and purposes therein mentioned.

Witness my hand and official seal the date above named.
Ovid A. Byers, Notary Public in and for the State of Washington, Residing at Seattle.

Notarial Seal

105088

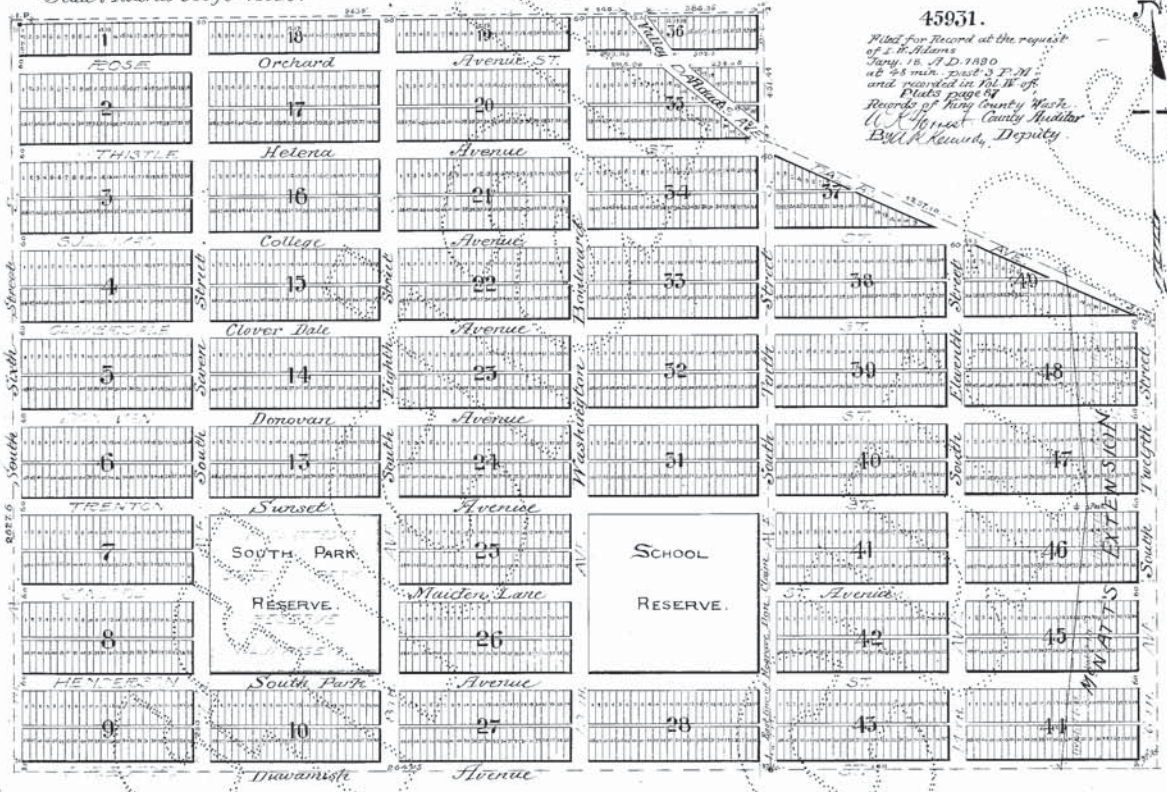
Filed for Record at Request of Gould & Whitworth Oct 25 1892 at 15 min past 10 o'clock P.M. and recorded in Vol VII of Plats, page 65 Records of King County Wash.

County Auditor.

SOUTH PARK

Scale 200 ft. = 1 inch.
Scale of Records 300 ft. = 1 inch.

Albro Gardner,
Civil Engineer.



45931.

Filed for Record at the request of I. W. Adams
Jany. 16. A.D. 1890
at 45 min. past 3 P.M.
and recorded in Vol. W of Plats page 84
Records of King County Wash.
O. K. Hanford County Auditor
By W. R. Kennedy Deputy

DESCRIPTION.

This plat of South Park covers all of the A. Hograve Donation Claim, also a piece beginning at the S.E. cor. of the A. Hograve D.C. and running thence East 100 ft. on a prolongation of the South line of the A. Hograve D.C. thence N. 9° 56' E. 912.15 ft. to the ¼ post between Secs. 32 & 33, thence North along the Sec. line 793.49 feet to the centre of Valley Road, thence N. 56° 40' W. 893.56 ft. the East line of the A. Hograve D.C. thence South along said East line 2190.36 ft. to place of beginning, all in Sec. 32, Tp. 24 N. R. 4 E. W.M. The Initial Point is the N.W. cor. of Block 1 which is 30 ft. East & 10 ft. South of the N.W. cor. of the A. Hograve Donation Claim. All regular lots 25 × 120 ft.

DEDICATION.

Know all men by these presents: that we, I. William Adams and Frances C. Adams (husband and wife) of Helena City, Lewis and Clarke County, Montana, do hereby declare the foregoing plat and dedicate to the use of the public, saving and excepting the rights and privileges, hereinafter reserved, all of the Streets, Avenues, Boulevard and Alleys, as shown thereon, reserving, however, and this dedication is hereby expressly made subject thereto, to the said I. W. Adams and F. C. Adams, their heirs executors, administrators and assigns, the sole and exclusive rights, to use all or any of said streets, avenues, alleys and boulevards, above, below or on the surface thereof, by them and their assigns, perpetually, for the purpose of laying down, repairing and maintaining in said Streets, Avenues, Alleys and Boulevard, mains and pipes, necessary and convenient for water works, gas works, electric wires and all other similar purposes and uses, and also reserving to said I. W. Adams and F. C. Adams, their legal representatives and assigns, the sole and exclusive right, perpetually to construct, maintain and operate over any and all of said Streets, Avenues, Alleys and Boulevard, Streetcars, Tramways and other devices for transporting passengers and freight, whether propelled by electricity, steam, animal, cable, or other motive power, and also reserving to said I. W. Adams and F. C. Adams the sole and exclusive right to construct, erect, repair and maintain, through and over any and all of said Streets, Avenues, Alleys and Boulevard and other public places, poles and wires, above, below, or on the surface, for telegraphic, telephonic and electric light purposes, and also reserving to said I. W. Adams and F. C. Adams, their representatives and assigns, all and all manner of littoral and riparian rights, privileges and appurtenances, in any wise belonging to any of the lands, blocks and lots, embraced in this plat. It is the intention hereby to reserve to said I. W. Adams and F. C. Adams, their representatives and assigns, all rights and privileges, not hereby expressly granted and, nothing shall be taken by implication, or so constructed against them by reason of this dedication, except what is hereby expressly granted. In witness whereof the said I. William Adams and Frances C. Adams have hereunto set their hands and seals on this 16 day of Jany. A.D. 1890.

In presence of
H. O. Shuey
Sydney M. Logan

I. William Adams
Frances C. Adams

ACKNOWLEDGMENT.

State of Washington } S.S.
County of King }

On this 16 day of January A.D. 1890, before me, the undersigned, a Notary Public in and for said County and State, personally came I. William Adams and Frances C. Adams his wife, to me known to be the persons, described in, and who executed the foregoing dedication, and acknowledged that they signed and sealed the same as their free and voluntary act and deed for the uses and purposes, therein mentioned. And the said Frances C. Adams, upon an examination by me, separate and apart from her said husband, when the contents of said instrument were by me fully made known unto her, acknowledged that she did freely and voluntarily, and without fear of or coercion from her husband, execute the same.

Witness my hand and official seal the day and year in this certificate first above written.

H. O. Shuey
Notary Public in and for Wash.

NOTARY SEAL

A. Ertz, Rec.

RECORDER'S CERTIFICATE A.F. No. 8009159001 **25-79**

FILED FOR RECORD THIS 15TH DAY OF Sept. 1980 AT 3:00 P.M. IN BOOK 25 OF SURVEYS, PAGE 79 AT THE REQUEST OF GORDON B. RECTOR

JAMES E. WEEKS, SUPT. OF RECORDS — CLINT G. ELSOE, MANAGER

LAND SURVEYOR'S CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE SURVEY RECORDING ACT AT THE REQUEST OF LONG PAINTING CO. IN SEPT. 1980

1691
CERTIFICATE NO.

LEGAL DESCRIPTION

LOTS 20 TO 24, INCLUSIVE, BLOCK 5, RIVER PARK, ACCORDING TO THE PLAT RECORDED IN VOLUME 7 OF PLATS, PAGE 41, IN KING COUNTY, WASHINGTON, EXCEPT THAT PORTION LYING WITHIN WEST MARGINAL WAY SOUTH.

TOGETHER WITH:

THAT PORTION OF VACATED BLOCK 1 AND NORTH HALF OF VACATED ORCHARD STREET, NOW ROSE STREET, ADJOINING, LYING WEST OF WEST MARGINAL WAY, ALL IN SOUTH PARK, ACCORDING TO THE PLAT RECORDED IN VOLUME 4 OF PLATS, PAGE 87, IN KING COUNTY, WASHINGTON; TOGETHER WITH ALL THAT PORTION OF THE ALLEY DIRECTLY NORTH AND ADJACENT TO SAID TRACT, BEING 10 FEET IN WIDTH; EXCEPT THAT PORTION CONVEYED TO THE STATE OF WASHINGTON FOR PRIMARY STATE HIGHWAY NO. 1 BY DEED RECORDED UNDER AUDITOR'S FILE NO. 4834872.

TOGETHER WITH:

THAT PORTION OF THE NORTH HALF OF VACATED BLOCK 2, SOUTH PARK, ACCORDING TO THE PLAT RECORDED IN VOLUME 4 OF PLATS, PAGE 87, IN KING COUNTY, WASHINGTON; AND SOUTH HALF OF VACATED ROSE STREET, FORMERLY ORCHARD STREET ADJOINING, AND ALSO THE NORTH HALF OF VACATED ALLEY ADJOINING LOTS PLATTED AS LOTS 1 THROUGH 13, INCLUSIVE, ALL LYING WESTERLY OF THE SOUTHWESTERLY MARGIN OF THAT TRACT OF LAND CONVEYED TO STATE OF WASHINGTON FOR PACIFIC STATE HIGHWAY NO. 1, UNDER INSTRUMENT RECORDED UNDER AUDITOR'S FILE NO. 4965539, RECORDS OF KING COUNTY, WASHINGTON.

REVISIONS		
SYM.	DESCRIPTION	DATE

GENERAL NOTES

MERIDIAN: WASH. STATE COORDINATE SYSTEM (N. ZONE) AS ESTABLISHED BY CITY OF SEATTLE.

SURVEYED BY:	F.W.
DRAWN BY:	M.J.M.
CHECKED BY:	W
APPROVED BY:	GLR
DATE:	SEPT., 1980
SCALE:	1" = 50'
F.B.NO.:	511

HAMMOND, COLLIER & WADE-LIVINGSTONE ASSOCIATES, INC.
CONSULTING ENGINEERS
4010 STONE WAY N.
SEATTLE, WASHINGTON 98103
(206) 632-2684

PLAT OF SURVEY
FOR
LONG PAINTING CO.
PTN. NE 1/4, NW 1/4, SEC. 32, TWP. 24N, R. 4E., W.M.

DRAWING NO. 80-65

SHEET 1 OF 1

South Park Landfill

Remedial Investigation/ Feasibility Study

Appendix B
Boring, Well, Landfill Gas Probe, and Test Pit Construction Logs

Table of Contents

This appendix contains the following items:

- Tables
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  - Well Completion Summary for RI/FS Groundwater Monitoring (Table B.2)
  - Soil Gas Monitoring Probe Completion Summary for RI/FS Soil Gas Monitoring and Sampling Locations (Table B.3)
  - Indoor Air Monitoring Locations—Kenyon Industrial Park (Table B.4)
  - Indoor Air Monitoring Locations—5th Avenue South (Table B.5)
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  - RI/FS Reconnaissance Groundwater Samples
  - RI/FS Extent of Solid Waste Probes
  - RI/FS Sediment Samples
  - RI/FS Monitoring Wells
  - RI/FS Gas Probes
  - Historical Monitoring Wells
  - Historical Gas Probes
  - Historical SPPD Soil Borings
  - Historical SRDS Soil Borings
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  - Historical Kenyon Industrial Park Borings/Wells
  - Historical 5th Avenue South and South Sullivan Street Borings/Wells
  - Historical Reconnaissance Groundwater Samples
  - Historical West Ditch Piezometers
  - Historical RETS Borings
  - ALN-493
  - Historical Kenyon Street Bus Yard Borings
  - Cross Section of Subsurface at Glitsa Property
  - 5th Ave South Property Logs From Ecology CKD Study

Tables

Table B.1 – Summary of Historical Sample Locations

Current Location ID	Original Location ID	Location	Parcel	Date	Location Type	Installed or Reported By	Well Log
BH-01	--	Near Vicinity	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-02	BH-2	Near Vicinity	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-03	BH-3	Perimeter	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-04	BH-4	On-site	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-05	BH-5	On-site	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-06	BH-6	On-site	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-07	BH-7	On-site	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-08	BH-8	On-site	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-09	BH-9	On-site	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-10	BH-10	On-site	KIP	1995	Temp Gas Probe	BBL 1995	
BH-11	BH-11	On-site	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-12	BH-12	Perimeter	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-13	BH-13	On-site	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-14	BH-14	Perimeter	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-15	BH-15	Perimeter	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-16	BH-16	Perimeter	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-17	BH-17	Near Vicinity	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-18	BH-18	Perimeter	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-19	BH-19	Near Vicinity	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-20	BH-20	Near Vicinity	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-21	BH-21	Near Vicinity	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-22	BH-22	Near Vicinity	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-23	BH-23	Near Vicinity	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-24	BH-24	Perimeter	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-25	BH-25	On-site	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-26	BH-26	On-site	KIP	1995	Temp Gas Probe	BBL 1995	X
BH-27	BH-27	On-site	KIP	1995	Temp Gas Probe	BBL 1995	X
C-01	C-01	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-02	C-02	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-03	C-03	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-04	C-04	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-05	C-05	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-06	C-06	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-07	C-07	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-08	C-08	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-09	C-09	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-10	C-10	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-11	C-11	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-12	C-12	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-13	C-13	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-14	C-14	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-15	C-15	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-16	C-16	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-17	C-17	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-18	C-18	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-19	C-19	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-20	C-20	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-21	C-21	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-22	C-22	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-23	C-23	On-site	SPPD	2007	Test Pit	Farallon 2007	X

Current Location ID	Original Location ID	Location	Parcel	Date	Location Type	Installed or Reported By	Well Log
C-24	C-24	On-site	SPPD	2007	Test Pit	Farallon 2007	X
C-25	C-25	On-site	SPPD	2007	Test Pit	Farallon 2007	X
CG-01	CG-1	On-site	SPPD		Temp Gas Probe	SKCPHD	
CG-02	CG-2	On-site	SPPD		Temp Gas Probe	SKCPHD	
CG-03	CG-3	On-site	SPPD		Temp Gas Probe	SKCPHD	
CG-04	CG-4	On-site	SPPD		Temp Gas Probe	SKCPHD	
CG-05	CG-5	On-site	SPPD		Temp Gas Probe	SKCPHD	
CG-06	CG-6	On-site	SPPD		Temp Gas Probe	SKCPHD	
CG-07	CG-7	Perimeter	SPPD		Temp Gas Probe	SKCPHD	
CG-08	CG-8	Perimeter	Right of Way - 5th Ave. S.		Temp Gas Probe	SKCPHD	
CG-09	CG-9	Perimeter	SPPD		Temp Gas Probe	SKCPHD	
CG-10	CG-10	Perimeter	SPPD		Temp Gas Probe	SKCPHD	
CG-12	CG-12	On-site	SPPD		Temp Gas Probe	SKCPHD	
CG-13	CG-13	On-site	SPPD		Temp Gas Probe	SKCPHD	
CG-14	CG-14	Perimeter	SPPD		Temp Gas Probe	SKCPHD	
CG-15	CG-15	Perimeter	SPPD		Temp Gas Probe	SKCPHD	
CG-16	CG-16	Near Vicinity	ROW-SDOT		Temp Gas Probe	SKCPHD	
CG-17	CG-17	Near Vicinity	ROW-SDOT		Temp Gas Probe	SKCPHD	
CG-18	CG-18	Near Vicinity	ROW-SDOT		Temp Gas Probe	SKCPHD	
CG-19	CG-19	On Site	SPPD		Temp Gas Probe	SKCPHD	
CG-20	CG-20	On-site	SPPD		Temp Gas Probe	SKCPHD	
CG-21	CG-21	On-site	SRDS		Temp Gas Probe	SKCPHD	
DSB-1	--	On-site	SRDS		Soil Boring	Herrera	
DSB-2	--	On-site	SRDS		Soil Boring	Herrera	
DSB-3	--	On-site	SRDS		Soil Boring	Herrera	
DHA-1	--	On-site	SRDS		Hand Auger Boring	Herrera	
DHA-2	--	On-site	SRDS		Hand Auger Boring	Herrera	
DHA-3	--	On-site	SRDS		Hand Auger Boring	Herrera	
DHA-4	--	On-site	SRDS		Hand Auger Boring	Herrera	
DHA-5	--	On-site	SRDS		Hand Auger Boring	Herrera	
DHA-6	--	On-site	SRDS		Hand Auger Boring	Herrera	
DHA-7	--	On-site	SRDS		Hand Auger Boring	Herrera	
DHA-9	--	On-site	SRDS		Hand Auger Boring	Herrera	
D-315	D-315	Near Vicinity	ROW-SR 99		Piezometer	Converse	
D-316	D-316	Near Vicinity	ROW-SR 99		Monitoring Well	Converse	
D-317	D-317	Near Vicinity	ROW-SR 99		Piezometer	Converse	
D-322	D-322	Near Vicinity	ROW-SR 99		Piezometer	Converse	
DM-329	DM-329	Perimeter	ROW-SR 99		Piezometer	Converse	
DM-327	DM-327	Near Vicinity	ROW-SR 99		Piezometer	Converse	
DM-335	DM-335	Perimeter	ROW-SR 99		Piezometer	Converse	
DM-340	DM-340	Near Vicinity	ROW-SR 99		Piezometer	Converse	
FB-01	FB-1	Near Vicinity	ROW 1st Ave. S	2008	Reconnaissance GW Sample	Farallon	X
FB-02	FB-2	Near Vicinity	ROW 1st Ave. S	2008	Reconnaissance GW Sample	Farallon	X
FB-03	FB-3	Near Vicinity	ROW 1st Ave. S	2008	Reconnaissance GW Sample	Farallon	X
FB-04	FB-4	Near Vicinity	ROW 1st Ave. S	2008	Reconnaissance GW Sample	Farallon	X
FB-05	FB-5	Near Vicinity	ROW 1st Ave. S	2008	Reconnaissance GW Sample	Farallon	X
FB-06	FB-6	Near Vicinity	ROW 1st Ave. S	2008	Reconnaissance GW Sample	Farallon	X

Current Location ID	Original Location ID	Location	Parcel	Date	Location Type	Installed or Reported By	Well Log
FB-07	FB-7	Near Vicinity	ROW – SR 509	2011	Reconnaissance GW Sample	Aspect	X
FB-08	FB-8	Near Vicinity	ROW – SR 509	2011	Reconnaissance GW Sample	Aspect	X
FB-09	FB-9	Near Vicinity	ROW – SR 509	2011	Reconnaissance GW Sample	Aspect	X
FB-10	FB-10	Near Vicinity	ROW – SR 509	2011	Reconnaissance GW Sample	Aspect	X
FB-11	FB-11	Near Vicinity	ROW – SR 509	2011	Reconnaissance GW Sample	Aspect	X
FB-12	FB-12	Perimeter	ROW – 5th Ave S	2011	Reconnaissance GW Sample	Aspect	X
FB-13	FB-13	Perimeter	ROW – 5th Ave S	2011	Reconnaissance GW Sample	Aspect	X
FB-14	FB-14	Near Vicinity	ROW – 5th Ave S	2011	Reconnaissance GW Sample	Aspect	X
GHA-1	--	On-site	SRDS		Hand Auger Boring	Herrera	
GHA-2	--	On-site	SRDS		Hand Auger Boring	Herrera	
GSB-1	--	On-site	SRDS		Soil Boring	Herrera	
GSB-2	--	On-site	SRDS		Soil Boring	Herrera	
GSB-3	--	On-site	SRDS		Soil Boring	Herrera	
GP-01	SB-1	On-site	SPPD	1997	Gas Probe	Udaloy	X
GP-02	SB-2	On-site	SPPD	1997	Gas Probe	Udaloy	X
GP-03	GP-3	Perimeter	ROW - S. Clover-dale St.	1998	Gas Probe	AESI	X
GP-05	GP-5	Near Vicinity	ROW by Emerson Power Products	1998	Gas Probe	AESI	X
GP-07	GP-7	Near Vicinity	ROW East of SR 99	1998	Gas Probe	AESI	X
GP-09	GP-9	Perimeter	ROW – SR 99 at 5th Ave S	1998	Gas Probe	AESI	X
GP-11	GP-11	Near Vicinity	ROW by Int's Equip't	1999	Gas Probe	AESI	X
GP-13	GP-13	Near Vicinity	ROW by North Star	1999	Gas Probe	AESI	X
GP-15	GP-15	Near Vicinity	ROW by Emerson Power Products	1999	Gas Probe	AESI	X
GP-16	GP-16	Perimeter	SPPD	1999	Gas Probe	AESI	X
GP-17	GP-17	On-site	SPPD	1999	Gas Probe	AESI	X
GP-19	GP-19	On-site	SPPD	1999	Gas Probe	AESI	X
GP-20	GP-20	On-site	SPPD	1999	Gas Probe	AESI	X
GP-21	GP-21	On-site	SPPD	1999	Gas Probe	AESI	X
GP-22	GP-22	On-site	SPPD	1999	Gas Probe	AESI	X
GP-23	GP-23	Near Vicinity	ROW – East of SR 99	1999	Gas Probe	AESI	X
GP-24	GP-24	Near Vicinity	KIP	2011	Gas Probe	Herrera	X
GP-25	GP-25	Near Vicinity	KIP	2011	Gas Probe	Herrera	X
GP-26	GP-26	Near Vicnity	ROW- SR 99	2010	Gas Probe	Aspect	X
GP-27	GP-27	Perimeter	ROW – 5th Ave S	2011	Gas Probe	Herrera	X
GP-28	GP-28	Perimeter	ROW – 5th Ave S	2011	Gas Probe	Herrera	X
GP-29	GP-29	Perimeter	ROW – 5th Ave S	2011	Gas Probe	Herrera	X
GP-30	GP-30	Near Vicinity	ROW – 5th Ave S	2011	Gas Probe	Herrera	X
GP-31	GP-31	Near Vicinity	ROW – 5th Ave S	2011	Gas Probe	Herrera	X
GP-32	GP-32	Perimeter	Emerson Power Products	2010	Gas Probe	Aspect	X

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HMW-01	MW-1	On-site	SRDS		Monitoring Well	Herrera Environmental Consultants, Inc.	
HP-01	HP-1	Perimeter	KIP	1995	Reconnaissance GW Sample	Blasland, Bouck & Lee, Inc.	X
HP-02	HP-2	Perimeter	KIP	1995	Reconnaissance GW Sample	Blasland, Bouck & Lee, Inc.	X
HP-03	HP-3	Near Vicinity	KIP	1995	Reconnaissance GW Sample	Blasland, Bouck & Lee, Inc.	X
HP-04	HP-4	On-site	KIP	1995	Reconnaissance GW Sample	Blasland, Bouck & Lee, Inc.	X
HP-05	HP-5	On-site	KIP	1995	Reconnaissance GW Sample	Blasland, Bouck & Lee, Inc.	X
HP-06	HP-6	On-site	KIP	1995	Reconnaissance GW Sample	Blasland, Bouck & Lee, Inc.	X
KB-01	B-1	On-site	KIP	1992	Soil Boring	Diagnostic Engineering, Inc.	X
KB-02	B-2	On-site	KIP	1992	Soil Boring	Diagnostic Engineering, Inc.	X
KB-03	B-3	On-site	KIP	1992	Soil Boring	Diagnostic Engineering, Inc.	X
KMW-01	MW-1	On-site	KIP	1989	Monitoring Well	Golder Associates	X
KMW-01A	MW-1	Perimeter	KIP	1995	Monitoring Well	Blasland, Bouck & Lee, Inc.	X
KMW-02	MW-2	On-site	KIP	1989	Monitoring Well	Golder Associates	X
KMW-02B	MW-2B	On-site	KIP	1989	Monitoring Well	Golder Associates	X
KMW-03	MW-3	On-site	KIP	1995	Monitoring Well	Golder Associates	
KMW-03A	MW-3A	On-site	KIP	1995	Monitoring Well	Blasland, Bouck & Lee, Inc.	X
KMW-04	MW-4	On-site	KIP	1992	Monitoring Well	Diagnostic Engineering, Inc.	X
KMW-05	MW-5	Near Vicinity	KIP	1992	Monitoring Well	Diagnostic Engineering, Inc.	X
KMW-06	MW-6	Perimeter	KIP	1992	Monitoring Well	Diagnostic Engineering, Inc.	X
KMW-07	MW-7	Near Vicinity	KIP	1992	Monitoring Well	Diagnostic Engineering, Inc.	X
KMW-08	MW-8	Near Vicinity	KIP	1992	Monitoring Well	Diagnostic Engineering, Inc.	X
MW-01	MW-1	Near Vicinity	North Star Ice Equipment	1991	Monitoring Well	Geo Engineers	X
MW-02	MW-2	Near Vicinity	North Star Ice Equipment	1991	Monitoring Well	Geo Engineers	X
MW-03	MW-3	Near Vicinity	North Star Ice Equipment	1991	Monitoring Well	Geo Engineers	X
MW-04	MW-4	Perimeter	Right of Way – S. Sullivan St.	1998	Monitoring Well	Associated Earth Sciences, Inc.	X
MW-06	MW-6	Near Vicinity	Emerson Power Products	1998	Monitoring Well	Associated Earth Sciences, Inc.	X
MW-08	MW-8	Near Vicinity	East of SR 99	1998	Monitoring Well	Associated Earth Sciences, Inc.	X
MW-10	MW-10	Perimeter	Right of Way – SR 99/5th Ave. S.	1998	Monitoring Well	Associated Earth Sciences, Inc.	X
MW-12	MW-12	Near Vicinity	Right of Way – Occidental Ave. S./ International Construction Equipment	1999	Monitoring Well	Associated Earth Sciences, Inc.	X
MW-14	MW-14	Near Vicinity	Right of Way – Occidental Ave. S./ North Star Ice Equipment	1999	Monitoring Well	Associated Earth Sciences, Inc.	X

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MW-18	MW-18	On-site	SPPD	1999	Monitoring Well	Associated Earth Sciences, Inc.	X
MW-24	MW-24	Near Vicinity	Right of Way – East of SR 99	1999	Monitoring Well	Associated Earth Sciences, Inc.	X
MW-25	MW-25	Perimeter	Right of Way – SR 99/5th Ave. S.	2006	Monitoring Well	Aspect Consulting	X
MW-26	MW-26	Near Vicinity	Right of Way – East of SR99	2006	Monitoring Well	Aspect Consulting	X
MW-27	MW-27	Near Vicinity	East of SR 99	2006	Monitoring Well	Aspect Consulting	X
MW-29	MW-29	Perimeter	Right of Way – Occidental Ave. S.	2011	Monitoring Well	Aspect Consulting	X
MW-30	MW-30	Near Vicinity	Right of Way – SR 99/S. Kenyon St.	2011	Monitoring Well	Aspect Consulting	X
MW-31	MW-31	Near Vicinity	Right of Way – SR 99/S. Kenyon St.	2011	Monitoring Well	Aspect Consulting	X
MW-32	MW-32	On-site	SRDS	2011	Monitoring Well	Aspect Consulting	X
MW-33	MW-33	On-site	SRDS	2011	Monitoring Well	Aspect Consulting	X
OG-A	OG-A	On-site	SRDS		Reconnaissance Gas Probe	Public Health – Seattle & King County	
OG-B	OG-B	On-site	SRDS		Reconnaissance Gas Probe	Public Health – Seattle & King County	
OG-C	OG-C	On-site	SRDS		Reconnaissance Gas Probe	Public Health – Seattle & King County	
PZ-01	PZ-1	Perimeter	Right of Way – Occidental Ave. S.	2008	Piezometer	Farallon Consulting, LLC	X
PZ-02	PZ-2	On-site	SPPD	2008	Piezometer	Farallon Consulting, LLC	X
PZ-03	PZ-3	On-site	SPPD	2008	Piezometer	Farallon Consulting, LLC	X
RB-09	B-9	Perimeter	Right of Way – 5th Ave. S.	1991	Soil Boring	RZA-AGRA, Inc.	X
RB-10	B-10	Perimeter	Right of Way – 5th Ave. S.	1991	Soil Boring	RZA-AGRA, Inc.	X
RB-11	B-11	Near Vicinity	S. Kenyon Street	1991	Soil Boring	RZA-AGRA, Inc.	X
RB-12	B-12	Near Vicinity	S. Kenyon Street	1991	Soil Boring	RZA-AGRA, Inc.	X
RB-13	B-13	Near Vicinity	S. Kenyon Street	1991	Soil Boring	RZA-AGRA, Inc.	X
RMW-01	MW-1	Near Vicinity	Right of Way – S. Sullivan St.	1991	Monitoring Well	RZA-AGRA, Inc.	X
RMW-02	MW-2	Perimeter	Right of Way – 5th Ave. S.	1991	Monitoring Well	RZA-AGRA, Inc.	X
RMW-03	MW-3	Perimeter	Right of Way – 5th Ave. S.	1991	Monitoring Well	RZA-AGRA, Inc.	X
RMW-04	MW-4	On-site	SPPD	1991	Monitoring Well	RZA-AGRA, Inc.	X
RMW-05	MW-5	On-site	SPPD	1991	Monitoring Well	RZA-AGRA, Inc.	X
RMW-06	MW-6	On-site	SPPD	1991	Monitoring Well	RZA-AGRA, Inc.	X
RMW-07	MW-7	On-site	SPPD	1991	Monitoring Well	RZA-AGRA, Inc.	X
RMW-08	MW-8	On-site	SPPD	1991	Monitoring Well	RZA-AGRA, Inc.	X
RP-01	RP-01	Perimeter	Right of Way – Occidental Ave. S.	2011	Soil Probe	Aspect Consulting	X
RP-02	RP-02	Perimeter	Right of Way – Occidental Ave. S.	2011	Soil Probe	Aspect Consulting	X

Current Location ID	Original Location ID	Location	Parcel	Date	Location Type	Installed or Reported By	Well Log
RP-03	RP-03	Perimeter	Right of Way – Occidental Ave. S.	2011	Soil Probe	Aspect Consulting	X
RP-04	RP-04	Perimeter	Right of Way – Occidental Ave. S.	2011	Soil Probe	Aspect Consulting	X
RP-05	RP-05	Perimeter	Right of Way – Occidental Ave. S.	2011	Soil Probe	Aspect Consulting	X
RP-06	RP-06	Perimeter	Right of Way – Occidental Ave. S.	2010	Soil Probe	Aspect Consulting	X
RP-07	RP-07	Perimeter	Right of Way – Occidental Ave. S.	2010	Soil Probe	Aspect Consulting	X
RP-08	RP-08	Perimeter	Right of Way – Occidental Ave. S.	2010	Soil Probe	Aspect Consulting	X
RP-09	RP-09	Perimeter	Right of Way – Occidental Ave. S.	2010	Soil Probe	Aspect Consulting	X
RP-10	RP-10	Perimeter	Right of Way – Occidental Ave. S.	2010	Soil Probe	Aspect Consulting	X
RP-11	RP-11	Perimeter	Right of Way – Occidental Ave. S.	2010	Soil Probe	Aspect Consulting	X
RP-12	RP-12	Perimeter	Right of Way – Occidental Ave. S.	2011	Soil Probe	Aspect Consulting	X
SA-A	SA-A	Near Vicinity	Razore Enterprises/Ness Crane		Surface Soil	Public Health – Seattle & King County	
SA-B	SA-B	On-site	SRDS		Surface Soil	Public Health – Seattle & King County	
SA-C	SA-C	On-site	SRDS		Surface Soil	Public Health – Seattle & King County	
SA-D	SA-D	On-site	SRDS		Surface Soil	Public Health – Seattle & King County	
SA-E	SA-E	On-site	2nd Ave. S.		Surface Soil	Public Health – Seattle & King County	
SA-F	SA-F	On-site	SRDS		Surface Soil	Public Health – Seattle & King County	
SA-G	SA-G	On-site	SRDS		Surface Soil	Public Health – Seattle & King County	
SB-26	SB-26	On-site	SPPD	2000	Soil Boring	Associated Earth Sciences, Inc.	X
SB-27	SB-27	On-site	SPPD	2000	Soil Boring	Associated Earth Sciences, Inc.	X
SP	SP	On-site	SPPD		Surface Water	Public Health – Seattle & King County	
SE	SE	On-site	SPPD		Surface Water	Public Health – Seattle & King County	
SW	SW	On-site	SPPD		Surface Water	Public Health – Seattle & King County	

Current Location ID	Original Location ID	Location	Parcel	Date	Location Type	Installed or Reported By	Well Log
SN	SN	Perimeter	SPPD		Surface Water	Public Health – Seattle & King County	
SW-01	SW-1	On-site	SPPD		Surface Water	Public Health – Seattle & King County	
SW-02	SW-2	Perimeter	SPPD		Surface Water	Public Health – Seattle & King County	
SW-03	SW-3	Perimeter	SPPD		Surface Water	Public Health – Seattle & King County	
SW-04	SW-4	On-site	SPPD		Surface Water	Public Health – Seattle & King County	
SW-05	SW-5	On-site	SPPD		Surface Water	Public Health – Seattle & King County	
SW-06	SW-6	On-site	SPPD		Surface Water	Public Health – Seattle & King County	
SS-01A	SS-01	Perimeter	SPPD	2010	Sediment	Aspect Consulting	X
SS-02A	SS-02	Perimeter	SPPD	2010	Sediment	Aspect Consulting	X
SS-03A	SS-03	Perimeter	SPPD	2010	Sediment	Aspect Consulting	X
SS-P	SS-P	Perimeter	SPPD	2010	Sediment	Aspect Consulting	
SS-01	SS-1	On-site	SPPD		Surface Soil	Public Health – Seattle & King County	
SS-02	SS-2	Perimeter	SPPD		Surface Soil	Public Health – Seattle & King County	
SS-03	SS-3	Perimeter	SPPD		Surface Soil	Public Health – Seattle & King County	
SS-04	SS-4	On-site	SPPD		Surface Soil	Public Health – Seattle & King County	
SS-05	SS-5	On-site	SPPD		Surface Soil	Public Health – Seattle & King County	
SS-06	SS-6	On-site	SPPD		Surface Soil	Public Health – Seattle & King County	
TB-01	Boring 1	On-site	SRDS	1965	Soil Boring	Unknown	X
TB-02	Boring 2	On-site	SRDS	1965	Soil Boring	Unknown	X
TB-03	Boring 3	On-site	SRDS	1965	Soil Boring	Unknown	X
TB-04	Boring 4	On-site	SRDS	1965	Soil Boring	Unknown	X
TB-05	Boring 5	On-site	SRDS	1965	Soil Boring	Unknown	X
TB-06	Boring 6	On-site	SRDS	1965	Soil Boring	Unknown	X
TB-07B	TB-1 (2-17-89)	On-site	SRDS	1989	Piezometer	City of Seattle - Materials Laboratory	X
TB-07C	TB-1 (9-26-89)	On-site	SRDS	1989	Piezometer	City of Seattle - Materials Laboratory	X
TB-08A	TB-2 (12-22-88)	On-site	SRDS		Piezometer	City of Seattle - Materials Laboratory	
TB-08B	TB-2 (12-23-88)	On-site	KIP		Piezometer	City of Seattle - Materials Laboratory	X
TB-08C	TB-2 (9-26-89)	On-site	SRDS		Piezometer	City of Seattle - Materials Laboratory	

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TB-09A	TB-3	On-site	SRDS		Piezometer	City of Seattle - Materials Laboratory	
TB-09B	TB-3 (12-27-89)	On-site	SRDS	1988	Piezometer	City of Seattle - Materials Laboratory	X
TB-10	TB4	On-site	SRDS	1988	Piezometer	City of Seattle - Materials Laboratory	X
TB-11	TB5	On-site	SRDS	1988	Piezometer	City of Seattle - Materials Laboratory	X
TB-12A	TB6	On-site	SRDS	1988	Piezometer	City of Seattle - Materials Laboratory	X
TB-12B	TB6	On-site	SRDS		Piezometer	City of Seattle - Materials Laboratory	
TB-13	TB7	On-site	SRDS	1989	Piezometer	City of Seattle - Materials Laboratory	X
TB-14	TB8	On-site	KIP	1989	Piezometer	City of Seattle - Materials Laboratory	X
TB-15	TB9	Perimeter	KIP	1989	Piezometer	City of Seattle - Materials Laboratory	X
TB-16	TB10	On-site	SRDS	1989	Piezometer	City of Seattle - Materials Laboratory	X
TB-17	TB11	On-site	SRDS	1989	Piezometer	City of Seattle - Materials Laboratory	X
TB-18	TB12	On-site	Right of Way – 2nd Ave. S.	1973	Piezometer	City of Seattle - Materials Laboratory	X
TB-19	TB13	On-site	SRDS	1992	Piezometer	City of Seattle - Materials Laboratory	X
TB-20	TB14	On-site	SRDS	1992	Piezometer	City of Seattle - Materials Laboratory	X
TP-01	TP-1	On-site	SPPD	1997	Test Pit	Udaloy Environmental Services	X
TP-02	TP-2	On-site	SPPD	1997	Test Pit	Udaloy Environmental Services	X
TP-03	TP-3	On-site	SPPD	1997	Test Pit	Udaloy Environmental Services	X
TP-04	TP-4	On-site	SPPD	1997	Test Pit	Udaloy Environmental Services	X
TP-05	TP-5	On-site	SPPD	1997	Test Pit	Udaloy Environmental Services	X
TP-06	TP-6	On-site	SPPD	1997	Test Pit	Udaloy Environmental Services	X
TP-07	TP-7	On-site	SPPD	1997	Test Pit	Udaloy Environmental Services	X
TP-08	TP-8	On-site	SPPD	1997	Test Pit	Udaloy Environmental Services	X

Current Location ID	Original Location ID	Location	Parcel	Date	Location Type	Installed or Reported By	Well Log
TP-09	TP-9	On-site	SPPD	1997	Test Pit	Udaloy Environmental Services	X
TP-10	TP-10	On-site	SPPD	1997	Test Pit	Udaloy Environmental Services	X
TP-11	TP-11	On-site	SPPD	1997	Test Pit	Udaloy Environmental Services	X
TP-12	TP-12	On-site	SPPD	1997	Test Pit	Udaloy Environmental Services	X
TP-13	TP-13	On-site	SPPD	1997	Test Pit	Udaloy Environmental Services	X
TP-14	TP-14	On-site	SPPD	1997	Test Pit	Udaloy Environmental Services	X
TP-15	TP-15	On-site	SPPD		Test Pit	Olympus Environmental, Inc.	
TP-16	TP-16	On-site	SPPD		Test Pit	Olympus Environmental, Inc.	
TP-17	TP-17	On-site	SPPD		Test Pit	Olympus Environmental, Inc.	
TP-18	TP-18	On-site	SPPD		Test Pit	Olympus Environmental, Inc.	
TP-19	TP-19	On-site	SPPD		Test Pit	Olympus Environmental, Inc.	
TP-20	TP-20	On-site	SPPD		Test Pit	Olympus Environmental, Inc.	
TP-21	TP-21	On-site	SPPD		Test Pit	Olympus Environmental, Inc.	
TP-22	TP-22	On-site	SPPD		Test Pit	Olympus Environmental, Inc.	
TP-23	TP-23	On-site	SPPD		Test Pit	Olympus Environmental, Inc.	
TP-24	TP-24	On-site	SPPD		Test Pit	Olympus Environmental, Inc.	
TP-25	TP-25	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-26	TP-26	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-27	TP-27	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-28	TP-28	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-29	TP-29	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-30	TP-30	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-31	TP-31	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-32	TP-32	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-33	TP-33	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-34	TP-34	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-35	TP-35	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-36	TP-36	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X

Current Location ID	Original Location ID	Location	Parcel	Date	Location Type	Installed or Reported By	Well Log
TP-37	TP-37	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-38	TP-38	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-39	TP-39	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-40	TP-40	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-41	TP-41	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-42	TP-42	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-43	TP-43	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-44	TP-44	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-45	TP-45	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-46	TP-46	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-47	TP-47	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-48	TP-48	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-49	TP-49	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-50	TP-50	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-51	TP-51	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-52	TP-52	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-53	TP-53	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-54	TP-54	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-55	TP-55	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-56	TP-56	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-57	TP-57	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-58	TP-58	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-59	TP-59	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-60	TP-60	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-61	TP-61	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-62	TP-62	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-63	TP-63	On-site	SPPD	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-64	TP-64	Perimeter	Right of Way – Occidental Ave. S.	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-65	TP-65	Perimeter	Right of Way – Occidental Ave. S.	1998	Test Pit	Associated Earth Sciences, Inc.	X
TP-66	TP-66	Near Vicinity	Vacant Lot/ S. Cloverdale St.	1998	Test Pit	Associated Earth Sciences, Inc.	X

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TP-67	TP-67	Near Vicinity	Emerson Power Products	1998	Test Pit	Associated Earth Sciences, Inc.	X
7-4641	7-4641	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-4600	7-4600	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-4545	7-4545	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
W-01	W-1	On-site	SPPD		Surface Water	Public Health – Seattle & King County	
W-02	W-2	On-site	SPPD		Surface Water	Public Health – Seattle & King County	
W-03	W-3	On-site	SPPD		Surface Water	Public Health – Seattle & King County	
W-04	W-4	Near Vicinity	KIP		Surface Water	Public Health – Seattle & King County	
7-2625	7-2625	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-2700	7-2700	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-2750	7-2750	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-2800	7-2800	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-2844	7-2844	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-2883	7-2883	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-2950	7-2950	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3000	7-3000	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3050	7-3050	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3100	7-3100	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3150	7-3150	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3200	7-3200	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3250	7-3250	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3300	7-3300	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3350	7-3350	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3450	7-3450	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3497	7-3497	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3500	7-3500	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3503	7-3503	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3546	7-3546	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3550	7-3550	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X

Current Location ID	Original Location ID	Location	Parcel	Date	Location Type	Installed or Reported By	Well Log
7-3597	7-3597	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3600	7-3600	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3647	7-3647	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3650	7-3650	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3700	7-3700	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3760	7-3760	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3803	7-3803	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3850	7-3850	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3900	7-3900	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-3950	7-3950	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-4000	7-4000	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-4037	7-4037	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-4095	7-4095	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-4150	7-4150	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-4250	7-4250	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-4300	7-4300	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-4350	7-4350	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-4400	7-4400	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-4450	7-4450	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X
7-4500	7-4500	Near Vicinity	Right of Way – SR 99/5th Ave. S.	1986	Geotechnical Boring	Hong Consulting Engineers, Inc.	X

Notes:

-- No additional information.

Previous investigation locations are shown on Figure B-1.

"Perimeter" refers to locations on or within 25 feet of the landfill boundary as shown on Figure B-1.

"Near Vicinity" refers to locations outside the landfill boundary but within the study area.

"On-site" refers to locations within the landfill boundary as shown on Figure B-1.

Abbreviations:

GW Groundwater

KIP Kenyon Industrial Park

ND No Known Date

ROW Right-of-way, usually belonging to a city street or state highway

SPPD South Park Property Development, LLC

SR State Route

SRDS Seattle Recycling and Disposal Station (City Parcel)

Table B.2
Well Completion Summary for RI/FS Groundwater Monitoring

Monitoring Well	Unit of Completion	Installation Date	Coordinates		Ground Surface Elevation[2] (NAVD 88)	Monitoring Well Casing Elevations[2] (NAVD 88)	Well Casing Stickup Relative to Ground Surface (ft)	Total Boring Depth (ft bgs)	Total Well Depth (ft bgs)	Screened Depth (ft bgs)	Geologic Matter at Screened Interval
			Northing[1] (NAD83)	Easting[1] (NAD83)							
Monitoring Wells											
KMW-01A	Perched and Upper Zone of Shallow Aquifer	10/20/1995	197146.92	1269960.23	-	18.03	-	21.50	21.00	5.0 to 21.0	Silt and Sand with Organics Material
KMW-03A		10/20/1995	197585.09	1270170.48	-	18.62	-	24.00	24.00	9.0 to 24.0	Wood, Sand, Silt
KMW-04		3/11/1992	197374.76	1270149.88	-	19.71	-	21.00	20.00	5.0 to 20.0	Debris, Silty Clay, Sandy Silt
KMW-05		3/12/1992	197427.44	1269861.86	-	15.79	-	21.00	20.00	5.0 to 20.0	Sandy Silt, Silty Clay, Silty Sand
KMW-06		3/12/1992	197637.24	1269878.36	-	17.77	-	21.00	20.00	5.0 to 20.0	Sandy Gravel, Silty Sand
KMW-07		3/12/1992	197626.24	1269684.96	-	19.64	-	20.00	20.00	5.0 to 20.0	Gravelly Sand, Silty Sand
KMW-08		3/12/1992	197356.14	1269692.89	-	19.76	-	21.00	20.00	5.0 to 20.0	Sand, Silty Clay
MW-01	Upper Zone of Shallow Aquifer	10/9/1991	196235.09	1269862.09	19.75	19.61	-0.14	13.50	13.00	3.0 to 13.0	Silt and Sand with Organic Matter
MW-02	Upper Zone of Shallow Aquifer	10/9/1991			99.59	99.23	-0.36	13.50	13.00	3.0 to 13.0	Silt and Sand with Organic Matter
MW-03	Upper Zone of Shallow Aquifer	10/9/1991	196657.79	1269868.34	18.94	18.78	-0.16	13.50	13.00	2.0 to 13.0	Silt with Organic Matter, Sand
MW-04	Lower Zone of Shallow Aquifer	12/2/1998	195985.22	1270372.47	20.15	21.98	1.83	50.59	50.59	40.6 to 50.6	Sand with Interbedded Silt Laminae, Silty Sand
MW-06	Lower Zone of Shallow Aquifer	12/3/1998	195677.21	1271027.45	17.35	18.76	1.41	50.00	40.00	30.0 to 40.0	Sand with Interbedded Silt Laminae
MW-08	Lower Zone of Shallow Aquifer	12/7/1998	196834.57	1271362.27	12.88	14.76	1.88	49.00	45.59	35.6 to 45.6	Sand, Silty Sand
MW-10	Lower Zone of Shallow Aquifer	12/9/1998	197659.19	1270559.83	17.70	19.35	1.65	49.00	45.00	35.0 to 45.0	Sand with Interbedded Silt Laminae
MW-12	Upper Zone of Shallow Aquifer	9/20/1999	196964.43	1269792.64	19.11	20.63	1.52	22.50	15.30	10.0 to 15.0	Sand with Silty Interbeds
MW-14	Upper Zone of Shallow Aquifer	9/14/1999	196399.9	1269963.7	19.05	19.85	0.80	34.00	21.80	11.5 to 21.5	Sand with Silt Interbeds, Silt with Trace Sand Laminae

Table B.2
Well Completion Summary for RI/FS Groundwater Monitoring

Monitoring Well	Unit of Completion	Installation Date	Coordinates		Ground Surface Elevation[2] (NAVD 88)	Monitoring Well Casing Elevations[2] (NAVD 88)	Well Casing Stickup Relative to Ground Surface (ft)	Total Boring Depth (ft bgs)	Total Well Depth (ft bgs)	Screened Depth (ft bgs)	Geologic Matter at Screened Interval
			Northing[1] (NAD83)	Easting[1] (NAD83)							
Monitoring Wells (continued)											
MW-18	Lower Zone of Shallow Aquifer	9/17/1999	196350.26	1271077.67	20.78	22.03	1.25	49.00	40.40	30.0 to 40.0	Sand
MW-24	Lower Zone of Shallow Aquifer	9/21/1999	197110.02	1271165.6	13.57	15.13	1.56	49.00	45.30	35.0 to 45.0	Sand, some Organic Silt Interbeds, Silt with Sand
MW-25	Upper Zone of Shallow Aquifer	2/23/2006	197657.49	1270566.75	17.30	20.09	2.79	28.00	27.00	22.0 to 27.0	Slightly Silty Sand
MW-26	Upper Zone of Shallow Aquifer	2/23/2006	197121.60	1271164.40	13.55	15.94	2.39	26.00	25.00	15.0 to 25.0	Sand
MW-27	Upper Zone of Shallow Aquifer	2/23/2006	196835.06	1271357.64	12.72	14.76	2.04	21.00	20.00	10.0 to 20.0	Silty Sand
MW-29	Upper Zone of Shallow Aquifer	1/14/2011	196034.29	1270270.91	19.45	19.16	-0.29	30.00	30.00	20.0 to 30.0	Very Silty Sand, Sand
MW-30	Perched Zone	6/15/2011	197655.77	1270826.64	17.60	17.07	-0.53	16.50	13.00	8.0 to 13.0	Slightly Silty Sand, Sand
MW-31	Upper Zone of Shallow Aquifer	6/15/2011	197660.37	1270825.71	17.58	17.12	-0.46	26.00	23.00	18.0 to 23.0	Sand
MW-32	Upper Zone of Shallow Aquifer	6/29/2011	197416.52	1270622.16	17.51	17.07	-0.44	24.00	24.00	19.0 to 24.0	Sand
MW-33	Upper Zone of Shallow Aquifer	6/29/2011	197257.91	1270751.02	17.81	17.34	-0.47	25.00	25.00	20.0 to 25.0	Sand
Reconnaissance Borings with Groundwater Samples											
FB-07	Upper Zone of Shallow Aquifer	3/7/2011	197152.10	1269641.00	18.55	NA	NA	15.00	10.00	5.0 to 10.0	Sand, Silty Sand
FB-08	Upper Zone of Shallow Aquifer	3/7/2011	197072.10	1269647.00	18.96	NA	NA	15.00	13.00	8.0 to 13.0	Sand
FB-09	Upper Zone of Shallow Aquifer	3/7/2011	196976.10	1269655.00	18.29	NA	NA	15.00	14.00	9.0 to 14.0	Sand
FB-10	Upper Zone of Shallow Aquifer	3/7/2011	196909.10	1269663.00	18.44	NA	NA	15.00	14.00	9.0 to 14.0	Sand
FB-11	Upper Zone of Shallow Aquifer	3/7/2011	196812.10	1269673.00	18.47	NA	NA	15.00	15.00	10.0 to 15.0	Sand

Table B.2
Well Completion Summary for RI/FS Groundwater Monitoring

Monitoring Well	Unit of Completion	Installation Date	Coordinates		Ground Surface Elevation[2] (NAVD 88)	Monitoring Well Casing Elevations[2] (NAVD 88)	Well Casing Stickup Relative to Ground Surface (ft)	Total Boring Depth (ft bgs)	Total Well Depth (ft bgs)	Screened Depth (ft bgs)	Geologic Matter at Screened Interval
			Northing[1] (NAD83)	Easting[1] (NAD83)							
Reconnaissance Borings (continued)											
FB-12	Upper Zone of Shallow Aquifer	3/8/2011	196592.10	1271161.00	20.35	NA	NA	15.00	15.00	10.0 to 15.0	Silty Sand, Sand
FB-13	Upper Zone of Shallow Aquifer	3/8/2011	196720.10	1271165.00	20.47	NA	NA	20.00	20.00	15.0 to 20.0	Sand
FB-14	Upper/Lower Zone of Shallow Aquifer	3/11/2011	197654.10	1270808.00	16.86	NA	NA	40.00	13.00 22.00 40.00	8.0 to 13.0 17.0 to 22.0 36.0 to 40.0	Sand, Clayey Silt Sand Sand

Notes:
- No information available or not applicable.
1 Surveyed location; horizontal datum is Washington State Plane North NAD 83/91.
2 Surveyed elevations except for the reconnaissance borings, which are LIDAR elevations; datum is NAVD 88.

Abbreviations:
bgs Below ground surface
ft Feet
GW Groundwater
LIDAR Light Detection and Ranging Technology
NA Not applicable
NAD83 North American Datum of 1983
NAVD 88 North American Vertical Datum of 1988
RI/FS Remedial Investigation/Feasibility Study

Table B.3
Soil Gas Monitoring Probe Completion Summary for RI/FS Soil Gas Monitoring and Sampling Locations

Gas Probe	Installation Date	Coordinates[1]		Ground Surface Elevation (NAVD 88)[1]	Probe Casing Elevation (NAVD 88)	Probe Casing Stickup Relative to Ground Surface (ft)	Total Boring Depth (ft bgs)	Total Probe Depth (ft bgs)	Screened Depth (ft bgs)	Geologic Material at Screened Interval
		Northing (NAD83)	Easting (NAD83)							
GP-01	4/1/1997	196283.02	1270831.17	28.26	28.26	-0.64	15.00	15.00	5.0 to 15.0	Refuse with Sandy Silt
GP-02	4/1/1997	196783.80	1270210.66	25.11	25.11	-0.52	14.00	14.00	4.0 to 14.0	Refuse with Sandy Silt
GP-03	12/3/1998	195984.33	1270376.89	20.15	22.60	1.63	7.00	7.00	5.1 to 7.0	Sand
GP-05	12/4/1998	195672.72	1271027.76	17.35	19.36	1.20	7.00	7.00	5.0 to 7.0	Silt
GP-07	12/8/1998	196834.05	1271364.74	12.88	15.38	1.75	4.50	4.50	4.0 to 4.5	Silty Sandy Gravel
GP-09	12/10/1998	197658.38	1270561.95	17.70	19.97	1.62	9.00	9.00	5.0 to 9.0	Sand, Silt
GP-11	9/20/1999	196967.65	1269791.62	19.09	20.32	1.23	6.00	5.80	5.0 to 5.5	Sand with Silty Interbeds
GP-13	9/14/1999	196404.53	1269962.03	19.09	20.00	0.91	4.50	4.50	4.0 to 4.5	Sand with Silt and Gravel
GP-15	9/13/1999	195947.82	1270917.23	12.72	15.07	1.62	7.00	6.70	5.0 to 7.0	Sand
GP-16	9/14/1999	196079.63	1271070.11	19.93	21.53	1.60	9.00	7.40	5.0 to 7.4	Sand, Few Silts
GP-17	9/13/1999	196339.21	1271078.31	21.11	22.90	1.79	14.00	10.35	5.0 to 10.0	Sand with Gravel, Gravel with Sand
GP-19	9/15/1999	196683.95	1270920.57	24.16	26.44	1.70	16.50	12.30	7.0 to 12.0	Refuse with Sand with Gravel
GP-20	9/16/1999	196680.15	1270575.25	26.37	28.39	1.57	21.50	13.30	5.0 to 13.0	Refuse with Sand, Little Gravel
GP-21	9/15/1999	196981.38	1270271.02	23.37	25.39	1.42	16.50	13.30	8.0 to 13.0	Refuse with Sand with gravel and silt
GP-22	9/16/1999	197076.30	1270084.73	21.94	24.02	1.53	16.50	11.30	6.0 to 11.0	Refuse with Sand with gravel and silt
GP-23	9/20/1999	197115.05	1271165.75	10.51	11.56	1.05	6.50	6.30	5.0 to 6.0	Sand
GP-24	1/18/2011	197565.24	1269840.44	15.54	15.05	-0.49	10.00	10.00	5.0 to 10.0	CKD, and Sandy Silt with Fill
GP-25	1/18/2011	197328.66	1269867.64	16.77	16.46	-0.31	10.00	10.00	5.0 to 10.0	CKD, Sand with Fill and Silt
GP-26	3/8/2011	197371.54	1270976.98	16.10	15.72	-0.38	10.00	10.00	5.0 to 10.0	Gravelly Silt and Sand
GP-27	1/18/2011	196613.79	1271151.08	20.32	19.89	-0.43	14.00	14.00	9.0 to 14.0	Refuse, Sand, and Silt
GP-28	1/17/2011	196390.24	1271150.13	20.46	20.05	-0.41	12.00	12.00	7.0 to 12.0	CKD, Silt with Fill, and Sand
GP-29	1/17/2011	196208.61	1271139.47	18.23	17.85	-0.38	10.00	10.00	5.0 to 10.0	Refuse, Sand
GP-30	1/17/2011	195953.52	1271070.74	13.35	13.02	-0.33	10.00	10.00	5.0 to 10.0	Sand and Clayey Silt
GP-31	1/17/2011	195957.16	1271151.30	14.29	13.93	-0.36	10.00	10.00	5.0 to 10.0	Sand, Silt, and Gravel (Fill)
GP-32	12/29/2010	195902.05	1270623.94	13.22	12.94	-0.28	10.00	10.00	5.0 to 10.0	Organic Silt, Wood, and Refuse
GP-33	5/15/13					3.20	15.00	10.00	5.0 to 10.0	Silty Sand, Silt, and Sandy SILT
GP-34	5/15/13					3.60	15.00	13.50	8.5 to 13.5	Sandy Silt, Wood, Refuse, Concrete Fill, and Silty Sand
GP-35	5/15/13					4.00	20.00	15.00	10.0 to 15.0	Silty Sand, Gravel, and Refuse
GP-36	5/15/13					4.00	20.00	15.00	10.0 to 15.0	No recovery
GP-37	10/14/15					-0.30	10.00	8.10	3.1 to 8.1	Sand, Gravel, and Silty Clay
GP-38	9/29/15					-0.40	15.00	9.20	4.2 to 9.2	Sand and Sandy Silt
GP-39	9/14/2016					-0.50	15.00	12.30	5.0 to 12.3	CKD and Sandy Gravel
GP-40	9/14/2016					-0.58	9.00	8.60	1.3 to 8.6	Silty Sand, CKD, Sand, and Clayey Silt
GP-41	9/14/2016					-0.55	10.00	9.60	2.3 to 9.6	CKD and Silty Sand
GP-42	9/14/2016					-0.55	13.00	11.50	4.2 to 11.5	Sand, Silty Sand, CKD, Sandy Silt, Sand, and Clayey Silt

Table B.3
Soil Gas Monitoring Probe Completion Summary for RI/FS Soil Gas Monitoring and Sampling Locations

Gas Probe	Installation Date	Coordinates[1]		Ground Surface Elevation (NAVD 88)[1]	Probe Casing Elevation (NAVD 88)	Probe Casing Stickup Relative to Ground Surface (ft)	Total Boring Depth (ft bgs)	Total Probe Depth (ft bgs)	Screened Depth (ft bgs)	Geologic Material at Screened Interval
		Northing (NAD83)	Easting (NAD83)							
GP-43	9/14/2016					-0.50	10.00	9.90	2.6 to 9.9	Silt, CKD, Silty Sand, Clayey Silt, Sandy Silt, and Clayey Silt
TGP-1	9/29/2015	197639.4	1269877				10.00	10.00		
TGP-2	9/29/2015	197638.8	1269852				10.00	10.00		
TGP-3	9/29/2015	197641.7	1269821				10.00	10.00		
TGP-4	9/29/2015	197646	1269784				10.00	10.00		
TGP-5	9/29/2015	197517.5	1269902				10.00	10.00		
TGP-6	9/29/2015	197518.4	1269868				10.00	10.00		
TGP-7	10/13/2015	197517.7	1269885				10.00	10.00		
TGP-8	10/13/2015	197521.3	1269831				12.00	12.00		
TGP-9	10/13/2015	197374.5	1269942				8.00	8.00		
TGP-10	10/13/2015	197373.9	1269959				10.00	10.00		
TGP-11	10/13/2015	197376.3	1269916				12.00	12.00		
TGP-12	10/13/2015	197377.5	1269874				10.00	10.00		
TGP-13	10/13/2015	197379.1	1269824				8.00	8.00		
TGP-14	10/14/2015	197308.5	1269934				10.00	10.00		
TGP-15	10/14/2015	197314.3	1269949				10.00	10.00		
TGP-16	10/14/2015	197306.3	1269899				10.00	10.00		
TGP-17	10/14/2015	197307.9	1269863				10.00	10.00		
TGP-18	10/14/2015	197240	1269935				10.00	10.00		
TGP-19	10/14/2015	197241.4	1269904				10.00	10.00		
TGP-20	10/14/2015	197244.3	1269864				10.00	10.00		
TGP-21	10/14/2015	197244.2	1269819				10.00	10.00		
TGP-22	10/14/2015	197311.6	1269828				5.00	5.00		
TGP-23	10/14/2015	197374.8	1270049				15.00	15.00		
TGP-24	10/14/2015	197295.7	1270060				10.00	10.00		
TGP-25	10/14/2015	197221.1	1270061				10.00	10.00		

Note:

1 Horizontal datum is Washington State Plane North NAD83. Elevation datum is NAVD 88.

Abbreviations:

bgs Below ground surface
CDK Cement kiln dust
ft Feet
NAD83 North American Datum of 1983
NAVD 88 North American Vertical Datum of 1988
RI/FS Remedial Investigation/Feasibility Study

Table B.4
Indoor Air Monitoring Locations—Kenyon Industrial Park

Building Address	Monitoring Location	Description of Monitoring Location	Description and Condition of Building Foundation
Building A			
7900 Occidental Avenue South	1, 3, 5, 6, 7, 8, 10	Construction joint	Warehouse concrete slab on grade Good condition—several floor cracks less than one-eighth inch wide Finished concrete slab Office and kitchen space vinyl tiles
	2, 4, 9	Cracks in slab	
7910 Occidental Avenue South	1	Restroom	Finished concrete slab Restroom—no floor drain Warehouse concrete slab on grade Good condition—several floor cracks less than one-eighth-inch wide Finished concrete slab
	2	Office carpet	
	3, 4, 7, 8, 9	Construction joint	
	5	2-inch construction joint, filled	
	6	Open 1-inch joint	
	10	Crack (slab/ramp 8 percent joint)	
	11	Crack	
7920, 7930, and 7934 Occidental Avenue South	1,2	Office carpet	Finished concrete slab Restroom—no floor drain Office spaces—carpet and vinyl Warehouse exposed slab on grade
	3, 6, 7, 9, 11, 12, 13, 14, 16	Construction joint	
	4, 5, 10, 19	Crack	
	8	2-inch joint, filled	
	15	2-inch construction joint filled	
	17	Containment area construction joint	
	18	Column at floor—settlement cracked and spilled	
	20	2-inch construction joint filled with concrete	
	21	Floor carpet	

Table B.4
Indoor Air Monitoring Locations—Kenyon Industrial Park

Building Address	Monitoring Location	Description of Monitoring Location	Description and Condition of Building Foundation
Building A (continued)			
7936 Occidental Avenue South	1	Office carpet, new	Warehouse concrete slab on grade Good condition—one floor crack less than one-eighth inch wide Finished concrete slab
	2	Office floor	
	3, 4, 5, 6, 8	Construction joint	
	7	Crack	
Building B			
121 and 123 South Kenyon Street	1	Door crack at foundation/slab	Warehouse concrete slab on grade Fair condition—several floor cracks less than one-eighth inch wide Finished concrete slab Restroom—no floor drain 123—Elevated slab west loading dock
	2, 4, 7, 8, 9, 11, 12, 14, 16, 17, 18, 19	Construction joints	
	3	Crack in slab at roll up door	
	5	Slab crack	
	6	Slab crack/construction joint	
	10	Crack	
	13	4-inch diameter pipe/slab	
	15	Floor drains (3)	
125 South Kenyon Street	1	Office space carpet over concrete	Warehouse concrete slab on grade Good condition—several floor cracks less than one-eighth inch wide Finished concrete slab Office and kitchen space vinyl tiles
	2	Restrooms, vinyl—open area	
	3, 5, 6, 10, 11, 12, 13	Construction joint	
	4, 7, 8, 9	Crack	
	6	Construction joint	

Table B.4
Indoor Air Monitoring Locations—Kenyon Industrial Park

Building Address	Monitoring Location	Description of Monitoring Location	Description and Condition of Building Foundation
Building B (continued)			
127 South Kenyon Street	1, 10, 11	Crack	Warehouse concrete slab on grade Good condition—several floor cracks less than one-eighth inch wide Finished concrete slab
	2, 3, 4, 6, 7, 9	Construction joint	
	5	Restroom	
	8	Construction joint/crack	
129 South Kenyon Street	1	Office floor tile	Office—tiles Warehouse—concrete
	2, 4, 5, 7, 8, 10	Construction joint	
	3	Large crack	
	6	Restroom vinyl	
	9	10-inch diameter fire penetration through slab	
	11	Office floor tiles	
Building C			
7937 Second Avenue South	1	Building floor	Office—office tiles Warehouse—slab on grade Restroom—vented Freezer—vented
	2	Construction joint	
	3, 4, 8, 10	Trench drain	
	5, 6, 7	Freezer—construction joint	
	9	Drain slab pen	
7925 Second Avenue South	1, 2	Office space—tiled	Warehouse concrete slab on grade Fair condition—several floor cracks less than one-eighth inch wide Finished concrete slab
	3	Warehouse concrete—crack	
	4	Crack	
	5, 7	Construction joint	
	6	Construction joint slab ramp	

Table B.4
Indoor Air Monitoring Locations—Kenyon Industrial Park

Building Address	Monitoring Location	Description of Monitoring Location	Description and Condition of Building Foundation
Building C (continued)			
7929 Second Avenue South	1, 2, 3, 4, 5, 6, 7	Construction joint	Warehouse concrete slab on grade Fair condition—several floor cracks less than one-eighth inch wide Finished concrete slab
Building D			
7951 and 7952 Second Avenue South	1	Carpet over concrete—open area	Warehouse concrete slab on grade Good condition—several floor cracks less than one-eighth inch wide Finished concrete slab
	2, 3	Restroom vinyl	
	4, 5, 6, 7, 13, 15	Construction joint	
	8, 11, 12, 16	Crack	
	9	Bath floor drain	
	10	Cracks, along wall footing	
	14	Construction joint—half way in building	
	17	Large cracks	

Table B.4
Indoor Air Monitoring Locations—Kenyon Industrial Park

Building Address	Monitoring Location	Description of Monitoring Location	Description and Condition of Building Foundation
Building D (continued)			
7953 Second Avenue South	1, 5, 8, 13	Construction joint	Warehouse concrete slab on grade Fair condition—numerous floor cracks one-eighth inch to one-fourth inch wide Finished concrete slab
	2	Crack	
	3	Exterior foundation to ACP	
	4	Crack	
	6	Construction joint/cracks	
	7	Exterior foundation to ACP	
	9	Foundation to ACP	
	10, 11, 12, 14	Crack	
	15	Restroom	
	16	Broom closet	
	17	Office	
Building 7901			
7901 Second Avenue South	1	Slab on grade—printed	Warehouse concrete slab on grade Good condition—several floor cracks less than one-eighth inch wide Finished concrete slab Office and kitchen space vinyl tiles
	2	Kitchen—vinyl	
	3,4	Construction joint	
	5, 7, 8	Crack	
	6, 9, 11	Construction joint	
	10	Construction joint/crack	
	12	Crack—settling one-fourth inch	
	13	Crack/construction joint/column	

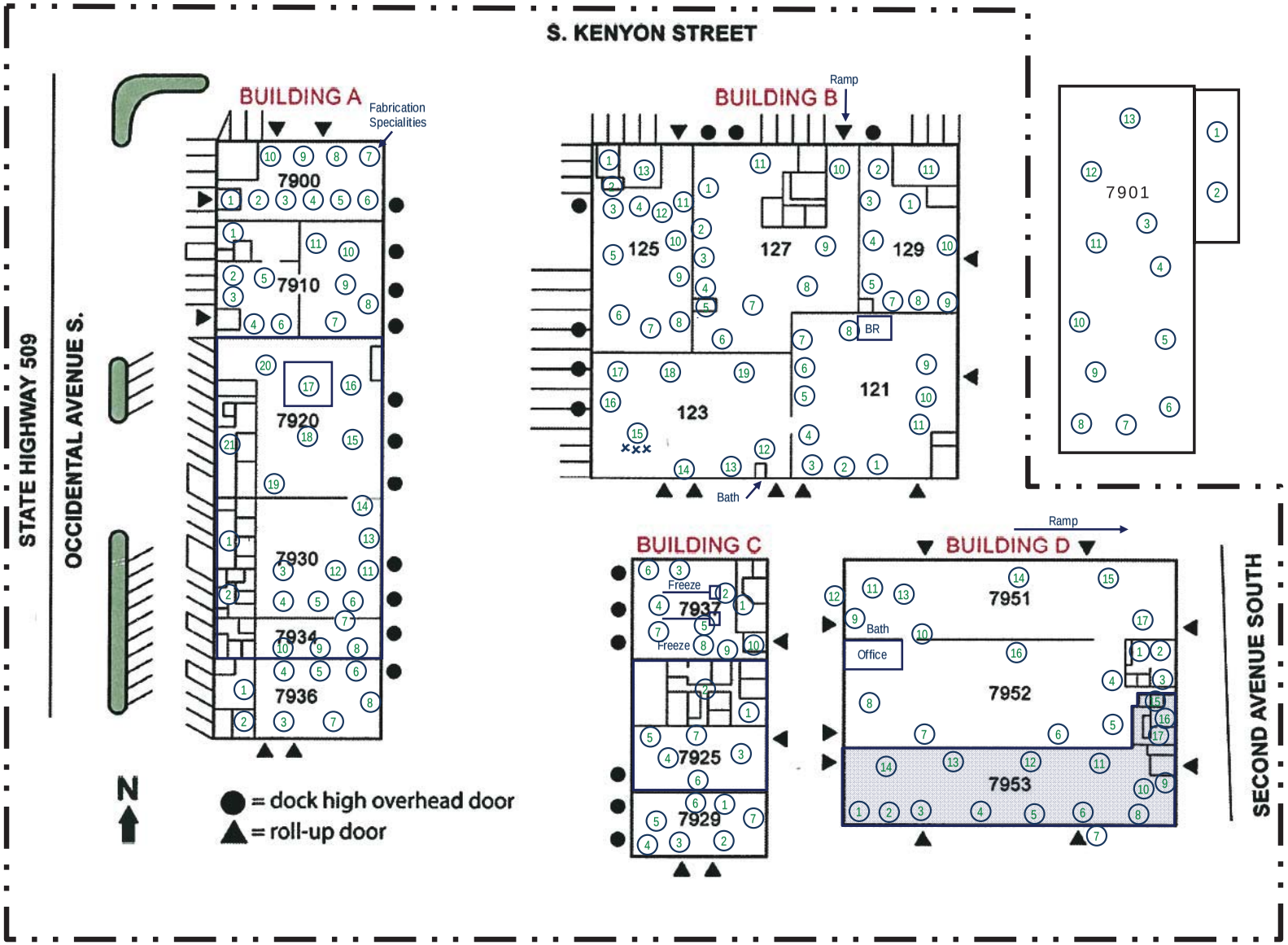
Abbreviations:
ACP Asphalt concrete pavement
KIP Kenyon Industrial Park

Table B.5
Indoor Air Monitoring Locations—5th Avenue South

Building Address	Monitoring Location	Description of Monitoring Location	Description and Condition of Building Foundation
Building 8230			
8230 5th Avenue South (Timberwolf Company—west half of building)	1	Water main floor penetration—annular space	Warehouse concrete slab on grade Very good condition Joints are sealed and tight
	2	Natural gas penetration—wall	
	3	Rear storage room	
	4	Crack at wall column/slab interface	
	5	Rear south wall	
	6	Upstairs office—open space	
	7	Restroom floor drains—women's	
	8	Restroom floor drains—men's	
	9	Utility room—open area	
	10	Open warehouse	
8230 5th Avenue South (Hudson Bay Company—east half of building)	1	Woman's restroom	Warehouse concrete slab on grade Very good condition Joints are sealed and tight
	2	Men's restroom	
	3	Slab on grade floor crack	
	4	Floor drain	
	5	Slab on grade floor crack	
Building 8250			
8250 5th Avenue South (Coast Crane Company)	1	Restroom space	Warehouse concrete slab on grade Very good condition Joints are sealed and tight
	2	Slab on grade construction joint	
	3	Floor drain	
	4	Water meter vault	
	5	Restroom space—east	
	6	Office space	
	7	Skirted crawl space—elevated building	
	8	Interior—open area	
	9	Methane mitigation PVC vent at roof-line	

Abbreviation:
PVC Polyvinyl chloride

Figures


S. KENYON STREET
STATE HIGHWAY 509
OCCIDENTAL AVENUE S.
SECOND AVENUE SOUTH
BUILDING A
Fabrication Specialities
7900
7910
7920
7930
7934
7936
BUILDING B
Ramp
125
127
129
123
121
BR
Bath
7901
BUILDING C
Freeze
7937
Freeze
7925
7929
BUILDING D
Ramp
7951
Bath
Office
7952
7953
N
= dock high overhead door
= roll-up door

South Park

Hudson
Timberwolf
SR 99
5th Avenue South
8230
South Park
Coast Crane Co.
Methane Mitigation Vent
8250
© 2011 Google
© 2011 Europa Technologies

Boring Logs

RI/FS Reconnaissance Groundwater Samples

Coarse-Grained Soils - More than 50% [1] Retained on No. 200 Sieve	Gravels - More than 50% [1] of Coarse Fraction Retained on No. 4 Sieve	≤5% Fines [5]	GW	Well-graded gravel and gravel with sand, little to no fines
			GP	Poorly-graded gravel and gravel with sand, little to no fines
		≥15% Fines [5]	GM	Silty gravel and silty gravel with sand
			GC	Clayey gravel and clayey gravel with sand
	Sands - 50% [1] or More of Coarse Fraction Passes No. 4 Sieve	≤5% Fines [5]	SW	Well-graded sand and sand with gravel, little to no fines
			SP	Poorly-graded sand and sand with gravel, little to no fines
		≥15% Fines [5]	SM	Silty sand and silty sand with gravel
			SC	Clayey sand and clayey sand with gravel
Fine-Grained Soils - 50% [1] or More Passes No. 200 Sieve	Silts and Clays Liquid Limit Less than 50		ML	Silt, sandy silt, gravelly silt, silt with sand or gravel
			CL	Clay of low to medium plasticity; silty, sandy, or gravelly clay, lean clay
			OL	Organic clay or silt of low plasticity
	Silts and Clays Liquid Limit 50 or More		MH	Elastic silt, clayey silt, silt with micaceous or diato-maceous fine sand or silt
			CH	Clay of high plasticity, sandy or gravelly clay, fat clay with sand or gravel
			OH	Organic clay or silt of medium to high plasticity
Highly Organic Soils			PT	Peat, muck and other highly organic soils

Terms Describing Relative Density and Consistency

Coarse-Grained Soils

Density	SPT [2] blows/foot
Very Loose	0 to 4
Loose	4 to 10
Medium Dense	10 to 30
Dense	30 to 50
Very Dense	>50

Fine-Grained Soils

Consistency	SPT [2] blows/foot
Very Soft	0 to 2
Soft	2 to 4
Medium Stiff	4 to 8
Stiff	8 to 15
Very Stiff	15 to 30
Hard	>30

Test Symbols

FC = Fines Content
G = Grain Size
M = Moisture Content
A = Atterberg Limits
C = Consolidation
DD = Dry Density
K = Permeability
Str = Shear Strength
Env = Environmental
PiD = Photoionization Detector

Component Definitions

Descriptive Term	Size Range and Sieve Number
Boulders	Larger than 12"
Cobbles	3" to 12"
Gravel	3" to No. 4 (4.75 mm)
Coarse Gravel	3" to 3/4"
Fine Gravel	3/4" to No. 4 (4.75 mm)
Sand	No. 4 (4.75 mm) to No. 200 (0.075 mm)
Coarse Sand	No. 4 (4.75 mm) to No. 10 (2.00 mm)
Medium Sand	No. 10 (2.00 mm) to No. 40 (0.425 mm)
Fine Sand	No. 40 (0.425 mm) to No. 200 (0.075 mm)
Silt and Clay	Smaller than No. 200 (0.075 mm)

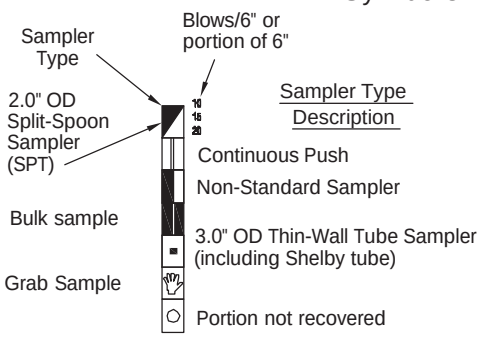
[3] Estimated Percentage

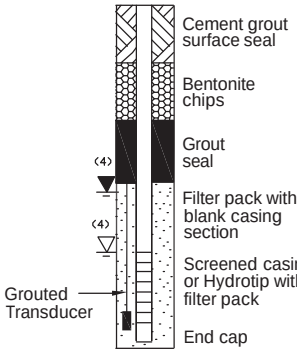
Percentage by Weight	Modifier
<5	Trace
5 to 15	Slightly (sandy, silty, clayey, gravelly)
15 to 30	Sandy, silty, clayey, gravelly)
30 to 49	Very (sandy, silty, clayey, gravelly)

Moisture Content

Dry - Absence of moisture, dusty, dry to the touch
Slightly Moist - Perceptible moisture
Moist - Damp but no visible water
Very Moist - Water visible but not free draining
Wet - Visible free water, usually from below water table

Symbols





(1) Percentage by dry weight
(2) (SPT) Standard Penetration Test (ASTM D-1586)
(3) In General Accordance with Standard Practice for Description and Identification of Soils (ASTM D-2488)
(4) Depth of groundwater
(5) Combined USCS symbols used for fines between 5% and 15% as estimated in General Accordance with Standard Practice for Description and Identification of Soils (ASTM D-2488)

▽ ATD = At time of drilling
▼ Static water level (date)
BGS = below ground surface

Classifications of soils in this report are based on visual field and/or laboratory observations, which include density/consistency, moisture condition, grain size, and plasticity estimates and should not be construed to imply field or laboratory testing unless presented herein. Visual-manual and/or laboratory classification methods of ASTM D-2487 and D-2488 were used as an identification guide for the Unified Soil Classification System.

Aspect CONSULTING

Exploration Log Key

DATE:
DESIGNED BY:
DRAWN BY:
REVISED BY:

PROJECT NO.

FIGURE NO.
B-1

Q:_ACAD Standards\Standard Details\Exploration Log Key B1.dwg

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	FB-07	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling / Direct Push Probe
Sampling Method: Continuous Core

Ground Surface Elev ~18.55' NAVD88 (LIDAR)
Depth to Water (ft BGS) 4.5' BGS (ATD)
Start/Finish Date 3/7/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
		S-1		0.0			Moist, dark brown, slightly sandy, gravelly SILT (ML); with organics and roots near surface Very moist, olive gray SILT (ML); slightly mottled PID 0.0 CH4 0.0 O2 20.3 CO2 0.1 Becomes wet	
5	3/7/2011 Bentonite grout backfill						Wet, brown, silty SAND (SM)	5
		S-2	Temporary groundwater sample collected using 3/4" PVC prepack screen placed from 5 to 10' bgs. Sample-FB07-10-030711				Wet, brown SAND (SP); poorly graded fine to medium sand Iron staining PID 0.0 CH4 0.0 O2 20.3 CO2 0.1	
							Wet, gray SILT (ML); trace sand	
10		S-3					Wet, black SAND (SP); fine to medium sand, visible red and white grains	10
15							Bottom of boring at 15' below ground surface.	15

Sampler Type:
No Recovery
Continuous Core

PID - Photoionization Detector (Headspace Measurement)
Static Water Level
Water Level (ATD)

Logged by: RRH
Approved by: JJS
Figure No. B- 2

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	FB-08	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling / Direct Push Probe
Sampling Method: Continuous Core

Ground Surface Elev ~18.96' NAVD88 (LIDAR)
Depth to Water (ft BGS) 5' BGS (ATD)
Start/Finish Date 3/7/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
							Moist, dark brown SILT (ML); with organics and roots near surface	
		S-1		0.0			PID 0.0 CH4 0.0 O2 20.3 CO2 0.1	
5	3/7/2011 Bentonite grout backfill						Becomes wet, becomes slightly mottled (olive gray)	5
							Wet, olive gray, silty SAND (SM); trace organics	
		S-2					Wet, red and brown SAND (SP); poorly graded fine to medium sand	
							Sand becomes black with red and white grains	
10			Temporary groundwater sample collected using 3/4" PVC prepack screen placed from 8 to 13' bgs. Sample-FB08-13-030711					10
		S-3						
15							Wet, olive gray SILT (ML); abundant seashell fragments	15
							Bottom of boring at 15' below ground surface.	

Sampler Type:
- No Recovery
- Continuous Core

PID - Photoionization Detector (Headspace Measurement)
- Static Water Level
- Water Level (ATD)

Logged by: RRH
Approved by: JJS
Figure No. B- 3

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	FB-09	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling / Direct Push Probe
Sampling Method: Continuous Core

Ground Surface Elev ~18.29' NAVD88 (LIDAR)
Depth to Water (ft BGS) 5' BGS (ATD)
Start/Finish Date 3/7/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
							Moist, dark brown, gravelly SILT (ML); with organics and roots near surface	
							Moist, brown, gravelly SAND (SP)	
							Very moist to wet, olive gray SILT (ML); slightly mottled	
		S-1		0.0			PID 0.0 CH4 0.1 O2 20.3 CO2 0.0	
5	3/7/2011 Bentonite grout backfill						Becomes wet	5
		S-2						
							Wet, red-brown SAND (SP); poorly graded fine to medium sand	
							Sand becomes black with red and white grains	
10		S-3	Temporary groundwater sample collected using 3/4" PVC prepack screen placed from 9 to 14' bgs. Sample-FB09-13-030711					10
15							Bottom of boring at 15' below ground surface.	15

Sampler Type:
- No Recovery
- Continuous Core

PID - Photoionization Detector (Headspace Measurement)
- Static Water Level
- Water Level (ATD)

Logged by: RRH
Approved by: JJS
Figure No. B- 4

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	FB-10	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling / Direct Push Probe
Sampling Method: Continuous Core

Ground Surface Elev ~18.44' NAVD88 (LIDAR)
Depth to Water (ft BGS) 3.5' BGS (ATD)
Start/Finish Date 3/7/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
							Moist, dark brown SILT (ML); trace gravel, with organics and roots near surface	
		S-1		0.0			Moist, brown, silty SAND (SM) PID 0.0 CH4 0.1 O2 20.7 CO2 0.0	
	3/7/2011						Wet, brown to tan SILT (ML); mottled	
5	Bentonite grout backfill						Wet, gray, slightly silty SAND (SW-SM)	5
							Thin bed volcanic ash	
							Wet, olive gray SILT (ML)	
		S-2					Wet, red-brown SAND (SP); poorly graded fine to medium sand	
							Wet, black SAND (SP); poorly graded fine to medium sand, red and white grains	
10								10
		S-3	Temporary groundwater sample collected using 3/4" PVC prepack screen placed from 9 to 14' bgs. Sample-FB10-13-030711					
15							Bottom of boring at 15' below ground surface.	15

Sampler Type:
No Recovery
Continuous Core

PID - Photoionization Detector (Headspace Measurement)
Static Water Level
Water Level (ATD)

Logged by: RRH
Approved by: JJS
Figure No. B- 5

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	FB-11	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling / Direct Push Probe
Sampling Method: Continuous Core

Ground Surface Elev ~18.47' NAVD88 (LIDAR)
Depth to Water (ft BGS) 2' BGS (ATD)
Start/Finish Date 3/7/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
	3/7/2011; Bentonite grout backfill	S-1		0.0			Moist, brown SILT (ML); trace gravel, with organics and roots near surface Moist, brown SILT (ML); slightly mottled Becomes wet, becomes olive-gray. Trace sand PID 0.0 CH4 0.1 O2 20.5 CO2 0.0	
5							Becomes gray, becomes sandy	5
		S-2					Wet, red-brown SAND (SP); poorly graded fine to medium sand Becomes black with red and white grains	
10		S-3	Temporary groundwater sample collected using 3/4" PVC prepack screen placed from 10 to 15' bgs. Sample-FB11-13-030711. Duplicate sample collected. Sample - FB15-13-030711					10
15							Bottom of boring at 15' below ground surface.	15

Sampler Type:
- No Recovery
- Continuous Core

PID - Photoionization Detector (Headspace Measurement)
- Static Water Level
- Water Level (ATD)

Logged by: RRH
Approved by: JJS
Figure No. B- 6

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	FB-12	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling / Direct Push Probe
Sampling Method: Continuous Core

Ground Surface Elev ~20.35' NAVD88 (LIDAR)
Depth to Water (ft BGS) 12.43' BGS (ATD)
Start/Finish Date 3/8/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
							Moist, brown, sandy GRAVEL (GP)	
							Moist, black to dark brown, slightly silty, gravelly SAND (SP-SM);	
		S-1		0.0			Gravel (GP); crushed rock CH4 1.7 O2 15.5 CO2 0.7 BAL 82.8	
							Moist, gray, silty SAND (SM)	
							Moist, gray, clayey SILT (ML); trace sand layers	
5	Bentonite grout backfill							5
							Light gray, sandy GRAVEL (GP)	
		S-2					Moist, black, gravelly, silty SAND (SM); abundant bricks, charred wood, glass, concrete, metal (landfill debris)	
10								10
	3/8/2011	S-3	Temporary groundwater sample collected using 3/4" PVC prepack screen placed from 10 to 15' bgs. Sample-FB12-14-030811	0.0			Moist to wet, dark gray to black SAND (SP); poorly graded fine to medium sand	
							Wet, dark gray, clayey SILT (ML); abundant organics	
15							Bottom of boring at 15' below ground surface.	15

Sampler Type:
- No Recovery
- Continuous Core

PID - Photoionization Detector (Headspace Measurement)
- Static Water Level
- Water Level (ATD)

Logged by: AET
Approved by: JJS
Figure No. B- 7

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	FB-13	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling / Direct Push Probe
Sampling Method: Continuous Core

Ground Surface Elev ~20.47' NAVD88 (LIDAR)
Depth to Water (ft BGS) 16.9' BGS (ATD)
Start/Finish Date 3/8/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
							Moist, dark brown, sandy GRAVEL (GP)	
		S-1		0.0			Moist, dark brown to gray, gravelly, silty SAND (SM); scattered landfill debris (glass, wood) PID 0.0 CH4 0.4 O2 18.4 CO2 0.6 BAL 80.5	
5	Bentonite grout backfill						Becomes black. Abundant landfill debris (brick, wood, metal, glass)	5
		S-2						
10								10
		S-3					Moist to wet, black SAND (SP); poorly graded fine to medium sand PID 0.0 CH4 0.5 O2 17.5 CO2 0.9 BAL 81.2	
							Wet, dark gray to black, sandy SILT (ML)	
15	3/8/2011	S-4	Temporary groundwater sample collected using 3/4" PVC prepack screen placed from 15 to 20' bgs. Sample-FB13-19-030811				Wet, black SAND (SP); thick, occasional beds of silty sand, occassional organics	15
20							Bottom of boring at 20' below ground surface.	20

Sampler Type:
No Recovery
Continuous Core

PID - Photoionization Detector (Headspace Measurement)
Static Water Level
Water Level (ATD)

Logged by: AET
Approved by: JJS
Figure No. B- 8

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	FB-14	1 of 2

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling / Direct Push Probe
Sampling Method: Continuous Core

Ground Surface Elev ~16.86' NAVD88 (LIDAR)
Depth to Water (ft BGS) 9.0' BGS (ATD)
Start/Finish Date 3/11/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
		S-1		0.0			Moist, brown, slightly silty, gravelly SAND (SW-SM); fine to coarse sand PID 0.0 CH4 0.2 O2 19.7 CO2 0.1 BAL 80.0 Moist, brown, slightly gravelly SAND (SP); fine to medium sand	
5	Bentonite grout backfill	S-2		0.0			Moist, brown, slightly silty, gravelly SAND (SW-SM) PID 0.0 CH4 0.1 O2 19.9 CO2 0.1 BAL 79.9	5
	3/11/2011	S-3	Temporary groundwater sample collected using 3/4" PVC prepack screen placed from 8 to 13' bgs. Sample-FB14-12-031111	0.0			Moist, dark brown, SAND (SP); fine to medium sand	
10							Wet, gray, clayey SILT (ML); mottled texture PID 0.0 CH4 0.1 O2 19.9 CO2 0.1 BAL 79.9	10
							Wet, red-brown, SAND (SP), fine to medium sand	
		S-4					Wet, brown, organic SILT (OL)	
15								15
		S-5	Temporary groundwater sample collected using 3/4" PVC prepack screen placed from 17 to 22' bgs. Sample-FB14-22-031111				Wet, black, SAND (SP); fine to coarse sand	
20								20
		S-6						
							Wet, gray, silty SAND (SM); fine sand	
		S-7					Wet, gray, silty SAND (SM); with 1/2" wood debris	

Sampler Type:
- No Recovery
- Continuous Core

PID - Photoionization Detector (Headspace Measurement)
- Static Water Level
- Water Level (ATD)

Logged by: RRH
Approved by: JJS
Figure No. B- 9

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	FB-14	2 of 2

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling / Direct Push Probe
Sampling Method: Continuous Core

Ground Surface Elev ~16.86' NAVD88 (LIDAR)
Depth to Water (ft BGS) 9.0' BGS (ATD)
Start/Finish Date 3/11/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
		S-7					Wet, black, SAND (SP); fine to medium sand	
30		S-8						30
		S-9					Wet, olive gray, clayey SILT (MH); black sand interbeds	
35		S-10	Temporary groundwater sample collected using stainless steel retractable screen placed from 36 to 40' bgs. Sample-FB14-38-031111				Wet, black, SAND (SP); fine to medium sand	35
40							Bottom of boring at 40' below ground surface.	40
45								45

Sampler Type:
- No Recovery
- Continuous Core

PID - Photoionization Detector (Headspace Measurement)
- Static Water Level
- Water Level (ATD)

Logged by: RRH
Approved by: JJS
Figure No. B- 9

RI/FS Extent of Solid Waste Probes

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	RP-01	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling, LP / Direct Push Probe
Sampling Method: Continuous Core

Ground Surface Elev: N/A
Depth to Water: 2.59' BGS (ATD)
Start/Finish Date: 1/13/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
	Asphalt patch						Dense, very moist, slightly silty, sandy GRAVEL (GP-GM).	
							Medium stiff moist, dark gray, sandy SILT (ML).	
	1/13/2011	S-1		0.0			Dense, moist, brown, slightly silty SAND (SP-SM); medium sand.	
							Dark black wood debris and brick fragments.	
							Medium stiff, very moist, dark gray SILT (ML); rapid dilatancy.	
5	Hydrated bentonite chip backfill							5
		S-2		0.0			Grades to soft.	
							Dense, moist, black SAND (SP).	
							Grades to medium dense.	
10		S-3		0.0				10
							Becomes wet.	
		S-4		0.0				
							Medium stiff, moist, gray SILT(ML); abundant seashells.	
15							Bottom of boring at 15' below ground surface.	15

Soil vapors were measured using GEM 2000 gas analyzer, H2S meter, and PID:

CH4: 0.3%
CO2: 0.1%
O2: 20.4%
BAL: 79.2%
H2S: 0 ppm
PID: 0.0 ppm

Sampler Type:
No Recovery
Continuous Core

PID - Photoionization Detector (Headspace Measurement)
Static Water Level
Water Level (ATD)

Logged by: DFR
Approved by: JJS
Figure No. B- 10

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	RP-02	1 of 1

Project Name: South Park Landfill
Ground Surface Elev: N/A
Location: Seattle, WA
Driller/Method: Cascade Drilling, LP / Direct Push Probe
Depth to Water: 2.4' BGS (ATD)
Sampling Method: Continuous Core
Start/Finish Date: 1/13/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
							Dense, moist, slightly silty, sandy GRAVEL (GP-GM).	
							Moist, dark gray, gravelly, sandy SILT (ML).	
	1/13/2011	S-1		0.0			Dense, moist, brown, SAND (SP); trace silt, fine to medium sand.	
							Brick fragments.	
							Very moist, dark gray, slightly gravelly SILT (ML).	
							Moist, dark gray SILT (ML); rapid dilatancy.	
5	Hydrated bentonite chip backfill							5
		S-2		0.0				
							Dense, very moist, black SAND (SP).	
10		S-3		0.0				10
		S-4		0.0				
							Medium stiff, moist, gray SILT (ML).	
15							Bottom of boring at 15' below ground surface.	15

Soil vapors were measured using GEM 2000 gas analyzer, H2S meter, and PID:

CH4: 0.2%
CO2: 0.1%
O2: 20.5%
BAL: 79.4%
H2S: 2.4 ppm
PID: 0.0 ppm

Sampler Type:
No Recovery
Continuous Core

PID - Photoionization Detector (Headspace Measurement)
Static Water Level
Water Level (ATD)

Logged by: DFR
Approved by: JJS
Figure No. B- 11

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	RP-03	1 of 1

Project Name: South Park Landfill
Ground Surface Elev: N/A
Location: Seattle, WA
Driller/Method: Cascade Drilling, LP / Direct Push Probe
Depth to Water: 2.2' BGS (ATD)
Sampling Method: Continuous Core
Start/Finish Date: 1/13/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
							Dense, moist, slightly silty, sandy GRAVEL (GP-GM).	
	1/13/2011	S-1		0.0			Dense, moist, brown, slightly silty SAND (SP-SM); medium sand.	
							Brick and wood debris.	
							Soft, moist, gray-blue SILT (ML).	
5	Hydrated bentonite chip backfill						No recovery.	5
		S-2		0.0				
		S-3		0.0			Soft, very moist, gray SILT (ML).	10
		S-4		0.0			Dense, very moist, black SAND (SP); fine to medium sand.	
							Medium stiff, moist, gray SILT (ML).	
15							Bottom of boring at 15' below ground surface.	15

Soil vapors were measured using GEM 2000 gas analyzer and H2S meter:

CH4: 0.3%
CO2: 0.1%
O2: 20.5%
BAL: 79.2%
H2S: 0 ppm

Sampler Type:
No Recovery
Continuous Core

PID - Photoionization Detector (Headspace Measurement)
Static Water Level
Water Level (ATD)

Logged by: DFR
Approved by: JJS
Figure No. B- 12

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	RP-04	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling, LP / Direct Push Probe
Sampling Method: Continuous Core

Ground Surface Elev: N/A
Depth to Water: 1.5' BGS (ATD)
Start/Finish Date: 1/13/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
							Dense, very moist, brown, silty, sandy GRAVEL (GM)	
	1/13/2011						Crushed red brick and wood debris	
		S-1		0.0			Moist, gray, slightly silty SAND (SP-SM); fine to medium sand, predominantly fine.	
5	Hydrated bentonite chip backfill						Moist, dark brown SILT (ML); frequent brick and wood fragments.	5
		S-2		0.0			Wood fragments appear native	
							Thinly laminated silt layers	
10		S-3		0.0				10
							Dense, moist, black SAND (SP).	
		S-4		0.0				
							Medium stiff, moist, dark gray, sandy SILT (ML).	
15							Bottom of boring at 15' below ground surface.	15

Soil vapors were measured using GEM 2000 gas analyzer and H2S meter:

CH4: 0.3%
CO2: 0.1%
O2: 20.4%
BAL: 79.2%
H2S: 0.0 ppm

Sampler Type:
No Recovery
Continuous Core

PID - Photoionization Detector (Headspace Measurement)
Static Water Level
Water Level (ATD)

Logged by: DFR
Approved by: JJS
Figure No. B- 13

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	RP-05	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling, LP / Direct Push Probe
Sampling Method: Continuous Core

Ground Surface Elev: N/A
Depth to Water: 1.31' BGS (ATD)
Start/Finish Date: 1/13/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
							Organic soil (TOPSOIL), with leaves.	
							Light gray, silty GRAVEL (GM).	
	1/13/2011						Brown, gravelly SAND (SW); occasional brick fragments.	
		S-1		0.0			Dense, moist, light brown SAND (SP).	
							Dark brown.	
5	Hydrated bentonite chip backfill							5
		S-2		0.0			Medium stiff, very moist, brown SILT (ML); oxidized root zones and small rootlets.	
							Dense, gray, slightly gravelly SAND (SP).	
10		S-3		0.0			Very moist, light red-brown SILT (ML).	10
		S-4		0.0			Dense, very moist, black SAND (SP).	
15							Bottom of boring at 15' below ground surface.	15

Soil vapors were measured using GEM 2000 gas analyzer and H2S meter:

CH4: 0.2%
CO2: 0.1%
O2: 20.4%
BAL: 79.3%
H2S: 0 ppm

Sampler Type:
No Recovery
Continuous Core

PID - Photoionization Detector (Headspace Measurement)
Static Water Level
Water Level (ATD)

Logged by: DFR
Approved by: JJS
Figure No. B- 14

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	RP-06	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling, LP / Direct Push Probe
Sampling Method: Continuous Core

Ground Surface Elev: N/A
Depth to Water: 6.5' BGS (ATD)
Start/Finish Date: 12/29/2010

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
				1.3			Moist to wet, dark gray, slightly silty, slightly sandy GRAVEL (FILL). Crushed rock and brick (FILL).	
		S-1		0.0			Moist to wet, gray-brown SAND (SP); trace silt; fine to medium sand.	
5	Hydrated bentonite chip backfill						Moist, gray, silty SAND (SM); trace gravel.	5
	12/29/2010			0.0			Wet, dark brown, sandy, organic SILT (OL); trace gravel.	
		S-2		0.0			Wood.	
							Moist, gray, clayey SILT (ML); trace gravel; occasional organics.	
10							Wet, gray, silty GRAVEL (GM).	10
		S-3		0.0			Moist, gray, clayey SILT (ML); scattered organics.	
							Wet, dark gray SAND (SP); fine to medium sand.	
15							Bottom of boring at 15' below ground surface.	15

Soil vapors were measured using GEM 2000 gas analyzer:

CH4: 00.4%
CO2: 00.1%
O2: 19.1%
BAL: 80.5%

Sampler Type:
No Recovery
Continuous Core

PID - Photoionization Detector (Headspace Measurement)
Static Water Level
Water Level (ATD)

Logged by: AET
Approved by: JJS
Figure No. B- 15

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	RP-07	1 of 1

Project Name: South Park Landfill
Ground Surface Elev: N/A
Location: Seattle, WA
Driller/Method: Cascade Drilling, LP / Direct Push Probe
Depth to Water: 5.8' BGS (ATD)
Sampling Method: Continuous Core
Start/Finish Date: 12/29/2010

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
	Asphalt patch						Asphalt.	
		S-1		0.0 0.0			Moist, brown, gravelly, silty SAND (SM); fine to medium sand; subangular gravel.	
5	Hydrated bentonite chip backfill 12/29/2010			0.0 0.0			Moist, gray, gravelly, very sandy SILT (ML); fine to medium sand; subangular gravel. Dark gray.	5
		S-2		0.0			Moist, gray SAND (SP); trace silt; trace gravel; scattered organics.	
10				0.0			Moist, dark brown, organic SILT (OL); with wood debris.	10
		S-3		0.0			Moist to wet, gray, clayey SILT (ML); scattered organics.	
15							Bottom of boring at 15' below ground surface. Soil vapors were measured using GEM 2000 gas analyzer: CH4: 03.1% CO2: 00.8% O2: 18.6% BAL: 78.2%	15

Sampler Type:
- No Recovery
- Continuous Core

PID - Photoionization Detector (Headspace Measurement)
- Static Water Level
- Water Level (ATD)

Logged by: AET
Approved by: JJS
Figure No. B- 16

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	RP-08	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling, LP / Direct Push Probe
Sampling Method: Continuous Core

Ground Surface Elev: N/A
Depth to Water: 4' BGS (ATD)
Start/Finish Date: 12/29/2010

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
				0.0			Moist, dark gray, slightly silty, sandy GRAVEL (FILL).	
				0.0			Moist, dark gray, slightly gravelly, sandy SILT (ML); abundant wood debris; occasional brick fragments.	
		S-1		0.0				
				0.0			2 inch layer of organic silt.	
				0.0			Very moist, gray SAND (SP); trace silt; fine to medium sand.	
	12/29/2010						Moist, gray SILT (ML); scattered organics.	
				0.0				
5	Hydrated bentonite chip backfill							5
				0.0			Wet, dark gray GRAVEL (GP); trace silt; fine gravel.	
				0.0			Wet, gray, silty SAND (SM); fine to medium sand.	
							Wet, gray with iron staining, clayey SILT (ML); trace sand; trace round gravel; scattered organics.	
		S-2		0.0				
							Wet, dark gray SILT (ML).	
				0.0				
10								10
							Wet, gray, clayey SILT (ML) to silty CLAY (CL).	
		S-3		0.0				
15								15
							Bottom of boring at 15' below ground surface.	
							Soil vapors were measured using GEM 2000 gas analyzer:	
							CH4: 00.4% CO2: 00.1% O2: 19.1% BAL: 80.5%	

Sampler Type:
- No Recovery
- Continuous Core

PID - Photoionization Detector (Headspace Measurement)
- Static Water Level
- Water Level (ATD)

Logged by: AET
Approved by: JJS
Figure No. B- 17

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	RP-09	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling, LP / Direct Push Probe
Sampling Method: Continuous Core

Ground Surface Elev: N/A
Depth to Water: 2.9' BGS (ATD)
Start/Finish Date: 12/29/2010

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
				0.0			Moist, dark brown, slightly silty, slightly sandy GRAVEL (FILL).	
	12/29/2010	S-1		0.0			Moist to wet, dark brown, silty SAND (SM); trace gravel; fine to medium sand, grades finer with depth; scattered organics.	
				0.0			Moist, dark gray, slightly gravelly SAND (SP); trace silt; fine to medium sand.	
5	Hydrated bentonite chip backfill						Brick debris.	5
				0.0				
		S-2		0.0			Moist, dark brown, organic SILT (OL); trace gravel; abundant wood debris.	
							Moist, gray, clayey SILT (ML); trace organics.	
10				0.0				10
		S-3						
							Wet, gray, slightly silty to silty SAND (SP-SM).	
				0.0			Wood.	
15							Bottom of boring at 15' below ground surface.	15

Soil vapors were measured using GEM 2000 gas analyzer:

CH4: 00.4%
CO2: 00.1%
O2: 19.1%
BAL: 80.5%

Sampler Type:
No Recovery
Continuous Core

PID - Photoionization Detector (Headspace Measurement)
Static Water Level
Water Level (ATD)

Logged by: AET
Approved by: JJS
Figure No. B- 18

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	RP-10	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling, LP / Direct Push Probe
Sampling Method: Continuous Core

Ground Surface Elev: N/A
Depth to Water: 1.4' BGS (ATD)
Start/Finish Date: 12/29/2010

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
	Asphalt patch						Asphalt.	
	12/29/2010	S-1		0.0 0.0			Moist, brown, dark brown, and gray mottled, slightly silty SAND (SP); fine to medium sand. Iron staining.	
5	Hydrated bentonite chip backfill	S-2		0.0 0.0 0.0			Moist, brown/gray, slightly clayey SILT (ML); trace gravel; occasional organics.	5
10		S-3					No recovery.	10
15							Bottom of boring at 15' below ground surface. Soil vapors were measured using GEM 2000 gas analyzer: CH4: 00.1% CO2: 00.1% O2: 19.1% BAL: 80.7%	15

Sampler Type:
- No Recovery
- Continuous Core

PID - Photoionization Detector (Headspace Measurement)
- Static Water Level
- Water Level (ATD)

Logged by: AET
Approved by: JJS
Figure No. B- 19

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	RP-11	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling, LP / Direct Push Probe
Sampling Method: Continuous Core

Ground Surface Elev: N/A
Depth to Water: 1.35' BGS (ATD)
Start/Finish Date: 12/29/2010

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
	Asphalt patch						Asphalt.	
	12/29/2010			0.0			Moist, gray, silty SAND (SM); trace gravel; fine to medium sand.	
		S-1		0.0			Moist, gray SAND (SP); trace silt; trace gravel; fine to medium sand.	
				0.8			Wood.	
5	Hydrated bentonite chip backfill						Wet, dark brown, organic SILT (OL); trace gravel; abundant wood; petroleum odor.	5
				25.0				
		S-2		0.0			Wet, gray SAND (SP).	
				0.0			Moist, dark brown SILT (ML).	
10							Clayey SILT.	10
				0.0				
		S-3						
				0.0			Moist to wet, gray SAND (SP); occasional 1 inch silt lamina.	
				0.0			Moist, brown SILT (ML); frequent organics.	
15							Bottom of boring at 15' below ground surface.	15

Soil vapors were measured using GEM 2000 gas analyzer:

CH4: 01.5%
CO2: 00.7%
O2: 18.7%
BAL: 78.9%

Sheen on water level indicator after measuring water level ATD.

Sampler Type:
No Recovery
Continuous Core

PID - Photoionization Detector (Headspace Measurement)
Static Water Level
Water Level (ATD)

Logged by: AET
Approved by: JJS
Figure No. B- 20

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	RP-12	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling, LP / Direct Push Probe
Sampling Method: Continuous Core

Ground Surface Elev: N/A
Depth to Water: 3.33' BGS (ATD)
Start/Finish Date: 1/17/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
	Asphalt patch						Dense, moist, brown, slightly silty, sandy GRAVEL (GP-GM).	
		S-1					Dense, moist, gray SAND (SP); medium sand.	
	1/13/2011						1" layer of wood fibers.	
5	Hydrated bentonite chip backfill	S-2					1" layer of dark brown, coarse sand. Wet.	5
							Medium stiff, moist, gray-blue SILT (ML). Dark brown, decayed wood chunks with SILT (ML).	
		S-3					Dense, wet, gray-blue SAND (SP); medium sand, occasional wood fibers. 1" layer of wood fibers.	
10								10
		S-4					Medium stiff, moist, gray-blue SILT (ML). Grades to brown. Wet.	
15							Bottom of boring at 15' below ground surface. Soil vapors were measured using GEM 2000 gas analyzer and H2S meter: CH4: 0.2% CO2: 0.1% O2: 20.4% BAL: 79.3% H2S: 0 ppm	15

Sampler Type:
- No Recovery
- Continuous Core

PID - Photoionization Detector (Headspace Measurement)
- Static Water Level
- Water Level (ATD)

Logged by: DFR
Approved by: JJS
Figure No. B- 21

RI/FS Sediment Samples

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	SS-01	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Aspect / Piston Core Sampler
Sampling Method:

Ground Surface Elev: N/A
Depth to Water (ft BGS): N/A
Start/Finish Date: 12/6/2010

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
							Very soft, wet, black, organic MUCK (PT); abundant leaves, twigs, and rootlets; apparent organic waxy sheen	
1	Formation heave backfill		SS-01-0-2-120610					1
2							Occasional fine gravels, "swamp-like" organic odor	2
3		S-1	SS-01-2-4-120610					3
4							Medium dense, wet, gray, sility SAND (SM)	4
							Stiff, wet, olive-gray, slightly sandy organic SILT(OL)	
5			SS-01-4-6-120610					5
6							Refusal at 6' below mudline. Approximately 1.5' of standing water present above mudline.	6
7								7
8								8
9								9

Sampler Type:
- No Recovery
- Continuous Core

PID - Photoionization Detector (Headspace Measurement)
- Static Water Level
- Water Level (ATD)

Logged by: DFR/RRH
Approved by: JJS
Figure No. B- 22

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	SS-02	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Aspect / Piston Core Sampler
Sampling Method:

Ground Surface Elev: N/A
Depth to Water (ft BGS): N/A
Start/Finish Date: 12/6/2010

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
							Very soft, wet, black, organic MUCK (PT); abundant leaves, twigs, and rootlets; apparent organic waxy sheen	
1	Formation heave backfill		SS-02-0-2-120610					1
2							Occasional fine gravels, "swamp-like" organic odor	2
3		S-1	SS-02-2-4-120610					3
4							Fiberous texture, slightly silty	4
5			SS-02-4-6-120610					5
6							Refusal at 6' below mudline. Approximately 1.5' of standing water present above mudline.	6
7								7
8								8
9								9

Sampler Type:
No Recovery
Continuous Core

PID - Photoionization Detector (Headspace Measurement)
Static Water Level
Water Level (ATD)

Logged by: DFR/RRH
Approved by: JJS
Figure No. B- 23

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	SS-03	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Aspect / Piston Core Sampler
Sampling Method:

Ground Surface Elev: N/A
Depth to Water (ft BGS): N/A
Start/Finish Date: 12/6/2010

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
							Very soft, wet, black, organic MUCK (PT); abundant leaves, twigs, and rootlets; apparent organic waxy sheen	
1	Formation heave backfill		SS-03-0-2-120610					1
2							Occasional fine gravels, "swamp-like" organic odor	2
3		S-1	SS-03-2-4-120610					3
							Wet, olive gray, silty CLAY (CH)	
4							Wet, dark gray, SAND (SP); trace organics	4
5			SS-03-4-6-120610					5
6							Refusal at 6' below mudline. Approximately 1.5' of standing water present above mudline.	6
7								7
8								8
9								9

Sampler Type:
- No Recovery
- Continuous Core

PID - Photoionization Detector (Headspace Measurement)
- Static Water Level
- Water Level (ATD)

Logged by: DFR/RRH
Approved by: JJS
Figure No. B- 24

RI/FS Monitoring Wells

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	MW-29	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling, LP / Direct Push Probe
Sampling Method: Continuous Core

Ground Surface Elev: 19.45' NAVD88
Depth to Water: 5.4' BGS (ATD)
Start/Finish Date: 1/14/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
	Concrete seal, 0'-2' 2-inch diameter schedule 40 PVC casing, 0'-20' 12/29/2010 Hydrated bentonite chips, 2'-18' #8/12 sand filter pack, 18'-30' 2-inch diameter schedule 40 PVC 20-slot prepacked screen, 20'-30' PVC endcap Aluminum drive shoe	S-1					Dense, moist, dark gray, slightly silty, sandy GRAVEL (GP-GM), occasional brick fragments.	
							Dense, moist, brown, SAND (SP); medium sand.	
5		S-2		0.0				5
							Medium stiff, moist, dark brown SILT (ML); occasional wood fibers; glass pieces at 6'. Grades to light brown with frequent wood fibers. Grades to soft, dark gray, with black wood fragments.	
10		S-3		0.0				10
							No wood, thin silt laminations.	
		S-4		0.0				
15							Dense, very moist, black SAND (SP); fine to medium sand.	15
		S-5		0.0				
							Dense, wet, dark gray, very silty SAND (SM); with occasional thin sandy silt interbeds.	
20								20
		S-6		0.0				
							Dense, wet, dark brown to black SAND (SP); with thick silty sand interbeds.	
25								25
		S-7		0.0				
							Dense, wet, dark brown to black, sandy SILT (ML).	
							Dense, wet, black SAND (SP); fine sand.	
		S-8		0.0				
30							Bottom of boring at 10' below ground surface. Soil vapors were measured using GEM 2000 gas analyzer, H2S meter, and PID: CH4: 0.2% CO2: 0.1% O2: 20.4% BAL: 79.5% H2S: 0.0 ppm PID: 0.0 ppm	30
35								35

Sampler Type:
- No Recovery
- Continuous Core

PID - Photoionization Detector (Headspace Measurement)
- Static Water Level
- Water Level (ATD)

Logged by: DFR
Approved by: JJS
Figure No. B- 25

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	MW-30	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling, / Hollow Stem Auger
Sampling Method: Dames & Moore

Ground Surface Elev: 17.60' NAVD88
Depth to Water: 10.8' BGS (ATD)
Start/Finish Date: 6/15/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
	Concrete seal, 0'-2' 2-inch diameter schedule 40 PVC casing, 0'-8' Hydrated bentonite chips, 2'-6'						Loose, slightly moist, brown, trace to slightly silty SAND (SP-SM); fine to medium sand, predominantly fine.	
5		S-1		0.0	1 1 1			5
	#2/12 sand filter pack, 6'-13'							
		S-2		0.0	1 1 1		Loose, slightly moist, brown, slightly silty SAND (SP-SM); with frequent, thin SILT (ML) lamina.	
	2-inch diameter schedule 40 PVC 10-slot screen, 8'-13'							
10							Loose, wet, brown, slightly silty SAND (SP-SM); trace fine gravel.	10
	▽6/15/2011	S-3		0.0	1 1 1		Soft, wet, gray, clayey SILT (ML).	
							Loose, wet, black, slightly silty to silty SAND (SP-SM). Gravelly.	
	PVC endcap	S-4		0.0	2 1 1		Loose, wet, black SAND (SP) with 2" gray SILT (ML) pockets.	
15	Slough						Loose, wet, black SAND (SP); fine to medium sand.	15
		S-5		0.0	3 4 6			
							Bottom of boring at 16.5' below ground surface.	

Sampler Type:
- ○ No Recovery
- ◧ 3.25" OD D&M Split-Spoon Ring Sampler

PID - Photoionization Detector (Headspace Measurement)
- ▼ Static Water Level
- ▽ Water Level (ATD)

Logged by: AET
Approved by: JJS
Figure No. B- 26

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	MW-31	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling, / Hollow Stem Auger
Sampling Method: Dames & Moore

Ground Surface Elev: 17.58' NAVD88
Depth to Water: 11' BGS (ATD)
Start/Finish Date: 6/15/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
	Concrete seal, 0'-2'						Loose, slightly moist, brown, slightly silty SAND (SP-SM); fine sand.	
5	2-inch diameter schedule 40 PVC casing, 0'-18'	S-1		0.0	3 3 3			5
		S-2		0.0	3 3 4		Loose, slightly moist, dark gray SAND (SP); fine to medium sand.	
10	Hydrated bentonite chips, 2'-16' ▽ 6/15/2011	S-3		0.0	4 4 3		Wet.	10
							Stiff, wet, gray SILT (ML); with wood debris.	
15		S-4		0.0	3 5 8		Medium dense, wet, dark gray to black SAND (SP); trace silt; fine to medium sand.	15
	#2/12 sand filter pack, 16'-26'							
20	2-inch diameter schedule 40 PVC 10-slot screen, 18'-23'	S-5		0.0	4 6 8			20
	PVC endcap							
25		S-6		0.0	5 9 9			25
							Bottom of boring at 26' below ground surface.	

Sampler Type:
- No Recovery
- 3.25" OD D&M Split-Spoon Ring Sampler

PID - Photoionization Detector (Headspace Measurement)
- Static Water Level
- Water Level (ATD)

Logged by: AET
Approved by: JJS
Figure No. B- 27

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	MW-32	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling, / Hollow Stem Auger
Sampling Method: Dames & Moore

Ground Surface Elev: 17.51' NAVD88
Depth to Water: 10.90' bTOC
Start/Finish Date: 6/29/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
	Concrete seal, 0'-2'						Very loose, moist, dark red-brown, slightly silty SAND (SP-SM); fine sand; glass shards, burnt woods debris, and other refuse present	
	2-inch diameter schedule 40 PVC casing, 0'-20'	S-1	CH4: 0.1% CO2: 0.1% O2: 20.1%	0.0	2 2 2			
5	Well installed with 10.25" ID conductor casing installed to a depth of 11.5' bgs. A 1 ft thick bentonite seal was constructed from 10.5' to 11.5' bgs and hydrated for 1 hr before drilling to 24' bgs with 4.25" ID hollow stem augers.	S-2	CH4: 0.1% CO2: 0.1% O2: 19.1%	0.0	4 1 1			5
		S-3		0.0	2 5 5		Very loose, very moist, black SAND (SP); medium sand; no refuse present	
10	6/29/2011	S-4	CH4: 0.1% CO2: 0.1% O2: 20.0%	0.0	2 3 4		Medium stiff, wet, dark blue-gray SILT (ML)	10
		S-5		0.0	1 2 2			
15	Hydrated bentonite chips, 2'-17'	S-6		0.0	3 3 4			15
	#2/12 sand filter pack, 17'-24'						Medium dense, wet, dark gray to black SAND (SP); trace silt; fine to medium sand.	
20	2-inch diameter schedule 40 PVC 10-slot screen, 19'-24'							20
	PVC endcap	S-7		0.0	10 12 13			
							Bottom of boring at 24' below ground surface. Ecology Well ID Tag BHA-082	
25								25

Sampler Type:
- No Recovery
- 3.25" OD D&M Split-Spoon Ring Sampler

PID - Photoionization Detector (Headspace Measurement)
- Static Water Level
- Water Level (ATD)

Logged by: DFR
Approved by: JJS
Figure No. B- 28

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	MW-33	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling, / Hollow Stem Auger
Sampling Method: Dames & Moore

Ground Surface Elev: 17.81' NAVD88
Depth to Water: 11.05' bTOC
Start/Finish Date: 6/29/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
	Concrete seal, 0'-2' 2-inch diameter schedule 40 PVC casing, 0'-20' Well installed with 10.25" ID conductor casing installed to a depth of 11.5' bgs. A 1 ft thick bentonite seal was constructed from 10.5' to 11.5' bgs and hydrated for 1 hr before drilling to 24' bgs with 4.25" ID hollow stem augers. 6/29/2011 Hydrated bentonite chips, 2'-18' #2/12 sand filter pack, 18'-25' 2-inch diameter schedule 40 PVC 10-slot screen, 19'-25' PVC endcap	S-1	CH4: 0.1% CO2: 0.1% O2: 19.1%	0.0	2 2 4		Very loose, slightly moist, brown, medium SAND (SP)	
5		S-2	CH4: 0.1% CO2: 0.1% O2: 20.0%	0.0	2 3 4		Very loose, moist, dark red-brown, slightly silty SAND (SP-SM); fine sand; glass shards, burnt woods debris, and other refuse present	5
		S-3		0.0	8 16 20		Very loose, very moist, black SAND (SP); medium sand; no refuse present	
10		S-4	CH4: 0.1% CO2: 0.1% O2: 20.1%	0.0	4 3 2		Medium stiff, wet, dark blue-gray SILT (ML)	10
		S-5		0.0	4 5 6		No sample recovery due to rock in sampler	
15		S-6		0.0	2 3 4		Medium dense, wet, dark gray to black SAND (SP); trace silt; fine to medium sand.	15
20		S-7		0.0	10 12 12			20
25							Bottom of boring at 25' below ground surface. Ecology Well ID Tag BHA-083	25

Sampler Type:
- No Recovery
- 3.25" OD D&M Split-Spoon Ring Sampler

PID - Photoionization Detector (Headspace Measurement)
- Static Water Level
- Water Level (ATD)

Logged by: DFR
Approved by: JJS
Figure No. B- 29

RI/FS Gas Probes

Log of Boring: GP-33

Client: South Park Property
Project: South Park Landfill
Location: South Park, WA
Farallon PN: 408-002
Logged By: Ken Scott

Date/Time Started:	5/15/13 @ 09:10	**Sampler Type:**	5' Macrocore
Date/Time Completed:	5/15/13 @ 09:40	**Drive Hammer (lbs.):**	Auto
Equipment:	Geoprobe 6600	**Depth of Water ATD (ft bgs):**	9.7'
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	15'
Drilling Foreman:	Don Harnden	**Total Well Depth (ft bgs):**	10'
Drilling Method:	Direct Push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-2.8' Sandy SILT Fill (70% silt, 30% sand), fine sand, dark brown, moist, no odor, no sheen.	ML							Riser; Concrete
					80	NA	0.0			Bentonite
		2.8-3.6' Poorly graded SAND with gravel Fill (75% sand, 20% gravel, 5% silt), fine to medium sand, fine to coarse gravel, whitish-grey, moist, no odor, no sheen. Observed angular grey gravel fill.	SP							
		3.6-8.2' Silty SAND Fill (65% sand, 25% silt, 10% gravel), fine to medium sand, fine to coarse gravel, brown, moist, no odor, no sheen. Observed red brick debris.	SM							Sand; Screen
5					70	NA	0.0			
		8.2-8.9' SILT with sand Fill (80% silt, 20% sand), fine sand, reddish-brown, moist, no odor, no sheen.	ML							
		8.9-12.5' Sandy SILT Fill (60% silt, 35% sand, 5% gravel), fine sand, fine gravel, brown, moist to wet at 9.7-feet bgs, slight odor, no sheen. Measured water height using water level indicator. Observed brick debris to 12-feet bgs.	ML							End cap; Water level
10										
		12.5-14.0' Silty SAND (70% sand, 30% silt), fine sand, brown, wet, odor, no sheen.	SM		60	NA	0.0			Fill
		14.0-15.0' SILT (100% silt), olive-grey, wet, slight odor, no sheen.	ML							
15										

Well Construction Information

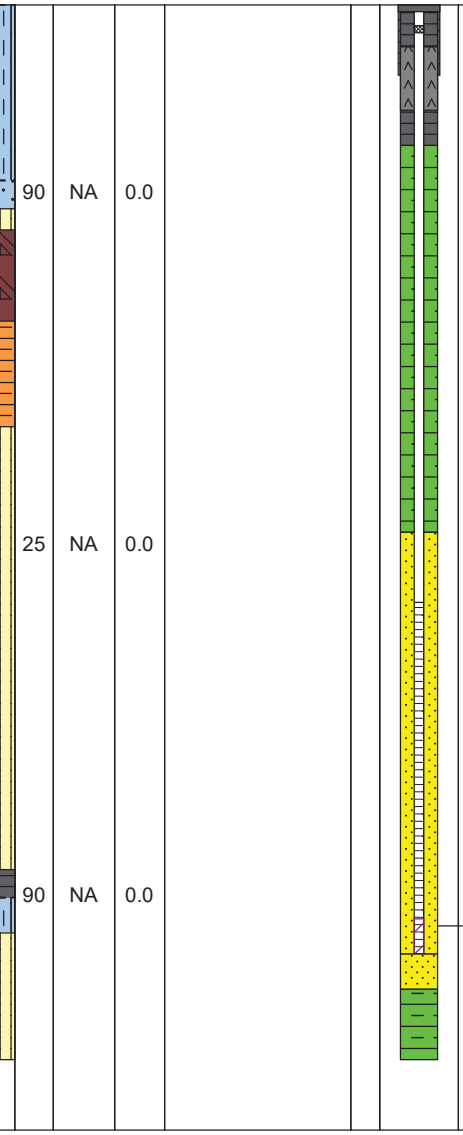
Monument Type:	3.2' Riser	**Filter Pack:**	2/12 silica sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (inches):	3/4"	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:**	**X:** NA
Screened Interval (ft bgs):	5.0 to 10.0' bgs	**Boring Abandonment:**	NA		**Y:** NA

Log of Boring: GP-34

Client: South Park Property
Project: South Park Landfill
Location: South Park, WA
Farallon PN: 408-002
Logged By: Ken Scott

Date/Time Started:	5/15/13 @ 11:45	**Sampler Type:**	5' Macrocore
Date/Time Completed:	5/15/13 @ 12:15	**Drive Hammer (lbs.):**	Auto
Equipment:	Geoprobe 6600	**Depth of Water ATD (ft bgs):**	13.5'
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	15'
Drilling Foreman:	Don Harnden	**Total Well Depth (ft bgs):**	15'
Drilling Method:	Direct Push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-2.5' Silty SAND with gravel Fill (65% sand, 20% silt, 15% gravel), fine to medium sand, fine gravel, tan, moist, no odor, no sheen. Observed cloth, and rag debris.	SM						Riser; Concrete
		2.5-2.9' Poorly graded SAND Fill (95% sand, 5% silt), fine to medium sand, tan, moist, no odor, no sheen.	SP	90	NA	0.0			
		2.9-3.2' SILT Fill (100% silt), black, moist, no odor, no sheen.	ML						
		3.2-4.5' WOOD Fill (100% wood), brown, moist, no odor, no sheen.	WD						Bentonite
5		4.5-6.0' Clay Fill (100% clay), red, moist, no odor, no sheen. The clay material is from crushed red brick debris.	CL						
		6.0-12.3' Sandy SILT Fill (60% silt, 30% sand, 10% wood), fine sand, black, moist to slight wet at 9.8-feet bgs, no odor, no sheen. Observed paper, and glass debris between 10 to 12.3-feet bgs.	ML	25	NA	0.0			Sand; Screen
10		12.3-12.7' CONCRETE Fill (100% concrete), white, dry, no odor, no sheen.	CO	90	NA	0.0			End cap; Fill
		12.7-13.2' Silty SAND Fill (70% sand, 25% silt, 5% gravel), fine to medium sand, fine gravel, black, moist, odor, no sheen. Observed red brick debris at 13.1-feet bgs.	SM / ML						Water level
15		13.2-15.0' Sandy SILT (60% silt, 35% sand, 5% gravel), fine to medium sand, fine gravel, black, moist to wet at 13.5-feet bgs, odor, no sheen.							



Well Construction Information

Monument Type:	3.6' Riser	**Filter Pack:**	2/12 silica sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (inches):	3/4"	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:**	**X:** NA
Screened Interval (ft bgs):	8.5 to 13.5' bgs	**Boring Abandonment:**	NA		**Y:** NA

Log of Boring: GP-35

Client: South Park Property
Project: South Park Landfill
Location: South Park, WA
Farallon PN: 408-002
Logged By: Ken Scott

Date/Time Started:	5/15/13 @ 13:50	**Sampler Type:**	5' Macrocore
Date/Time Completed:	5/15/13 @ 14:30	**Drive Hammer (lbs.):**	Auto
Equipment:	Geoprobe 6600	**Depth of Water ATD (ft bgs):**	16'
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	20'
Drilling Foreman:	Don Harnden	**Total Well Depth (ft bgs):**	15'
Drilling Method:	Direct Push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0..0-0.5' CONCRETE Fill (100% concrete), white, dry, no odor, no sheen. Observed ground up concrete rubble used as road fill.	CO							Riser
		0..5-1.2' CONCRETE Fill (100% concrete), white, dry, no odor, no sheen. Observed larger chunks concrete fill.	CO							Concrete
		1.2-3.5' Silty SAND with gravel Fill (65% sand, 20% silt, 15% gravel), fine to medium sand, fine to coarse gravel, light brown, moist, no odor, no sheen.	SM		60	NA	0.0			
		3.5-4.5' SILT Fill (95% silt, 5% sand), fine sand, black, moist, no odor, no sheen.	ML							Bentonite
5		4.5-5.5' Silty SAND Fill (70% sand, 30% silt), fine sand, grey with red-mottling at 4.8-feet bgs, moist, no odor, no sheen. Observed red brick debris at 4.8-feet bgs.	SM							
		5.5-6.5' Sandy SILT Fill (60% silt, 20% sand, 20% wood), fine sand, black, moist, no odor, no sheen. Observe wood debris prior to refusal at 6.5-feet bgs, move 1-foot north, and continue drilling.	ML		75	NA	0.0			
		6.5-8.5' Sandy SILT Fill (60% silt, 20% sand, 20% wood), fine sand, black, moist, slight odor, no sheen.	ML							
10		8.5-9.0' Paste Fill (100% paste), white, medium plastic, moist, no odor, no sheen. Observed white paste (putty-like) lens.	OL							Sand
		9.0-11.6' Silty SAND with gravel Fill (60% sand, 20% silt, 20% gravel), fine to medium sand, fine to coarse gravel, brown to black, moist, odor, no sheen. Observed white (putty-like) paste ribbons, brick, and nail debris. No recovery between 11.6 to 15-feet bgs.	SM		20	NA	0.3			Screen
15		15.0-20.0' Silty SAND with gravel (65% sand, 25% silt, 15% gravel), fine to medium sand, fine to coarse gravel, black, moist to wet at 16-feet bgs, odor, no sheen. Observed red brick debris to 18-feet, appears to be native below 18-feet bgs. Observed water on liner at approximately 16-feet bgs, hole collapsed and could not use water level to monitor. Asked driller to use rods to confirm water at about 16-feet bgs (driller confirmed).	SM		80	NA	0.0			End cap Water level Fill
20										

Well Construction Information

Monument Type:	4.0' Riser	**Filter Pack:**	2/12 silica sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (inches):	3/4"	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:**	**X:** NA
Screened Interval (ft bgs):	10 to 15' bgs	**Boring Abandonment:**	NA		**Y:** NA

Log of Boring: GP-36

Client: South Park Property
Project: South Park Landfill
Location: South Park, WA
Farallon PN: 408-002
Logged By: Ken Scott

Date/Time Started:	5/15/13 @ 15:25	**Sampler Type:**	5' Macrocore
Date/Time Completed:	5/15/13 @ 15:50	**Drive Hammer (lbs.):**	Auto
Equipment:	Geoprobe 6600	**Depth of Water ATD (ft bgs):**	15'
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	20'
Drilling Foreman:	Don Harnden	**Total Well Depth (ft bgs):**	15'
Drilling Method:	Direct Push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-3.5' Silty SAND Fill (70% sand, 25% silt, 5% gravel), fine to medium sand, fine gravel, light brown, moist, no odor, no sheen. Observed concrete debris.	SM		75	NA	0.0			Riser; Concrete
5		3.5-8.5' Sandy SILT Fill (65% silt, 30% sand, 5% gravel), fine sand,fine gravel, reddish-brown, moist, no odor, no sheen. Observed plastic, concrete, and red brick debris.	ML		80	NA	0.2			Bentonite
		8.5-10.0' Sandy SILT Fill (60% silt, 35% sand, 5% gravel), fine to medium sand, fine gravel, reddish-brown to black, moist, odor, no sheen. Observed wood, and red brick debris at 9-feet bgs.	ML							Sand
10		10.0-15.0' No Recovery (0%-recovery). Driller stated hard to push at start than pushed quickly through fill debri.	BLANK		0	NA	NM			Screen; End cap
15		15.0-20.0' No Recovery (~2%-recovery). Driller stated hard to push at start than pushed quickly through fill debri. Observed water on liner at 15-feet bgs, hole collapsed and could not monitor water level with meter. Driller used rods to confirm water level about 15-feet bgs. Observed small chunk of wet Silty SAND (70%sand, 20% silt, 5% gravel), fine to medium sand, black, wet, odor, no sheen.	BLANK		2	NA	0.0			Water level
20										

Well Construction Information

Monument Type:	4.0' Riser	**Filter Pack:**	2/12 silica sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (inches):	3/4"	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:**	**X:** NA
Screened Interval (ft bgs):	10 to 15' bgs	**Boring Abandonment:**	NA		**Y:** NA

GAS PROBE BORING LOG

HERRERA

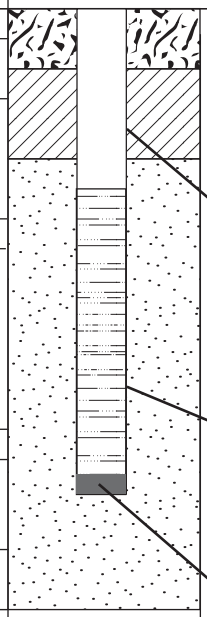
Well ID GP-37
Total depth: 10'
Sheet 1 of 1

Project name: South Park Landfill
Project number: 10-04850-000
Client: City of Seattle

Drilling Contractor: ESN
Drilling method: Push probe
Sampling method: 5' core sample

Location: SE corner of South Park Transfer Station, landscape area
HEC rep: Bruce Carpenter
Date: 10/14/2015

PID (ppm)	Sampling type, interval	% Recovery	Depth (feet, BGS)	Soil Group	Water Level (feet)	Soil Description
0	5' core	90	1	SW		Top soil Brown gravelly SAND, fill, damp
			2	GW		Gray-Dark brown sandy GRAVEL, fill, damp
			3			
			4			Light-Brown sandy GRAVEL, fill, damp
			5	SP		Brown medium SAND, fill, damp
0	5' core	60	6			
			7			
			8	SW	▼ 7.65 10/15/15	Gray gravelly SAND, fill, damp Brown silty CLAY, damp
			9	CH		
			10			Gray-Brown mottled silty CLAY, damp



Soil vapors were measured in bore hole using GEM 2000 Plus and Photoionization Detector (PID).

PID - 0 PPM
CH_4 - 0%
CO_2 - 0.1%
O_2 - 21.1%
H_2S - 0 PPM

Ecology Well Tag ID BJM 004

GAS PROBE BORING LOG

HERRERA

Well ID GP-38
Total depth: 15'
Sheet 1 of 1

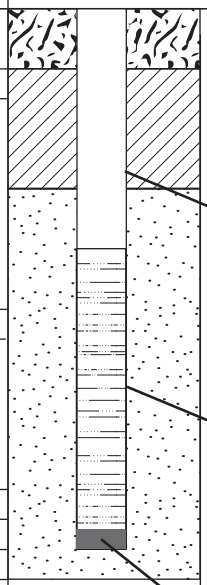
Project name: South Park Landfill
Project number: 10-04850-000
Client: City of Seattle

Drilling Contractor: ESN
Drilling method: Push probe
Sampling method: 5' core sample

Location: South Park Transfer Station, West Bldg, inside gate to east side
HEC rep: Bruce Carpenter
Date: 09/29/2015

PID (ppm)	Sampling type, interval	% Recovery	Depth (feet, BGS)	Soil Group	Water Level (feet)	Soil Description
0	5' core	80	1			Asphalt 13.5'
			2	SW		Brown-gray gravelly SAND, fill, dry
				SP		Light brown medium SAND, fill, dry Brown medium SAND, fill, dry
			3			
			4			
			5			
0	5' core	60				Brown medium SAND, fill, dry
			6	ML		Gray sandy, SILT, damp
			7			
			8			
				SM		Gray silty SAND, damp
			9	ML		Gray sandy SILT, damp
				SM		Gray silty SAND, wet
			10	CH		Gray silty CLAY, wet, plastic
0	5' core	70	11			
			12			
			13			
			14			
			15			
						Soil vapors were measured in bore hole using GEM 2000 Plus and Photoionization Detector (PID). 0 PID PPM CH_4 - 0.01% CO_2 - 0.1% O_2 - 21.6% H_2S - 0.0% BAL 78.2 Ecology Well Tag ID BJM003

Probe Detail



GAS PROBE BORING LOG

HERRERA

Well ID GP-39
Total depth: 15'
Sheet 1 of 1

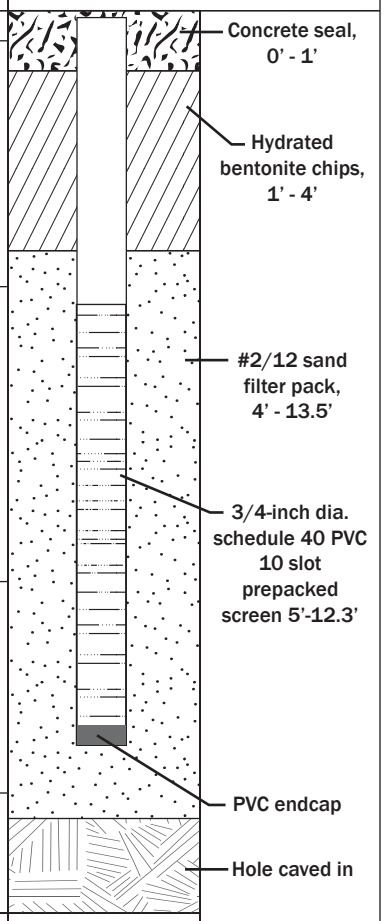
Project name: South Park Landfill/KIP
Project number: 10-04850-000
Client: City of Seattle

Drilling Contractor: ESN NW
Drilling method: Push probe rig
Sampling method: 5' core sample
Instrument(s): GEM/PID

Location: N. loading dock - KIP
HEC rep: Bruce Carpenter
Date: 09/14/2016

PID (ppm)	Sampling interval	% Recovery	Depth (feet, BGS)	Soil Group	Water Level (feet)	Soil Description
						6" Concrete (loading dock)
			1			
			2	GW/ SW		Brown-Gray sandy GRAVEL, to gravelly SAND, fill, dry
0		80	3			
			4			4" zone black gravelly SAND, dry (original ground surface)
			5	Fill		Buff colored cement kiln dust (CKD), fill, dry
			6			damp to wet
			7			
0		100	8			
			9			
			10	GW/ SW	10.6'	Brown-black, sandy GRAVEL, wet, groundwater encountered at 9.5'
			11			
			12			Brown,sandy GRAVEL, gravelly Sand, wet
0		80	13			
			14	ML		
			15			Brown-gray clayey SILT, (silt overbank deposit), wet
						CH_4 - 0.3 CO_2 - 1.7 O_2 - 15.2 H_2S - 0

Probe Detail



GAS PROBE BORING LOG

HERRERA

Well ID GP-40
Total depth: 9'
Sheet 1 of 1

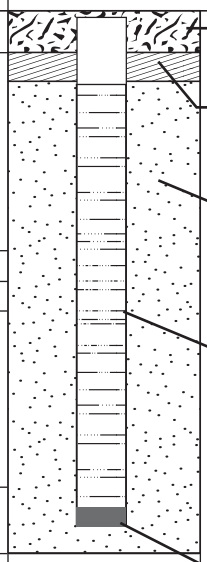
Project name: South Park Landfill/KIP
Project number: 10-04850-000
Client: City of Seattle

Drilling Contractor: ESN NW
Drilling method: Push probe rig
Sampling method: 5' core sample
Instrument(s): GEM/PID

Location: S. TPG-8 and NW of KMW-05
HEC rep: Bruce Carpenter
Date: 09/14/2016

PID (ppm)	Sampling interval	% Recovery	Depth (feet, BGS)	Soil Group	Water Level (feet)	Soil Description
						Asphalt 3"; Aggregate 6"
			1			Brown silty, SAND, fill, damp
			2	SM		
			3		▼ 3.25'	Brown, silty SAND, damp
0		40	4			groundwater encountered at 3.2'
				Fill		Buff colored CKD, fill, wet
			5	SM		Brown-gray, medium SAND, wet
0		15	6			No recovery
			7			
			8			
			9	ML		Gray-brown clayey SILT, wood, (silt overbank deposit) wet
						Refusal at 9' bgs
						CH_4 - 0.8 CO_2 - 0.7 O_2 - 19.5 H_2S - 0

Probe Detail



GAS PROBE BORING LOG

HERRERA

Well ID GP-41
Total depth: 10'
Sheet 1 of 1

Project name: South Park Landfill/KIP
Project number: 10-04850-000
Client: City of Seattle

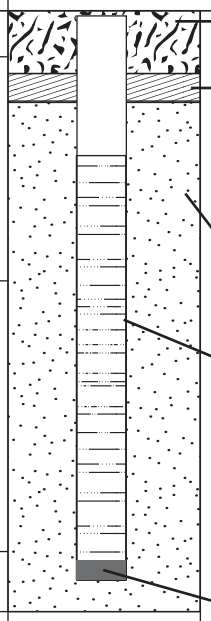
Drilling Contractor: ESN NW
Drilling method: Push probe rig
Sampling method: 5' core sample
Instrument(s): GEM/PID

Location: Adjacent to TGP-13
HEC rep: Bruce Carpenter
Date: 09/14/2016

PID (ppm)	Sampling interval	% Recovery	Depth (feet, BGS)	Soil Group	Water Level (feet)	Soil Description
			1			2" Asphalt 6" aggregate, silty, gravel
			2	FILL		Buff colored cement kiln dust (CKD), dry
0		25	3			
			4		4.3'	
			5	SM		Brown silty SAND, fill, damp groundwater encountered at 4.3'
0		30	6			Sand, fill/poor recovery
			7			
			8			
			9			
			10	ML		Dark gray-dark brown clayey SILT, damp, organic material, wood (silt overback deposit)

CH_4 - 0.0
CO_2 - 0.0
O_2 - 20.2
H_2S - 0

Probe Detail



GAS PROBE BORING LOG

HERRERA

Well ID GP-42
Total depth: 13'
Sheet 1 of 1

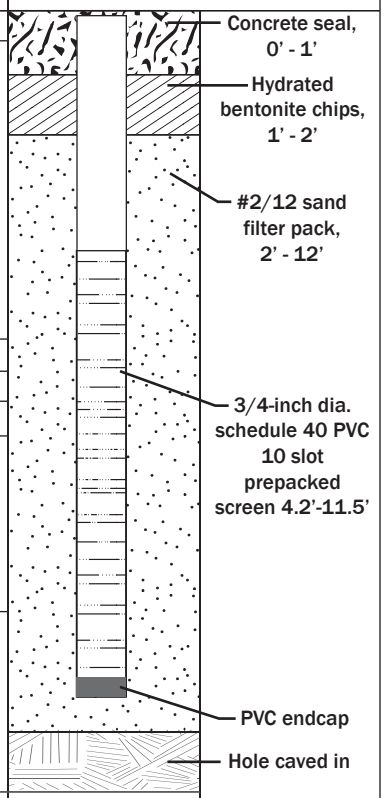
Project name: South Park Landfill/KIP
Project number: 10-04850-000
Client: City of Seattle

Drilling Contractor: ESN NW
Drilling method: Push probe rig
Sampling method: 5' core sample
Instrument(s): GEM/PID

Location: Adjacent to TGP-22
HEC rep: Bruce Carpenter
Date: 09/14/2016

PID (ppm)	Sampling interval	% Recovery	Depth (feet, BGS)	Soil Group	Water Level (feet)	Soil Description
						4" concrete
			1	SP		Brown medium SAND, fill, damp
			2			
0		65	3			
			4			
			5			
			6	SM		Brown-silty SAND, damp
				FILL		Buff colored cement kiln dust, damp
			7	ML		3" black sandy silt, hydrocarbon, odor, damp
0		50	8	SP	7.62'	Gray medium SAND, fill, damp
			9			
			10			Groundwater encountered at 9.5'
			11	ML		Dark brown clayey SILT, damp (silt overback deposit)
0		35	12			
			13			
						CH_4 - 0.2 CO_2 - 0.1 O_2 - 19.8 H_2S - 0

Probe Detail



GAS PROBE BORING LOG

HERRERA

Well ID GP-43
Total depth: 10'
Sheet 1 of 1

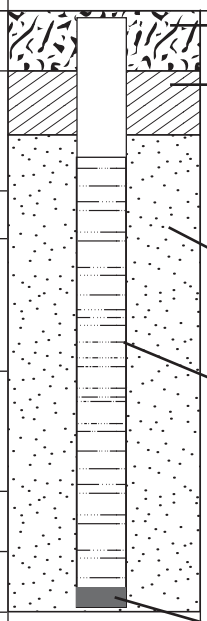
Project name: South Park Landfill/KIP
Project number: 10-04850-000
Client: City of Seattle

Drilling Contractor: ESN NW
Drilling method: Push probe rig
Sampling method: 5' core sample
Instrument(s): GEM/PID

Location: Adjacent to TGP-21
HEC rep: Bruce Carpenter
Date: 09/14/2016

PID (ppm)	Sampling interval	% Recovery	Depth (feet, BGS)	Soil Group	Water Level (feet)	Soil Description
			1			Grass, topsoil
0	X	50	2	ML		Brown, gravelly SILT, fill, damp
			3			
			4	FILL		8" Buff colored cement kiln dust (CKD)
			5	SM	▼ 4.90'	Gray fine silty SAND, fill, damp
0	X	100	6			Groundwater encountered at 6'
			7	CH		Gray-brown clayey SILT, wet
			8			
			9	ML		Brown sandy SILT, wet
			10	OL		Dark brown clayey SILT, wood chips, organic matter (silt overbank deposit)
						CH_4 - 0.0 CO_2 - 0.1 O_2 - 20.9 H_2S - 0

Probe Detail



SOIL PROBE BORING RECORD

Boring ID TGP-1
Total depth 10 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Northern transect	Sampling method	5 ft core with plastic liner
Client	City of Seattle		easternmost location, west of KMW-06	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	September 29, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
						Asphalt – 3", aggregate – 4", crushed rock
0	5-foot core with liner	40		1	SW/ Fill	Brown to black, gravelly SAND, brick, glass fragments, fill, dry
				2		
				3		
				4		
				5		Charred wood fragments
0	5-foot core with liner	30		6	GW/ SW/ Fill	Gray to black gravelly SAND, glass fragments, fill, damp
				7		
				8		2-inch zone of buff colored sandy GRAVEL, damp
				9		
				10	CH	Dark gray silty CLAY, damp
						Groundwater not encountered during drilling. Set bar hole probe at 9.5 ft bgs. Backfilled borehole with bentonite chips. CH4: 0.2% CO2: 0.1% O2: 20.7% H2S: 0.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

Boring ID TGP-2
Total depth 10 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Northern transect	Sampling method	5 ft core with plastic liner
Client	City of Seattle		second probe from easternmost location	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	September 29, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
						Asphalt – 2”, aggregate – 3.5”, crushed rock
				1	SM/Fill	Gray to brown silty SAND, fill, dry
					Fill	Buff colored, cement kiln dust, fill, dry
0	5-foot core with liner	60		2		
				3		
				4		
					SM/ Fill	Dark brown gravelly silty SAND, fill, damp
				5		
						Black silty SAND, charred wood, glass, plastic, fill, damp
				6		
				7		Dark brown silty SAND, brick and asphalt fragments, fill, damp
0	5-foot core with liner	80				
				8		
				9	CH	Gray silty CLAY, damp
				10		
						Groundwater not encountered during drilling. Set bar hole probe at 7.0 ft bgs. Backfilled borehole with bentonite chips. CH4: 0.3% CO2: 6.6% O2: 0.6% H2S: 0.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

Boring ID TGP-3
Total depth 10 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Northern transect	Sampling method	5 ft core with plastic liner
Client	City of Seattle		third probe from easternmost location	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	September 29, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
						Asphalt – 1.5”, aggregate – 5.5”, crushed rock
				1	SM/Fill	Brown silty SAND, fill, dry
					Fill	Buff colored, cement kiln dust, fill, dry
0	5-foot core with liner	70		2		
				3		
				4		
					SM/Fill	Brown sandy SILT, fill, damp
				5	SW/Fill	Gray to brown gravelly SAND, fill, damp
0	5-foot core with liner	15		6		Dark brown gravelly SAND, glass, brick fragments, trace of gravel, fill, damp
				7		
				8		
				9		
					CH	Gray silty CLAY, damp
				10		
						Groundwater not encountered during drilling. Set bar hole probe at 7.0 ft bgs. Backfilled borehole with bentonite chips. CH4: 0.0% CO2: 0.0% O2: 21.7% H2S: 0.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

Boring ID TGP-4
Total depth 10 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Northern Transect	Sampling method	5 ft core with plastic liner
Client	City of Seattle		Westernmost location	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	September 29, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
						Asphalt – 3.5”, aggregate – 2.0”, crushed rock
0	5-foot core with liner	60		1	SW/Fill	Brown to gray gravelly SAND, fill, damp
				2		
				3	SP/Fill	Brown medium SAND, fill, damp
				4		
				5		
0	5-foot core with liner	30			SW/Fill	Dark brown gravelly SAND, fill, damp
				6		
				7		
						Gray gravelly SAND, fill, damp
				8		
				9		
					CH	Gray silty CLAY, with cobbles, fill, damp
				10		
						Groundwater not encountered during drilling. Set bar hole probe at 7.0 ft bgs. Backfilled borehole with bentonite chips. CH4: 0.1% CO2: 1.6% O2: 19.4% H2S: 0.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

HERRERA

Boring ID TGP-5
Total depth 10 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Second transect from north	Sampling method	5 ft core with plastic liner
Client	City of Seattle		easternmost probe location	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	September 29, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
0	5-foot core with liner	70		1		Asphalt – 2.5", aggregate – 8.5", crushed rock
				2	SW/Fill	Brown gravelly SAND, brick, glass fragments, fill, damp
				3		Black gravelly SAND, pieces of rubber tire, glass, fill, damp
				4		
				5		
0	5-foot core with liner	70		6	SM/Fill	Dark brown to black silty SAND, wood fragments, trace of gravel fill, damp
				7		
				8		
			▽			Groundwater encountered during drilling at 8.5 feet
				9	CH	Dark gray silty CLAY, wet
				10		
						Set bar hole probe at 6.0 ft bgs. Backfilled borehole with bentonite chips. CH4: 23.4% CO2: 19.5% O2: 0.0% H2S: 1.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

Boring ID TGP-6
Total depth 10 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Second transect from north	Sampling method	5 ft core with plastic liner
Client	City of Seattle		third location to west	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	September 29, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
						Asphalt – 3.0", aggregate – 4", crushed rock
				1		
					Fill	Buff colored cement kiln dust, fill, damp
0	5-foot core with liner	100		2		
				3		
				4		
				5		
0	5-foot core with liner	100		6		
			▽	7		Ground water encountered during drilling at 6.5 feet
			▼ 6.99	8		Static water level measured at 6.99 feet
				9		
					CL	Black gravelly CLAY, petroleum odor, wet
				10	CH	Gray to black, silty CLAY, wet
						Set bar hole probe at 5.0 ft bgs. Backfilled borehole with bentonite chips. CH4: 9.6% CO2: 0.0% O2: 17.9% H2S: 2.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

Boring ID TGP-7
Total depth 10 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Second transect from north	Sampling method	4 ft core with plastic liner
Client	City of Seattle		between TGP-6 and TGP-5	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	October 13, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
0	4-foot core with liner	75				Asphalt – 2.0", aggregate – 8", crushed rock
				1		
					SWFill	Brown gravelly SAND, fill, dry
				2	SM/Fill	Dark brown silty gravelly SAND, fill, dry
				3	ML/Fill	Gray to brown sandy SILT, trace of gravel, brick fragments, fill, dry
				4		
0	4-foot core with liner	70			SW/Fill	Brown gravelly SAND, trace of silt, fill, damp
				5		
					ML	Gray clayey SILT, damp
				6	SM	Gray to brown silty SAND, damp
				7		Dark brown silty SAND, damp
				8	MH	Brown clayey SILT, damp
0	2-foot core with liner	100		9		
				10		
						Groundwater not encountered Set bar hole probe at 6.0 ft bgs. Backfilled borehole with bentonite chips. CH4: 0.9% CO2: 0.7% O2: 20.2% H2S: 0.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

Boring ID TGP-8
Total depth 12 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Second Transect from north	Sampling method	4 ft core with plastic liner
Client	City of Seattle		westernmost probe	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	October 13, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
						Asphalt – 2.0", aggregate – 5", crushed rock
0	4-foot core with liner	100		1	Fill	Buff colored cement kiln dust
				2		
				3		
				4		
0	4-foot core with liner	75		5		
				6		
			▼ 6.5			Static water level measured at 6.5 feet
				7	Fill	Crushed brick
					GW/Fill	Gray GRAVEL. Crushed rock, fill, damp
				8	SW/Fill	Black gravelly SAND, rock fragments, fill, hydrocarbon stain, wet
0	2-foot core with liner	No Recovery	▽			Ground water encountered during drilling at 8.0 feet No recovery
				9		
				10		
0	2-foot core with	50			MH	Brown clayey SILT, wet
				11		
				12		
						Set bar hole probe at 5.0 ft bgs. Backfilled borehole with bentonite chips. CH4: 0.1% CO2: 3.3% O2: 13.4% H2S: 0.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

Boring ID TGP-9
Total depth 8 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Third transect from north	Sampling method	4 ft core with plastic liner
Client	City of Seattle		west of TGP-10	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	October 13, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
						Asphalt – 1.0”, aggregate – 7”, crushed rock
0	4-foot core with liner	100		1	ML/Fill	Gray to brown sandy SILT, fill, damp
				2		
					SP/Fill	Brown medium SAND, trace of gravel, fill, damp
				3	ML/Fill	Gray sandy SILT, fill, damp 2.5 inches Buff colored cement kiln dust, fill, damp
				4		
0	4-foot core with liner	50		5	SW	Gray gravelly SAND, trace of silt, fill, damp
			▼/▽ 6.0	6		Static water level measured at 6.0 feet
						Ground water encountered during drilling at 6.0 feet
				7	SM/Fill	Gray silty SAND, trace of gravel, fill, wet
				8		
						Set bar hole probe at 5.0 ft bgs. Backfilled borehole with bentonite chips. CH4: 0.2% CO2: 0.2% O2: 17.3% H2S: 0.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

Boring ID TGP-10
Total depth 10 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Third transect from north	Sampling method	4 ft core with plastic liner
Client	City of Seattle		easternmost probe	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	October 13, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
						Asphalt – 2.0", aggregate –6", crushed rock
0	4-foot core with liner	75		1	SWFill	Brown gravelly SAND, trace of silt, charred wood, fill, damp
				2	ML/Fill	Brown sandy SILT, trace of clay, glass, fill, damp
				3	SM/Fill	Tan silty SAND, fill, damp
				4		Wood fragments
0	4-foot core with liner	50		5		
				6	ML/Fill	Brown to black sandy SILT, glass, brick fragments, fill, damp
				7		
			▼	8		Trace of gravel
0	2-foot core with liner	100	8.10			Static water level measured at 8.10 feet
			▽	9		Groundwater encountered at 9.0 feet
					SM/Fill	Black silty SAND, charred wood, fill, wet
				10	CH	Brown clayey SILT, wet
						Set bar hole probe at 5.0 ft bgs. Backfilled borehole with bentonite chips. CH4: 0.0% CO2: 0.5% O2: 19.9% H2S: 0.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

Boring ID TGP-11
Total depth 12 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Third transect from north	Sampling method	4 ft core with plastic liner
Client	City of Seattle		middle probe	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	October 13, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
						Asphalt – 1.0", aggregate – 7.0", crushed rock
				1	SM/Fill	3-inch Brown silty SAND, trace of gravel, damp,
					ML/Fill	3-inch Gray sandy SILT, fill, damp
0	4-foot core with liner	95		2	Fill	Buff colored CKD, fill, damp
					ML/Fill	2-inch gravelly sandy SILT, fill, damp
				3		
					SM/Fill	Gray gravelly SILT, fill, damp
				4	Fill	Buff colored cement kiln dust, fill, damp
					SM/Fill	2-inch Brown silty SAND, fill, damp
				5	Fill	Buff colored cement kiln dust, fill, damp
0	4-foot core with liner	100		6		
			▼ 7.0	7		Static water level measured at 7.0 feet
				8		
0	2-foot core with liner	No Recovery		9		No recovery
			▽	10		Groundwater encountered during drilling at 10.0 feet
0	2-foot core with	50		11	OH	Black clayey SILT, organic material, sheen, wet
				12		
						Set bar hole probe at 8.0 ft bgs. Backfilled borehole with bentonite chips. CH4: 0.4% CO2: 0.0% O2: 21.1% H2S: 0.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

Boring ID TGP-12
Total depth 10 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Middle transect, fourth from easternmost location	Sampling method	4 ft core with plastic liner
Client	City of Seattle			Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	October 13, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
						Asphalt – 1.0”, aggregate – 6.0”, crushed rock
				1	GW/Fill	4-inch Dark Brown sandy GRAVEL, fill, dry
					SW/Fill	Tan gravelly SAND, 2-inch piece of wood, fill, dry
0	4-foot core with liner	100		2		
				3	Fill	Buff colored cement kiln dust, fill, dry
				4		
					SM/Fill	Black silty SAND, wood fragments, fill, damp
0	4-foot core with liner	90		5		
				6		
					ML/Fill	Gray sandy SILT, fill, damp
				7		
					SM	Black silty SAND, organic material, damp
				8		
0	2-foot core with liner	100		9		
						Gray silty SAND, damp
				10	OH	Dark gray silty CLAY, damp
						Groundwater not encountered during drilling. Set bar hole probe at 8 ft bgs. Backfilled borehole with bentonite chips. CH4: 2.1% CO2: 0.0% O2: 20.6% H2S: 0.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

Boring ID TGP-13
Total depth 8 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Third transect from north	Sampling method	4 ft core with plastic liner
Client	City of Seattle		westernmost probe	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	October 13, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
						Asphalt – 1.0", aggregate – 5.0", silty gravel
0	4-foot core with liner	100	▼ 3.5	1	Fill	Buff colored cement kiln dust, fill, dry
				2		
				3		Static water level measured at 3.5 feet
				4		damp
0	4-foot core with liner	100	▽ 6.0	5	SW/Fill	Gray gravelly SAND, damp
				6	SP/Fill	Gray medium SAND, fill, damp wet, ground water encountered during drilling at 6.0 feet
				7		
				8		
						Set bar hole probe at 3.0 ft bgs. Backfilled borehole with bentonite chips. CH4: 0.0% CO2: 0.0% O2: 20.9% H2S: 0.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

HERRERA

Boring ID TGP-14
Total depth 10 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Fourth transect from north	Sampling method	5 ft core with plastic liner
Client	City of Seattle		second probe from easternmost location	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	October 14, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
0	5-foot core with liner	80		1		Asphalt – 1.0", aggregate – 9.0", crushed rock
				2	SW/Fill	Black gravelly SAND, fill, dry
				3		Gray gravelly SAND, fill, damp
				4	Fill ML/Fill	3-inch Buff colored cement kiln dust, fill, damp Black sandy SILT, brick fragments, fill, damp
				5		
0	5-foot core with liner	80		6		
				7	SM/Fill CH/Fill	2-inch Gray silty SAND, fill, damp Dark gray to black silty CLAY, organic material, fill, damp
			▼ 7.50	8	SM/Fill	Static water level measured at 7.50 feet Brown silty SAND, glass, plastic, brick fragm ents, fill, damp
				9	GW/Fill	Ground water encountered during drilling at 8.00 feet Gray to brown sandy GRAVEL, trace of silt, sheen, wet
				10	GM/Fill	Black sandy GRAVEL, trace of silt, sheen, wet
						Set bar hole probe at 3.0 ft bgs. Backfilled borehole with bentonite chips. CH4: 4.9% CO2: 0.2% O2: 15.8% H2S: 0.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

Boring ID TGP-15
Total depth 10 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Fourth transect from north	Sampling method	5 ft core with plastic liner
Client	City of Seattle		Easternmost probe location	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	October 14, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
						Asphalt – 1", aggregate – 8", crushed rock
				1		
					ML/Fill	Light brown sandy SILT, fill, damp
	5-foot core with liner			2		
0		75				
				3		Gray-brown mottled sandy SILT, fill, damp
				4		
					OL/Fill	Dark brown-black clayey SILT, fill, organic material
				5	SM/Fill	Brown sandy SILT brick fragments, fill, damp
						Glass, with gravel
				6		
	5-foot core with liner			7		
0		60			ML/Fill	Dark brown-black gravelly SILT, organic material, wood fragments,
			▼	8		Static water level measured at 8.00 feet
			8.00			moist
				9		
						Groundwater encountered during drilling at 9.5 feet.
			▽	10	ML	Gray-brown sandy SILT, wet
						Set bar hole probe at 5.0 ft bgs. Backfilled borehole with bentonite chips. CH4: 5.7% CO2: 4.6% O2: 4.8% H2S: 0.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

Boring ID TGP-16
Total depth 10 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Fourth transect from north	Sampling method	5 ft core with plastic liner
Client	City of Seattle		Middle probe location	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	October 14, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
						Asphalt – 1", aggregate – 8", crushed rock
				1		
					SW/Fill	Tan gravelly SAND, fill, damp
				2		
0	5-foot core with liner	80			Fill	Buff colored cement kiln dust, wood fragments, fill, damp
				3		
					GW/Fill	5" black sandy GRAVEL, fill, damp
				4	Fill	Buff colored cement kiln dust, fill, damp
				5	SM/Fill	Black sandy SILT, brick fragments, fil, wet Petroleum hydrocarbon odor
				6		
					ML/Fill	Dark brown clayey SILT, fill, damp
			▽	7		Groundwater encountered during drilling at 7 feet.
0	5-foot core with liner	60			SM/Fill	Black sandy SILT, organic material, wood fragments, fill, wet
				8		
					OH	Gray clayey SILT, organic material, wet
				9		
			▼			Static water level measured at 9.6 feet.
			9.6	10		
						Set bar hole probe at 4.0 ft bgs. Backfilled borehole with bentonite chips. CH4: 4.3% CO2: 0.0% O2: 9.8% H2S: 0.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

HERRERA

Boring ID TGP-17
Total depth 10 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Fourth transect from north	Sampling method	5 ft core with plastic liner
Client	City of Seattle		second probe from westernmost location	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	October 14, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
						Asphalt – 1.0”, aggregate – 5.0”, sandy gravel
				1	ML/Fill	Tan gravelly SILT, trace sand, fill, damp
					Fill	Buff colored cement kiln dust, damp
0	5-foot core with liner	75		2		
				3		
				4		
				5	ML/Fill	2” tan sandy SILT, 4”Dark brown sandy SILT, fill, damp
					OL/Fill	As above, organic material, sticks, wood and few brick fragments
				6		
			▼			Static water level measured at 6.80 feet.
0	5-foot core with liner	60	6.80	7		
				8		
			▽			Groundwater encountered during drilling at 9.0 feet
				9	SM/Fill	Dark gray silty SAND, trace clay, fill, wet
					ML	Brown clayey SILT, damp
				10		
						Set bar hole probe at 5.0 ft bgs. Backfilled borehole with bentonite chips. CH4: 1.4% CO2: 0.0% O2: 21.3% H2S: 0.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

HERRERA

Boring ID TGP-18
Total depth 10 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Southern transect	Sampling method	5 ft core with plastic liner
Client	City of Seattle		second probe from easternmost location	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	October 14, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
						Asphalt – 1", aggregate – 9", sandy gravel
				1		
					GW/Fill	5" Brown-gray sandy GRAVEL, fill, damp
				2		4" Black sandy GRAVEL, charred wood, fill, damp
0	5-foot core with liner	100			ML/Fill	Gray sandy SILT, trace gravel, damp
				3		
				4		
						Gray-brown sandy SILT, fill, damp
				5	SP/ML/Fill	2" Gray medium SAND lens, fill
					ML/Fill	Gray sandy SILT, fill, damp
				6	SM/Fill	Black silty SAND, trace gravel, wood fragments, and glass, damp
	5-foot core with liner			7		
0		90				
				8		
				9		
				10	CH	Gray-brown silty CLAY, damp
						Groundwater not encountered during drilling. Set bar hole probe at 8.0 ft bgs. Backfilled borehole with bentonite chips. CH4: 2.9% CO2: 0.2% O2: 19.2% H2S: 0.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

HERRERA

Boring ID TGP-19
Total depth 10 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Southern transect	Sampling method	5 ft core with plastic liner
Client	City of Seattle		Second probe from easternmost location	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	October 14, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
						Asphalt – 1", aggregate – 6.0", sandy gravel
0	5-foot core with liner	100		1	Fill	Buff colored cement kiln dust, fill, damp
				2		
				3		
				4		
				5		
0	5-foot core with liner	100		6	ML/Fill	4" lens of dark brown SILT, fill, damp
					Fill	Buff colored cement kiln dust, fill, damp
				7		
				8		
				9	OH	Cobbles,
						Black silty CLAY, organic material, damp
				10		Brown silty CLAY, organic material, damp
						Groundwater not encountered during drilling. Set bar hole probe at 6.0 ft bgs. Backfilled borehole with bentonite chips. CH4: 4.2% CO2: 0.0% O2: 20.4% H2S: 0.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

Boring ID TGP-20
Total depth 10 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Southern transect	Sampling method	5 ft core with plastic liner
Client	City of Seattle		Second probe from westernmost location	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	October 14, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
						Asphalt – 1", aggregate – 4", sandy gravel
				1	GP/Fill	4" Gray GRAVEL, fill, damp
					SW/Fill	4" Black gravelly SAND, fill, damp
0	5-foot core with liner	100		2	SM/Fill	Gray silty SAND, trace gravel, fill, damp
				3	Fill	Buff colored cement kiln dust, fill, damp
				4	SM/Fill	Gray-brown mottled gravelly SILT, fill, damp
			▼ 5.4	5		Groundwater encountered during at 5.0 feet.
0	5-foot core with liner	80		6		Gray sandy SILT, trace clay, fill, wet. Static water level measured at 5.4 feet
				7		
				8		Dark brown-black sandy SILT, damp
				9	CH	Gray silty CLAY, damp
				10	OH	Gray-brown clayey SILT, organic material, wood fragments
						Set bar hole probe at 3.0 ft bgs. Backfilled borehole with bentonite chips. CH4: 0.9% CO2: 0.0% O2: 20.6% H2S: 0.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

HERRERA

Boring ID TGP-21
Total depth 10 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Southern transect	Sampling method	5 ft core with plastic liner
Client	City of Seattle		westernmost probe location	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	October 14, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
						Grass, topsoil
0	5-foot core with liner	70		1	GW/Fill	Brown sandy GRAVEL, fill, damp
				2		
					ML/Fill	Brown gravelly SILT, fill, damp
				3		Tan sandy SILT, damp
					Fill	3" Buff colored cement kiln dust, fill, damp
				4	ML/Fill	3" Brown sandy SILT, fill, damp
					SM/Fill	Gray silty SAND, fill, wet, groundwater encountered at 4 feet
			▼ 4.95	5		Static water level measured at 4.95 feet
0	5-foot core with liner	80		6		
					CH	Gray-brown clayey SILT, damp
				7		
				8		
						Brown clayey SILT, damp
				9		
				10		
						Set bar hole probe at 3.0 ft bgs. Backfilled borehole with bentonite chips. CH4: 0.5% CO2: 0.1% O2: 20.8% H2S: 0.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

Boring ID TGP-22
Total depth 5 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe
Project number	10-04850-000	Location	Fourth transect from north	Sampling method	5 ft core with plastic liner
Client	City of Seattle		westernmost probe location	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	October 14, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
						Asphalt – 1", aggregate – 4", sandy gravel
				1	GW/Fill	Brown sandy GRAVEL, fill, dry
					Fill	Buff colored cement kiln dust, fill, damp
				2		
0	5-foot core with liner	80				
			▼ 3.0	3		Static water level measured at 3.0 feet
				4	SW/Fill	Brown gravelly SAND, fill, damp, groundwater encountered at 4.0 feet.
			▽		ML/Fill	3" Light brown sandy SILT, fill, and 3" Black sandy SILT, fill, wet
				5	SP/Fill	Gray medium SAND, fill, wet
						Set bar hole probe at 2.0 ft bgs. Backfilled borehole with bentonite chips. CH4: 0.0% CO2: 0.0% O2: 21.6% H2S: 0.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

HERRERA

Boring ID TGP-23
Total depth 15 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Northernmost probe on landfill	Sampling method	5 ft core with plastic liner
Client	City of Seattle			Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	October 14, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
						Asphalt – 1", aggregate – 4", sandy gravel
0	5-foot core with liner	70		1	GW/Fill	4" Dark brown gravelly SAND, fill, dry Light brown gravelly SAND, fill, damp
				2		
				3		
					CL/Fill	6" Gray clayey SILT, trace gravel, fill, damp
				4	GC/Fill	Black –gray clayey GRAVEL, crushed rock, fill
				5	SM/Fill	Dark-brown silty SAND, glass and brick fragments, organic material, wood waste, fill
-	5-foot core with liner	NR			NR	No Recovery
				6		
				7		
				8		
				9		
				10		
0	5-foot core with liner	6				No Recovery
				11		
			▼ 12.00	12		Static water level measured at 12.00 feet.
				13		
				14		
			▽			Groundwater encountered during drilling at 14.5 feet
				15	GM/Fill	Black sandy GRAVEL, broken glass, fill, hydrocarbon odor, wet
						Set bar hole probe at 5.0 ft bgs. Backfilled borehole with bentonite chips. CH4: 4.8% CO2: 1.7% O2: 0.3% H2S: 0.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

HERRERA

Boring ID TGP-24
Total depth 10 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Middle probe located within	Sampling method	5 ft core with plastic liner
Client	City of Seattle		landfill	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	October 14, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
						Asphalt – 1.0”, aggregate – 4.0”, sandy gravel
2.4	5-foot core with liner	60		1	SM/Fill	Light brown gravelly SAND, fill, damp
				2		
				3		
				4	ML/Fill	4” Gray clayey SILT, fill
					SW/Fill	4” Black gravelly SAND, crushed rock, fill
				5	SM/Fill	4” Dark white specks, silty SAND, brick fragments, fill, damp
1.0	5-foot core with liner	30			SW/Fill	Black gravelly SAND, brick fragments, fill, damp
				6		
					Fill	4” Brick fragments, fill
				7	SM/Fill	4” Brown silty SAND, fill
				8	Fill	3” Black charred wood
					SM/Fill	3” Brown silty SAND, fill, damp
				9		
				10		
						Groundwater not encountered during drilling. Set bar hole probe at 5.0 ft bgs. Backfilled borehole with bentonite chips. CH4: 4.2% CO2: 2.8% O2: 3.4% H2S: 0.0 ppmv

PID – photoionization detector

SOIL PROBE BORING RECORD

Boring ID TGP-25
Total depth 10 feet
Sheet 1 of 1

Project name	South Park LF	Drilling Contractor	ESN	Drilling method	Push-probe rig
Project number	10-04850-000	Location	Southernmost probe located	Sampling method	5 ft core with plastic liner
Client	City of Seattle		Within landfill	Air monitoring (Y/N)	Yes
HEC rep.	Bruce Carpenter	Date	October 14, 2015	Instrument(s)	PID, GEM Plus

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
0	5-foot core with liner	80				Asphalt – 1.0”, aggregate – 9.0”, sandy gravel
				1		
					SW/Fill	Light brown gravelly SAND, fill, damp
				2		
				3		
				4	ML/Fill	Gray sandy SILT, fill, damp
					SW/Fill	Gray gravelly SAND, fill, damp
				5	ML/Fill	Gray sandy SILT, fill, dry
1.4	5-foot core with liner	75				
				6		
					SW/Fill	Black gravelly SAND, crushed rock, fill, dry
				7	SP/Fill	4” Buff colored SAND, fill
						4” Orange-brown SAND, fill
				8		
					SW/Fill	Brown-black gravelly SAND, fill, damp
				9	Fill	Broken glass, nail, brick fragments, fill
				10		
						Groundwater not encountered during drilling. Set bar hole probe at 9.5 ft bgs. Backfilled borehole with bentonite chips. CH4: 4.6% CO2: 6.3% O2: 0.3% H2S: 0.0 ppmv

PID – photoionization detector

GAS PROBE BORING LOG

Probe ID: GP-24
Total depth: 10
Sheet 1 **of** 1

Project name: South Park LF
Project number: 10-04850-000
Client: SPU
Drilling contractor: Cascade
Drilling method: Push probe
Sampling method: 4' probe sampler
Location: Kenyon Business Park between truck bays A1/A2, 14' E.
HEC rep: B. Carpenter
Date: 1/18/2011

PID (ppm)	Sample Type, Interval	% Recovery	Depth (feet, BGS)	Soil Group	Water Level (feet)	Soil Description	Probe Details
	Hand dug 2 feet					Asphalt/crushed rock	Concrete seal, 0'-1'
			1	SM		Brown, silty SAND, brick fragments, fill, damp	
			2	Fill		Buff colored cement kiln dust, fill, damp	3/4-inch diameter schedule 40 PVC casing, 0'-5'
0	2-foot probe sample	100	3				Hydrated bentonite chips, 1'-4'
			4			Buff colored cement kiln dust, fill, damp	
0	4-foot probe sample	100	5				#2/12 sand filter pack, 4'-10'
			6				3/4-inch diameter schedule 40 PVC 10-slot prepacked screen, 5'-10'
			7		ATD **		
			8	ML / Fill	7.0'	Black sandy SILT, brick fragments, 3-inch piece of rubber, fill, wet	
–	2-foot probe sample	No recovery	9				
			10				PVC endcap
			11			Bottom of boring at 10 feet below ground surface.	
			12			Soil vapors were measured in bore hole using GEM 2000 gas analyzer	
			13			CH_4: 1.2% CO_2: 0.1% O_2: 19.5% BAL: 79.2% H_2S: 0.0 ppm	
			14				
			15				
			16				

* Photoionization Detector

** ATD – at time of drilling

GAS PROBE BORING LOG

Probe ID: GP-25
Total depth: 10'
Sheet 1 **of** 1

Project name: South Park LF
Project number: 10-04850-000
Client: SPU

Drilling contractor: Cascade
Drilling method: Push probe
Sampling method: 4' probe sampler

Location: Kenyon Business Park ~58' E. of truck bay A10
HEC rep: B. Carpenter
Date: 1/18/2011

PID (ppm)	Sample Type, Interval	% Recovery	Depth (feet, BGS)	Soil Group	Water Level (feet)	Soil Description	Probe Details
	Hand dug 2 feet		1			Asphalt / crushed rock	Concrete seal, 0'-1'
				SM		Brown silty SAND, brick fragments, damp	
			2	Fill		Buff colored cement kiln dust, damp, fill	3/4-inch diameter schedule 40 PVC casing, 0'-5'
0	2-foot probe sample	100	3				Hydrated bentonite chips, 1'-4'
			4				
0	4-foot probe sample	60	5				#2/12 sand filter pack, 4'-10'
				ML		Brown sandy SILT, brick fragments, damp	3/4-inch diameter schedule 40 PVC 10-slot prepacked screen, 5'-10'
			6	SM / Fill		Black silty SAND, concrete, wood, very damp, fill	
			7		ATD ** 7.0'		
			8				
0	2-foot probe sample	100		SP		Black medium SAND, wet	
			9	MH		Gray-brown clayey SILT, organic material, wood, damp	
			10				PVC endcap
			11			Bottom of boring at 10 feet below ground surface. Soil vapors were measured in borehole using GEM 2000 gas analyzer. CH_4: 0.4% CO_2: 0.1% O_2: 20.4% BAL: 79.1% H_2S: 0.0 ppm	
			12				
			13				
			14				
			15				
			16				

* Photoionization Detector

** ATD – at time of drilling

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	GP-26	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling / Direct Push Probe
Sampling Method: Continuous Core

Ground Surface Elev: 16.10' NAVD88
Depth to Water (ft BGS): 8.5' BGS (ATD)
Start/Finish Date: 3/8/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
	Concrete seal, 0'-1'						Moist, gray, sandy, very gravelly SILT (ML) with cobbles; poor recovery due to cobbles	
1	3/4-inch diameter schedule 40 PVC casing, 0'-5'							1
2								2
	Hydrated bentonite chips, 1'-4'	S-1		0.0				
3								3
4								4
	#2/12 sand filter pack, 4'-10'							
5								5
6	3/4-inch diameter schedule 40 PVC 10-slot prepacked screen' 5'-10'							6
							Moist, dark gray to black, SAND (SP); fine to medium sand	
7								7
		S-2		0.0				
8								8
	3/8/2011						Wet	
9							Iron oxide staining	9
10	PVC endcap						Bottom of boring at 10' below ground surface.	10
11							Soil vapors were measured using GEM 2000 gas analyzer:	11
12							CH4: 00.0% CO2: 01.8% O2: 18.8% BAL: 79.4% H2S: 0.0 ppm	12
13								13
14								14

Sampler Type:
- No Recovery
- Continuous Core

PID - Photoionization Detector (Headspace Measurement)
- Static Water Level
- Water Level (ATD)

Logged by: AET
Approved by: JJS

GAS PROBE BORING LOG

Probe ID: GP-27
Total depth: 14'
Sheet 1 **of** 1

Project name: South Park LF
Project number: 10-04850-000
Client: SPU
Drilling contractor: Cascade
Drilling method: Push probe
Sampling method: 4' probe sampler
Location: ~200' N. of GP-28 on 5th (E. side)
HEC rep: B. Carpenter
Date: 1/18/2011

PID (ppm)	Sample Type, Interval	% Recovery	Depth (feet, BGS)	Soil Group	Water Level (feet)	Soil Description	Probe Details
	Hand dug 2 feet		1			Gravel/fill	Concrete seal, 0'-1'
			2	ML		Olive gray sandy SILT, tr. clay, damp	3/4-inch diameter schedule 40 PVC casing, 0'-9'
0	2-foot probe sample	100	3				Hydrated bentonite chips, 1'-7'
			4				
0	4-foot probe sample	100	5				
			6	Fill		Concrete fill	
			7	ML / Refuse		Dark brown sandy SILT, glass, concrete, brick fragments, fill, damp	
			8			Refuse	#2/12 sand filter pack, 7'-14'
0	4-foot probe sample	100	9				
			10				3/4-inch diameter schedule 40 PVC 10-slot prepacked screen, 9'-14'
			11				
			12	SP	ATD **	Black medium SAND, damp wet	
0	2-foot probe sample	75	13		12.0'		
			14	MH		Brown clayey SILT, damp	PVC endcap
			15			Bottom of boring at 14 ft below ground surface Soil vapors were measured in borehole using GEM 2000 gas analyzer.	
			16			CH_4: 0.6% CO_2: 0.9% O_2: 18.9% BAL: 79.6% H_2S: 0.0 ppm	

* Photoionization Detector

** ATD – at time of drilling

GAS PROBE BORING LOG

Probe ID: GP-28
Total depth: 12'
Sheet 1 **of** 1

Project name: South Park LF
Project number: 10-04850-000
Client: SPU
Drilling contractor: Cascade
Drilling method: Push probe
Sampling method: 4' probe sampler
Location: ~200' N. of GP-27 on 5th (E. side)
HEC rep: B. Carpenter
Date: 1/17/2011

PID (ppm)	Sample Type, Interval	% Recovery	Depth (feet, BGS)	Soil Group	Water Level (feet)	Soil Description	Probe Details
	Hand dug, 2 feet		1			Grass/topsoil	Concrete seal, 0'-1'
			2	SW / Fill		Brown gravelly SAND, tr. silt, damp, several brick fragments, fill material	3/4-inch diameter schedule 40 PVC casing, 0'-7'
0	2-foot probe sample	100	3			Buff colored cement kiln dust, damp, fill material	Hydrated bentonite chips, 1'-5'
			4				
0	4-foot probe sample	75	5	Fill			
			6				#2/12 sand filter pack, 5'-12'
			7				
			8	ML / Fill		Wood – 4 inches, dark-gray-brown clayey SILT, brick fragments, glass 1 inch, fill material, piece of white ceramic material	3/4-inch diameter schedule 40 PVC 10-slot prepacked screen, 7'-12'
0	2-foot probe sample	100	9				
			10	SP	ADT ** 9.4'	Very dark brown-black medium SAND, wet	
0	2-foot probe sample	100	11				
			12				PVC endcap
			13			Bottom of boring at 12 feet below ground surface Soil vapors were measured in borehole using GEM 2000 gas analyzer. CH_4: 0.3% CO_2: 0.1% O_2: 20.5% BAL: 79.1% H_2S: 0.0 ppm	
			14				
			15				
			16				

* Photoionization Detector

** ADT – at time of drilling

GAS PROBE BORING LOG

Probe ID: GP-29
Total depth: 10'
Sheet 1 **of** 1

Project name: South Park LF
Project number: 10-04850-000
Client: SPU
Drilling contractor: Cascade
Drilling method: Push probe
Sampling method: 4' probe sampler
Location: ~220' N. of GP-30 on E. side of 5th
HEC rep: B. Carpenter
Date: 1/17/2011

PID (ppm)	Sample Type, Interval	% Recovery	Depth (feet, BGS)	Soil Group	Water Level (feet)	Soil Description	Probe Details
	Hand dug, 2 feet		1			Grass/topsoil	Concrete seal, 0'-1'
			2	SM		Brown silty SAND, damp	3/4-inch diameter schedule 40 PVC casing, 0'-5'
0	2-foot probe sample	100	3	SM / Refuse		Brown silty SAND, broken glass, brick fragments, refuse, damp	Hydrated bentonite chips, 1'-4'
			4	SW / Refuse		Very dark brown to black, gravelly SAND, brick fragments, glass, damp	
0	4-foot probe sample	25	5			Black gravelly SAND, brick fragments, wood, piece of a sneaker, refuse, damp	#2/12 sand filter pack, 4'-10'
			6				3/4-inch diameter schedule 40 PVC 10-slot prepacked screen, 5'-10'
			7				
			8		ADT **		
0	2-foot probe sample	100	9		8.0'	Wood, window/door screen, fill, wet	
			10	SP		Black medium SAND, wet	PVC endcap
			11			Bottom of boring at 10 ft. below ground surface	
			12			Soil vapors were measured in borehole using GEM 2000 gas analyzer.	
			13			CH_4: 0.3% CO_2: 0.1% O_2: 20.5% BAL: 79.1% H_2S: 0.0 ppm	
			14				
			15				
			16				

* Photoionization Detector

** ADT – at time of drilling

GAS PROBE BORING LOG

Probe ID: GP-30
Total depth: 10'
Sheet 1 **of** 1

Project name: South Park LF
Project number: 10-04850-000
Client: SPU
Drilling contractor: Cascade
Drilling method: Push probe
Sampling method: 4' probe sampler
Location: NE corner of Sullivan and 5th
HEC rep: B. Carpenter
Date: 1/17/2011

PID (ppm)	Sample Type, Interval	% Recovery	Depth (feet, BGS)	Soil Group	Water Level (feet)	Soil Description	Probe Details
	Hand dug 2 feet		1			Grass/topsoil	Concrete seal, 0'-1'
			2	SM		Brown fine silty SAND, tr. gravel, damp	3/4-inch diameter schedule 40 PVC casing, 0'-5'
0	2-foot probe sample	80	3				Hydrated bentonite chips, 1'-4'
			4		ADT ** 3.8'		
0	4-foot probe sample	50	5			Black silty SAND, wet	#2/12 sand filter pack, 4'-10'
			6				3/4-inch diameter schedule 40 PVC 10-slot prepacked screen, 5'-10'
			7				
			8	SW		Black fine to medium SAND, wet	
0	2-foot probe sample	50	9				
			10	MH		Dark brown-gray clayey SILT, damp	PVC endcap
			11			Bottom of boring at 10 ft. below ground surface	
			12			Soil vapors were measured in borehole using GEM 2000 gas analyzer	
			13			CH_4: 0.3% CO_2: 0.1% O_2: 20.5% BAL: 79.1% H_2S: 0.0 ppm	
			14				
			15				
			16				

* Photoionization Detector

** ADT – at time of drilling

GAS PROBE BORING LOG

Probe ID: GP-31
Total depth: 10'
Sheet 1 **of** 1

BCM-944 (Ecology Well Tag)

Project name: South Park LF
Project number: 10-04850-000
Client: SPU
Drilling contractor: Cascade
Drilling method: Push probe
Sampling method: 4' probe sampler
Location: SW corner of Sullivan and 5th
HEC rep: B. Carpenter
Date: 1/17/2011

PID (ppm)	Sample Type, Interval	% Recovery	Depth (feet, BGS)	Soil Group	Water Level (feet)	Soil Description	Probe Details
	Hand dug, 2 feet		1			Asphalt Crushed rock, fill	Concrete seal, 0'-1'
			2	SP		Brown medium SAND, trace gravel, damp	3/4-inch diameter schedule 40 PVC casing, 0'-5'
0	2-foot probe sample	75	3				Hydrated bentonite chips, 1'-4'
			4				
0	4-foot probe sample	50	5		ADT ** 4.3'		#2/12 sand filter pack, 4'-10'
			6			Brown medium SAND, trace gravel, wet	3/4-inch diameter schedule 40 PVC 10-slot prepacked screen, 5'-10'
			7				
			8	ML		Brown-black gravelly SILT, wet	
0	2-foot probe sample	100	9	GP		Gray to black pea gravel, fill, wet	
			10	ML		Dark brown gravelly SILT, wet	PVC endcap
			11			Bottom of boring at 10 feet below ground surface Soil vapors were measured in borehole using GEM 2000 gas analyzer. CH_4: 0.3% CO_2: 0.1% O_2: 20.5% BAL: 79.1% H_2S: 0.0 ppm	
			12				
			13				
			14				
			15				
			16				

* Photoionization Detector

** ADT – at time of drilling

Boring Log

Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	GP-32	1 of 1

Project Name: South Park Landfill
Ground Surface Elev: 13.22' NAVD88
Location: Seattle, WA
Driller/Method: Cascade Drilling, LP / Direct Push Probe
Depth to Water: 1.74' BGS
Sampling Method: Continuous Core
Start/Finish Date: 12/29/2010

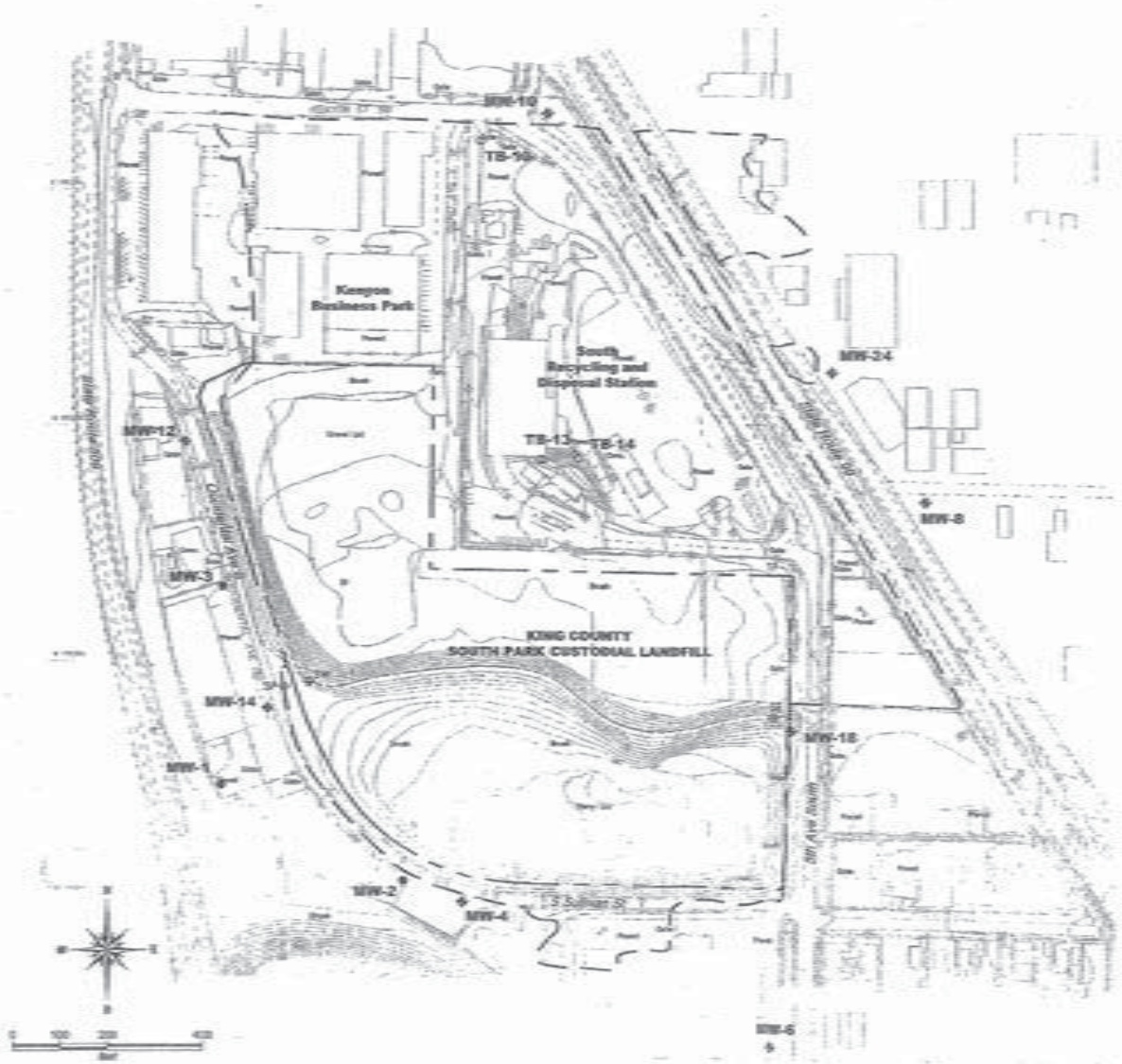
Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
	Concrete seal, 0'-1'						Asphalt. Cored and hand dug to 2' to clear asphalt and soil to set monument.	
1	3/4-inch diameter schedule 40 PVC casing, 0'-5'	S-1					Wet, gray, gravelly SAND (SP); fine to medium sand.	1
2	12/29/2010			0.0				2
	Hydrated bentonite chips, 1'-4'							
3		S-2						3
							Wet, dark brown, organic SILT (OL).	
4	#2/12 sand filter pack, 4'-10'						Wood and white ceramic debris	4
5							Green glass shards.	5
6	3/4-inch diameter schedule 40 PVC 10-slot prepacked screen' 5'-10'			7.0				6
7							Wood debris	7
		S-3		50.3			Wet, white and black layered, unknown fill material (FILL); rotton egg odor.	
8								8
							Moist, dark brown, slightly clayey SILT (ML); with abundant organics.	
9				15.0				9
10	PVC endcap						Bottom of boring at 10' below ground surface.	10
11							Soil vapors were measured using GEM 2000 gas analyzer:	11
12							CH4: 00.1% CO2: 00.1% O2: 19.8% BAL: 80.1% H2S: 0.0 ppm	12
13								13
14								14

Sampler Type:
- No Recovery
- Continuous Core

PID - Photoionization Detector (Headspace Measurement)
- Static Water Level
- Water Level (ATD)

Logged by: AET
Approved by: JJS

Historical Monitoring Wells



LEGEND

- Landfill Boundary (Approximate, based on Air photo interpretation and soil borings).
- King County Property Line
- Ditch (Approximate, based on basemap and air photo).
- ● Monitoring Wells Installed by GeoEngineers in October 1991
- ○ Piezometers Installed by City of Seattle in 1989 (TB-10) and 1990 (TB-13, 14)
- ◆ Monitoring Wells Installed by AESI in December 1998 & September 1999

REFERENCE: BASE MAP AND TOPOGRAPHY DERIVED FROM A VARIETY OF SOURCES AND SHOULD BE FIELD VERIFIED.

REFERENCE: BASE MAP AND TOPOGRAPHY BY DIGITAL AERIAL MAPPING, 5/1997

Ground Water Monitoring Well and Piezometer Locations

South Park Custodial Landfill
KING COUNTY, WASHINGTON

PROJECT NO. V997410

FIGURE NO. 3-1

DATE 12/23/99

REVISIONS JJB/HKT

ASSOCIATED EARTH SCIENCES, INC

MONITOR WELL NO. MW-1 AKA MW-01

WELL SCHEMATIC

Casing Elevation (ft.): 101.41
Casing Stickup (ft.): -0.22

Vapor Conc. (ppm) / Sheen	Blow Count	Samples	Group Symbol	DESCRIPTION (Surface Elevation (ft.): 101.63)
				3 inches asphaltic concrete
			SM	Brown silty fine to medium sand with gravel, organic matter and brick fragments (medium dense, moist) (fill)
<100 / SS	15			
			ML	Mottled gray and brown silt with organic matter (soft, wet)
				Water level at 3.74 feet on 10/10/91
<100 / SS	3	CA		
			SM	Gray silty fine to medium sand with organic matter (medium dense, wet)
<100 / NS	20			
			SP	Black fine to medium sand with a trace of silt (medium dense, wet)
<100 / NS	16			

Stool surface monument and concrete

Bentonite seal

2-inch Schedule 40 PVC solid pipe

2-inch Schedule 40 PVC screen, 0.020-inch slot width

Medium sand backfill

Base of well at 13.0 feet

DEPTH IN FEET: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

Boring completed at 13.5 feet on 10/09/91
Headspace combustible vapor concentration 4,200 ppm on 10/10/91; 8,000 ppm on 11/19/91

Note: See Figure A-2 for explanation of symbols

GeoEngineers

Log of Monitor Well

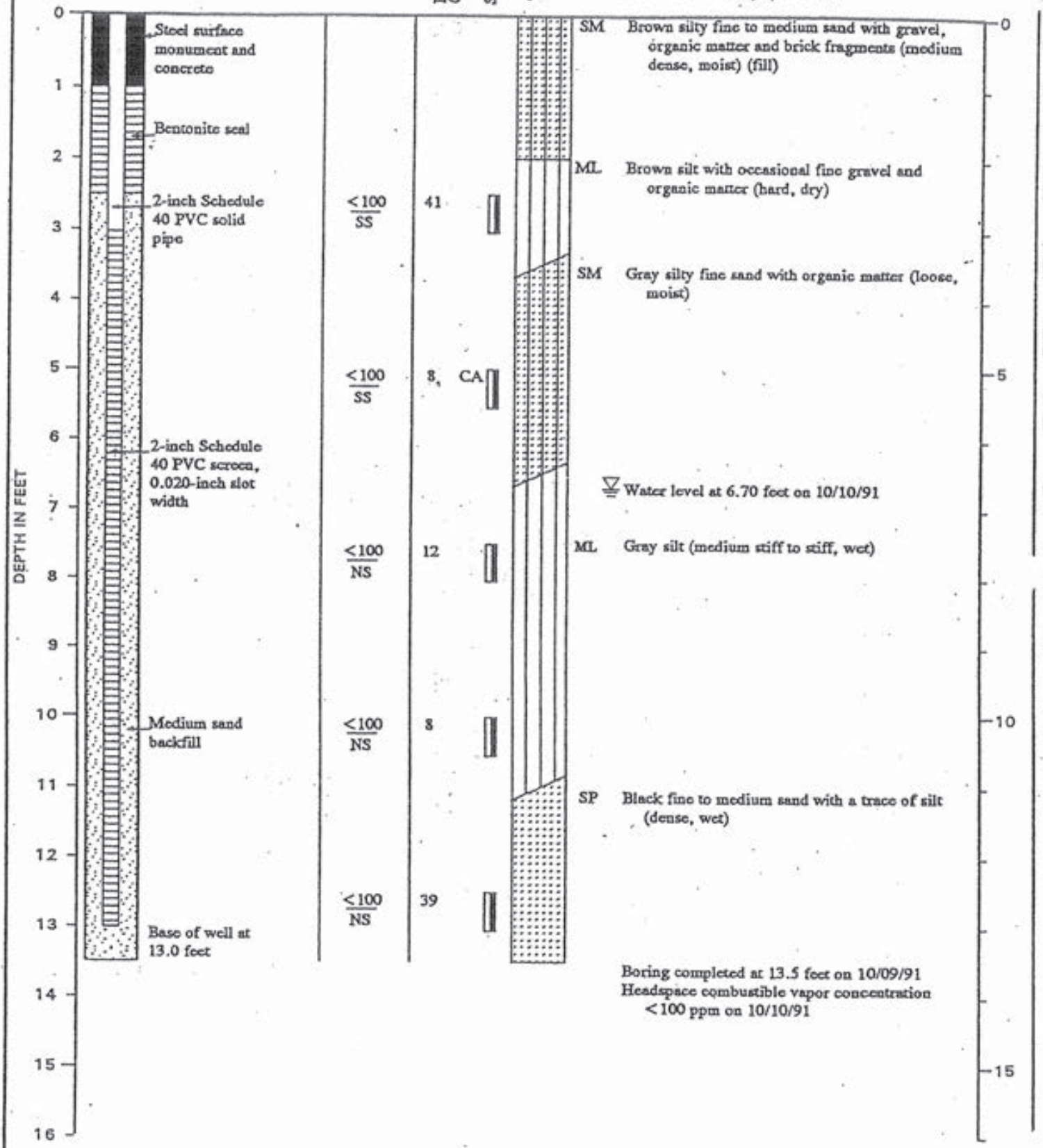
Figure A-12

MONITOR WELL NO. MW-2 AKA MW-02

WELL SCHEMATIC

Casing Elevation (ft.): 99.23
Casing Stickup (ft.): -0.36

Surface Elevation (ft.): 99.59



Note: See Figure A-2 for explanation of symbols

GeoEngineers

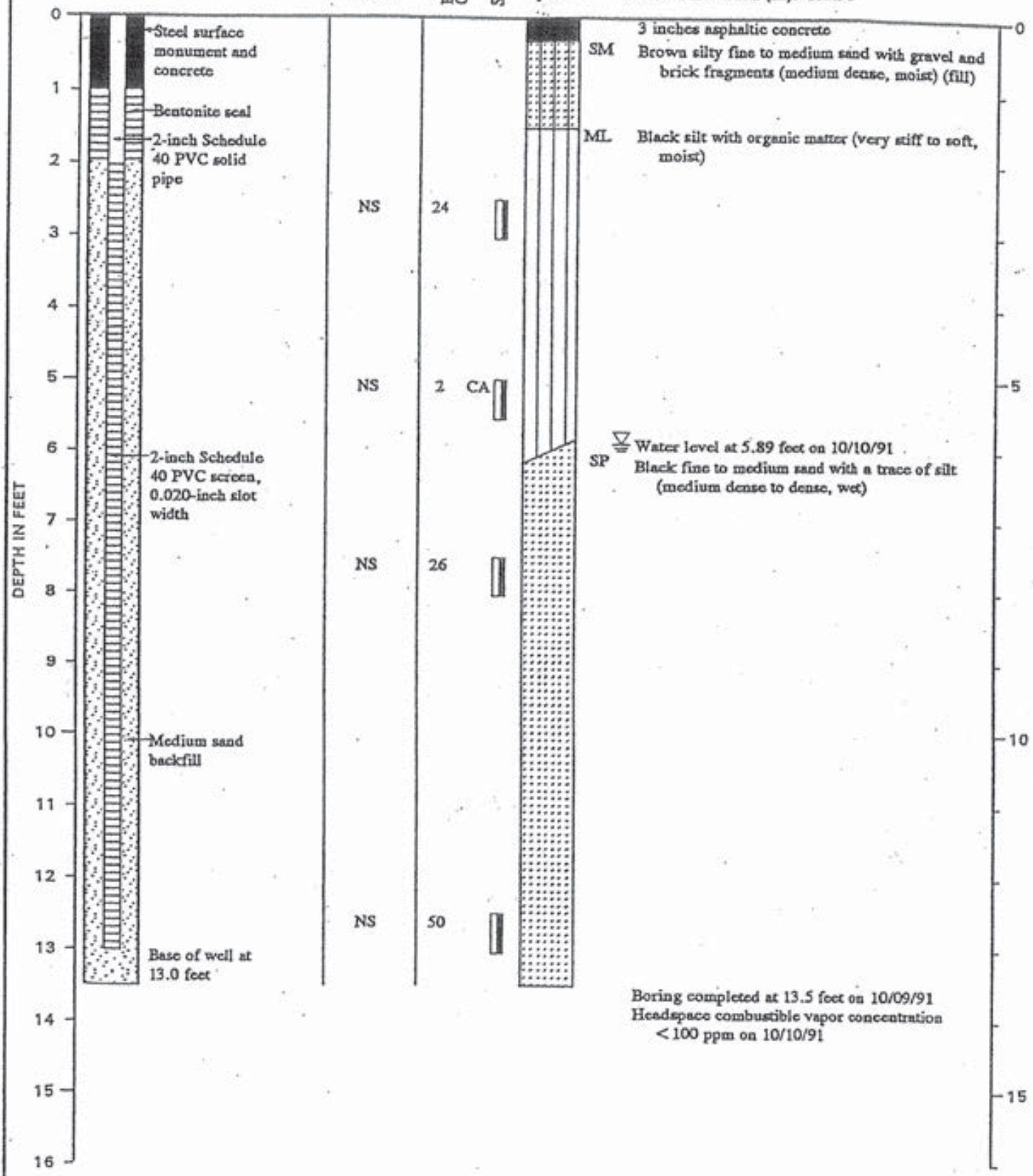
Log of Monitor Well

Figure A-13

MONITOR WELL NO. MW-3 AKA MW-03

WELL SCHEMATIC

Casing Elevation (ft.): 100.68
Casing Stickup (ft.): -0.23



Note: See Figure A-2 for explanation of symbols

GeoEngineers

Log of Monitor Well

Figure A-14

Coarse Grained Soils – More than 50%[1] Retained on Number 200 Sieve	Gravels – More than 50% of Coarse Fraction	Little to no Fines	GW	Well-graded gravel and gravel with sand, little to no fines
			GP	Poorly-graded gravel and gravel with sand, little to no fines
		With Fines	GM	Silty gravel and silty gravel with sand
			GC	Clayey gravel and clayey gravel with sand
	Sands – 50% or More of Coarse Fraction Passes Number 4 Sieve	Little to no Fines	SW	Well-graded sand and sand with gravel, little to no fines
			SP	Poorly-graded sand and sand with gravel, little to no fines
		With Fines	SM	Silty sand and silty sand with gravel
			SC	Clayey sand and clayey sand with gravel
Fine Grained Soils – 50%[1] or More Passes Number 200 Sieve	Silts and CLays Liquid Limit Less than 50		ML	Silt, sandy silt, gravelly silt, silt with sand or gravel
			CL	Clay of low to medium plasticity, silty clay, sandy or gravelly clay, lean clay with sand or gravel
			OL	Organic clay or silt of low to medium plasticity
	Silts and CLays Liquid Limit 50 or More		MH	Elastic silt, clayey silt, silt with micaceous or diatomaceous fine sand or silt
			CH	Clay of medium to high plasticity, sandy or gravelly clay, fat clay with sand or gravel
			OH	Organic clay or silt of medium to high plasticity
Highly Organic Soils			PT	Peat, muck and other highly organic soils

Terms Describing Relative Density and Consistency

	Density	SPT[2] blows/foot
Coarse-Grained Soils	Very Loose	0 to 4
	Loose	4 to 10
	Medium Dense	10 to 30
	Dense	30 to 50
	Very Dense	>50

	Consistency	SPT[2] blows/foot
Fine-Grained Soils	Very Soft	0 to 2
	Soft	2 to 4
	Medium Stiff	4 to 8
	Stiff	8 to 15
	Very Stiff	15 to 30
	Hard	>30

Test Symbols

G = Grain Size
M = Moisture Content
A = Atterberg Limits
C = Chemical
DD = Dry Density
K = Permeability

Component Definitions

Descriptive Term	Size Range and Sieve Number
Boulders	Larger than 12"
Cobbles	3" to 12"
Gravel	3" to No. 4 (4.75 mm)
Coarse Gravel	3" to 3/4"
Fine Gravel	3/4" to No. 4 (4.75 mm)
Sand	No. 4 (4.75 mm) to No. 200 (0.075 mm)
Coarse Sand	No. 4 (4.75 mm) to No. 10 (2.00 mm)
Medium Sand	No. 10 (2.00 mm) to No. 40 (0.425 mm)
Fine Sand	No. 40 (0.425 mm) to No. 200 (0.075 mm)
Silt and Clay	Smaller than No. 200 (0.075 mm)

[3] Estimated Percentage

Component	Percentage by Weight
Trace	<5
Few	5 to 10
Little	15 to 25
Some	30 to 45

With Non-primary Coarse-grained constuents ≥ 15%

Fine Content between 5% and 15%

Moisture Content

Dry– Absence of moisture, dusty, dry to the touch

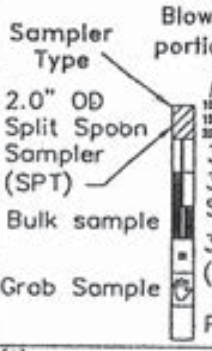
Slightly Moist– Perceptable moisture

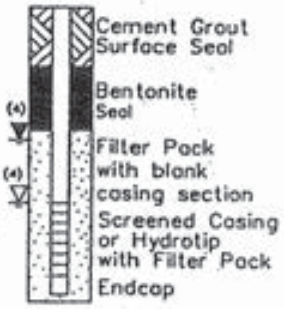
Moist– Damp but no visible water

Very Moist– Water visible but not free draining

Wet– Visible free water, usually from below water table

Symbols





(1) Percentage by Dry Weight
(2) (SPT) Standard Penetration Test (ASTM D-1586)
(3) In General Accordance with Standard Practice for Description and Identification of Soils (ASTM D-2488)
(4) Depth of Groundwater
ATD = At time of drilling
Static water level (date)

Classification of soils in this report is based on visual field and/or laboratory observations, which include density/consistency, moisture condition, grain size, and plasticity estimates and should not be construed to imply field nor laboratory testing unless presented herein. Visual-manual and/or laboratory classification methods of ASTM D-2487 and D2488 were used as an identification guide for the Unified Soil Classification System.

ASSOCIATED EARTH SCIENCES, INC

Exploration Log Key

FIGURE A

biserver/admin/forms/Exploration Log Key.dwg 04/23/99 1:1

ASSOCIATED EARTH SCIENCES, INC

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
BV97041	MW-4 AKA MW-04	1 of 3

Project Name	South Park Custodial Landfill	Surface Elevation	20.15' NAVD 88
Location	King County	Water Depth (ft bgs)	7
Drilling Method	Hollow Stem Auger 10.5" OD/6" ID	Start Date	December 1, 1998
Sampling Method	3" diameter, Split Spoon Sampler, 140 lb hammer	Finish Date	December 2, 1998

Depth feet	Well Construction	Methane	ST	Blows/6"	Sample ID	Mtl. Graphic	Description
	Locking 8" steel monument						FILL
	Concrete seal						SANDY SILT; brown; some rounded gravel and brick; moist, firm; no odors or discoloration (ML)
		0%		4 6 6			
5	Bentonite chip seal			3 3 4			
							SAND with SILT; brown; moist, loose (SM)
	7 ft. bgs ATD 12/2/98, Auger casing at 37.5 ft.						
							- wood debris
	9.68 ft. bgs 12/10/98						
10				31 50			- wood fiber SILT; dark gray to black; brick with wood fibers; hard to firm; petroleum-like odor, wet, sheen on sample (ML)
	2" ID SCH 40 PVC Riser						
		0%		5 11 10			
15				5 6 4			
	Bentonite slurry, 30% by weight						RECENT ALLUVIUM SILT; brown; some wood debris; moist, firm (ML)
		0%		4 6 6			

Sampler Type (ST):

- 3" Split Spoon Sampler
- No Recovery

Lab Tests:

- C - Chemical Properties
- P - Permeability
- M - Moisture Content
- Water Level (Date of Measurement)

Logged by: RSB

Approved by: JJS

Figure No. A-1

SPARKMW SPARKMW.GF jst 18, 1999

ASSOCIATED EARTH SCIENCES, INC

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
BV97041	MW-4 AKA MW-04	2 of 3

Project Name	South Park Custodial Landfill	Surface Elevation	20.15' NAVD 88
Location	King County	Water Depth (ft bgs)	7
Drilling Method	Hollow Stem Auger 10.5" OD/6" ID	Start Date	December 1, 1998
Sampling Method	3" diameter, Split Spoon Sampler, 140 lb hammer	Finish Date	December 2, 1998

Depth feet	Well Construction	Methane		ST	Blows/6"	Sample ID	Mtl. Graphic	Description
					11 50 50/5"			SAND; dark gray to black; fine to medium sand, interbedded silt laminae, some wood; wet, medium dense to very dense (SM)
	Bentonite slurry, 30% by weight	0%			5 6 6			
25								
		0%			4 21 50/4"			
30								
		0%			5 21 16			
								- grades to gray sandy silt
35					14 42 36			
	Bentonite chips							
	Filter Pack, 10 x 20 Colorado Silica Sand	0%			24 28 21			- grades to fine gray sandy silt

Sampler Type (ST):
- 3" Split Spoon Sampler
- No Recovery

Lab Tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture Content
- Water Level (Date of Measurement)

Logged by: RSB
Approved by: JJS
Figure No. A-1

SPARKMW SPARKMW.G ust 18, 1999

ASSOCIATED EARTH SCIENCES, INC

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
BV97041	MW-4 AKA MW-04	3 of 3

Project Name	South Park Custodial Landfill	Surface Elevation	20.15' NAVD 88
Location	King County	Water Depth (ft bgs)	7
Drilling Method	Hollow Stem Auger 10.5" OD/6" ID	Start Date	December 1, 1998
Sampling Method	3" diameter, Split Spoon Sampler, 140 lb hammer	Finish Date	December 2, 1998

Depth feet	Well Construction	Methane	ST	Blows/ 6"	Sample ID	Mtl. Graphic	Description
	Filter Pack, 10 x 20 Colorado Silica Sand	0%		22 36 30			- dark gray, fine to medium sand with silt laminae
45	Well Screen 2" ID SCH 40 PVC, 0.01" slot size						
		0%		8 12 17			ESTUARINE DEPOSIT SILTY SAND; dark gray; fine to medium silty sand with shell fragments; medium dense, wet
50	Threaded end cap, 2" ID SCH 40 PVC Bottom of boring and well at 50.59'						Bottom of boring at depth 50.59 feet. Monitoring well installed to depth 50.59 feet. Soil sampler driven using 140-pound hammer falling 30-inches.
55							

Sampler Type (ST):
- 3" Split Spoon Sampler
- No Recovery

Lab Tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture Content
- Water Level (Date of Measurement)

Logged by: RSB
Approved by: JJS

SPARKMW SPARKMW.GPJ August 18, 1999

ASSOCIATED EARTH SCIENCES, INC

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
BV97041	MW-6 AKA MW-06	1 of 3

Project Name	South Park Custodial Landfill	Surface Elevation	17.35' NAVD 88
Location	King County	Water Depth (ft bgs)	11.6
Drilling Method	Hollow Stem Auger 10.5" OD/6" ID	Start Date	December 3, 1998
Sampling Method	3" diameter, Split Spoon Sampler, 140 lb hammer	Finish Date	December 3, 1998

Depth feet	Well Construction	Methane		ST	Blows/6"	Sample ID	Mtl. Graphic	Description
	Locking, 8" steel monument							FILL
	Concrete seal							GRAVEL; angular (GP)
								SILT; brown; trace gravel, some fine to medium sand; moist, soft; no odors or discolorations (ML).
		0%			5 4 5			SILT; gray/brown; trace gravel; very moist, high plasticity, firm; no odors or discoloration (ML)
	Bentonite chip seal							
5					3 4 7			
	7.97 ft. bgs 12/10/98 Bentonite slurry, 30% by weight	0%			3 4 8			
								RECENT ALLUVIUM
								SILT; gray; very moist, high plasticity, firm; no odor or discolorations (ML)
10					3 3 7			
	11.6 ft bgs ATD 12/3/98							
		0%			3 4 6			
	2" ID SCH 40 PVC Riser							
15					5 9 31			SAND; dark gray to black; fine to medium, trace silt; moist, medium dense to dense; no odors or discolorations, wet (SP)
		0%			4 11 30			

Sampler Type (ST):
- 3" Split Spoon Sampler
- No Recovery

Lab Tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture Content
- Water Level (Date of Measurement)

Logged by: RSB
Approved by: JJS
Figure No. A-2

SPARKMN SPARKMN.G. Jul 16, 1999

ASSOCIATED EARTH SCIENCES, INC

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
BV97041	MW-6 AKA MW-06	2 of 3

Project Name	South Park Custodial Landfill	Surface Elevation	17.35' NAVD 88
Location	King County	Water Depth (ft bgs)	11.6
Drilling Method	Hollow Stem Auger 10.5" OD/6" ID	Start Date	December 3, 1998
Sampling Method	3" diameter, Split Spoon Sampler, 140 lb hammer	Finish Date	December 3, 1998

Depth feet	Well Construction	Methane	ST	Blows/6"	Sample ID	Mtl. Graphic	Description
	Bentonite slurry, 30% by weight			6 26 50/5"			
		0%		14 22 34			
25	Bentonite chips						
		0%		14 33 50			SAND; black; fine to medium, with occasional light gray silt laminations and wood debris, dense (SP)
30							
	Filter Pack, 10 x 20 Colorado silica sand	0%		5 23 46			
35	Well screen 2" ID SCH 40 PVC, 0.01" slot size						
		0%		5 14 35			
	Threaded end cap 2" ID						

Sampler Type (ST):
- 3" Split Spoon Sampler
- No Recovery

Lab Tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture Content
- Water Level (Date of Measurement)

Logged by: RSB
Approved by: JJS
Figure No. A-2

SPARKMW SPARKMW.GPJ August 18, 1999

ASSOCIATED EARTH SCIENCES, INC

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
BV97041	MW-6 AKA MW-06	3 of 3

Project Name	South Park Custodial Landfill	Surface Elevation	17.35' NAVD 88
Location	King County	Water Depth (ft bgs)	11.6
Drilling Method	Hollow Stem Auger 10.5" OD/6" ID	Start Date	December 3, 1998
Sampling Method	3" diameter, Split Spoon Sampler, 140 lb hammer	Finish Date	December 3, 1998

Depth feet	Well Construction	Methane		ST	Blows/ 6"	Sample ID	Mtl. Graphic	Description
	Filter Pack, 10 x 20 Colorado Silica Sand							
		0%			10 10 12			SILT; gray; moist, stiff, high plasticity (ML)
45	Bentonite chips							
		0%			7 7 17			
50								Bottom of boring at depth 50 feet. Monitoring well installed to depth of 40 feet. Soil samples driven using 140-lb hammer falling 30 inches.
55								

Sampler Type (ST):
- 3" Split Spoon Sampler
- No Recovery

Lab Tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture Content
- Water Level (Date of Measurement)

Logged by: RSB
Approved by: JJS
Figure No. A-2

SPARKMW SPARKMW.C
gust 18, 1999

ASSOCIATED EARTH SCIENCES, INC

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
BV97041	MW-8 AKA MW-08	1 of 3

Project Name	South Park Custodial Landfill	Surface Elevation	12.88' NAVD 88
Location	King County	Water Depth (ft bgs)	4.5
Drilling Method	Hollow Stem Auger, 10.5" OD/6" ID	Start Date	December 7, 1998
Sampling Method	3" diameter, Split Spoon Sampler, 140 lb hammer	Finish Date	December 8, 1998

Depth feet	Well Construction	Methane	ST	Blows/6"	Sample ID	MIL Graphic	Description
	Locking 8" steel monument						FILL
	Concrete seal						GRAVEL; gray; angular (GP)
							SILTY SANDY GRAVEL; brown-gray; subrounded to 1-inch diameter; moist, medium dense; no odors or discolorations (GM)
		0%		16 16 15			
	Bentonite chips						
5	4.5 ft. bgs ATD 12/8/98, casing at 47.5 ft. bgs 5.02 ft. bgs 12/10/98			3 2 6			SILTY SANDY GRAVEL; brown; wet, very loose; no odors or discoloration (GM)
		0%		3 2 5			SAND; dark brown; some silt and gravel; wet, very loose to loose; no odors or discoloration (SP)
10				4 4 6			
							RECENT ALLUVIUM
							SILTY SAND; gray; fine-grained; wet, loose; no odors or discoloration (SM)
	2" ID SCH 40 PVC Riser	0%		5 8 10			
15				7 5 18			
	Bentonite slurry 30% by weight						
		0%		5 14 19			SAND; black; fine to medium grained, trace silt and wood; wet, medium dense; no odors or discolorations (SP)

Sampler Type (ST):
- 3" Split Spoon Sampler
- No Recovery

Lab Tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture Content
- Water Level (Date of Measurement)

Logged by: RSB
Approved by: JJS
Figure No. A-3

SPARKMW SPARKMW.GPJ August 18, 1999

ASSOCIATED EARTH SCIENCES, INC

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
BV97041	MW-8 AKA MW-08	2 of 3

Project Name	South Park Custodial Landfill	Surface Elevation	12.88' NAVD 88
Location	King County	Water Depth (ft bgs)	4.5
Drilling Method	Hollow Stem Auger, 10.5" OD/6" ID	Start Date	December 7, 1998
Sampling Method	3" diameter, Split Spoon Sampler, 140 lb hammer	Finish Date	December 8, 1998

Depth feet	Well Construction	Methane		ST	Blows/6"	Sample ID	Mtl. Graphic	Description
					12 22 24			SAND; black; fine to medium grained, trace silt and wood; wet, medium dense; no odors or discolorations (SP)
		0%			7 10 14			
	Bentonite slurry, 30% by weight							
25								
		0%			11 17 21			
30								
		0%			14 24 33			
35								
	Well screen 2" ID SCH 40 PVC, 0.01" slot size							
	Filter pack, 10 x 20 Colorado silica sand	0%			12 17 14			

Sampler Type (ST):
- 3" Split Spoon Sampler
- No Recovery

Lab Tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture Content
- Water Level (Date of Measurement)

Logged by: RSB
Approved by: JJS
Figure No. A-3

SPARKMW SPARKMW.C gust 18, 1999

ASSOCIATED EARTH SCIENCES, INC

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
BV97041	MW-8 AKA MW-08	3 of 3

Project Name	South Park Custodial Landfill	Surface Elevation	12.88' NAVD 88
Location	King County	Water Depth (ft bgs)	4.5
Drilling Method	Hollow Stem Auger, 10.5" OD/6" ID	Start Date	December 7, 1998
Sampling Method	3" diameter, Split Spoon Sampler, 140 lb hammer	Finish Date	December 8, 1998

Depth feet	Well Construction	Methane		ST	Blows/ 6"	Sample ID	Mtl. Graphic	Description
								SILTY SAND; black; fine grained; wet, medium dense; no odors or discolorations (SM)
	Well screen 2" ID SCH 40 PVC, 0.01" slot size	0%			5 12 24			
45	Threaded end cap, 2" ID SCH 40 PVC							
	Bentonite chips							SAND; black; some silt; wet, medium dense (SP)
		0%			5 11 39			
50								Bottom of boring at depth 49 feet. Monitoring well installed to depth 45.59 feet. Soil sampler driven using 140-pound hammer falling 30-inches.
55								

Sampler Type (ST):
- 3" Split Spoon Sampler
- No Recovery

Lab Tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture Content
- Water Level (Date of Measurement)

Logged by: RSB
Approved by: JJS
Figure No. A-3

SPARKMW SPARKMW.GPJ August 18, 1999

Geologic & Monitoring Well Construction Log

ASSOCIATED EARTH SCIENCES, INC

Project Number	Well Number	Sheet
BV97041	MW-10	1 of 3

Project Name	South Park Custodial Landfill	Surface Elevation	17.7' NAVD 88
Location	King County	Water Depth (ft bgs)	9
Drilling Method	Hollow Stem Auger, 10.5" OD, 6" ID	Start Date	December 9, 1998
Sampling Method	3" diameter, Split Spoon Sampler, 140 lb hammer	Finish Date	December 9, 1998

Depth feet	Well Construction	Methane	ST	Blows/6"	Sample ID	Mat. Graphic	Description	
	Locking 8" steel monument; Concrete seal						FILL SAND; fine to medium grained, trace silt; moist, loose; no odors or discolorations (SP)	
	Bentonite chips	0%		5 10 11				
5				4 3 10			RECENT ALLUVIUM SILT; gray; with wood debris with roots; moist, firm, low plasticity; no odors or discolorations (ML)	5
		0%		10 12 12			SAND; fine to medium grained, trace silt; moist, medium dense; no odors or discolorations (SP)	7
	9 ft. bgs ATD 12/9/98 9.64 ft. bgs 12/10/98							
10				3 4 8			SILT; gray-brown; with burnt woody debris; moist, firm (ML)	10
	2" ID SCH 40 PVC Riser	0%		3 6 8			SILTY SAND; gray; fine grained, with wood debris; wet, loose to medium dense (SM)	12
15				24				
	Bentonite slurry, 30% by weight	0%		7 8 18				
							SAND; black; fine to medium grained; wet, loose to medium dense (SP)	19

Sampler Type (ST):
- 3" Split Spoon Sampler
- No Recovery

Lab Tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture Content
- Water Level (Date of Measurement)

Logged by: RSB
Approved by: JJS
Figure No. A-4

SPARKMW SPARKMW.GI April 18, 1999

ASSOCIATED EARTH SCIENCES, INC

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
BV97041	MW-10	2 of 3

Project Name	South Park Custodial Landfill	Surface Elevation	17.7' NAVD 88
Location	King County	Water Depth (ft bgs)	9
Drilling Method	Hollow Stem Auger, 10.5" OD, 6" ID	Start Date	December 9, 1998
Sampling Method	3" diameter, Split Spoon Sampler, 140 lb hammer	Finish Date	December 9, 1998

Depth feet	Well Construction	Methane	ST	Blows/6"	Sample ID	Mtl. Graphic	Description
				5 5 5			SAND; black; fine to medium grained; wet, loose to medium dense (SP)
	Bentonite slurry, 30% by weight	0%		8 22 36			
25							
		0%		5 10 14			
30	Bentonite chips						SAND; black; with gray silt interbeds to 1.5 cm and wood debris; wet, loose to medium dense (SP)
		0%		10 25 39			
35	Filter pack, 10 x 20 Colorado silica sand						
	Well screen 2" ID SCH 40 PVC, 0.01" slot size	0%		6 10 14			

Sampler Type (ST):

- 3" Split Spoon Sampler
- No Recovery

Lab Tests:

- C - Chemical Properties
- P - Permeability
- M - Moisture Content
- Water Level (Date of Measurement)

Logged by: RSB

Approved by: JJS

Figure No. A-4

SPARKMW SPARKMW.GPJ August 18, 1999

ASSOCIATED EARTH SCIENCES, INC

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
BV97041	MW-10	3 of 3

Project Name	South Park Custodial Landfill	Surface Elevation	17.7' NAVD 88
Location	King County	Water Depth (ft bgs)	9
Drilling Method	Hollow Stem Auger, 10.5" OD, 6" ID	Start Date	December 9, 1998
Sampling Method	3" diameter, Split Spoon Sampler, 140 lb hammer	Finish Date	December 9, 1998

Depth feet	Well Construction	Methane		ST	Blows/ 6"	Sample ID	Mtl. Graphic	Description
								SAND; black; trace silt; wet, medium dense (SP)
	Well screen 2" ID SCH 40 PVC, 0.01" slot size	0%			7 8 36			
45	Threaded end cap, 2" ID SCH 40 PVC							SANDY SILT; dark gray; very moist, stiff, low plasticity (ML)
	Filter pack, 10 x 20 Colorado silica sand	0%			7 12 31			
50								Bottom of boring at depth 49 feet. Monitoring well installed to depth 45 feet. Soil sampler driven using 140-pound hammer falling 30-inches.
55								

Sampler Type (ST):
- 3" Split Spoon Sampler
- No Recovery

Lab Tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture Content
- Water Level (Date of Measurement)

Logged by: RSB
Approved by: JJS
Figure No. A-4

SPARKMW SPARKMW.GI jul 18, 1999

ASSOCIATED EARTH SCIENCES, INC

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
BV97041	MW-12	1 of 1

Project Name	South Park Custodial Landfill	Surface Elevation	19.11
Location	Seattle, Washington	Water Depth (ft bgs)	7.34
Drilling Method	Hollow Stem Auger 10.5" OD/6" ID	Start Date	September 20, 1999
Sampling Method	2" diameter, Split Spoon Sampler, 140 lb hammer, 30-inch drop	Finish Date	September 20, 1999

Depth feet	Well Construction	Methane %	ST	Blows/6"	Sample ID	Mtl. Graphic	Description
	Locking, 8" Steel Monument Concrete seal						FILL Firm, moist; brown and tan mottled SILT
		0		3 4 4	S-1		
	Bentonite chips						
5		0		4 4 3	S-2		RECENT ALLUVIUM Loose, moist; red-brown SAND; silty interbeds, sand fine to coarse, red grains angular
	6.5 ft bgs ATD, 9/20/99, casing at 7.5 ft bgs 7.34 ft bgs, 10/14/99						
		0		2 6 7	S-3		-grades medium dense, wet, with fine sand bedding
10	Filler pack, 10x20 Colorado silica sand						
	Well screen 2" ID SCH 40 PVC, 0.01" slot size						
		0		5 11 17	S-4		- grades black
15	Threaded end cap, 2" ID SCH 40 PVC						
							Medium dense, wet; gray-brown SAND; some silt, sand fine, trace organics
		0		4 5 6	S-5		
	Bentonite chips						
20							ESTUARINE DEPOSITS - shell fragments in cuttings
							GLACIAL SEDIMENT Very dense, moist; gray SAND with GRAVEL; little silt
		0		27 50/4"	S-6		Bottom of boring at 22.5 feet. Monitoring well installed to depth of 15.3 feet.

Sampler Type (ST):
- 3.25" OD D&M Split-Spoon Ring Sampler
- No Recovery
- 2" OD Split-Spoon Sampler

Lab Tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture Content

Water Level (ATD) ▽ Static Water Level

Logged by: RRH
Approved by: JJS

Figure No. A-5

SPARKMW SPR09_99.GPJ January 3, 2000

Geologic & Monitoring Well Construction Log

ASSOCIATED EARTH SCIENCES, INC

Project Number	Well Number	Sheet
BV97041	MW-14	1 of 2

Project Name	South Park Custodial Landfill	Surface Elevation	19.05
Location	Seattle, Washington	Water Depth (ft bgs)	3.96
Drilling Method	Hollow Stem Auger 10.5" OD/6" ID	Start Date	September 14, 1999
Sampling Method	2" diameter, Split Spoon Sampler, 140 lb hammer, 30-inch drop	Finish Date	September 14, 1999

Depth feet	Well Construction	Methane %	ST	Blows/ 6"	Sample ID	Mtl. Graphic	Description
	Locking, 8" Steel Monument						TOPSOIL
	Concrete seal						Loose, moist; dark brown SAND with SILT and ORGANICS; concrete and bricks in cuttings
	Bentonite chips	0		14 10 6	S-1		FILL Medium dense, damp; brown SAND with SILT and GRAVEL; with brick
	3.96 ft bgs, 10/14/99						
	4.5 ft bgs ATD, 9/14/99, casing at 5 ft bgs						
5		0		4 3 5	S-2		Loose, wet; brown SILT; trace gravel, trace sand, trace wood
		0		4 8 9	S-3		RECENT ALLUVIUM Medium dense, wet; black SAND; silt interbeds to 1.5", sand fine to medium
10							
	Filter pack, 10x20 Colorado silica sand	0		4 9 9	S-4		- wood in auger
15							
	Well screen 2" ID SCH 40 PVC, 0.01" slot size						Stiff, wet; brown SILT; trace sand laminae, low plasticity
		0		2 5 5	S-5		
20							
	Threaded end cap, 2" ID SCH 40 PVC						- heaving at 21 feet
	Pea gravel						ESTUARINE DEPOSIT
		0		2 7 6	S-6		Medium dense, wet; brown SAND; few silt, trace shell framents
	Bentonite chips						

Sampler Type (ST):
- 3.25" OD D&M Split-Spoon Ring Sampler
- No Recovery
- 2" OD Split-Spoon Sampler

Lab Tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture Content

Water Level (ATD) Static Water Level

Logged by: RRH
Approved by: JJS
Figure No. A -6

ary 3, 2000 :PARKMW SPRK9_99.GP

ASSOCIATED EARTH SCIENCES, INC

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
BV97041	MW-14	2 of 2

Project Name: South Park Custodial Landfill
Location: Seattle, Washington
Drilling Method: Hollow Stem Auger 10.5" OD/6" ID
Sampling Method: 2" diameter, Split Spoon Sampler, 140 lb hammer, 30-inch drop

Surface Elevation: 19.05
Water Depth (ft bgs): 3.96
Start Date: September 14, 1999
Finish Date: September 14, 1999

Depth feet	Well Construction	Methane %	ST	Blows/6"	Sample ID	Mtl. Graphic	Description
	Bentonite chips	0		4 7 23	S-7		
30							GLACIAL SEDIMENT Hard, wet; brown and gray mottled SILT; trace sand lenses, gravel in shoe
		0		3 16 37	S-8		Hard, moist to wet; gray and tan mottled SILT; few sand
35							Bottom of boring at 34 feet. Monitoring well installed to depth of 21.8 feet.
40							
45							

Sampler Type (ST):
- 3.25" OD D&M Split-Spoon Ring Sampler
- No Recovery
- 2" OD Split-Spoon Sampler

Lab Tests:
C - Chemical Properties
P - Permeability
M - Moisture Content

Water Level (ATD) Static Water Level

Logged by: RRH
Approved by: JJS

Figure No. A-6

SPARKMN SPRK3 99.GPJ January 3, 2000

ASSOCIATED EARTH SCIENCES, INC

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
BV97041	MW-18	1 of 2

Project Name	South Park Custodial Landfill	Surface Elevation	20.78
Location	Seattle, Washington	Water Depth (ft bgs)	15.3
Drilling Method	Hollow Stem Auger 10.5" OD/6" ID	Start Date	September 17, 1999
Sampling Method	2" diameter, Split Spoon Sampler, 140 lb hammer, 30-inch drop	Finish Date	September 17, 1999

Depth feet	Well Construction	Methane %	ST	Blows/ 6"	Sample ID	Mtl. Graphic	Description
	Locking, 8" Steel Monument; Concrete seal						FILL
		0		6 9 8	S-1		Medium dense, damp; brown SAND with GRAVEL; trace silt, trace organics, 1 piece of glass
	Bentonite chips						REFUSE
5		0		7 7 7	S-2		Medium dense, damp; brown SAND, few gravels, trace silt, trace wood; plastic debris noted in shoe
		0.1		26 27 31	S-3		-very dense, damp; gray concrete cinder block
10		0		14 15 7	S-4		
	Bentonite slurry, 30% by weight						
		0		2 3 2	S-5A		Firm, moist to wet; gray grading to brown SILT some ORGANICS
					S-5B		RECENT ALLUVIUM
	14.5 ft bgs ATD, 9/17/99, casing at 17.5 ft bgs						Medium dense, moist; dark brown to black SAND; sand fine to medium, angular red grains visible of volcanic origin
15	15.30 ft bgs, 10/14/99						
		0		1 2 3	S-6A		- grades firm, wet, brown silt, some organics
					S-6B		Medium dense, wet; black SAND; sand fine to medium, angular red grains visible of volcanic origin
20							
		0		3 8 10	S-7		- trace silt interbeds

Sampler Type (ST):
- 3.25" OD D&M Split-Spoon Ring Sampler
- No Recovery
- 2" OD Split-Spoon Sampler

Lab Tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture Content

Water Level (ATD) ▽ Static Water Level

Logged by: RRH
Approved by: JJS
Figure No. A-7

PARKMW SPRK9 99.GP. ary 3, 2000

ASSOCIATED EARTH SCIENCES, INC

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
BV97041	MW-18	2 of 2

Project Name	South Park Custodial Landfill	Surface Elevation	20.78
Location	Seattle, Washington	Water Depth (ft bgs)	15.3
Drilling Method	Hollow Stem Auger 10.5" OD/6" ID	Start Date	September 17, 1999
Sampling Method	2" diameter, Split Spoon Sampler, 140 lb hammer, 30-inch drop	Finish Date	September 17, 1999

Depth feet	Well Construction	Methane %	ST	Blows/ 6"	Sample ID	Mtl. Graphic	Description
	Bentonite slurry, 30% by weight						Medium dense, wet; black SAND; sand fine to medium, angular red grains visible of volcanic origin
		0		3 10 14	S-8		
30	Filter pack, 10x20 Colorado silica sand						
		0		11 16 12	S-9		- sand fine to coarse
35	Well screen 2" ID SCH 40 PVC, 0.01" slot size						
		0		7 8 16	S-10		- silt content increases
							Firm, wet; brown SILT few SAND; trace organics
40	Threaded end cap, 2" ID SCH 40 PVC						
							Medium dense, wet; black SAND; sand fine to medium, red grained and angular
		0		12 13 15	S-11		
	Bentonite chips						
45							
		0		6 19 27	S-12		- grades dense, brown sand, trace silt, visible bedding
							Bottom of Boring at 49 feet. Monitoring well installed to depth of 40.4 feet.

Sampler Type (ST):
- 3.25" OD D&M Split-Spoon Ring Sampler
- No Recovery
- 2" OD Split-Spoon Sampler

Lab Tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture Content

Water Level (ATD) ▼ Static Water Level ▽

Logged by: RRH
Approved by: JJS

Figure No. A -7

SPARKMW SPRK9_99.GPJ January 3, 2000

ASSOCIATED EARTH SCIENCES, INC

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
BV97041	MW-24	1 of 2

Project Name	South Park Custodial Landfill	Surface Elevation	13.57
Location	Seattle, Washington	Water Depth (ft bgs)	8.35
Drilling Method	Hollow Stem Auger 10.5" OD/6" ID	Start Date	September 21, 1999
Sampling Method	2" diameter, Split Spoon Sampler, 140 lb hammer, 30-inch drop	Finish Date	September 21, 1999

Depth feet	Well Construction	Methane %	ST	Blows/6"	Sample ID	Description
	Locking, 8" Steel Monument					FILL
	Concrete seal					Medium dense, damp; dark red-brown SAND; sand fine to medium, sand angular
	Bentonite chips	0				
5						- grades moist to wet, dark brown to black
	6.0 ft bgs ATD, 9/21/99, casing at 7.5 ft bgs					
		0		1 3 6	S-1	Firm, wet to moist; brown SILT; mostly organics, peat-like
	8.35 ft bgs, 10/14/99					- grades wet, gray and brown, trace sand
10						
						RECENT ALLUVIUM
		0		3 2 9	S-2	Medium dense, wet; black SAND; some brown organic silt interbeds, sand fine to medium
15	Bentonite slurry, 30% by weight					
		0		5 11 14	S-3	- sand grades angular
20						
		0		2 15 37	S-4	- grades very dense

Sampler Type (ST):
- 3.25" OD D&M Split-Spoon Ring Sampler
- No Recovery
- 2" OD Split-Spoon Sampler

Lab Tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture Content

Water Level (ATD) Static Water Level

Logged by: RRH
Approved by: JJS
Figure No. A -8

PARKMW SPRK9 99.GP... ary 3, 2000

ASSOCIATED EARTH SCIENCES, INC

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
BV97041	MW-24	2 of 2

Project Name	South Park Custodial Landfill	Surface Elevation	13.57
Location	Seattle, Washington	Water Depth (ft bgs)	8.35
Drilling Method	Hollow Stem Auger 10.5" OD/6" ID	Start Date	September 21, 1999
Sampling Method	2" diameter, Split Spoon Sampler, 140 lb hammer, 30-inch drop	Finish Date	September 21, 1999

Depth feet	Well Construction	Methane %	ST	Blows/ 6"	Sample ID	Description
	Bentonite slurry, 30% by weight	0		9 28 32	S-5	Very dense, wet; black SAND; some brown organic silt interbeds, sand fine to medium
30		0		9 24 33	S-6	
35	Filter pack, 10x20 Colorado silica sand	0		4 2 2	S-7	Firm, wet; dark brown SILT with SAND; organics present
40	Well screen 2" ID SCH 40 PVC, 0.01" slot size	0		4 8 10	S-8	Medium dense, wet; black SAND; sand fine to medium and angular
45	PVC slip cap, SS screws; Pea gravel					- grades siltier
	Bentonite chips	0		3 9 14	S-9	- grades few silt, trace wood and organics
						Bottom of Boring at 49 feet. Monitoring well installed to depth of 45.3 feet.

Sampler Type (ST):
- 3.25" OD D&M Split-Spoon Ring Sampler
- No Recovery
- 2" OD Split-Spoon Sampler

Lab Tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture Content

Water Level (ATD) ▽ Static Water Level

Logged by: RRH
Approved by: JJS

Figure No. A-8

SPARKMW SPRK9_99.GPJ January 3, 2000

Aspect consulting
IN-DEPTH PERSPECTIVE

Monitoring Well Construction Log

Project Number	Well Number	Sheet
970041	MW-25	1 of 1

Project Name	South Park Custodial Landfill	Ground Surface Elev (NAVD88)	17.30
Location	Seattle, Washington	Top of Casing Elev. (NAVD88)	20.09
Driller/Method	Holt / Hollow Stem Auger	Depth to Water (BTOC)	12.54
Sampling Method	3.25" OD D&M Split-Spoon; 300 lbs Hammer	Start/Finish Date	2/23/2006

Depth / Elevation (feet)	Well Completion	Sample Type/ID	Tests / PID	Blows/ 6"	Materials Type	Description	
15	Above ground locking monument with bollards and slip cap; Concrete surface seal	S-1		3 3 3		FILL Loose, damp, brown, slightly silty fine SAND	
5	Bentonite chip seal	S-2		3 3 4		RECENT ALLUVIUM Medium stiff, moist, gray SILT; scattered organics, wood debris	5.5
10	2/23/2006	S-3		4 4 5		Loose, wet, black, fine to medium SAND	7
10	2-inch PVC blank casing	S-4		1 0 1		Very soft, wet, gray SILT; abundant wood debris	10
5	2/27/2006	S-5		1 1 1			
15		S-6		1 1 1		Very soft, wet, gray, sandy SILT; sand fine	15
0	Bentonite pellet plug	S-7		2 2 1			
20	10-20 filter pack	S-8		4 6 7		Medium dense, wet, black, slightly silty, fine to medium SAND	20
-5		S-9	DS25060223-	6 10 12			
25	2-inch, 20-slot, PVC well screen						
-10							

Set pump intake ~ 24 ft BTOC

Bottom of Boring at 26'

Coordinates N: 197657.49
E: 1270566.75

Sampler Type:
- No Recovery
- 3.25" OD D&M Split-Spoon
- Ring Sampler

PID - Photoionization Detector
- Static Water Level
- Water Level (ATD)

Logged by: TDC

Approved by: JJS

Figure No. A-2

MONITORING WELL SOUTHPARK_WELLS.GPJ March 10, 2006

Aspect consulting
IN-DEPTH PERSPECTIVE

Monitoring Well Construction Log

Project Number	Well Number	Sheet
970041	MW-26	1 of 1

Project Name	South Park Custodial Landfill	Ground Surface Elev (NAVD88)	13.55
Location	Seattle, Washington	Top of Casing Elev. (NAVD88)	15.94
Driller/Method	Holt / Hollow Stem Auger	Depth to Water (BTOC)	8.27
Sampling Method	3.25" OD D&M Split-Spoon; 300 lbs Hammer	Start/Finish Date	2/23/2006

Depth / Elevation (feet)	Well Completion	Sample Type/ID	Tests / PID	Blows/ 6"	Matrix Type	Description
	Above ground locking monument with bollards and slip cap Concrete surface seal					FILL Loose, damp, brown, fine to medium SAND
		S-1		4 4 5		Loose, damp to wet, black, fine SAND
10	2-inch PVC blank casing					
5	Bentonite chip seal	S-2		2 1 1		
	▽ 2/23/2006					
	▼ 2/27/2006	S-3 S-4		1 1 1		RECENT ALLUVIUM Very soft, wet, brown SILT; abundant organics Very soft, wet, brown SILT; few organics
5						
10	Bentonite pellet plug	S-5		2 4 4		Grades to medium stiff, wet, gray sandy SILT; sand fine
						Very loose to loose, wet, black, fine SAND; trace silt
0	10-20 filter pack	S-6		1 2 2		
15		S-7	DS26060223-	3 4 5		
	2-inch, 20-slot, PVC well screen					
-5		S-8		4 4 4		
20		S-9		3 3 4		
-10						
25						
-15						Bottom of Boring at 26'

Coordinates N: 197121.60
E: 1271164.40

Set pump intake ~ 20 ft BTOC

Sampler Type:
- No Recovery
- 3.25" OD D&M Split-Spoon Ring Sampler

PID - Photoionization Detector
- Static Water Level
- Water Level (ATD)

Logged by: TDC

Approved by: JJS

Figure No. A- 3

MONITORING WELL SOUTHPARK_WELLS.GPJ March 10, 2006

Aspect consulting
IN-DEPTH PERSPECTIVE

Monitoring Well Construction Log

Project Number	Well Number	Sheet
970041	MW-27	1 of 1

Project Name	South Park Custodial Landfill	Ground Surface Elev (NAVD88)	12.72
Location	Seattle, Washington	Top of Casing Elev. (NAVD88)	14.76
Driller/Method	Holt / Hollow Stem Auger	Depth to Water (BTOC)	6.91
Sampling Method	3.25" OD D&M Split-Spoon; 300 lbs Hammer	Start/Finish Date	2/23/2006

Depth / Elevation (feet)	Well Completion	Sample Type/ID	Tests / PID	Blows/ 6"	Materials Type	Description
	Above ground locking monument with bollards and slip cap Concrete surface seal					FILL (Loose), moist, gray, GRAVEL Medium dense, damp, brown-gray, silty sandy GRAVEL
10	2-inch PVC blank casing Bentonite chip seal	S-1		7 10 11		
5		S-2		3 2 2		Medium dense to loose, damp to wet, slightly silty, slightly gravelly, fine SAND
	2/23/2006					Loose, wet, brown, medium to fine SAND; trace silt, trace gravel
5	10-20 filter pack	S-3				
10		S-4		2 1 1		-Very loose, wet, gray-brown GRAVEL: well rounded to 0.5-inch
						RECENT ALLUVIUM Loose, wet, gray, silty fine SAND
0	2-inch, 20-slot, PVC well screen	S-5		2 2 2		
15		S-6		2 2 2		
-5		S-7	DS27060223-	2 2 2		
		S-8		3 4 5		Loose, wet, black, fine to medium SAND; trace silt
20						Bottom of Boring at 21' Coordinates N: 196835.06 E: 1271357.64
-10						
25						
-15						

Set pump screen ~ 15 ft BTOC

Sampler Type:
- No Recovery
- 3.25" OD D&M Split-Spoon
- Ring Sampler

PID - Photoionization Detector
- Static Water Level
- Water Level (ATD)

Logged by: TDC
Approved by: JJS
Figure No. A-4

MONITORING WELL SOUTHPARK_WELLS.GPJ March 10, 2006

Historical Gas Probes

LEGEND

- Landfill Boundary (Approximate, based on air photo interpretation and soil borings).
- King County Property Line
- Ditch (Approximate, based on basemap and air photo).
- AESI Gas Probes - 14 Locations
- Utility Environmental Services Gas Probes - Installed April, 1997- 2 Locations

REFERENCE: BASE MAP AND TOPOGRAPHY BY TERRASS AERIAL MAPPING, 5/19/

Gas Probe Location Map

South Park Custodial Landfill
KING COUNTY, WASHINGTON

ASSOCIATED EARTH SCIENCES, INC

12/28/99
JJB/HXT

VB97410
4-1

Udaloy Environmental Services

SOIL BORING LOG

CLIENT/PROJECT NAME: King County / South Park Landfill
PROJECT #: A19-001-01
GEOLOGIST/ENGINEER: B. Carpenter / H. Corner
DRILLING CONTRACTOR: Hokkaido
DRILLING METHOD: Hollow Stem Auger / Mobile B-61
HOLE DIA.: 10"

BORING NO.: SB-1 (AKA GP-01)
DATE BEGAN: 4/14/97
DATE COMPLETED: 4/14/97
TOTAL DEPTH: 29'
SHEET 1 OF 1

GW-1

WATER LEVEL DATA				
DEPTH	22.45			
TIME				
DATE	4/14/97			
BORING DEPTH	29'			

FIELD LOCATION OF BORING: NW Corner of South truck storage area.
GROUND ELEVATION:
DATUM:

OTHER: H2S Monitoring	WELL OR PIEZOMETER DETAILS	SAMPLING METHOD	SAMPLE NUMBER	BLOWS/FT	DEPTH SAMPLED	DEPTH IN FEET	SOIL GROUP SYMBOL (USCS)	LITHOLOGIC DESCRIPTION
PID/LEL	2" pvc							
			SB1-1			0		
						2	Sm	Dark Brown silty SAND, fine, poorly graded with gravel and cobbles, Fill
8.5/0	Bent Grade	SS-3"		15 17/21		4		silty SAND, with asphalt, Fill
						6		
0/0	10-20 Sand 20 slot	SS-3"		11 25/50		8		silty SAND, with charcoal wood waste
						10		
0/0		SS-3"		50/1"		12		No recovery, wood waste w/creosote in tip of split spoon
						14		
	10-20 Sand					16		
0/0		SS-3"		50/1"		18		No recovery. Drilling became easier (Possibly out of garbage into SILT)
	Bentonite Chip					20		
39/1	Backfill	SS-3"		11 11/19		22	ml	Grey-Brown Sandy SILT with some plant matter
						24		
		SS-3"		50/1"		26		No recovery. Used 2" Sampler for second attempt
		SS-2"		16/24 50/5"		28	Sp	Black fine to medium SAND with trace of silt, poorly graded
						30		

REMARKS: Backfilled borehole with Pure Gold medium bentonite chips from 29' to 17'. Added 2' of 10x20 sand from 17 to 15'. Well string 14'9" set at 15'. Screen (10'-20 slot)
*No detection of Vinyl chloride or benzene with detector tubes (Sensidyne Pump) at 4'
Elevated PID possibly caused by moisture. Raining periodically

*NOTE: Specify data recorded in undesignated column (e.g. conductance, pH, flo reading, pocket torvane, etc.)

APR 23 '97 08:14

AKA: GP-02

GP-02

SB-2

UES Udaloy Environmental Services

SOIL BORING LOG

CLIENT/PROJECT NAME: King County Solid Waste Div/South Park
PROJECT #: A19-001-01
GEOLOGIST/ENGINEER: B. Carpenter / T. Treat
DRILLING CONTRACTOR: Holkeraido
DRILLING METHOD: Hollow Stem Auger / Mobile B-61
HOLE DIA.: 10"

BORING NO.:
DATE BEGAN: 4/15/97
DATE COMPLETED: 4/15/97
TOTAL DEPTH: 15"
SHEET 1 OF 1

WATER LEVEL DATA				
DEPTH	14.20			
TIME	10:00			
DATE	4/15/97			
BORING DEPTH	15'			

FIELD LOCATION OF BORING: E of TP-11, Grove of trees, S. Central area Truck Storage yard - North Property
GROUND ELEVATION:
DATUM:

OTHER* (PID, EL, etc.)	WELL OR PIEZOMETER DETAILS	SAMPLING METHOD	SAMPLE NUMBER	BLOWS/FT	DEPTH SAMPLED	DEPTH IN FEET	SOIL GROUP SYMBOL (USCS)	LITHOLOGIC DESCRIPTION
PID/EL 80	GW-2 2" pvc	Split Spoon	SB21	3" split spoon	5.5	0	SM	Brown-grey silty SAND, fine to medium, with gravel, cobbles. Fill.
ND/0	Bentonite			30/6" 50/2"		2		Brown-grey silty SAND, fill mixed with pieces of charred and refuse
						4		
						6		
ND/20	10-20 sand			11/6" 6/5		8		Brown-grey silty SAND, Fill mixed with refuse including wood waste.
	20 slot					10		
ND/50				50/2"		12		No Recovery, wood waste in tip of sampler
						14		
						16		Total Depth 15' (Reached auger refusal on large piece of steel?)

REMARKS: Set gas well at 14' resting on 12" (8-12 Colorado Sand). Well Screen 13'9" long. 10' of 20 slot PVC, 3'9" of blank PVC. Used 5 bags of 10-20 sand (100 lbs) and 1 bag of 8-12 Sand (50 lb.) and 2 bags of bentonite chips. Water Sample pH - 6.95 SC - 1600

*NOTE: Specify data recorded in undesignated column (e.g. conductance, pH, tip reading, pocket torvane, etc.)

APR 23 '97 08:15

Figure A-16

AKA: G

GP-03

ASSOCIATED EARTH SCIENCES, INC

Geologic & Gas Probe Construction Log

Project Number	Well Number	Sheet
BV97041	GP-3	1 of 1

Project Name: South Park Custodial Landfill
Location: King County
Drilling Method: Hollow Stem Auger, 10.5" OD/6" ID
Sampling Method: 3" diameter, Split Spoon Sampler, 140 lb hammer

Surface Elevation: 20.15
Water Depth (ft bgs):
Start Date: December 3, 1998
Finish Date: December 3, 1998

Depth feet	Gas Probe Construction	Methane	ST	Blows/ 6"	Sample ID	Mtl. Graphic	Description
	Locking 8" steel monument; PVC slopcock						FILL SANDY SILT; brown; small brick chips; moist, stiff; no odors or discoloration (ML)
1	Concrete seal						
2	Riser, 0.75" ID, SCH 80 PVC						
				8 12 16			
3	Bentonite chip seal	0%					
4							
5		0%		6 14 11			SAND; brown; trace to some silt; moist to wet; medium dense; no odors or discoloration (SP)
	Filter pack, pea gravel						
6	Well screen 0.75" ID, SCH 80 PVC, 0.04" slot size						
7	ATD 12/3/98 0.75" ID PVC end cap						Bottom of boring at depth 7 feet. Gas Probe installed to depth 7 feet.
8							
9							

Sampler Type (ST):
- 3" Split Spoon Sampler
- No Recovery
- 2" Split Spoon Sampler

Lab Tests:
- C - Chemical Properties
- M - Moisture Content
- Water Level (Date of Measurement)
- Water Level (ATD)

Logged by: RSB
Approved by: JJS

SPARKGP SPARKMN.GPJ January 3, 2000

AKA – GP-05

ASSOCIATED EARTH SCIENCES, INC

Geologic & Gas Probe Construction Log

Project Number	Well Number	Sheet
BV97041	GP-5	1 of 1

Project Name	South Park Custodial Landfill	Surface Elevation	17.35
Location	King County	Water Depth (ft bgs)	
Drilling Method	Hollow Stem Auger, 10.5" OD/6" ID	Start Date	December 4, 1998
Sampling Method	3" diameter, Split Spoon Sampler, 140 lb hammer	Finish Date	December 4, 1998

Depth feet	Gas Probe Construction	Methane		ST	Blows/ 6"	Sample ID	Mtl. Graphic	Description
	Locking 8" steel monument, PVC stopcock							FILL GRAVEL; gray; angular (GP)
								SILT; brown; trace gravel, some sand; moist, soft; no odors or discoloration (ML)
1	Concrete seal							
2	Riser, 0.75" ID, SCH 80 PVC							
		0%			5 4 5			
3	Bentonite chip seal							
								SILT; gray-brown; very moist, firm, high plasticity; no odors or discolorations (ML)
4								
5	Filter pack, pea gravel							
6	Well screen 0.75" ID, SCH 80 PVC, 0.04" slot size							
7	0.75" ID PVC end cap	0%			2 7 6 7 12			-Bottom of boring at depth 7 feet. Gas probe installed to depth 7 feet. - Soil sampler driven using 140-pound hammer falling 30-inches. - Soil samples are logged from adjacent Monitoring Well MW-6. - Shelby tube sampling attempted from 7 feet to 9.5 feet with no sample recovery - No groundwater encountered.
8								
9								

Sampler Type (ST):
- 3" Split Spoon Sampler
- No Recovery
- 2 " Split Spoon Sampler

Lab Tests:
- C - Chemical Properties
- M - Moisture Content
- Water Level (Date of Measurement)
- Water Level (ATD)

Logged by: RSB
Approved by: JJS
Figure No. 18

PARKGP SPARKMN.GPJ J. 3, 2000

AKA G **GP-07**

ASSOCIATED EARTH SCIENCES, INC

Geologic & Gas Probe Construction Log

Project Number	Well Number	Sheet
BV97041	GP-7	1 of 1

Project Name: South Park Custodial Landfill
Location: King County
Drilling Method: Hollow Stem Auger, 10.5" OD/6" ID
Sampling Method:

Surface Elevation: 12.88
Water Depth (ft bgs):
Start Date: December 8, 1998
Finish Date: December 8, 1998

Depth feet	Gas Probe Construction	Methane		ST	Blows/6"	Sample ID	Mtl. Graphic	Description
	Locking 8" steel monument; PVC stopcock							FILL GRAVEL; gray; angular (GP)
1	Concrete seal							SILTY SANDY GRAVEL; brown; subrounded to 1" diameter; moist, medium dense (GM)
2	Riser, 0.75" ID, SCH 80 PVC							
3	Bentonite chip seal	0%			16 16 15			
4	Filter pack, pea gravel Well screen 0.75" ID, SCH 80 PVC, 0.04" slot size 0.75" ID PVC end cap							
5								Bottom of boring at depth 4.5 feet. Gas Probe installed to depth 4.5 feet. No groundwater encountered. Soil samples are logged from adjacent Monitoring Well MW-8.
6								
7								
8								
9								

Sampler Type (ST):
- 3" Split Spoon Sampler
- No Recovery
- 2 " Split Spoon Sampler

Lab Tests:
- C - Chemical Properties
- M - Moisture Content
- Water Level (Date of Measurement)
- Water Level (ATD)

Logged by: RSB
Approved by: JJS

PARKGP SPARKMW.GPJ January 3, 2000

AK-A 08 09

GP-09

ASSOCIATED EARTH SCIENCES, INC

Geologic & Gas Probe Construction Log

Project Number	Well Number	Sheet
BV97041	GP-9	1 of 1

Project Name	South Park Custodial Landfill	Surface Elevation	17.7
Location	King County	Water Depth (ft bgs)	
Drilling Method	Hollow Stem Auger, 10.5" OD/6" ID	Start Date	December 10, 1998
Sampling Method		Finish Date	December 10, 1998

Depth feet	Gas Probe Construction	Methane	ST	Blows/ 6"	Sample ID	Mtl. Graphic	Description
	Locking 8" steel monument; PVC slopcock						FILL SAND; fine to medium grained, trace silt; loose (SP)
1	Concrete seal						
2	Riser, 0.75" ID, SCH 80 PVC						
		0%		5 10 11			
3	Bentonite chip seal						
4							
5				4 3 10			
							RECENT ALLUVIUM SILT; gray; wood debris; moist, firm, low plasticity (ML) 5.5
6	Well screen 0.75" ID, SCH 80 PVC, 0.04" slot size						
7	Filter pack, pea gravel						SAND; fine to medium grained, trace silt; moist, medium dense (SP) 7
		0%					
8							
9	0.75" ID PVC end cap						Bottom of boring at depth 9 feet. Gas probe installed to depth 9 feet. Soil samples are logged from adjacent Monitoring Well MW-10.

Sampler Type (ST):
- 3" Split Spoon Sampler
- No Recovery
- 2 " Split Spoon Sampler

Lab Tests:
- C - Chemical Properties
- M - Moisture Content
- Water Level (Date of Measurement)
- Water Level (ATD)

Logged by: RSB
Approved by: JJS

Figure No. 20

SPARK/GP SPARKMN.GF

ary 3, 2000

ASSOCIATED EARTH SCIENCES, INC

Geologic & Gas Probe Construction Log

Project Number	Well Number	Sheet
BV97041	GP-11	1 of 1

Project Name	South Park Custodial Landfill	Surface Elevation	19.09
Location	Seattle, Washington	Water Depth (ft bgs)	6.5
Drilling Method	Hollow Stem Auger 10.5" OD/6" ID	Start Date	September 20, 1999
Sampling Method	No samples - log inferred from MW-12	Finish Date	September 20, 1999

Depth feet	Gas Probe Construction	Methane %		S T	Blows/ 6"	Sample ID	MIL Graphic	Description
	Locking, 8" Steel Monument							FILL
								Firm, moist; brown and tan mottled SILT
1	Concrete seal							
2								
		0						
3	Bentonite chips							
4								
	Filter pack, pea gravel							Loose, moist; red-brown to black with depth SAND; silty interbeds sand fine to coarse
5	Well screen 2" ID SCH 40 PVC, 0.04" slot size	0						
	PVC slip cap, 55 screws							
6								
	6.5 ft bgs (ATD), 9/20/99							
7								Bottom of Boring at 6 feet. Gas probe installed to depth of 5.8 feet.
8								
9								

Sampler Type (ST):
- 2" Split Spoon Sampler
- No Recovery
- 3" Split Spoon Sampler

Lab Tests:
- G - Grain Size
- M - Moisture Content
- Water Level (Date of Measurement)
- Water Level (ATD)

Logged by: RRH
Approved by: JJS
Figure No. A - 21

SPARKGP SPRK9_99.GPJ February 28, 2000

ASSOCIATED EARTH SCIENCES, INC

Geologic & Gas Probe Construction Log

Project Number	Well Number	Sheet
BV97041	GP-13	1 of 1

Project Name	South Park Custodial Landfill	Surface Elevation	19.09
Location	Seattle, Washington	Water Depth (ft bgs)	4.5
Drilling Method	Hollow Stem Auger 10.5" OD/6" ID	Start Date	September 14, 1999
Sampling Method	No samples - log inferred from MW-14	Finish Date	September 14, 1999

Depth feet	Gas Probe Construction	Methane %		S T	Blows/ 6"	Sample ID	MIL Graphic	Description
	Locking, 8" Steel Monument							TOPSOIL
1	Concrete seal							Loose, moist; dark brown SAND with SILT and ORGANICS; concrete and bricks in cutting
2								FILL/DEMOLITION DEBRIS
								Medium dense, damp; brown SAND with SILT and GRAVEL; with brick
3	Bentonite chips							
	Filter pack, pea gravel							
4	Well screen 2" ID SCH 40 PVC, 0.04" slot size							
	4.5 ft bgs ATD, 9/14/99, casing at 4.5 ft bgs	0						
5								
								Bottom of Boring at 4.5 feet. Gas probe installed to depth of 4.5 feet.
6								
7								
8								
9								

Sampler Type (ST):
- 2" Split Spoon Sampler
- No Recovery
- 3 " Split Spoon Sampler

Lab Tests:
- G - Grain Size
- M - Moisture Content
- Water Level (Date of Measurement)
- Water Level (ATD)

Logged by: RRH
Approved by: JJS
Figure No. A - 22

January 29, 2000

SPARKGP SPRK9 99.C

ASSOCIATED EARTH SCIENCES, INC

Geologic & Gas Probe Construction Log

Project Number	Well Number	Sheet
BV97041	GP-15	1 of 1

Project Name	South Park Custodial Landfill	Surface Elevation	12.72
Location	Seattle, Washington	Water Depth (ft bgs)	6.6
Drilling Method	Hollow Stem Auger 8" OD/4" ID	Start Date	September 13, 1999
Sampling Method	2" diameter, Split Spoon Sampler, 140 lb hammer, 30-inch drop	Finish Date	September 13, 1999

Depth feet	Gas Probe Construction	Methane %	ST	Blows/ 6"	Sample ID	Mtl. Graphic	Description
	Locking, 8" Steel Monument						REFUSE
1	Concrete seal						Medium dense, damp; dark brown SAND; trace gravel, trace glass, trace copper, trace steel
2		0.1		17 8 5	S-1		
3	Bentonite chips						
4	Filter pack, pea gravel						
5		0		3 4 5	S-2		Wood over loose,wet; gray SAND; sand fine to medium
6	Well screen 2" ID SCH 40 PVC, 0.04" slot size 6.45 ft bgs, 10/14/99 6.6 ft bgs ATD, 9/13/99, casing at 5.0 ft bgs						
7	Threaded end cap, 2" ID SCH 40 PVC						Bottom of Boring at 7 feet. Gas probe installed to depth of 7.0 feet.
8							
9							

Sampler Type (ST):
- 2" Split Spoon Sampler
- No Recovery
- 3" Split Spoon Sampler

Lab Tests:
- G - Grain Size
- M - Moisture Content
- Water Level (Date of Measurement)
- Water Level (ATD)

Logged by: RRH
Approved by: JJS

Figure No. A - 23

SPARKGP SPRK9 99.GPJ February 29, 2000

ASSOCIATED EARTH SCIENCES, INC

Geologic & Gas Probe Construction Log

Project Number	Well Number	Sheet
BV97041	GP-16	1 of 1

Project Name	South Park Custodial Landfill	Surface Elevation	19.93
Location	Seattle, Washington	Water Depth (ft bgs)	8
Drilling Method	Hollow Stem Auger 8" OD/4" ID	Start Date	September 14, 1999
Sampling Method	2" diameter, Split Spoon Sampler, 140 lb hammer, 30-inch drop	Finish Date	September 14, 1999

Depth feet	Gas Probe Construction	Methane %	ST	Blows/ 6"	Sample ID	Description
	Locking, 8" Steel Monument					REFUSE
1	Concrete seal					Medium dense, damp; brown SAND few SILTS; trace debris, debris includes rubber, MTL, plastic
2						
3	Bentonite chips	0.1		4 3 8	S-1	
4						
5	Filter pack, pea gravel	0.1		50/3"	S-2	- grades very dense, moist, dark brown; debris includes glass, gypsum, wood
6	Well screen 2" ID SCH 40 PVC, 0.04" slot size					
7	PVC Slip Cap, 55 screws					
8	Bentonite chips 8.0 ft bgs ATD, 9/14/99, casing at 7.5 ft bgs	0.1		2 4 7	S-3	Medium stiff, wet; gray SILT few SAND; trace gravel
9						
10						Bottom of Boring at 9 feet. Gas probe installed to depth of 7.5 feet.
11						
12						
13						
14						

Sampler Type (ST):
- 2" Split Spoon Sampler
- No Recovery
- 3" Split Spoon Sampler

Lab Tests:
- G - Grain Size
- M - Moisture Content
- Water Level (Date of Measurement)
- Water Level (ATD)

Logged by: RRH
Approved by: JJS
Figure No. A - 24

SPARKGP SPRK9_99.GI uary 29, 2000

ASSOCIATED EARTH SCIENCES, INC

Geologic & Gas Probe Construction Log

Project Number	Well Number	Sheet
BV97041	GP-17	1 of 1

Project Name	South Park Custodial Landfill	Surface Elevation	21.11
Location	Seattle, Washington	Water Depth (ft bgs)	14
Drilling Method	Hollow Stem Auger 8" OD/4" ID	Start Date	September 13, 1999
Sampling Method	2" diameter, Split Spoon Sampler, 140 lb hammer, 30-inch drop	Finish Date	September 13, 1999

Depth feet	Gas Probe Construction	Methane %	ST	Blows/ 6"	Sample ID	Mtl. Graphic	Description
	Locking, 8" Steel Monument						REFUSE
1	Concrete seal						Medium dense, damp; brown SAND with GRAVEL; few silt, trace wood, trace glass debris
2							
3	Hydrated bentonite chips	0		11 12 4	S-1		
4							
5	Filter pack, pea gravel	0		4 3 35	S-2		- grades dense, moist, 40% debris (concrete, brick, gypsum, metal, glass)
6							
7	Well screen 2" ID SCH 40 PVC, 0.04" slot size						Very dense, moist; brown GRAVEL with SAND; est. 50% construction debris (brick, concrete, glass, rusted metal)
8		0		10 28 27	S-3		
9							
10	Threaded end cap, 2" ID SCH 40 PVC	0.2		50/3"	S-4		- grades trace gravel
11							
12	Bentonite chips						
13		0.1		1 1 3	S-5		Soft, wet; gray SILT; trace organics - grades brown organic silt
14	14 ft bgs ATD, 9/13/99, casing at 12.5 feet						Bottom of Boring at 14 feet. Gas probe installed to depth of 10.35 feet.

Sampler Type (ST):
- 2" Split Spoon Sampler
- No Recovery
- 3" Split Spoon Sampler

Lab Tests:
- G - Grain Size
- M - Moisture Content
- Water Level (Date of Measurement)
- Water Level (ATD)

Logged by: RRH
Approved by: JJS
Figure No. A - 25

SPARKGP SPRK9_99.GPJ February 28, 2000

ASSOCIATED EARTH SCIENCES, INC

Geologic & Gas Probe Construction Log

Project Number	Well Number	Sheet
BV97041	GP-19	1 of 1

Project Name	South Park Custodial Landfill	Surface Elevation	24.16
Location	Seattle, Washington	Water Depth (ft bgs)	13.97
Drilling Method	Hollow Stem Auger 8" OD/4" ID	Start Date	September 15, 1999
Sampling Method	2" diameter, Split Spoon Sampler, 140 lb hammer, 30-inch drop	Finish Date	September 15, 1999

Depth feet	Gas Probe Construction	Methane %	ST	Blows/ 6"	Sample ID	MIL Graphic	Description
	Locking, 8" Steel Monument						REFUSE
	Concrete seal						Medium dense, damp SAND with GRAVEL; trace silt over newsprint (church literature, no date)
		0		4 3 9	S-1		
	Hydrated bentonite chips						
5							
	Filter pack, pea gravel						- yellow pages with wood
		0		7 8 6	S-2		
	Well screen 2" ID SCH 40 PVC, 0.04" slot size						
10		0		6 8 5	S-3		- 70 - 80% wood, paper with trace metal and plastic, possibly charred
	Threaded end cap, 2" ID SCH 40 PVC						
	Bentonite chips	0		6 6 3	S-4		
	13.97 ft bgs ATD, 9/15/99, casing at 15 feet						
15		0		5 3 4	S-5		
							Firm, wet; gray SILT with GRAVEL; few sand
							Bottom of Boring at 16.5 feet. Gas probe installed to depth of 12.3 feet.

Sampler Type (ST):
- 2" Split Spoon Sampler
- No Recovery
- 3" Split Spoon Sampler

Lab Tests:
- G - Grain Size
- M - Moisture Content
- Water Level (Date of Measurement)
- Water Level (ATD)

Logged by: RRH
Approved by: JJS
Figure No. A - 26

SPARKGP SPRK9_99.GP uary 29, 2000

ASSOCIATED EARTH SCIENCES, INC

Geologic & Gas Probe Construction Log

Project Number	Well Number	Sheet
BV97041	GP-20	1 of 1

Project Name	South Park Custodial Landfill	Surface Elevation	26.37
Location	Seattle, Washington	Water Depth (ft bgs)	14.5
Drilling Method	Hollow Stem Auger 10.5" OD/6" ID	Start Date	September 16, 1999
Sampling Method	2" diameter, Split Spoon Sampler, 140 lb hammer, 30-inch drop	Finish Date	September 16, 1999

Depth feet	Gas Probe Construction	Methane %	ST	Blows/ 6"	Sample ID	Mtl Graphic	Description
	Locking, 8" Steel Monument						
	Concrete seal						Concrete rubble at surface
							REFUSE
	Bentonite chips	0		15 19 15	S-1		Concrete and rubble cuttings; dense, damp, brown SAND; little GRAVEL; 30% wood, metal, paper debris
5	Filter pack, pea gravel						
		0		6 8 23	S-2		- grades moist, dark brown to gray, few silt; 50% debris, wood, metal, paper, glass, ash present
10	Well screen 2" ID SCH 40 PVC, 0.04" slot size						
	PVC slip cap, SS screws	0		5 6 27	S-4		- wood and brick pieces, no soil
15	14.6 ft bgs ATD, 9/16/99, casing at 15.0 ft bgs	0.1		12 5 6	S-5		- grades medium dense, wet; black sand with gravel
	16.6 ft bgs ATD, 9/16/99, casing at 17.5 ft bgs						
	Bentonite chips	0.1		16 9 7	S-6		
20							Firm, wet; brown SILT some ORGANICS; trace sand
		0		4 3 4	S-7		
							Bottom of Boring at 21.5 feet. Gas probe installed to depth of 13.3 feet.

Sampler Type (ST):
- 2" Split Spoon Sampler
- No Recovery
- 3" Split Spoon Sampler

Lab Tests:
- G - Grain Size
- M - Moisture Content
- Water Level (Date of Measurement)
- Water Level (ATD)

Logged by: RRH
Approved by: JJS
Figure No. A - 27

SPARKGP SPRK9_96.GPJ February 29, 2000

Geologic & Gas Probe Construction Log

ASSOCIATED EARTH SCIENCES, INC

Project Number	Well Number	Sheet
BV97041	GP-21	1 of 1

Project Name	South Park Custodial Landfill	Surface Elevation	23.37
Location	Seattle, Washington	Water Depth (ft bgs)	13.7
Drilling Method	Hollow Stem Auger 10.5" OD/6" ID	Start Date	September 15, 1999
Sampling Method	2" diameter, Split Spoon Sampler, 140 lb hammer, 30-inch drop	Finish Date	September 15, 1999

Depth feet	Gas Probe Construction	Methane %	ST	Blows/ 6"	Sample ID	Description
	Locking, 8" Steel Monument					GRAVEL with SAND
	Concrete seal					
						REFUSE
		0		3 7 43	S-1	Very dense, moist; dark brown to black SAND with GRAVEL and SILT; 40-50% wood and trace metal, plastic, and paper
	Bentonite chips					
5						- cuttings gernerally 90% wood, trace metal, rubber, and paper
		0		12 9 23	S-2	- 90% wood with few sand, trace silt
	Filter pack, pea gravel					
10						
	Well screen 2" ID SCH 40 PVC, 0.04" slot size					- drills easier at 11 feet
	PVC slip cap, SS screws	0.1		7 15 15	S-3	
	13.7 ft bgs ATD, 9/15/99					
15	Bentonite chips	0.2		3 4 4	S-4	Stiff, wet; brown SILT with 30% ORGANICS
						Bottom of Boring at 16.5 feet. Gas probe installed to depth of 13.3 feet.

Sampler Type (ST):
- 2" Split Spoon Sampler
- No Recovery
- 3" Split Spoon Sampler

Lab Tests:
- G - Grain Size
- M - Moisture Content
- Water Level (Date of Measurement)
- Water Level (ATD)

Logged by: RRH
Approved by: JJS
Figure No. A - 28

SPARKGP SPRK9_99.GP uary 29, 2000

ASSOCIATED EARTH SCIENCES, INC

Geologic & Gas Probe Construction Log

Project Number	Well Number	Sheet
BV97041	GP-22	1 of 1

Project Name	South Park Custodial Landfill	Surface Elevation	21.94
Location	Seattle, Washington	Water Depth (ft bgs)	12.7
Drilling Method	Hollow Stem Auger 10.5" OD/6" ID	Start Date	September 16, 1999
Sampling Method	2" diameter, Split Spoon Sampler, 140 lb hammer, 30-inch drop	Finish Date	September 16, 1999

Depth feet	Gas Probe Construction	Methane %	ST	Blows/ 6"	Sample ID	Mtl. Graphic	Description
	Locking, 8" Steel Monument; Concrete seal						REFUSE
							Medium dense, moist; dark brown SAND with GRAVEL and DEBRIS; debris includes wood, metal, plastic, copper wire
							- cuttings contain steel, plastic, wood, trace paper, fiberglass roofing
	Bentonite chips	0		14 19 4	S-1		
5	Filter pack, pea gravel						
	Well screen 2" ID SCH 40 PVC, 0.04" slot size	0		6 5 7	S-2		Medium dense, moist SAND with SILT; 80% wood, trace glass; low recovery
10	PVC slip cap, SS screws	0.1		6 4 9	S-3		Medium dense, moist SAND little GRAVEL; est. 50% wood, metal, plastic; low recovery
	12.7 ft bgs ATD, 9/16/99, casing at 15.0 ft bgs	0.2		26 8 2	S-4		- no recovery
	Bentonite chips						
15		0.1		14 4 4	S-5		- firm? no recovery - driving on wood
							Bottom of boring at 16.5 feet. Gas probe installed to depth of 11.3 feet.

Sampler Type (ST):
- 2" Split Spoon Sampler
- No Recovery
- 3 " Split Spoon Sampler

Lab Tests:
- G - Grain Size
- M - Moisture Content
- Water Level (Date of Measurement)
- Water Level (ATD)

Logged by: RRH
Approved by: JJS
Figure No. A - 29

SPARK/GP SPRK9_99.GPJ February 29, 2000

ASSOCIATED EARTH SCIENCES, INC

Geologic & Gas Probe Construction Log

Project Number	Well Number	Sheet
BV97041	GP-23	1 of 1

Project Name	South Park Custodial Landfill	Surface Elevation	10.51
Location	Seattle, Washington	Water Depth (ft bgs)	6
Drilling Method	Hollow Stem Auger 10.5" OD/6" ID	Start Date	September 20, 1999
Sampling Method	2" diameter, Split Spoon Sampler, 140 lb hammer, 30-inch drop	Finish Date	September 20, 1999

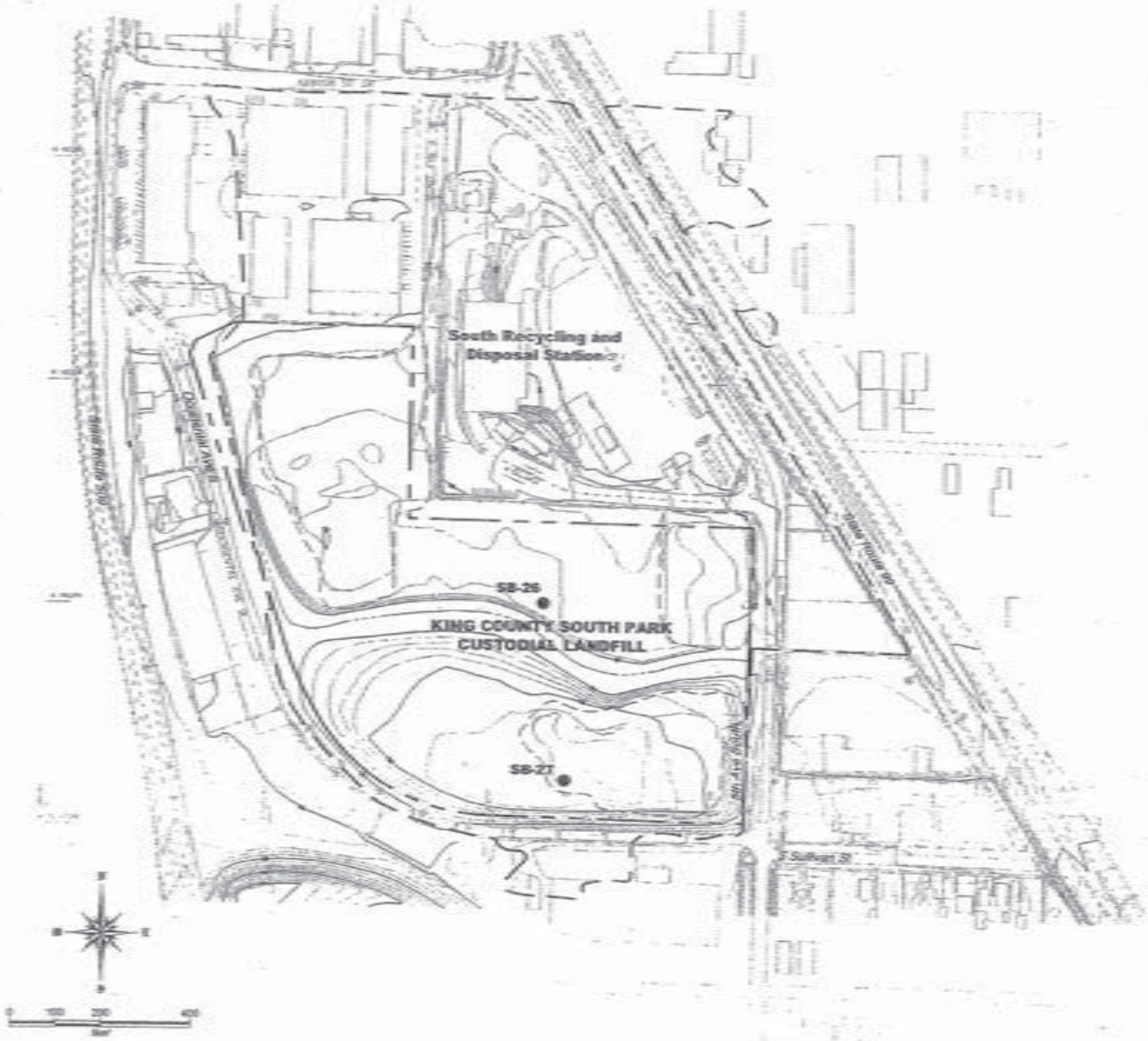
Depth feet	Gas Probe Construction	Methane %		ST	Blows/ 6"	Sample ID	Mtl. Graphic	Description
	Locking, 8" Steel Monument							Dense, dry; brown GRAVEL; little SAND, few silt
1	Concrete seal							
2								Medium dense, damp; dark red-brown SAND; sand fine to medium and angular
		0			5 9 12	S-1		
3	Bentonite chips							
4	Filter pack, pea gravel							
5	Well screen 2" ID SCH 40 PVC 0.04" slot size				2 6 6	S-2		- grades damp to wet, dark brown to black sand
6	6.0 ft bgs ATD, 9/20/99							
	PVC slip cap, SS screws							
7								Bottom of boring at 6.5 feet. Gas probe installed to depth of 6.3 feet.
8								
9								

Sampler Type (ST):
- 2" Split Spoon Sampler
- No Recovery
- 3 " Split Spoon Sampler

Lab Tests:
- G - Grain Size
- M - Moisture Content
- Water Level (Date of Measurement)
- Water Level (ATD)

Logged by: RRH
Approved by: JJS
Figure No. A - 30

Historical SPPD Soil Borings



LEGEND

- Landfill Boundary (Approximate, based on air photo interpretation and soil borings).
- King County Property Line
- Ditch (Approximate, based on basemap and air photo).
- AESI Geotechnical Soil Boring

REFERENCE: BASE MAP AND TOPOGRAPHY BY PEGROSS AERIAL MAPPING, 5/7/97

Geotechnical Boring Location Map

South Park Custodial Landfill
KING COUNTY, WASHINGTON

PROJECT NO. V997410

FIGURE NO. 5-1

DATE 04/04/00

DRAWN JJ/BHXT

ASSOCIATED EARTH SCIENCES, INC

ASSOCIATED EARTH SCIENCES, INC

Exploration Log

Project Number	Exploration Number	Sheet
BV97041	SB-26	1 of 4

Project Name: South Park Custodial Landfill
Location: Seattle, Washington
Driller/Equipment: Cascade Drilling/HSA 8" OD/4" ID above 25' ; Mud Rotary below 25'
Hammer Weight/Drop: 140 lb / 30-inch

Ground Surface Elevation (ft): 26±
Datum:
Date Start/Finish: 01/31/2000-01/31
Hole Diameter (in): 4-inch

This log is part of the report prepared by Associated Earth Sciences (AESI) for the named project and should be read together only with that report for complete interpretation. This summary applies only to the location of this exploration and at the time of exploration. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Blows/6"	Blows/Foot (10 20 30 40)	
				REFUSE				
				Medium dense, moist, dark brown REFUSE in silt matrix; refuse includes wood, paper, and brick				
		S-1				22 19 15		0
5								
		S-2		No recovery		8 7 5		0.1
10								
		S-3		Dense, moist, dark brown REFUSE in silty matrix; refuse includes wood, paper, concrete and metal (12' ATD)		9 12 40	50+	0.2
15				Medium dense, wet, dark brown SAND with organic SILT; trace wood				
		S-4				8 4 10		0.1
20		S-5		No recovery		10 9 6		0
				Stiff, wet, brown-gray SILT; trace organics				
		S-6				3 4 7		0

Sampler Type (ST):
- No Recovery
- 2" Split Spoon Sampler
- Grab Sample

Lab tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture
- Static Water Level
- Water Level at time of drilling (ATD)

Logged by: RRH
Approved by: JJS
Figure No. A - 39

AESBOR SPRKB_99.GPJ April 7, 2000

ASSOCIATED EARTH SCIENCES, INC

Exploration Log

Project Number	Exploration Number	Sheet
BV97041	SB-26	2 of 4

Project Name: South Park Custodial Landfill
Location: Seattle, Washington;
Driller/Equipment: Cascade Drilling/HSA 8" OD/4" ID above 25' ; Mud Rotary below 25'
Hammer Weight/Drop: 140 lb / 30-inch

Ground Surface Elevation (ft): 26±
Datum:
Date Start/Finish: 01/31/2000-01/31/2000
Hole Diameter (in): 4-inch

This log is part of the report prepared by Associated Earth Sciences (AESI) for the named project and should be read together only with that report for complete interpretation. This summary applies only to the location of this exploration and at the time of exploration. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Blows/6"	Blows/Foot (10 20 30 40)	
		S-7		Medium dense, wet, brown SAND; little silt, sand fine to medium, angular red grains visible		6 6 6		0
		S-8		Medium dense, wet, black SAND; sand fine to medium, angular grains		9 11 12		
30		S-9				8 7 10		
35		S-10		-grades dense, predominantly medium sand		13 16 16		
40		S-11				17 21 21		
45		S-12		Dense, wet, black SAND with SILT; silt contains abundant organics		12 9 21		
				Dense, wet, brown SAND; few silt, sand predominantly fine				

Sampler Type (ST):
- No Recovery
- 2" Split Spoon Sampler
- Grab Sample

Lab tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture
- Static Water Level
- Water Level at time of drilling (ATD)

Logged by: RRH
Approved by: JJS
Figure No. A - 39

AESIBOR SPRK9_98.GF 17, 2000

ASSOCIATED EARTH SCIENCES, INC

Exploration Log

Project Number	Exploration Number	Sheet
BV97041	SB-26	3 of 4

Project Name: South Park Custodial Landfill
Location: Seattle, Washington
Driller/Equipment: Cascade Drilling/HSA 8" OD/4" ID above 25' ; Mud Rotary below 25'
Hammer Weight/Drop: 140 lb / 30-inch

Ground Surface Elevation (ft): 26±
Datum:
Date Start/Finish: 01/31/2000-01/3 20
Hole Diameter (in): 4-inch

This log is part of the report prepared by Associated Earth Sciences (AESI) for the named project and should be read together only with that report for complete interpretation. This summary applies only to the location of this exploration and at the time of exploration. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Blows/6"	Blows/Foot (10 20 30 40)
		S-13		Dense, wet, brown SAND; few silt, sand predominantly fine		19 16 14	
55		S-14		Dense, wet, brown SAND with SILT; silt contains abundant organics		12 14 16	
60		S-15		Medium dense, wet, black SAND; trace silt, trace wood, sand predominantly fine to medium		14 13 16	
65		S-16		Stiff, wet, brown, organic SILT with brown SAND interbeds; sand fine		8 5 12	
70		S-17		Soft, wet, brown organic SILT		2 1 3	

Sampler Type (ST):
- No Recovery
- 2" Split Spoon Sampler
- Grab Sample

Lab tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture
- Static Water Level
- Water Level at time of drilling (ATD)

Logged by: RRH
Approved by: JJS
Figure No. A - 39

AESIBOR SPRN3 99.GPJ April 7, 2000

Exploration Log

ASSOCIATED EARTH SCIENCES, INC

Project Number	Exploration Number	Sheet
BV97041	SB-26	4 of 4

Project Name: South Park Custodial Landfill
Location: Seattle, Washington;
Driller/Equipment: Cascade Drilling/HSA 8" OD/4" ID above 25' ; Mud Rotary below 25'
Hammer Weight/Drop: 140 lb / 30-inch

Ground Surface Elevation (ft): 26±
Datum:
Date Start/Finish: 01/31/2000-01/31/2000
Hole Diameter (in): 4-inch

This log is part of the report prepared by Associated Earth Sciences (AESI) for the named project and should be read together only with that report for complete interpretation. This summary applies only to the location of this exploration and at the time of exploration. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Blows/6"	Blows/Foot (10 20 30 40)
		S-18		Soft, wet, brown organic SILT		7 7 25	
				Dense, wet, brown SAND; sand fine to medium			
80		S-19		-grades very dense, black, angular grains		17 29 28	50+
				Very stiff, wet, brown-gray, organic SILT; few sand			
85		S-20				18 17 12	
				Soft, wet, brown organic SILT			
90		S-21		Medium dense, wet, gray-brown SAND; few silt, trace shell fragments		0 8 10	
				Very dense, wet, gray SAND with GRAVEL; trace silt, trace shell fragments			
95		S-22				19 26 25	50+
				Bottom of boring at 95 feet.			

Sampler Type (ST):
- No Recovery
- 2" Split Spoon Sampler
- Grab Sample

Lab tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture
- Static Water Level
- Water Level at time of drilling (ATD)

Logged by: RRH
Approved by: JJS
Figure No. A - 39

AESI/BOR SPRKG 99.GP... 17, 2000

ASSOCIATED EARTH SCIENCES, INC

Exploration Log

Project Number	Exploration Number	Sheet
BV97041	SB-27	1 of 5

Project Name: South Park Custodial Landfill
Location: Seattle, Washington;
Driller/Equipment: Cascade Drilling/HSA 8" OD/4" ID above 30' ; Mud Rotary below 30'
Hammer Weight/Drop: 140 lb / 30-inch

Ground Surface Elevation (ft): 34±
Datum:
Date Start/Finish: 02/01/2000-02/0 /00
Hole Diameter (in): 4-inch

This log is part of the report prepared by Associated Earth Sciences (AESI) for the named project and should be read together only with that report for complete interpretation. This summary applies only to the location of this exploration and at the time of exploration. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Blows/6"	Blows/Foot (10 20 30 40)	
		S-1		Stiff, moist, brown SILT; trace gravel		13 16 10		0
5				REFUSE				
		S-2		Very dense, moist, brown REFUSE in silt matrix; refuse includes glass, paper, plastic and wood		50/5"	50+	19.5
10								
		S-3		-wood in silty matrix		50/6"	50+	9.1
15		S-4		No recovery		50/1"	50+	1.8
		S-5		-wood, trace silt		12 8 9		4.2
20		S-6		-wood in silt matrix; creosote-like odor		50/6"	50+	0.8
					23.8' ATD			

Sampler Type (ST):
- No Recovery
- 2" Split Spoon Sampler
- Grab Sample

Lab tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture
- Static Water Level
- Water Level at time of drilling (ATD)

Logged by: RRH
Approved by: JJS
Figure No. A - 40

AESIBOR SPRKB 99.GPJ April 7, 2000

Exploration Log

ASSOCIATED EARTH SCIENCES, INC

Project Number	Exploration Number	Sheet
BV97041	SB-27	2 of 5

Project Name: South Park Custodial Landfill
Location: Seattle, Washington;
Driller/Equipment: Cascade Drilling/HSA 8" OD/4" ID above 30' ; Mud Rotary below 30'
Hammer Weight/Drop: 140 lb / 30-inch

Ground Surface Elevation (ft): 34±
Datum:
Date Start/Finish: 02/01/2000-02/01/2000
Hole Diameter (in): 4-inch

This log is part of the report prepared by Associated Earth Sciences (AESI) for the named project and should be read together only with that report for complete interpretation. This summary applies only to the location of this exploration and at the time of exploration. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Blows/6"	Blows/Foot (10 20 30 40)	
		S-7		-wood and plastic; no soil		50/5"	50+	0.5
				SILT				
30		S-8		No recovery - trace brown silt		5 12 7		0
35		S-9		Stiff, wet, brown SILT with high organic content		3 3 8		
40		S-10		Very dense, wet, black SAND; sand predominantly medium, angular, red grains		24 26 28	50+	
45		S-11		-sand grades fine to medium, trace wood		8 28 50/5"	50+	

Sampler Type (ST):
- No Recovery
- 2" Split Spoon Sampler
- Grab Sample

Lab tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture
- Static Water Level
- Water Level at time of drilling (ATD)

Logged by: RRH
Approved by: JJS
Figure No. A - 40

AESIBOR SPRK9 99 GP... 17, 2000

ASSOCIATED EARTH SCIENCES, INC

Exploration Log

Project Number	Exploration Number	Sheet
BV97041	SB-27	3 of 5

Project Name: South Park Custodial Landfill
Location: Seattle, Washington
Driller/Equipment: Cascade Drilling/HSA 8" OD/4" ID above 30' ; Mud Rotary below 30'
Hammer Weight/Drop: 140 lb / 30-inch

Ground Surface Elevation (ft): 34±
Datum:
Date Start/Finish: 02/01/2000-02/01/00
Hole Diameter (in): 4-inch

This log is part of the report prepared by Associated Earth Sciences (AESI) for the named project and should be read together only with that report for complete interpretation. This summary applies only to the location of this exploration and at the time of exploration. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Blows/6"	Blows/Foot (10 20 30 40)
		S-12		-sand predominantly medium		27 35 38	50+
				Drills easier at 53 ft.			
55	N	S-13		Medium dense, wet, gray-brown SAND with SILT; sand fine		14 17 12	
				Drilled soft from 55-60 ft.			
60		S-14		Dense, wet, brown SAND with SILT, with ORGANICS; with silt interbeds, sand fine		9 9 21	
65		S-15		Very dense, wet, dark gray SAND; few silt, trace shell fragments, sand fine to medium		16 26 28	50+
70		S-16		Dense, wet, dark gray SAND with SILT interbeds; trace organics and shell fragments		15 19 27	

Sampler Type (ST):
- No Recovery
- 2" Split Spoon Sampler
- Grab Sample

Lab tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture
- Static Water Level
- Water Level at time of drilling (ATD)

Logged by: RRH
Approved by: JJS
Figure No. A - 40

AESIBOR SPRX9_99.GPJ April 7, 2000

ASSOCIATED EARTH SCIENCES, INC

Exploration Log

Project Number	Exploration Number	Sheet
BV97041	SB-27	4 of 5

Project Name: South Park Custodial Landfill
Location: Seattle, Washington
Driller/Equipment: Cascade Drilling/HSA 8" OD/4" ID above 30' ; Mud Rotary below 30'
Hammer Weight/Drop: 140 lb / 30-inch

Ground Surface Elevation (ft): 34±
Datum:
Date Start/Finish: 02/01/2000-02/01/2000
Hole Diameter (in): 4-inch

This log is part of the report prepared by Associated Earth Sciences (AESI) for the named project and should be read together only with that report for complete interpretation. This summary applies only to the location of this exploration and at the time of exploration. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Blows/6"	Blows/Foot (10 20 30 40)
		S-17		Very dense, wet, dark gray SAND with SILT laminae		38, 43, 38	50+
80		S-18		Soft, wet brown ORGANIC SILT		1, 1, 1	
85		S-19		Dense, wet, brown SAND with SILT; trace shell fragments		9, 23, 21	
90		S-20		Very dense, wet, dark gray SAND; few silt, trace shell fragments		35, 40, 41	50+
95		S-21		Very dense, wet, gray to brown SAND with ORGANIC SILT interbeds; trace shell fragments and wood, sand fine to coarse		21, 24, 27	50+

Sampler Type (ST):
- No Recovery
- 2" Split Spoon Sampler
- Grab Sample

Lab tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture
- Static Water Level
- Water Level at time of drilling (ATD)

Logged by: RRH
Approved by: JJS
Figure No. A - 40

AESIBOR SPRKB 99.G 17, 2000

ASSOCIATED EARTH SCIENCES, INC

Exploration Log

Project Number	Exploration Number	Sheet
BV97041	SB-27	5 of 5

Project Name: South Park Custodial Landfill
Location: Seattle, Washington
Driller/Equipment: Cascade Drilling/HSA 8" OD/4" ID above 30' ; Mud Rotary below 30'
Hammer Weight/Drop: 140 lb / 30-inch

Ground Surface Elevation (ft): 34±
Datum:
Date Start/Finish: 02/01/2000-02/01
Hole Diameter (in): 4-inch

This log is part of the report prepared by Associated Earth Sciences (AESI) for the named project and should be read together only with that report for complete interpretation. This summary applies only to the location of this exploration and at the time of exploration. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Blows/6"	Blows/Foot (10 20 30 40)
		S-22		Dense, wet, gray SAND; few silt, shell fragments		42	
				Very stiff, wet, gray SILT with CLAY, with SAND; sand fine		10 6	▲
				-gravels			
				Very dense, wet, gray SAND with SILT; sand predominantly fine			
105		S-23				50/5"	50+ ▲
				Bottom of boring at 105 feet.			
110							
115							
120							

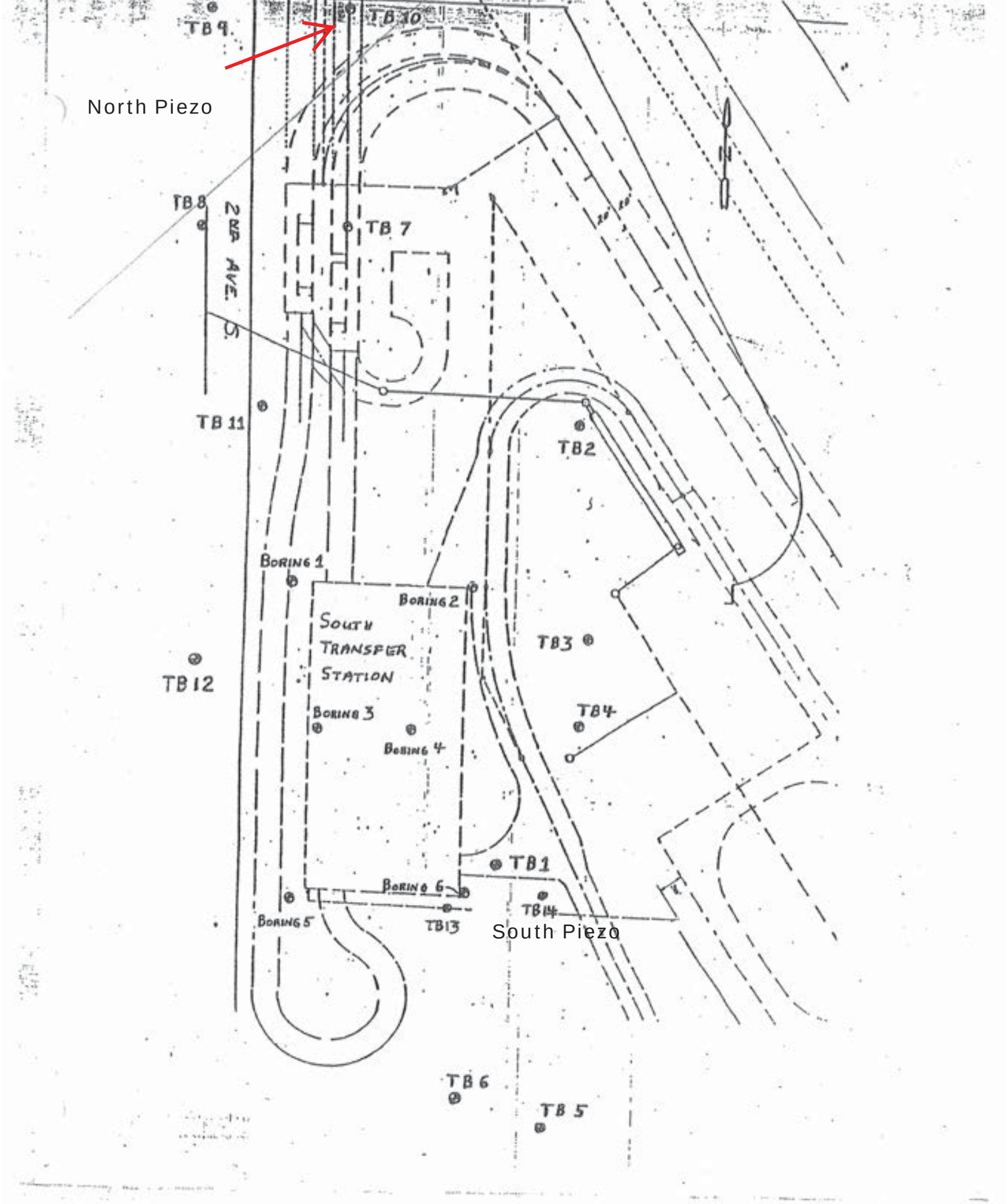
Sampler Type (ST):
- No Recovery
- 2" Split Spoon Sampler
- Grab Sample

Lab tests:
- C - Chemical Properties
- P - Permeability
- M - Moisture
- ∇ Static Water Level
- ▼ Water Level at time of drilling (ATD)

Logged by: RRH
Approved by: JJS
Figure No. A - 40

AESI8OR SPRKS 99.GPJ April 7, 2000

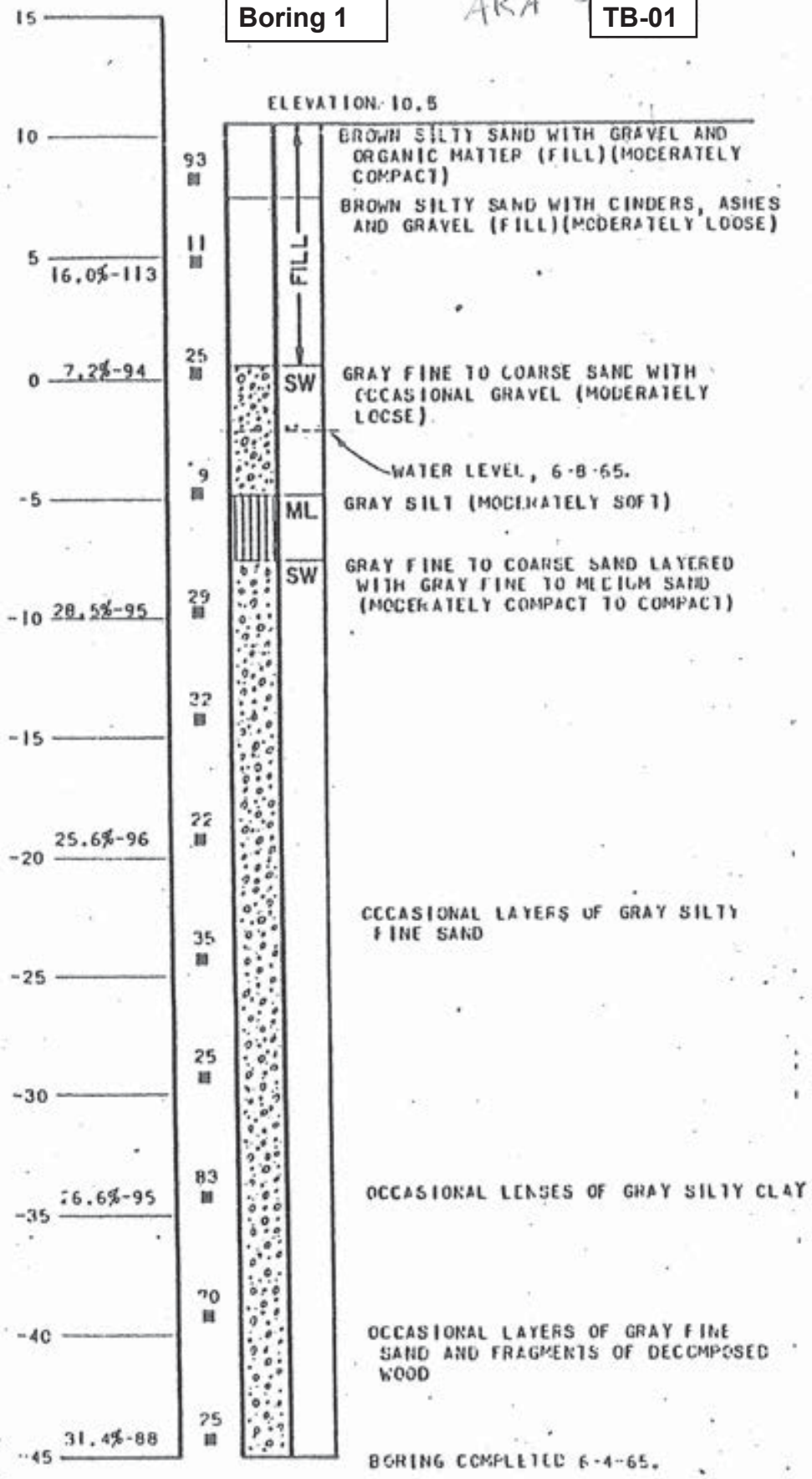
Historical SRDS Soil Borings


TB 9
TB 10
North Piezo
TB 8
2ND AVE.
TB 7
TB 11
TB2
BORING 1
BORING 2
SOUTH TRANSFER STATION
TB3
TB 12
BORING 3
TB4
BORING 4
TB1
BORING 6
TB14
BORING 5
TB13
South Piezo
TB 6
TB 5

Boring 1

ARA

TB-01

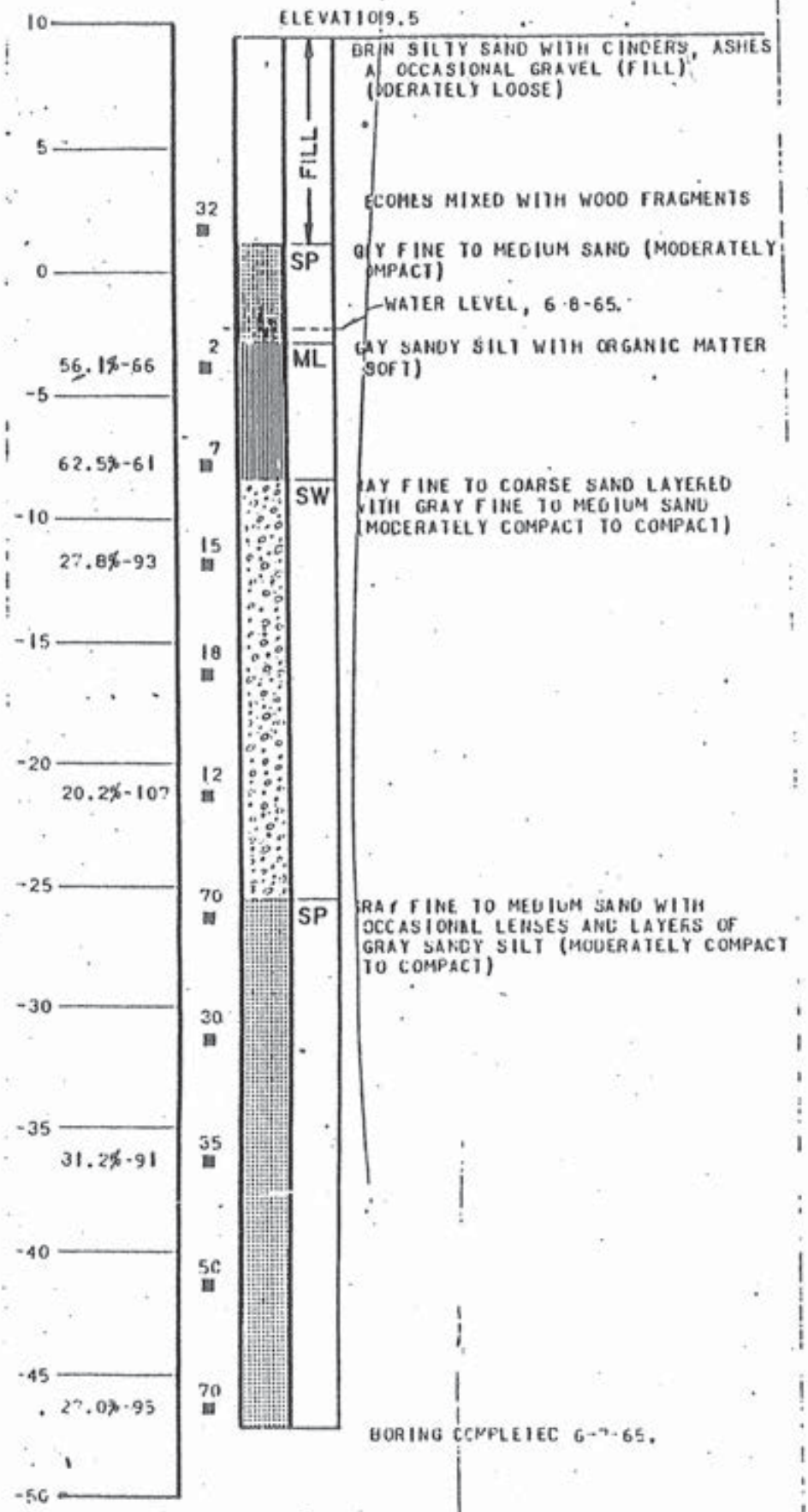


NOTE – DAMES & MORE SAMPLER

WT. = 260 lbs. STROKE = 24 INCH

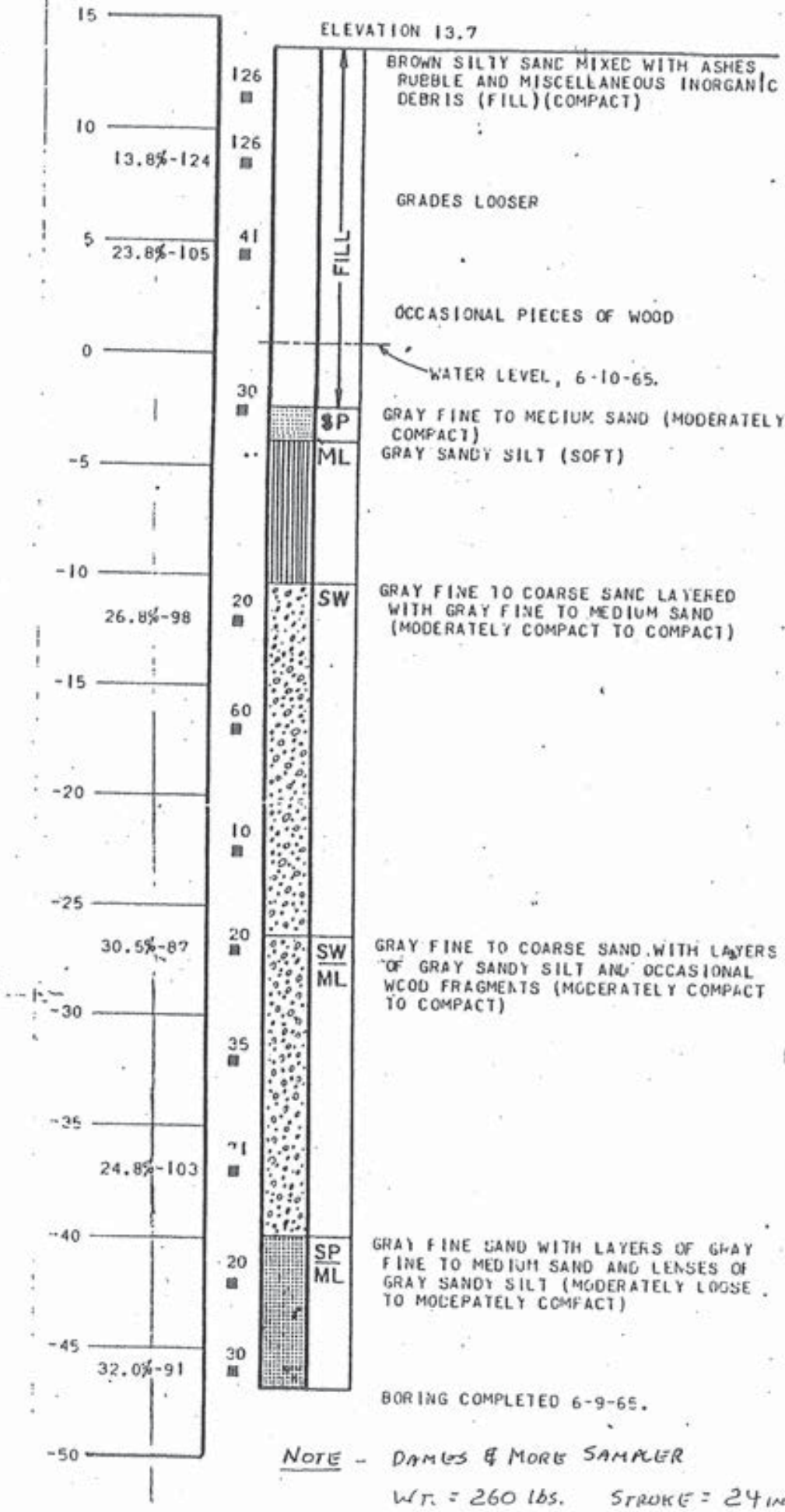
TB-02

Boring 2



NOTE - DAMES & MORE SAMPLER
WT. = 260 lbs. STROKE = 24 INCH

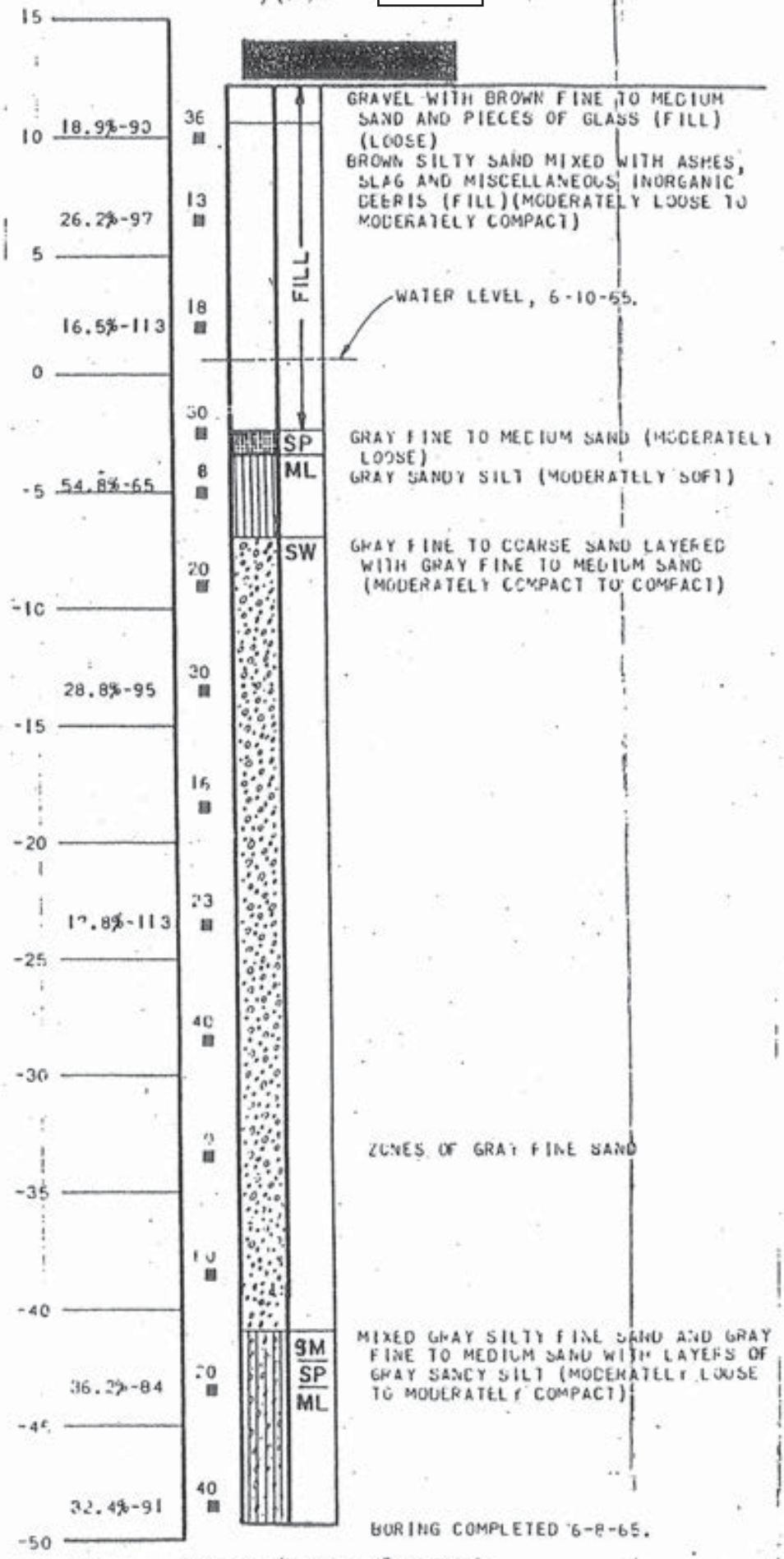
Boring 3 AKA TB-03



NOTE - DAMES & MORE SAMPLER

WT. = 260 lbs. STROKE = 24 INCH

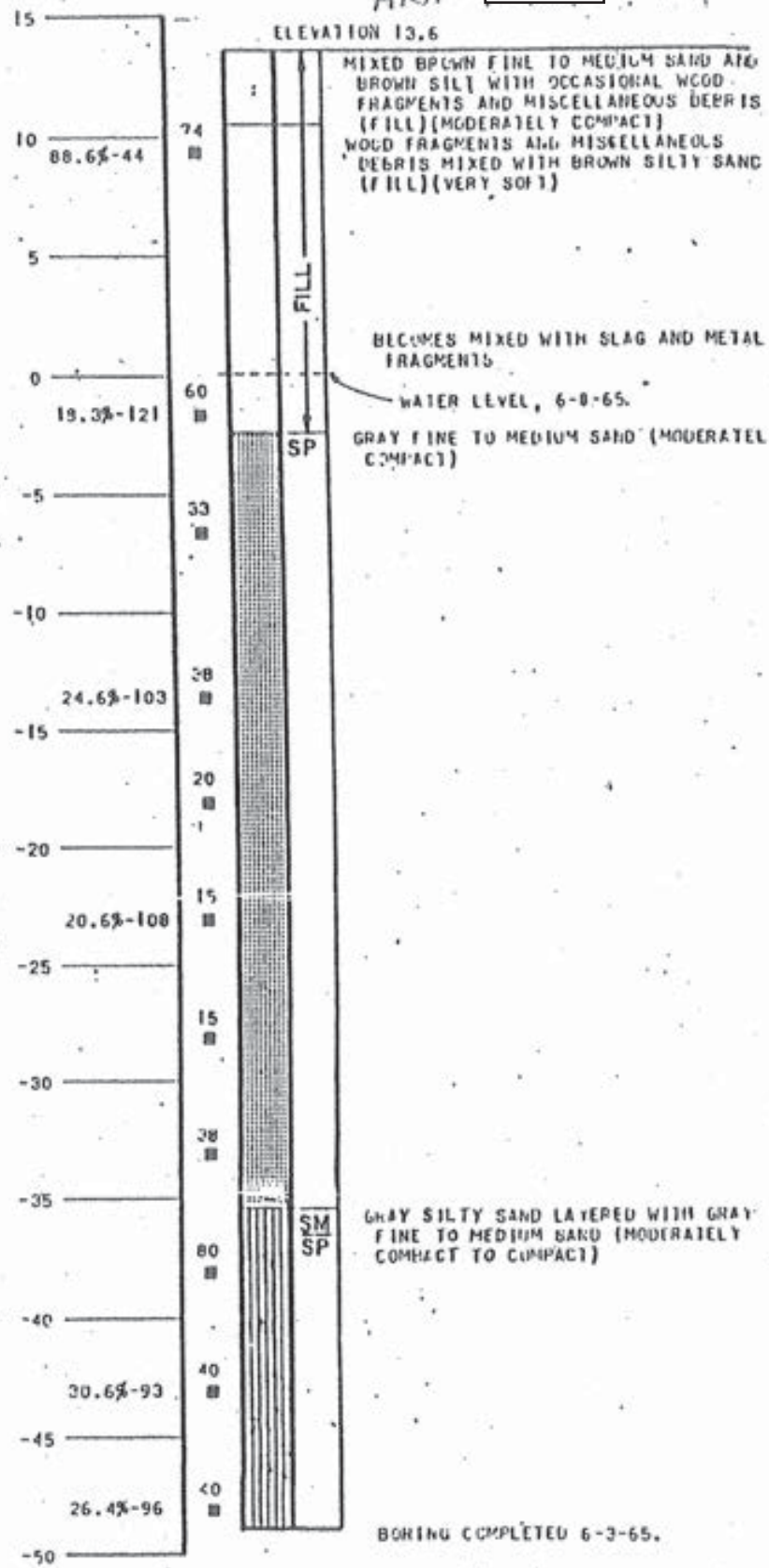
Boring 4 **TB-04**



NOTE - DAMES & MOORE SAMPLER

Boring 5

AKA TB-05



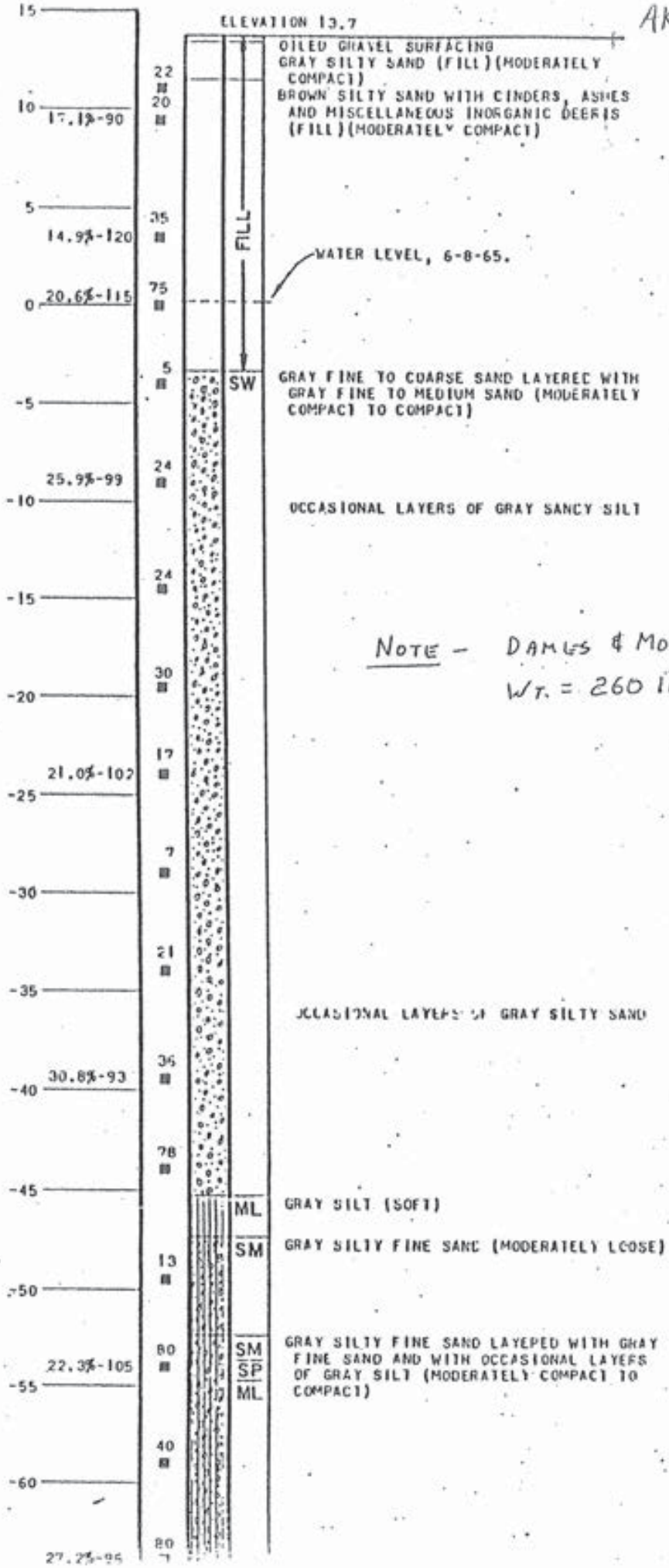
NOTE - DAMES & MORE SAMPLER

WT. = 260 lbs. STROKE = 24 INCH

AKA T

TB-06

Boring 6



NOTE – DAMES & MORE SAMPLER
WT. = 260 lbs. STROKE = 24 INCH

TB-08B

MATERIALS LABORATORY

LOG OF TEST BORING AKA TB-08B

DATE 12-23-88

HOLE NO. TB2

PROJECT South Transfer Station - Detention Storage

GRD. ELEV. 12±

LOCATION North Location - in grass strip

STRATA	DEPTH	SAMPLE NO.	BLOW COUNT			STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
FILL							6" TOPSOIL				
	5	A	12	10	6	16	BLOCKY FILL - SILTS, SANDS, GLASS AND ORGANICS	(FIRM)	MOIST	BLACK, BROWN, TAN	
		B	8	6	4	10	BLOCKY FILL - SANDS, SILTS, GLASS, BRICK	LOOSE	MOIST	RED, TAN, BLACK, BROWN	
SILT WITH ORGANICS	10	C	1	1	1	2	FINE SAND (TIP - FINE SANDY SILT)	V. LOOSE	WET	DARK BROWN	
		D	3	2	2	4	SILT WITH SOME ORGANICS	SOFT	6" WET 3" MOIST 7" WET	LT. GRAY DK. GRAY LT. GRAY	12-28-8
FINE SAND WITH SEVERAL SILTY FINE SAND LENSES											12-27
	15	E	2	2	2	4	SILTY VERY FINE SAND	LOOSE	WET	DARK BROWN	5-24-8
							(1.5' HEAVE WITH H_2O FLUSH) 4" - VERY FINE SAND				ABAND
	20	F	3	4	6	10	4" - SILTY FINE SAND 10" - VERY FINE SAND	LOOSE	WET	DARK BROWN	
							(WATER FLOWING OUT A-ROD TOP OF SAMPLE FLOWED)				PIEZO. TIP
	25	G	6	9	11	20	VERY FINE SAND (TIP - EXTREMELY FINE SAND)	FIRM	WET	DARK BROWN	
							(6" HEAVE - TOP OF SAMPLE FLOWED)				
	30	H	2	6	17	23	FINE SAND	FIRM	WET	DARK BROWN	

(CONTINUED)

INSPECTOR Jon Marsh

TB-07A

LOG OF TEST BORING

DATE 12-23-88

HOLE NO. TB 2

PROJECT South Transfer Station - Detention Storage

GRD. ELEV. 12 -

LOCATION North Location - in grass strip

STRATA	DEPTH	SAMPLE NO.	BLOW COUNT			STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
FINE SAND							(-2' HEAVE WITH SPIN RECOVERY -TOP OF SAMPLE FLOWED)				
		X	I	9	10	11	21	FINE SAND	FIRM	WET	DARK BROWN	
BOH	35						(ABANDONED 5/24/89)				6' HEAVE PIEZO. FROZE IN AUGUR STEM

INSPECTOR Jon M.

LOG OF TEST BORING

TB-07B

DATE 2-17-89

HOLE NO. TB 1

PROJECT SOUTH TRANSFER STATION – INSIDE SCALES

GRD. ELEV. 0.0

LOCATION 35' E/O MAIN BLDG. & 35' N/O SOUTH BLDG. END (IN ASPHALT DRIVEWAY)

STRATA	DEPTH	SAMPLE NO.	BLOW COUNT				STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
ASPHALT								12" ASPHALT PAVEMENT				
FILL								10" – FINE SAND				
		A	8	5	5	10		8" – FINE SANDY SILT TO SILT W/ MANY VERY THIN GRAY SILT LAMINAIS	LOOSE	WET (HYDROCARBON SCENT)	BLACK	
	5	B	1	2	2	4		ORGANIC SILT AND ORGANIC LENSES	SOFT	WET (HYDROCARBON SCENT)	BLACK	5-24-89 2-22-89
FINE SAND WITH SOME SILT LAYERS AND OCCASIONAL ORGANICS		C	2	2	3	5		3" TO 5" ALTERNATING LENSES OF FINE SAND & FINE SANDY SILT	LOOSE	WET	BLACK	2-21-89
	10	D	3	3	6	9		FINE SAND WITH 3" SILT BLOCK	LOOSE	WET	BLACK	2-27-89
		E	4	11	15	26		2" SILTY FINE SAND 16" FINE SAND	FIRM	WET	BLACK	
	15	F	6	13	14	27		FINE SAND	FIRM	WET	BLACK	PIEZO. TIP
	20	G	3	8	11	19		FINE SAND	FIRM	WET	BLACK	
								5' HEAVE W/ H_2O FLUSH				
	25	H	1	10	15	25		8" FINE SAND 4" SILT & FINE SANDY SILT	FIRM	WET	BLACK	
		I	5	8	13	21		4" SILT & FINE SAND		WET		
B.O.H.	30							10" FINE SAND	FIRM	WET	BLACK	
								½" ORGANIC		WET		
								3½" VERY FINE SAND		MOIST		

(ABANDONED 5-24-89)

INSPECTOR JON M.

LOG OF TEST BORING

TB-07C

DATE 9-26-89

HOLE NO. TB 7

PROJECT SOUTH TRANSFER STATION

GRD. ELEV. 12+

LOCATION 280' N/o & 20' W/o NORTHWEST CORNER OF MAIN BUILDING (34' E/o FENCE)

STRATA	DEPTH	SAMPLE NO.	BLOW COUNT			STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
FINE SAND WITH OCCASIONAL THIN SILT LENS											
							(6 INCH HEAVE)				
		G	2	15	28	43	FINE SAND (WEAK ORGANIC SCENT)	DENSE	WET	BROWN	
	35										
							(4' HEAVE - UNABLE TO FLUSH)				
		H	—	—	—	—	HEAVED FINE SAND (WEAK ORGANIC SCENT)	---	WET	BROWN	
	40										
							(1.5' HEAVE)				
		I	18	31	33	64	FINE SAND WITH 1.5" SILT LENS (WEAK ORGANIC SCENT)	VERY DENSE	WET	BROWN	
	45										
							FINE SAND GRADING TO VERY FINE SAND W/ SOME SILT				
		J	8	12	28	40		DENSE	WET	BROWN	
	50										
							(8" HEAVE)				
		K	15	16	26	42	VERY FINE SAND	DENSE	WET	BROWN	
	55										
		L	3	10	23	33	VERY FINE SAND	DENSE	WET	BROWN	
B.O.H.	60										

INSPECTOR JON M.

CE 7.24

MATERIALS LABORATORY

LOG OF TEST BORING AKA TB-09

TB-09B

DATE 12-27-88

HOLE NO. TB 3

PROJECT SOUTH TRANSFER STATION - DETENTION STORAGE

GRD. ELEV. 151

LOCATION MIDDLE LOCATION - NORTH PORTION OF PARKING LOT

STRATA	DEPTH	SAMPLE NO.	BLOW COUNT			STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
3" ASPHALT							NOTE - MOVED/RELOCATED 2X. OBSTRUCTIONS HIT WERE PIPE, ~~CONCRETE RUBBLE, GLASS~~ AND TRANSFORMERS.				
FILL		A	2	2	4	6	BURNT PRODUCTS, SILT, SAND	LOOSE	MOIST	WHITE TAN BROWN	
	5	B	2	2	2	4	GLASS, WIRE, SILT, SAND, BURNT PRODUCTS	V. LOOSE	MOIST		
FINE SAND AND SILT LAYERS WITH BURNT ORGANICS		C	2	8	23	31	FILL. BOT 6" - FINE SAND	(COMPACT)	MOIST	BLACK	
	10										
							1/2" - FINE SAND			BROWN BLACK	12-28-8
		D	1	1	2	3	17 1/2" - SILT (BURNT ORGANIC IN TIP)	SOFT	WET	GRAY BROWN	12-27-88
	15										5-24-89
		E	6	6	6	12	FINE SAND	FIRM	WET	DARK BROWN	
BOH	20						(ABANDONED 5-24-89)				PIEZO.71F

INSPECTOR JON MARSH

LOG OF TEST BORING

TB-10

AKA TB-10

DATE 12-27-88

HOLE NO. TB 4

PROJECT SOUTH TRANSFER STATION - DETENTION STORAGE

GRD. ELEV. 1.

LOCATION SOUTH LOCATION - 60' E/o GAS PUMP & 120' W/o & ACCESS ROAD

STRATA	DEPTH	SAMPLE NO.	BLOW COUNT				STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
FILL DEBRIS								AUGER SPOILS ARE WIRE, METALS, BRICK, CONCRETE, ... VERY ROUGH DRILLING TO 7.5 FT.				
		A	8	8	11		19	BRICK, SILT AND SAND	(FIRM)	MOIST	RED, BROWN	
	5	B	42	26	11		37	(POSSIBLE CONTACT WITH OBJECT) SILT, SAND, BRICK, ASH	(COMPACT)	MOIST	WHITE, RED, TAN BROWN	
	10	C	11	28	31		59	VERY SILTY, ORGANIC, BRICK	(V. COMPACT)	WET	BLACK	
		D	5	5	4		9	- FREE WATER IN A-ROD - SAMPLE FLOWED - WIRE, SILT, DEBRIS IN TIP	LOOSE	WET	GRAY BROWN	▽ 12-28-8
FINE SAND	15							(HYDROCARBON SCENT FROM 14' TO BOH)				▽ 12-27-8 5-24-8
		E	6	6	7		13	FINE SAND	FIRM	WET	DARK BROWN	
BOH	20											PIEZO. TIP
								NOTE - FROM 25' TO 85' (±) NORTH IS S. ELMGROVE ST. RIGHT-OF-WAY. SURFACE IS 2" ASPHALT OVER ?' DEPTH CONCRETE BASE.				

(ABANDONED 5-24-89)

INSPECTOR JON MARSH

TB-11

LOG OF TEST BORING AKA TB-11

DATE 5-27-88

PROJECT S Transfer Sta

LOCATION 3' SW STA. 15+13 (State Stations)

HOLE NO. TB 5

GRD. ELEV.

STRATA	DEPTH	SAMPLE NO.	BLOW COUNT			STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
		A	2	3	4	7	silty sand w/ gravel bricks & misc.	loose	damp	red-brown	
	5										
		B	2	1	1	2	brick, sand & gravel & misc garbage	loose	damp	yellow/rust	
	10										
		C	6	11	8	19	sand (fine)	firm	sat	black	
	15										⊻ 15' 1"
		D	1/12"	1	1		layered silty fine sand and silt w/ decomposed roots	v. soft	wet	gray	
	20										
		E	2	1	1	2	sand	loose	sat.	black	
	25										
BOH							drilled to 27.5', 6 feet of heave, we were unable to flush, no sample taken.				
	30										

INSPECTOR SPC

LOG OF TEST BORING

TB-12A

AKA TB-12

DATE 5-27-88

PROJECT S Transfire Station

HOLE NO. TB 6

GRD. ELEV.

LOCATION Sta. 15+22, South 12' (State Stations)

STRATA	DEPTH	SAMPLE NO.	BLOW COUNT			STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
							hit resistance at 2.5'				
							mud 3'				
		A	7	21	21	44	brick, glass, metal, concrete and soil	hard	damp	gray	
	5										
		B	3	4	5	9	brick, bolts & dirt	loose	damp	gray	
	10						easier drilling @ 10'				
		C	21	37	33	70	sand & gravel with	comp	damp	gray	
	15						misc. garbage				
		D	3	2	2	4	layered silt and fine	loose	wet	gray	
	20						sand, decomposed roots				
							in silt				
		E	1	Push	2	2	No Recovery				
	25										
							drilled to 27.5 with sampler				
							"floating" in auger. At 27.5'				
BOH							we were unable to pull sampler				
							free. Pulled everything out of the				
							hole.				

Piezo destroyed

INSPECTOR SPC

CE 7.261

TB-13

LOG OF TEST BORING

AKA – TB-13

DATE 9-26-89

HOLE NO. TB 7

PROJECT SOUTH TRANSFER STATION

GRD. ELEV. 12±

LOCATION 280' N/O & 20' W/O NORTHWEST CORNER OF MAIN BUILDING (34' E/O FENCE)

STRATA	DEPTH	SAMPLE NO.	BLOW COUNT			STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
IMPORTED GRAVELLY SAND FILL							4" ASPHALT				
	5	A	9	9	11	20	GRAVELLY COARSE SAND W/TRACE ORGANICS (FILL) (WEAK ORGANIC SCENT) (LARGE GRAVEL IN TIP)	FIRM	SLIGHTLY MOIST	BROWN	
LANDFILL MATERIALS MIXED WITH SAND	10	B	3	3	7	10	FINE WOOD FIBER W/BLACK SLIGHT SAND AND CRUSHED ROCK (WEAK ORGANIC SCENT)	LOOSE	MOIST	BROWN	
							(SAMPLE FLOWED)				
	15	C	12	10	7	17	WOOD AND SILT W/SOME FINE SAND (WEAK ORGANIC SCENT)	FIRM	WET	BROWN	▽ 10-9-89 ▽ 9-28-8'
							(SAMPLE FLOWED)				
	20	D	4	6	11	17	EXTREMELY FINE SAND (WEAK ORGANIC SCENT)	FIRM	WET	BROWN	PIEZO. TIP
FINE SAND	25	E	8	14	23	37	VERY FINE SAND (WEAK ORGANIC SCENT)	DENSE	WET	BROWN	
	30	F	2	3	28	31	FINE SAND (WEAK ORGANIC SCENT)	DENSE	WET	BROWN	

(CONTINUED NEXT SHEET)

INSPECTOR JOH M.

CD 7.241

MATERIALS LABORATORY

LOG OF TEST BORING

TB-14

AKA TB-14

DATE 9-26-89

HOLE NO. TB 8

PROJECT SOUTH TRANSFER STATION

GRD. ELEV. 121

LOCATION 280' N/O & 96' W/O NORTHWEST CORNER OF MAIN BUILDING (42' W/O FENCE)

STRATA	DEPTH	SAMPLE NO.	BLOW COUNT				STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
ASPHALT								2" ASPHALT				
LAND FILL. MATERIALS		X	A	7	7	10	17	SANDY SILT W/WOOD, GLASS, METAL (STRONG PETROLEUM SCENT)	FIRM	WET	BLACK	
	10		B	3	4	5	9	UPPER SANDY SILT & SILT W/ ORGANICS GRADING TO LOWER VERY FINE SAND (STRONG PETROLEUM SCENT)	LOOSE	WET	BLACK	
	15		C	7	4	15	19	SILTY SAND W/ FINE CRUSHED ROCK & ORGANICS (STRONG PETROLEUM SCENT)	FIRM	WET	BLACK	10-9-89 9-28-8
FINE SAND	20		D	3	3	3	6	4" FINE CRUSHED ROCK AND SAND; 14" VERY FINE SAND (PETROLEUM SCENT)	LOOSE	WET	BLACK	PIEZO. TIP
	25		E	7	13	17	30	FINE SAND (PETROLEUM SCENT)	FIRM	WET	BLACKISH BROWN	
B.O.H.	30		F	5	6	14	20	FINE SAND (PETROLEUM SCENT)	FIRM	WET	BLACKISH BROWN	

NOTE - REPEATED CONTINUOUS HEAVING DURING PIEZO. INSTALLATION.

INSPECTOR JOH M.

LOG OF TEST BORING

TB-15

DATE 9-27-89 AKA TB-15

HOLE NO. TB 9

PROJECT SOUTH TRANSFER STATION

GRD. ELEV. 1

LOCATION 450' W/O & 89' W/O NORTHWEST CORNER OF MAIN BUILDING (35' W/O FENCE)

VERY ROUGH DRILLING
SPOILS CONTAINED COBBLE & LARGE GRAVEL

STRATA	DEPTH	SAMPLE NO.	BLOW COUNT	STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
LANDFILL MATERIALS					1" ASPHALT OVERLAY				
	5	A	50/4"		SANDY GRAVEL W/ CINDER & CRUSHED ROCK (NO SCENT) (WHEN AUGERING RESUMED STRONG PETROLEUM SCENT)	VERY DENSE	SLIGHTLY MOIST	GRAY BROWN	
	10	B	50/6		FINE CRUSHED ROCK & GRAVEL W/ SAND (DIESEL FUEL SCENT)	VERY DENSE	SLIGHTLY MOIST	BROWN	
	15	C	36 7 9 16		3" CRUSHED ROCK & SAND	FIRM	WET	BLACK	
					15" FINE SAND (DIESEL FUEL SCENT)		VERY MOIST	BLACK	
B.O.H.					(ABANDONED)				NO PIEZO.

INSPECTOR JON M.

CE 7.341

MATERIALS LABORATORY

LOG OF TEST BORING

TB-16

AKA TB 16

AKA RI North Piezo

TB 10

DATE 9-27-89

HOLE NO. 7

PROJECT SOUTH TRANSFER STATION

GRD. ELEV. 12±

LOCATION 457' N/O & 22' W/O NORTHWEST CORNER OF MAIN BUILDING (32' E/O FENCE)

STRATA	DEPTH	SAMPLE NO.	BLOW COUNT	STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
LAND FILL MATERIALS	5	A	3 2 3	5	SAND, SILT, SLIGHT GRAVEL, WOOD, ORGANICS (PETROLEUM SCENT)	LOOSE	MOIST	BROWN BLACK GRAY	SM
	10	B	5 7 14	21	LENSES ± SILT, FINE SAND, EXTREMELY FINE SAND & GRAVELLY SAND (DIESEL FUEL SCENT)	FIRM	VERY MOIST	GRAY BROWNISH BLACK	SP
SILT AND FINE SAND					3" FINE SAND (DIESEL FUEL SCENT)		VERY MOIST	BROWNISH BLACK	10-9-89
	15	C	2 3 5	8	15" SILT W/ SLIGHT FINE SAND (LOW PLASTICITY LOW TOUGHNESS) (FAINT DIESEL FUEL SCENT)	MEDIUM STIFF	MOIST	BROWN	9-28-89
B.O.H.	20	D	4 4 4	8	MANY THIN LAMINAE OF VERY FINE SAND (FAINT DIESEL FUEL SCENT)	LOOSE	VERY MOIST	BROWN	PIEZO SP

INSPECTOR JON M.

LOG OF TEST BORING

TB-17

DATE 5-24-89 AKA TB-17

HOLE NO. TB 11

PROJECT SOUTH TRANSFER STATION - DETENTION STORAGE

GRD. ELEV. 12

LOCATION 163' N/O ℄ 44' W/O NORTHWEST CORNER OF MAIN BUILDING (10 E/O FENCE)

STRATA	DEPTH	SAMPLE NO.	BLOW COUNT			STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
TOPSOIL							TOPSOIL - TO 2'				
LAND FILL MATERIALS	5	A	8	10	6	16	8" SILT, SAND, GRAVEL, BURNT PRODUCTS - FILL (NO SCENT)	FIRM	SLIGHTLY MOIST	BLACK BROWN TAN	
		B	2	5	3	8	3" - ? CONCRETE - FILL 3" - UNIFORM FINE SAND (NO SCENT)	LOOSE	MOIST	RED TAN DARK BROWN	
FINE SAND	10										
	15	C	3	6	3	9	UNIFORM FINE SAND (*) (? - POSSIBLE SCENT)	LOOSE	WET	DARK BROWN	6-15-89
	20	D	2	3	4	7	2" - UNIFORM FINE SAND 8" - VERY FINE SAND (*) w/SOME SILT (? - POSSIBLE SCENT) [NOTE - A-ROD WET TO 19.5']	LOOSE		DARK BROWN GRAY	5-31-89
	25	E	PUSH		2	2	14" - UNIFORM FINE SAND (*) (? - POSSIBLE SCENT)	VERY LOOSE		DARK BROWN	
	30	F	2	4	5	9	14" - UNIFORM FINE SAND (*) (? - POSSIBLE SCENT)	LOOSE			

(*) - SAMPLES FLOWED

INSPECTOR JON M.

CB 7.241

MATERIALS LABORATORY

LOG OF TEST BORING

DATE 5-24-89

HOLE NO. TB 11

PROJECT South Transfer Station - Detention Sewer

GRD. ELEV. 12±

LOCATION 163' N/O & 44' W/O Northwest Corner of Main Building (10' E/O fence)

STRATA	DEPTH	SAMPLE NO.	BLOW COUNT	STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
					(1' HEAVE w/ H_2O FLUSH)				
		G	2 4 5	9	UNIFORM FINE SAND	LOOSE	WET	DARK BROWN	PIEZO. TIP
	35								
					8' HEAVE - UNABLE TO H_2O FLUSH AND GET A-ROD TO PENETRATE.				
B.O.H.	40								
					D.O.E. INSTALLED				

INSPECTOR Jon M.

LOG OF TEST BORING

TB-18

DATE 1-16-73. AKA TB-18

HOLE NO. TB 12

PROJECT S. WEBSTER SAN. SEWER

GRD. ELEV.

LOCATION 2ND AVE. S. & S. ELMGROVE. SE. CORNER ?

STRATA	DEPTH	SAMPLE NO.	BLOW COUNT			STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
LOOSE-FIRM GARBAGE MIXTURE ASH, GLASS, METAL, WOOD											
							MIX.- ASH - GLASS		MOIST	BRN	
							SAND - WIRE -				
							GRAVEL - ROCKS.				
	5	A	1	3	4	7	MIX- ASH - GLASS	LOOSE	MOIST TO WET	BRN	
							SAND - WOOD				
							(GARBAGE)				
	10	B	5	3	1	4	NO RECOVERY	LOOSE			1-16-73 1-24-73 1-18-75
							GOING WET				
	15	C	3	14	9	23	MIX - SAND - WOOD	FIRM	SAT	BRN BLK	
							(GARBAGE)				
VISCOUS - SILT W/ORGANIC			12"								
	20	D	1	1	1		SILT W/ ORGANIC (PEAT)	VISCOUS	MOIST	BRN	
LOOSE SAND FINE-MED.							HEAVED 6"				
	25	E	3	4	6	10	SAND FINE-MED	LOOSE	SAT	BLK	

INSPECTOR HW KOKTAX

DISCARDED

CD17.341

MATERIALS LABORATORY

LOG OF TEST BORING

TB-19

DATE 4-14-92 AKA TB-19

HOLE NO. TB 13

PROJECT S. Transfer Station – Retaining Wall

GRD. ELEV. 20.3 ±

LOCATION SE Corner Transfer Sta. building 8' So. & 4' W.

STRATA	DEPTH	SAMPLE NO.	BLOW COUNT			STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
FILL		A	50/3"				SILTY SAND w/ FRACTURED ROCK IN TIP PUSHING ROCK FROM 25'-6'		MOIST	DK BROWN	
	5										
		B	2	2	3	5	SILTY SAND & GRAVEL	LOOSE	MOIST	BROWN	Bentonite Seal
	10										
FILL & DISTURBED NATIVE		C	1	1	3	4	SLIGHTLY SILTY FINE SAND w/ GRAVEL – WOOD NEAR TIP THIN SILT LAYER @ TIP	LOOSE	MOIST	LIGHT BROWN	
	15										
		D	8	14	18	32	3" LAYER OF SILT, RELATIVELY CLEAN MEDIUM TO FINE SAND w/ OCCASIONAL GRAVEL		MOIST	BROWN	
	20										▽ 4/16/92
NATIVE FINE SAND WITH SILT		E	3	1	3	4	SILTY FINE SAND BOTTOM 6" – SILT w/ ORGANICS	LOOSE	WET TO SATURATED	BROWN TO GREY (TOP TO BOTTOM)	
	25										
		F	3	3	3	6	CLEAN FINE SAND	LOOSE	SATURATED	BROWN TO GREY (TOP TO BOTTOM)	
	30										

Backfill with Pea Gravel from 15 to 30'
10' Slotted Tip

INSPECTOR AL RICE
JON SHIMADA

7 bags pea gravel
9 " bentonite

LOG OF TEST BORING

TB-19

DATE 4-14-92

HOLE No. TB-19

PROJECT S. TRANSFER STATION – RETAINING WALL

GRD. ELEV.

LOCATION SE CORNER

STRATA	DEPTH	SAMPLE NO.	BLOW COUNT				STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
NATIVE FINE TO MEDIUM SANDS		G	7	14	20	34		CLEAN FINE SAND ("DUWAMISH RIVER" SAND)		SATURATED	BLACK	
	35							DRILLER ADDING WATER @ 37.5' – HEAVED 1'				
		H	4	6	8	14		CLEAN FINE TO MEDIUM SAND ("DUWAMISH RIVER") w/ SOME COARSE SAND		SATURATED	BLACK	
	40							@ 42.5' – HEAVED 1'				
		I	4	10	13	23		CLEAN FINE TO MEDIUM SAND w/ SOME COARSE SAND ("DUWAMISH")		SATURATED	BLACK	
	45											
		J	10	12	14	26		CLEAN FINE TO MEDIUM SAND w/ SOME COARSE SAND ("DUWAMISH")		SATURATED	BLACK	
BOH	50											
	55											
	60											

INSPECTOR BCR & JS

LOG OF TEST BORING

TB-20

AKA TB-20

AKA RI South Piezo

DATE 4-14-92

HOLE NO. TB 14

PROJECT S. TRANSFER STATION - RETAINING WALL

GRD. ELEV. 8.8 ±

LOCATION EAST FACE, SOUTH END MAIN BLDG. - 12' E/o & 16' S/o LIGHT POLE

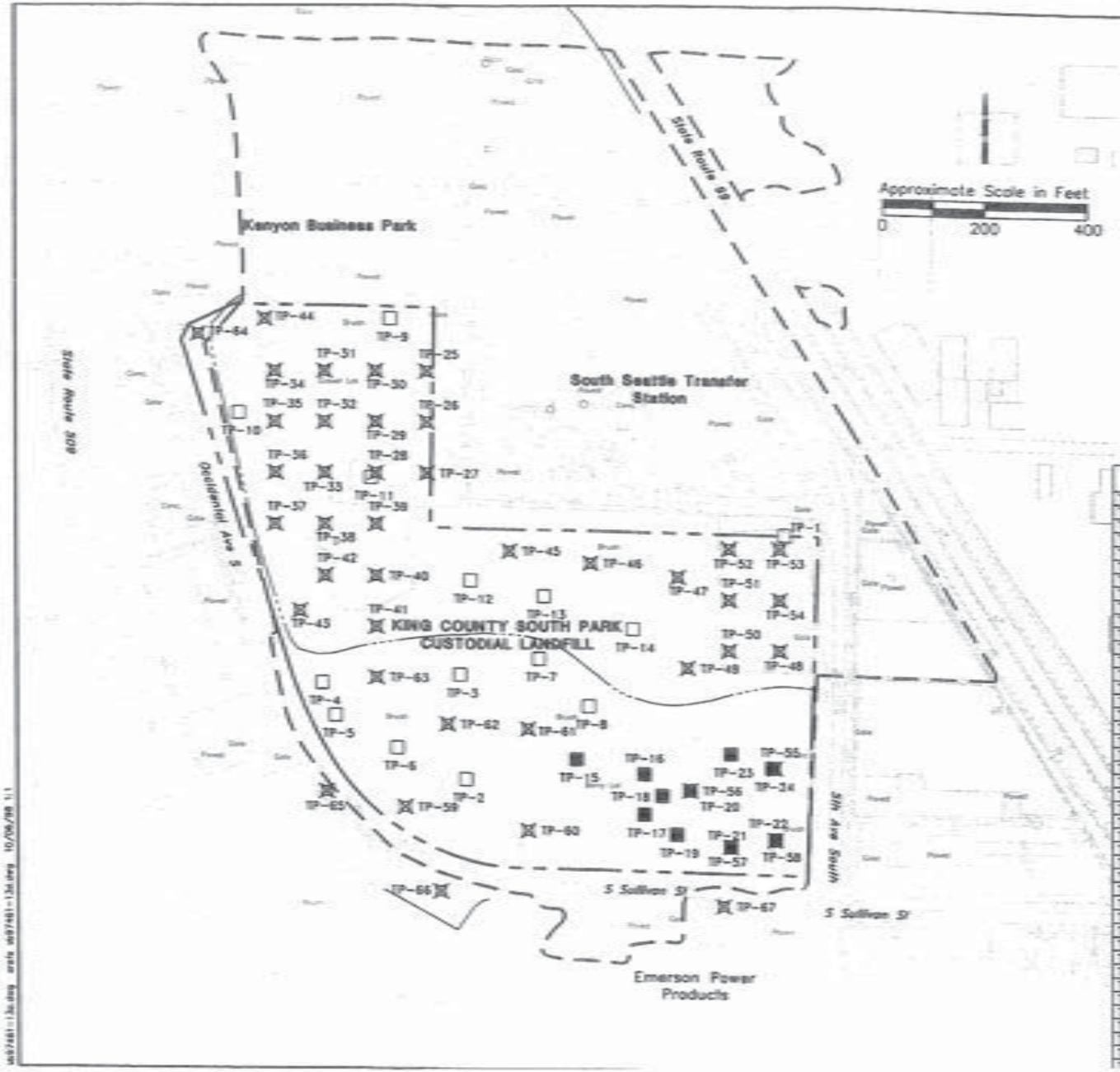
STRATA	DEPTH	SAMPLE NO.	BLOW COUNT	STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
		A	2 2 6	8	(A1) SANDY SILT W/ WOOD - TOP 6"		MOIST	BROWN	
	5				(A2) FINE TO MEDIUM SAND - BOTTOM 6"		MOIST	BLACK	
		B	3 3 5	8	TOP 3" SILTY FINE SAND W/ GRAVEL, TRACE BRICK & ORG.		SATURATED	BROWN	
	10				CLEAN FINE TO MEDIUM SAND W/ (DUWAMISH) SOME COARSE SAND - BOTTOM 5"		SATURATED	BLACK	▽ 4/16/92
		C	2 3 11	14	TOP 6" - CLEAN FINE TO MED. SAND W/ SOME COARSE SAND (DUWAMISH)		SATURATED	BLACK	
	15				BOTTOM 12" - SILT W/ ORGANICS & ORGANIC ODOR (2" OF WOOD IN TOP)		WET	DK BROWN MOTTLED W/ BLACK SPOTS	
		D	6 7 8	15	TOP 6" - FINE TO MED. SAND WOOD PIECE IN BETWEEN LAYERS		SATURATED	BLACK	
	20				BOTTOM 10" - CLEAN FINE SAND @ 22.5' - HEAVED 1' DRILLER FLUSH W/ WATER		SATURATED	BLACK	
		E	5 6 8	14	CLEAN FINE TO MED SAND (DUWAMISH)		SATURATED	BLACK	
	25								
		F	4 5 10	15	CLEAN FINE TO COARSE SAND (DUWAMISH)		SATURATED	BLACK	
	30								

Backfill for well: Original borehole

4½ SKS BENTONITE
2 SKS PEA GRAVEL

INSPECTOR AL RICE
JON SHIMADA

Historical Test Pits



Test Pit Location

TP-1	N 196682	E 1271012	TP-44	N 197100	E 1269931
TP-2	N 196200	E 1270375	TP-45	N 196850	E 1270045
TP-3	N 196407	E 1270364	TP-46	N 196816	E 1270116
TP-4	N 196389	E 1270085	TP-47	N 196800	E 1270200
TP-5	N 196320	E 1270119	TP-48	N 196450	E 1270200
TP-6	N 196281	E 1270240	TP-49	N 196451	E 1270200
TP-7	N 196458	E 1270522	TP-50	N 196450	E 1270200
TP-8	N 196345	E 1270522	TP-51	N 196500	E 1270200
TP-9	N 197103	E 1270229	TP-52	N 196500	E 1270200
TP-10	N 196917	E 1269928	TP-53	N 196500	E 1270200
TP-11	N 196791	E 1270190	TP-54	N 196500	E 1270200
TP-12	N 196560	E 1270500	TP-55	N 196500	E 1270200
TP-13	N 196562	E 1270515	TP-56	N 196500	E 1270200
TP-14	N 196497	E 1270710	TP-57	N 196500	E 1270200
TP-15	N 196240	E 1270598	TP-58	N 196500	E 1270200
TP-16	N 196211	E 1270733	TP-59	N 196500	E 1270200
TP-17	N 196152	E 1270735	TP-60	N 196500	E 1270200
TP-18	N 196189	E 1270698	TP-61	N 196500	E 1270200
TP-19	N 196093	E 1270798	TP-62	N 196500	E 1270200
TP-20	N 196179	E 1270814	TP-63	N 196500	E 1270200
TP-21	N 196069	E 1270905	TP-64	N 196500	E 1270200
TP-22	N 196083	E 1270994	TP-65	N 196500	E 1270200
TP-23	N 196252	E 1270905	TP-66	N 196500	E 1270200
TP-24	N 196224	E 1270995	TP-67	N 196500	E 1270200
TP-25	N 197000	E 1270000			
TP-26	N 196900	E 1270000			
TP-27	N 196800	E 1270000			
TP-28	N 196800	E 1270000			
TP-29	N 196900	E 1270000			
TP-30	N 197000	E 1270000			
TP-31	N 197000	E 1270100			
TP-32	N 196900	E 1270100			
TP-33	N 196800	E 1270100			
TP-34	N 197000	E 1270000			
TP-35	N 196900	E 1270000			
TP-36	N 196801	E 1270000			
TP-37	N 196700	E 1270000			
TP-38	N 196700	E 1270100			
TP-39	N 196700	E 1270000			
TP-40	N 196600	E 1270000			
TP-41	N 196500	E 1270000			
TP-42	N 196600	E 1270100			
TP-43	N 196501	E 1270045			

REFERENCE: BASE MAP AND TOPOGRAPHY BY DAMES & MOORE AERIAL MAPPING, 5/7/97

Test Pit Location Map
South Park Custodial Landfill
KING COUNTY, WASHINGTON

PROJECT NO. V097410
FIGURE NO. 2.1

10/06/98
JOB/FILE

TP-01 | TP-1

UES Udaloy Environmental Services

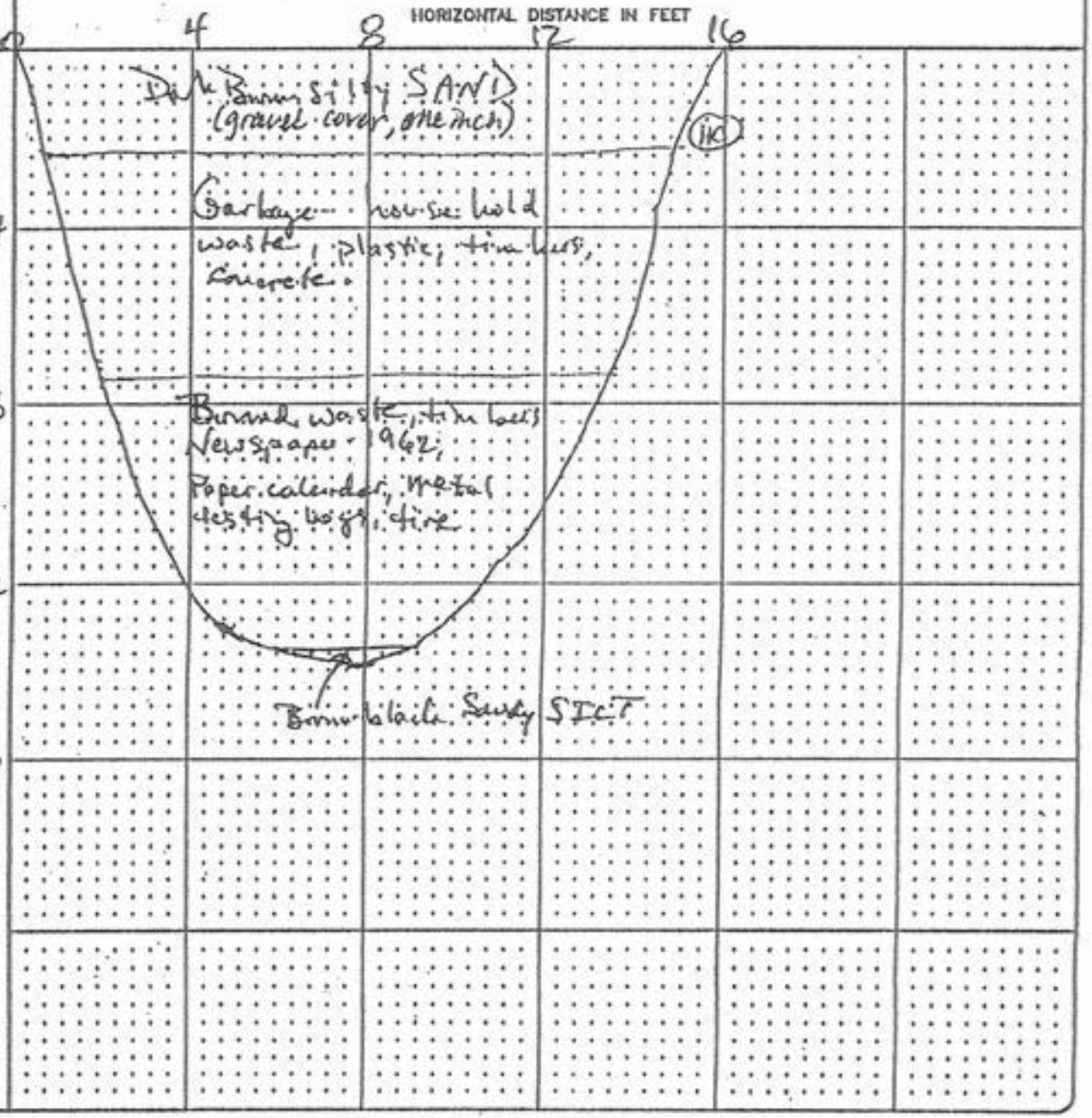
TEST PIT LOG

TEST PIT TP-1

PROJECT South Park Landfill
DATE 4/7/97 LOCATION NE Corner of truck Storage along 5th
LOGGED BY B. Carpenter WEATHER Sunny 50's

SOIL DESCRIPTION & REMARKS	LEL PID	GROUND WATER	SAMPLES	DEPTH FEET
Gray slag 0.5-2" diameter. Dark Brown silty SAND, f-m, 15% fines, moist. Some f-m gravel	ND		TP1-2	
Garbage - wood, brick, some plastic, concrete. Rotting. H_2S odor. Lots of plastic, moist, difficult to get past timbers.	ND			4
Dark black - burned? refuse, layer, timbers. Moist ash? layer, w/ greyish clay, along w/ waste that appears burned. Newspaper dated Jan. 1962 included with waste. At 10.5' more burned-looking paper, timbers and soil w/ oily treated timber odor. Dash calendar from 1961. Also noted light gray clayey like substance, gypsum board debris?, ashes, At 13-14', Aerospace metal testing logs, OT authorization w/ Boeing name. Tire mixed in w/ waste. Possible end of waste at 13.5. Dark brown to black, sandy SILT w/ roots, very moist. Organic odors.	ND			8
	ND		TP1-13 TP1-14	12
TD = 14'				16

HORIZONTAL DISTANCE IN FEET: 0, 4, 8, 12, 16



1-1 4/7/97 DMA/AA/DGH

TP-2

TP-02

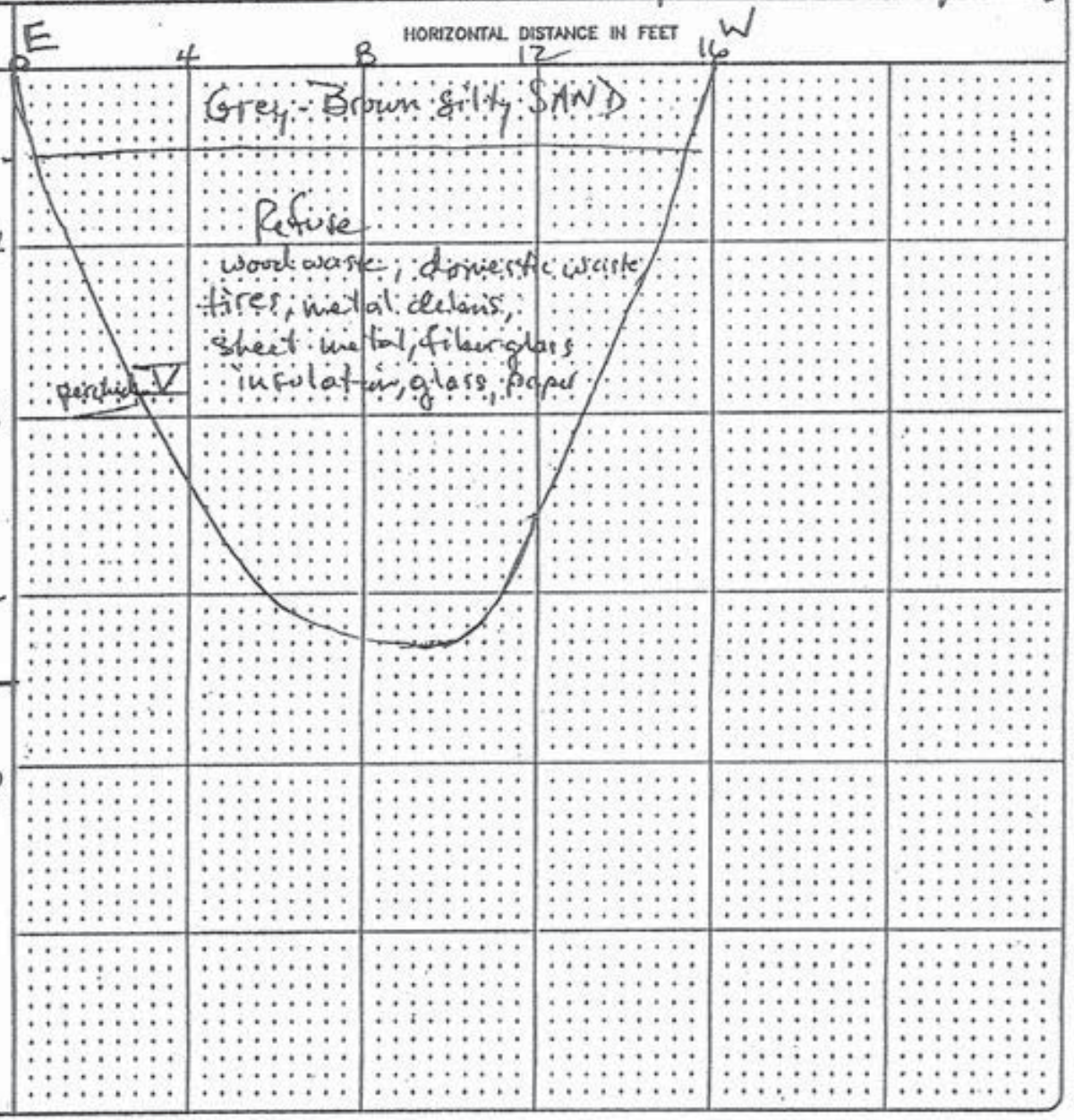
UES Udaloy Environmental Services

TEST PIT LOG

TEST PIT TP2

PROJECT South Park Landfill
DATE 7/7/97 LOCATION S-Central area of Blackberries, in clearing
LOGGED BY B. Carpenter WEATHER Sunny, 70's (Proposed TP1)

SOIL DESCRIPTION & REMARKS	LEL (%)	GROUND WATER	SAMPLES	DEPTH FEET
Grey-Brown silty SAND f-m with large rip rap rock 2-3'	ND		TP2-1	
Garbage @ 2' newspaper, wood waste, plastic bags, tire, metal grill grating, household debris, glass bottle (liter), Several tires, log wood waste, metal debris, fiber glass insulation on sheet metal, tires, metal piping, more household waste, cans, springs, glass, paper, Water appears to be perched at 7.5' Still lots waste @ bottom TD 13	ND ND ND	7.5 (perched)		4 8 12 16



1-1 1/21/97 DWG/W/DWI

TP-03 | TP-3

UES Udaloy Environmental Services

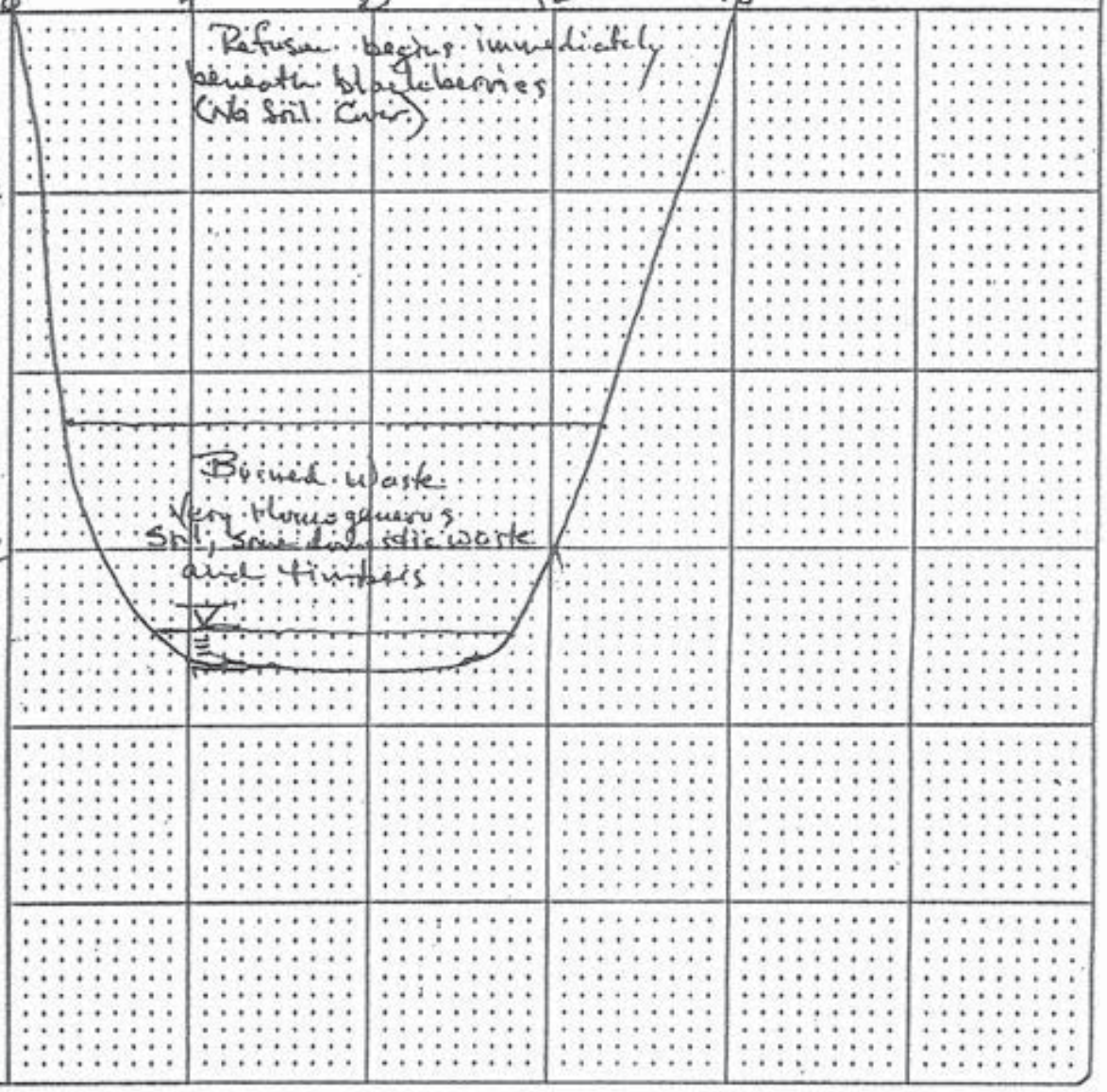
TEST PIT LOG

TEST PIT TP-3

PROJECT South Park Landfill (HC) N- central part
DATE 4/7/97 LOCATION ~~[illegible]~~ of blackberry lot, just S. of drainage
LOGGED BY B. Carpenter WEATHER Sunny, 50's (along drainage bank)

SOIL DESCRIPTION & REMARKS	LEL/PID	GROUND WATER	SAMPLES	DEPTH FEET
No Soil Cover - Refuse Immediately beneath blackberry cover, Household waste. Tires, plastic doll, timbers - brown-gray Soil matrix, Waste appeared to be more burned at 9' than overlying material. Large burned timbers and tires at 11'. Crushed 55 gallon drum. Refuse has been very consistent throughout entire test pit. Odor not particularly strong as in test pits 1 and 2. Moist @ 13' Wet at 14'. TD @ 14.5'	ND ND ND	14' ▽	Water Sample	0 4 8 12 16

HORIZONTAL DISTANCE IN FEET



1-1 2/25/97 DWR/AI/RMI

TP-04

TP-4

UES Udaloy Environmental Services

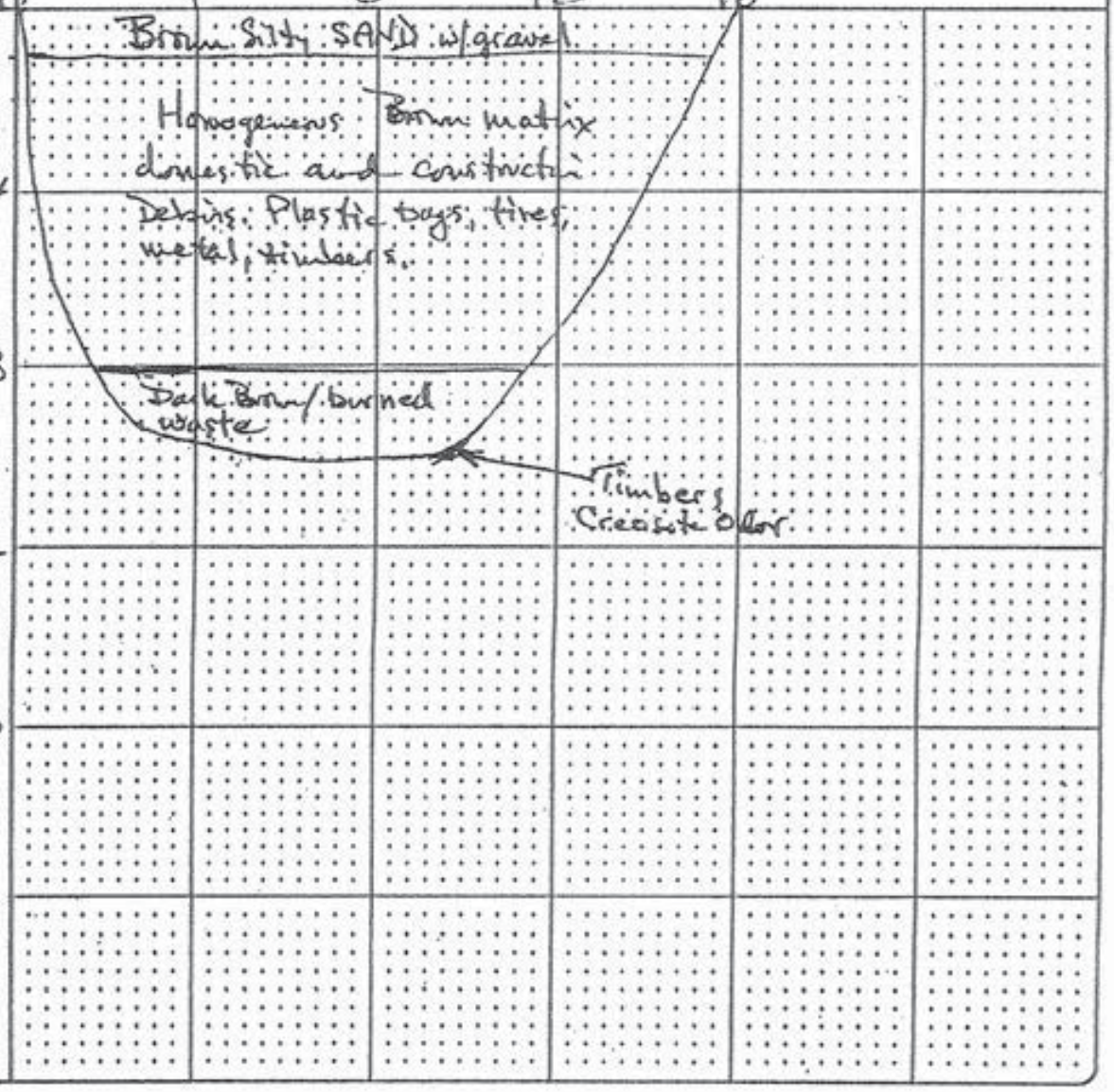
TEST PIT LOG

TEST PIT TP-4

PROJECT South Park Landfill
DATE 4/7/97 LOCATION E. of Sewer Line (SE Corner Northstar C)
LOGGED BY B. Carpenter WEATHER Sunny, 50's

SOIL DESCRIPTION & REMARKS	LEL/PID	GROUND WATER	SAMPLES	DEPTH FEET
Soil Cover Dark Brown Silty SAND fine to med. w/ gravel, cobbles	8		TP4-1	
Refuse very similar to TP-3. Homogeneous waste household, timbers, tires Plastic bags @ 8'. Also Burned waste darker ash type matrix @ 8'. Moist at 8'. Water @ 10'. Timbers and strong creosote odor. Could not penetrate timbers. @ 10'	ND			4
	ND			8
		▽		12
TD 10'				16

HORIZONTAL DISTANCE IN FEET: 0, 4, 8, 12, 16



1-1 2/21/97 DWP/AR/DWI

TP-5

TP-05

UES Udaloy Environmental Services

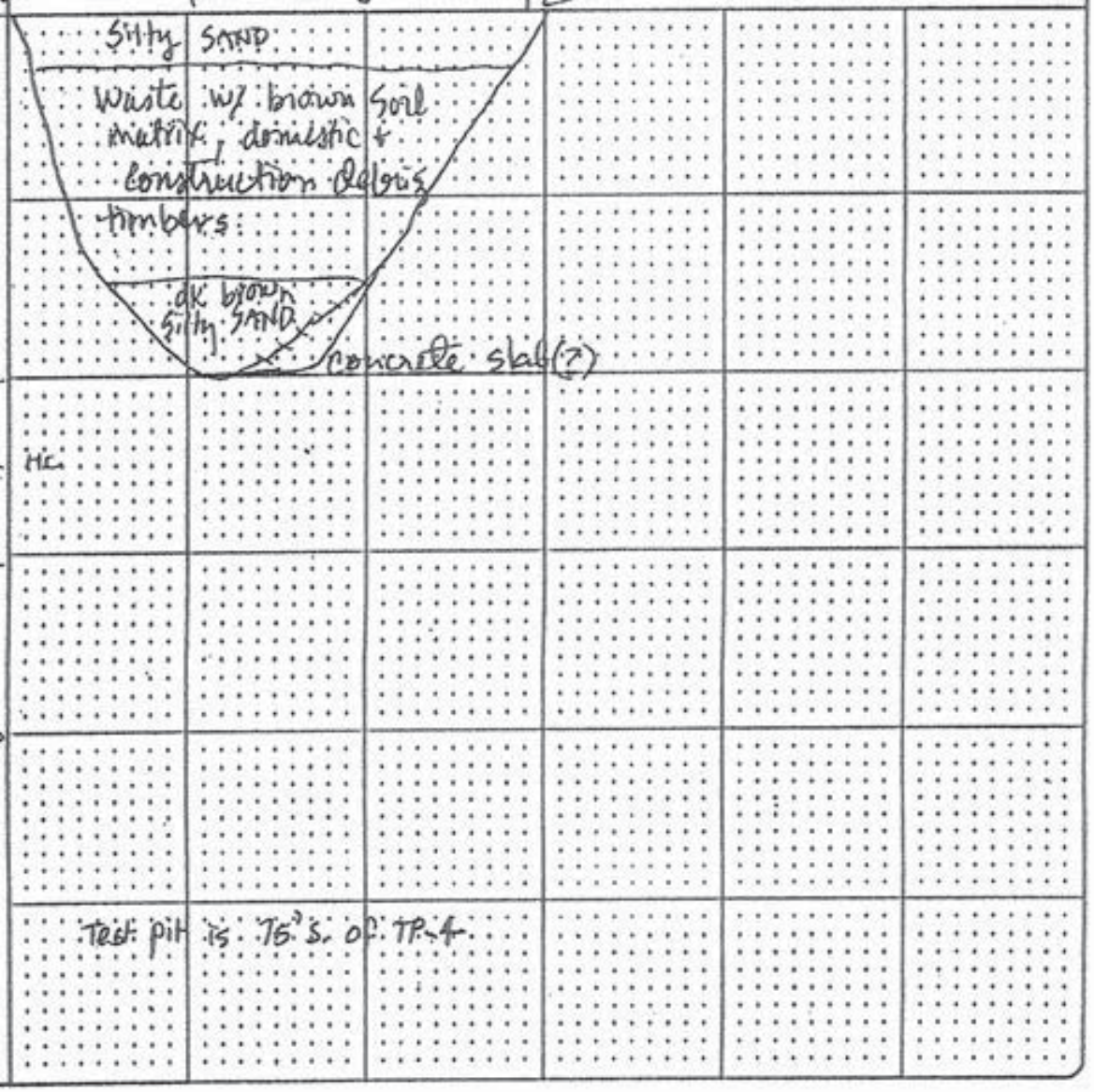
TEST PIT LOG

TEST PIT TP-5

PROJECT South Park Landfill
DATE 4/3/97
LOGGED BY B. Carpenter
LOCATION Eastfence line (SE of Aerolight BLDG)
WEATHER Sunny, 50's

SOIL DESCRIPTION & REMARKS	LEL (%)	GROUND WATER	SAMPLES	DEPTH FEET
Dark Brown silty SAND fine to medium				
Reduce Homogeneous waste. More Brown soil than in TP-4 / TP-3. Tires Household work, timbers, slight odor.	ND			1
				4
Dark brown silty SAND matrix w/ burned waste larger % of soil matrix than waste. Homogeneous to bottom of pit. TD = 8'	ND			8
				12
Hit concrete slab(?) approx. 8' bgs. Slab(?) was at least 3' x 6' - covered base of pit.				16

HORIZONTAL DISTANCE IN FEET 0 4 8 12 16



1-1 1/31/97 [illegible]

TP-6

TP-06

UES Udaloy Environmental Services

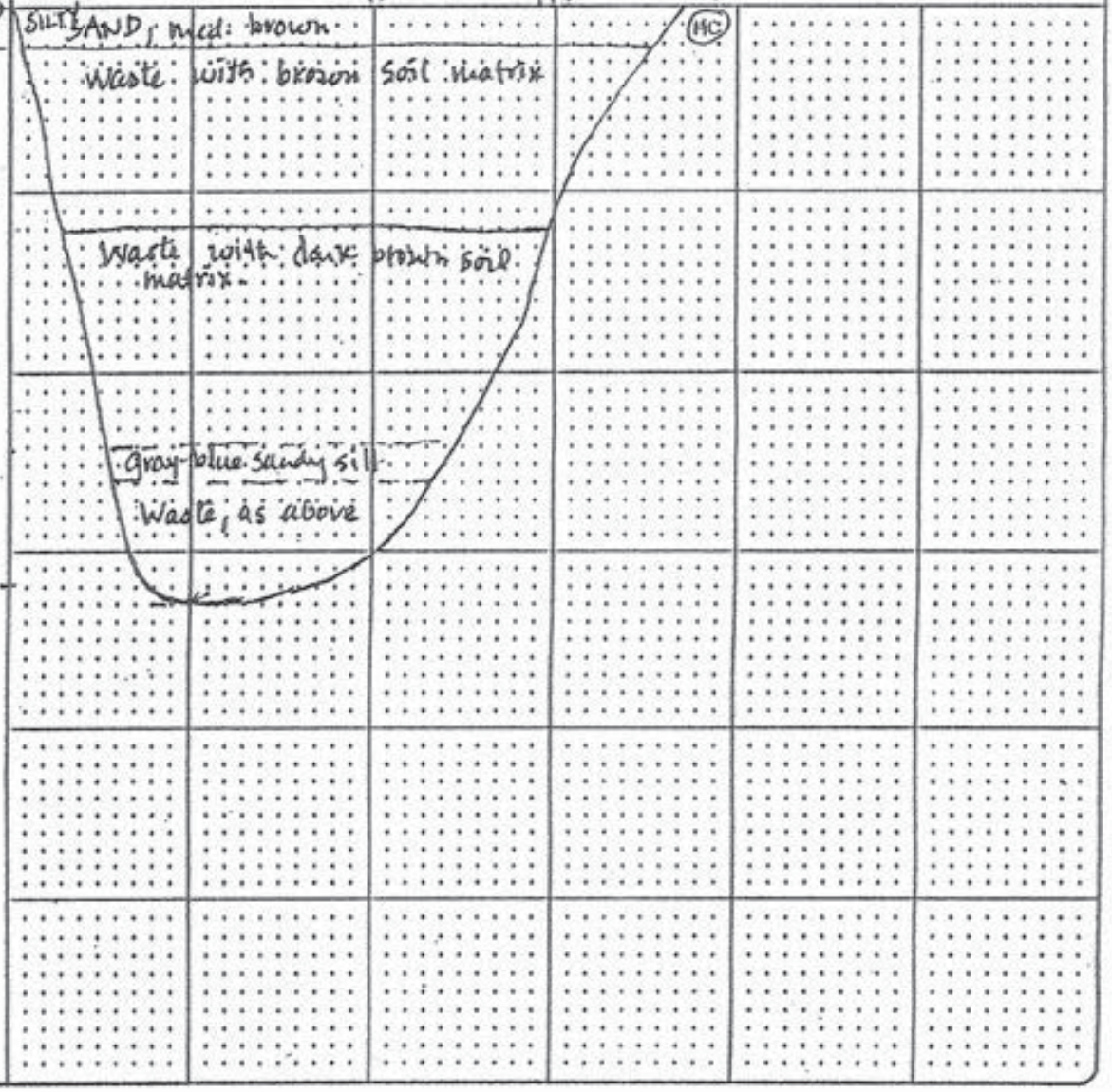
TEST PIT LOG

TEST PIT TP-6

PROJECT South Park Landfill
DATE 4/7/97
LOGGED BY H. Corner
LOCATION SE of TP-5, E of SE part of Northstar parking lot
WEATHER 50°F, sunny

SOIL DESCRIPTION & REMARKS	CGI/PID	GROUND WATER	SAMPLES	DEPTH FEET
0-1' Med. brown SILTY SAND w/ SILT, f-m, 5-15% fines, 1-3% f-m gravel.	ND/ND		TP6 1	0
1-5' Waste, homogeneous, similar to TP-4, TP-5. Wood, timbers, ironing board, plastic, paper, tire. Lined household and construction debris. Not difficult digging. → w/ brown soil matrix.	ND/ND			4
5-10.5' Dark brown soil matrix (silty sand) w/ misc waste as above but burned material. Tires, timbers, plastic, fiberboard, rolled wire. metal washtub(?).	ND/ND			8
10-11 - gray-blue sandy silt/silty sand w/ slight odor (hydrocarbon-like?)	ND/ND			12
TD = 13.5' No gw encountered.				

HORIZONTAL DISTANCE IN FEET: 0, 4, 8, 12, 16



this pit is our TP-2 from Friday

TP-7

TP-07

UES Udaloy Environmental Services

TEST PIT LOG

Indicates approx. topography.

TEST PIT TP-7

PROJECT Southpark Landfill

DATE 4/7/97

LOGGED BY H Lerner

LOCATION 20' S. of drainage, near Mahonia tree.

WEATHER 50° F, Sunny.

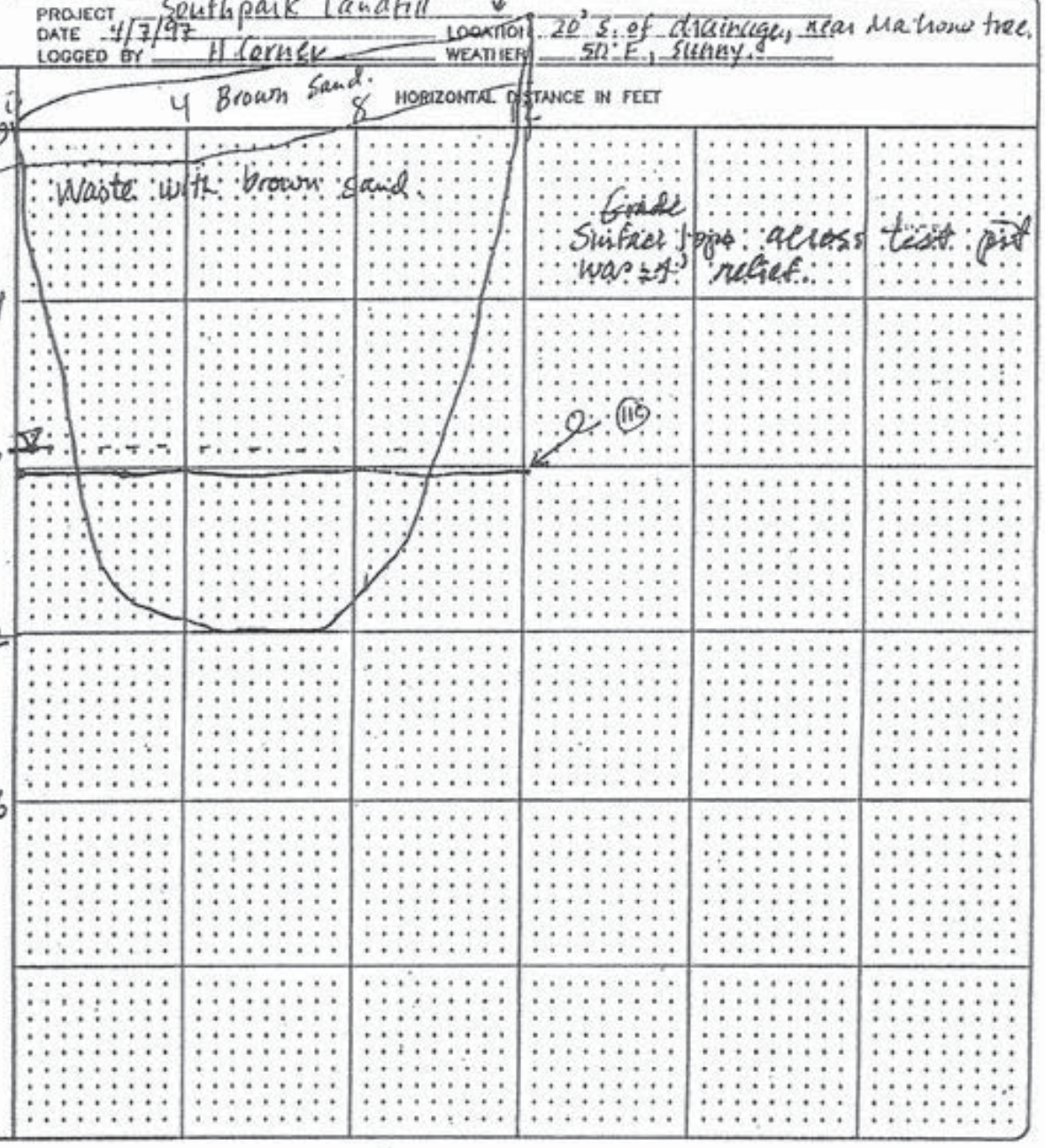
SOIL DESCRIPTION & REMARKS	CGI/PID	GROUND WATER	SAMPLES	DEPTH FEET
0-1: SAND (SP), brown, f-m, w/ 3-5% fines, abundant roots.	Moist.			0
1- ~~7.5 and water~~ 12 waste with brown SAND matrix, mostly timbers, some plastic, concrete, tires. Looks more like construction debris than waste in previous test pits.	ND/ND	TP-7		4
At low end of pit (nearest creek) gw was encountered at ~ 7.5 ft. bgs. Cleaned out more similar waste at 110 below the water level - waste looked similar to above.	ND/ND			8
TD ≈ 12' bgs at high end of pit, 8' bgs at low end.				12
				16

Water Sample:

pH = 6.33

cond 1422

HORIZONTAL DISTANCE IN FEET



TP-08 | TP-8

UES Udaloy Environmental Services

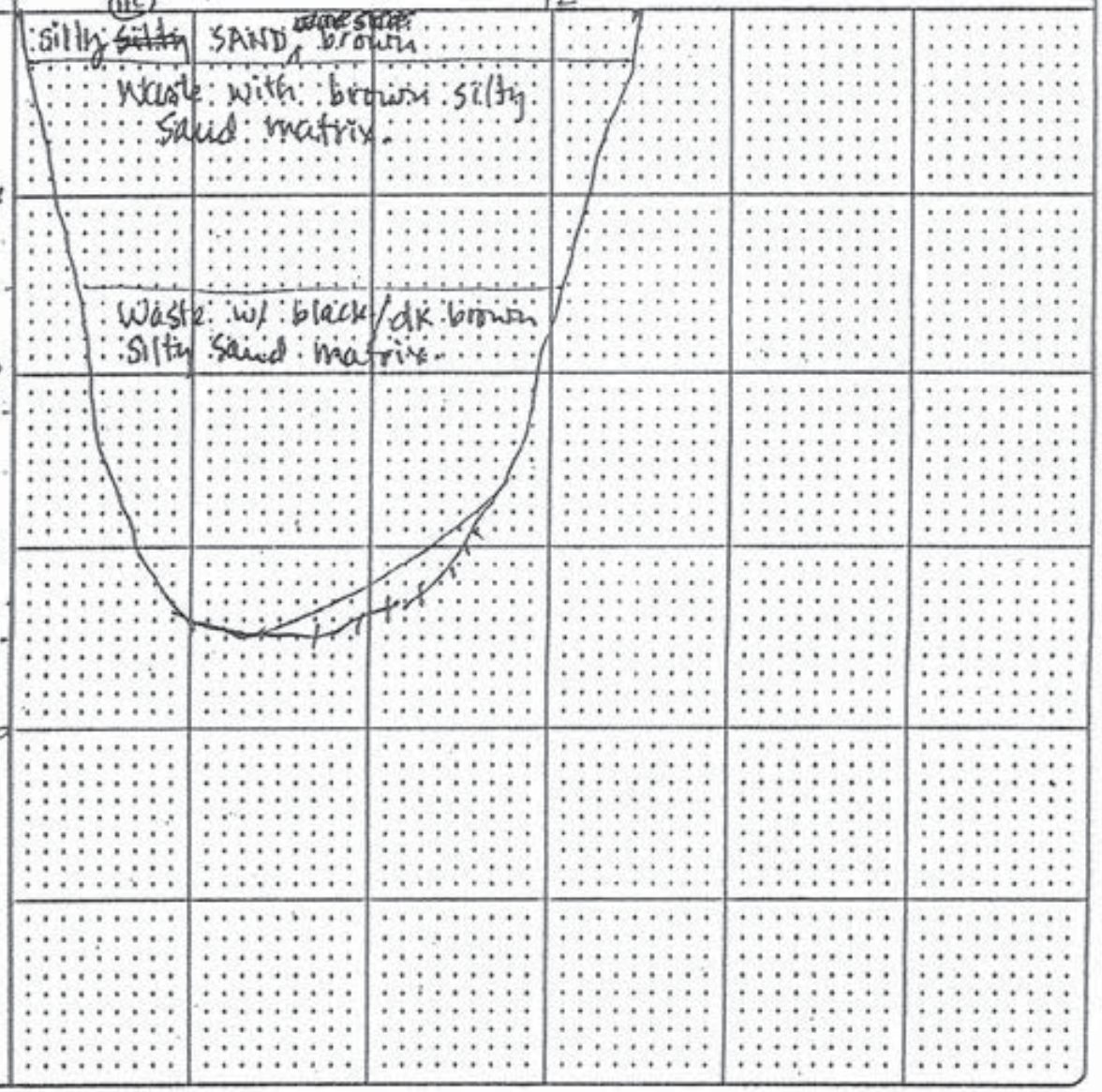
TEST PIT LOG

TEST PIT TP-8

PROJECT Southpark Landfill
DATE 1/7/93 LOCATION Immediately N. of trailer lot, N of pea gravel
LOGGED BY H. Carnes WEATHER Cloudy, 50's

SOIL DESCRIPTION & REMARKS	GROUND WATER	SAMPLES	DEPTH FEET
Soil, 0-1', brown, silty SAND with silt. CGI/PID: ND/ND			
1-5': Waste with brown silty SAND matrix, homogeneous, appeared to be household garbage (plastic bags, plastic toys(?), shoe parts). Less matrix than in TP-7, TP-6.			
5- Waste with black or DK brown silty sand matrix (burned?), appears to be more construction debris than above - wood timbers, bricks. Also plastic drain, pipe. ND/ND		1	8
Greater % waste above.			
TD = 13'			

HORIZONTAL DISTANCE IN FEET: 0, 4, 8, 12



1-1 2/21/93

TP-9

TP-09

UES Udaloy Environmental Services

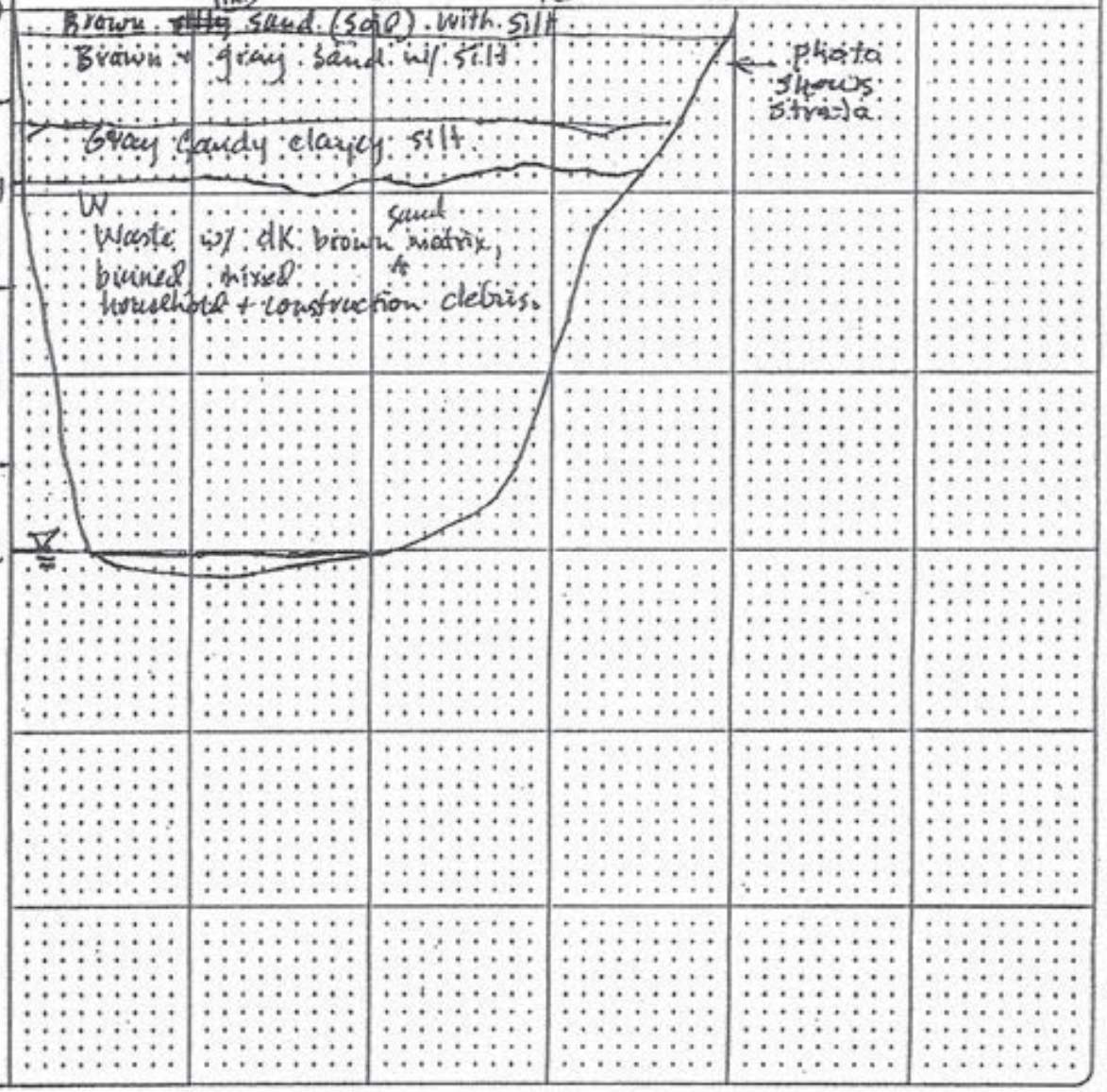
TEST PIT LOG

TEST PIT TP-9

PROJECT Southpark Landfill
DATE 4/8/97
LOCATION NW Yard, N. fence line
LOGGED BY H. Turner
WEATHER 50°F, overcast.

SOIL DESCRIPTION & REMARKS (HC) (with silt)	CGI/PID	GROUND WATER	SAMPLES	DEPTH FEET
0-0.5': Brown ~~silty~~ sand soil w/ roots.	ND/ND			0
0.5-2.5: Brown to gray sand w/ silt and gravel, abundant concrete, bricks. Hard digging. 15-20% gravel, f-m. Cement chunks, bricks (misc. construction debris) Sl. moist.				
@ 2.5'-3.5: Gray sandy, clayey silt with 3-5 coarse sand and fine gravel - cover layer. Base of unit grades into underlying waste. Sl. Moist.	ND/ND		TP9-3 (HC)	4 3
3.5-12.5: Waste w/ dk brown silty sand matrix; moist. Looks burned. Top 2' was mainly timbers, bricks. Below 5' was debris similar to TP-9 - mixed household + construction debris. Included timbers, plastic, bricks, bedsprings, metal bars, wire. Moist.	ND/ND			8
	ND/ND			12
@ 12': Wet. Slight waste odor noted in test pit. Couldn't advance further due to slumping and backhoe reach.				
TD = 12.5'				
Water flowed in and pooled in hole.				
2 photos: layering + waste				

HORIZONTAL DISTANCE IN FEET (0, 4, 8, 12, 16)



1-1 3/31/97 DRAWN/DWN

TP-10

UES Udaloy Environmental Services

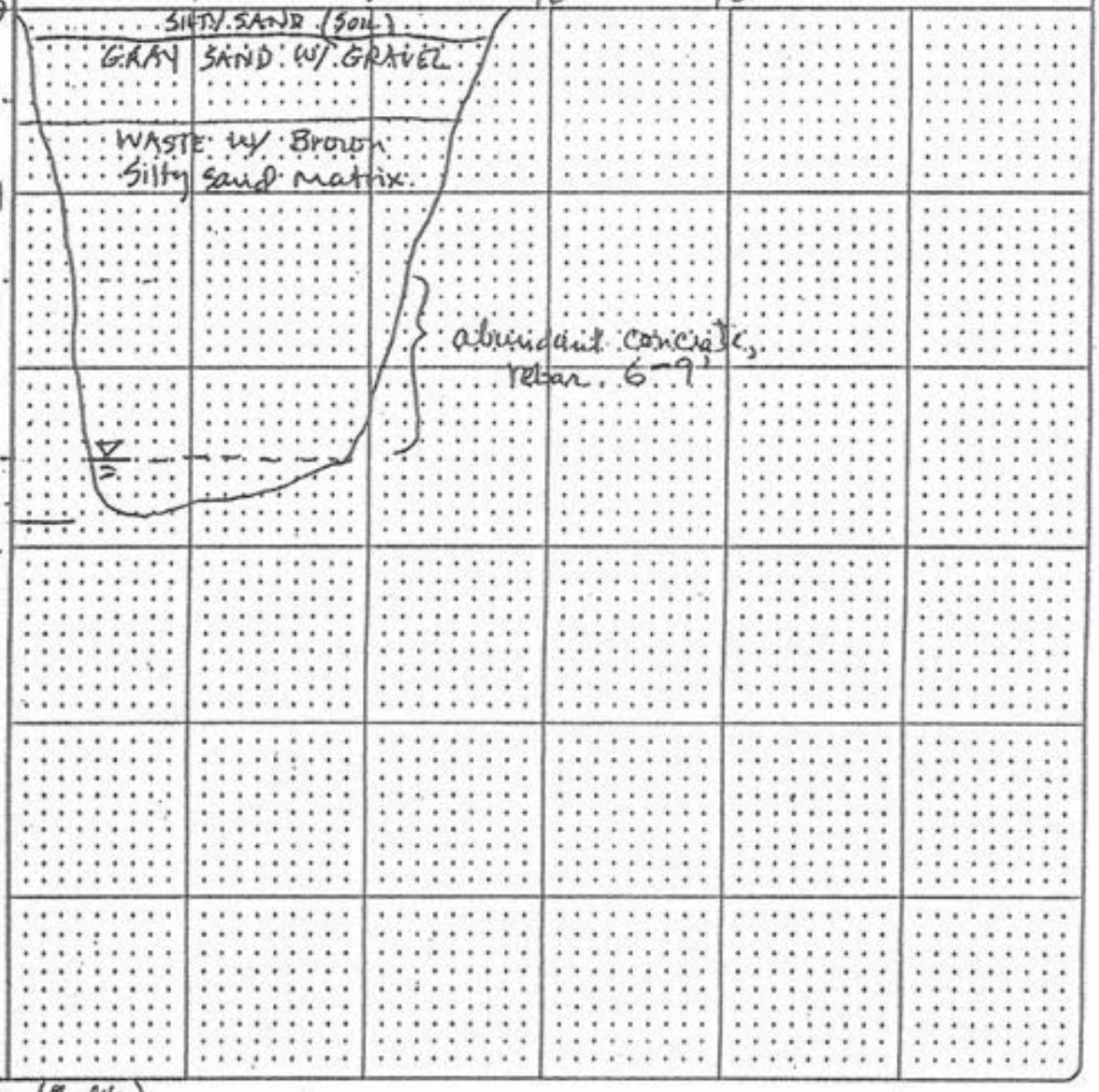
TEST PIT LOG

TEST PIT TP-10

PROJECT Southpaw Landfill
DATE 4/8/97 LOCATION NW yard, W. fenceline
LOGGED BY H. Cornes WEATHER 50's, overcast.

SOIL DESCRIPTION & REMARKS	CGI/PID	GROUND WATER	SAMPLES	DEPTH FEET
0 - 0.75' Brown Silty SAND w/ roots (soil).	ND/ND			0
0.75' - 2.5': Gray SAND with GRAVEL, fine & some coarse, 15-25% f-c gravel, concrete chunks (v. similar to TP-9)	ND/ND			4
2.5 - 11.5': Waste with red-brown silty SAND w/ GRAVEL matrix, 5-8% gravel, f-m, 10-20% fines. Misc. construction waste, mostly - timbers, bricks, some metal machine parts, plastic. @ 6'-9': abundant concrete, rebar.	ND/ND	▽		8
@ ≈ 10' wet. Slight waste odor noted when excavating near water. Pit is slumping. Bucket teeth prob. got to 11.5 or 12', but hole is caving.				12
TD ≈ 11.5.				16
Water ponded in hole.				

HORIZONTAL DISTANCE IN FEET



1 photo - waste w/ pulley, on top. (@ 11ft.)

TP-11

UES Dalay Environmental Services

TES. PIT LOG

TEST PIT TP-11 CGI/PID

PROJECT Southpark Landfill
DATE 9/8/97 LOCATION Grove of trees, center-south of new yard
LOGGED BY H. Corner WEATHER 50's F, sunny

SOIL DESCRIPTION & REMARKS	GROUND WATER	SAMPLES	DEPTH FEET
0-2: Brown SAND (SP), f-m, 75% coarse, 3-5% fine-m gravel, trace fines (FILL). Significant root zone at base of fill.	ND/ND	TP11-2	0
2-4: Dk. Brown SAND w/ SILT, 5-10% fines, occassional rubble chunks (bricks?). More matrix than garbage.	ND/ND		4
4-5: More waste than matrix. Waste w/ red-brown silty sand matrix, mixed construction and misc waste (less wood than in TP-10). Tires, plastic, pipes, bricks, wire,			8
@ ~5 ft: timbers + garbage appear burned in places (dk brown or gray). Slight waste odor. abundant timbers. All burned below 7?			12
@ 9 ft: encounter large piece of concrete. Move toward NE. Encounter large timber			16
TD = 14.5'			
No groundwater encountered.			
Top fill sand was cleaner than in previous TPs.			

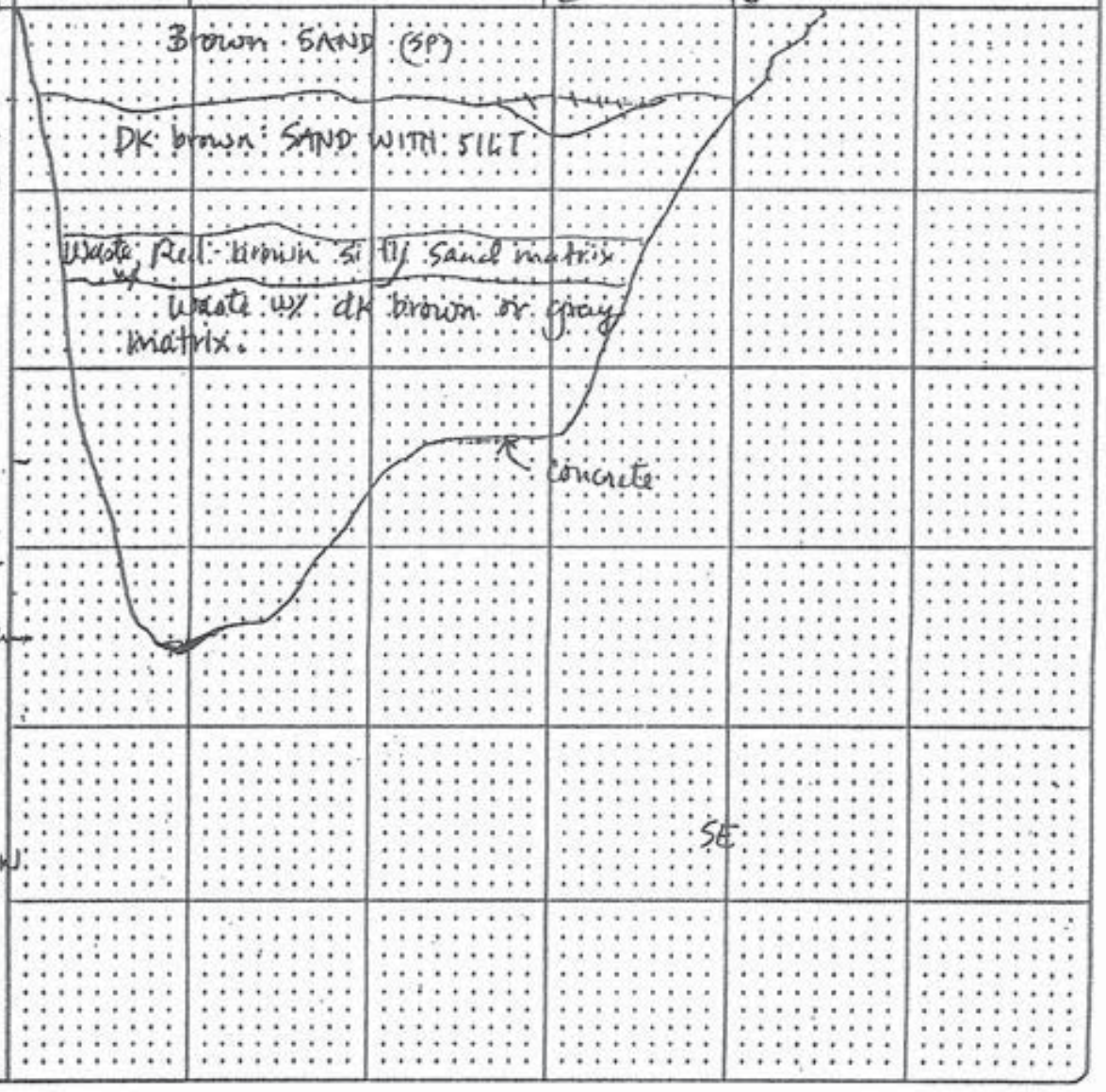


photo of garbage + W TP wall.

TP-12

UES Udaloy Environmental Services

TEST PIT LOG

TEST PIT TP-12

PROJECT Southpark Landfill
DATE 4/8/97
LOCATION Grassy area S. of transfer station, ~~150~~ AK(12)
LOGGED BY H. Corson
WEATHER 50's, Sunny

SOIL DESCRIPTION & REMARKS	CGI/PID	GROUND WATER	SAMPLES
0-1.5: Brown-gray ~~silty~~ sand with gravel, 8-10% fines, 15% f-m gravel. Uneven contact w/ fill below	ND/ND		TP-12-2
1.5-3: Gray silty sand, 10-15% fines, 5-8% gravel, f-m. Uneven contact w/ waste below.			
3- Waste with dk brown silty sand matrix, appears burned similar to TP-11 waste - abundant timbers, some concrete & cobbles, pipe, plastic, some household waste mixed in - plastic dom., metal, tires. Moist. Slight waste odor from 6-8', stronger waste odor from 8 to 12'.	ND/ND		
@ 14' encountered rock(?) or concrete(?), impeded progress, couldn't move it.	ND/ND		

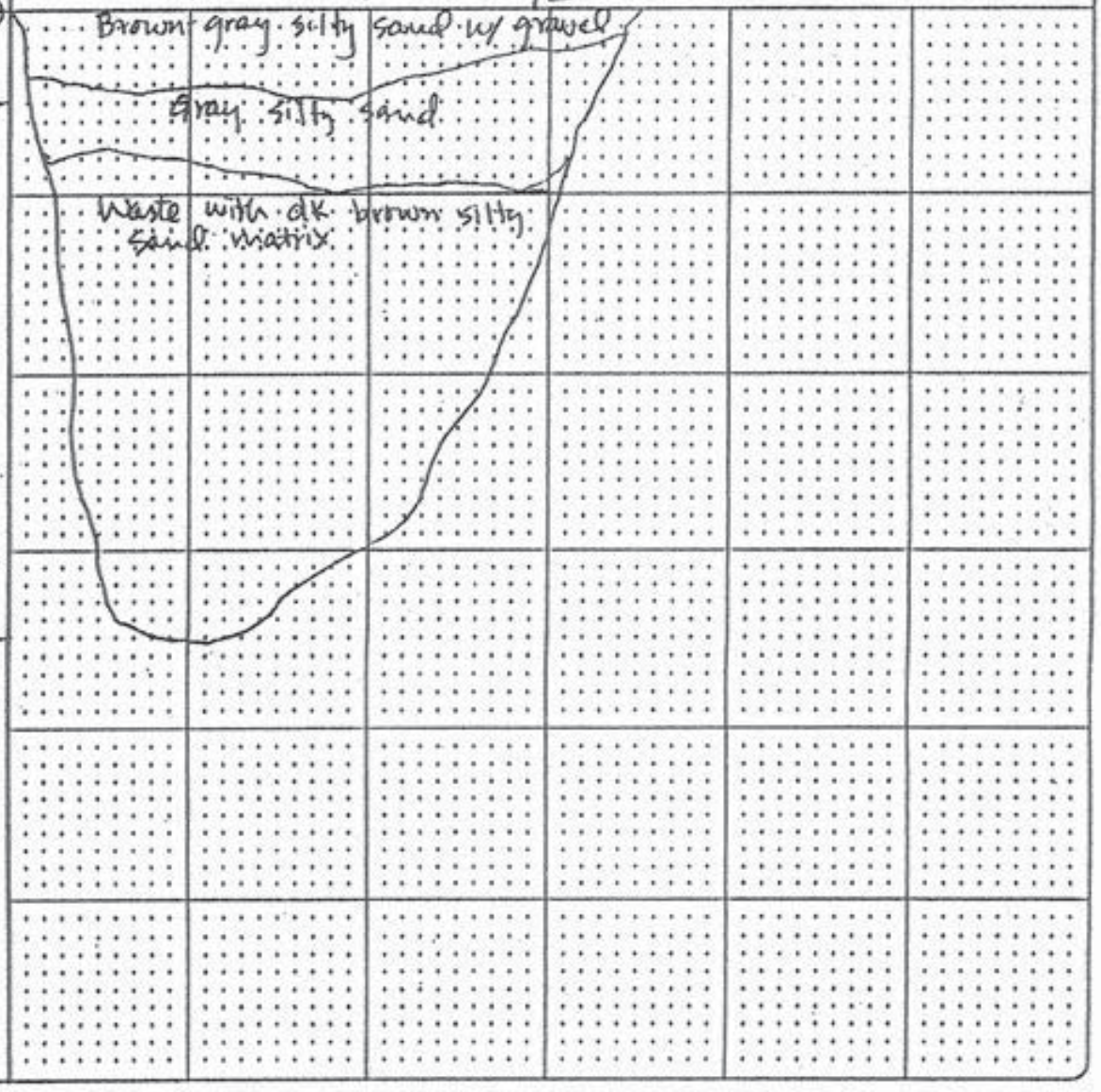
TD = 14'

No groundwater encountered

Easiest pit to dig so far - stays open well.

DEPTH FEET: 0, 4, 8, 12, 16

HORIZONTAL DISTANCE IN FEET: 4, 8, 12



1-1 3/31/97

TP-13

UES Jaloy Environmental Services

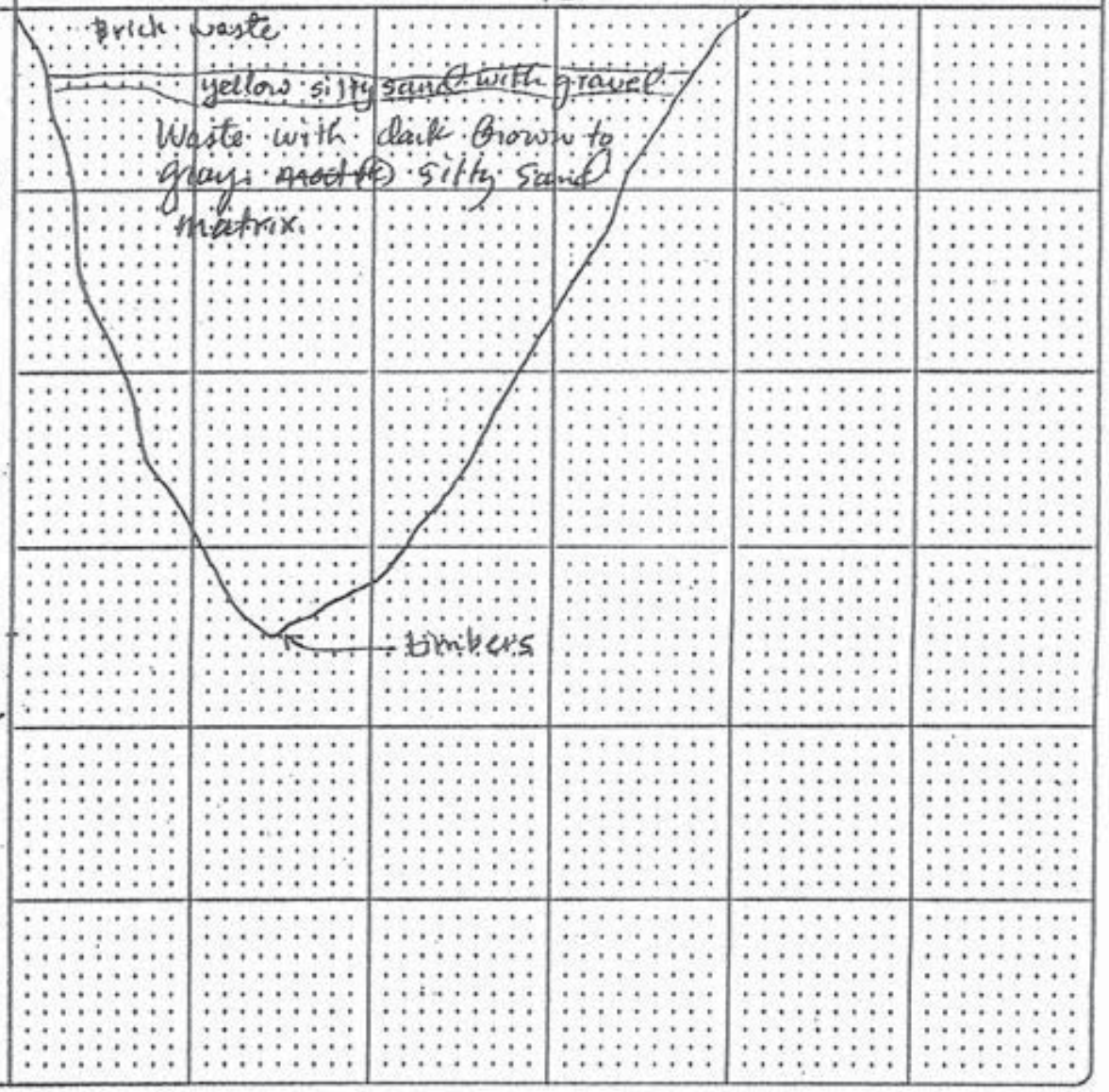
TEST PIT LOG

TEST PIT TP-13

PROJECT Southpark Landfill
DATE 4/8/97 LOCATION "Middle" pit of 3 in grassy lot.
LOGGED BY H. Cornes WEATHER 50's, overcast

SOIL DESCRIPTION & REMARKS	GT/PID	GROUND WATER	SAMPLES	DEPTH FEET
0-1.5: No cover - Waste w/ brown silty sand matrix. Primarily brick.	ND/ND			0
1.5-2: yellow silty sand fill. w/ 5-10% m gravel. Somewhat irregular contact (dense?)				
2-13.5: Waste/dk brown to gray matrix of silty sand. Appears burned. Mixed construction + household waste: timbers, wire, football helmet, tires, plastic. Fewer timbers than TP-11. Moist. Moderate waste odor. Found newspaper dated Jan. 1963. Encountered timber(s) at 13.5ft - couldn't get past.	ND/ND			4
	ND/ND			8
	ND/ND			12
TD = 13.5 No gw encountered			(116)	16 ~~14~~

HORIZONTAL DISTANCE IN FEET: 4, 8, 12, 16



1-1 3/29/97 DMA/AP/FRM

TP-14

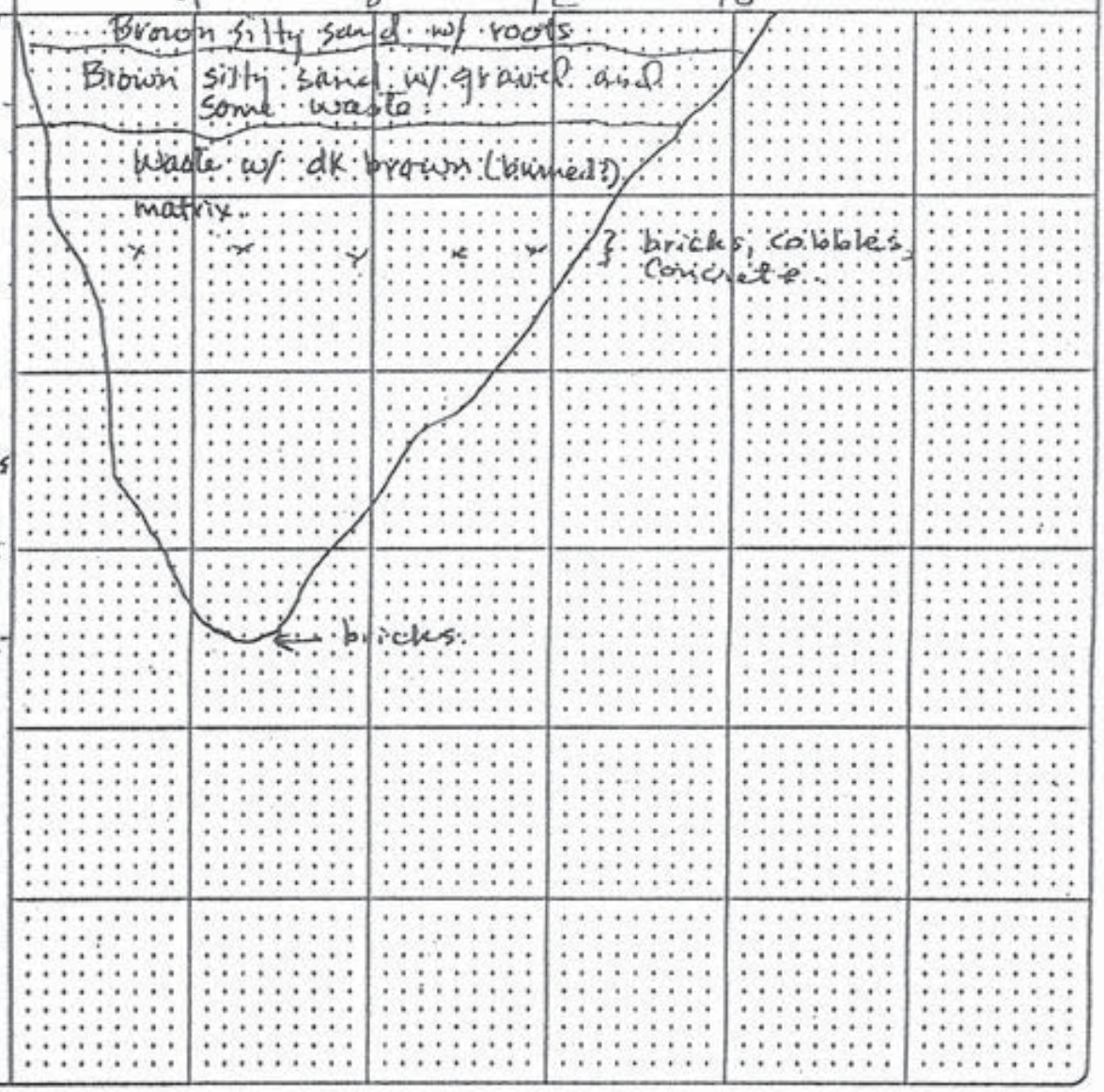
UES Udaloy Environmental Services

TEST PIT LOG

TEST PIT TP-14

PROJECT Southpark Landfill.
DATE 4/8/97 LOCATION Eastern most of 5 pits in yard 5 of transfer station
LOGGED BY H. Corner WEATHER 50's E

SOIL DESCRIPTION & REMARKS	CGI/PID	GROUND WATER	SAMPLES	DEPTH FEET
0-0.75: Brown silty sand w/ roots - cover/soil.	ND/ND			0
0.75-2.5: Brown silty sand with gravel (fill) with some misc. waste - metal.	ND/ND			4
2.5-14: Waste with dk brown silty sand matrix, appears burned. Wire, 4.5: brick and cobbles, concrete chunks. Slight waste odor. → Rope fibers, pipe, metal strips, shoe sole. Fewer timbers than in previous holes - more cobbles, bricks. Encountered layer of bricks at 14 ft. that we couldn't penetrate.	ND/ND			8
	ND/ND			12
TD = 14' No groundwater encountered.				16
Backfill Hole stays open well - very narrow, tight soil. Took last 2 pictures on roll.				



1-1 2/25/97 DWG/UES/TP01

Appendix A
Summary of Test Pits Completed in Parcel 1
South Park Custodial Landfill
King County, Washington

Revised Test Pit ID	OEI Test Pit ID	Depth (feet)	PID Reading (ppm)	Odors	Staining	Notes
TP-15	TP-1	1.8	0	None	None	
TP-16	TP-2	2.7	0	None	None	Landfill cap is 1-ft. thick on top of trash
TP-17	TP-3	3.6	0	None	None	
TP-18	TP-4	4	0	None	None	Area of test pit has concrete and asphalt blocks up to 1-ft. long and found down to 3-ft.
TP-19	TP-5	3.8	0	None	None	
TP-20	TP-6	2.7	0	None	None	Old vegetation at base of fill
TP-21	TP-7	3.2	0	None	None	
TP-22	TP-8	1.4	80.1	Diesel	Yes	Dark oil stain on ground surface extending to about 4 inches
TP-23	TP-9	1.9	0	None	None	Slag-like material on ground surface
TP-24	TP-10	1.6	0	None	None	Slag-like material to about 6 inches

Notes:
1) Test pits completed by Olympus Environmental Inc. (OEI) at Parcel 1
2) Test pits ID were revised to reflect sequential numbering
3) Cover Soil was described as silty sand with gravel
4) No final test pit logs were prepared by OEI

TP-15 TP-16 TP-17 TP-18 TP-19 TP-20 TP-21 TP-22 TP-23 TP-24

Coarse Grained Soils – More than 50%[1] retained on Number 200 sieve	Gravels– More than 50% of coarse fraction retained on Number 4 sieve	Gravels (little to no fines)	GW	Well-graded gravel and gravel with sand, little to no fines
			GP	Poorly-graded gravel and gravel with sand, little to no fines
		Gravels with fines	GM	Silty gravel and silty gravel with sand
			GC	Clayey gravel and clayey gravel with sand
	Sand– 50% or more of coarse fraction passes Number 4 sieve	Sands (little to no fines)	SW	Well-graded sand and sand with gravel, little to no fines
			SP	Poorly-graded sand and sand with gravel, little to no fines
		Sands with fines	SM	Silty sand and silty sand with gravel
			SC	Clayey sand and clayey sand with gravel
Fine Grained Soils – 50%[1] or more passes Number 200 sieve	Silts and Clays Liquid limit less than 50		ML	Silt, sandy silt, gravelly silt, silt with sand or gravel
			CL	Clay of low to medium plasticity, silty clay, sandy or gravelly clay, lean clay with sand or gravel
			OL	Organic clay or silt of low to medium plasticity
	Silts and Clays Liquid limit 50 or more		MH	Elastic silt, clayey silt, silt with micaceous or diatomaceous fine sand or silt
			CH	Clay of medium to high plasticity, sandy or gravelly clay, fat clay with sand or gravel
			OH	Organic clay or silt of medium to high plasticity
Highly Organic Soils			PT	Peat, muck and other highly organic soils

Terms Describing Relative Density and Consistency

Coarse-Grained Soils

Density	SPT[2] blows per foot
Very Loose	0 to 4
Loose	4 to 10
Medium Dense	10 to 30
Dense	30 to 50
Very Dense	>50

Fine-Grained Soils

Consistency	SPT[2] blows per foot
Very Soft	0 to 2
Soft	2 to 4
Firm	4 to 8
Stiff	8 to 15
Very Stiff	15 to 30
Hard	>30

Component Definitions

Descriptive Term	Size Range and Sieve Number
Boulders	Larger than 12"
Cobbles	3" to 12"
Gravel	3" to No. 4 (4.75 mm)
Coarse Gravel	3" to 3/4"
Fine Gravel	3/4" to No. 4 (4.75 mm)
Sand	No. 4 (4.75 mm) to No. 200 (0.075 mm)
Coarse Sand	No. 4 (4.75 mm) to No. 10 (2.00 mm)
Medium Sand	No. 10 (2.00 mm) to No. 40 (0.425 mm)
Fine Sand	No. 40 (0.425 mm) to No. 200 (0.075 mm)
Silt and Clay	Smaller than No. 200 (0.075 mm)

Test Symbols

G = Grain Size
M = Moisture Content
A = Atterberg Limits
C = Chemical
DD = Dry Density
K = Permeability

Estimated Percentage[3]

Component	Percentage by Weight
Trace	<5
Few	5 to 10
With	≥ 15
Little	15 to 25
Some	30 to 45
Mostly	50 to 100

Moisture Content

Dry– Absence of moisture, dusty, dry to the touch

Slightly Moist– Preceptible moisture

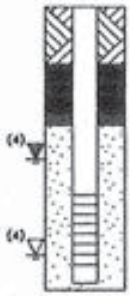
Moist– Damp but no visible water

Very Moist– Water visible but not free draining

Wet– Visible free water, usually from below water table

Symbols

Sampler Type	Blows/6" or portion of 6"	Sampler Type
	10 15 20	2.0" OD Split Spoon Sampler (SPT)
		3.0" OD Split Spoon Sampler
		3.25" OD Split Spoon Ring Sampler
		Bulk sample
		3.0" OD Thin Wall Tube Sampler (including Shelby tube)
		Grab Sample
		Portion not recovered



Cement Grout Surface Seal

Bentonite Seal

Filter Pack with blank casing section

Screened Casing or Hydrotip with Filter Pack

Endcap

(1) Percentage by Dry Weight

(2) (SPT) Standard Penetration Test (ASTM D-1586)

(3) In General Accordance with Standard Practice for Description and Identification of Soils (ASTM D-2488)

(4) Depth of Groundwater

ATD = At time of drilling

Static water level (date)

Classification of soils in this report is based on visual field and laboratory observations, which include density/consistency, moisture condition, grain size, and plasticity estimates and should not be construed to imply field nor laboratory testing unless presented herein. Visual-manual classification methods of ASTM D-2488 were used as an identification guide for the Unified Soil Classification System.

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ASSOCIATED EARTH SCIENCES, INC

Exploration Log Key

FIGURE

A

LOG OF EXPLORATION PIT NO. TP-25

Location: Parcel 3, Northeast Pit

Northing: 197000 **Easting: 1270300** **Datum: NAD83**

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
				SILTY GRAVEL WITH SAND; brown; dense, slightly moist; clasts to 3"
0.5				SAND WITH GRAVEL; brownish-gray; dense, slightly moist
	S-1	0		
1.0	G-1			
	S-2	0		REFUSE; black; dense; with wood, brick, glass, bark
				Bottom of test pit at depth 1.25 feet Ground water not encountered
1.5				
2.0				
2.5				
3.0				
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/26/98 Backfill Date: 5/26/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No.
A-1

LOG OF EXPLORATION PIT NO. TP-26

Location: South of TP-25

Northing: 196900 **Easting: 1270300** **Datum: NAD83**

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
	G-1			SILTY GRAVEL WITH SAND; brown, coarse; dense, slightly moist; clasts to 4", some rounded
0.5	S-1	0		GRAVEL WITH SAND; light gray; dense, dry; clasts to 1"
1.0				REFUSE; gray, with sand; wood splinters
				Bottom of test pit at depth 1.1 feet Ground water not encountered
1.5				
2.0				
2.5				
3.0				
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/26/98 Backfill Date: 5/26/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No.
A-2

LOG OF EXPLORATION PIT NO. TP-27

Location: South of TP-26
Northing: 196800 **Easting:** 1270300 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
0.5	S-1	0		SILTY GRAVEL WITH SAND; brown; dense, moist; clasts
1.0				CONCRETE; gray; very dense; controlled density fill, burned at base (black)
1.5				REFUSE; gray, with silty fine to medium sand; dense, moist; 1/8" wire, brick
2.0				
2.5				
3.0				Bottom of test pit at depth 3 feet Ground water not encountered
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/26/98 Backfill Date: 5/26/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No. A-3

LOG OF EXPLORATION PIT NO. TP-28

Location: West of TP-27
Northing: 196800 Easting: 1270200 Datum: NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
				SILTY GRAVEL WITH SAND; brown; dense, slightly moist; clasts to 2"
0.5	S-1	0		GRAVEL WITH SILT AND SAND; gray; dense, slightly moist; clasts typically 1"
1.0	S-2	0		REFUSE; brown, with silty sand, some gravel; wood chips
1.5				
				Bottom of test pit at depth 1.75 feet Ground water not encountered
2.0				
2.5				
3.0				
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/26/98 Backfill Date: 5/26/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No.
A-4

LOG OF EXPLORATION PIT NO. TP-29

Location: north of TP-28
Northing: 196900 **Easting:** 1270200 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
	S-1	0		SILTY GRAVEL WITH SAND; brown, coarse; dense, slightly moist; to 1"
0.5	S-2 G-1	0		GRAVEL WITH SAND; gray; very dense, dry; large concrete chunks to 8"
1.0				
1.5				REFUSE; brown, with fine to medium sand, some silt; dense, very moist; some sheet metal
2.0				
2.5				Bottom of test pit at depth 2.2 feet Ground water not encountered
3.0				
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/26/98 Backfill Date: 5/26/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No. A-5

LOG OF EXPLORATION PIT NO. TP-30

Location: north of TP-29
Northing: 197000 Easting: 1270200 Datum: NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
	S-1	0		GRAVEL WITH SILT AND SAND; light brown; dense, slightly moist; clasts to 4"
0.5				GRAVEL WITH SILT AND SAND; gray; dense, dry; burned horizon at upper and lower contact
1.0				REFUSE; black, with silty sand; burned, with wood, glass, metal, brick
1.5				Bottom of test pit at depth 1.5 feet Ground water not encountered
2.0				
2.5				
3.0				
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/26/98 Backfill Date: 5/26/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No.
A-6

LOG OF EXPLORATION PIT NO. TP-31

Location: west of TP-30
Northing: 197000 **Easting:** 1270100 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
	G-1			GRAVEL WITH SILT AND SAND; light brown; dense; clasts to 2"
	G-2			SAND WITH SILT AND GRAVEL; reddish-brown; medium dense, dry; clasts to 2.5"
0.5	S-1	0		GRAVEL WITH SAND; greenish-gray; concrete, clasts to .5"
1.0				
1.5				
2.0				REFUSE; dark brown; with concrete, wood, wire, glass
				Bottom of test pit at depth 2.2 feet Ground water not encountered
2.5				
3.0				
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/26/98 Backfill Date: 5/26/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No. A-7

LOG OF EXPLORATION PIT NO. TP-32

Location: south of TP-32
Northing: 196900 **Easting: 1270100** **Datum: NAD83**

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
				GRAVEL WITH SAND; medium brown; dense; clasts to 2"
0.5	S-1	0		GRAVEL WITH SAND; gray; dry; clasts to 2"
1.0				
1.5				REFUSE; dark brown, with gravelly sand, some silt; slightly moist; highly organic (wood) content, blue plastic
2.0				Bottom of test pit at depth 2 feet Ground water not encountered
2.5				
3.0				
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/26/98 Backfill Date: 5/26/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No.
A-8

LOG OF EXPLORATION PIT NO. TP-33

Location: south of TP-32
Northing: 196800 **Easting:** 1270100 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
	S-1	0		SILTY GRAVEL WITH SAND; brown; dense, moist; clasts to 2", grass roots
0.5				SILTY GRAVEL WITH SAND; gray; dense, dry; weathered yellow to 6"
1.0				REFUSE; dark brown, with sandy gravel, with silt; dense; burned wood, rubber hose, insulation, pressboard
1.5				Bottom of test pit at depth 1.1 feet Ground water not encountered
2.0				
2.5				
3.0				
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/26/98 Backfill Date: 5/26/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No.
A-9

LOG OF EXPLORATION PIT NO. TP-34

Location: Parcel #3, NW test pit
Northing: 197000 **Easting:** 1270000 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
				SAND WITH SILT AND GRAVEL; brown; medium dense, moist; clasts to 1"
0.5	S-1	0		
1.0				
1.5	S-2	0		
				SILTY SAND; dark gray; moist; some subrounded gravel clasts, minor wood, plastic, cloth
2.0				
2.5	S-3	41		
3.0				
3.5				
				REFUSE; dark gray, with silty sand; with steel cuttings
4.0				
				Bottom of test pit at depth 4 feet Ground water not encountered

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/27/98 Backfill Date: 5/27/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No. A-10

LOG OF EXPLORATION PIT NO. TP-35

Location: South from TP-34
Northing: 196900 **Easting:** 1270000 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
	G-1			SILTY GRAVEL WITH SAND; brown; medium dense, very moist; clasts to 2"
	S-1	0		GRAVEL WITH SAND; gray; very dense, dry; concrete blocks to 5"
0.5				
1.0				
1.5				
	S-2	0		GRAVEL WITH SILT AND SAND; gray; dense, slightly moist; some clay
2.0				REFUSE; dark gray, with silty sand, medium; dense, moist; wood, brick, glass, copper
2.5				Bottom of test pit at depth 2.5 feet Ground water not encountered
3.0				
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/27/98 Backfill Date: 5/27/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No.
A-11

LOG OF EXPLORATION PIT NO. TP-36

Location: South of TP-35
Northing: 196800.5 **Easting:** 1270002 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
0.5				GRAVEL WITH SAND; light gray; very dense, dry; clasts to 3/2", concrete chunks to 8"
1.0				
1.5	S-1	0		
2.0				REFUSE; dark gray, with gravelly sand; with wood, wire, paper, glass, aluminum foil
2.5				Bottom of test pit at depth 2.3 feet Ground water not encountered
3.0				
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/27/98 Backfill Date: 5/27/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No. A-12

LOG OF EXPLORATION PIT NO. TP-37

Location: south of TP-36
Northing: 196700 **Easting:** 1270000 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
0.5				REFUSE; brown, with silty sand, medium, some gravel; moist; clasts to 2", rectangular blocks and mortar on surface, asphalt chucks on surface and at 5', wood at 5', minor rebar at 5'
1.0	S-1	0		
1.5				
2.0				
2.5				
3.0				
3.5				
4.0				
4.5	S-2	0		
5.0				Bottom of test pit at depth 5 feet Ground water not encountered
5.5				S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/27/98 Backfill Date: 5/27/98

Project No. BV97041

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King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No. A-13

LOG OF EXPLORATION PIT NO. TP-38

Location: south from TP-33, east of TP-37

Northing: 196700 **Easting:** 1270100 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
	S-1	0		SILTY SAND WITH GRAVEL; brown; medium dense, slightly moist; abundant roots
0.5				SILTY SAND WITH GRAVEL; gray-brown; very dense; concrete chunks to 15", cemented with white precipitate, some wire and metal pipe
1.0	G-1			
1.5				
2.0	S-2	0		
2.5				
3.0				REFUSE; brown, with gravelly sand, with clay; with metal pipes, wood, asphalt, and metal sheets
3.5				Bottom of test pit at depth 3.25 feet Ground water not encountered
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/27/98 Backfill Date: 5/27/98

Project No. BV97041

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Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No. A-14

LOG OF EXPLORATION PIT NO. TP-39

Location: east of TP-38, south of TP-28

Northing: 196700 **Easting: 1270200** **Datum: NAD83**

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
				SILTY SAND; brown; medium dense, moist; dry below 2", abundant roots
0.5	S-1	0		GRAVEL WITH SILT AND SAND; brown; dense, slightly moist; bricks
1.0				GRAVEL WITH SILT AND SAND; gray, trace silt; dense, Dry; bricks, minor plastic
1.5	S-2	4.4		
2.0				REFUSE; brown, with sandy gravel; with plastic, brick, wood, wire, asphalt, glass
2.5				Bottom of test pit at depth 2.25 feet Ground water not encountered
3.0				
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/27/98 Backfill Date: 5/27/98

Project No. BV97041

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Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No.
A-15

LOG OF EXPLORATION PIT NO. TP-40

Location: south of TP-39
Northing: 196600 **Easting:** 1270200 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
	G-1			SILTY SAND WITH GRAVEL; brown; medium dense, moist
0.5	S-1	0		SILTY SAND; brown, medium; concrete chunks to 24" diameter, asphalt to 4" diameter
1.0				
1.5				
2.0				REFUSE; green, with pebbly sand, some silt; moist; bricks, shingles, metal, pipe
2.5				Bottom of test pit at depth 2.5 feet Ground water not encountered
3.0				
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/27/98 Backfill Date: 5/27/98

Project No. BV97041

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South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No. A-16

LOG OF EXPLORATION PIT NO. TP-41

Location: south of TP-40 (just north of burm)

Northing: 196500 **Easting: 1270200** **Datum: NAD83**

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
0.5	S-1	0		GRAVEL WITH SILT AND SAND; brown; clasts to 2", abundant roots
1.0				SAND WITH GRAVEL; brown, trace silt; clasts to 3", rebar/metal
1.5				
2.0	S-2	0		REFUSE; brown, with sand with gravel; with roots, wood, sheet metal, rebar, plastic pipe, plastic sheet
2.5				
3.0				
3.5				Bottom of test pit at depth 3.3 feet Ground water not encountered
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/27/98 Backfill Date: 5/27/98

Project No. BV97041

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King County Solid Waste Division

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Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No.
A-17

LOG OF EXPLORATION PIT NO. TP-42

Location: parcel 3, southwest pit (south of TP-38)
Northing: 196600 **Easting:** 1270100 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
0.5	S-1	7.2		GRAVEL WITH SILT AND SAND; dark brown; dense; clasts to 3", concrete/asphalt, brick
1.0				
1.5				SILTY SAND; tan, medium, trace gravel; dense, moist
2.0				
2.5				
3.0	S-2	0		REFUSE; dark brown, with sandy silt; dense, moist; glass, plastic bottles, brick
3.5				Bottom of test pit at depth 3 feet Ground water not encountered
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/28/98 Backfill Date: 5/28/98

Project No. BV97041

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Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No. A-18

LOG OF EXPLORATION PIT NO. TP-43

Location: southwest test pit (southwest from TP-42)

Northing: 196531.4 **Easting:** 1270049 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
				SILTY SAND; yellow, medium, some gravel; dense, moist; abundant roots, large concrete slabs some asphalt
0.5	S-1	10.2		
1.0				
1.5				
2.0				
2.5	S-2	11.9		
3.0	G-1			REFUSE; dark brown, with silty sand, medium; medium dense, moist; plastic pipe, wood debris
				Bottom of test pit at depth 3.2 feet Ground water not encountered
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/28/98 Backfill Date: 5/28/98

Project No. BV97041

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Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No. A-19

LOG OF EXPLORATION PIT NO. TP-44

Location: northwestern most pit in parcel #3

Northing: 197102.3 **Easting:** 1269981 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
				SILTY GRAVEL; brown; medium dense, moist; surface debris includes plastic bottles, wire, wood (tires and rims nearby)
0.5	S-1	12		GRAVEL WITH SAND; light gray; dense, slightly moist; clasts to 2", asphalt chunks to 20"at base of unit, concrete from 1 ft bgs (to 3/2")
1.0				
1.5				REFUSE; brown, with sandy gravel, with silt; dense, slightly moist; with clasts to 2", asphalt pieces from 0.5" to 36" in diameter, plastic, wood, brick
2.0				
2.5				
3.0	S-2	11.8		
3.5				
4.0				
4.5				
5.0				Bottom of test pit at depth 4.7 feet Ground water not encountered

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/28/98 Backfill Date: 5/28/98

Project No. BV97041

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Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No.
A-20

LOG OF EXPLORATION PIT NO. TP-45

Location: northeast of TP-12, south of fence line

Northing: 196650.1 **Easting:** 1270463 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
				GRAVEL WITH SAND AND SILT; dark brown; medium dense, moist
0.5	S-1	17.8		GRAVEL WITH SAND AND SILT; brown; dense, slightly moist
1.0				REFUSE; gray-brown, with sandy gravel, some silt; brick, concrete, asphalt, plastic and metal pipe
1.5				
2.0				
2.5				SILTY SAND; brown, trace gravel; mottled gray and reddish brown
3.0	S-2	11.6		
3.5				
4.0				Bottom of test pit at depth 3.8 feet Ground water not encountered

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/28/98 Backfill Date: 5/28/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No. A-21

LOG OF EXPLORATION PIT NO. TP-46

Location: East of TP-45, south of fence

Northing: 196626.3 **Easting:** 1270626 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
0.5				SILTY GRAVEL; brown; dense, moist; clasts to 2", bricks, concrete pieces to 6"
1.0				SILTY SAND; light brown; dense, moist; brick, concrete, wood, minor sheet metal, pipe
1.5				
2.0	S-1	0		
2.5				
3.0				REFUSE; brown, with gravelly sand, with silt; with burnt wood, brick, concrete, misc. plastic, electrical box and insulators
3.5				
4.0				
4.5				
5.0				Bottom of test pit at depth 5 feet Ground water not encountered
5.5				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/28/98 Backfill Date: 5/28/98

Project No. BV97041

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South Park Custodial Landfill
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King County Solid Waste Division

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Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No. A-22

LOG OF EXPLORATION PIT NO. TP-47

Location: east of TP-46 (near northwest corner of P #1)
Northing: 196600 **Easting:** 1270800 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
				SILT, GRADES TO SILTY SAND; gray, medium; dense, moist; abundant roots
0.5				
1.0	S-1	11		
1.5				
2.0				GRAVEL WITH SILT AND SAND; brown; concrete chunks to 8", rebar, glass
2.5	S-2	39.5		
3.0				
				REFUSE; dark brown, with sand; medium dense; metal, bricks, wood, glass, plastic
3.5				
4.0				
4.5				Bottom of test pit at depth 4.3 feet Ground water not encountered

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/28/98 Backfill Date: 5/28/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No. A-23

LOG OF EXPLORATION PIT NO. TP-48

Location: Parcel #2, southeast sample
Northing: 196455.9 **Easting:** 1271002 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
				GRAVEL WITH SAND; gray; medium dense, moist
0.5				REFUSE; dark brown, with sandy gravel, with silt; dense, moist; wood, metal debris, wire, metal pipe, concrete
1.0	S-1	4.4		
1.5				
2.0				Bottom of test pit at depth 2 feet Ground water not encountered
2.5				
3.0				
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/28/98 Backfill Date: 5/28/98

Project No. BV97041

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Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No. A-24

LOG OF EXPLORATION PIT NO. TP-49

Location: Parcel 2, southeast test pit

Northing: 196421 **Easting: 1270819** **Datum: NAD83**

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered. **DESCRIPTION**
				REFUSE; dark brown, with sandy gravel; wood debris, rubber, plastic, wire, shingles
0.5				
1.0				
1.5				
2.0				
2.5				
3.0				Bottom of test pit at depth 3 feet Ground water not encountered
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/28/98 Backfill Date: 5/28/98

Project No. BV97041

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Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No. A-25

LOG OF EXPLORATION PIT NO. TP-50

Location: Parcel 2, southwest corner

Northing: 196455.9 **Easting: 1270902** **Datum: NAD83**

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
				GRAVEL WITH SAND; gray; medium dense, moist; clasts to 2", vesicular slag
				SILTY SAND WITH GRAVEL; dark gray; medium dense, moist; minor plastic and wood
0.5	S-1	5.5		SILTY GRAVEL; red; clasts to 3", refuse: brick, plastic, wire, glass
1.0				
1.5	S-2	12.2		
2.0				
2.5				
				REFUSE; dark gray, with silty, sand; wood, metal
3.0				Bottom of test pit at depth 3 feet Ground water not encountered
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/29/98 Backfill Date: 5/29/98

Project No. BV97041

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ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No.
A-26

LOG OF EXPLORATION PIT NO. TP-51

Location: north of TP-50, parcel #2

Northing: 196555.9 **Easting:** 1270902 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
				GRAVEL WITH SILT AND SAND; brown; medium dense, moist; angular vesicular slag clasts to 2.5"
0.5				REFUSE; red, sandy, some silt; dense, slightly moist; wire, glass, plastic, cloth, wood, pottery, pipe
1.0	S-1	0		
1.5				
2.0	S-2	0		
2.5				
				SILTY SAND; dark gray, some gravel; moist
3.0				Bottom of test pit at depth 3 feet Ground water not encountered
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/29/98 Backfill Date: 5/29/98

Project No. BV97041

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ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No. A-27

LOG OF EXPLORATION PIT NO. TP-52

Location: North of TP- 51 - Parcel #2

Northing: 196655.9 **Easting:** 1270902 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
0.5				SILTY SAND WITH GRAVEL; brown; moist; some debris
1.0	S-1	37.6		
1.5				REFUSE; dark gray, with silty sand with gravel; moist; plastic, wood, bricks, styrofoam
2.0				Bottom of test pit at depth 2 feet Ground water not encountered
2.5				
3.0				
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/29/98 Backfill Date: 5/29/98

Project No. BV97041

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ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert F. Cousins
Approved by: JJS

Figure No. A-28

LOG OF EXPLORATION PIT NO. TP-53

Location: South LF property
Northing: 196655.9 **Easting: 1271002** **Datum: NAD83**

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
0.5	S-1	14.4		SILTY SAND WITH GRAVEL; brown; moist; minor amounts of refuse, slag
1.0				REFUSE; red; wood debris, plastic, foam, glass
1.5				
2.0				
2.5				
3.0				Bottom of test pit at depth 3 feet Ground water not encountered
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/29/98 Backfill Date: 5/29/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert F. Cousins
Approved by: JJS

Figure No.
A-29

LOG OF EXPLORATION PIT NO. TP-54

Location: South Landfill Property
Northing: 196555.9 **Easting:** 1271002 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
	S-1	10.1		SILTY SAND WITH GRAVEL; brown; dense, moist; fill parking area base coarse
0.5				REFUSE; dark gray, with silty sand, with gravel; abundant refuse: wood, plastic, metal fragments, glass
1.0				
1.5				
2.0				
2.5				
3.0				Bottom of test pit at depth 3 feet Ground water not encountered
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/29/98 Backfill Date: 5/29/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert F. Cousins
Approved by: JJS

Figure No. A-30

LOG OF EXPLORATION PIT NO. TP-55

Location: southeast landfill parking area

Northing: 196224 **Easting:** 1270992 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
0.5	G-1			GRAVEL WITH SILT AND SAND; brown; dense, moist; with abundant 6" slag
1.0	S-1	2.7		SILTY SAND; gray; dense, moist
1.5				SILTY SAND; brown, trace gravel; medium dense, moist; lenses of gray fine to medium sand and gray clayey silt
2.0	S-2	4.1		
2.5				
3.0				REFUSE; dark brown; wood debris, scrap metal, slag
3.5				
4.0				
4.5				
5.0				
5.5				
6.0				
6.5				
7.0				
7.5				Bottom of test pit at depth 7.5 feet Ground water not encountered
8.0				
8.5				
9.0				
9.5				S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/29/98 Backfill Date: 5/29/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert F. Cousins
Approved by: JJS

Figure No. A-31

LOG OF EXPLORATION PIT NO. TP-56

Location: western OES confirmation pit
Northing: 196180 **Easting:** 1270824 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
0.5 1.0 1.5				SAND WITH SILT AND GRAVEL; brownish-gray; medium dense, moist
2.0	G-1			SILTY CLAY; blueish-green, little refuse; moist; minor glass, plastic, metal pipe, brick, cloth
2.5 3.0	S-1	0		REFUSE; dark gray, with silty sand; glass, plastic, metal pipe, brick, cloth
3.5 4.0				Bottom of test pit at depth 3.2 feet Ground water not encountered

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 6/1/98 Backfill Date: 6/1/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No.
A-32

LOG OF EXPLORATION PIT NO. TP-57

Location: former TP-7. 50 ft west pf TP-55

Northing: 196069.1 **Easting:** 1270905 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
				SILTY SAND WITH GRAVEL; brownish-gray; dense, moist; clasts to 3", minor wire, wood, asphalt, concrete
0.5				
1.0	G-1			
1.5				
2.0				
2.5				
3.0				CLAYEY SILT; bluish-green, some gravel; dense, moist; friable, minor plastic at upper contact
	S-1	545		
3.5				REFUSE; brown, some gravel; plastic, brick, wood, porcelin
4.0				Bottom of test pit at depth 3.8 feet Ground water not encountered

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 6/1/98 Backfill Date: 6/1/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No. A-33

LOG OF EXPLORATION PIT NO. TP-58

Location: east of TP-57 (near former pit #8)

Northing: 196083 **Easting:** 1270993 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
				SAND WITH SILT AND GRAVEL; brown; dense, moist; sand lenses 1" thick, minor glass, wire, brick, metal, plastic, abundant roots
0.5				
1.0				CLAYEY GRAVEL; gray; some hydrocarbon odor
	S-1	16		
1.5				REFUSE; reddish-brown, some sand; dense, moist; refuse as described above
2.0				
2.5				
3.0				Bottom of test pit at depth 3 feet Ground water not encountered
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 6/1/98 Backfill Date: 6/1/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No.
A-34

LOG OF EXPLORATION PIT NO. TP-59

Location: southwest pit in non-leased area

Northing: 196144.9 **Easting: 1270256** **Datum: NAD83**

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
0.5				SILTY GRAVEL; brown; medium dense, Dry; clasts to 2", abundant roots
1.0	S-1	5.1		
1.5				
2.0				
2.5				CLAYEY SILT; gray; dry; friable, minor plastic at upper contact
3.0	G-1			
	S-2	0		
3.5				
4.0				REFUSE; brown, with silty sand; metal, rubber, bottles, plastic, wood
4.5				Bottom of test pit at depth 4.2 feet Ground water not encountered
5.0				
5.5				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 6/1/98 Backfill Date: 6/1/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No.
A-35

LOG OF EXPLORATION PIT NO. TP-60

Location: southeast pit in southern non-leased area
Northing: 196100 **Easting:** 1270500 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
	G-1			SILTY SAND WITH GRAVEL; brown; medium dense, moist; clasts to 2", roots, some plastic
0.5	S-1	1.4		
1.0				SILTY GRAVEL; gray; dense, moist; clasts to 3"
1.5				
2.0				
2.5				REFUSE; wood (blackened), rubber, plastic, wire
3.0				Bottom of test pit at depth 3 feet Ground water not encountered
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 6/1/98 Backfill Date: 6/1/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No.
A-36

LOG OF EXPLORATION PIT NO. TP-61

Location:
Northing: 196300 **Easting: 1270500** **Datum: NAD83**

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
				SILTY SAND WITH GRAVEL; brown; medium dense, dry; minor plastic, metal
0.5				
1.0	S-1	2.2		
				REFUSE; brown, with silty sand with gravel; dry; with bricks, cloth, brittle tar, wire
1.5				
2.0				
	S-2	3		SILT WITH GRAVEL; gray-green; dry; south wall only
				REFUSE; brown, with silty sand with gravel; with bricks, cloth, brittle tar, wire
2.5				
3.0				Bottom of test pit at depth 3 feet Ground water not encountered
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 6/1/98 Backfill Date: 6/1/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No.
A-37

LOG OF EXPLORATION PIT NO. TP-62

Location: west of TP-61

Northing: 196308.9 Easting: 1270339 Datum: NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
				SILTY SAND WITH GRAVEL; brown; medium dense, moist; grades to gray silty gravel with sand; moist, dense
0.5				
1.0	S-1	3.4		
1.5				
2.0				REFUSE; wood, rubber, plastic, shingles
2.5	S-2	0		CLAYEY SILT; gray; medium dense, slightly moist
3.0				
3.5				REFUSE; wood, plastic, tires, metal
4.0				Bottom of test pit at depth 3.8 feet Ground water not encountered

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 6/1/98 Backfill Date: 6/1/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No.
A-38

LOG OF EXPLORATION PIT NO. TP-63

Location: northwestern pit in southern non-leased area

Northing: 196400 **Easting: 1270200** **Datum: NAD83**

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
				SILTY SAND WITH GRAVEL; brown; medium dense, slightly moist; abundant roots
0.5				
	G-1			
1.0	S-1	1.6		
				REFUSE; gray, with clayey silt; dry; jugs, tires, glass, plastic, wood, paper
1.5				
2.0				
2.5	S-2	6.4		
				REFUSE; black, with silty sand; moist; some brick, bottles
3.0				
				Bottom of test pit at depth 3.2 feet Ground water not encountered
3.5				
4.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 6/1/98 Backfill Date: 6/1/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No.
A-39

LOG OF EXPLORATION PIT NO. TP-64

Location: Occidental @ across from icegate, 37' east of centerline

Northing: 197072 **Easting: 1269850** **Datum: NAD83**

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
				SILTY SAND; dark brown; organic rich topsoil
0.5				SILTY SAND; tan, trace gravel; loose; with abundant bricks
1.0	S-1	2.3		
1.5				
2.0				
2.5				
3.0				SANDY SILT; tan; some organics (native topsoil surface)
3.5				
4.0				SAND; gray; medium dense, moist; Duwamish sand
4.5				
5.0				Bottom of test pit at depth 5 feet Ground water not encountered
5.5				
6.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/29/98 Backfill Date: 5/29/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert F. Cousins
Approved by: JJS

Figure No.
A-40

LOG OF EXPLORATION PIT NO. TP-65

Location: curve @ Occidental/Sullivan connection

Northing: 196174.8 **Easting:** 1270102 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
				SILTY SAND WITH GRAVEL; brown; medium dense, moist; with bricks
0.5				
1.0	S-1	5.1		SAND; tan, fine; medium dense, moist
1.5				
2.0				SILTY SAND; brown; medium dense, wet; with organics (old topsoil)
2.5				
3.0				
3.5				SILT; tan, some sand; moist; native groundwater
4.0				Bottom of test pit at depth 4 feet Ground water encountered
4.5				
5.0				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/29/98 Backfill Date: 5/29/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert F. Cousins
Approved by: JJS

Figure No. A-41

LOG OF EXPLORATION PIT NO. TP-66

Location: west of large warehouse
Northing: 195980.4 **Easting:** 1270324 **Datum:** NAD83

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
0.5				GRAVEL WITH SILT AND SAND; brown; clasts to 2", concrete chunks to 15", occassional pockets at 6"-8", some wood debris, pieces of clay tile, brick
1.0	S-1	2.4		
1.5				
2.0				
2.5				
3.0				
3.5				
4.0				SAND WITH SILT; tan, fine; loose, moist
4.5				
5.0				
5.5				
6.0				
6.5				
7.0				Bottom of test pit at depth 6.8 feet Ground water not encountered

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/29/98 Backfill Date: 5/29/98

Project No. BV97041

Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert S. Bogar
Approved by: JJS

Figure No. A-42

LOG OF EXPLORATION PIT NO. TP-67

Location: 24' south of centerline Sullivan

Northing: 195952.6 **Easting: 1270891** **Datum: NAD83**

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth, ft	Samples	OVM (ppm)	Graphic Symbol	DESCRIPTION
0.5				SAND; tan, fine; loose, moist
1.0	S-1	3.2		
1.5				
2.0				SILTY SAND; gray; loose, wet; organic rich
2.5				SAND WITH SILT; gray, fine; loose; Duwamish sand (native)
3.0				
3.5				
4.0				
4.5				
5.0				Bottom of test pit at depth 5 feet Ground water not encountered
5.5				
6.0				
6.5				

S-1: Environmental sample, analyzed by Laucks Testing Laboratories, North Creek Analytical
G-1: Geotechnical sample, analyzed by Soil Technology, Inc.

Start Date: 5/29/98 Backfill Date: 5/29/98

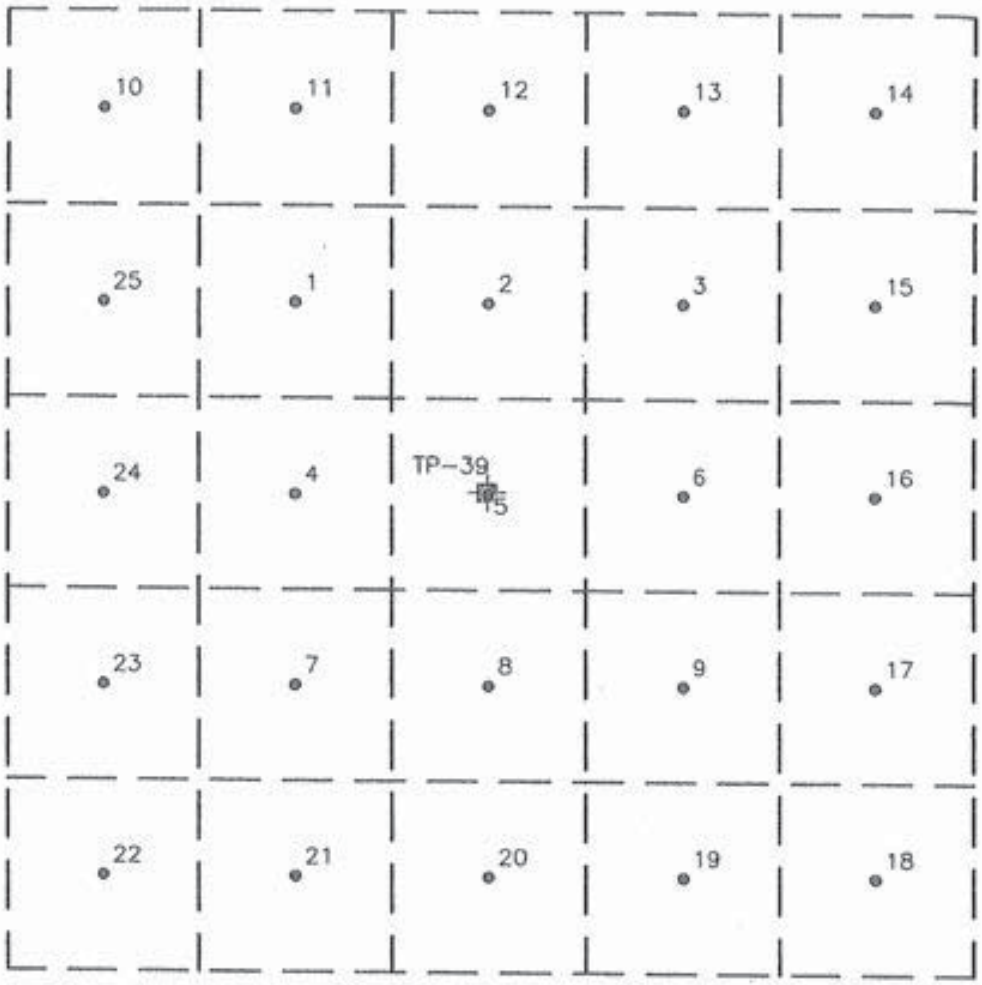
Project No. BV97041

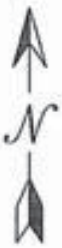
Cover Soil Investigation
South Park Custodial Landfill
Seattle, Washington
King County Solid Waste Division

ASSOCIATED EARTH SCIENCES, INC

Driller: Hokkaido Drilling & Developing Corp.
Logged by: Robert F. Cousins
Approved by: JJS

Figure No.
A-43





LEGEND

18 ● SOIL SAMPLING LOCATION

TP-39 TEST PIT (KING COUNTY 1998)

FARALLON SAMPLING GRID FOR POLYCHLORINATED BIPHENYLS

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

FIGURE 3

GRID CELLS WITH
SOIL SAMPLING LOCATIONS
SPPD PROPERTY
SEATTLE, WASHINGTON

FARALLON PN: 408-002

Drawn By: DEW	Checked By: TC	Date: 6/06/07	Disk Reference: 408002

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Test Pit: C-1

AKA C-01

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington
Farallon PN: 408-002
Logged By: Holly Corner

Date/Time Started:	4/5/07	Sampler Type:	NA
Date/Time Completed:	4/5/07	Depth of Water (ft bgs):	NA
Equipment:	Backhoe	Total Excavation Depth (ft bgs):	1.9
Excavating Company:	Glacier Environmental		
Excavating Foreman:	unknown		
Excavating Method:	Backhoe		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0		0-1.3' Silty SAND, fine to medium, minor gravel, fine to coarse, subround, with organics, trace asphalt debris, dark gray, moist.	SM	–	C1-0.5	X
				–	C1-0.9	
		1.3-1.7' Sandy SILT, trace gravel, fine to medium, subround to subangular, gray to brown gray, moist.	ML			
		1.7-1.9' DEBRIS with silty sand, orange staining, moist.	DB			
5						

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Test Pit: C-2

AKA C-02

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington
Farallon PN: 408-002
Logged By: Holly Corner

Date/Time Started:	4/5/07	Sampler Type:	NA
Date/Time Completed:	4/5/07	Depth of Water (ft bgs):	NA
Equipment:	Backhoe	Total Excavation Depth (ft bgs):	1.9
Excavating Company:	Glacier Environmental		
Excavating Foreman:	unknown		
Excavating Method:	Backhoe		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0		0-1' SAND, fine to medium, minor gravel, fine to coarse, subround, brown, moist.	SP			
	X			–	C2-0.5	X
		1-1.2' Becomes light gray, no gravel.				
	X			–	C2-1.3	
		1.2-1.6' Becomes brown.	DB			
		1.6-1.9' DEBRIS with silty sand, orange-brown staining.				
5						

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Test Pit: C-3

AKA C-03

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington

Farallon PN: 408-002

Logged By: Holly Corner

Date/Time Started:	4/5/07	**Sampler Type:**	NA
Date/Time Completed:	4/5/07	**Depth of Water (ft bgs):**	NA
Equipment:	Backhoe	**Total Excavation Depth (ft bgs):**	2.5
Excavating Company:	Glacier Environmental		
Excavating Foreman:	unknown		
Excavating Method:	Backhoe		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0		0-0.5' Gravelly SAND, fine to medium, minor debris, trace silt, trace wood debris, brown, moist.	SP			
	X	0.5-1.4' Gravelly SAND with silt, fine to medium, minor gravel, fine to medium, subrounded gravel, minor debris, brown, moist.	SP-SM	–	C3-0.5	X
		1.4-2.1' SAND, fine to medium, trace gravel, fine, trace to minor silt, brownish gray, moist.	SP			
	X	2.1-2.5' DEBRIS	DB	–	C3-2.0	
5						

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Test Pit: C-4

AKA C-04

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington
Farallon PN: 408-002
Logged By: Holly Corner

Date/Time Started:	4/5/07	Sampler Type:	NA
Date/Time Completed:	4/5/07	Depth of Water (ft bgs):	NA
Equipment:	Backhoe	Total Excavation Depth (ft bgs):	2.1
Excavating Company:	Glacier Environmental		
Excavating Foreman:	unknown		
Excavating Method:	Backhoe		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0	X	0-0.9' Silty SAND, fine to medium, with gravel, fine to coarse, subround to subangular, trace roots, trace asphalt debris, brown to gray, moist.	SM	–	C4-0.5	X
	X	0.9-1.7' Sandy SILT, minor sand, fine to medium, trace gravel, fine, mottled, light brownish gray, moist, slight manure odor.	ML	–	C4-1.4	
		1.7-2.1' DEBRIS, minor sand, fine to medium, orangish brown, moist.	DB			
5						

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Log of Test Pit: C-5

AKA C-05

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington
Farallon PN: 408-002
Logged By: Holly Corner

Date/Time Started: 4/5/07
Date/Time Completed: 4/5/07
Equipment: Backhoe
Excavating Company: Glacier Environmental
Excavating Foreman: unknown
Excavating Method: Backhoe
Sampler Type: NA
Depth of Water (ft bgs): NA
Total Excavation Depth (ft bgs): 2.2

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0	X	0-1.3' SAND, fine to medium, minor roots, trace gravel, fine, angular, brown, moist.	SP	–	C5-0.5	X
	X	1.3-1.7' SAND, with silt and gravel, sand is fine to medium, gravel is fine, subangular, gray, moist.	SP-SM	–	C5-1.5	
		1.7-2.2' DEBRIS	DB			
5						

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Log of Test Pit: C-6

AKA C-06

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington

Farallon PN: 408-002

Logged By: Holly Corner

Date/Time Started: 4/5/07
Date/Time Completed: 4/5/07
Equipment: Backhoe
Excavating Company: Glacier Environmental
Excavating Foreman: unknown
Excavating Method: Backhoe

Sampler Type: NA
Depth of Water (ft bgs): NA
Total Excavation Depth (ft bgs): 1.9

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0		0-0.8' SAND, fine to medium, with gravel, fine to medium, subangular, trace roots, brown, moist.	SP			
	X	0.8-1.0' becomes very light gray, no gravel		–	C6-0.5	X
	X	1.0-1.4' becomes brown and finer		–	C6-1.2	
		1.4-1.9' DEBRIS	DB			
5						

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Issaquah, WA 98027

Log of Test Pit: C-7

AKA C-07

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington
Farallon PN: 408-002
Logged By: Holly Corner

Date/Time Started:	4/5/07	Sampler Type:	NA
Date/Time Completed:	4/5/07	Depth of Water (ft bgs):	NA
Equipment:	Backhoe	Total Excavation Depth (ft bgs):	2.2
Excavating Company:	Glacier Environmental		
Excavating Foreman:	unknown		
Excavating Method:	Backhoe		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0		0-0.3' SAND, fine to medium, with silt and gravel, fine, subangular, minor roots, minor asphalt debris, brown to grayish brown, moist.	SP-SM			
	X	0.3-0.6' SAND, fine to medium, very light gray, moist.	SP	–	C7-0.5	X
		0.6-1.9' SILT with sand, fine, gray, orange staining, moist.	ML			
	X			–	C7-1.7	
		1.9-2.2' DEBRIS	DB			
5						

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Issaquah, WA 98027

Log of Test Pit: C-8

AKA C-08

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington
Farallon PN: 408-002
Logged By: Holly Corner

Date/Time Started:	4/5/07	Sampler Type:	NA
Date/Time Completed:	4/5/07	Depth of Water (ft bgs):	NA
Equipment:	Backhoe	Total Excavation Depth (ft bgs):	2.5
Excavating Company:	Glacier Environmental		
Excavating Foreman:	unknown		
Excavating Method:	Backhoe		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0	X	0-0.9' SAND, fine to medium, minor roots, trace gravel, fine, brown, moist.	SP	–	C8-0.5	X
	X	0.9-1.4' SILT with sand, fine to medium, trace to minor gravel, fine to medium, subround to subangular, mottled, grayish brown, moist.	SP-SM	–	C8-1.0	
		1.4-2.5' DEBRIS, minor sand, medium, orangish brown.	DB			
5						

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Issaquah, WA 98027

Log of Test Pit: C-9

AKA C-09

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington

Farallon PN: 408-002

Logged By: Holly Corner

Date/Time Started:	4/5/07	Sampler Type:	NA
Date/Time Completed:	4/5/07	Depth of Water (ft bgs):	NA
Equipment:	Backhoe	Total Excavation Depth (ft bgs):	2.2
Excavating Company:	Glacier Environmental		
Excavating Foreman:	unknown		
Excavating Method:	Backhoe		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0	X	0-0.7' SAND, fine to medium, minor roots, trace gravel, fine, brown, moist. West side of test pit has horizon of GRAVEL with sand, fine to medium, angular gravel, minor medium to coarse sand, gray.	SP	–	C9-0.5	X
		0.7-0.9' Gravel becomes medium grained, subrounded, minor concrete debris, very light gray				
	X	0.9-1.9' No gravel, fine to medium grained, brown, moist.		–	C9-1.7	
		1.9-2.2' DEBRIS	DB			
5						

FARALLON CONSULTING
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Issaquah, WA 98027

Log of Test Pit: C-10

AKA C-10

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington

Farallon PN: 408-002

Logged By: Holly Corner

Date/Time Started:	4/5/07	**Sampler Type:**	NA
Date/Time Completed:	4/5/07	**Depth of Water (ft bgs):**	NA
Equipment:	Backhoe	**Total Excavation Depth (ft bgs):**	2.2
Excavating Company:	Glacier Environmental		
Excavating Foreman:	unknown		
Excavating Method:	Backhoe		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0	X	0-1.4' Gravelly SAND with silt, fine to medium, gravel is fine to coarse, subround, minor debris, brown, moist.	SP-SM	–	C10-0.5	
	X	1.4-1.8' Silty SAND, trace gravel, fine, subround, gray, moist.	SM	–	C10-1.5	
		1.8-2.2' DEBRIS	DB			
5						

FARALLON CONSULTING
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Log of Test Pit: C-11

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington
Farallon PN: 408-002
Logged By: Holly Corner

Date/Time Started: 4/5/07
Date/Time Completed: 4/5/07
Equipment: Backhoe
Excavating Company: Glacier Environmental
Excavating Foreman: unknown
Excavating Method: Backhoe
Sampler Type: NA
Depth of Water (ft bgs): NA
Total Excavation Depth (ft bgs): 2.5

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0	X	0-1.0' Gravelly SAND with silt, fine to medium sand, fine to coarse, subrounded gravel, trace brick fragments, brownish to gray, moist.	SP-SM	–	C11-0.5	
	X	1.0-2.0' Silty SAND with gravel, fine sand, fine to coarse, subangular to subround gravel, minor roots, gray, moist. 2.0-2.3' Becomes brown.	SM	–	C11-1.9	
		2.3-2.5' DEBRIS	DB			
5						

FARALLON CONSULTING
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Issaquah, WA 98027

Log of Test Pit: C-12

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington
Farallon PN: 408-002
Logged By: Holly Corner

Date/Time Started: 4/5/07
Date/Time Completed: 4/5/07
Equipment: Backhoe
Excavating Company: Glacier Environmental
Excavating Foreman: unknown
Excavating Method: Backhoe
Sampler Type: NA
Depth of Water (ft bgs): NA
Total Excavation Depth (ft bgs): 2.2

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0		0-1.7' SAND with silt and gravel, fine to medium sand, fine to medium, subangular to angular gravel, brown, moist.	SP-SM			
	X	Uppermost 3 inches contains 30 to 35% angular gravel.		–	C12-0.5	
		Uppermost 12 inches minor brick debris.				
	X			–	C12-1.5	
		1.7-2.2' DEBRIS	DB			
5						

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Issaquah, WA 98027

Log of Test Pit: C-13

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington
Farallon PN: 408-002
Logged By: Holly Corner

Date/Time Started: 4/5/07
Date/Time Completed: 4/5/07
Equipment: Backhoe
Excavating Company: Glacier Environmental
Excavating Foreman: unknown
Excavating Method: Backhoe
Sampler Type: NA
Depth of Water (ft bgs): NA
Total Excavation Depth (ft bgs): 2.1

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0	X	0-1.3' SAND with silt and gravel, fine to medium sand, fine to medium, subangular gravel, brown, moist. Abundant brick debris between 0-1.0'.	SP-SM	–	C13-0.5	
	X			–	C13-1.1	
		1.3-2.1' DEBRIS in orange-brown silty sand.	DB			
5						

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Issaquah, WA 98027

Log of Test Pit: C-14

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington
Farallon PN: 408-002
Logged By: Holly Corner

Date/Time Started:	4/5/07	Sampler Type:	NA
Date/Time Completed:	4/5/07	Depth of Water (ft bgs):	NA
Equipment:	Backhoe	Total Excavation Depth (ft bgs):	2.8
Excavating Company:	Glacier Environmental		
Excavating Foreman:	unknown		
Excavating Method:	Backhoe		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0		0-0.3' Gravelly SAND, fine to medium sand, fine to medium, subrounded gravel, with asphalt debris, trace roots, gray, moist.	SP	–	C14-0.5	
	X	0.3-1.9' With whole brick debris, becomes brown.				
	X	1.9-2.2' Becomes light gray.		–	C14-1.9	
		2.2-2.8' DEBRIS	DB			
5						

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Issaquah, WA 98027

Log of Test Pit: C-15

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington

Farallon PN: 408-002

Logged By: Holly Corner

Date/Time Started:	4/5/07	**Sampler Type:**	NA
Date/Time Completed:	4/5/07	**Depth of Water (ft bgs):**	NA
Equipment:	Backhoe	**Total Excavation Depth (ft bgs):**	2.6
Excavating Company:	Glacier Environmental		
Excavating Foreman:	unknown		
Excavating Method:	Backhoe		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0	X	0-0.3' Gravelly SAND, fine to medium sand, fine to medium gravel, with abundant debris (asphalt, wire), trace roots, gray-brown, moist.	SP	1	C15-0.5	
	X	0.3-1.5' With whole brick debris.		1	C15-1.1	
		1.5-2.6' DEBRIS	DB			
5						

FARALLON CONSULTING
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Issaquah, WA 98027

Log of Test Pit: C-16

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington
Farallon PN: 408-002
Logged By: Holly Corner

Date/Time Started: 4/5/07
Date/Time Completed: 4/5/07
Equipment: Backhoe
Excavating Company: Glacier Environmental
Excavating Foreman: unknown
Excavating Method: Backhoe
Sampler Type: NA
Depth of Water (ft bgs): NA
Total Excavation Depth (ft bgs): 2.1

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0	X	0-0.9' Sandy GRAVEL, fine to coarse (up to 6" cobbles), subangular to subrounded, minor sand, fine to medium, minor whole brick debris, trace to minor roots, moist.	GP	–	C16-0.5	
	X	0.9-1.8' SAND with gravel, fine to medium sand, fine to medium gravel, brown, abundant roots at 1.6 to 1.8', moist.	SP	–	C16-1.6	
		1.8-2.1' DEBRIS with sand, fine to medium, orange-brown.	DB			
5						

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Test Pit: C-17

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington
Farallon PN: 408-002
Logged By: Holly Corner

Date/Time Started: 4/5/07
Date/Time Completed: 4/5/07
Equipment: Backhoe
Excavating Company: Glacier Environmental
Excavating Foreman: unknown
Excavating Method: Backhoe
Sampler Type: NA
Depth of Water (ft bgs): NA
Total Excavation Depth (ft bgs): 2.2

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0	X	0-0.8' Sandy GRAVEL, fine to medium, subangular to subrounded gravel, minor whole brick debris, minor roots, moist.	GP	–	C17-0.5	
	X	0.8-1.4' SAND with gravel, fine to medium sand, find to medium, subrounded gravel, brown, moist.	SP	–	C17-1.2	
		1.4-2.2' DEBRIS	DB			
5						

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Test Pit: C-18

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington

Farallon PN: 408-002

Logged By: Holly Corner

Date/Time Started: 4/5/07
Date/Time Completed: 4/5/07
Equipment: Backhoe
Excavating Company: Glacier Environmental
Excavating Foreman: unknown
Excavating Method: Backhoe

Sampler Type: NA
Depth of Water (ft bgs): NA
Total Excavation Depth (ft bgs): 3.1

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0		0-0.4' Sandy GRAVEL, fine to coarse, subrounded gravel, fine to medium sand, with brick debris, brown, moist.	GP			
	X	0.4-2.2' SAND, fine to medium, trace gravel, fine, trace roots, brown with some orange staining, moist.	SP	–	C18-0.5	
		2.2-3.1' DEBRIS	DB	–	C18-2.1	
5						

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Issaquah, WA 98027

Log of Test Pit: C-19

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington
Farallon PN: 408-002
Logged By: Holly Corner

Date/Time Started:	4/5/07	Sampler Type:	NA
Date/Time Completed:	4/5/07	Depth of Water (ft bgs):	NA
Equipment:	Backhoe	Total Excavation Depth (ft bgs):	2.1
Excavating Company:	Glacier Environmental		
Excavating Foreman:	unknown		
Excavating Method:	Backhoe		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0	X	0-0.9' SAND with gravel, fine to medium sand, fine to medium, subrounded gravel, with roots, trace silt, gray-brown, moist.	SP	–	C19-0.5	
	X	0.9-1.8' Sandy SILT, firm, minor sand, fine to medium, trace to minor debris, light brownish gray, moist.	ML	–	C19-1.5	
		1.8-2.1' DEBRIS	DB			
5						

FARALLON CONSULTING
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Issaquah, WA 98027

Log of Test Pit: C-20

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington
Farallon PN: 408-002
Logged By: Holly Corner

Date/Time Started: 4/5/07
Date/Time Completed: 4/5/07
Equipment: Backhoe
Excavating Company: Glacier Environmental
Excavating Foreman: unknown
Excavating Method: Backhoe
Sampler Type: NA
Depth of Water (ft bgs): NA
Total Excavation Depth (ft bgs): 2.3

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0	X	0-1.0' Gravelly SAND, fine to medium sand, fine to medium, subround gravel, with cement and brick debris, trace silt, gray-brown, moist.	SP	–	C20-0.5	
	X	1.0-1.5' Sandy SILT, firm, fine to medium sand, trace debris, moist.	ML	–	C20-1.3	
		1.5-2.3' DEBRIS	DB			
5						

FARALLON CONSULTING
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Issaquah, WA 98027

Log of Test Pit: C-21

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington
Farallon PN: 408-002
Logged By: Holly Corner

Date/Time Started: 4/5/07
Date/Time Completed: 4/5/07
Equipment: Backhoe
Excavating Company: Glacier Environmental
Excavating Foreman: unknown
Excavating Method: Backhoe
Sampler Type: NA
Depth of Water (ft bgs): NA
Total Excavation Depth (ft bgs): 2.2

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0		0-0.5' SAND with silt and gravel, fine sand, fine to medium gravel, brown, moist.	SP-SM			
		0.5-0.7' SAND, fine to medium, minor gravel, fine, subrounded, trace silt, very light gray, moist.	SP	11	C21-0.5 C21-0.6	
		0.7-2.2' DEBRIS	DB			
5						

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Issaquah, WA 98027

Log of Test Pit: C-22

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington

Farallon PN: 408-002

Logged By: Holly Corner

Date/Time Started: 4/5/07
Date/Time Completed: 4/5/07
Equipment: Backhoe
Excavating Company: Glacier Environmental
Excavating Foreman: unknown
Excavating Method: Backhoe
Sampler Type: NA
Depth of Water (ft bgs): NA
Total Excavation Depth (ft bgs): 3.0

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0	X	0-0.7' SAND with silt and gravel, fine sand, fine gravel, gray-brown, moist.	SP-SM	–	C22-0.5	
	X	0.7-1.9' SAND with gravel, fine to medium sand, fine to medium, subrounded gravel, minor burned wood debris.	SP	–	C22-0.7	
		1.9-3.0' DEBRIS	DB			
5						

FARALLON CONSULTING
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Issaquah, WA 98027

Log of Test Pit: C-23

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington
Farallon PN: 408-002
Logged By: Holly Corner

Date/Time Started: 4/5/07
Date/Time Completed: 4/5/07
Equipment: Backhoe
Excavating Company: Glacier Environmental
Excavating Foreman: unknown
Excavating Method: Backhoe
Sampler Type: NA
Depth of Water (ft bgs): NA
Total Excavation Depth (ft bgs): 2.1

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0		0-0.6' SAND with silt and gravel, fine to medium sand, fine gravel, gray-brown, moist.	SP-SM			
	X	0.6-0.7' SAND with gravel, fine to medium sand, fine to medium, subangular gravel, very light gray, moist.	SP	–	C23-0.5	
		0.7-1.6' SILT with sand, fine sand, gray with orange staining, moist.	ML			
		1.6-2.1' DEBRIS.	DB	–	C23-1.5	
5						

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Test Pit: C-24

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington
Farallon PN: 408-002
Logged By: Holly Corner

Date/Time Started: 4/5/07
Date/Time Completed: 4/5/07
Equipment: Backhoe
Excavating Company: Glacier Environmental
Excavating Foreman: unknown
Excavating Method: Backhoe
Sampler Type: NA
Depth of Water (ft bgs): NA
Total Excavation Depth (ft bgs): 2.5

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0	X	0-0.7' Silty SAND with gravel, fine to medium sand, fine to coarse, subrounded to subangular gravel, with organic material, dark gray-brown, moist.	SM	–	C24-0.5	
		0.7-1.5' Becomes fine sand, mottled, dark gray.				
	X	1.5-2.2' Sandy SILT, fine sand, trace fine gravel, light brown-gray, moist, manure-like odor.	ML	–	C24-1.7	
		2.2-2.5' DEBRIS	DB			
5						

FARALLON CONSULTING
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Issaquah, WA 98027

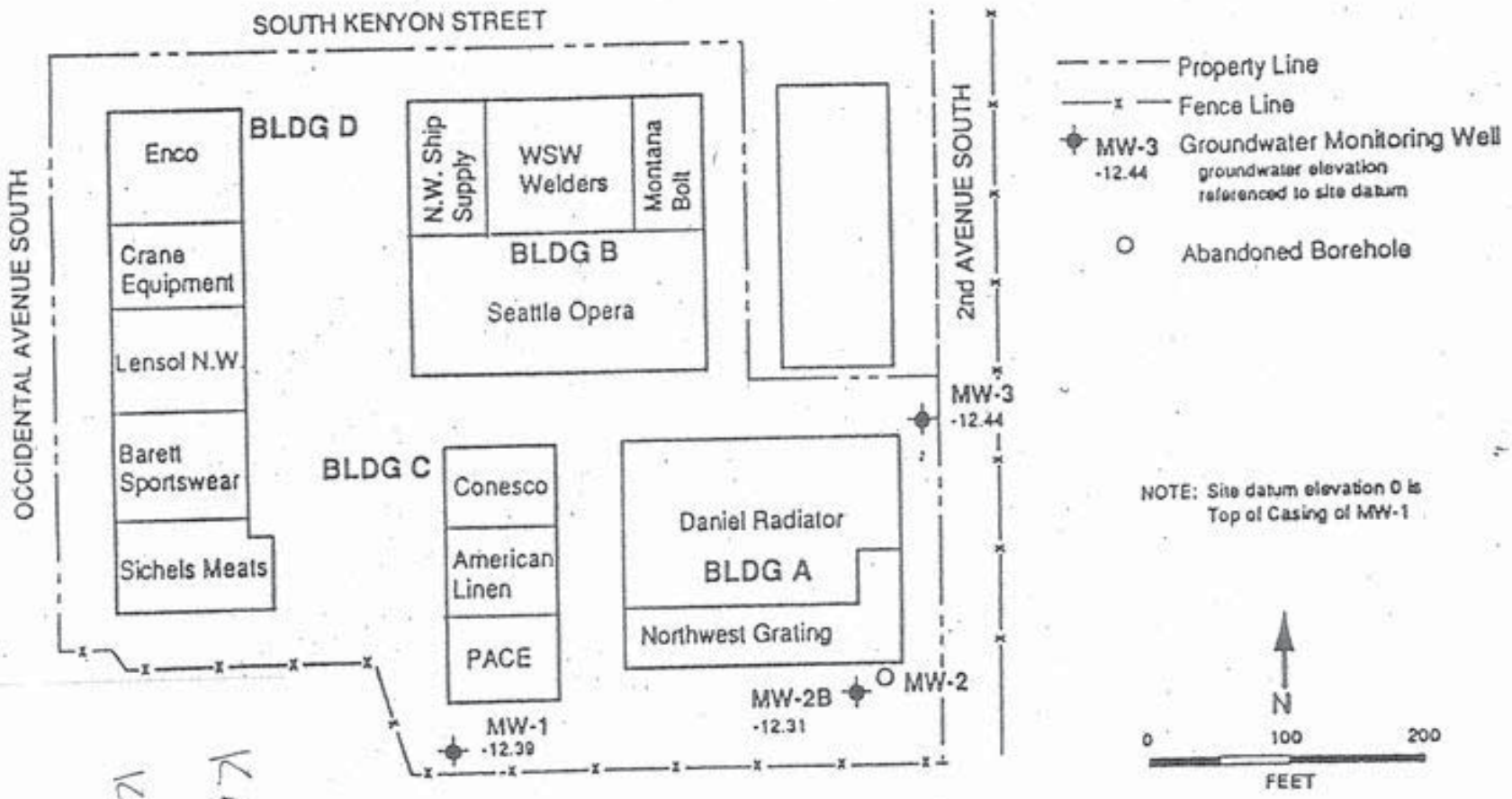
Log of Test Pit: C-25

Client: Mr. Rob Howie, South Park
Project: South Park Property
Location: Seattle, Washington
Farallon PN: 408-002
Logged By: Holly Corner

Date/Time Started: 4/5/07
Date/Time Completed: 4/5/07
Equipment: Backhoe
Excavating Company: Glacier Environmental
Excavating Foreman: unknown
Excavating Method: Backhoe
Sampler Type: NA
Depth of Water (ft bgs): NA
Total Excavation Depth (ft bgs): 2.2

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	PID (ppm)	Sample ID	Sample Analyzed
0	X	0-1.2' Silty SAND with gravel, fine to medium sand, fine to coarse, subrounded gravel, trace to minor roots, minor debris (asphalt, plastic bag), dark gray, moist.	SM	–	C25-0.5	
	X	1.2-1.9' Sandy SILT, fine sand, trace to minor gravel, fine, subrounded to subangular, brown-gray, moist.	ML	–	C25-1.7	
		1.9-2.2' DEBRIS	DB			
5						

Historical Kenyon Industrial Park Borings/Wells



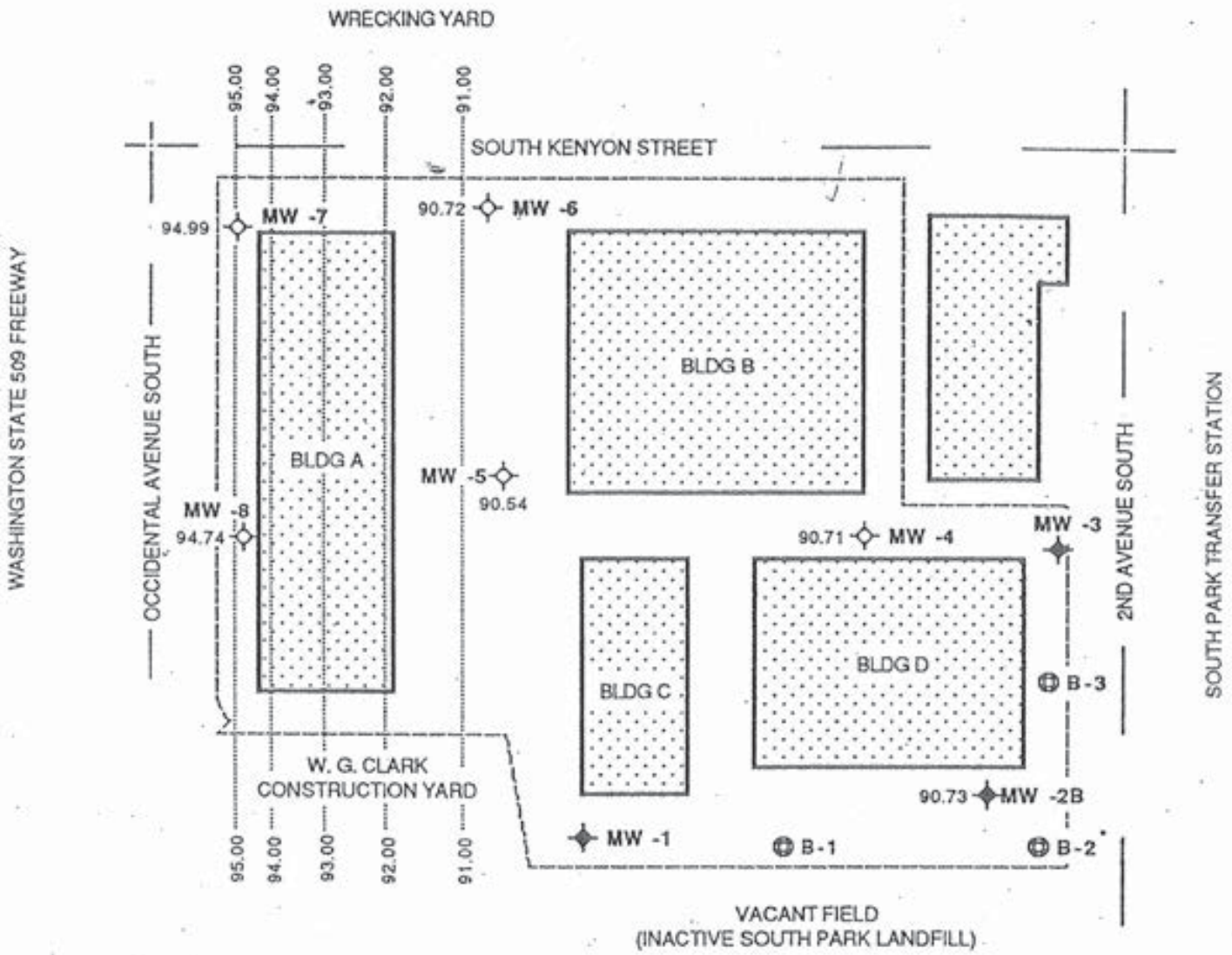
KMW.
Kenyon wells

FIGURE 4
LOCATION OF MONITORING WELLS
NORTHWEST GRATING
SAMMIS

Golder Associates

PROJECT NO. 893-1176 DWG NO. 2012 DATE 10/26/89 DRAWN CB APPROVED ALB

Wells ID
KMW-01
Boring ID - KB-01



EXPLANATION

- = PROJECT AREA BOUNDARY
- MW -1 = GOLDER MONITORING WELLS
- B-1 = DEI SOIL BORINGS
- MW-4 90.71 = DEI MONITORING WELLS (WITH GROUNDWATER ELEVATION)
- 94.00 = GROUNDWATER ELEVATION CONTOUR

N

FIGURE 3 - GROUNDWATER GRADIENT
KENYON INDUSTRIAL PARK
NOT TO SCALE

KB-01

WELL CONSTRUCTION	SAMPLE NO.	BLOW COUNT	DEPTH (FT)	USCS SYM.	LITH.	DESCRIPTION
CONCRETE						ASPHALT 4".
BENTONITE	B-1-3	4-2-1		CL		CLAY, SILTY CLAY, PLASTIC, DAMP.
			5			BRICK & GRAVEL, SAND, REDDISH.
BACKFILL - NO WELL	B-1-8	5-5-3		SW		REDDISH SAND AND GRAVEL, SATURATED.
			10			
			15			
			20			
			25			

BORING NO. B-1

SURFACE ELEVATION: 10 FEET
TOTAL DEPTH: 8 FEET
DATE DRILLED: 3/11/92

LOGGED BY: NEIL GILHAM
DRILL RIG: MOBILE DRILL B-61
DIAMETER OF BORING: 8 INCH
WATER ENCOUNTERED AT: 8 FEET

LIBERTY/SAMMIS - SEATTLE
PROJECT NAME: KENYON INDUSTRIAL PARK
PROJECT NO. 1A2996AA001
LOCATION: SOUTH PARK, SEATTLE, WA

DIAGNOSTIC ENGINEERING INC.
6347 SEAVIEW AVE NW, SEATTLE, WA

04/14/92

AKA KB-02

WELL CONSTRUCTION	SAMPLE NO.	BLOW COUNT	DEPTH (FT)	USCS SYM.	LITH.	DESCRIPTION
CONCRETE						ASPHALT 4".
				SM		SANDY SILTY CLAY, FILL, LOOSE.
BENTONITE						
	B-2-3.5	2-3-4		CL		SILTY CLAY, GRAY, PLASTIC, DAMP.
			5			
	B-2-DRILL CUTTING SAMPLE 5' TO 8'					
	B-2-8.5	3-4-3				DARK, SILTY CLAY WITH DEBRIS, BRICK, RUBBER, METAL.
			10			
BACKFILL - NO WELL						DARK, GRAVEL, SANDY, LOOSE WITH DEBRIS, SATURATED.
	B-2-13.5	1-2-2		SW		
			15			
			20			
			25			

BORING NO. B-2

SURFACE ELEVATION: 10 FEET
TOTAL DEPTH: 13.5 FEET
DATE DRILLED: 3/11/92

LOGGED BY: NEIL GILHAM
DRILL RIG: MOBILE DRILL B-61
DIAMETER OF BORING: 8 INCH
WATER ENCOUNTERED AT: 10 FEET

LIBERTY/SAMMIS - SEATTLE
PROJECT NAME: KENYON INDUSTRIAL PARK
PROJECT NO. 1A2996AA001
LOCATION: SOUTH PARK, SEATTLE, WA

DIAGNOSTIC ENGINEERING INC.
6347 SEAVIEW AVE NW, SEATTLE, WA

04/14/92

AKA - KB-03 B

WELL CONSTRUCTION	SAMPLE NO.	BLOW COUNT	DEPTH (FT)	USCS SYM.	LITH.	DESCRIPTION
CONCRETE						ASPHALT 4".
				SW		SANDY, GRAVEL, LOOSE FILL.
BENTONITE	B-3-3	7-9-14		CL		GRAY SILTY CLAY, FIRM, PLASTIC, DAMP. HARD OBJECT AT 4'.
			5	SW		SANDY, GRAVELLY DEBRIS, METAL, BRICK.
BACKFILL - NO WELL						STOPPED AT 8' DUE TO OUTGASSING OF POTENTIALLY FLAMMABLE/ EXPLOSIVE LEVELS OF GAS.
			10			
			15			
			20			
			25			

BORING NO. B-3

SURFACE ELEVATION: 10 FEET
TOTAL DEPTH: 8 FEET
DATE DRILLED: 3/11/92

LOGGED BY: NEIL GILHAM
DRILL RIG: MOBILE DRILL B-61
DIAMETER OF BORING: 8 INCH
WATER ENCOUNTERED AT: Ø FEET

LIBERTY/SAMMIS - SEATTLE
PROJECT NAME: KENYON INDUSTRIAL PARK
PROJECT NO. 1A2996AA001
LOCATION: SOUTH PARK, SEATTLE, WA

DIAGNOSTIC ENGINEERING INC.
6347 SEAVIEW AVE NW, SEATTLE, WA

LOG 3 OF 8

04/14/92

AKA KMW-01 KMW-01A

STRATIGRAPHY

WELL COMPLETION

Graphic Log

Sample Number

Depth in Feet

0.0 GRAVEL, fine SAND, dry (FILL)

7.0 Fine gray SAND, some GRAVEL, dry

10.0 Gray to brown, fine SAND, little silt, little clay, dry to damp, organic nodules

Broken glass at 12.5 ft, and 1 inch organic zone

22.0 Brown, fine SAND, trace silt, wet

27.0 Brown, fine SAND, some clay, wet

Increasing clay content with depth

30.0 END OF BOREHOLE

Sample Number: 1, 2, 3, 4, 5, 6

Flush Mounted Locking Monument

0.5 – Concrete Grout

2.0 – 2-in. Casing

6-in. Borehole

12.39 ▽ 10/6/89

16.0 –

19.0 –

29.0 –

30.0 –

WELL COMPLETION LEGEND:

- Bentonite Chips
- No. 8 Aqua Sand
- 2" PVC
- 2" PVC Well Screen 0.020-slot
- Water Level

NOT TO SCALE

Date: 9/28/89
Ground Elevation: ~15.0
Drill Rig: Mobile B-61
Drill Method: Hollow Stem Auger
Sampling Method: Split Spoon

FIGURE A-1

SHEET 1 OF 1

BORING MW-1

STRATIGRAPHY AND WELL COMPLETION

SAMMIS

Date Start/Finish: 10/16/95 / 10/16/95
Drilling Company: Tacoma Drilling Company
Driller's Name: Butch Dietsche
Drilling Method: Hollow Stem Auger
Bit Size: 8.25-in. Auger Size : 8.25-in.
Rig Type: Mobile B61
Spoon Size: 2-in.

AKA - KMW-01A

Well Casing Elev.: 8.72 ft.
Borehole Depth: 21.5 ft.
Ground Surface Elev.: 9.32 ft.
Geologist: David W. Lay

Well No. MW-1A
Client: Nevander Asset Management, Inc.
Location: Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 in.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description
as elevation 9.32 ft.										GROUND SURFACE
										ASPHALT
										CLAY: Dark brown, some silt, soft, moist, no odor.
5	5	1		6 6 7	13	0.8	0.0			Grades with little fine sand.
	0									
10		2		6 8 9	17	0.5	0.0			SILT: Black, stained, some fine to coarse sand, little clay, loose, wet, slight hydrocarbon odor.
	-5									SILT and SAND: Dark brown/black, fine, trace organics, glass, wood fragments, loose, wet (FILL).
15										

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:

Saturated Zones

Date / Time	Elevation	Depth
10-20-95/ 1030	-0.9	9.82 ∇

Project: 02380
Script: nbblwell
Date: 11/15/95

Client:
Seattle, Washington

Site:
Nevander Asset Management, Inc.

Well No. MW-1A
Total Depth = 21.5 ft.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		3		7 7 8	15	1.5	0.0			SILT and SAND: Dark brown/black, fine, trace organics, glass, wood fragments, loose, wet (FILL).	0.010" Slotted well screen, (8.0' – 21.0' bgs). Sand pack, (5.0' – 21.0' bgs).
20		4		7 10 13	23	1.5	0.0			Grades with slight sewage odor.	
										Bottom of boring at 21.5' bgs.	
25											
30											
35	-25										

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:

Saturated Zones

Date / Time	Elevation	Depth
10-20-95/ 1030	-0.9	9.82 ∇

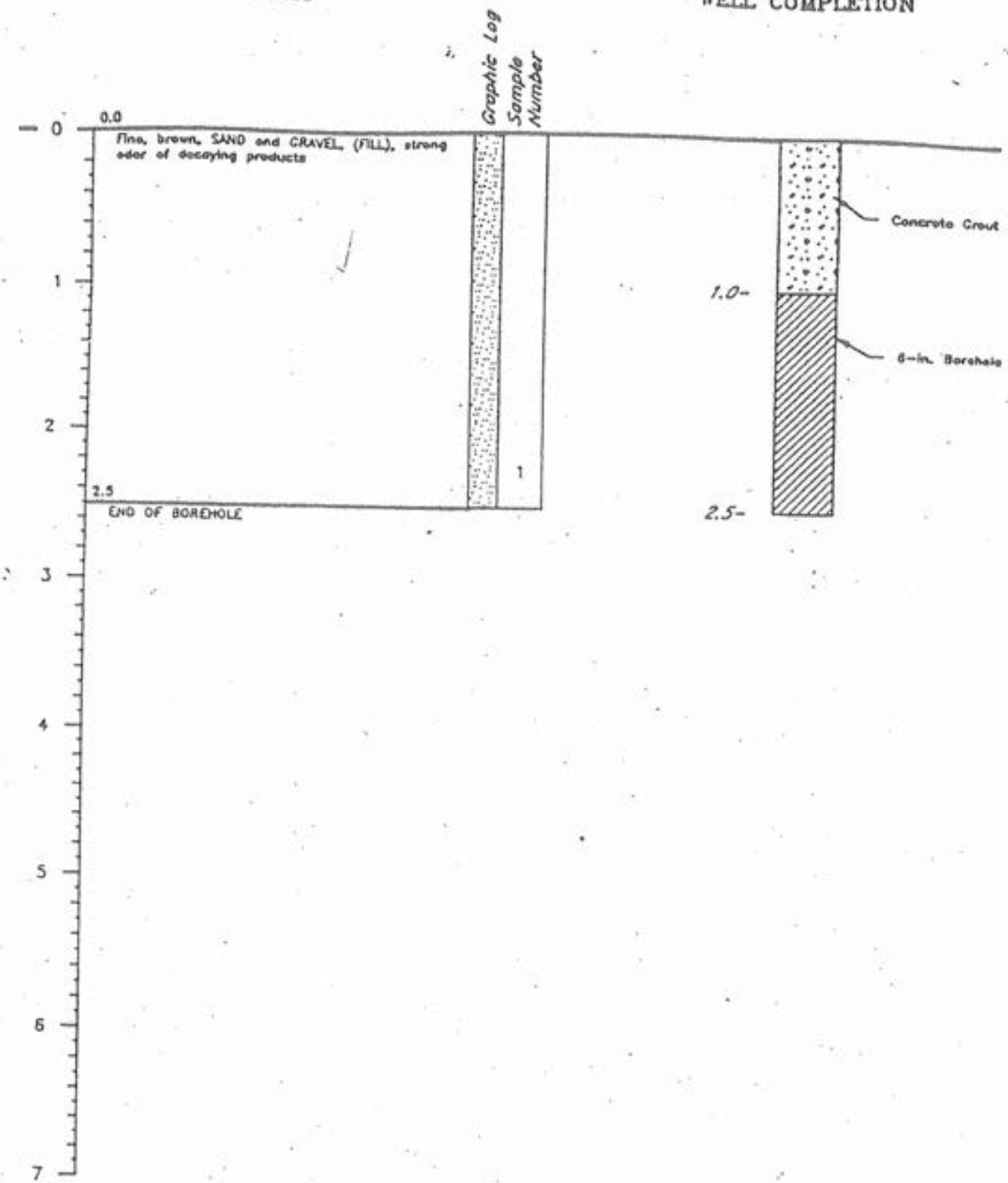
Project: 02380

Script: nbbiwell
Date: 11/15/95

AKA KMW-02

STRATIGRAPHY

WELL COMPLETION



WELL COMPLETION LEGEND:

Bentonite Chips

2" PVC

2" PVC Well Screen 0.020-slot

Water Level

NOT TO SCALE

Date: 9/28/89
Ground Elevation: ~15.0
Drill Rig: Mobile B-61
Drill Method: Hollow Stem Auger
Sampling Method: Split Spoon

FIGURE A-2

SHEET 1 OF 1

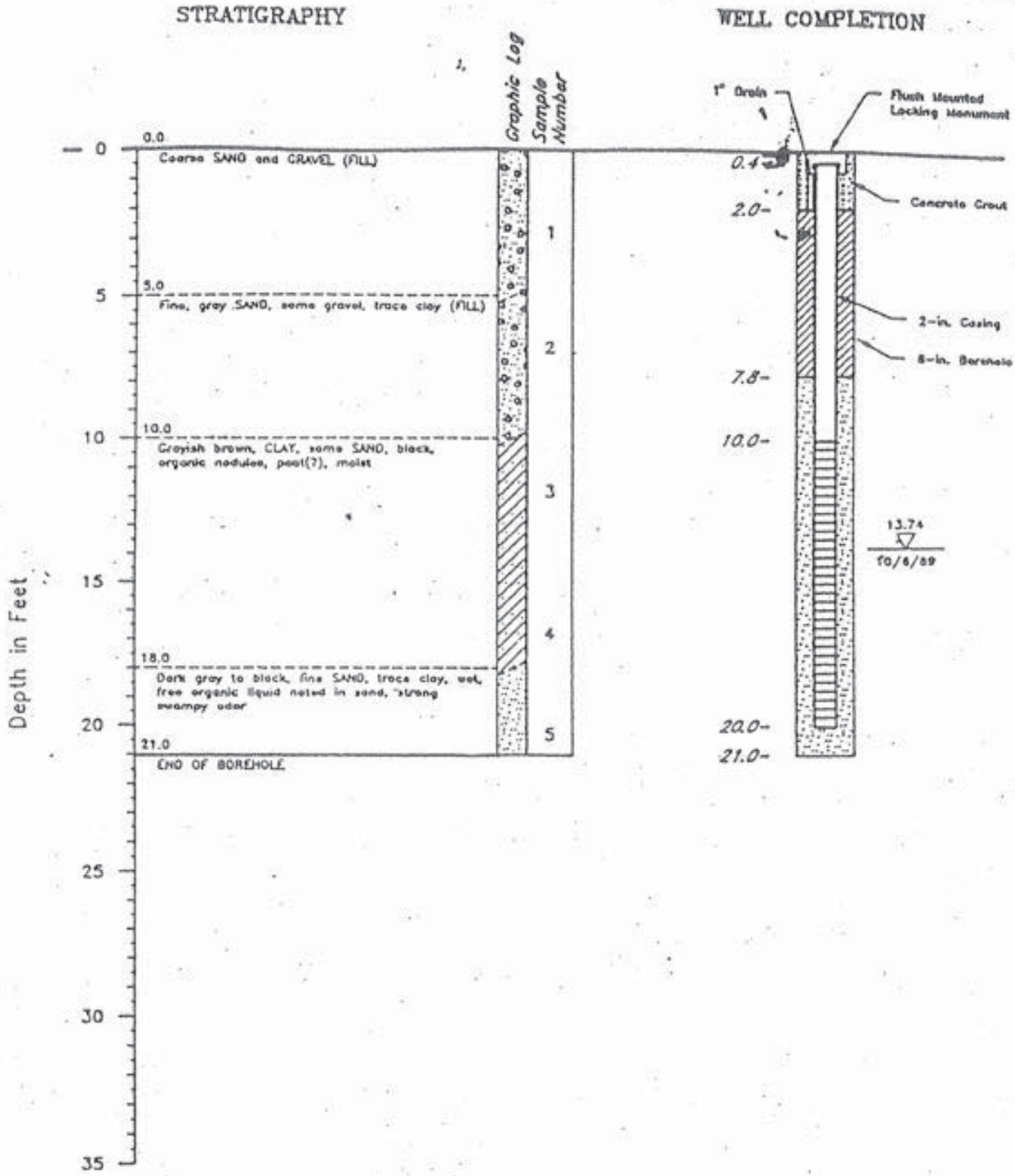
BORING MW-2

STRATIGRAPHY AND WELL COMPLETION

SAMMIS

PROJECT NO 8931178

AKA- KMW-02B



WELL COMPLETION LEGEND:

- Bentonite Chips
- No. 8 Aqua Sand
- 2" PVC
- 2" PVC Well Screen 0.020-slot
- Water Level

NOT TO SCALE

Date: 9/29/89
Ground Elevation: ~15.0
Drill Rig: Mobile B-61
Drill Method: Hollow Stem Auger
Sampling Method: Split Spoon

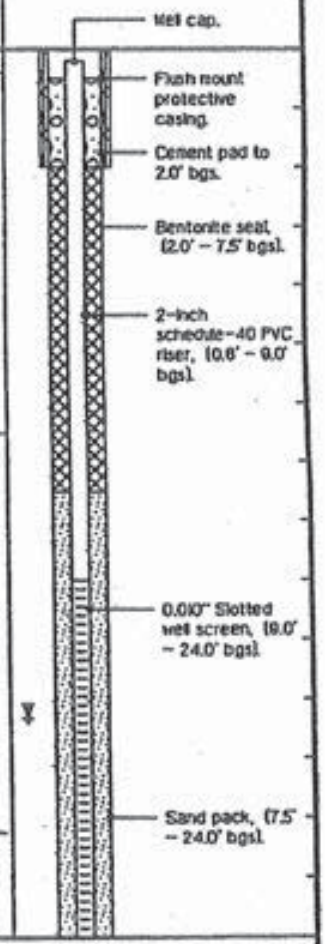
FIGURE A-3
SHEET 1 OF 1
BORING MW-2B
STRATIGRAPHY AND WELL COMPLETION
SAMMIS

AKA KMW-03A

Date Start/Finish: 10/16/95 / 10/16/95 Drilling Company: Tacoma Drilling Company Driller's Name: Butch Dietsche Drilling Method: Hollow Stem Auger Bit Size: 8.25-in. Auger Size : 8.25-in. Rig Type: Mobile B61 Spoon Size: 2-in.	Well Casing Elev.: 9.33 ft. Borehole Depth: 24 ft. Ground Surface Elev.: 10.08 ft. Geologist: David W. Lay	Well No. MW-3A Client: Nevander Asset Management, Inc. Location: Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 in.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description
GS elevation 10.08 ft.										GROUND SURFACE
0	10									ASPHALT
										SAND: Grey/green, fine to medium, some silt and gravel, trace cobbles, loose, moist.
5	5	1		25 50	>50	0.2	0.0			
		2		20 20 30	50	1	0.0			
										WOOD FRAGMENTS, Brown, loose, moist (FILL).
10	0	3		18 19 20	39	0.0	0.0			
		4		20 21 45	>50	0.1	0.0			Grades with sand, wet, creosote odor.
15										SAND: Brown, fine, some silt, little medium to coarse sand, trace wood particles, loose, wet (FILL).

Well Construction



BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:

Saturated Zones		
Date / Time	Elevation	Depth
10-20-95/ 1030	-1.99	11.32 ▼

Project: 02380 Script: nbblwell Date: 11/15/95

Client: Seattle, Washington

Site: Nevander Asset Management, Inc.

Well No. MW-3A

Total Depth = 24 ft.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		5		9 12 18	30	1.0	0.0			SAND: Brown, fine, some silt, little medium to coarse sand, trace wood particles, loose, wet (FILL).	0.010" Slotted well screen, (9.0' – 24.0' bgs).
20		6		20 28 30	>50	1.5	0.0			SILT: Dark grey, little very fine sand, dense, wet, no odor.	Sand pack, (7.5' – 24.0' bgs).
		7		20 21 25	46	1.5	0.0			SAND: Dark grey, trace silt, loose, wet, slight hydrocarbon odor.	
25										Bottom of boring at 24.0' bgs.	
30											
35											

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:

Saturated Zones

Date / Time	Elevation	Depth
10-20-95/ 1030	-1.99	11.32 ▼

Project: 02380

Script: nobiwell
Date: 11/15/95

AKA KMW-04

WELL CONSTRUCTION	SAMPLE NO.	BLOW COUNT	DEPTH (FT)	USCS SYM.	LITH.	DESCRIPTION
TRAFFIC-RATED WELL COVER CONCRETE BENTONITE						ASPHALT 4".
				SM		GRAY, CLAYEY, SANDY, SILT, PLASTIC MOIST.
5' RISER SECTION - 2" O.D. SCHEDULE 40 PVC CASING	MW-4-3.5	2-2-2		SW		DARK, SANDY, GRAVELLY DEBRIS, METAL, BRICK, WOOD.
			5			
						OUTGASSING - 5 TO 7 FEET.
10/20 SILICA SAND FILTER PACK	MW-4-8.5	7-00				
			10			DARK, SANDY, GRAVELLY DEBRIS, METAL, BRICK, WOOD.
15' SCREEN SECTION - 2" O.D. SCHEDULE 40 PVC CASING - 0.01" SLOT	MW-4-13.5			ML		GRAY, SILTY CLAY WITH DARK SPOTS, VERY PLASTIC, SATURATED.
			15			
			20	SM		GRAY, SANDY SILT.
			25			

BORING NO. MW-4

SURFACE ELEVATION: 10 FEET
TOTAL DEPTH: 21 FEET
DATE DRILLED: 3/11/92

LOGGED BY: NEIL GILHAM
DRILL RIG: MOBILE DRILL B-61
DIAMETER OF BORING: 8 INCH
WATER ENCOUNTERED AT: 12 FEET

LIBERTY/SAMMIS - SEATTLE
PROJECT NAME: KENYON INDUSTRIAL PARK
PROJECT NO. 1A2996AA001
LOCATION: SOUTH PARK, SEATTLE, WA

DIAGNOSTIC ENGINEERING INC.
6347 SEAVIEW AVE NW, SEATTLE, WA

04/14/9

KMW-05

WELL CONSTRUCTION	SAMPLE NO.	BLOW COUNT	DEPTH (FT)	USCS SYM.	LITH.	DESCRIPTION
TRAFFIC-RATED WELL COVER CONCRETE BENTONITE						ASPHALT 4".
						SANDY SILT, LIGHT GRAY, FIRM, DAMP.
	MW-5-3.5	3-5-7		SM		
5' RISER SECTION - 2" O.D. SCHEDULE 40 PCV CASING			5			
						DARK GREEN GRAY, SILTY CLAY, PLASTIC, WET.
	MW-5-8.5	2-1-0				
10/20 SILICA SAND FILTER PACK			10	ML		
						DARK GREEN GRAY, SILTY CLAY TO SANDY SILT, PLASTIC, WET, ORGANIC MATERIAL, SOME DEBRIS.
	MW-5-13.5	1-0		SM		DARK GREEN GRAY, SILTY SAND, WET.
15' SCREEN SECTION - 2" O.D. SCHEDULE 40 PCV CASING - 0.01" SLOT			15			
			20			
			25			

BORING NO. MW-5

SURFACE ELEVATION: 10 FEET
TOTAL DEPTH: 21 FEET
DATE DRILLED: 3/12/92

LOGGED BY: NEIL GILHAM
DRILL RIG: MOBILE DRILL B-61
DIAMETER OF BORING: 8 INCH
WATER ENCOUNTERED AT: 6.5 FEET

LIBERTY/SAMMIS - SEATTLE
PROJECT NAME: KENYON INDUSTRIAL PARK
PROJECT NO. 1A2996AA001
LOCATION: SOUTH PARK, SEATTLE, WA

DIAGNOSTIC ENGINEERING INC.
6347 SEAVIEW AVE NW, SEATTLE, WA

04/14/92

KMW-06

WELL CONSTRUCTION	SAMPLE NO.	BLOW COUNT	DEPTH (FT)	USCS SYM.	AKA LITH.	DESCRIPTION
TRAFFIC-RATED WELL COVER CONCRETE						ASPHALT 4".
BENTONITE	MW-6-GRAB					BROWN/GRAY SANDY GRAVEL, POORLY SORTED. BROWN/GRAY SANDY GRAVEL WITH LARGER GRIT.
	MW-6-3.5	15-27-15				ASPHALT AND GRAVEL WITH DEBRIS, BLACK PLASTIC.
5' RISER SECTION - 2" O.D. SCHEDULE 40 PVC CASING			5			GRAY, DARK GRAY, BROWN, MEDIUM GRIT SAND WITH DEBRIS.
10/20 SILICA SAND FILTER PACK	MW-6-8.5	7-3-5	10	GW		BROWN/GRAY, ROCK, SANDY GRAVEL, POORLY SORTED.
15' SCREEN SECTION - 2" O.D. SCHEDULE 40 PVC CASING - 0.01" SLOT			15	SW		GRAY/BROWN SILTY SAND.
			20			
			25			

BORING NO. MW-6

SURFACE ELEVATION: 10 FEET
TOTAL DEPTH: 21 FEET
DATE DRILLED: 3/12/92

LOGGED BY: BILL OFSTUN
DRILL RIG: MOBILE DRILL B-61
DIAMETER OF BORING: 8 INCH
WATER ENCOUNTERED AT: 8 FEET

LIBERTY/SAMMIS - SEATTLE
PROJECT NAME: KENYON INDUSTRIAL PARK
PROJECT NO. 1A2996AA001
LOCATION: SOUTH PARK, SEATTLE, WA

DIAGNOSTIC ENGINEERING INC.
6347 SEAVIEW AVE NW, SEATTLE, WA

04/14/92

KMW-07

WELL CONSTRUCTION	SAMPLE NO.	BLOW COUNT	DEPTH (FT)	USCS SYM.	AKA LITH.	DESCRIPTION
TRAFFIC-RATED WELL COVER CONCRETE BENTONITE						ASPHALT 4". GRAVEL FILL.
5' RISER SECTION - 2" O.D. SCHEDULE 40 PVC CASING	MW-7-3.5	3-3-1	5	SW		GRAY GRAVELLY SAND, POORLY SORTED, WET.
10/20 SILICA SAND FILTER PACK	MW-7-8.5	6-5-6	10	SM		GRAY SILTY SAND, POORLY SORTED, WET.
15' SCREEN SECTION - 2" O.D. SCHEDULE 40 PVC CASING - 0.01" SLOT	MW-7-13.5	12-18-20	15	SM		GRAY SILTY SAND, ORGANIC MATERIAL, WET.
NATIVE SOIL COLLAPSE AT 17'	MW-7-18.5	7-4-7	20	SM		SILTY FINE SAND, GRAY BROWN, WITH SHELLS AND PLANT MATERIAL.
			25			

BORING NO. MW-7

SURFACE ELEVATION: 10 FEET
TOTAL DEPTH: 20 FEET
DATE DRILLED: 3/12/92

LOGGED BY: BILL OFSTUN
DRILL RIG: MOBILE DRILL B-61
DIAMETER OF BORING: 8 INCH
WATER ENCOUNTERED AT: 5 FEET

LIBERTY/SAMMIS - SEATTLE
PROJECT NAME: KENYON INDUSTRIAL PARK
PROJECT NO. 1A2996AA001
LOCATION: SOUTH PARK, SEATTLE, WA

DIAGNOSTIC ENGINEERING INC.
6347 SEAVIEW AVE NW, SEATTLE, WA

04/14/92

KMW-08

WELL CONSTRUCTION	SAMPLE NO.	BLOW COUNT	DEPTH (FT)	USCS SYM.	AKA LITH.	DESCRIPTION
TRAFFIC-RATED WELL COVER CONCRETE						ASPHALT 4". GRAY, HARD, ASH-TUFFLIKE MATERIAL
BENTONITE						YELLOW BROWN, SILTY CLAY, PLASTIC MOIST.
	MW-8-3.5	3-5-1		CL		
5' RISER SECTION - 2" O.D. SCHEDULE 40 PVC CASING			5			
						WATER AT 6.5 FEET MEDIUM WELL SORTED DARK GRAY SAND, SATURATED.
	MW-8-8.5	3-3-6		SW		
10/20 SILICA SAND FILTER PACK			10			
						MEDIUM TO CSE DARK GRAY, WELL SORTED SAND, SATURATED.
15' SCREEN SECTION - 2" O.D. SCHEDULE 40 PVC CASING - 0.01" O.D.			15			
				CL		GRAY SILTY CLAY, PLASTIC, WET.
			20			
			25			

BORING NO. MW-8

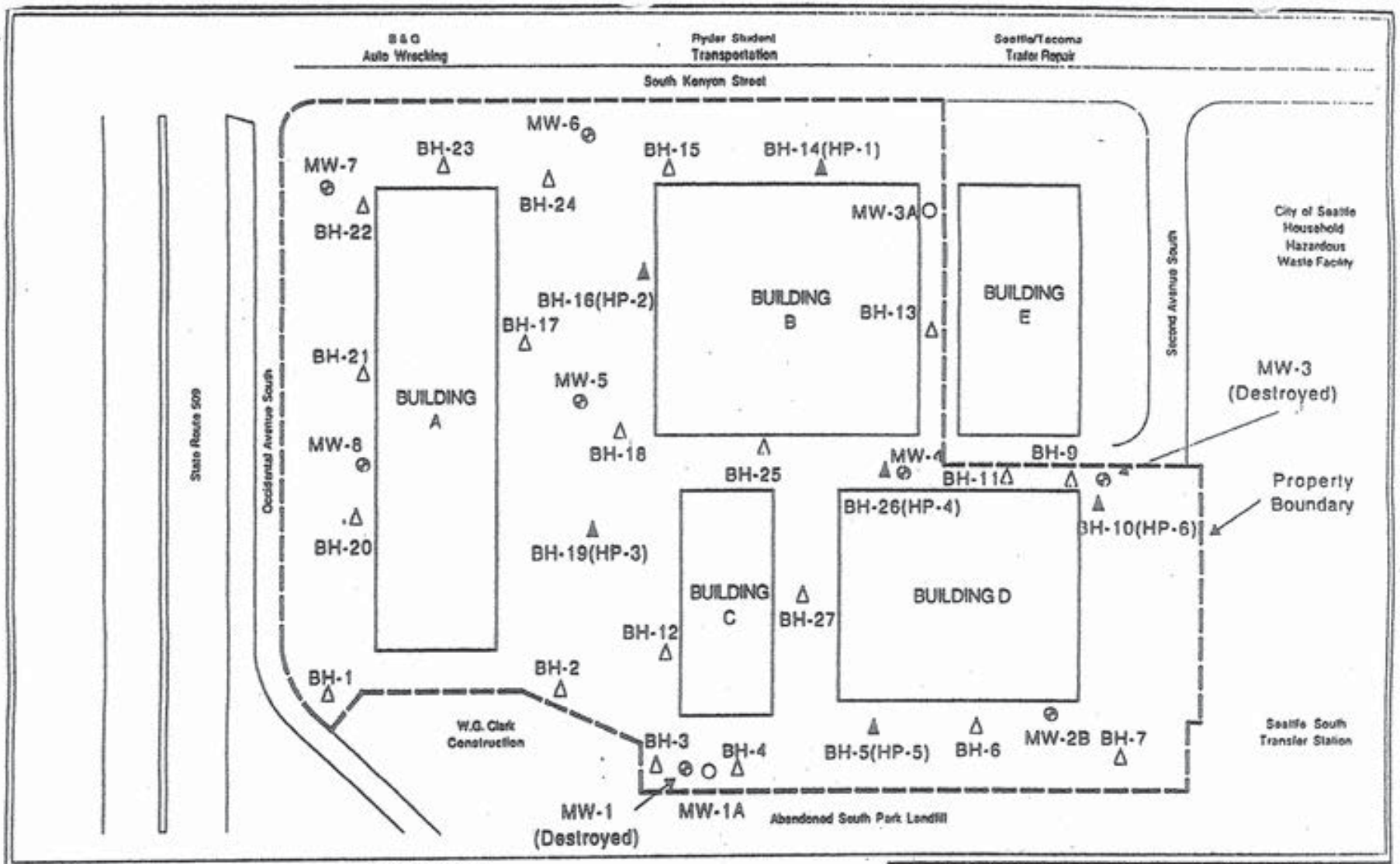
SURFACE ELEVATION: 10 FEET
TOTAL DEPTH: 21 FEET
DATE DRILLED: 3/12/92

LOGGED BY: NEIL GILHAM
DRILL RIG: MOBILE DRILL B-61
DIAMETER OF BORING: 8 INCH
WATER ENCOUNTERED AT: 6.5 FEET

LIBERTY/SAMMIS - SEATTLE
PROJECT NAME: KENYON INDUSTRIAL PARK
PROJECT NO. 1A2996AA001
LOCATION: SOUTH PARK, SEATTLE, WA

DIAGNOSTIC ENGINEERING INC.
6347 SEAVIEW AVE NW, SEATTLE, WA

04/14/9



EXPLANATION

BH-1 △ Soil Gas Boring Location

MW-8 ⊕ Existing Monitoring Well

MW-1A ○ Replacement Monitoring Well

Property Boundary

Building Outline

BH-14(HP-1) ▲ Soil Gas/Hydropunch Location

200 0 200

Approximate Scale (in feet)

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS
Irvine, California

JMS101195

NEVANDER ASSET MANAGEMENT, INC.
17875 Von Karman, Suite 325
Irvine, California

SEATTLE KENYON BUSINESS PARK
125-145 South Kenyon Street
Seattle, Washington

02380.30

SCHEMATIC PLOT PLAN WITH PROPOSED SOIL BORINGS AND PROPOSED MONITORING WELL LOCATIONS

FIGURE 2

Date Start/Finish: 10/18/95 / 10/18/95
Drilling Company: Tacoma Drilling Company
Driller's Name: Butch Dietsche
Drilling Method: Hollow Stem Auger
Bit Size: 8.25-in. Auger Size : 8.25-in.
Rig Type: Mobile B61
Spoon Size: 2-in.

AKA HP-01

Borehole Depth: 19 ft.

Geologist: David W. Lay

Well No. HP-1

Client:
Nevander Asset Management, Inc.

Location:
Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
										ASPHALT	
5		1		14 10 8	18	1.0	1.4			Analyzed SILT and SAND: Black/green, fine, some glass, brick, gravel, loose, moist (FILL).	Steel drive rod, (1.0' ags – 15' bgs).
10		2		4 4 2	6	1.0	79.9			SILT: Green, stiff, moist to wet, strong hydrocarbon odor.	8.25" Hollow stem auger, (0.5' ags – 15' bgs).
15										SILT and SAND: Dark brown, loose, wet, slight hydrocarbon odor.	

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:
Boring completed as a soil gas sampling location (BH-14).

Saturated Zones

Date / Time	Elevation	Depth

Project: 02380
Script: nbbiwell
Date: 11/15/95

Client:
Seattle, Washington

Well No. HP-1

Total Depth = 19 ft.

Site:
Nevander Asset Management, Inc.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		3		1 1 1	2	1.5	4.4			SILT and SAND: Dark brown, loose, wet, slight hydrocarbon odor.	1 1/4" PVC 0.010" Slotted hydropunch screen, (15.0' – 19.0' bgs).
										Bottom of boring, hydropunch driven to 19' bgs.	Native soil.
20											
25											
30											
35											

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:

Saturated Zones

Date / Time	Elevation	Depth

Project: 02380

Script: nbblwell
Date: 11/15/95

Date Start/Finish: 10/18/95 / 10/18/95
Drilling Company: Tacoma Drilling Company
Driller's Name: Butch Dietsche
Drilling Method: Hollow Stem Auger
Bit Size: 8.25-in. Auger Size : 8.25-in.
Rig Type: Mobile B61
Spoon Size: 2-in.

AKA HP-02

Borehole Depth: 14 ft.

Geologist: David W. Lay

Well No. HP-2

Client:
Nevander Asset Management, Inc.

Location:
Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 in.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
										ASPHALT	
5		1		20 45 20	>50	0.5	--			SILT: Black/brown, some fine to coarse sand, nails, glass, refuse, loose, moist, no odor (FILL).	
10		2		2 2 2	4	1.5	37.3			3-inch layer of black oily tar, petroleum hydrocarbon odor. SILT: Green/grey, some fine sand and organic matter, loose, wet (NATIVE).	
15										Bottom of boring, hydropunch driven to 14' bgs.	

only rod

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Remarks:
Boring completed as a soil gas sampling location (BH-18).

Saturated Zones

Date / Time	Elevation	Depth

Project: 02380
Script: nbblwell
Date: 11/15/95

AKA **HP-03**

Date Start/Finish: 10/17/95 / 10/17/95 Drilling Company: Tacoma Drilling Company Driller's Name: Butch Dietsche Drilling Method: Hollow Stem Auger Bit Size: 8.25-in. Auger Size : 8.25-in. Rig Type: Mobile B61 Spoon Size: 2-in.	Borehole Depth: 14 ft. Geologist: David W. Lay	Well No. **HP-3** Client: Nevander Asset Management, Inc. Location: Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
										ASPHALT	
										CLAY: Light grey, soft, wet.	
										SAND and GRAVEL: Black, fine to coarse, loose, moist (FILL).	
5		1		50	>50	0.2	--			CONCRETE: Grey, loose, moist (FILL).	Steel drive rod, (1.0' ags – 10' bgs).
		2		50	>50	0.3	--				
		3		7 7 6	13	0.2	--			SILT and SAND: Dark brown, little clay, wood fibers, loose, moist, creosote odor (FILL).	8.25" Hollow stem auger, (0.5' ags – 10' bgs).
10		4		4 4 5	9	1.5	8				
										Bottom of boring, hydropunch driven to 14' bgs.	1 1/4" PVC 0.010" Slotted hydropunch screen, (10.0' – 14.0' bgs).
											Native soil.
15											

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Remarks:

Boring completed as a soil gas sampling location (BH-19).

Saturated Zones

Date / Time	Elevation	Depth

Project: 02380 Script: nbblwell Date: 11/15/95

Date Start/Finish: 10/17/95 / 10/17/95
Drilling Company: Tacoma Drilling Company
Driller's Name: Butch Dietsche
Drilling Method: Hollow Stem Auger
Bit Size: 8.25-in. Auger Size : 8.25-in.
Rig Type: Mobile B61
Spoon Size: 2-in.

AKA HP-04

Borehole Depth: 14 ft.

Geologist: David M. Lay

Well No. HP-4

Client:
Nevander Asset Management, Inc.

Location:
Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
										ASPHALT	
5		1		18 15 9	>50	1.0	4.9			SAND: Black, fine to coarse, some silt, copper wire, concrete, asbestos, refuse, loose, moist (FILL).	Steel drive rod, (1.0' ags – 10' bgs).
											8.25" Hollow stem auger, (0.5' ags – 10' bgs).
10		2		7 3 4	7	1.0	4.9				1 1/4" PVC 0.010" Slotted hydropunch screen, (10.0' – 14.0' bgs).
										Bottom of boring, hydropunch driven to 14' bgs.	Native soil
15											

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Remarks:
Boring completed as a soil gas sampling location (BH-28).

Saturated Zones

Date / Time	Elevation	Depth

Project: 02380 Script: nbblwell Date: 11/15/95

AKA HP-05

Date Start/Finish: 10/16/95 / 10/16/95 Drilling Company: Tacoma Drilling Company Driller's Name: Butch Dietsche Drilling Method: Hollow Stem Auger Bit Size: 8.25-in. Auger Size : 8.25-in. Rig Type: Mobile B61 Spoon Size: 2-in.	Borehole Depth: 14 ft. Geologist: David W. Lay	Well No. HP-5 Client: Nevander Asset Management, Inc. Location: Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
										ASPHALT	
5		1		12 12 10	22	1.0	1.6			SILT: Brown, red staining, some fine to medium sand, green/white powder, loose, moist, slight petroleum hydrocarbon odor (FILL).	Steel drive rod, (1.0' ags – 10' bgs).
											8.25" Hollow stem auger, (0.5' ags – 10' bgs).
10		2		18 43 50	>50	0.5	4.9			Grades with concrete, tile fragments, metal, loose, wet, hydrocarbon odor.	1 1/4" PVC 0.010" Slotted hydropunch screen, (10.0' – 14.0' bgs).
										Bottom of boring, hydropunch driven to 14' bgs.	Native soil
15											

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Remarks:
Boring completed as a soil gas sampling location (BH-5).

Saturated Zones		
Date / Time	Elevation	Depth

Project: 02380 Script: nbbiwell Date: 11/15/95

Date Start/Finish: 10/18/95 / 10/18/95
Drilling Company: Tacoma Drilling Company
Driller's Name: Butch Dietsche
Drilling Method: Hollow Stem Auger
Bit Size: 8.25-in. Auger Size : 8.25-in.
Rig Type: Mobile B61
Spoon Size: 2-in.

AKA HP-06

Borehole Depth: 23 ft.

Geologist: David N. Lay

Well No. HP-6

Client:
Nevander Asset Management, Inc.

Location:
Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 in.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
										ASPHALT	
5		1		20 34 34	>50	0.6	1.4			SILT and SAND: Green/grey, fine to medium, little coarse sand and fine gravel, loose, moist (FILL).	Steel drive rod, (1.0' ags – 19' bgs).
10		2		4 7 10	17	0.4	4.4			Grades with some glass and other refuse. (FILL).	8.25" Hollow stem auger, (0.5' ags – 19' bgs).
		3		4 2 2	4	1.5	1.4			CLAY: Black/grey, some organic matter, soft, wet.	
15										Bottom of boring, hydropunch driven to 23' bgs.	

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Remarks:
Boring completed as a soil gas sampling location (BH-9).

Saturated Zones

Date / Time	Elevation	Depth

Client:
Seattle, Washington

Well No. HP-8

Total Depth = 23 ft.

Site:
Nevander Asset Management, Inc.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
											8.25" Hollow stem auger, (0.5' ags to 19' bgs).
20											1 1/4" PVC 0.010" Slotted hydropunch screen, (19.0' – 23.0' bgs).
											Native soil.
25											
30											
35											

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Remarks:

Initial hydropunch driven to 16' bgs did not produce water, second successful hydropunch driven to 23' bgs.

Saturated Zones

Date / Time	Elevation	Depth

Project: 02380

Script: nbbiwell
Date: 11/15/95

Date Start/Finish: 10/19/95 / 10/19/95
Drilling Company: Tacoma Drilling Company
Driller's Name: Butch Dietsche
Drilling Method: Solid Stem Auger
Bit Size: 4-in. Auger Size : 4-in.
Rig Type: Mobile B61
Spoon Size: -1-in.

AKA BH-01

Borehole Depth: 6 ft.

Geologist: David W. Lay

Well No. BH-1

Client:
Nevander Asset Management, Inc.

Location:
Seattle, Washington

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
									GROUND SURFACE	
5									Soil samples not collected, vapor probe advanced with a solid stem auger.	Native backfill, (0.0' - 2.0' bgs). 1/4" Teflon tubing, 1.0' ags - 5.8' bgs). Hydrated bentonite seal, (2.0' - 4.0' bgs). Sand pack, (4.0' - 6.0' bgs). 1/4" Stainless steel screen point.
10										
15										

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Remarks:

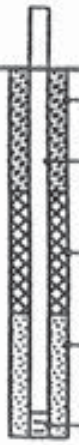
Saturated Zones

Date / Time	Elevation	Depth

Project: 02380 Script: nbblwell Date: 11/15/95

AKA BH-02

Date Start/Finish: 10/19/95 / 10/19/95 Drilling Company: Tacoma Drilling Company Driller's Name: Butch Dietsche Drilling Method: Solid Stem Auger Bit Size: 4-in. Auger Size : 4-in. Rig Type: Mobile B61 Spoon Size: -1-in.	Borehole Depth: 6 ft. Geologist: David W. Lay	Well No. BH-2 Client: Nevander Asset Management, Inc. Location: Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
										Soil samples not collected, vapor probe advanced with a solid stem auger.	 Native backfill, (0.0' – 2.0' bgs). 1/4" Teflon tubing, (0' ags – 5.6' bgs). Hydrated bentonite seal, (2.0' – 4.0' bgs). Sand pack, (4.0' – 6.0' bgs). 1/4" Stainless steel screen point.
5											
10											
15											

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Remarks:

Saturated Zones		
Date / Time	Elevation	Depth

Project: 02380 Script: nbblwell Date: 11/15/95

Date Start/Finish: 10/19/95 / 10/19/95
Drilling Company: Tacoma Drilling Company
Driller's Name: Butch Dietsche
Drilling Method: Solid Stem Auger
Bit Size: 4-in. Auger Size : 4-in.
Rig Type: Mobile B61
Spoon Size: -1-in.

AKA BH-03

Borehole Depth: 6 ft.

Geologist: David W. Lay

Well No. BH-3

Client:
Nevander Asset Management, Inc.

Location:
Seattle, Washington

DEPTH / ELEVATION	Sample-Run Number	Sample/In./Type	Blows/6 in.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
									GROUND SURFACE	
5									Soil samples not collected, vapor probe advanced with a solid stem auger.	Native backfill, (0.0' – 2.0' bgs). 1/4" Teflon tubing, (0' ags – 5.6' bgs). Hydrated bentonite seal, (2.0' – 4.0' bgs). Sand pack, (4.0' – 6.0' bgs). 1/4" Stainless steel screen point.
10										
15										

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Remarks:

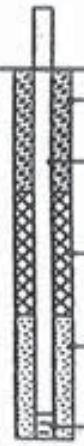
Saturated Zones

Date / Time	Elevation	Depth

Project: 02380 Script: nbblwell Date: 11/15/95

AKA **BH-04**

Date Start/Finish: 10/19/95 / 10/19/95 Drilling Company: Tacoma Drilling Company Driller's Name: Butch Dietsche Drilling Method: Solid Stem Auger Bit Size: 4-in. Auger Size : 4-in. Rig Type: Mobile B61 Spoon Size: -1-in.	Borehole Depth: 6 ft. Geologist: David W. Lay	Well No. **BH-4** Client: Nevander Asset Management, Inc. Location: Seattle, Washington

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
									GROUND SURFACE	
5									Soil samples not collected, vapor probe advanced with a solid stem auger.	Native backfill, (0.0' – 2.0' bgs). 1/4" Teflon tubing, (0' ags – 5.6' bgs). Hydrated bentonite seal, (2.0' – 4.0' bgs). Sand pack, (4.0' – 6.0' bgs). 1/4" Stainless steel screen point.
10										
15										

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Remarks:

Saturated Zones		
Date / Time	Elevation	Depth

Project: 02380 Script: nbblwell Date: 11/15/95

Date Start/Finish: 10/16/95 / 10/16/95
Drilling Company: Tacoma Drilling Company
Driller's Name: Butch Dietsche
Drilling Method: Hollow Stem Auger
Bit Size: 8.25-in. Auger Size : 8.25-in.
Rig Type: Mobile B61
Spoon Size: 2-in.

AKA **BH-05**

Borehole Depth: 14 ft.

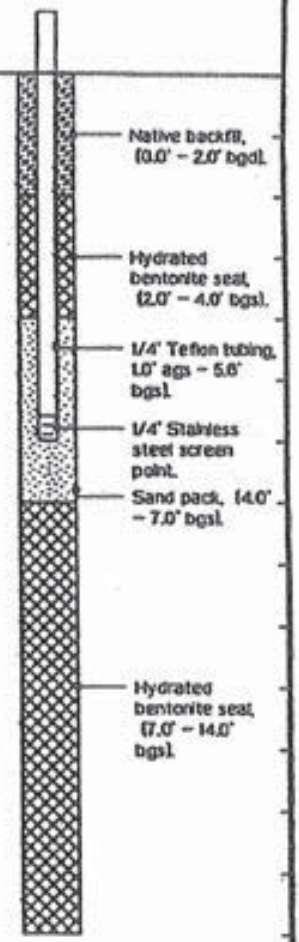
Geologist: David W. Lay

Well No. **BH-5**

Client:
Nevander Asset Management, Inc.

Location:
Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
										ASPHALT	
5		1		12 12 10	22	1.0	1.6			SILT: Brown, red staining, some fine to medium sand, green/white powder, loose, moist, slight petroleum hydrocarbon odor (FILL).	
10		2		18 43 50	>50	0.5	4.9			Grades with concrete, tile fragments, metal, loose, wet, hydrocarbon odor.	
15										Bottom of boring, hydropunch driven to 14' bgs.	



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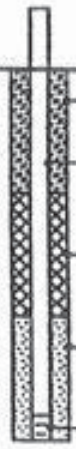
Remarks:
Hydropunch location HP-5 completed as a soil gas sampling location.

Saturated Zones		
Date / Time	Elevation	Depth

Project: 02380 Script: nbblwell Date: 11/15/95

AKA BH-06

Date Start/Finish: 10/16/95 / 10/16/95 Drilling Company: Tacoma Drilling Company Driller's Name: Butch Dietsche Drilling Method: Solid Stem Auger Bit Size: 4-in. Auger Size : 4-in. Rig Type: Mobile B61 Spoon Size: -1-in.	Borehole Depth: 6 ft. Geologist: David W. Lay	Well No. BH-6 Client: Nevander Asset Management, Inc. Location: Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
5										Soil samples not collected, vapor probe advanced with a solid stem auger.	Native backfill, (0.0' – 2.0' bgs). 1/4" Teflon tubing, (0' ags – 5.8' bgs). Hydrated bentonite seal, (2.0' – 4.0' bgs). Sand pack, (4.0' – 6.0' bgs). 1/4" Stainless steel screen point.
10											
6											

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Remarks:

Saturated Zones		
Date / Time	Elevation	Depth

Project: 02380 Script: nbbwell Date: 11/15/95

Date Start/Finish: 10/19/95 / 10/19/95
Drilling Company: Tacoma Drilling Company
Driller's Name: Butch Dietsche
Drilling Method: Solid Stem Auger
Bit Size: 4-in. Auger Size : 4-in.
Rig Type: Mobile B61
Spoon Size: -1-in.

AKA BH-07

Borehole Depth: 6 ft.

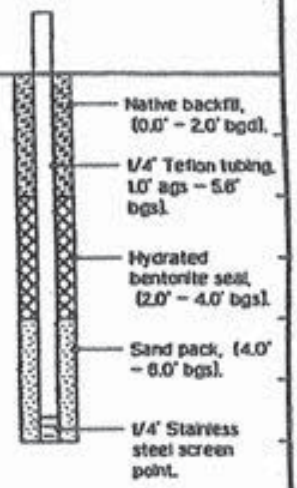
Geologist: David W. Lay

Well No. BH-7

Client:
Nevander Asset Management, Inc.

Location:
Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
										Soil samples not collected, vapor probe advanced with a solid stem auger.	



5

10

15

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Remarks:

Saturated Zones		
Date / Time	Elevation	Depth

Project: 02380

Script: nDDlwell
Date: 11/15/95

AKA BH-08

Date Start/Finish: 10/19/95 / 10/19/95 Drilling Company: Tacoma Drilling Company Driller's Name: Butch Dietsche Drilling Method: Solid Stem Auger Bit Size: 4-in. Auger Size : 4-in. Rig Type: Mobile B61 Spoon Size: -1-in.	Borehole Depth: 6 ft. Geologist: David W. Lay	Well No. BH-8 Client: Nevander Asset Management, Inc. Location: Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
5										Soil samples not collected, vapor probe advanced with a solid stem auger.	Native backfill, (0.0' – 2.0' bgs). 1/4" Teflon tubing, 1.0' ags – 5.8' bgs). Hydrated bentonite seal, (2.0' – 4.0' bgs). Sand pack, (4.0' – 6.0' bgs). 1/4" Stainless steel screen point.
10											
15											

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Remarks:

Saturated Zones		
Date / Time	Elevation	Depth

Project: 02380 Script: nbbiwell Date: 11/15/95

Date Start/Finish: 10/18/95 / 10/18/95
Drilling Company: Tacoma Drilling Company
Driller's Name: Butch Dietsche
Drilling Method: Hollow Stem Auger
Bit Size: 8.25-in. Auger Size : 8.25-in.
Rig Type: Mobile B61
Spoon Size: 2-in.

AKA **BH-09**

Borehole Depth: 23 ft.

Geologist: David W. Lay

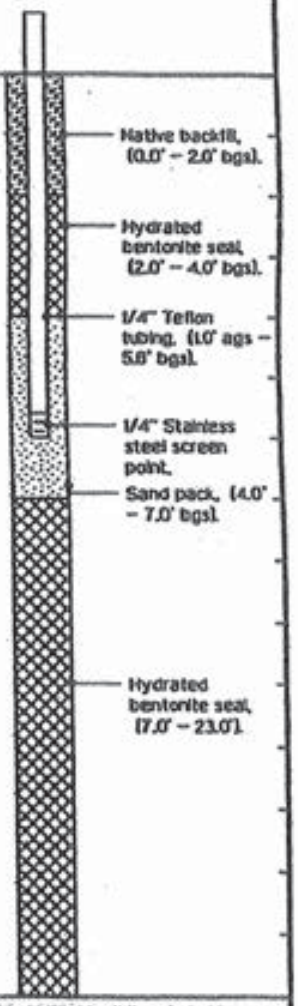
Well No. **BH-9**

Client:
Nevander Asset Management, Inc.

Location:
Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 in.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description
										GROUND SURFACE
										ASPHALT
5		1		20 34 34	>50	0.6	1.4			SILT and SAND: Green/grey, fine to medium, little coarse sand and fine gravel, loose, moist (FILL).
10		2		4 7 10	17	0.4	4.4			Grades with some glass and other refuse, (FILL).
		3		4 2 2	4	1.5	1.4			CLAY: Black/grey, some organic matter, soft, wet.
15										Bottom of boring, hydropunch driven to 23' bgs.

Well Construction



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Remarks:
Hydropunch location HP-6 completed as a soil gas sampling location.

Saturated Zones

Date / Time	Elevation	Depth

Project: 02380 Script: nbblwell Date: 11/15/95

Client:
Seattle, Washington

Well No. BH-9
Total Depth = 23 ft.

Site:
Nevander Asset Management, Inc.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
											Hydrated bentonite seal (7.0' - 23.0')
20											
25											
30											
35											

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Remarks:

Saturated Zones		
Date / Time	Elevation	Depth

Project: 02380
Script: nbblwell
Date: 11/15/95

Date Start/Finish: 10/19/95 / 10/19/95 Drilling Company: Tacoma Drilling Company Driller's Name: Butch Dietsche Drilling Method: Solid Stem Auger Bit Size: 4-in. Auger Size : 4-in. Rig Type: Mobile B61 Spoon Size: -1-in.	Borehole Depth: 6 ft. Geologist: David W. Lay	Well No. BH-11 Client: Nevander Asset Management, Inc. Location: Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
5										Soil samples not collected, vapor probe advanced with a solid stem auger.	Native backfill, (0.0' – 2.0' bgs). 1/4" Teflon tubing, 1.0' ags – 5.6' bgs). Hydrated bentonite seal, (2.0' – 4.0' bgs). Sand pack, (4.0' – 6.0' bgs). 1/4" Stainless steel screen point.
10											
15											

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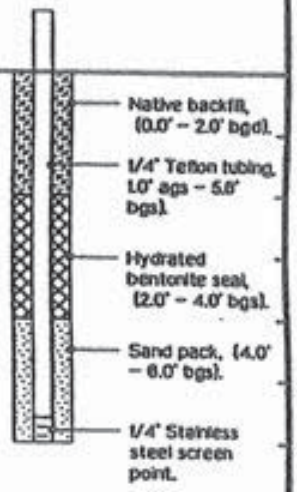
Remarks:

Saturated Zones		
Date / Time	Elevation	Depth

Project: 02380 Script: nbblwell Date: 11/15/95

Date Start/Finish: 10/19/95 / 10/19/95 Drilling Company: Tacoma Drilling Company Driller's Name: Butch Dietsche Drilling Method: Solid Stem Auger Bit Size: 4-in. Auger Size : 4-in. Rig Type: Mobile B61 Spoon Size: -1-in.	Borehole Depth: 6 ft. Geologist: David W. Lay	Well No. BH-12 Client: Nevander Asset Management, Inc. Location: Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
										Soil samples not collected, vapor probe advanced with a solid stem auger.	
5											
10											
15											

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Remarks:

Saturated Zones		
Date / Time	Elevation	Depth

Project: 02380 Script: nbblwell Date: 11/15/95

Date Start/Finish: 10/19/95 / 10/19/95
Drilling Company: Tacoma Drilling Company
Driller's Name: Butch Dietsche
Drilling Method: Solid Stem Auger
Bit Size: 4-in. Auger Size : 4-in.
Rig Type: Mobile B61
Spoon Size: -1-in.

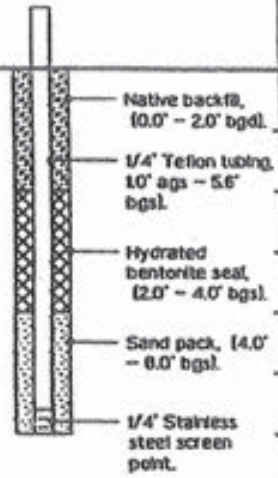
Borehole Depth: 6 ft.

Geologist: David W. Lay

Well No. BH-13

Client:
Nevander Asset Management, Inc.

Location:
Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
5										Soil samples not collected, vapor probe advanced with a solid stem auger.	
10											
15											

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:

Saturated Zones

Date / Time	Elevation	Depth

Project: 02380 Script: nbblwell Date: 11/15/95

Date Start/Finish: 10/18/95 / 10/18/95 Drilling Company: Tacoma Drilling Company Driller's Name: Butch Dietsche Drilling Method: Hollow Stem Auger Bit Size: 8.25-in. Auger Size : 8.25-in. Rig Type: Mobile B61 Spoon Size: 2-in.	Borehole Depth: 19 ft. Geologist: David W. Lay	Well No. BH-14 Client: Nevander Asset Management, Inc. Location: Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
										ASPHALT	
5		1		14 10 8	18	1.0	1.4			SILT and SAND: Black/green, fine, some glass, brick, gravel, loose, moist (FILL).	Native backfill, (0.0' – 2.0' bgs). Hydrated bentonite seal, (2.0' – 4.0' bgs). 1/4" Teflon tubing, (1.0' – 5.8' bgs). 1/4" Stainless steel screen point. Sand pack, (4.0' to 7.0' bgs).
10		2		4 4 2	6	1.0	79.9			SILT: Green, stiff, moist to wet, strong hydrocarbon odor.	Hydrated bentonite seal, (7.0' to 10.0' bgs).
15										SILT and SAND: Dark brown, loose, wet, slight hydrocarbon odor.	

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:
Hydropunch location HP-1 completed as a soil gas sampling location.

Saturated Zones

Date / Time	Elevation	Depth

Client:
Seattle, Washington

Site:
Nevander Asset Management, Inc.

Well No. BH-14
Total Depth = 19 ft.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 in.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		3		1 1 1	2	1.5	4.4			SILT and SAND: Dark brown, loose, wet, slight hydrocarbon odor.	Hydrated bentonite seal (7.0' to 19.0' bgs).
										Bottom of boring, hydropunch driven to 19' bgs.	
20											
25											
30											
35											

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:

Saturated Zones

Date / Time	Elevation	Depth

Project: 02380

Script: nbblwell
Date: 11/15/95

Date Start/Finish: 10/19/95 / 10/19/95 Drilling Company: Tacoma Drilling Company Driller's Name: Butch Dietsche Drilling Method: Solid Stem Auger Bit Size: 4-in. Auger Size : 4-in. Rig Type: Mobile B61 Spoon Size: --1-in.	Borehole Depth: 6 ft. Geologist: David W. Lay	Well No. BH-15 Client: Nevander Asset Management, Inc. Location: Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
										Soil samples not collected, vapor probe advanced with a solid stem auger.	Native backfill, (0.0' – 2.0' bgs). 1/4" Teflon tubing, 1.0' ags – 5.8' bgs). Hydrated bentonite seal, (2.0' – 4.0' bgs). Sand pack, (4.0' – 6.0' bgs). 1/4" Stainless steel screen point.
5											
10											
15											

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:

Saturated Zones		
Date / Time	Elevation	Depth

Project: 02380 Script: nbbiwell Date: 11/15/95

Date Start/Finish: 10/18/95 / 10/18/95
Drilling Company: Tacoma Drilling Company
Driller's Name: Butch Dietsche
Drilling Method: Hollow Stem Auger
Bit Size: 8.25-in. Auger Size : 8.25-in.
Rig Type: Mobile B61
Spoon Size: 2-in.

Borehole Depth: 14 ft.

Geologist: David W. Lay

Well No. BH-16

Client:
Nevander Asset Management, Inc.

Location:
Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description
										GROUND SURFACE
										ASPHALT
5		1		20 45 20	>50	0.5	--			SILT: Black/brown, some fine to coarse sand, nails, glass, refuse, loose, moist, no odor (FILL).
10		2		2 2 2	4	1.5	37.3			3-inch layer of black oily tar, petroleum hydrocarbon odor. SILT: Green/grey, some fine sand and organic matter, loose, wet (NATIVE).
										Bottom of boring, hydropunch driven to 14' bgs.
15										

Well Construction

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

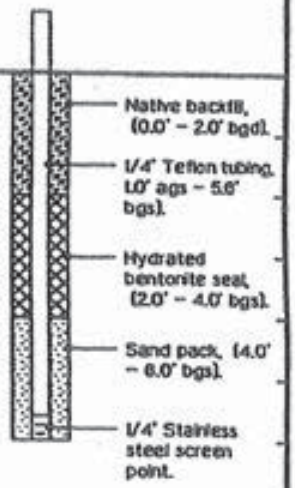
Remarks:
Hydropunch location HP-2 completed as a soil gas sampling location.

Saturated Zones

Date / Time	Elevation	Depth

Project: 02380
Script: nbbiwell
Date: 11/15/95

Date Start/Finish: 10/18/95 / 10/18/95 Drilling Company: Tacoma Drilling Company Driller's Name: Butch Dietsche Drilling Method: Solid Stem Auger Bit Size: 4-in. Auger Size : 4-in. Rig Type: Mobile B61 Spoon Size: -1-in.	Borehole Depth: 6 ft. Geologist: David W. Lay	Well No. BH-17 Client: Nevander Asset Management, Inc. Location: Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
										Soil samples not collected, vapor probe advanced with a solid stem auger.	
5											
10											
15											

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:

Saturated Zones		
Date / Time	Elevation	Depth

Project: 02380 Script: nbblwell Date: 11/15/95

Date Start/Finish: 10/18/95 / 10/18/95
Drilling Company: Tacoma Drilling Company
Driller's Name: Butch Dietsche
Drilling Method: Solid Stem Auger
Bit Size: 4-in. Auger Size : 4-in.
Rig Type: Mobile B61
Spoon Size: -1-in.

Borehole Depth: 6 ft.

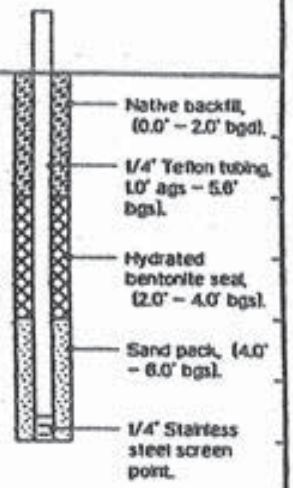
Geologist: David W. Lay

Well No. BH-18

Client:
Nevander Asset Management, Inc.

Location:
Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 in.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
5										Soil samples not collected, vapor probe advanced with a solid stem auger.	
10											
15											



BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:

Saturated Zones

Date / Time	Elevation	Depth

Project: 02380
Script: nbblwell
Date: 11/15/95

Date Start/Finish: 10/17/95 / 10/17/95
Drilling Company: Tacoma Drilling Company
Driller's Name: Butch Dietsche
Drilling Method: Hollow Stem Auger
Bit Size: 8.25-in. Auger Size : 8.25-in.
Rig Type: Mobile B61
Spoon Size: 2-in.

Borehole Depth: 14 ft.

Geologist: David W. Lay

Well No. BH-19

Client:
Nevander Asset Management, Inc.

Location:
Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
										ASPHALT	
										CLAY: Light grey, soft, wet.	Native backfill, (0.0' – 2.0' bgs).
										SAND and GRAVEL: Black, fine to coarse, loose, moist (FILL).	Hydrated bentonite seal, (2.0' – 4.0' bgs).
5		1		50	>50	0.2	--			CONCRETE: Grey, loose, moist (FILL).	1/4" Teflon tubing, (1.0' ags – 5.6' bgs).
		2		50	>50	0.3	--				Stainless steel screen point.
											Sand pack, (4.0' – 7.0' bgs).
		3		7 7 6	13	0.2	--			SILT and SAND: Dark brown, little clay, wood fibers, loose, moist, creosote odor (FILL).	
10		4		4 4 5	9	1.5	8				Hydrated bentonite seal, (7.0' – 14.0' bgs).
										Bottom of boring, hydropunch driven to 14' bgs.	
15											

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:

Hydropunch location HP-3 completed as a soil gas sampling location.

Saturated Zones

Date / Time	Elevation	Depth

Project: 02380

Script: nbblwell
Date: 11/15/95

Date Start/Finish: 10/19/95 / 10/19/95
Drilling Company: Tacoma Drilling Company
Driller's Name: Butch Dietsche
Drilling Method: Solid Stem Auger
Bit Size: 4-in. Auger Size : 4-in.
Rig Type: Mobile B61
Spoon Size: -1-in.

Borehole Depth: 6 ft.

Geologist: David N. Lay

Well No. BH-20

Client:
Nevander Asset Management, Inc.

Location:
Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 in.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
										Soil samples not collected, vapor probe advanced with a solid stem auger.	Native backfill, (0.0' – 2.0' bgs). 1/4" Teflon tubing, (0' ags – 5.6' bgs). Hydrated bentonite seal, (2.0' – 4.0' bgs). Sand pack, (4.0' – 6.0' bgs). 1/4" Stainless steel screen point.
5											
10											
15											

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:

Saturated Zones

Date / Time	Elevation	Depth

Project: 02380

Script: nbbiwell
Date: 11/15/95

Date Start/Finish: 10/18/95 / 10/18/95
Drilling Company: Tacoma Drilling Company
Driller's Name: Butch Dietsche
Drilling Method: Solid Stem Auger
Bit Size: 4-in. Auger Size : 4-in.
Rig Type: Mobile B61
Spoon Size: -1-in.

Borehole Depth: 6 ft.

Geologist: David W. Lay

Well No. BH-21

Client:
Nevander Asset Management, Inc.

Location:
Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
										Soil samples not collected, vapor probe advanced with a solid stem auger.	Native backfill, (0.0' – 2.0' bgs). 1/4" Teflon tubing, (0' ags – 5.8' bgs). Hydrated bentonite seal, (2.0' – 4.0' bgs). Sand pack, (4.0' – 8.0' bgs). 1/4" Stainless steel screen point.
5											
10											
15											

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:

Saturated Zones		
Date / Time	Elevation	Depth

Project: 02380

Script: nbbiwell
Date: 11/15/95

Date Start/Finish: 10/19/95 / 10/19/95
Drilling Company: Tacoma Drilling Company
Driller's Name: Butch Dietsche
Drilling Method: Solid Stem Auger
Bit Size: 4-in. Auger Size : 4-in.
Rig Type: Mobile B61
Spoon Size: -1-in.

Borehole Depth: 6 ft.

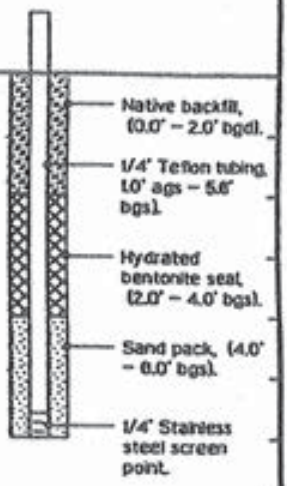
Geologist: David W. Lay

Well No. BH-22

Client:
Nevander Asset Management, Inc.

Location:
Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int./Type	Blows/6 in.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
										Soil samples not collected, vapor probe advanced with a stem auger.	
5											
10											
15											



BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:

Saturated Zones

Date / Time	Elevation	Depth

Project: 02380 Script: nbblwell Date: 11/15/95

Date Start/Finish: 10/19/95 / 10/19/95
Drilling Company: Tacoma Drilling Company
Driller's Name: Butch Dietsche
Drilling Method: Solid Stem Auger
Bit Size: 4-in. Auger Size : 4-in.
Rig Type: Mobile B61
Spoon Size: -1-in.

Borehole Depth: 6 ft.

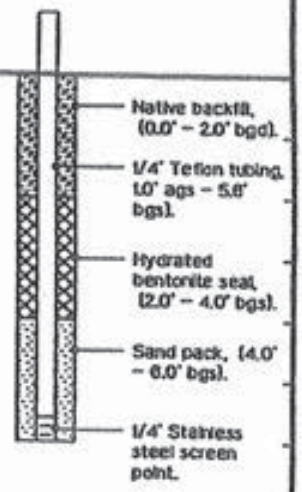
Geologist: David W. Lay

Well No. BH-23

Client:
Nevander Asset Management, Inc.

Location:
Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 in.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
										Soil samples not collected, vapor probe advanced with a solid stem auger.	



5

10

15

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:

Saturated Zones

Date / Time	Elevation	Depth

Project: 02380

Script: nbbiwell
Date: 11/15/95

Date Start/Finish: 10/18/95 / 10/18/95
Drilling Company: Tacoma Drilling Company
Driller's Name: Butch Dietsche
Drilling Method: Solid Stem Auger
Bit Size: 4-in. Auger Size : 4-in.
Rig Type: Mobile B61
Spoon Size: -1-in.

Borehole Depth: 6 ft.

Geologist: David W. Lay

Well No. BH-24

Client:
Nevander Asset Management, Inc.

Location:
Seattle, Washington

DEPTH ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 in.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
									GROUND SURFACE	
5									Soil samples not collected, vapor probe advanced with a solid stem auger.	Native backfill, (0.0' – 2.0' bgs). 1/4" Teflon tubing, 1.0' ags – 5.6' bgs). Hydrated bentonite seal, (2.0' – 4.0' bgs). Sand pack, (4.0' – 6.0' bgs). 1/4" Stainless steel screen point.
10										
6										

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:

Saturated Zones		
Date / Time	Elevation	Depth

Project: 02380 Script: nbbiwell Date: 11/15/95

Date Start/Finish: 10/19/95 / 10/19/95 Drilling Company: Tacoma Drilling Company Driller's Name: Butch Dietsche Drilling Method: Solid Stem Auger Bit Size: 4-in. Auger Size : 4-in. Rig Type: Mobile B61 Spoon Size: -1-in.	Borehole Depth: 6 ft. Geologist: David W. Lay	Well No. BH-25 Client: Nevander Asset Management, Inc. Location: Seattle, Washington

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
									GROUND SURFACE	
									Soil samples not collected, vapor probe advanced with a solid stem auger.	Native backfill, (0.0' – 2.0' bgs). 1/4" Teflon tubing, (.0' ags – 5.6' bgs). Hydrated bentonite seal, (2.0' – 4.0' bgs). Sand pack, (4.0' – 6.0' bgs). 1/4" Stainless steel screen point.
5										
10										
15										

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:

Saturated Zones		
Date / Time	Elevation	Depth

Project: 02380 Script: nbbiwell Date: 11/15/95

Date Start/Finish: 10/17/95 / 10/17/95
Drilling Company: Tacoma Drilling Company
Driller's Name: Butch Dietsche
Drilling Method: Hollow Stem Auger
Bit Size: 8.25-in. Auger Size : 8.25-in.
Rig Type: Mobile B61
Spoon Size: 2-in.

Borehole Depth: 14 ft.

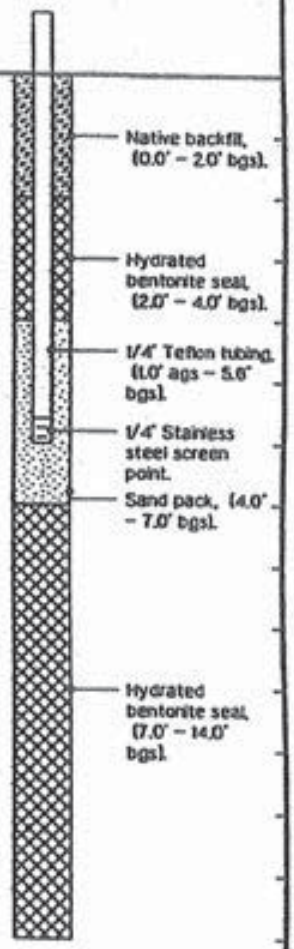
Geologist: David W. Lay

Well No. **BH-26**

Client:
Nevander Asset Management, Inc.

Location:
Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 in.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
										ASPHALT	
5		1		18 15 9	>50	1.0	4.9			SAND: Black, fine to coarse, some silt, copper wire, concrete, asbestos, refuse, loose, moist (FILL).	
10		2		7 3 4	7	1.0	4.9				
										Bottom of boring, hydropunch driven to 14' bgs.	
15											



BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

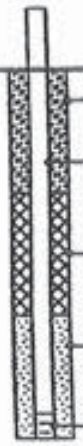
Remarks:
hydropunch location HP-4 completed as a soil gas sampling location.

Saturated Zones

Date / Time	Elevation	Depth

Project: 02380
Script: nbblwell
Date: 11/15/95

Date Start/Finish: 10/19/95 / 10/19/95 Drilling Company: Tacoma Drilling Company Driller's Name: Butch Dietsche Drilling Method: Solid Stem Auger Bit Size: 4-in. Auger Size : 4-in. Rig Type: Mobile B61 Spoon Size: -1-in.	Borehole Depth: 6 ft. Geologist: David W. Lay	Well No. BH-27 Client: Nevander Asset Management, Inc. Location: Seattle, Washington

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
										Soil samples not collected, vapor probe advanced with a solid stem auger.	
5											
10											
6											

Native backfill, (0.0' – 2.0' bgs).

1/4" Teflon tubing, (0' ags – 5.8' bgs).

Hydrated bentonite seal, (2.0' – 4.0' bgs).

Sand pack, (4.0' – 6.0' bgs).

1/4" Stainless steel screen point.

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

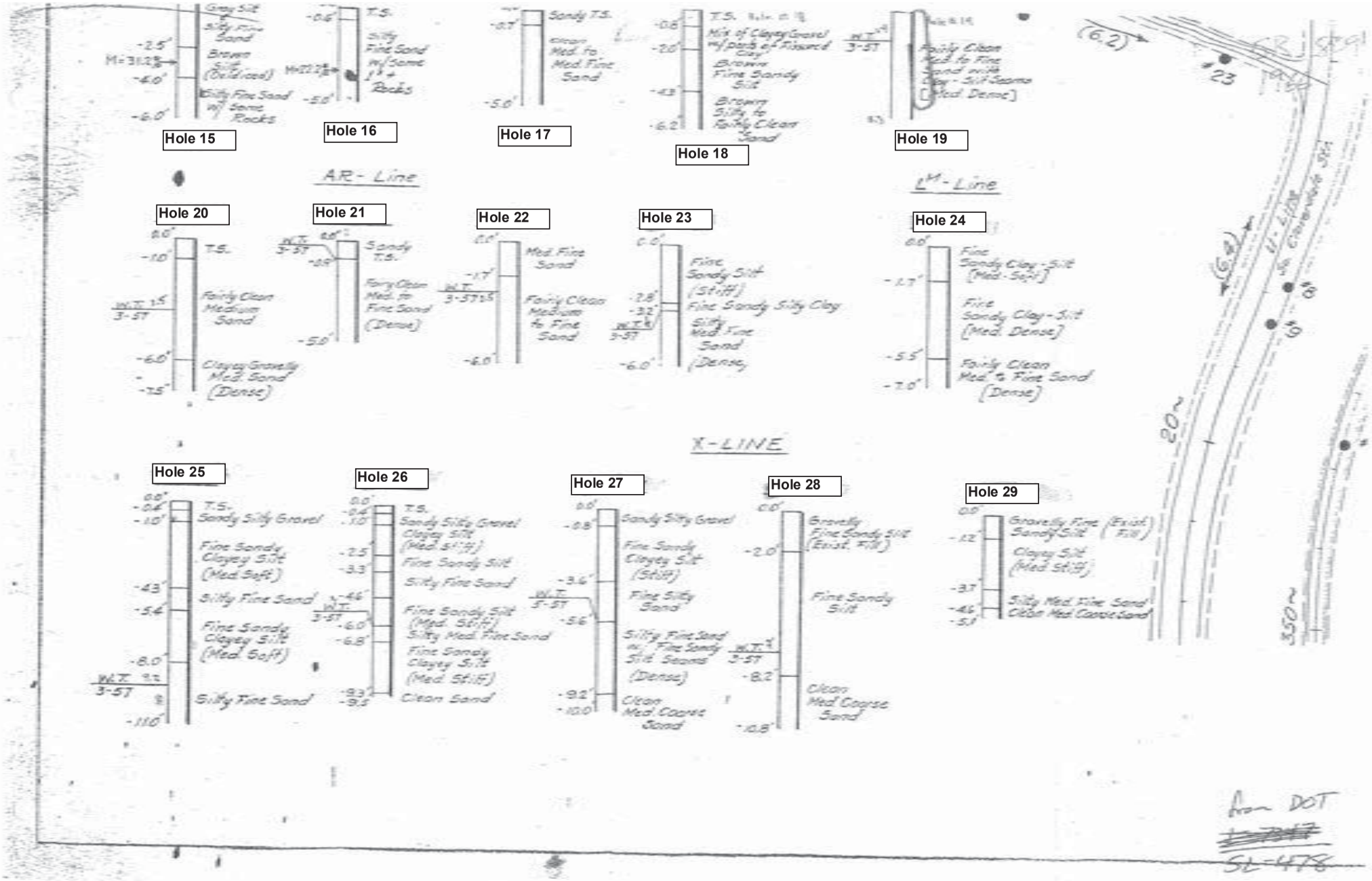
Remarks:

Saturated Zones		
Date / Time	Elevation	Depth

Project: 02380

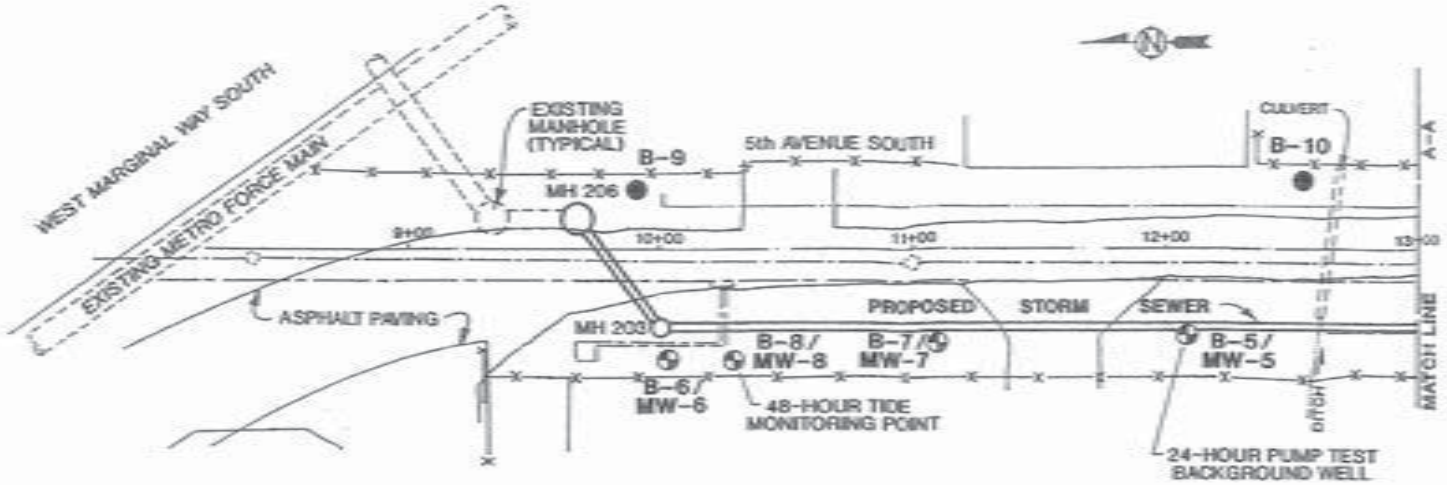
Script: nbbiwell
Date: 11/15/95

Historical 5th Avenue South and South Sullivan Street Borings/Wells



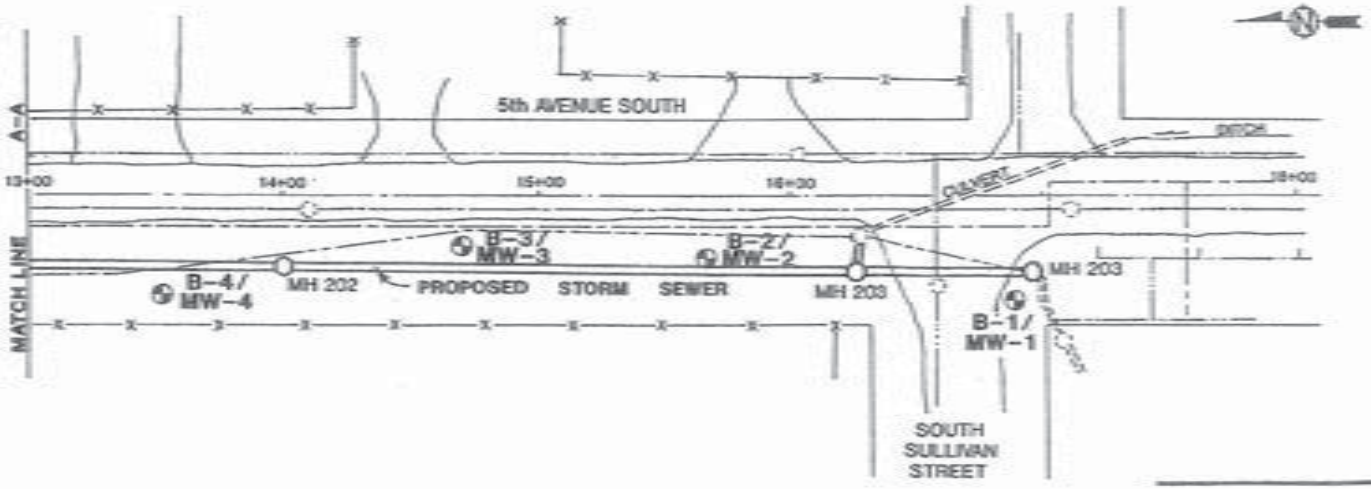
From DOT

SL-478



LEGEND

- B-8/ MW-8 — INDICATES BORING/MONITORING WELL NUMBER AND APPROXIMATE LOCATION
- INDICATES EXISTING PSS LINE
- INDICATES EXISTING WATER LINE
- INDICATES EXISTING GAS LINE
- INDICATES EXISTING IRR. LINE
- EXISTING FENCE
- INDICATES EXISTING LINE TO BE REMOVED
- B-13 — BORING NUMBER AND LOCATION



0 50 100
Scale in Feet

SOUTH PARK DETENTION PROJECT
SEATTLE, WASHINGTON

SITE & EXPLORATION PLAN
5TH AVENUE SOUTH
FIGURE 2

W.O. W-7490
BY WB
DATE SEPT 1991
SCALE 1"=50'

RITTENHOUSE-ZEMAN & ASSOCIATES, INC.
Geotechnical & Environmental Consultants
1400 140th Avenue N.E.
Bellevue, Washington 98005

RZA

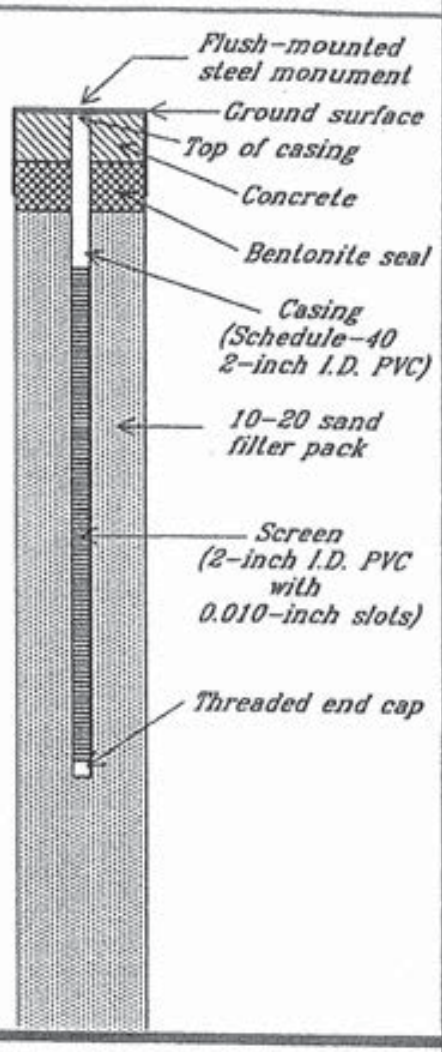
BASED ON A SITE PLAN SUPPLIED BY THE SEATTLE ENGINEERING DEPARTMENT.

PROJECT SOUTH PARK DETENTION PROJECT W.O. W-7490 AKA WELL NO. RMW-01 MW-1

Elevation reference: Well completed: 25 March 1991
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER	TESTING
0	Moist, brown, silty, gravelly, fine to medium SAND (Fill)						
						ATD	
5			S-1A	3			
	Loose, wet, grey, medium, SAND, trace twigs, interbedded with soft moist brown silt						
			S-2	3	0		418.1 TOX 8240
10							
			S-3	2	0		
	Very soft, moist, grey and brown sandy SILT with fine sand stringers, some twigs and wood						
			S-4	2	3		418.1 TOX Metals
20	Bottom of boring at 19.5 feet						
25							
30							

AS-BUILT DESIGN



LEGEND

- 2-inch O.D. split-spoon sample
- Sample not recovered
- Observed groundwater level (ATD = at time of drilling)
- Chemical analysis (EPA method shown)

RZA

RITTENHOUSE-ZEMAN & ASSOCIATES, INC.
Geotechnical & Environmental Consultants
1400 140th Ave NE
Bellevue, Washington 98005

Drilling started: 25 March 1991 Drilling completed: 25 March 1991 Logged by: WB

PROJECT SOUTH PARK DETENTION PROJECT

AKA - RMW-02

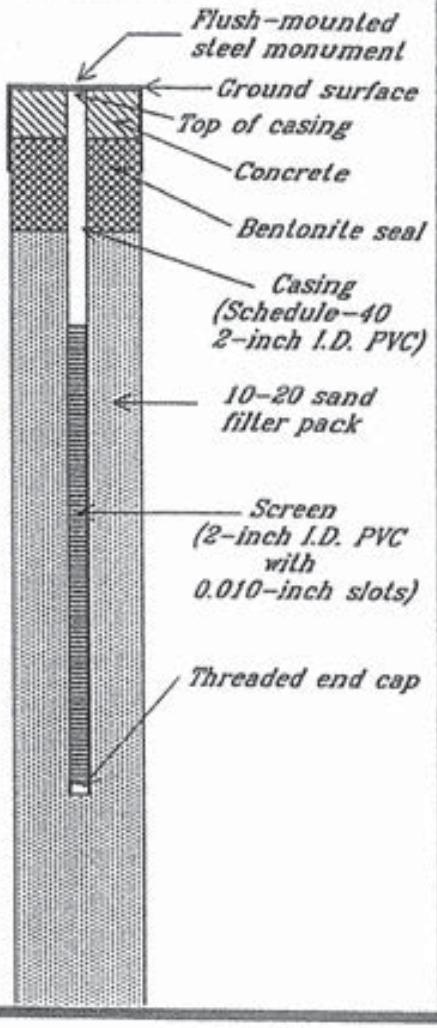
W.O. W-7490 WELL NO. MW-2

Elevation reference:
Ground surface elevation:

Well completed: 25 March 1991
Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER	TESTING
0	Loose, moist, brown, silty gravelly, medium SAND (Fill)						
			S-1	2	0		
5	Loose, wet, dark grey to black medium to fine SAND interbedded with grey silt						
			S-2	7	0	ATD	418.1 TOX 8240
10	Soft, wet, grey brown SILT, some wood fibers						
			S-3	3	0		
	Very soft, wet, grey SILT						
			S-4	1	0		418.1 TOX Metals
20	Bottom of boring at 19.5 feet						
25							
30							

AS-BUILT DESIGN



LEGEND

I 2-inch O.D. split-spoon sample

ATD Observed groundwater level (ATD = at time of drilling)

Chemical analysis (EPA method shown)

RZA

RITTENHOUSE-ZEMAN & ASSOCIATES, INC.
Geotechnical & Environmental Consultants
1400 140th Ave NE
Bellevue, Washington 98005

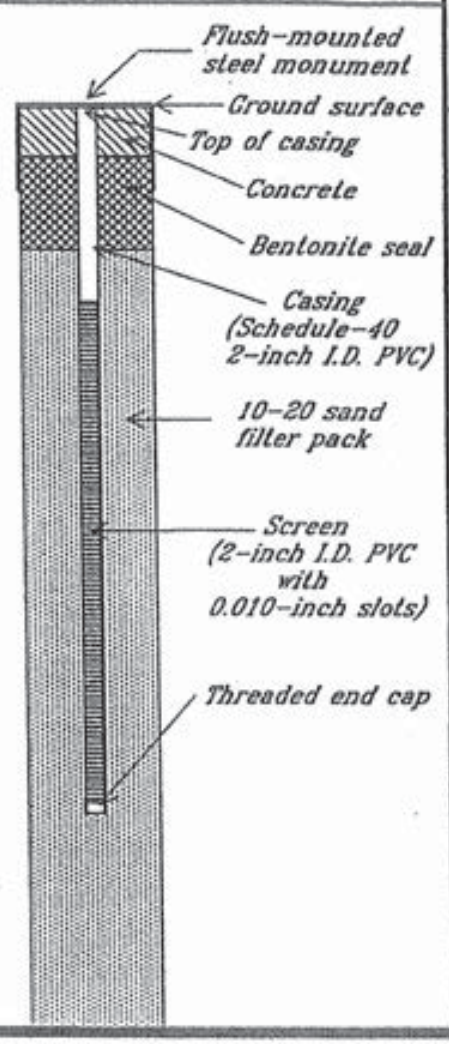
Drilling started: 25 March 1991 Drilling completed: 25 March 1991 Logged by: WB

PROJECT SOUTH PARK DETENTION PROJECT W.O. W-7490 WELL NO. ARA RMW-03 MW-3

Elevation reference: Well completed: 25 March 1991
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER	TESTING
0	Loose, moist, dark brown, silty fine SAND, some gravel, some roots (topsoil)		S-1	5	0		418.1 TOX 8240
5	Brown, moist, silty, fine to medium SAND, some gravel (fill).						
	Soft, moist to wet, grey SILT		S-2	4	0	ATD	418.1 TOX Metals
10	Soft, moist to wet, grey brown to brown SILT		S-3	3	0		
15	Loose, wet, dark grey to black medium-fine, SAND, trace twigs		S-4	3	0		
20	Bottom of boring at 19.5 feet						
25							
30							

AS-BUILT DESIGN



LEGEND

- 2-inch O.D. split-spoon sample
- ATD Observed groundwater level (ATD = at time of drilling)
- Chemical analysis (EPA method shown)

RZA

RITTENHOUSE-ZEMAN & ASSOCIATES, INC.
Geotechnical & Environmental Consultants
1400 140th Ave NE
Bellevue, Washington 98005

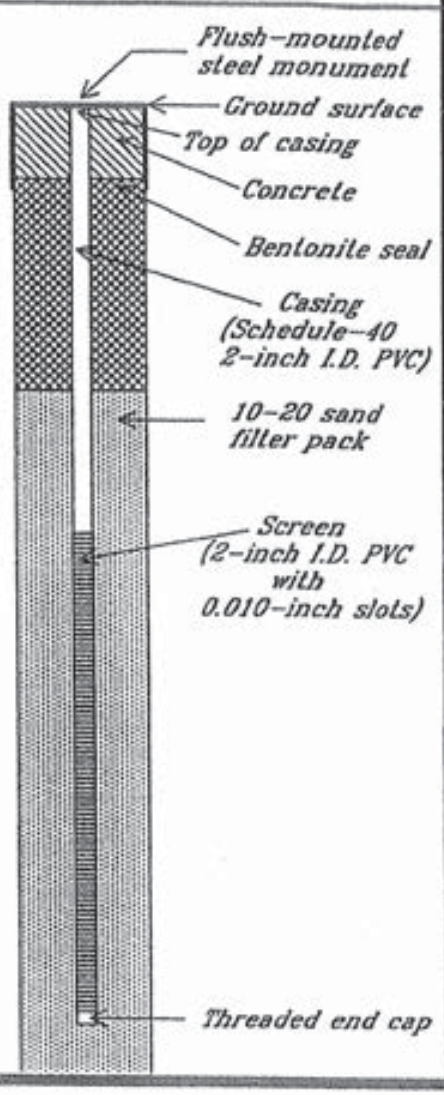
Drilling started: 25 March 1991 Drilling completed: 25 March 1991 Logged by: WB

PROJECT SOUTH PARK DETENTION PROJECT AKA W.O. W-7490 WELL NO. RMW-04 MW-4

Elevation reference: Well completed: 25 March 1991
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER	TESTING
0	Moist, light brown, silty fine SAND (Fill)						
5	Loose, moist, light brown, fine SAND, some silty fine sand, some roots		S-1	10	0		418.1 TOX 8240
10			S-2	5	0		
15			S-3	9	0		418.1 TOX Metals
	Loose, wet, dark grey to black, fine SAND						
20	Trace gravel		S-4	6	0		
	Bottom of boring at 20.5 feet						
25							
30							

AS-BUILT DESIGN



LEGEND

2-inch O.D. split-spoon sample

Sample not recovered

Chemical analysis (EPA method shown)

RZA

RITTENHOUSE-ZEMAN & ASSOCIATES, INC.
Geotechnical & Environmental Consultants
1400 140th Ave NE
Bellevue, Washington 98005

Drilling started: 25 March 1991 Drilling completed: 25 March 1991 Logged by: WB

PROJECT SOUTH PARK DETENTION PROJECT

AKA RMW-05

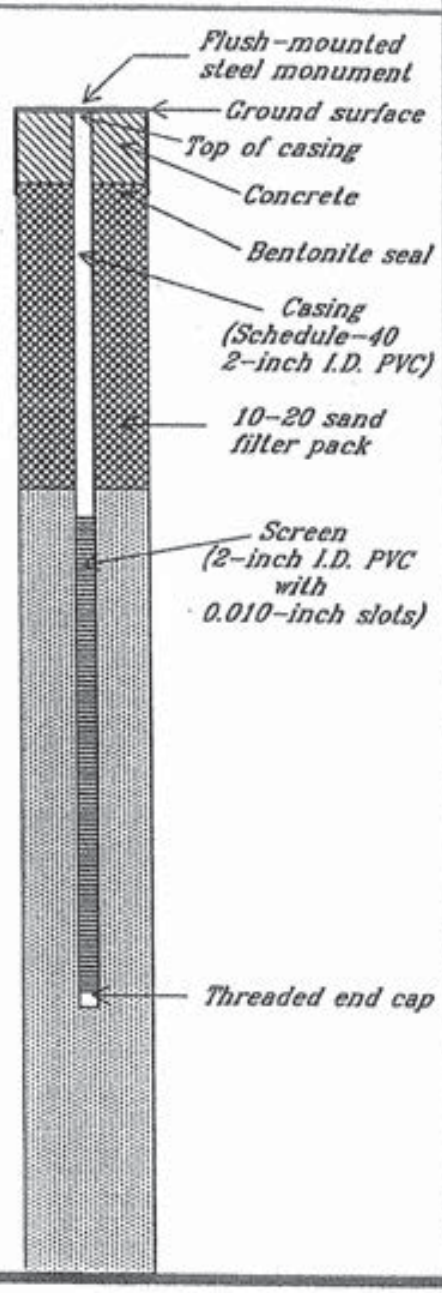
W.O. W-7490 WELL NO. MW-5

Elevation reference: Well completed: 25 March 1991

Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER	TESTING
0	(Blow counts overstated)						
	Very dense, moist, brown, silty fine SAND, some roots and twigs, trace gravel		S-1	60 for 8"	0		
5	Debris – paper, cloth						
	Loose, moist to wet, brown, silty fine SAND, some roots and wood		S-2	4	24		418.1 TOX 8240
10							
	Very soft, wet, grey brown sandy SILT, some twigs		S-3	1	0	ATD	418.1 TOX Metals
	Medium stiff, wet, grey brown, sandy SILT with interbedded dark grey to black, fine to medium sand		S-4	8	0		
20							
	Loose, wet, dark grey to black, fine to medium SAND		S-5	2	0		
25	Bottom of boring at 24.5 feet						
30							

AS-BUILT DESIGN



LEGEND

2-inch O.D. split-spoon sample

ATD Observed groundwater level (ATD = at time of drilling)

Chemical analysis (EPA method shown)

RZA
RITTENHOUSE-ZEMAN & ASSOCIATES, INC.
Geotechnical & Environmental Consultants
1400 140th Ave NE
Bellevue, Washington 98005

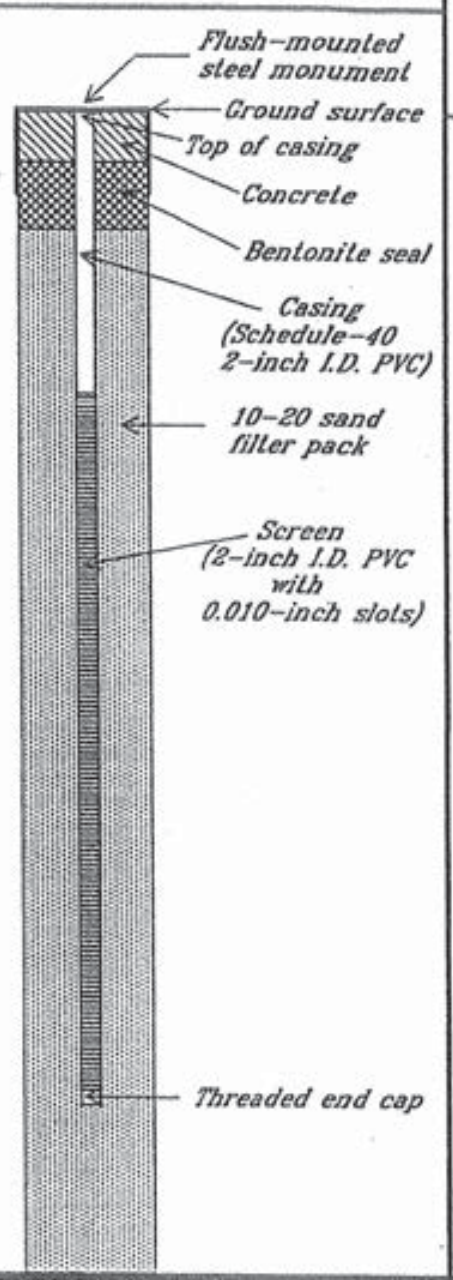
Drilling started: 25 March 1991 Drilling completed: 25 March 1991 Logged by: WB

PROJECT SOUTH PARK DETENTION PROJECT W.O. W-7490 AKA RMW-06 WELL NO. MW-6

Elevation reference: Well completed: 25 March 1991
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER	TESTING
0							
	Medium dense, moist, dark brown, silty fine SAND, some gravel, some debris (broken glass, burnt wood)		S-1	12	2		
5							
	(blow counts overstated) Some wood debris		S-2	50 for 4"	6		
10							
	Medium dense, wet, black, silty fine to medium SAND, trace gravel, trace debris (glass), some petroleum hydrocarbon sheen		S-3	16	60	ATD	418.1 TOX 8240
	Medium stiff, wet, grey brown, sandy SILT, trace twigs		S-4	6	9		
20							
	Medium dense, wet, black, fine to medium SAND, some petroleum hydrocarbon sheen		S-5	14	82		418.1 TOX Metals
25	Bottom of boring at 24.5 feet						
30							

AS-BUILT DESIGN



LEGEND

2-inch O.D. split-spoon sample

Observed groundwater level (ATD = at time of drilling)

Chemical analysis (EPA method shown)

RZA

RITTENHOUSE-ZEMAN & ASSOCIATES, INC.
Geotechnical & Environmental Consultants
1400 140th Ave NE
Bellevue, Washington 98005

Drilling started: 25 March 1991 Drilling completed: 25 March 1991 Logged by: WB

AKA RMW-07

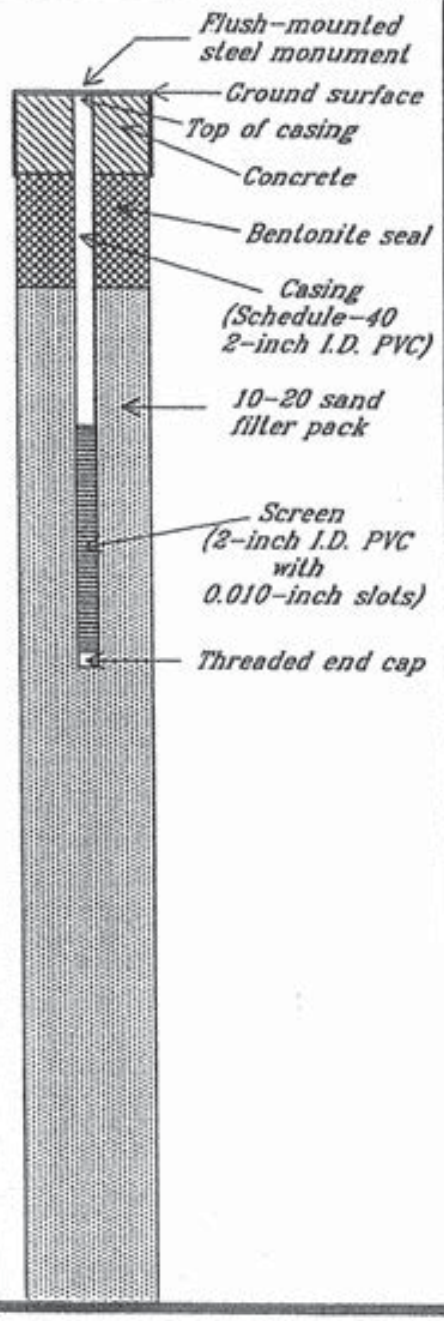
PROJECT SOUTH PARK DETENTION PROJECT W.O. W-7490 WELL NO. MW-7

Elevation reference: Well completed: 26 March 1991

Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER	TESTING
0							
	(Blow counts overstated) Medium dense, moist, black and brown, silty fine SAND, trace gravel, trace roots, some wood debris		S-1	21	2		
5							
	Dense, moist to wet, black and brown, silty fine SAND, some gravel, interbedded with debris (carpet, glass and wood)		S-2	45	0		418.1 TOX 8240
10							
						ATD	
			S-3	16	2		418.1 TOX Metals
	Medium dense, wet, black to dark grey fine SAND						
	No returns – resampled						
20	Loose, wet, black to dark grey fine SAND with interbedded grey sandy silt, some twigs		S-4	6	0		
25	Medium dense		S-5	15	2		
	Bottom of boring at 25.5 feet						
30							

AS-BUILT DESIGN



LEGEND

- 2-inch O.D. split-spoon sample
- Sample not recovered
- ATD Observed groundwater level (ATD = at time of drilling)
- Chemical analysis (EPA method shown)

RZA

RITTENHOUSE-ZEMAN & ASSOCIATES, INC.
Geotechnical & Environmental Consultants
1400 140th Ave NE
Bellevue, Washington 98005

Drilling started: 26 March 1991 Drilling completed: 26 March 1991 Logged by: WB

ARA

RMW-08

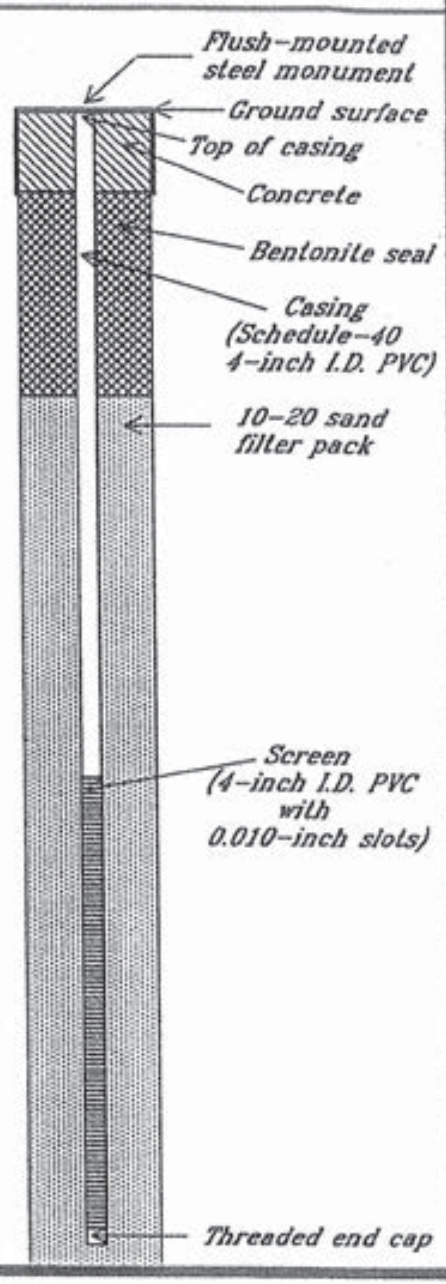
PROJECT SOUTH PARK DETENTION PROJECT W.O. W-7490 WELL NO. MW-8

Elevation reference: Well completed: 26 March 1991

Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER	TESTING
0	Loose, moist, dark brown, silty fine SAND, trace gravel, abundant debris (wood, plastic, metal)		S-1	7	12		
5	Plastic bags, wood, trash						
	Loose, wet to moist, dark brown, gravelly silty fine SAND, some charred wood		S-2	9	2		418.1 TOX
10	Loose, wet, black, fine SAND, some silt, trace debris (plastic, wood)		S-3	6	150		418.1 TOX Metals 8240
	Very soft, wet, grey brown, sandy SILT, some wood (twigs and branches)		S-4	1	5		
20	Loose, wet, black, fine SAND, some wood (twigs and branches) trace silt		S-5	2	5		
25	Bottom of boring at 24.5 feet						
30							

AS-BUILT DESIGN



LEGEND

2-inch O.D. split-spoon sample

Chemical analysis (EPA method shown)

RZA

RITTENHOUSE-ZEMAN & ASSOCIATES, INC.
Geotechnical & Environmental Consultants
1400 140th Ave NE
Bellevue, Washington 98005

Drilling started: 26 March 1991 Drilling completed: 26 March 1991 Logged by: WB

RB-09

PROJECT *South Park Detention Project* W.O. *W-7490-1* BORING NO. B-9

DEPTH (feet)	SOIL DESCRIPTION Approximate ground surface elevation:	SAMPLE TYPE	SAMPLE NUMBER	OVM (ppm)	GROUND WATER	STANDARD PENETRATION RESISTANCE (Blows per foot)	TESTING
	Loose, moist, grayish brown, sandy SILT (Cement waste)		S-1	3			
	Loose, moist, black silty fine sand with trace debris (brick particulate)						
5							
	Medium dense, moist, black, silty fine SAND with some debris (glass and brick, Fill)		S-2	54			418.1 8010 8020 TOX 1311
	Blowcounts may be overstated						
10				AID			
	Loose, wet, dark gray to black, fine SAND, trace silt		S-3	45			418.1 TOX
15							
	Loose, wet, dark gray, very fine SAND with some silt		S-4	5			
20	*Boring terminated at approximately 19.0 feet*						
25							
30							

Scale: 0, 10, 20, 30, 40, 50

LEGEND

2-inch OD split-spoon sample

Groundwater level at time of drilling

EPA Analysis Method Shown

MOISTURE CONTENT

Plastic limit — Natural — Liquid limit

RZA - AGRA

Engineering & Environmental Services

11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started: *20 August 1991* Drilling completed: *20 August 1991* Logged by: *GS*

PROJECT *South Park Detention Project* W.O. *W-7490-1* BORING NO. **B-10** **RB-10**

DEPTH (feet)	SOIL DESCRIPTION Approximate ground surface elevation:	SAMPLE TYPE	SAMPLE NUMBER	OVM (ppm)	GROUND WATER	STANDARD PENETRATION RESISTANCE (Blows per foot)	TESTING
0	*Moist, dark brown, silty fine SAND (Topsoil)*						
	Very loose, dry, light gray, silty, very fine SAND (Cement waste)		S-1	2			
5							
	Medium dense, moist, dark gray silty fine to medium SAND with trace of gravel and scattered brick debris (Fill)		S-2	0			418.1 8010 8020 TOX 1311
10							
	Loose, wet, dark gray to black, fine SAND, trace silt		S-3	0	AID		418.1 TOX
15							
	Loose, wet, black, fine to very fine SAND with trace of interbedded sandy silt		S-4	0			
20	*Boring terminated at approximately 19.0 feet*						
25							
30							

Scale: 0, 10, 20, 30, 40, 50

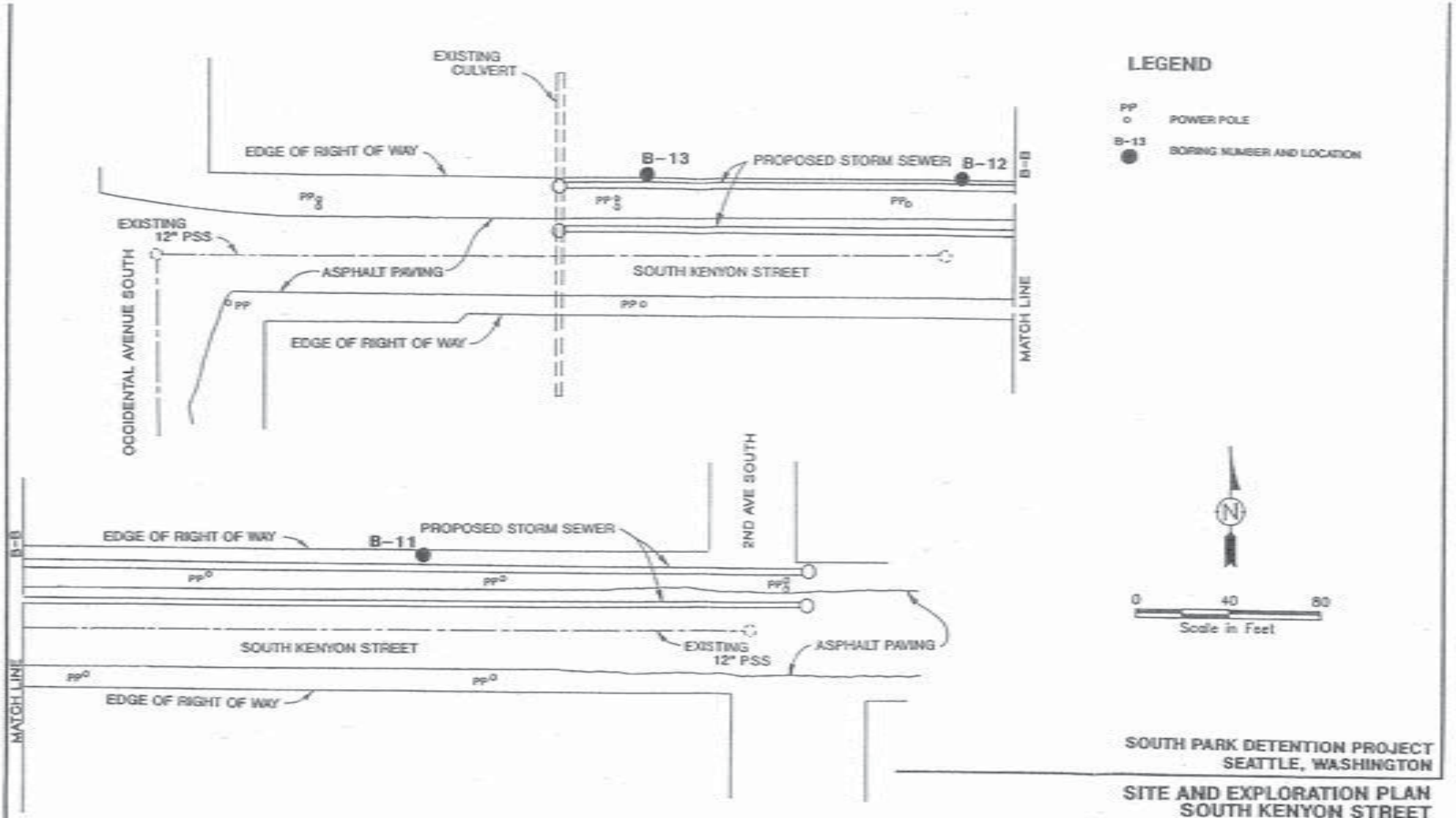
LEGEND

- 2-inch OD split-spoon sample
- EPA Analysis Method Shown
- Groundwater level at time of drilling (AID)

MOISTURE CONTENT: Plastic limit — Natural — Liquid limit

RZA - AGRA
Engineering & Environmental Services
11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started: *20 August 1991* Drilling completed: *20 August 1991* Logged by: *GS*



BASED ON A SITE PLAN SUPPLIED BY THE SEATTLE ENGINEERING DEPARTMENT.

SOUTH PARK DETENTION PROJECT
SEATTLE, WASHINGTON

SITE AND EXPLORATION PLAN
SOUTH KENYON STREET
FIGURE 3

W.O. W-7490-1
BY WB
DATE SEPT 1991
SCALE 1"=40'

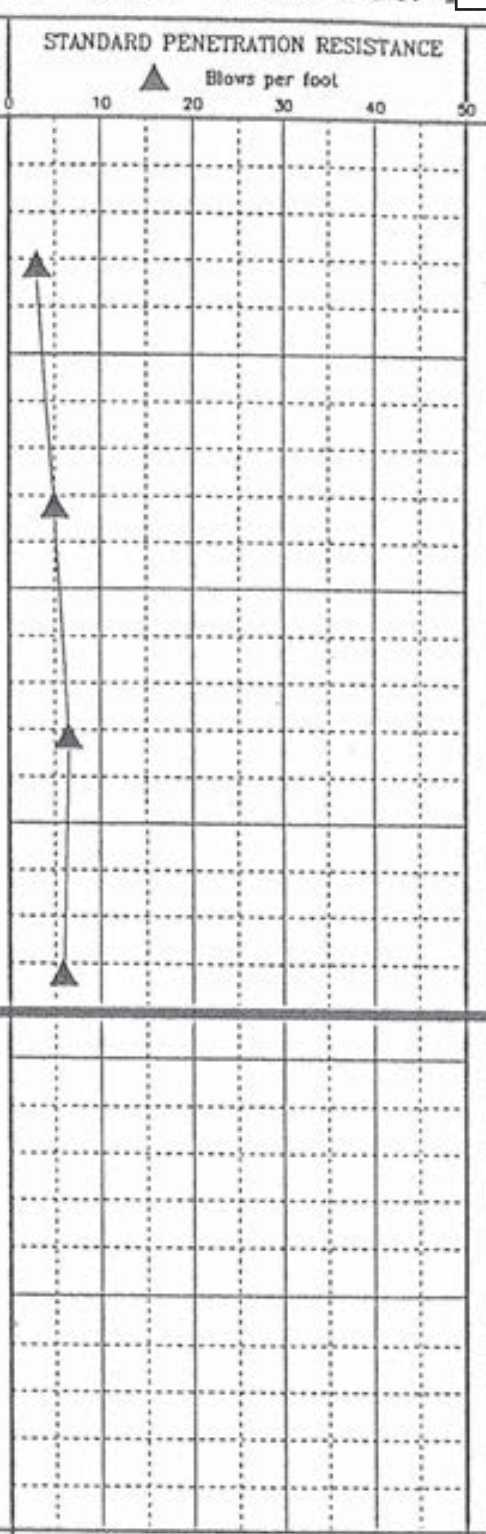
RITTENHOUSE-ZEMAN & ASSOCIATES, INC.
Geotechnical & Environmental Consultants
1400 140th Avenue N.E.
Bellevue, Washington 98005

RZA

AKA – RB-11

PROJECT *South Park Detention Project* W.O. *W-7490-1* BORING NO. B-11

DEPTH (feet)	SOIL DESCRIPTION Approximate ground surface elevation:	SAMPLE TYPE	SAMPLE NUMBER	OVM (ppm)	GROUND WATER	STANDARD PENETRATION RESISTANCE (Blows per foot)	TESTING
	2 inches asphalt						
	Loose, dry, brown, medium SAND with trace gravel (Fill)		S-1	0			1311
5	*Loose, dry, gray, fine to very fine, sandy SILT*						
	Stiff, moist, gray-red mottled, sandy SILT		S-2	0			
10	*Medium dense, wet, dark grey, fine SAND, trace silt*						
			S-3	0			
15	*Loose, moist, grayish-brown, medium to fine SAND with a trace of silt*						
	Loose, moist, gray, fine to very fine, silty SAND		S-4	0			
20	*Boring terminated at approximately 19.0 feet*						
25							
30							



LEGEND

2-inch OD split-spoon sample

Groundwater level at time of drilling

EPA Analysis Method Shown

MOISTURE CONTENT

Plastic limit — Natural — Liquid limit

RZA - AGRA

Engineering & Environmental Services

11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started: *20 August 1991* Drilling completed: *20 August 1991* Logged by: *GS*

RB-12

PROJECT *South Park Detention Project* W.O. *W-7490-1* BORING NO. B-12

DEPTH (feet)	SOIL DESCRIPTION Approximate ground surface elevation:	SAMPLE TYPE	SAMPLE NUMBER	OVM (ppm)	GROUND WATER	STANDARD PENETRATION RESISTANCE (Blows per foot)	TESTING
	Dry, dark brown, silty fine SAND (Topsoil)						
	No recovery, geology inferred: Loose, dry, brown, medium SAND (Fill)	X	S-1	0			
5							
	Soft, moist, gray SILT with a trace of sand, organics and gravel	I	S-2	0			418.1 8015
10							
	Soft, wet, gray, sandy SILT with a trace of organics (Twigs)				A10		
		I	S-3	0			
15							
	Loose, wet, brownish gray, sandy SILT, interbedded with silty fine sand	I	S-4	0			
20	*Boring terminated at approximately 19.0 feet*						
25							
30							

Scale: 0, 10, 20, 30, 40, 50

LEGEND

I 2-inch OD split-spoon sample

X Sample not recovered

A10 Groundwater level at time of drilling

418.1 8015 EPA Analysis Method Shown

MOISTURE CONTENT (0, 10, 20, 30, 40, 50): Plastic limit — Natural — Liquid limit

RZA - AGRA

Engineering & Environmental Services

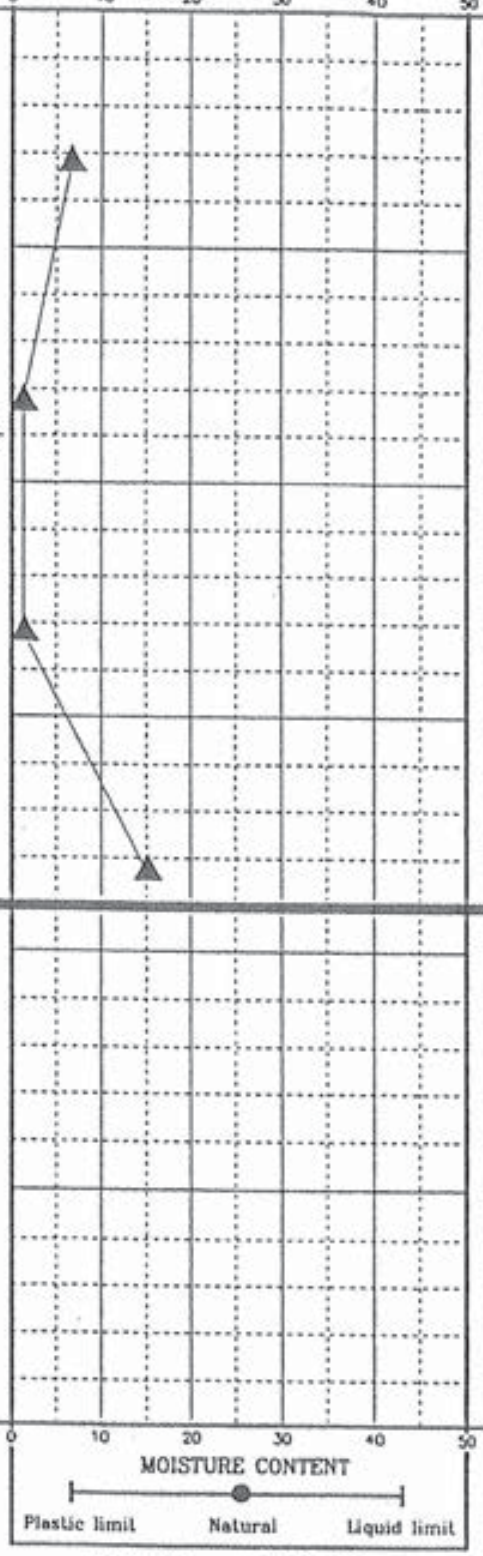
11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started: *20 August 1991* Drilling completed: *20 August 1991* Logged by: *GS*

AKA – **RB-13**

PROJECT *South Park Detention Project* W.O. *W-7490-1* BORING NO. **B-13**

DEPTH (feet)	SOIL DESCRIPTION Approximate ground surface elevation:	SAMPLE TYPE	SAMPLE NUMBER	OVM (ppm)	GROUND WATER	STANDARD PENETRATION RESISTANCE (Blows per foot)	TESTING
	Loose, moist, brown, medium SAND with trace of gravel (fill)		S-1	0			1311
5	*Loose, wet, gray, fine to very fine SAND Trace silt*		S-2	0	AID		
10	*Soft, wet, gray, sandy SILT with trace of organics (Twigs)*		S-3	0			
15	*Medium dense, wet, gray, very fine SAND*		S-4	0			
20	*Boring terminated at approximately 19.0 feet*						
25							
30							



LEGEND

2-inch OD split-spoon sample

Groundwater level at time of drilling

EPA Analysis Method Shown

RZA - AGRA
Engineering & Environmental Services

11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started: *20 August 1991* Drilling completed: *20 August 1991* Logged by: *GS*

Historical Reconnaissance Groundwater Samples

FARALLON consulting
975 5th Avenue Northwest
Issaquah, Washington 98027

Log of Boring: FB-1

AKA FB-01

Client: S.P.L.D., L.L.C.
Project: South Park Landfill
Location: Seattle, Washington
Farallon PN: 408-003
Logged By: F. Reider

Date/Time Started:	5/7/08 @ 0830	Sampler Type:	Macro-core
Date/Time Completed:	5/7/08 @ 0915	Drive Hammer (lbs.):	NA
Equipment:	L. A. Geoprobe	Depth of Water ATD (ft bgs):	6.5
Drilling Company:	Cascade Drilling, Inc.	Total Boring Depth (ft bgs):	10.5
Drilling Foreman:	Frank	Total Well Depth (ft bgs):	NA
Drilling Method:	Direct Push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm*)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0-0.5' Asphalt	CO							Concrete
		0.5-3' Poorly graded sand with silt (90, 10), very fine sand, light brown-grey, moist, no odor, no sheen.	SP-SM		100					
		3-7' Poorly graded sand with silt (85, 10, 5), fine to medium sand, trace fine gravel, light brown-grey, moist, wet at 6.5', no odor, no sheen.	SP-SM		100	NA	0.0			Bentonite
5										▽
		7-7.5' Poorly graded sand (95, 5), fine to medium sand, trace gravel, light brown, wet, no odor.	SP							
		7.5-8' Poorly graded sand (100), very fine sand, light brown-grey, wet, no odor.	SP					FB1-RGW-050708		
10										

Well Construction Information

Monument Type:	NA	Filter Pack:	NA	Ground Surface Elevation (ft):	NA
Casing Diameter (inches):	NA	Surface Seal:	Concrete	Top of Casing Elevation (ft):	NA
Screen Slot Size (inches):	NA	Annular Seal:	NA	Boring Abandonment:	Bentonite
Screened Interval (ft bgs):	NA			Surveyed Location: X: NA	Y: NA

FARALLON consulting
975 5th Avenue Northwest
Issaquah, Washington 98027

Log of Boring: FB-2

AKA FB-02

Client: South Park Prop.
ject: South Park Landfill
Location: Seattle, Washington
Farallon PN: 408-003
Logged By: F. Reider

Date/Time Started:	5/7/08 @ 0930	Sampler Type:	Macro-core
Date/Time Completed:	5/7/08 @ 1010	Drive Hammer (lbs.):	NA
Equipment:	L. A. Geoprobe	Depth of Water ATD (ft bgs):	6
Drilling Company:	Cascade Drilling, Inc.	Total Boring Depth (ft bgs):	10.5
Drilling Foreman:	Frank	Total Well Depth (ft bgs):	NA
Drilling Method:	Direct Push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm*)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0-0.5' Asphalt	CO							Concrete
		0.5-4' Interbedded 6" layers of poorly graded sand with silt (90, 10), very fine to fine sand, light brown-grey, moist, no odor or sheen, and poorly graded sand with gravel (90, 10), fine to coarse sand, light brown-grey, moist, no odor or sheen.	SP-SM		100					
		4-5' Poorly graded silty sand (80, 20), very fine sand, grey, very moist, no odor.	SP-SM			NA	0.0			
5		5-7' Poorly graded sand (100), fine to medium sand, light brown-grey, wet at 6'.	SP		100					Bentonite
		7-8' Poorly graded silty sand (80, 20), very fine sand, brown, wet, no odor.	SP-SM							
								FB2-RGW-050708		
10										

Well Construction Information

Monument Type:	NA	Filter Pack:	NA	Ground Surface Elevation (ft):	NA
Casing Diameter (inches):	NA	Surface Seal:	Concrete	Top of Casing Elevation (ft):	NA
Screen Slot Size (inches):	NA	Annular Seal:	NA	Boring Abandonment:	Bentonite
Screened Interval (ft bgs):	NA			Surveyed Location: X: NA	Y: NA

FARALLON consulting
975 5th Avenue Northwest
Issaquah, Washington 98027

Log of Boring: FB-3

AKA FB-03

Client: S.P.L.D., L.L.C.
ject: South Park Landfill
Location: Seattle, Washington
Farallon PN: 408-003
Logged By: F. Reider

Date/Time Started:	5/7/08 @ 1020	Sampler Type:	Macro-core
Date/Time Completed:	5/7/08 @ 1100	Drive Hammer (lbs.):	NA
Equipment:	L. A. Geoprobe	Depth of Water ATD (ft bgs):	6
Drilling Company:	Cascade Drilling, Inc.	Total Boring Depth (ft bgs):	10.5
Drilling Foreman:	Frank	Total Well Depth (ft bgs):	NA
Drilling Method:	Direct Push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm*)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0-2' Poorly graded sand with silt (90, 10), fine to coarse sand, light brown, moist, no odor.	SP-SM							Concrete
		2-4' Poorly graded sand with silt (90, 10), fine to coarse sand, light brown, moist, no odor, no sheen, brick piece at 3.5'. Interbedded 3" laybers of silty sand (80,20), fine to coarse sand, moist, no odor, no sheen.	SP-SM		100					
		4-8' Poorly graded silty sand (60, 40), very fine sand, brown grading to grey, wet at 6', no odor.	SM		100	NA	0.0			
5										Bentonite
								FB3-RGW-050708		
10										

Well Construction Information

Monument Type:	NA	Filter Pack:	NA	Ground Surface Elevation (ft):	NA
Casing Diameter (inches):	NA	Surface Seal:	NA	Top of Casing Elevation (ft):	NA
Screen Slot Size (inches):	NA	Annular Seal:	NA	Boring Abandonment:	Bentonite
Screened Interval (ft bgs):	NA			Surveyed Location: X: NA	Y: NA

FARALLON consulting
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Issaquah, Washington 98027

Log of Boring: FB-4

AKA FB-04

Client: S.P.L.D., L.L.C.
Project: South Park Landfill
Location: Seattle, Washington
Farallon PN: 408-003
Logged By: F. Reider

Date/Time Started:	5/7/08 @ 1155	Sampler Type:	Macro-core
Date/Time Completed:	5/7/08 @ 1230	Drive Hammer (lbs.):	NA
Equipment:	Full Geoprobe	Depth of Water ATD (ft bgs):	5.5
Drilling Company:	Cascade Drilling, Inc.	Total Boring Depth (ft bgs):	9.5
Drilling Foreman:	Frank	Total Well Depth (ft bgs):	NA
Drilling Method:	Direct Push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm*)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0-0.5' Asphalt.	CO							Concrete
		0.5-3.8' Poorly graded sand (95, 5), fine to medium sand, trace silt, moist, no odor, large gravel piece at 3'.	SP		100					
		3.8-5' Poorly graded sand (95, 5), very fine sand, trace silt, grey, moist, no odor, no sheen.	SP			NA	0.0			
5		5-8' Poorly graded sand (95, 5), very fine sand, trace silt, grey grades to light brown, moist, no odor, no sheen.	SP		100			FB4-RGW-050706		Bentonite
10										

Well Construction Information

Monument Type:	NA	Filter Pack:	NA	Ground Surface Elevation (ft):	NA
Casing Diameter (inches):	NA	Surface Seal:	Concrete	Top of Casing Elevation (ft):	NA
Screen Slot Size (inches):	NA	Annular Seal:	NA	Boring Abandonment:	Bentonite
Screened Interval (ft bgs):	NA			Surveyed Location: X: NA	Y: NA

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Log of Boring: FB-5

AKA FB-05

Client: S.P.L.D., L.L.C.
Project: South Park Landfill
Location: Seattle, Washington
Farallon PN: 408-003
Logged By: F. Reider

Date/Time Started:	5/7/06 @ 1245	Sampler Type:	Macro-core
Date/Time Completed:	5/7/06 @ 1315	Drive Hammer (lbs.):	NA
Equipment:	Full Geoprobe	Depth of Water ATD (ft bgs):	4.5
Drilling Company:	Cascade Drilling, Inc.	Total Boring Depth (ft bgs):	12
Drilling Foreman:	Frank	Total Well Depth (ft bgs):	NA
Drilling Method:	Direct Push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 6/6/6	PID (ppm*)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0-0.5' Asphalt.	CO							Concrete
		0.5-4' Poorly graded sand (95, 5), fine to coarse sand, trace silt, medium brown, moist, no odor, no sheen, silt nodule inclusions.	SP		100					
		4-6' Poorly graded sand (90, 5, 5), fine to coarse sand, trace gravel, trace silt, medium brown, wet at 4.5', no odor, no sheen, silt nodule inclusions.	SP			NA	0.0			SZ
5										Bentonite
		6-8' Poorly graded silty sand (65, 35), very fine sand, grey, wet, no odor.	SM		100					
10								FB5-RGW-050706		

Well Construction Information

Monument Type:	NA	Filter Pack:	NA	Ground Surface Elevation (ft):	NA
Casing Diameter (inches):	NA	Surface Seal:	Concrete	Top of Casing Elevation (ft):	NA
Screen Slot Size (inches):	NA	Annular Seal:	NA	Boring Abandonment:	Bentonite
Screened Interval (ft bgs):	NA			Surveyed Location: X: NA	Y: NA

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Issaquah, Washington 98027

Log of Boring: FB-6

AKA FB-06

Client: S.P.L.D., L.L.C.
Project: South Park Landfill
Location: Seattle, Washington
Farallon PN: 408-003
Logged By: F. Reider

Date/Time Started:	5/7/08 @ 1405	Sampler Type:	Macro-core
Date/Time Completed:	5/7/08 @ 1550	Drive Hammer (lbs.):	NA
Equipment:	Full Geoprobe	Depth of Water ATD (ft bgs):	8
Drilling Company:	Cascade Drilling, Inc.	Total Boring Depth (ft bgs):	24
Drilling Foreman:	Frank	Total Well Depth (ft bgs):	NA
Drilling Method:	Direct Push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm*)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0-8' Not observed.				NA				Concrete
5										Bentonite
										SZ
10		8-12' Poorly graded sand (100), fine to medium sand, black, wet, no odor, no sheen.	SP		100					
		8-12' Poorly graded sand (100), fine to medium sand grading to fine sand, black, wet, no odor, no sheen.	SP		100		NA	FB6-RGW-12.5-050708		
15								Dup-RGW-050708		
								FB6-15-050708		
		16-22' Poorly graded sand with silt (90, 10), very fine sand, grey, wet, no odor, shell fragments.	SP-SM		100					
20										
		22-24' Poorly graded sand with silt and gravel (80, 10, 10), very fine sand, fine to coarse gravel, wet, no odor, no sheen, very dense.	SP-SM		100			FB6-RGW-22-050708		

Well Construction Information

Monument Type:	NA	Filter Pack:	NA	Ground Surface Elevation (ft):	NA
Casing Diameter (inches):	NA	Surface Seal:	NA	Top of Casing Elevation (ft):	NA
Screen Slot Size (inches):	NA	Annular Seal:	NA	Boring Abandonment:	Bentonite
Screened Interval (ft bgs):	NA			Surveyed Location: X: NA	Y: NA

Historical West Ditch Piezometers

FARALLON consulting
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Log of Boring: PZ-1

Client: South Park Property
Project: South Park Landfill
Location: Seattle, WA
Farallon PN: 408-002
Logged By: Ken Scott

Date/Time Started:	12/15/2008 12:55	Sampler Type:	NA
Date/Time Completed:	12/15/2008 13:30	Drive Hammer (lbs.):	NA
Equipment:	Geoprobe	Depth of Water ATD (ft bgs):	7.9' bgs
Drilling Company:	Cascade Drilling	Total Boring Depth (ft bgs):	15' bgs
Drilling Foreman:	Curtis Askew	Total Well Depth (ft bgs):	15' bgs
Drilling Method:	Direct-push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm*)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0-2": (Forest duff), Organic (100%), black, Himalayan blackberry leaves and wood debris, moist, no odor or sheen.	TOPSOIL							Concrete cap
		2"-1.2': Organic, SILT with sand, trace gravel (75% silt, 20% sand, 5% gravel), fine sand and gravel, dark-brown, moist, no odor or sheen. Observed root-rhizomes from 0 to 10" bgs.	OL ML							Bentonite
		1.2-4.5': Sandy SILT (60% silt, 40% sand), fine sand, light-brown, moist, no odor or sheen.			100	N/A	0.0	N/A	NS	
5		4.5-9.5': SILT, minor sand (90% silt, 10% sand), fine sand, gray, moist to wet, decomposition-like odor, no sheen.	ML							Sandpack
		Observed water at 7.9' bgs.			100	N/A	0.0	N/A	NS	Initial water level
10		9.5'-15.0': Silty SAND (65% sand, 35% silt), fine sand, dark-brown, wet, no odor or sheen.	SM							Screen
					100	N/A	0.0	N/A	NS	

Well Construction Information

Monument Type:	Riser	Filter Pack:	NA	Ground Surface Elevation (ft):	NA
Casing Diameter (inches):	1-inch	Surface Seal:	Concrete	Top of Casing Elevation (ft):	NA
Screen Slot Size (inches):	0.010	Annular Seal:	NA	Boring Abandonment:	N/A
Screened Interval (ft bgs):	3' to 13' bgs			Surveyed Location: X: NA	Y: NA

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Log of Boring: PZ-2

Client: South Park Property
Project: South Park Landfill
Location: Seattle, WA
Farallon PN: 408-002
Logged By: Ken Scott

Date/Time Started:	12/16/2008 10:35	Sampler Type:	NA
Date/Time Completed:	12/16/2008 11:25	Drive Hammer (lbs.):	NA
Equipment:	Sledgehammer	Depth of Water ATD (ft bgs):	6"-Inches bgs
Drilling Company:	Cascade Drilling	Total Boring Depth (ft bgs):	15' bgs
Drilling Foreman:	Curtis Askew	Total Well Depth (ft bgs):	9.5' bgs
Drilling Method:	Drive piezometer		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm*)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0-4": (Forest duff), Organic (100%), black, Red-Alder leaves and wood debris, moist, no odor or sheen.	TOPSOIL							Initial water level
		4"-4.0': Organic, SILT with clay (80% silt, 20% clay), dark-brown, moist to wet, no odor or sheen. Observed water at 8" bgs.	OH		100	N/A	0.0	N/A	NS	Concrete cap; Sandpack
		4.0'-9.5': Unknown (no sample), wet.	ML				0.0			Screen; Native soil
5										
10										

Well Construction Information

Monument Type:	Riser	Filter Pack:	NA	Ground Surface Elevation (ft):	NA
Casing Diameter (inches):	1-inch	Surface Seal:	Concrete	Top of Casing Elevation (ft):	NA
Screen Slot Size (inches):	0.010	Annular Seal:	NA	Boring Abandonment:	N/A
Screened Interval (ft bgs):	2' to 6' bgs			Surveyed Location: X: NA	Y: NA

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Log of Boring: PZ-3

Client: South Park Property
Project: South Park Landfill
Location: Seattle, WA
Farallon PN: 408-002
Logged By: Ken Scott

Date/Time Started:	12/16/2008 12:45	Sampler Type:	NA
Date/Time Completed:	12/16/2008 14:15	Drive Hammer (lbs.):	NA
Equipment:	Geoprobe	Depth of Water ATD (ft bgs):	37.8' bgs
Drilling Company:	Cascade Drilling	Total Boring Depth (ft bgs):	48.0' bgs
Drilling Foreman:	Curtis Askew	Total Well Depth (ft bgs):	47.5' bgs
Drilling Method:	Direct-push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm*)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0-10': (Fill), Poorly-graded fine SAND, trace silt (95% sand, 5% silt), brown, moist, no odor or sheen.	FILL		N/A	N/A	N/A	NS	NS	Concrete cap
5					N/A	N/A	N/A	NS	NS	
10		10'-39': (Fill to~39' bgs) Silty SAND (65% sand, 35% silt), fine sand, brown, moist to wet, no odor or sheen. Observed garbage debris starting at~10' bgs; debris was soft at 15.0' bgs.	FILL		N/A	N/A	N/A	NS	NS	Bentonite
					N/A	N/A	N/A	NS	NS	
20		Observed wood debris, and cloth at 15' bgs.								Bentonite
25					N/A	N/A	N/A	NS	NS	
30					N/A	N/A	N/A	NS	NS	Sandpack
35										Screen
					N/A	N/A	N/A	NS	NS	Initial water level
40			SM							
45					N/A	N/A	N/A	NS	NS	

Well Construction Information

Monument Type:	Riser	Filter Pack:	NA	Ground Surface Elevation (ft):	NA
Casing Diameter (inches):	1-inch	Surface Seal:	Concrete	Top of Casing Elevation (ft):	NA
Screen Slot Size (inches):	0.010	Annular Seal:	NA	Boring Abandonment:	N/A
Screened Interval (ft bgs):	32.5' to 47.5' bgs			Surveyed Location: X: NA	Y: NA

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Issaquah, WA 98027

Log of Boring: PZ-3

Depth (feet)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
50		Observed an orange, plastic vehicle parking lens at 34' bgs..								
		Observed wood debris and root-rhizomes at 39' bgs (possible bottom of landfill).								
		39'-48': Silty SAND (65% sand, 35% silt), fine sand, brown, moist to wet, no odor or sheen. Observed garbage debris starting at~10' bgs; debris was soft at 15.0' bgs.								

Well Construction Information

Monument Type:	Riser	Filter Pack:	NA	Ground Surface Elevation (ft):	NA
Casing Diameter (inches):	1-inch	Surface Seal:	Concrete	Top of Casing Elevation (ft):	NA
Screen Slot Size (inches):	0.010	Annular Seal:	NA	Boring Abandonment:	N/A
Screened Interval (ft bgs):	32.5' to 47.5' bgs			Surveyed Location: X: NA	Y: NA

Historical RETS Borings

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: NEAR CORNER S. SULLIVAN AND 7TH S.

JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-2625

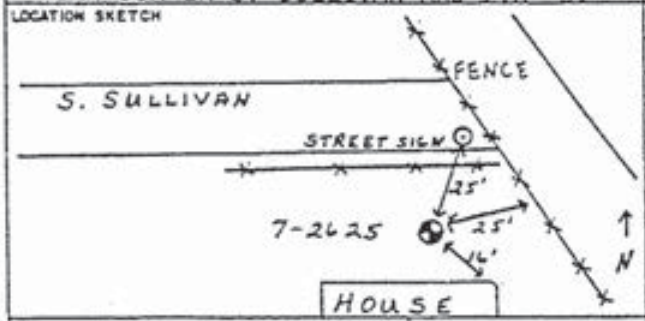
PROJECT NAME METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST

140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START TIME	FINISH TIME
WATER LEVEL	8.3'		11.8'			
TIME	1557		1615		1530	1630
DATE	2-17-86		2-17-86		DATE 2-17-86	DATE 2-17-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 13'

SURFACE CONDITION: GRASS COVER

HNu unavailable

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	CLASSIFICATION / DESCRIPTION	
					0	FILL?	
						SAND - brown, fine to coarse; some fine to coarse gravel	
1 / SPT	2.5 / 4.0	2 / 3 / 5	18 / 6			SILT - gray; laminated; trace of plant debris	1540
2 / SPT	5.0 / 6.5	1 / 1 / 1	18 / 18		5	SILT - gray, poorly laminated; abundant small bits of wood or metal; rusty stains; probably wood	1545
3 / SPT	7.5 / 9.0	3 / 5 / 7	18 / 12			INTERBEDDED SILT AND SAND - dark gray; fine; plant debris; rusty wood debris? laminated; wet	1555
4 / SPT	10.0 / 11.5	3 / 4 / 5	18 / 18		10	SILT - gray; laminated; top 6 inches	1605
						SAND - dark gray, fine to medium; poorly laminated; trace plant debris and rusty stain; wet	
5 / SPT	12.5 / 14.0	5 / 12 / 19	18 / 18			SAND - dark gray, fine to medium; poorly laminated; volcanic and quartz grains; fresh grass and silt in middle of sample	1615
6 / SPT	15.0 / 16.5	6 / 11 / 25	18 / 18		15	SAND - as above; more grass and silt	1630
7 / SPT	17.5 / 19.0	8 / 12 / 14	18 / 18			SAND - as above; trace of silt laminations	1635
						END OF HOLE - total depth 13.5 feet measured inside auger; hole backfilled with cuttings to surface	

PIEZOMETER: WL 1615

GRAPHIC LOG

SUBTERRANEAN

DRILLING CONTRACTOR

DRILLER CW

BY SHE | DATE 2-17-86 | CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

SHEET 1 OF 1

LOCATION OF BORING: EAST END OF S. SULLIVAN ST.

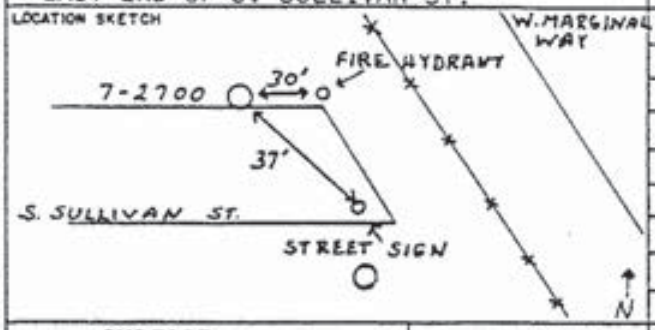
JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-2700

PROJECT NAME METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START TIME	FINISH TIME
WATER LEVEL	8.0'	9.2'	8.5'	9.8'		
TIME	0926	0934	0942	0957	0830	1010
DATE	2-18-86	2-18-86	2-18-86	2-18-86	DATE 2-18-86	DATE 2-18-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 14'

SURFACE CONDITION: GRAVEL
HNu UNAVAILABLE

DRILLING CONTRACTOR SUBTERRANEAN | DRILLER JIM | BY SHE | DATE 2-18-86 | CHKD BY SH

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION DESCRIPTION	
					0			NO FILL	
1 / SPT	2.0 / 3.5	3 / 5 / 6	18 / 4					SAND - gray fine; some silt; trace of plant debris	0920
2 / SPT	4.5 / 6.0	2 / 2 / 1	18 / 12		5			SANDY SILT - gray, fine; laminated; plant debris; trace clay	0925
3 / SPT	7.0 / 8.5	6 / 7 / 12	18 / 18			WL 0942		INTERBEDDED SILT AND SAND - gray with rusty lenses and speckles; fine; laminated; plant debris	0935
4 / SPT	9.5 / 11.0	6 / 10 / 6	18 / 18		10			INTERBEDDED SAND AND SILTY SAND - dark gray, fine to medium; laminated; trace of plant debris, rusty color; wet	0945
5 / SPT	12.0 / 13.5	6 / 7 / 13	18 / 18					SAND - dark gray with rusty specks, fine to medium, volcanic, quartz and lithic grains	1000
6 / SPT	14.5 / 16.0	4 / 8 / 12	18 / 18		15			SAND - as above	1005
7 / SPT	17.5 / 19.0	4 / 10 / 10	18 / 18					SAND - as above	1010
					20			END OF HOLE: Total depth 15.7 feet measured inside auger; water level readings taken at 0934 and 0942 were taken during one drilling break; hole backfilled to surface with cuttings	

HONG CONSULTING ENGINEERS, INC.

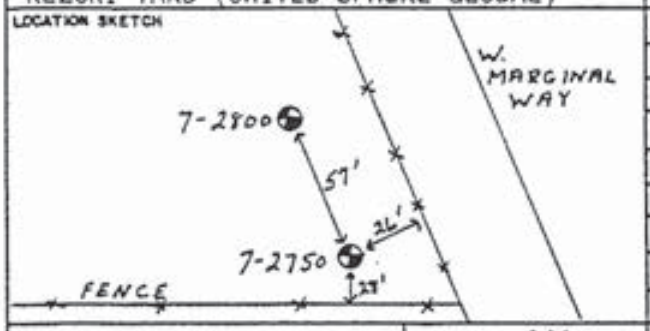
SHEET 1 OF 1

LOCATION OF BORING: REZORI YARD (UNITED SPHERE GLOBAL)

JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-2750

PROJECT NAME METRO ETS-7

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

					START	FINISH
WATER LEVEL	4.6'		4.5'		TIME	TIME
TIME	1607		1612		1440	1620
DATE	3-11-86		3-11-86		DATE	DATE
CASING DEPTH					3-11-86	3-11-86

DATUM SURFACE | ELEVATION 14'

SURFACE CONDITION: GRAVEL, SAND, SPARSE GRASS, ROOTS
HNu BACKGROUND = 0.4 - 0.6 ("B")

DRILLING CONTRACTOR HOKKAIDO
DRILLER BOB
BY SHE | DATE 3-11-86 | CHKD BY SH

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HN_4 / CH_4	DEPTH IN FEET	CLASSIFICATION / DESCRIPTION	
					0	FILL SAND, GRAVEL, COBBLE, BRICK	
1 / SPT	2.5 / 4.0	7 / 16 / 12	18 / 14	1.2 / –		SILT - gray brown; trace fine sand; trace wood; probable concrete waste; moist	1505
						WL	
2 / SPT	5.0 / 6.5	4 / 5 / 6	18 / 16	B	5	1607 SEAL SAND AND SILT - gray brown; interbedded and interlaminated; fine to medium; wood fiber; very moist	1510
3 / SPT	7.5 / 9.0	2 / 4 / 10	18 / 16	B / – / .1		SILT - gray and brown; trace fine sand at tip; laminated and bedded; organic debris along bedding; very moist	1515
4 / SPT	10.0 / 11.5	2 / 6 / 11	18 / 10	B / –	10	SAND - dark gray, fine to medium; quartz and volcanic lithic grains; plant debris; wet	1525
5 / SPT	12.5 / 14.0	2 / 3 / 4	18 / 18	B / –		SAND - as above; with slit rip-up clasts embedded; plant fiber; wet	1530
6 / SPT	15.0 / 16.5	5 / 3 / 8	18 / 16	B / –	15	SAND - dark gray, fine or medium grained; bedded in 6" beds; trace plant fiber; quartz, volcanic lithic, possible shell grains; wet	1540
7 / SPT	17.5 / 19.0	8 / 12 / 13	18 / 5	1.0 / 0		SAND - dark gray, fine to medium	1600
					20	END OF HOLE: Total depth 16.7 feet inside auger; bentonite seal at 5 feet; hole backfilled to surface with cuttings	

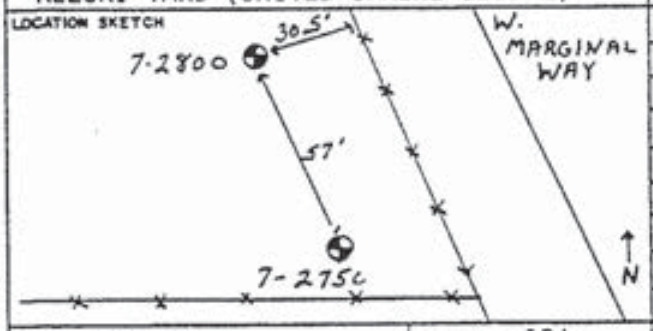
HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: REZORI YARD (UNITED SPHERE GLOBAL)

JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-2800

PROJECT NAME: METRO ETS-7

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

					START	FINISH
WATER LEVEL	6.8'	6.5'	6.5'		TIME	TIME
TIME	1411	1416	1418		1310	1430
DATE	3-11-86	3-11-86	3-11-86		DATE 3-11-86	DATE 3-11-86
CASING DEPTH						

DATUM: SURFACE | ELEVATION: 13'

SURFACE CONDITION: SAND, GRAVEL, SPARSE GRASS, ROOTS
HNu BACKGROUND = 0.6 - 0.8 ("B")

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION / DESCRIPTION	
					0			FILL	
								SAND - brown, fine to coarse; fine to coarse gravel; cobbles; brick; concrete; wood	
1 / SPT	2.5 / 4.0	13 / 8 / 8	18 / 6	B / -				SAND AND GRAVEL - dark brown, fine to medium; fine; trace silt in tip; wood; probable cement waste; moist	1320
								NOTE: plastic tile in auger	
2 / SPT	5.0 / 6.5	5 / 7 / 10	18 / 18	B / -	5	SEAL		SAND - dark gray, fine to medium; quartz and lithic volcanic grains; abundant fine rootlets; very moist	1330
						WL 1416			
3 / SPT	7.5 / 9.0	4 / 4 / 7	18 / 18	B / -				SAND - as above; no rootlets; trace of plant debris; trace of shell fragments; wet; slight organic odor	1335
4 / SPT	10.0 / 11.5	1 / 2 / 1	18 / 18	- / -	10			SAND - dark gray, fine to medium; quartz, lithic volcanic, shell grains	1345
								SILT - brown; laminated; organic fibers along bedding; slight organic odor	
5 / SPT	12.5 / 14.0	2 / 9 / 15	18 / 18	B / -				SILT - brown; laminated; abundant wood, stems, plant fiber along bedding; very moist	1350
6 / SPT	15.0 / 16.5	9 / 9 / 7	18 / 8	B / -	15			SAND - dark gray, fine; little silt at top; laminated; plant fiber and wood along bedding; wet	1355
7 / SPT	17.5 / 19.0	4 / 6 / 7	18 / 6	1.2 / -				SAND - as above	1405
					20			END OF HOLE: Total depth 16.2 feet inside auger; bentonite seal at 5 feet; hole backfilled with cuttings to surface	

DRILLING CONTRACTOR: HOKKAIDO
DRILLER: BOB
BY: SHE | DATE: 3-11-86 | CHKD BY: SH

HONG CONSULTING ENGINEERS, INC.

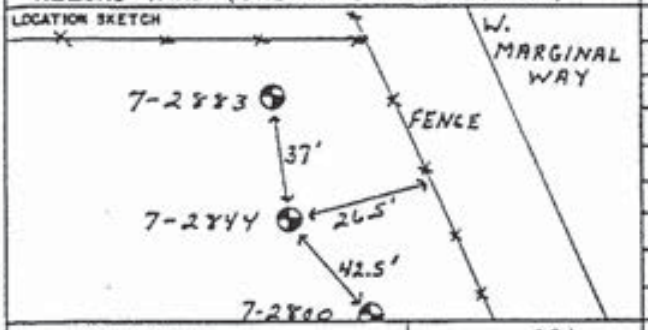
SHEET 1 of 1

LOCATION OF BORING: REZORI YARD (UNITED SPHERE GLOBAL)

JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-2844

PROJECT NAME METRO ETS-7

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

					START	FINISH
WATER LEVEL	4'		4'		TIME	TIME
TIME	1153		1158		1040	1210
DATE	3-11-86		3-11-86		DATE 3-11-86	DATE 3-11-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 12'

SURFACE CONDITION MUD, WATER
HNu BACKGROUND = 0.8 to 0.6 ("B")

DRILLING CONTRACTOR HOKKAIDO BOB
DRILLER
BY SHE DATE 3-11-86 CHKD BY SH

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION / DESCRIPTION	
					0			FILL	
								SAND AND GRAVEL - brown, fine to coarse; rounded cobbles	
1 / SPT	2.5 / 4.0	7 / 19 / 11	18 / 5	1.6 / –		WL 1157		SAND AND GRAVEL - gray, fine to medium; fine; wood; trace brick; moist; cement waste	1105
2 / SPT	5.0 / 6.5	7 / 11 / 16	18 / 12	1.0 / –	5	SEAL		SAND - dark gray, fine to medium; volcanic lithic and quartz grains; wood; trace shell fragments; wet	1110
3 / SPT	7.5 / 9.0	5 / 5 / 3	18 / 9	1.2 / –				SAND - dark gray, fine; plant fibers; organic odor; wet	1120
				– / 0					
4 / SPT	10.0 / 11.5	3 / 2 / 2	18 / 18	B / –	10			SILT - gray; laminated; plant fibers alligned with bedding; organic odor	1125
5 / SPT	12.5 / 14.0	1 / 1 / 2	18 / 18	B / –				SILT - as above	1130
6 / SPT	15.0 / 16.5	2 / 1 / 2	18 / 18	B / 0	15			SILT - gray; laminated; occasional dark gray organic laminae; plant fibers along bedding; slightly plastic; organic odor	1145
								END OF HOLE: Total depth 14.6 feet inside auger; bentonite seal placed at 5 feet; hole backfilled to surface with cuttings	
					20				

HONG CONSULTING ENGINEERS, INC.

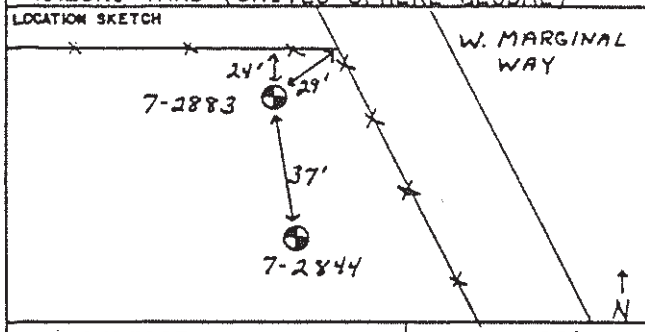
SHEET 1 OF 1

LOCATION OF BORING: RAZORI YARD (UNITED SPHERE GLOBAL)

JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-2883

PROJECT NAME METRO ETS-7

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 inches

					START	FINISH
WATER LEVEL	2'		2'		TIME	TIME
TIME	1010		1015		0830	1030
DATE	3-11-86		3-11-86		DATE	DATE
CASING DEPTH					3-11-86	3-11-86

DATUM SURFACE | ELEVATION 13'

SURFACE CONDITION: GRAVEL, RUBBLE, SPARSE GRASS
HNu BACKGROUND = 0.8 PPM ("B")

DRILLING CONTRACTOR HOKKAIDO
DRILLER BOB
BY SHE | DATE 3-11-86 | CHKD BY SH

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HN_4 / CH_4	DEPTH IN FEET	CLASSIFICATION / DESCRIPTION	
					0	FILL	
						SAND - light brown, medium to coarse; brick mortar, concrete rubble	
1 / SPT	2.5 / 4.0	13 / 15 / 15	18 / 18	1.4 / –		SILT - very light tan; little fine sand; little fine to coarse gravel; moist; cement waste	0900
2 / SPT	5.0 / 6.5	3 / 2 / 11	18 / 11	1.8 / –	5	SILT - as above; wet; plant fibers; wood; gray silty sand at tip, possible contact; wet; cement waste	0905
3 / SPT	7.5 / 9.0	8 / 7 / 9	18 / 14	1.4 / –		SAND - dark gray, fine to medium; trace fine gravel; trace silt; trace plant fiber, shell fragments; volcanic lithic and quartz grains; wet	0910
4 / SPT	10.0 / 11.5	5 / 8 / 5	18 / 14	1.6 / –	10	SAND - as above; wet	0920
5 / SPT	12.5 / 14.0	2 / 1 / 3	18 / 18	5 / 0		SILT - gray; laminated; abundant plant fibers	0940
6 / SPT	15.0 / 16.5	1 / 1 / 1	18 / 18	1.8 / –	15	SILT - as above; trace shell fragments; slight organic odor	0955
7 / SPT	17.5 / 19.0	1 / 2 / 2	18 / 18	8 / 0		SILT - gray with dark gray organic laminations; laminated; plant fibers and shell fragments	1005
					20	END OF HOLE: Total depth 17 feet inside auger, bentonite seal placed at 7 feet; hole backfilled to surface with cuttings	

PIEZOMETER: WL 1010; SEAL

GRAPHIC LOG

HONG CONSULTING ENGINEERS, INC.

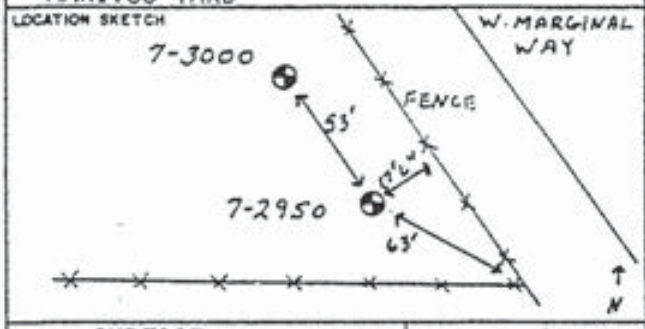
SHEET 1 OF 1

LOCATION OF BORING: MANITOU YARD

JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-2950

PROJECT NAME METRO ETS-7

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

					START	FINISH
WATER LEVEL	8.0'	13.7'	13.7'		TIME	TIME
TIME	1140	1228	1245		1045	1300
DATE	2-20-86	2-20-86	2-20-86		DATE	DATE
CASING DEPTH					2-20-86	2-20-86

DATUM SURFACE | ELEVATION 18'

SURFACE CONDITION 3" CRUSHED ROCK
HNu UNAVAILABLE

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HN_u / CH_4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION DESCRIPTION	
					0			FILL	
								SILT - light gray; cement waste	
1 / SPT	2.5 / 4.0	6 / 19 / 43	18 / 18					SILT - light gray or brown, iron stain; trace fine gravel; cement waste	1050
2 / SPT	5.0 / 6.5	4 / 9 / 7	18 / 18		5			SILT - as above; cement waste	
								NOTE: wood debris augered out of hole; probable log.	
3 / SPT	7.5 / 9.0	2 / 2 / 3	18 / 18					SILT - as above; cement waste; sampler wet	1145
4 / SPT	10.0 / 11.5	1 / 3 / 3	18 / 18		10			SILT - as above; trace fine gravel; trace wood debris; trace of iron staining	1155
5 / SPT	12.5 / 14.0	5 / 10 / 8	18 / 18					SILT - as above; top 6"	
						WL 1245		SAND - dark gray, fine to medium; trace plant debris, rootlets; volcanic, quartz, lithic grains	1205
6 / SPT	15.0 / 16.5	3 / 3 / 5	18 / 18		15			SAND - as above	1210
7 / SPT	17.5 / 19.0	2 / 2 / 4	18 / 18					SAND - as above; top 12"	
								SILT - gray; laminated; abundant plant debris parallel and transverse bedding; organic odor	1215
					20			END OF HOLE - total depth 14.9' inside auger; backfilled to surface with cuttings	

DRILLING CONTRACTOR HOKKAIDO
DRILLER BD
BY SHE
DATE 2-20-86
CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

SHEET 1 OF 1

LOCATION OF BORING: MANITOU YARD

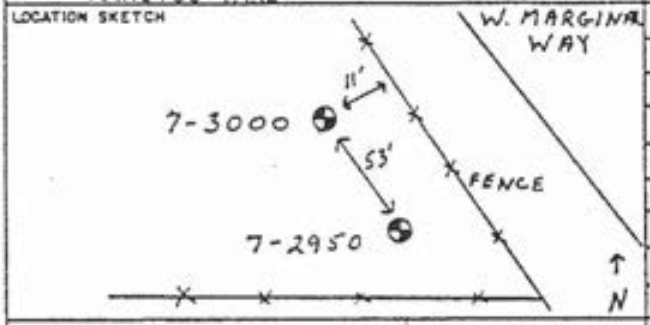
JOB NO. 8546 | CLIENT: URS/METRO | BORING NO. 7-3000

PROJECT NAME: METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START	FINISH
WATER LEVEL	10'		13'		TIME	TIME
TIME	0945		1015		0845	1030
DATE	2-20-86		2-20-86		DATE	DATE
CASING DEPTH					2-20-86	2-20-86

DATUM: SURFACE | ELEVATION: 18'

SURFACE CONDITION: 3 INCH CRUSHED ROCK
HNu UNAVAILABLE

DRILLING CONTRACTOR: HOKKAIDO
DRILLER: BD
BY: SHE | DATE: 2-20-86 | CHKD BY: SH

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	CLASSIFICATION / DESCRIPTION	
					0	FILL	
						SILT - light gray; cement waste	
1 / SPT	2.5 / 4.0	6 / 2 / 2	18 / 12			SILT - light gray or brown; trace fine gravel; trace wood debris; iron staining; cement waste	0900
2 / SPT	5.0 / 6.5	6 / 5 / 7	18 / 12		5	SILT - light gray, some iron staining; trace fine gravel	0905
3 / SPT	7.5 / 9.0	3 / 3 / 6	18 / 18			SILT - as above; very moist	0915
4 / SPT	10.0 / 11.5	3 / 3 / 10	18 / 18		10	SILT - as above; wet; trace glass	0940
5 / SPT	12.5 / 14.0	8 / 14 / 15	18 / 18			SAND - dark gray, fine to medium; trace silt; volcanic, quartz and lithic grains; massive; wet	1000
6 / SPT	15.0 / 16.5	6 / 7 / 7	18 / 18		15	SAND - as above; salty marine smell; trace plant debris	1005
7 / SPT	16.5 / 18.0	5 / 8 / 9	18 / 18			SAND - as above; top 12"	
						SILT - brown; laminated; abundant plant fiber along bedding; strong marine organic odor	1015
					20	END OF HOLE - total depth 15.3 feet measured inside auger; hole backfilled to surface with cuttings.	

PIEZOMETER: WL 1015

HONG CONSULTING ENGINEERS, INC.

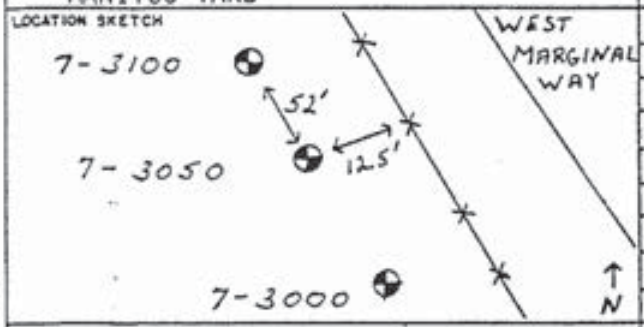
SHEET 1 of 1

LOCATION OF BORING: MANITOU YARD

JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-3050

PROJECT NAME METRO ETS-7

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. HAMMER DROPPED 30"

						START	FINISH
WATER LEVEL						TIME	TIME
TIME						1000	1430
DATE						DATE	DATE
CASING DEPTH						2-19-86	2-19-86

DATUM SURFACE | ELEVATION 18'

SURFACE CONDITION 3 INCH CRUSHED ROCK
HNu UNAVAILABLE

DRILLING CONTRACTOR HOKKAIDO DRILLING
DRILLER BILL
BY SHE | DATE 2-19-86 | CHKD BY SH

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	CLASSIFICATION / DESCRIPTION	
					0	FILL	
						SILT - light gray, cement waste	
1 / SPT	2.5 / 4.0	5 / 5 / 5	18 / 18			SILT - light gray or brown; trace fine gravel cement waste; trace plant debris	1200
2 / SPT	5.0 / 6.5	2 / 3 / 3	18 / 18		5	SILT - as above; moist	1220
3 / SPT	7.5 / 9.0	2 / 3 / 4	18 / 0				
4 / SPT	10.0 / 11.5	2 / 2 / 3	18 / 18		10	SILT - as above; moist	1240
5 / SPT	12.5 / 14.0	2 / 2 / 3	18 / 6			SILT - as above	
						SAND - dark gray, fine to medium; volcanic, quartz and lithic grains	1400
6 / SPT	15.5 / 17.0	2 / 2 / 2	18 / 18		15	SILT - dark gray; massive; blocky structure; abundent plant fiber and debris; organic odor	1415
					20	END OF HOLE - Total depth measured at 17.8 feet inside auger; hole backfilled to surface with cuttings; water added to hole, no water levels taken	

HONG CONSULTING ENGINEERS, INC.

SHEET 1 OF 1

LOCATION OF BORING: MANITOU YARD

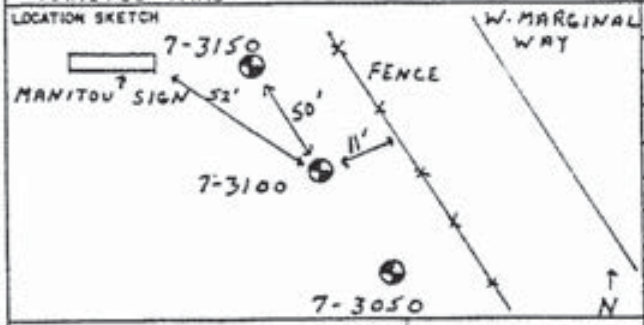
JOB NO. 8546 | CLIENT: URS/METRO | BORING NO. 7-3100

PROJECT NAME: METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START	FINISH
WATER LEVEL	11'		11.3'		TIME	TIME
TIME	1350		1400		1320	1430
DATE	2-18-86		2-17-86		DATE 2-18-86	DATE 2-18-86
CASING DEPTH						

DATUM: SURFACE | ELEVATION: 18'

SURFACE CONDITION: 3 INCH CRUSHED ROCK
HNu UNAVAILABLE

DRILLING CONTRACTOR: SUBTERRANEAN | DRILLER: JIM

BY: SHE | DATE: 2-18-86 | CHKD BY: SH

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	CLASSIFICATION DESCRIPTION	
					0	FILL	
1 / SPT	2.0 / 3.5	24 / 19 / 8	18 / 18			SILT - light gray to brown, some rusty stain; some fine gravel; slightly moist; cement waste	1335
2 / SPT	4.5 / 6.0	2 / 2 / 4	18 / 12		5	SILT AND GRAVEL - brown rusty stain; fine; trace of plant stem; cement waste	
						SILT -light gray; moist; cement waste	1340
3 / SPT	7.0 / 8.5	2 / 2 / 4	18 / 18			SILT - light gray; very moist; massive, homogeneous, very clean; cement waste	1355
4 / SPT	9.5 / 11.0	2 / 6 / 9	18 / 18		10	SILT - as above; wet (sand in bit, contact); cement waste	1405
						WL 1350	
5 / SPT	12.0 / 13.5	20 / 21 / 20	18 / 18			SAND - dark gray, fine to medium; volcanic, quartz and lithic grains	1415
					15		
6 / SPT	15.5 / 17.0	1 / 1 / 3	18 / 18			SAND - as above	
						SILT - dark gray; well laminated at top; blocky with abundant plant fiber at tip	1425
					20	END OF HOLE: Total depth 14.1 feet measured inside auger; hole backfilled to surface with cuttings	

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: MANITOU YARD, 5 TH. S.

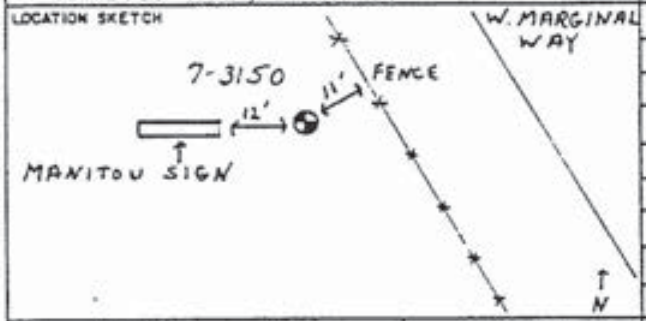
JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-3150

PROJECT NAME METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START TIME	FINISH TIME
WATER LEVEL	11'		13'			
TIME	1200		1210		1100	1230
DATE	2-18-86		2-18-86		DATE 2-18-86	DATE 2-18-86
CASING DEPTH						

DATUM: SURFACE | ELEVATION: 18'

SURFACE CONDITION: 3 INCH CRUSHED ROCK
HNu UNAVAILABLE

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	CLASSIFICATION DESCRIPTION	
					0	FILL	
						SILT - light gray; slightly moist; cement waste	
1 / SPT	2.5 / 4.0	8 / 9 / 10	18 / 18			SILT - very light gray; massive; moist	1135
2 / SPT	5.0 / 6.5	4 / 4 / 4	18 / 18		5	SILT - as above; some fine gravel; rusty stains; moist; possibly glacial origin	1155
3 / SPT	7.5 / 9.0	4 / 6 / 10	18 / 18			SILT - as above; no gravel; odor like cement; cement waste	1205
4 / SPT	10.0 / 11.5	7 / 7 / 9	18 / 18		10	SAND - dark gray, fine to medium; volcanic, quartz and lithic grains; trace silt; trace plant debris	1215
5 / SPT	12.5 / 14.0	4 / 6 / 7	18 / 18			SAND - as above; wet	1220
6 / SPT	15.5 / 17.0	1 / 2 / 2	18 / 18		15	SILT - dark gray; laminated at top; blocky at tip; abundant plant fiber, especially at tip; organic odor	1230
					20	END OF HOLE: Total depth 13.6' measured inside auger; hole backfilled to surface with cuttings	

PIEZOMETER: WL 1200

GRAPHIC LOG

SUBTERRANEAN

DRILLING CONTRACTOR: JIM

DRILLER:

BY: SHE | DATE: 2-18-86 | CHKD BY: SH

HONG CONSULTING ENGINEERS, INC.

SHEET 1 OF 1

LOCATION OF BORING: MANITOU YARD, 5 TH. S.

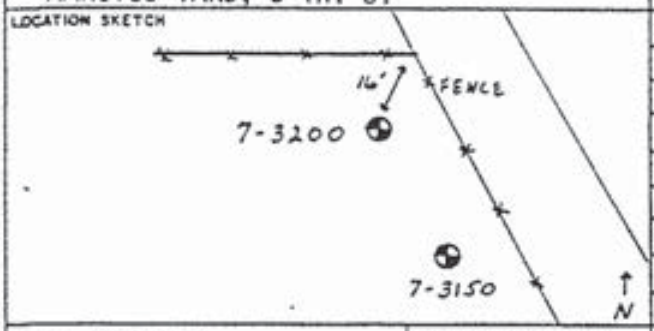
JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-3200

PROJECT NAME METRO ETS-7

DRILLING METHOD HOLLOW STEM AUGER

SAMPLING METHOD STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START	FINISH
WATER LEVEL	9'	9.8'	13.2'		TIME	TIME
TIME	1500	1515	1533		1430	1600
DATE	2-18-86	2-18-86	2-18-86		DATE 2-18-86	DATE 2-18-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 17.5'

SURFACE CONDITION 3" CRUSHED ROCK
HNu UNAVAILABLE

SUBTERRANEAN

DRILLING CONTRACTOR JIM

DRILLER

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION DESCRIPTION	
					0			FILL	
1 / SPT	2.0 / 3.5	2 / 2 / 3	18 / 18					SILT - light gray; cement waste	1455
2 / SPT	4.5 / 6.0	1 / 1 / 2	18 / 18		5			SILT - light gray; cement waste	1515
3 / SPT	7.0 / 8.5	1 / 6 / 10	18 / 18					SILT - light gray; cement waste	
						WL 1500		SAND - dark gray, fine to medium; plant debris	1525
4 / SPT	9.5 / 11.0	15 / 50	14 / 14		10			SAND - dark gray; fine to medium; some silt	1535
5 / SPT	12.0 / 13.5	5 / 5 / 3	18 / 18					SAND - as above	1540
6 / SPT	14.5 / 16.0	1 / 1 / 2	18 / 18		15			SILT - gray/brown; abundant plant fiber; blocky structure; poorly laminated	1550
								END OF HOLE: Total depth 13.2 feet measured inside auger; hole backfilled to surface with cuttings	
					20				

BY SHE DATE 2-18-86 CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

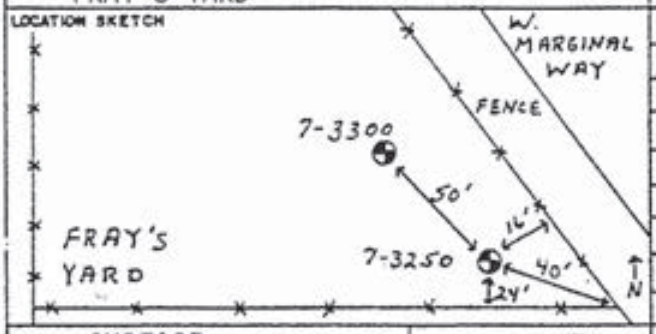
Sheet 1 of 1

LOCATION OF BORING: FRAY'S YARD

JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-3250

PROJECT NAME METRO ETS-7

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

					START	FINISH
WATER LEVEL	5.1'		6.0'		TIME	TIME
TIME	1520		1526		1430	1540
DATE	3-14-86		3-14-86		DATE 3-14-86	DATE 3-14-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 17'

SURFACE CONDITION: GRASS AND BLACKBERRY COVER
HNu BACKGROUND = 0.4 ("B")

DRILLING CONTRACTOR HOKKAIDO BOB | DRILLER

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION DESCRIPTION	
					0			FILL	
								SAND, GRAVEL - brown, fine to medium; fine to coarse	
1 / SPT	2.5 / 4.0	2 / 3 / 5	18 / 10	B / –				SAND - dark brown with rusty stain at top, light gray at tip, fine to medium; little fine gravel; cement waste; moist	1445
2 / SPT	5.0 / 6.5	1 / 2 / 4	18 / 9	B / –	5	WL 1526		SAND - as above, cement waste; trace of wood debris; glass in tip; moist	1451
3 / SPT	7.5 / 9.0	1 / 1 / 4	18 / 2	B / –				SAND - as above, cement waste; glass; very moist	1455
4 / SPT	10.0 / 11.5	3 / 7 / 7	18 / 10	B / –	10	SEAL		SAND - dark gray, fine; quartz and lithic grains; abundant roots at top; wet	1501
5 / SPT	12.5 / 14.0	2 / 7 / 12	18 / 10	B / 0				SAND - as above; trace of fine to coarse gravel; occassional rootlets; wet	1506
6 / SPT	15.0 / 16.5	3 / 1 / 2	18 / 18	B / –	15			SILT - gray; laminated; abundant plant fiber along and transverse to bedding; slight organic odor; moist	1516
					20			END OF HOLE: Total depth 15.5 feet inside auger; bentonite seal at 10 feet; hole backfilled to surface with cuttings; water added during drilling, water level is probably high.	

BY SHE | DATE 3-14-86 | CHKD BY SH

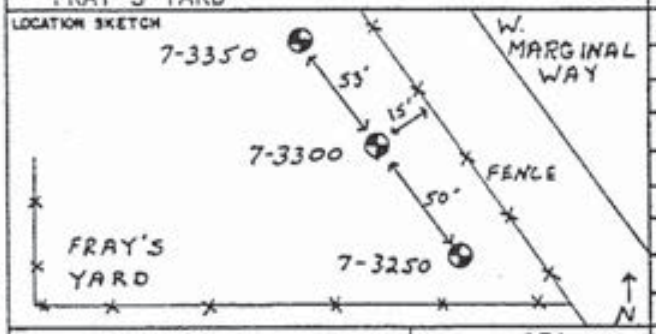
HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: FRAY'S YARD

JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-3300

PROJECT NAME METRO ETS-7

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

					START	FINISH
WATER LEVEL	13.5'		13.1'		TIME	TIME
TIME	1400		1410		1315	1420
DATE	3-14-86		3-14-86		DATE 3-14-86	DATE 3-14-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 17'

SURFACE CONDITION: GRASS AND BLACKBERRY COVER
HNu BACKGROUND = 0.6 - 0.8 ("B")

SAMPLE NO. / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH_4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION DESCRIPTION	
					0			FILL SAND AND CRUSHED ROCK - brown, medium to coarse; 2"	
1 / SPT	2.5 / 4.0	2 / 2 / 3	18 / 9	3.0 / —				SILT, SAND AND GRAVEL - brown; fine to coarse; fine to coarse	1325
2 / SPT	5.0 / 6.5	2 / 2 / 3	18 / 9	2.5 / —	5			SILT, SAND AND GRAVEL - as above; wood debris	1330
3 / SPT	7.5 / 9.0	4 / 5 / 5	18 / 0	B / —				NO RECOVERY FIRST DRIVE	1337
			18 / 1					SILT, SAND AND GRAVEL - as above	
4 / SPT	10.0 / 11.5	6 / 9 / 10	18 / 14	2.4 / —	10			SILT - gray; trace of plant material on contact	S-4(A)
				2.4 / —		SEAL		SAND - dark gray, fine to medium; quartz and lithic grains	1343 S-4(B)
5 / SPT	12.5 / 14.0	1 / 1 / 3	18 / 11	2 / —		WL 1410		SAND - dark gray, fine to medium; indistinctly bedded	1355
6 / SPT	15.0 / 16.5	5 / 4 / 5	18 / 18	1.2 / —	15			SILT - gray brown; laminated; abundant wood debris along bedding; slight organic odor	1400
					20			END OF HOLE: Total depth 14.9 feet inside auger; bentonite seal placed at 11 feet; hole backfilled to surface with cuttings; sample 4 intersected fill contact; fill sampled as 4A, native soil as 4B	

DRILLING CONTRACTOR HOKKAIDO
DRILLER BOB
BY SHE
DATE 3-14-86
CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

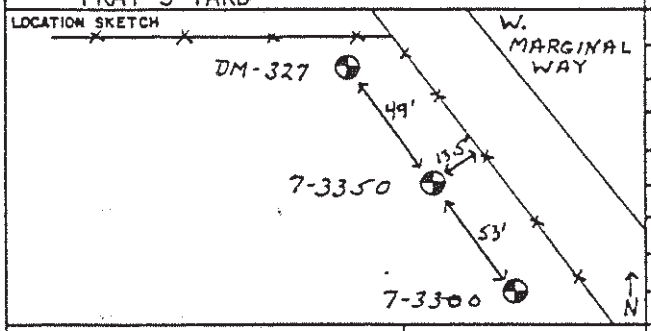
SHEET 1 OF 1

LOCATION OF BORING: FRAY'S YARD

JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-3350

PROJECT NAME METRO ETS-7

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

					START	FINISH
WATER LEVEL	11'		10.9'		TIME	TIME
TIME	1249		1255		1130	1310
DATE	3-14-86		3-14-86		DATE 3-14-86	DATE 3-14-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 17'

SURFACE CONDITION GRASS COVER
HNu BACKGOUND ("B") = 0.8 - 1.0

DRILLING CONTRACTOR HOKKAIDO
DRILLER BOB
BY SHE | DATE 3-14-86 | CHK'D BY SH

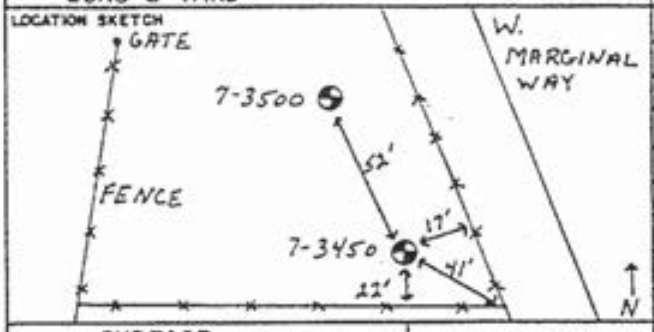
SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HN_4 / CH_4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION / DESCRIPTION	
					0			FILL	
								CRUSHED ROCK AND SILT - gray, 2"	
1 / SPT	2.5 / 4.0	2 / 3 / 4	18 / 4	2 / —				SILT, SAND AND CRUSHED ROCK - brown; fine to coarse; 2"; moist	1218
2 / SPT	5.0 / 6.5	4 / 4 / 8	18 / 4	1.2 / —	5			SILT, SAND - as above, fine to coarse; trace crushed rock; wood; moist	1223
3 / SPT	7.5 / 9.0	5 / 6 / 9	18 / 9	3 / —				SAND AND GRAVEL - brown, fine to coarse; fine to coarse; trace silt chunks; moist	1228
4 / SPT	10.0 / 11.5	6 / 9 / 7	18 / 10	1.2 / —	10	SEAL		SAND - dark gray, fine to medium; indistinctly bedded; quartz and lithic grains; wet	1233
				— / 0					
5 / SPT	12.5 / 14.0	1 / 2 / 2	18 / 10	2.6 / —				SAND - as above	1238
								SILT - gray, laminated; plant debris along bedding	
6 / SPT	15.0 / 16.5	5 / 9 / 6	18 / 12	4.4 / —	15			SAND - gray, fine; laminated; trace of plant debris along bedding	1246
								END OF HOLE: Total depth 15.0 feet inside auger; bentonite seal at 10 feet; hole backfilled to surface with cuttings; HNu is unstable during drilling of this hole.	
					20				

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: LONG'S YARD

JOB NO. 8546 | CLIENT URS/METRO | PROJECT NAME METRO ETS-7 | BORING NO. 7-3450

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

					START TIME	FINISH TIME
WATER LEVEL	≈11'	3.9'	3.9'			
TIME	1425	1530	1540		1350	1550
DATE	3-13-86	3-13-86	3-13-86		DATE 3-13-86	DATE 3-13-86
CASING DEPTH						

DATUM: SURFACE | ELEVATION: 17'

SURFACE CONDITION: SAND, GRAVEL, CONCRETE DEBRIS
HNu BACKGROUND ("B") = 0.4

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	PIEZOMETER	BORING LOG	CLASSIFICATION / DESCRIPTION	
					0			FILL	
								SAND AND GRAVEL - brown, fine to medium; fine to coarse; wood, glass; slightly moist	
1 / SPT	2.5 / 4.0	5 / 7 / 6	18 / 6	1.0 / –		WL 15 Yo		SILTY SAND - brown, fine to medium; little fine gravel; glass, plastic, wood; moist	1400
2 / SPT	5.0 / 6.5	6 / 7 / 7	18 / 5	B / –	5			SILTY SAND - as above; trace of asphalt debris; moist	1405
3 / SPT	7.5 / 9.0	2 / 4 / 6	18 / 6	1.0 / –				SANDY SILT AND GRAVEL - brown, fine; sand fine to medium; abundant rusty mottling; glass; moist	1420
4 / SPT	10.0 / 11.5	13 / 14 / 13	18 / 12	0.8 / –	10	SEAL		SAND - dark gray, fine to medium; laminated; quartz, volcanic and other lithic grains; moist	1425
				– / 0					
5 / SPT	12.5 / 14.0	2 / 1 / 4	18 / 9	1.0 / –				SAND - dark gray, fine to medium; wet	1430
6 / SPT	15.0 / 16.5	2 / 3 / 3	18 / 14		15			SILT - brown; laminated; some fine sandy laminae; plant and wood fiber along bedding; glass; very moist	1445
								END OF HOLE: Total depth 14.6 feet inside auger; bentonite seal at 10 feet; hole backfilled to surface with cuttings; water level seems high; auger tip in impermeable silt, but water level does not fall even after auger half pulled out	
					20				

DRILLING CONTRACTOR: HOKKAIDO
DRILLER: BOB
BY: SHE
DATE: 3-13-86
CHKD BY: SH

HONG CONSULTING ENGINEERS, INC.

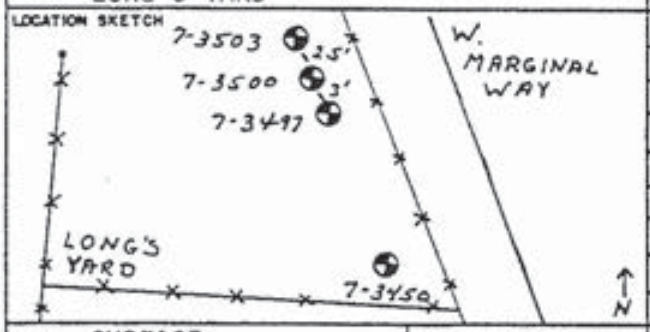
SHEET 1 OF 1

LOCATION OF BORING: LONG'S YARD

JOB NO. 8546 | CLIENT URS/METRO
PROJECT NAME METRO ETS-7

BORING NO. 7-3497

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

					START	FINISH
WATER LEVEL	HOLE	DRY TO TOTAL			TIME	TIME
TIME		DEPTH			1230	1250
DATE					DATE	DATE
CASING DEPTH					3-13-86	3-13-86

DATUM SURFACE | ELEVATION 18'

SURFACE CONDITION SILT, SAND, GRAVEL
HNu BACKGROUND ("B") = 0.6

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HN_u / CH_4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION DESCRIPTION
					0			FILL
								ASPHALT DEBRIS - black, sand and gravel
								SILT - brown
1 / SPT	2.5 / 4.0	3 / 4 / 6	18 / 7	1.0 / –				SILT - brown, some fine gravel; little clay; trace asphalt debris; moist; trace of roots 1235
					5			END OF HOLE: Obstruction at 4 feet; hole backfilled to surface with cuttings; see logs 7-3500, 7-3503
					10			
					15			
					20			

DRILLING CONTRACTOR HOKKAIDO
DRILLER BOB

BY SHE
DATE 3-13-86 CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

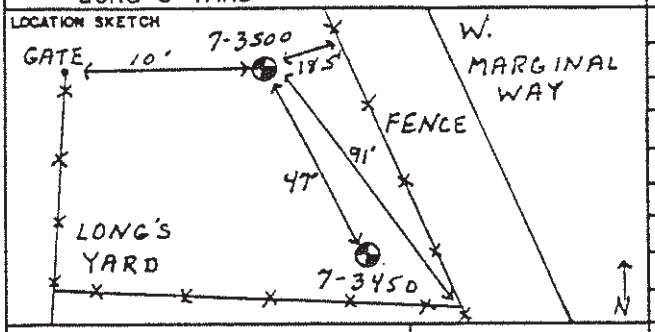
SHEET 1 OF 1

LOCATION OF BORING: LONG'S YARD

JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-3500

PROJECT NAME METRO ETS-7

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

WATER LEVEL	DRY TO TOTAL DEPTH				START TIME	FINISH TIME
TIME					1140	1220
DATE					DATE 3-13-86	DATE 3-13-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 19'

SURFACE CONDITION: SAND, 3" CRUSHED ROCK, SPARSE GRASS

HNu BACKGROUND ("B") = 0.6

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION / DESCRIPTION	
					0			FILL	
								ASPHALT CHUNKS AND DEBRIS: SAND AND GRAVEL	
								SILT AND GRAVEL - brown, fine to coarse	
1 / SPT	2.5 / 4.0	4 / 5 / 5	18 / 4	1.0 / -				SILT - brown; little fine to coarse sand; trace fine gravel; trace asphalt debris	1150
								NOTE: occasional brick in auger	1155
2 / SPT	5.0 / 6.5	50 FOR 3	3 / 1	1.0 / -	5			SILT - as above	1155
								END OF HOLE: obstruction at 5.5 feet; hole backfilled to surface with cuttings; see logs 7-3497 and 7-3503	
					10				
					15				
					20				

DRILLING CONTRACTOR HOKKAIDO

DRILLER BOB

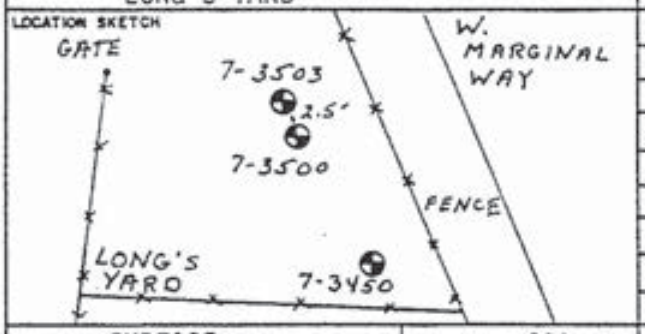
BY SHE DATE 3-13-86 CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

1 1

LOCATION OF BORING	LONG'S YARD
JOB NO.	8546
CLIENT	URS/METRO
PROJECT NAME	METRO ETS-7
BORING NO.	7-3503
DRILLING METHOD:	HOLLOW STEM AUGER
SAMPLING METHOD:	STANDARD PENETRATION TEST 140 LB. SAFETY HAMMER DROPPED 30 INCHES
WATER LEVEL	DRY TO TOTAL DEPTH
START TIME	1300
FINISH TIME	1320
START DATE	3-13-86
FINISH DATE	3-13-86
DATUM	SURFACE
ELEVATION	20'
SURFACE CONDITION	SPARSE GRASS, ASPHALT DEBRIS HNu BACKGROUND ("B") = 0.4 - 0.6

LOCATION SKETCH



SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH_4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION / DESCRIPTION
					0			FILL ASPHALT DEBRIS
								SILT - brown; trace to little clay; trace fine to coarse gravel; brick and asphalt debris
2 / SPT	5.0 / 6.5	50 FOR 3	3 / 1	B / -	5			SANDY SILT AND GRAVEL - brown; fine to medium; fine; brick fragments 1305
								END OF HOLE: Hole terminated due to obstruction; hole dry at total depth; hole backfilled to surface with cuttings; see logs for 7-3497 and 7-3500
					10			
					15			
					20			

DRILLING CONTRACTOR HOKKAIDO BOB

DRILLER

BY SHE DATE 3-13-86 CHKD BY SH

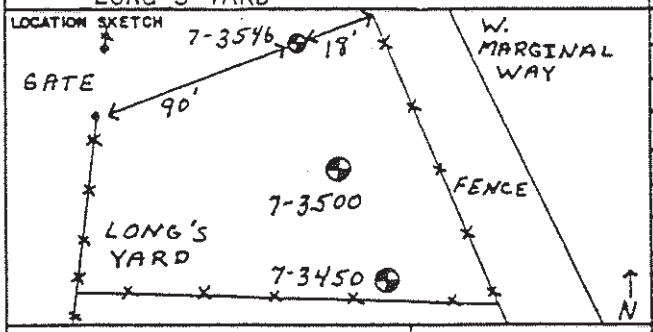
HONG CONSULTING ENGINEERS, INC.

SHEET 1 OF 1

LOCATION OF BORING: LONG'S YARD

JOB NO. 8546 | CLIENT URS/METRO | PROJECT NAME METRO ETS-7 | BORING NO. 7-3546

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

					START	FINISH
WATER LEVEL	≈11'	7.3'	9.2'	9.3'	TIME	TIME
TIME	1030	1055	1104	1108	0920	1100
DATE	3-13-86	3-13-86	3-13-86	3-13-86	DATE 3-13-86	DATE 3-13-86
CASING DEPTH						

DATUM: SURFACE | ELEVATION: 20'

SURFACE CONDITION: SAND, GRAVEL, CONCRETE DEBRIS, SPARSE GRASS
HNu BACKGROUND ("B") = 0.4 - 0.6

SAMPLE NO. / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH_4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION DESCRIPTION
					0			FILL
								SAND AND CRUSHED ROCK = dark brown, fine to medium; 2"; brick and concrete debris
1 / SPT	2.5 / 4.0	4 / 14 / 13	18 / 10	1.5 / —				SILT AND SAND - brown, fine to medium; trace fine gravel; dark gray, oiled half inch crushed rock and sand in tip; moist 0945
2 / SPT	5.0 / 6.5	18 / 7 / 4	18 / 3	B / —	5			SAND AND GRAVEL - dark gray, fine to coarse; fine; trace silt; possibly oiled; moist 0955
3 / SPT	7.5 / 9.0	5 / 3 / 5	18 / 1	1.5 / —		S		SAND AND GRAVEL - as above; first drive only 1 inch recovery; some brown sandy silt 1005
			18 / 4			WL 1104		SANDY SILT AND OILED (?) SAND AND GRAVEL - brown and dark gray; sand fine to coarse; gravel fine; moist
4 / SPT	10.0 / 11.5	5 / 13 / 12	18 / 14	B / 0	10	SEAL		SAND - dark gray, fine to medium; laminated; quartz, volcanic and other lithic grains; very moist 1025
5 / SPT	12.5 / 14.0	4 / 4 / 3	18 / 12	1.0 / —				SAND - as above; occasional silt rip-up inclusions; wet 1030
6 / SPT	15.0 / 16.5	5 / 4 / 4	18 / 14	B / —	15			SAND - as above
								SILT OR FINE SAND - dark gray; laminated 1040
7 / SPT	16.5 / 18.0	3 / 3 / 3	18 / 15	B / —				SILT - as above; 3 inches fine to medium sand interbedded; possible faint organic odor 1045
					20			END OF HOLE: Total depth 16.2 feet inside auger; bentonite seal placed at 10 feet; hole backfilled to surface with cuttings; see log 7-3550

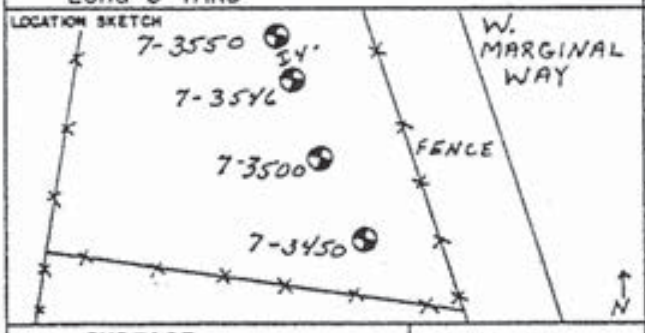
DRILLING CONTRACTOR: HONNIBUD
DRILLER: BOB
BY: SHE | DATE: 3-13-86 | CHKD BY: SH

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: LONG'S YARD

JOB NO. 8546 | CLIENT URS/METRO | PROJECT NAME METRO ETS-7 | BORING NO. 7-3550

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 lb. SAFETY HAMMER DROPPED 30 INCHES

WATER LEVEL	HOLE	DRY TO	TOTAL		START TIME	FINISH TIME
TIME	DEPTH				0825	0920
DATE					DATE 3-13-86	DATE 3-13-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 20'

SURFACE CONDITION: SAND, GRAVEL, SPARSE GRASS,
HNu BACKGROUND ("B") = 0.4 - 0.6

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HN_u / CH_4	DEPTH IN FEET	CLASSIFICATION / DESCRIPTION	
					0	FILL	
						SILTY SAND - dark brown, fine to medium; little fine to coarse gravel; concrete blocks	
1 / SPT	2.5 / 4.0	3 / 4 / 12	18 / 2	B / –		SILT - brown; little fine sand; wood, brick debris	0845
2 / SPT	5.0 / 6.5	3 / 4 / 3	18 / 3	B / –	5	SILT - as above; brick and possible asphalt or oiled debris; little fine gravel	0855
						NOTE: asphalt or oiled material in auger	
3 / SPT	7.5 / 9.0	50 FOR 2	2 / 2	B / –		SILT - as above	0900
						END OF HOLE - obstruction at 7.5 feet; hole backfilled to surface with cuttings; see log 9-3546	
					10		
					15		
					20		

DRILLING CONTRACTOR HOKKAIDO
DRILLER BOB
BY SHE
DATE 3-13-86
CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

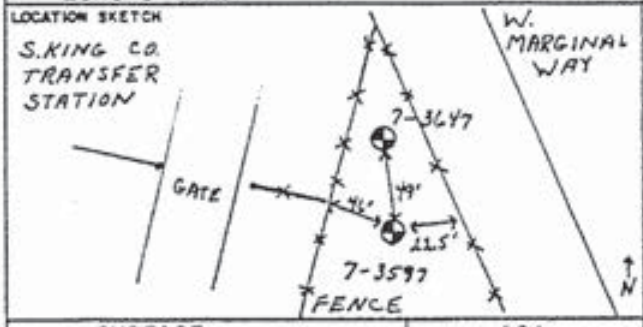
SHEET 1 OF 2

LOCATION OF BORING: LONG'S YARD

JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-3597

PROJECT NAME METRO ETS-7

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

					START	FINISH
WATER LEVEL	16'	14.1'	13.8'	13.2'	TIME	TIME
TIME	1642	1648	1652	1656	1430	1710
DATE	3-12-86	3-12-86	3-12-86	3-12-86	DATE 3-12-86	DATE 3-12-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 18'

SURFACE CONDITION: GRAVEL, SAND, SPARSE GRASS
HNu BACKGROUND = "B"

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	CLASSIFICATION DESCRIPTION	
					0	FILL GRAVEL, SAND, SILT - brown; large concrete chunks, metal	
1 / SPT	2.5 / 4.0	15 / 10 / 8	18 / 4	B / –		SAND AND GRAVEL - brown and gray, fine to coarse; concrete debris; dry	1500
2 / SPT	5.0 / 6.5	4 / 4 / 5	18 / 7	B / –	5	SILTY SAND AND GRAVEL - brown, fine to coarse; fine; plastic tile; moist	1505
3 / SPT	7.5 / 9.0	7 / 7 / 9	18 / 10	B / –		SILT, SAND AND GRAVEL - brown, fine to medium; fine to coarse; brick, other debris; moist	1515
4 / SPT	10.0 / 11.5	7 / 7 / 9	18 / 14	B / –	10 SEAL	SAND - dark gray, fine to medium; quartz, volcanic and other lithic grains; wet	1525
				– / 0			
5 / SPT	12.5 / 14.0	4 / 7 / 8	18 / 10	B / –	WL 1656	SAND - dark gray, fine; possible trace of organic debris; indistinctly laminated	1530
6 / SPT	15.0 / 16.5	2 / 6 / 7	18 / 7	B / –	15	SAND - as above	1535
7 / SPT	17.5 / 19.0	1 / 1 / 3	18 / 18	– / –		SANDY SILT - dark gray, fine; laminated; wood debris along bedding	1540
					20		

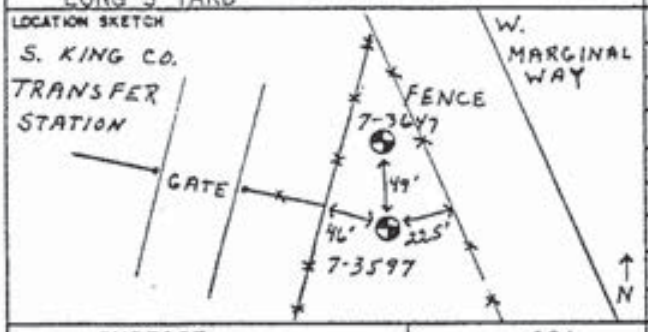
DRILLING CONTRACTOR HOKKAIDO
DRILLER BOB
BY SHE | DATE 3-12-86 | CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: LONG'S YARD

JOB NO. 8546 | CLIENT URS/METRO | PROJECT NAME METRO ETS-7 | BORING NO. 7-3597

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

					START	FINISH
WATER LEVEL	16'	14.1'	13.8'	13.2'	TIME	TIME
TIME	1642	1648	1652	1656	1430	1710
DATE	3-12-86	3-12-86	3-12-86	3-12-86	DATE 3-12-86	DATE 3-12-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 18'

SURFACE CONDITION

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	CLASSIFICATION / DESCRIPTION	
8 / SPT	20.0 / 21.5	2 / 2 / 5	18 / 18	B / -	20	SAND SILT - as above	
9 / SPT	22.5 / 24.0	4 / 8 / 9	18 / 10	B / -		SAND - dark gray, fine; silty and laminated in places; wood debris	1600
10 / SPT	25.0 / 26.5	7 / 12 / 20	18 / 0		25	No recovery on first drive	1600
			18 / 0			No recovery second try	
11 / SPT	27.5 / 29.0	2 / 3 / 8	18 / 14	B / -		SAND - dark gray, fine to medium; quartz, volcanic and other lithic grains	1620
						SAND - as above; trace of coarse grains	1635
12 / SPT	29.0 / 30.5	3 / 15 / 50	16 / 16	B / 0	30		
						END OF HOLE: Total depth 26.5 feet inside auger; bentonite seal at 10 feet; hole backfilled to surface with cuttings; see log 7-3600	
					35		
					40		

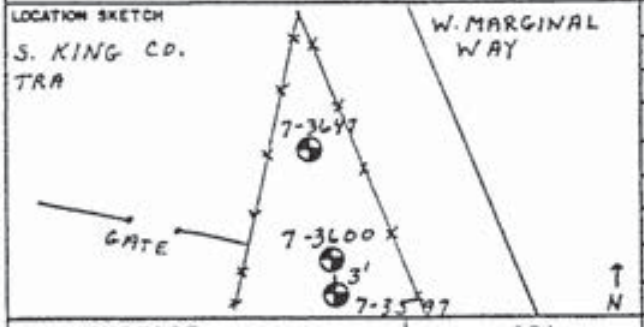
DRILLING CONTRACTOR HOKKAIDO
DRILLER BOB
BY SHE
DATE 3-12-86 CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

SHEET 1 OF 1

LOCATION OF BORING	LONG'S YARD
JOB NO.	8546
CLIENT	URS/METRO
PROJECT NAME	METRO ETS-7
BORING NO.	7-3600
DRILLING METHOD:	HOLLOW STEM AUGER
SAMPLING METHOD:	STANDARD PENETRATION TEST 140 LB. SAFETY HAMMER DROPPED 30 INCHES
WATER LEVEL	DRY TO TOTAL DEPTH
TIME	
DATE	
CASING DEPTH	
START TIME	1350
FINISH TIME	1430
START DATE	3-12-86
FINISH DATE	3-12-86

LOCATION SKETCH



DATUM SURFACE ELEVATION 18'

SURFACE CONDITION GRAVEL, SAND, SPARSE GRASS

HNu BACKGROUND = 0.4 - 0.6 ("B")

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	CLASSIFICATION	DESCRIPTION
					0		FILL
							SILTY SAND AND GRAVEL - brown, fine to medium; fine to coarse; concrete chunks
1 / SPT	2.5 / 4.0	15 / 10 / 12	18 / 6	B / —			SILT AND SAND - brown, fine to medium; concrete debris 1405
					5		END OF HOLE: Obstruction; hole backfilled to surface with cuttings; see log 7-3597
					10		
					15		
					20		

DRILLING CONTRACTOR HOKKAIDO

DRILLER BOB

BY SHE DATE 3-12-86 CHKD BY SH

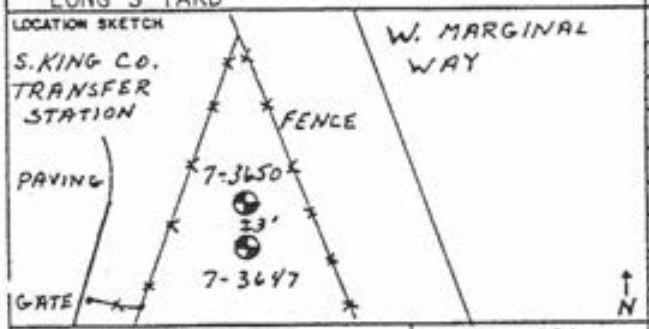
HONG CONSULTING ENGINEERS, INC.

SHEET 1 of 1

LOCATION OF BORING: LONG'S YARD

JOB NO. 8546 | CLIENT: URS/METRO | PROJECT NAME: METRO ETS-7 | BORING NO. 7-3647

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

					START	FINISH
WATER LEVEL	≈9.5'		10.9'		TIME	TIME
TIME	1040		1307		0940	1330
DATE	3-12-86		3-12-86		DATE 3-12-86	DATE 3-12-86
CASING DEPTH						

DATUM: SURFACE | ELEVATION: 18'

SURFACE CONDITION: SAND, GRAVEL, SPARSE GRASS
HNu BACKGROUND = 0.4 - 0.6 ("B")

DRILLING CONTRACTOR: HOKKAIDO
DRILLER: BOB
BY: SHE
DATE: 3-12-86
CHKD BY: SH

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HN_4 / CH_4	DEPTH IN FEET	CLASSIFICATION / DESCRIPTION	
					0	FILL	
						SAND AND GRAVEL - dark brown, fine to medium; fine to coarse; pipe, rubber, concrete debris	
1 / SPT	3.0 / 4.5	4 / 4 / 6	18 / 5	B / –		SANDY SILT AND GRAVEL - brown, fine to coarse; possible concrete debris; moist	1000
					5		
2 / SPT	5.5 / 7.0	50 FOR 3	3 / 3	B / –		SANDY SILT AND GRAVEL - as above; concrete in tip; moist	1010
3 / SPT	8.0 / 9.5	8 / 15 / 16	18 / 18	B / –		SAND - brown, fine to medium; little fine gravel; little silt at top; trace of styrofoam at top; concrete chips; moist	1025
				– / 0	10	SEAL WL 13.7	
4 / SPT	10.5 / 12.0	3 / 3 / 4	18 / 18	B / –		SAND - dark gray, fine to medium; occasional silt rip up; quartz, volcanic, lithic grains	1040
						SILT - gray brown; laminated; fine scale mottling; trace plant debris	
5 / SPT	13.0 / 14.5	3 / 4 / 6	18 / 8	B / –		SAND AND SILTY SAND - dark gray, fine to medium; gradational; laminated where finer grained	1050
				– / 0	15		
6 / SPT	15.5 / 17.0	2 / 7 / 9	18 / 12	B / –		SAND AND SILTY SAND - dark gray, fine to medium; interbedded; piece of plastic at top; slough?	1100
7 / SPT	18.0 / 19.5	3 / 8 / 7	18 / 18	B / –		SILT - gray to dark gray; laminated and bedded with some fine sand in beds; occasional tan laminae	1115
					20		

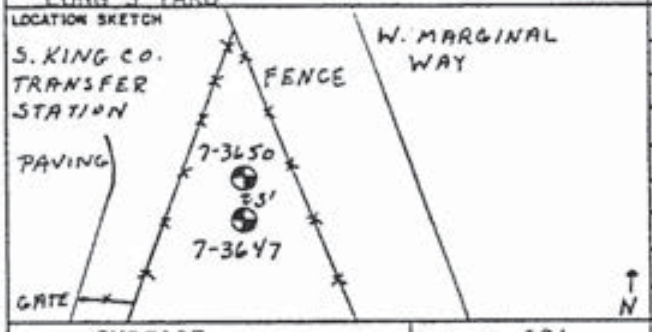
HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: LONG'S YARD

JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-3647

PROJECT NAME METRO ETS-7

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

					START	FINISH
WATER LEVEL	≈9.5'		10.9'		TIME 0940	TIME 1330
TIME	1040		1307			
DATE	3-12-86		3-12-86		DATE 3-12-86	DATE 3-12-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 18'

DRILLING CONTRACTOR HOKKAIDO | DRILLER BOB

BY SHE | DATE 3-12-86 | CHKD BY SH

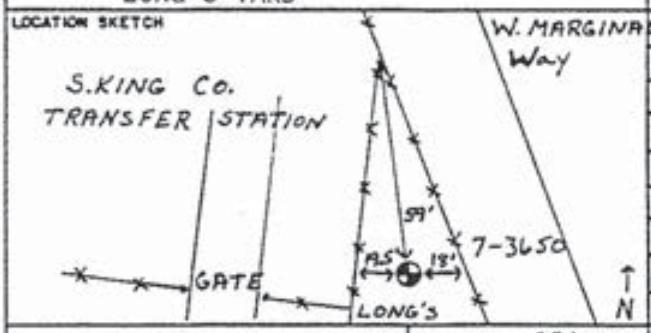
SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HN / CH4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION DESCRIPTION	
					20				
8 / SPT	20.5 / 22.0	5 / 7 / 8	18 / 18	B / –				SILT AND SAND - dark gray, fine; interbedded and interlaminated; trace of plant fiber; trace of shell fragments; trace of glass	1125
9 / SPT	23.0 / 24.5	7 / 10 / 14	18 / 12	B / –				INTERBEDDED SAND AND SILT - dark gray, fine to medium; faint organic odor	1135
					25				
10 / SPT	25.5 / 27.0	2 / 3 / 8	18 / 16	B / –				SAND - dark gray, fine to medium; quartz, volcanic and other lithic grains	1200
11 / SPT	28.0 / 29.5	2 / 5 / 12	18 / 18	B / –				SAND - as above; trace coarse	1205
					30				
– / SPT	30.5 / 32.0	15 / 14 / 15	18 / 0					No recovery on two attempts	
12 / SPT	31.5 / 33.0		12 / 10	B / –				SAND - as above; about 2 feet of heave inside auger	1250
					35			END OF HOLE: Total depth 29.7 feet inside auger; bentonite seal placed at 10 feet; hole backfilled to surface with cuttings; very clean hole; see log 7-4650	
					40				

HONG CONSULTING ENGINEERS, INC.

SHEET 1 OF 1

LOCATION OF BORING	LONG'S YARD
JOB NO.	8546
CLIENT	URS/METRO
PROJECT NAME	METRO ETS-7
BORING NO.	7-3650
DRILLING METHOD	HOLLOW STEM AUGER
SAMPLING METHOD	STANDARD PENETRATION TEST 140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



WATER LEVEL	DRY	TO 5.5'			START TIME	FINISH TIME
TIME					0830	0940
DATE					DATE 3-12-86	DATE 3-12-86
CASING DEPTH						

DATUM SURFACE ELEVATION 18'

SURFACE CONDITION SAND, GRAVEL, SPARSE GRASS
HNu BACKGROUND = 0.4 - 0.6

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH_4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION / DESCRIPTION
					0			FILL
								SAND AND GRAVEL - dark brown, fine to medium; fine to coarse
1 / SPT	3.0 / 4.5	8 / >50	9 / 5	B / –				SAND AND GRAVEL - dark brown, fine to medium; fine to coarse; brick; grass; small bits of oxidized chromium color material, unidentified; moist 0855
								END OF HOLE: Obstruction at 5.5 feet; attempted to drive sampler, 50 for no feet; hole backfilled to surface with cuttings; dry to total depth; see log 7-3647

DRILLING CONTRACTOR HOKKAIDO
DRILLER BOB

BY SHE DATE 3-12-86 CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

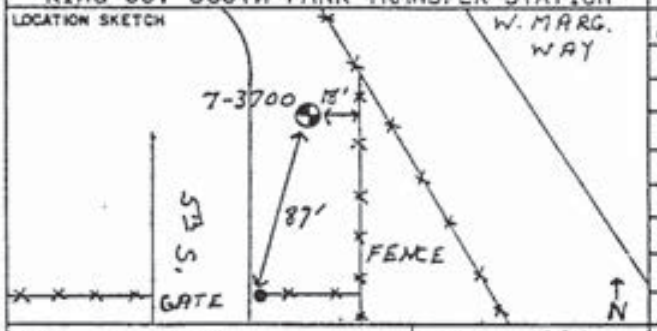
JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-3700

PROJECT NAME METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 lb. SAFETY HAMMER

LOCATION SKETCH



					START	FINISH
WATER LEVEL	11.0'		11.5'		TIME	TIME
TIME	1035		1146		0917	1200
DATE	2-10-86		2-10-86		DATE	DATE
CASING DEPTH					2-10-86	2-10-86

DATUM SURFACE | ELEVATION 18'

SURFACE CONDITION GRASS COVER

HNu BACKGROUND = "B"

DRILLING CONTRACTOR SUBTERRANEAN | DRILLER JC | BY SHE | DATE 2-10-86 | CHKD BY SH

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CHY	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION DESCRIPTION
					0			(FILL) SAND AND GRAVEL - brown, fine sand and fine gravel;
1 / SPT	2.0 / 3.5	5 / 7 / 10	18 / 16	— / 0				SILTY SAND- dark brown, fine to medium; little fine gravel; glass, brick, wood debris; organic odor
2 / SPT	4.5 / 6.0	17 / 22 / 11	18 / 8	— / 0	5			SILTY SAND-Dark brown, fine to medium; black mottling; slight organic odor; glass and brick fragments
3 / SPT	7.0 / 8.5	12 / 28 / 29	18 / 2	— / 0				SILTY GRAVEL - dark brown, fine; trace fine sand
						SEAL		
4 / SPT	9.5 / 11.0	4 / 5 / 5	18 / 18	— / 0	10			SAND - dark gray to black, fine to medium; trace fine gravel
5 / SPT	12.0 / 13.5	4 / 5 / 3	18 / 18	— / 0		WL 1035		SAND - dark gray to black, fine to medium; 4 inch silt interbed at 12.5'; trace organic; trace silt
6 / SPT	14.5 / 16.0	3 / 4 / 7	18 / 18	— / 0	15			SAND - dark gray to black, fine to medium, volcanic grains; trace silt; 2 inch silty bed at base; small shell fragments and wood fragments
7 / SPT	17 / 18.5	1 / 2 / 4	18 / 18	B / 0				SAND - dark gray, fine to medium; trace silt; 2 inch tan, laminated silt band at base possible volcanic ash
8 / SPT	19.5 / 21.0	4 / 6 / 8	18 / 6	B / 0	20			SAND - dark gray, fine to medium; trace gravel; thin silt beds; organics

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

LOCATION SKETCH

JOB NO. 8546 | CLIENT URS/ METRO | BORING NO. 7-3700

PROJECT NAME METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 lb. SAFETY HAMMER

					START	FINISH
WATER LEVEL	11.0'		11.5'		TIME	TIME
TIME	1035		1146		0917	1200
DATE	2-10-86		2-10-86		DATE	DATE
CASING DEPTH					2-10-86	2-10-86

DATUM SURFACE | ELEVATION 18'

SURFACE CONDITION: GRASS COVER

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CHy	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION	DESCRIPTION
					20				
								END OF HOLE: Total Depth 21 feet inside auger; boring backfilled upon completion with cuttings, bentonite seal 9.0' to 10.0'	

DRILLING CONTRACTOR SUBTERRANEAN

DRILLER JC

BY SHE DATE 2-10-86 CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

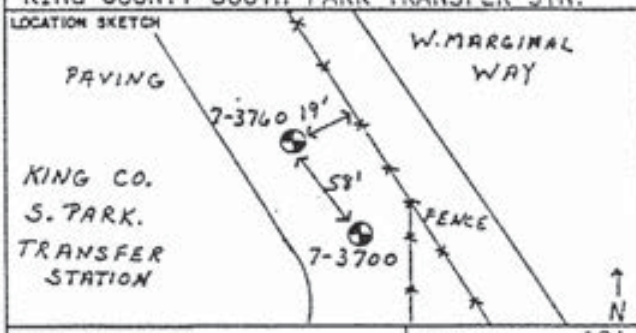
SHEET 1 OF 1

LOCATION OF BORING: KING COUNTY SOUTH PARK TRANSFER STN.

JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-3760

PROJECT NAME METRO ETS-7

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 lb. SAFETY HAMMER

					START	FINISH
WATER LEVEL	11.0'		13.5'		TIME	TIME
TIME	1330		1342		1300	1400
DATE	2-10-86		2-10-86		DATE 2-10-86	DATE 2-10-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 18'

SURFACE CONDITION: GRASS COVER
HNu BACKGROUND = "B"

SAMPLE NO. / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CHy	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION / DESCRIPTION
					0			
								FILL
1 / SPT	2.0 / 3.5	2 / 2 / 2	18 / 6	B / —				SAND - brown, fine; little silt; clinker ash, little gravel 1310
								-- NOTE: Driller reports driving through rock or concrete
2 / SPT	4.5 / 6.0	3 / 7 / 17	18 / 6	B / 0	5			GRAVELLY SAND - brown; trace silt, iron staining, whitish lens of sand and gravel, with concrete debris, burnt wood ash 1315
3 / SPT	7.0 / 8.5	14 / 5 / 5	18 / 6	/ —				SAND - light brown, fine to medium; micaceous sand; oil on outside of split spoon
4 / SPT	9.5 / 11.0	5 / 7 / 9	18 / 16	2 / 0	10	SEAL		SAND - black, fine to medium; trace coarse at top; oil saturated
				3 / —		WL 1330		
5 / SPT	12.0 / 13.5	1 / 2 / 12	18 / 16					SAND - black, fine to medium; oil saturated, 12 inches trace fine gravel
								SILT - brown, with organic lens
6 / SPT	14.5 / 16.0	2 / 3 / 3	18 / 10	B / 0	15			SAND AND SILT - brown, fine; laminated; 10" of slough at top
								END OF HOLE - HNu measured up to 15 inside the hole, falls to 0 at top
								2.5 feet of heave at bottom of hole
								hole back filled upon completion.
								betonite seal 9.3' - 10.0'
					20			betonite also added below

DRILLING CONTRACTOR SUBTERRANEAN
DRILLER JC
BY SHE
DATE 2-10-86
CHKD BY SH

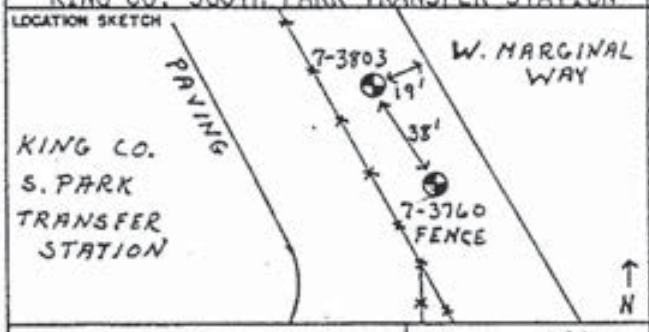
HONG CONSULTING ENGINEERS, INC.

SHEET 1 OF 1

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

JOB NO. 8546 | CLIENT URS/METRO | PROJECT NAME METRO ETS-7 | BORING NO. 7-3803

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 lb. SAFETY HAMMER

					START	FINISH
WATER LEVEL	10"		11'		TIME	TIME
TIME	1440		1500		1420	1520
DATE	2-10-86		2-10-86		DATE 2-10-86	DATE 2-10-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 18'

SURFACE CONDITION: GRASS COVER
HNu BACKGROUND = "B"

DRILLING CONTRACTOR SUBTERRANEAN
DRILLER JC

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION / DESCRIPTION
					0			FILL COBBLES OR CONCRETE in upper few feet
1 / SPT	2.5 / 4.0	2 / 4 / 5	18 / 6	B / –				SAND - brown and reddish yellow; fine, some silt glass and brick fragments, iron staining
2 / SA	5.0 / 6.5	1 / 1 / 1	18 / 4	B / –	5			DEBRIS - gypsum board, ?asbestos?, concrete fragments sand, iron staining 1440
								SILTY SAND - brown, fine to medium; glass fragments 1450
3 / SPT	7.5 / 9.0	6 / 15 / 16	18 / 12	B / –				
						SEAL		SAND - black, fine to medium; oil saturated
4 / SPT	10.0 / 11.5	3 / 5 / 7	18 / 18	4 / –	10			SAND - black, fine to medium; oil saturated (possibly diesel); thin silt laminations, trace shell fragments 1550
5 / SPT	12.5 / 14.0	1 / 3 / 4	18 / 18	7 / –				SAND - black, fine to medium; oil saturated SANDY SILT - dark brown, fine to medium; laminated, trace organic 1510
6 / SPT	15.0 / 16.5	2 / 3 / 9	18 / 18	3 / –	15			SAND - black, fine to medium; oil saturated; some silt in thin beds up to 6", brown, poorly laminated
								END OF HOLE 16.5', HNu 4 in open hole, little cuttings from hole, probable voids bentonite seal 8.8-9.2' sloughed to seal, backfilled with sand and gravel to surface
					20			

BY SHE | DATE 2-10-86 | CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

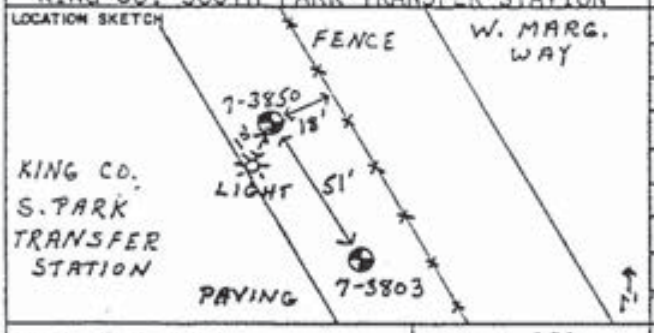
SHEET 1 OF 1

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-3850

PROJECT NAME METRO ETS - 7

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST, 140 lb. SAFETY HAMMER

					START	FINISH
WATER LEVEL	9.5'		11.5'		TIME 1530	TIME 1630
TIME	1545		1610			
DATE	2/10/86		2/10/86		DATE 2/10/86	DATE 2/10/86
CASING DEPTH						

DATUM SURFACE | ELEVATION 16'

SURFACE CONDITION: GRASS COVER

HNu BACKGROUND = "B"

DRILLING CONTRACTOR SUBTERRANEAN | DRILLER JC | BY SHE | DATE 2-10-86 | CHKD BY SH

SAMPLE NO. / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / METHANE	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION / DESCRIPTION
					0			FILL
								SAND -brown, fine to coarse; some fine to coarse gravel
1 / SPT	2.0 / 3.5	4/3/2	18 / 6	B / -				SILTY SAND - brown with iron staining, fine to coarse; some gravel 1540
2 / SPT	4.5 / 6.0	4/1/1	18 / 6	8 / -	5			SAND AND GRAVEL - brown, iron staining, medium to coarse sand; some gravel 1545
3 / SPT	7.0 / 8.5	7/7/9	18 / 12	1 / -				SAND - brown with iron staining, fine to coarse, some sandstone fragments; trace fine gravel
						SEAL		SAND - black, fine to medium; shell fragments, oily 1550
				1 / -				HNu 1 PPM in hole
4 / SPT	9.5 / 11.0	3/4/7	18 / 18	4-6 / -	10	WL 1545		SAND - black, fine to coarse; oil saturated; discrete light brown silt band, 1 inch; grades to silty fine sand at base 1555
5 / SPT	12.0 / 13.5	1/2/3	18 / 18	2 / -				SAND - black, fine to coarse; oil saturated, top 10 inches; becomes silty at base
				— / 0				SILT - medium brown; with organic lenses and laminations 1600
6 / SPT	14.5 / 16.0	1/6/8	18 / 18		15			INTERBEDDED SAND AND SILTY SAND - dark brown, fine to medium; interbedded and interlaminated; oily at top
				4.5 / 0				END OF HOLE
								bentonite seal 8.3 - 8.8
								hole sloughed to 9.0'
								backfilled with cuttings, surface material to surface.
					20			

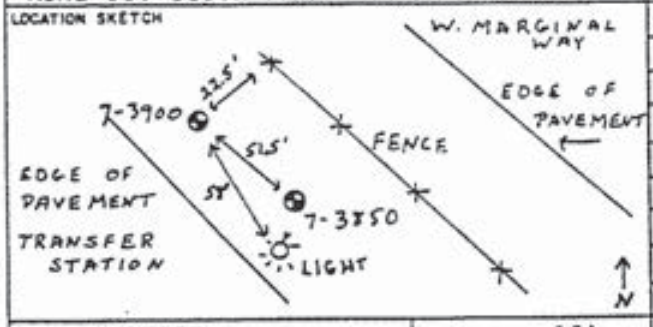
HONG CONSULTING ENGINEERS, INC.

SHEET 1 of 1

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

JOB NO. 8546 | CLIENT URS/METRO | PROJECT NAME METRO ETS-7 | BORING NO. 7-3900

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER

					START	FINISH
WATER LEVEL	11'		10.5'		TIME 0815	TIME 0930
TIME	0850		0910			
DATE	2-11-86		2-11-86		DATE 2-11-86	DATE 2-11-86
CASING DEPTH						

DATUM: SURFACE | ELEVATION: 16'

SURFACE CONDITION: GRASS COVER
HNu BACKGROUND = "B"

Sample No / Sample Type	Sample Depth	Blows per 6 inches	Inches Driven / Inches Recovered	HNu / CH_4	Depth in Feet	Piezometer	Graphic Log	Classification / Description	
					0			FILL	
								SAND - brown, fine to medium; some fine gravel	
1 SPT	2.5 / 4.0	14 / 19 / 21	18 / 12	B / —				SAND - brown, fine to coarse; little gravel; glass, wood, other debris; iron staining; odor noticed, vanilla or solvent	0840
				2 / —					
2 SPT	5.0 / 6.5	6 / 12 / 24	18 / 6	B / —	5			SAND - brown, fine to coarse; some gravel, fine to coarse; cobbles; glass and other debris; iron stain	0850
3 SPT	7.5 / 9.0	7 / 4 / 11	18 / 12	B / —				SILTY SAND - brown, iron stain; silty in beds; charcoal, glass debris; noticeable odor, solvent possibly; contact at base	0855
				1 / —		SEAL			
4 SPT	10.0 / 11.5	5 / 8 / 9	18 / 14	B / —	10	WL 8.50		SAND - dark gray, fine to medium; red and black volcanic clasts; trace silt; odor of vanilla, possible solvent	0910
5 SPT	12.5 / 14.0	1 / 1/2 / 1/2	18 / 18	— / —				INTERBEDDED SILT AND SAND - dark gray brown; poorly laminated; organic silt lenses; plant fragments; sand, dark gray brown, fine to medium grained; odor noticeable	0920
6 SPT	15.0 / 16.5	1 / 1 / 1	18 / 18	— / —	15			INTERBEDDED SILT AND SAND - dark gray brown, poorly laminated; sand, dark gray, fine to medium; odor faint or gone	0930
								END OF HOLE bentonite seal 8.5 - 9.0', hole sloughed below seal, backfilled with cuttings	
					20			NOTE - HNu is acting up. I do not trust any of its readings.	

SUBTERRANEAN

DRILLING CONTRACTOR CH

DRILLER

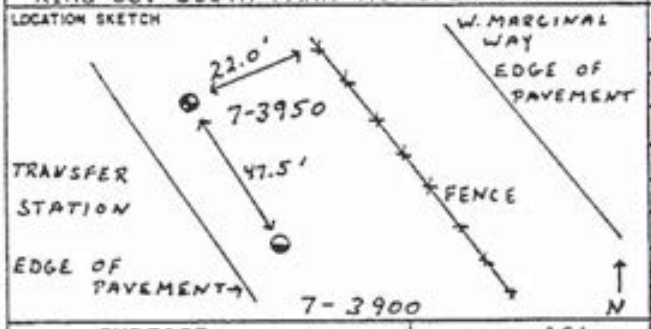
BY SHE DATE 2-11-86 CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

JOB NO. 8546 | CLIENT URS/METRO | PROJECT NAME METRO ETS - 7 | BORING NO. 7-3950

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

				START	FINISH
WATER LEVEL	8.0'		13.1'	TIME	TIME
TIME	1040		1050	1015	1115
DATE	2-11-86		2-11-86	DATE	DATE
CASING DEPTH				2-11-86	2-11-86

DATUM: SURFACE | ELEVATION: 16'

SURFACE CONDITION: GRASS COVER

DRILLING CONTRACTOR: SUBTERRANEAN | DRILLER: CW | BY: SHE | DATE: 2-11-86 | CHKD BY: SH

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION	DESCRIPTION	
					0				FILL	
1 / SPT	2.5 / 4.0	30 / 22 / 9	18 / 6	2 / –				SILTY SAND	brown, fine to medium; concrete fragment and wood debris	1030
2 / SPT	5.0 / 6.5	3 / 4 / 3	18 / 6	6 / –	5			SILTY SAND	as above; abundant wood debris, wire	1040
3 / SPT	7.5 / 9.0	4 / 2 / 3	18 / 9	– / –		WL ▽ 1040		SAND	dark brown, medium to coarse; brick, glass fragments; trace fine gravel	1050
				6 / –						
4 / SPT	10.0 / 11.5	4 / 7 / 11	18 / 18	2 / –	10	SEAL		SAND	dark gray, fine to medium; trace coarse, dark gray, red volcanic clasts, quartz; very faint oil odor; wet	
				2 / 0						
5 / SPT	12.5 / 14.0	½ / ½ / 3	18 / 18	1 / –				SILT	brown, sandy in beds, poorly laminated, organic laminations; wood fragments and plant fibers	1105
					15			SILT	as above; woody fragments at base; top 6 inches sand - as above; faint sulphur odor	
6 / SPT	15.5 / 17.0	3 / 5 / 5	18 / 18	– / –						
					20			END OF HOLE:	Total depth 16.5 feet inside auger; bentonite seal 9.5 - 10.0', hole sloughed below seal, backfilled with cuttings to surface; total depth ½' less than planned, probable heave in sand	

HONG CONSULTING ENGINEERS, INC.

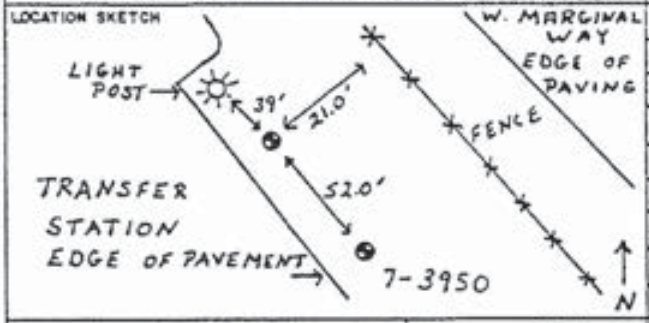
SHEET 1 OF 1

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-4000

PROJECT NAME METRO ETS-7

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

					START	FINISH
WATER LEVEL	10'		14.5'		TIME	TIME
TIME	1307		1356		1140	1400
DATE	2-11-86		2-11-86		DATE 2-11-86	DATE 2-11-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 16'

SURFACE CONDITION GRASS COVER
HNu BACKGROUND = "B"

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION / DESCRIPTION	
					0			FILL	
								SILTY SAND - brown, fine to medium; little fine to coarse gravel	
1 / SPT	2.5 / 4.0	16 / 14 / 12	18 / 12	2 / –				SAND AND GRAVEL - brown, iron staining, medium to coarse; gravel fine to coarse; glass and other debris	1305
2 / SPT	5.0 / 6.5	3 / 5 / 8	18 / 14	2 / –	5			INTERBEDDED SAND AND SILT - brown and gray, fine to medium; wood debris, plastic debris	1310
3 / SPT	7.5 / 9.0	6 / 3 / 6	18 / 7	2 / –				SAND AND DEBRIS - black, fine to medium; paper; wire debris	1343
4 / SPT	10.0 / 11.5	30 / 4 / 4	18 / 12	3 / –	10	SEAL ▽ W.L. 13:07		SAND - black, fine to medium; some silt; last 6 in. of sample wood fibre, straw, concrete debris	1400
				15 / 15					
5 / SPT	12.5 / 14.0	6 / 3 / 5	18 / 18	8 / –				INTERBEDDED SAND AND SILT - dark gray to dark brown, fine to medium; poorly laminated; moist; wire in tip, fiberous debris at top	1415
				2 / 20%	15	▽ W.L. 13:51			
								END OF HOLE bubbling sound from hole, methane reading off 4% scale, variable, 20% ± at base of hole. Pulled out of hole, hole sloughed to 10', bentonite seal 9.0 - 10.0', used one full bucket, backfilled hole with cuttings, bentonite to surface	
					20				

DRILLING CONTRACTOR SUBTERRANEAN
DRILLER CH
CHKD BY SH
BY SHE
DATE 2-11-86

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

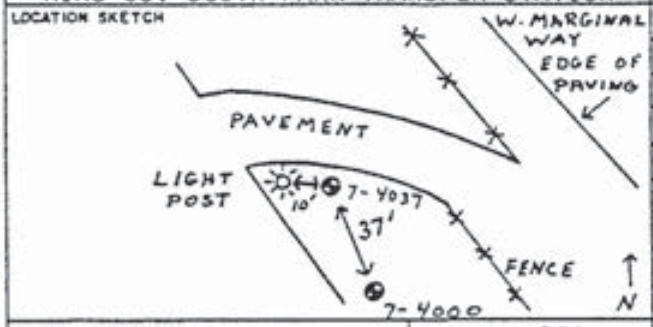
JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-4037

PROJECT NAME METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
150 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START TIME	FINISH TIME
WATER LEVEL	11'		16'			
TIME	1520		1540		1420	1600
DATE	2-11-86		2-11-86		DATE 2-11-86	DATE 2-11-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 16'

SURFACE CONDITION: GRASS COVER
HNu BACKGROUND <1.0

DRILLING CONTRACTOR SUBTERRANEAN | DRILLER C.W. | BY SHE | DATE 2-11-86 | CHKD BY SH

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION DESCRIPTION	
					0			FILL	
								SAND - brown, fine to coarse; some gravel; fine to coarse; debris	
1 / SPT	2.5 / 4.0	10 / 22 / 16	18 / 8	1 / –				SAND - brown, medium to coarse; some gravel, fine to coarse; concrete at tip brick and other debris	1455
2 / SPT	5.0 / 6.5	16 / 13 / 18	18 / 8	1 / –	5			SAND - brown, medium to coarse; trace gravel, fine; trace silt; brick fragments and other debris	1500
3 / SPT	7.5 / 9.0	10 / 50	7 / 6	2 / –				SAND AND GRAVEL - brown, fine to coarse; brick and shell fragments; other debris	
				15 / 0				shoe refusal at 8.0 feet, auger drilled beyond	1505
4 / SPT	10.0 / 11.5	4 / 9 / 14	18 / 6	2 / –	10	WL 1590		SAND AND GRAVEL - dark brown, medium to coarse; wood debris	1525
						SEAL			
5 / SPT	12.5 / 14.0	3 / 5 / 10	18 / 18	10 / –				INTERBEDDED SAND AND SILTY SAND - dark gray, fine to coarse; fine beds; poorly laminated; trace fine gravel	1530
6 / SPT	15.0 / 16.5	5 / 5 / 7	18 / 18	3 / –	15	W.L. 15.90		SILT - light brown and gray beds; some fine sand at top; poorly laminated; woody debris	1540
7 / SPT	17.5 / 19.0	2 / 5 / 6	18 / 18					SANDY SILT - dark brown, fine; trace woody debris; fine to medium sand at tip	1550
8 / SPT	19.0 / 20.5	6 / 9 / 8	18 / 18					SAND - dark gray, fine to medium; volcanic clasts and quartz; trace silt	1600
				3 / 0	20				

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

JOB NO. 8546 | CLIENT: URS/METRO | BORING NO. 7-4037

PROJECT NAME: METRO ETS-7

LOCATION SKETCH

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 lb. SAFETY HAMMER DROPPED 30 INCHES

					START	FINISH
WATER LEVEL	11'		16'		TIME	TIME
TIME	1520		1540		1420	1600
DATE	2-11-86		2-11-86		DATE 2-11-86	DATE 2-11-86
CASING DEPTH						

DATUM: SURFACE | ELEVATION: 16'

SURFACE CONDITION

SAMPLE NO. / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	NUMBER OF RINGS	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION	DESCRIPTION
									END OF HOLE - total depth measured at 17.0' inside auger, 3 feet plus of heave, seal at 11.5 - 12.0 feet, sloughed below seal, backfilled with cuttings to surface

DRILLING CONTRACTOR: SUBTERRANEAN

DRILLER: CW

BY: SHE

DATE: 2-11-86

CHKD BY: SH

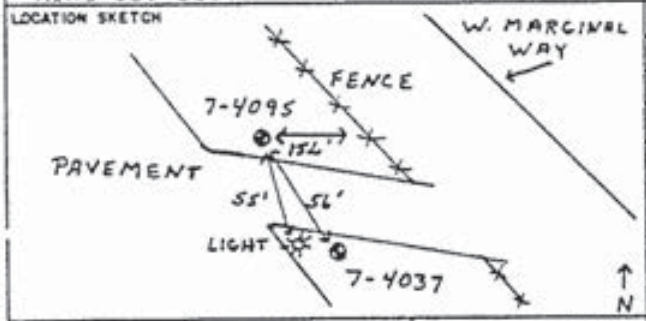
HONG CONSULTING ENGINEERS, INC.

SHEET 1 OF 2

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

JOB NO. 8546 | CLIENT URS/METRO | PROJECT NAME METRO ETS-7 | BORING NO. 7-4095

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

					START TIME	FINISH TIME
WATER LEVEL	11'		15.5'			
TIME	0912		0943		0830	1000
DATE	2-12-86		2-12-86		DATE 2-12-86	DATE 2-12-86
CASING DEPTH						

DATUM: SURFACE | ELEVATION: 17'

SURFACE CONDITION: GRASS COVER
HNu BACKGROUND <1.0 ("B")

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION / DESCRIPTION	
								FILL	
					0			SAND - brown, medium; some gravel	
1 / SPT	2.0 / 3.5	22 / 21 / 13	18 / 8	1 / —				SAND - brown, fine to coarse; some fine gravel; brick, glass, metal fragments	0900
2 / SPT	4.5 / 6.0	5 / 3 / 3	18 / 6	1 / —				SAND - mottled brown, dark yellow, fine to coarse; some fine gravel; abundant glass	0910
					5				
3 / SPT	7.0 / 8.5	1 / 1 / 1	18 / 10	1 / —				SAND - as above; glass, metal and possible gypsum wallboard debris; odor	0915
4 / SPT	9.5 / 11.0	11 / 24 / 23	18 / 13	12 / —				SAND - as above; brick	
					10	WL 0912		SAND - dark gray, fine to medium; trace silt; volcanic and quartz clasts; wet	0930
5 / SPT	12.0 / 13.5	6 / 5 / 5	18 / 14	8 / —		SEAL		SAND - as above; 2 inch silt interbed at tip; trace gravel; poorly laminated	
6 / SPT	14.5 / 16.0	2 / 5 / 9	18 / 18	8 / —				SAND - dark brown, fine to coarse; top 6 inches	
				1 / 0	15			SILT - brown; poorly laminated, with occasional organic laminations	0945
7 / SPT	17.0 / 18.5	6 / 11 / 14	18 / 18	3 / —				INTERBEDDED SAND AND SILT - dark gray, fine to medium; laminated; moist	0955
					20				

DRILLING CONTRACTOR: SUBTERRANEAN
DRILLER: CW
CHKD BY: SH
BY: SHE
DATE: 2-12-86

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

LOCATION SKETCH

JOB NO. 8546 | CLIENT URS/Metro | BORING NO. 7-4095

PROJECT NAME METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

					START	FINISH
WATER LEVEL	11'		15.5'		TIME	TIME
TIME	0912		0943		0830	1000
DATE	2-12-86		2-12-86		DATE	DATE
CASING DEPTH					2-12-86	2-12-86

DATUM SURFACE | ELEVATION 17'

DRILLING CONTRACTOR SUBTERRANEAN
DRILLER CW

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HN_4 / CH_4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	SURFACE CONDITION / CLASSIFICATION	DESCRIPTION
					20				
8 / SPT	20.5 / 22.0	3 / 6 / 18	18 / 13	1 / —				INTERBEDDED SILT AND SAND - dark gray; bedded and laminated	1005
								END OF HOLE measured depth at end of drilling 20.5'; bentonite seal placed at 11.5-12.0'; hole sloughed below seal, backfilled with cuttings above seal to surface	
					25				

BY SHE
DATE 2-12-86 CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

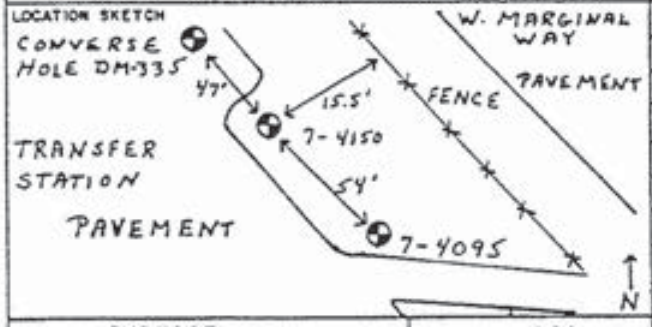
JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-4150

PROJECT NAME METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START	FINISH
WATER LEVEL	12.5'		16'		TIME	TIME
TIME	1106		1143		1015	1200
DATE	2-12-86		2-12-86		DATE	DATE
CASING DEPTH					2-12-86	2-12-86

DATUM: SURFACE | ELEVATION: 18'

SURFACE CONDITION: GRASS COVER
HNu BACKGROUND <1.0 ("B")

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION DESCRIPTION	
					0			FILL	
1 / SPT	2.0 / 3.5	50	6 / 14	B / –				SAND - brown, fine to medium; trace fine gravel; brick, glass, concrete; bit refusal in first 6 inches, rest of recovery is slough	1050
2 / SPT	4.5 / 6.0	28 / 20 / 15	18 / 8	B / –	5			SAND - brown, fine to medium; trace gravel; brick, concrete	1105
3 / SPT	7.0 / 8.5	14 / 12 / 20	18 / 5	B / –				SAND - as above; brick	
								NOTE: bit chattering at 9'	
4 / SPT	9.5 / 11.0	6 / 9 / 14	18 / 18	2 / –	10			SAND - dark gray, fine medium; trace fine gravel volcanic clasts, quartz; wet; naptha odor; glass fragment	1120
				1 / 0		SEAL			
5 / SPT	12.0 / 13.5	16 / 12 / 10	18 / 18	25 / –		WL 1106		INTERBEDDED SAND AND SILT - dark gray, fine to medium; fining toward tip; plant debris in silt	1130
				10-20 / 0				NOTE: petroleum odor noted at 14'	
6 / SPT	14.5 / 16.0	9 / 12 / 10	18 / 18	2 / –	15			SILT - brown; laminated; some woody debris and organic laminae; trace clay; naptha odor, probably from slough	1140
7 / SPT	17.0 / 18.5	5 / 8 / 22	18 / 18	8 / –				SILT - brown; laminated; woody debris; root tubes; organic rich laminations; trace of sand and clay laminations	1150
8 / SPT	19.5 / 21.0	2 / 3 / 8	18 / 18	B / –	20			SILT - brown; almost fine sand; trace of plant debris, top 12 inches	

SUBTERRANEAN

DRILLING CONTRACTOR: CW
DRILLER:

BY: SHE
DATE: 2-12-86
CHKD BY: SH

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

LOCATION SKETCH

JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-4150

PROJECT NAME METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

					START TIME	FINISH TIME
WATER LEVEL	12.5'	16'				
TIME	1106	1143			1015	1200
DATE	2-12-86	2-12-86			DATE 2-12-86	DATE 2-12-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 18'

SUBTERRANEAN

DRILLING CONTRACTOR CW

DRILLER

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HN_4 / CH_4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION	DESCRIPTION	
					20			SAND	dark gray, fine to medium; volcanic and quartz grains, last 6 inches	1200
9 / SPT	22.0 / 23.5	5 / 11 / 16	18 / 18	0 / —				SAND -	dark gray, fine to medium; volcanic and quartz clasts; trace of plant debris	1215
					25			END OF HOLE	total depth measured at 18 feet, 5' of heave?; water level at 16"; hole sloughed to 11.0; bentonite seal at 10.5-11.0'; hole filled with cuttings to surface	

SURFACE CONDITION

BY SHE DATE 2-12-86 CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

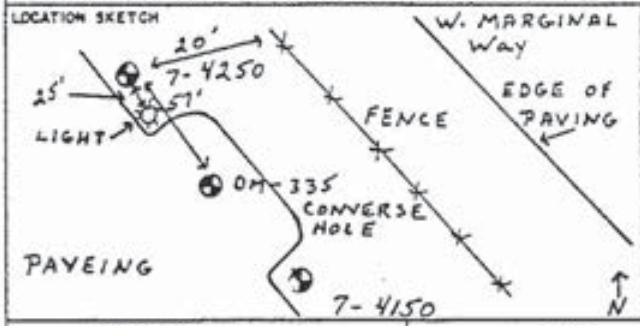
JOB NO. 8546 | CLIENT: URS/METRO | BORING NO. 7-4250

PROJECT NAME: METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START TIME	FINISH TIME
WATER LEVEL	11'		15'			
TIME	1415		1447		1345	1510
DATE	2-12-86		2-12-86		DATE 2-12-86	DATE 2-12-86
CASING DEPTH						

DATUM: SURFACE | ELEVATION: 16'

SURFACE CONDITION: GRASS COVER
HNu BACKGROUND < 1.0 ("B")

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	CLASSIFICATION / DESCRIPTION
					0	FILL
						SAND - brown, fine to medium; trace silt; some fine to coarse gravel
1 / SPT	2.5 / 4.0	14 / 20 / 26	18 / 8	8 / 1		GRAVEL AND SAND - brown to gray, fine and coarse; brick fragments 1405
2 / SPT	5.0 / 6.5	12 / 21 / 15	18 / 14	1 / —	5	SAND - dark gray, fine to coarse; some fine gravel; iron staining; glass, concrete 1415
				1 / 0		
3 / SPT	7.5 / 9.0	6 / 4 / 4	18 / 14	1 / —		SAND - dark gray, fine to coarse; some silt at top; trace fine gravel; volcanic and quartz grains; wet 1420
4 / SPT	10.0 / 11.5	7 / 10 / 12	18 / 18	1 / —	10	SAND - dark gray, fine to medium; fining toward tip; trace gravel; volcanic and quartz grains; indistinct laminations at tip; wet 1430
5 / SPT	12.5 / 14.0	1 / 1 / 5	18 / 18	1 / —		SILT - gray; trace fine sand; little wood debris, organic laminations; laminated 1440
6 / SPT	15.0 / 16.5	2 / 5 / 6	18 / 16	1 / —	15	SAND - dark gray, fine; trace silt at tip; volcanic and quartz grains 1450
				1 / .5		
7 / SPT	17.5 / 19.0	3 / 5 / 5	18 / 18	1 / —		SAND - gray, fine; some silt laminations; laminated; poorly sorted
					20	

WL 1415

SUBTERRANEAN

DRILLING CONTRACTOR: CW

DRILLER:

BY: SHE | DATE: 2-12-86 | CHKD BY: SH

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

JOB NO. 8546 | CLIENT URS/METRO | PROJECT NAME METRO ETS-7 | BORING NO. 7-4250

LOCATION SKETCH

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30"

					START TIME	FINISH TIME
WATER LEVEL	11'		15'			
TIME	1415		1447		1345	1510
DATE	2-12-86		2-12-86		DATE 2-12-86	DATE 2-12-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 16'

SURFACE CONDITION

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HN4 / CH4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION / DESCRIPTION
8 / SPT	20.0 / 21.5	5 / 9 / 19	18 / 18	1 / 1	20			SAND - dark gray, fine to medium; fine at top, medium at tip; trace of plant fiber
				8 / 0				
					25			END OF HOLE - total depth measured at 17', 3' of heave, water level 15' inside auger, hole sloughed to 14.5', bentonite seal at 14.0 - 14.5', backfilled with cuttings to surface
								NOTE - On starting next hole, auger found to be plugged with bentonite. Believe that bentonite bridged on putting seal in this hole. There is, therefore, probably little or no seal in this hole.

SUBTERRANEAN

DRILLING CONTRACTOR CW

DRILLER

BY SHE DATE 2-12-86 CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

SHEET 1 OF 1

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

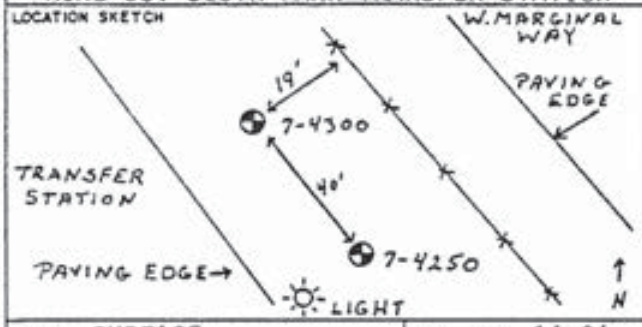
JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-4300

PROJECT NAME METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START TIME	FINISH TIME
WATER LEVEL	6'		12.5'			
TIME	0918		1000		0900	1030
DATE	2-13-86		2-13-86		DATE 2-13-86	DATE 2-13-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 14.0'

SURFACE CONDITION: GRASS COVER
HNu BACKGROUND < 1.0 ("B")

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION / DESCRIPTION	
					0			FILL	
								SAND - dark brown, fine to coarse; some fine to coarse gravel; glass	
1 / SPT	2.5 / 5.0	12 / 48 / 23	18 / 18	1 / —				SAND - dark brown, fine to coarse; some fine gravel; yellow clinker, glass, wood, brick	0910
2 / SPT	5.0 / 6.5	18 / 11 / 7	18 / 5	1 / —	5	WL 0918		SAND AND GRAVEL - black, fine to coarse; wood debris, other material; wet	0925
3 / SPT	7.5 / 9.0	7 / 11 / 14	18 / 16	1 / —				SAND - dark gray, fine to medium; trace of fine gravel; trace of plant debris	0935
				B / 0					
4 / SPT	10.0 / 11.5	2 / 3 / 5	18 / 18	1 / —	10	SEAL		SILTY CLAY - brown, laminated; little clay in bottom 6"; wood debris and organic laminations; root burrowing in last 6 inches below ½ inch organic horizon	0950
5 / SPT	12.5 / 14.0	2 / 3 / 8	18 / 12	1 / —				SANDY SILT - dark gray, fine; trace clay ; laminated; volcanic clasts; abundant plant debris	1000
6 / SPT	15.0 / 16.5	9 / 22 / 9	18 / 18	1 / —	15			SILTY SAND - dark gray, fine grained; laminated; plant debris at top	1010
7 / SPT	17.5 / 19.0	— / — / —	18 / 18	1 / —				SAND - dark gray, fine to medium; trace silt laminations; volcanic and quartz grains	
				B / 0					
					20			END OF HOLE - hole sloughed to 11 feet, bentonite seal at 11.0 - 11.5 feet, backfilled with cuttings; total depth measured at 14' inside auger	

DRILLING CONTRACTOR: SOUTH CENTRAL
DRILLER: CW
BY: SHE
DATE: 2-12-86
CHKD BY: SH

HONG CONSULTING ENGINEERS, INC.

SHEET 1 OF 1

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

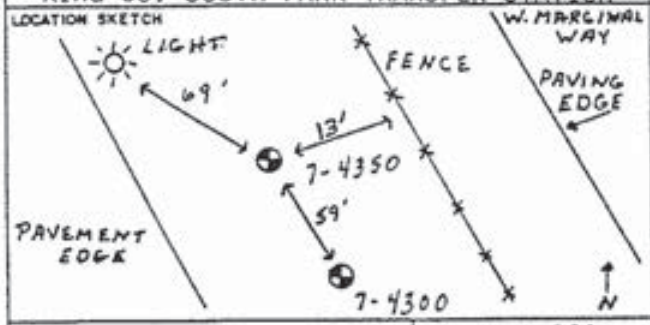
JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-4350

PROJECT NAME METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START TIME	FINISH TIME
WATER LEVEL	NOT MEASURED				1100	1300
TIME						
DATE					2-13-86	2-13-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 13'

SURFACE CONDITION GRASS COVER

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HN_4 / CH_4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION DESCRIPTION	
					0			FILL	
1 / SPT	2.5 / 4.0	3 4 / 12 / 7	18 / 6	— / —				SAND - dark brown, fine to coarse; trace fine gravel; ceramic, glass, brick, clinker debris	1125
2 / SPT	5.0 / 6.5	2 / 2 / 2	18 / 14	— / —	5			CLAYEY SILT - gray, mottled; plant debris and organic laminations; root traces; bioturbation; glass at top	1140
3 / SPT	7.5 / 9.0	6 / 9 / 10	18 / 18					SAND - dark gray, fine to medium; laminated; trace fine gravel; volcanic and quartz grains; some shells possible	1155
4 / SPT	10.0 / 11.5	1 / 1 / 1	18 / 18	— / 0	10	SEAL		CLAYEY SILT - brown, laminated; abundant plant debris and organic laminations; mottled, probable root turbations	1205
5 / SPT	12.5 / 14.0	3 / 4 / 4	18 / 18					SANDY SILT - gray to brown at top; little clay and abundant organic laminations at top; grading to fine sandy silt at base; glass fragment in middle	1215
6 / SPT	15.0 / 16.5	2 / 2 / 4	18 / 18		15			SAND AND SILT - gray and brown, fine to medium; poorly laminated; volcanic and quartz grains; silt forms discrete layer parallel to core barrel; glass	1230
7 / SPT	16.5 / 18.0	6 / 7 / 13	18 / 18					SAND AND SILT - dark gray, fine to medium; laminated; silt layer parallel to barrel, possibly scrapped off hole side on way down	1240
					20			END OF HOLE - hole sloughed to 11 feet, bentonite seal 10.5 - 11.0 feet, backfilled with drill cuttings to surface	

DRILLING CONTRACTOR SUBTERRANEAN
DRILLER CW
BY SHE
DATE 2-13-86
CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

SHEET 1 OF 1

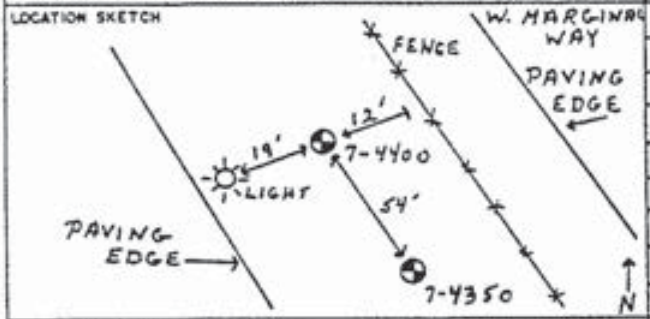
LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

JOB NO. 8546 | CLIENT URS/METRO | PROJECT NAME METRO ETS-7 | BORING NO. 7-4400

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START TIME	FINISH TIME
WATER LEVEL	10.7	10.8			1400	1530
TIME	1520	1530				
DATE	2-13-86	2-13-86			DATE 2-13-86	DATE 2-13-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 12.5'

SURFACE CONDITION: GRASS COVER
HNu UNAVAILABLE

DRILLING CONTRACTOR SUBTERRANEAN | DRILLER CM | BY SHE | DATE 2-13-86 | CHK'D BY SH

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HN_4 / CH_4	DEPTH IN FEET	CLASSIFICATION / DESCRIPTION	
					0	FILL	
						SAND - brown, gray, fine to medium; some fine to coarse gravel	
1 / SPT	2.5 / 4.0	1 / 2 / 4	18 / 12			SAND - brown, fine to medium; trace silt; brick, glass; charcoal at tip	1440
2 / SPT	5.0 / 6.5	6 / 8 / 18	18 / 6		5	SILTY SAND - brown, fine to coarse; trace gravel; glass	1455
3 / SPT	7.5 / 9.0	5 / 7 / 4	18 / 18			SAND - dark gray, fine to medium; trace of plant debris; poorly laminated; volcanic grains	1500
4 / SPT	10.0 / 11.5	3 / 3 / 3	18 / 18		10	CLAYEY SILT - light brown; blocky structure; laminated; abundent organic lamination; plant fragments	1530
5 / SPT	12.5 / 14.0	1 / 1 / 1	18 / 18			SANDY SILT - gray, fine; laminated; plant fragments and laminations; soft sediment deformation	1545
6 / SPT	15.0 / 16.5	2 / 5 / 8	18 / 18	0	15	SAND - dark gray, fine to medium; trace silt in laminations; volcanic and quartz grains plant debris	
7 / SPT	16.5 / 18.0	6 / 13 / 15	18 / 18			SAND - as above, top 12 inches	1555
						SILTY SAND - dark gray, fine; trace of wood fragments	
					20	END OF HOLE - total depth measured at 14.6 inside auger; hole sloughed to 11.5', bentonite seal 11.0' - 11.5', backfilled with cuttings to	

WL SEAL

HONG CONSULTING ENGINEERS, INC.

SHEET 1 OF 1

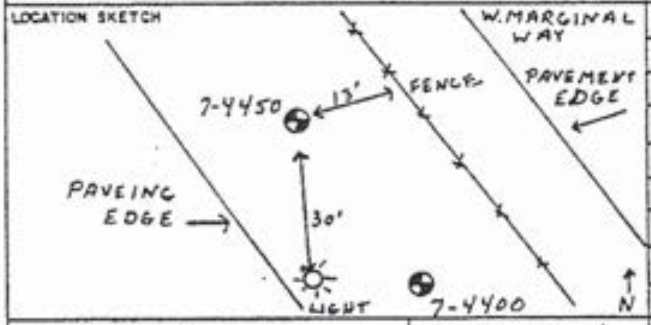
LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

JOB NO. 8546 | CLIENT URS/METRO | PROJECT NAME METRO ETS-7 | BORING NO. 7-4450

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START TIME	FINISH TIME
WATER LEVEL	6.5'		10.4'			
TIME	0900		0950		0830	1015
DATE	2-14-86		2-14-86		DATE 2-14-86	DATE 2-14-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 11.5'

SURFACE CONDITION GRASS COVER
HNu UNAVAILABLE

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	CLASSIFICATION / DESCRIPTION	
					0	FILL	
						SAND - brown, fine to coarse; little fine to coarse gravel; brick fragments	
1 / SPT	2.0 / 3.5	8 / 4 / 4	18 / 4			SAND - brown, fine to coarse; some fine to coarse gravel; concrete and crushed rock	0855
2 / SPT	4.5 / 6.0	4 / 11 / 26	18 / 14		5	SILTY SAND - brown, fine to medium; some fine gravel; rusty stain in places; black and wet at tip; glass	0905
3 / SPT	7.0 / 8.5	4 / 2 / 4	18 / 18			SAND - dark gray, fine to medium; volcanic and quartz grains; minor iron stain	
						SILT - gray; some fine sand; laminated; plant debris; laminations	0915
4 / SPT	9.5 / 11.0	2 / 2 / 2	18 / 18		10	CLAYEY SILT - brown; laminated; blocky structure; abundant plant debris	0930
5 / SPT	12.0 / 13.5	1 / 5 / 5	18 / 18			SANDY SILT - gray; laminated; trace of plant debris; clayey at top; soft sediment deformation, mud diaper at top	0945
				— / 0			
6 / SPT	14.5 / 16.0	1 / 2 / 5	18 / 18		15	SILTY SAND - dark gray, fine to medium; laminated; sand only at tip; glass; cedar chunk	1000
7 / SPT	16.5 / 18.0	8 / 14 / 13	18 / 18			SAND - dark gray, fine; some silt in places; volcanic, quartz grains	1010
					20	END OF HOLE - total depth measured inside auger 15.3 feet; hole backfilled with cuttings to surface	

DRILLING CONTRACTOR SUBTERRANEAN
DRILLER CW
BY SHE
DATE 2-14-86
CHKD BY SH

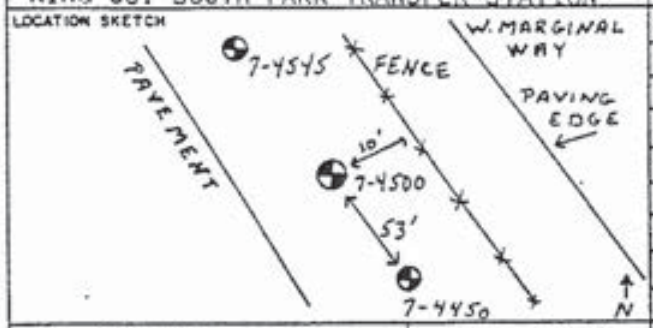
HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-4500

PROJECT NAME METRS ETS-7

LOCATION SKETCH



DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

					START	FINISH
WATER LEVEL	10.0'		11.3'		TIME	TIME
TIME	1140		1200		1045	1200
DATE	2-14-86		2-14-86		DATE 2-14-86	DATE 2-14-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 11.5'

SURFACE CONDITION: GRASS COVER
HNu UNAVAILABLE

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION / DESCRIPTION	
					0			FILL	
								SAND - brown; fine to medium; some fine to coarse gravel	1110
1 / SPT	2.5 / 4.0	10 / 4 / 2	18 / 3					SAND - brown, rusty staining, fine to medium; glass, brick, other debris, aluminum, wire	
2 / SPT	5.0 / 6.5	7 / 7 / 8	18 / 10		5			SAND - dark gray, fine to medium; trace of plant debris; volcanic and quartz grains	1120
3 / SPT	7.5 / 9.0	1 / 2 / 2	18 / 18					SAND - as above; trace fine gravel; trace plant debris	1130
4 / SPT	10.0 / 11.5	1 / 2 / 3	18 / 18		10	WL 1140		SAND - as above, 9 inches; glass fragments	
								CLAYEY SILT - brown; laminated; abundant organic debris and laminae	1140
5 / SPT	12.5 / 14.0	2 / 2 / 3	18 / 18					SILT - gray, well laminated; trace organic debris	1150
6 / SPT	15.0 / 16.5	8 / 12 / 11	18 / 18		15			INTERBEDDED SAND AND SILT - dark gray, fine to medium; laminated; volcanic and quartz grains; trace plant debris	1205
7 / SPT	16.5 / 18.0	3 / 4 / 13	18 / 18					SAND - dark gray, fine; poorly laminated; volcanic and quartz grains	1215
					20			END OF HOLE - total depth 14.1 feet measured inside auger. 4 feet of heave. Hole backfilled with cuttings to surface	

DRILLING CONTRACTOR: SUBTERRANEAN
DRILLER: CW
BY: SHE
DATE: 2-14-86
CHKD BY: SH

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

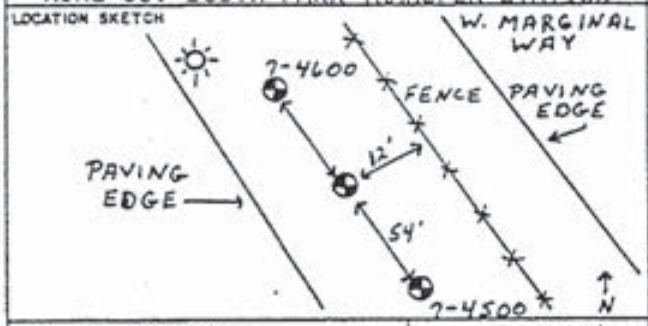
JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-4545

PROJECT NAME METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START	FINISH
WATER LEVEL	11.0'		11.2'		TIME	TIME
TIME	1425		1435		1400	1500
DATE	2-14-86		2-14-86		DATE 2-14-86	DATE 2-14-86
CASING DEPTH						

DATUM SURFACE | ELEVATION 11.5'

SURFACE CONDITION: GRASS COVER
HNu UNAVAILABLE

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HN_4 / CH_4	DEPTH IN FEET	PIEZOMETER	GRAPHIC LOG	CLASSIFICATION / DESCRIPTION
					0			FILL
								SAND - brown, fine to coarse; some fine to coarse gravel
1 / SPT	2.5 / 4.0	4 / 15 / 7	18 / 4					SAND - brown, fine to coase; plant debris; brick 1410
2 / SPT	5.0 / 6.5	2 / 9 / 6	18 / 0		5			Driller reports thinking he was on metal; cuttings are sand as above
3 / SPT	7.5 / 9.0	10 / 8 / 7	18 / 12					SAND - dark gray, fine to medium; trace fine gravel; some silt, rust stain; glass; plant debris; brick fragments 1420
4 / SPT	10.0 / 11.5	2 / 2 / 3	18 / 18		10	WL M25		CLAYEY SILT - brown; laminated; abundant plant debris and organic laminae; sandy to top 1430
5 / SPT	12.5 / 14.0	1 / 1 / 1	18 / 18					SILT - gray; laminated; wood and other plant debris 1440
6 / SPT	15.0 / 16.5	8 / 12 / 21	18 / 18		15			SAND - dark gray, fine; trace silt; volcanic and quartz grains
7 / SPT	16.5 / 18.0	4 / 16 / 23	18 / 18					SAND - as above
					20			END OF HOLE - total depth measured at 16.9 feet inside auger. Hole backfilled with cuttings to surface

DRILLING CONTRACTOR SUBTERRANEAN
DRILLER CW
BY SHE
DATE 2-14-86
CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

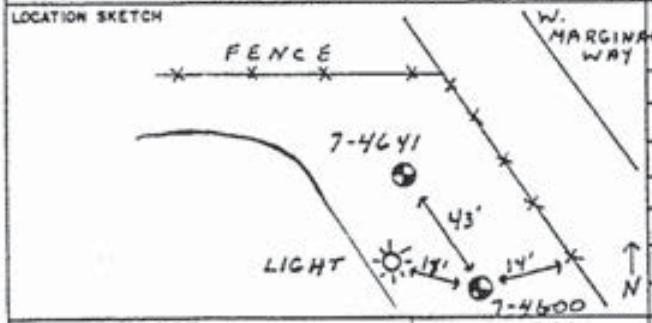
JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-4600

PROJECT NAME METRO ETS -7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START	FINISH
WATER LEVEL	10.9'		15		TIME	TIME
TIME	0845		0910		0800	0930
DATE	2-17-86		2-17-86		DATE	DATE
CASING DEPTH					2-17-86	2-17-86

DATUM SURFACE | ELEVATION 14'

SURFACE CONDITION GRASS COVER
HNu UNAVAILABLE

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	CLASSIFICATION / DESCRIPTION	
					0	FILL	
						SAND - brown, fine to coarse; some fine to coarse gravel	
1 / SPT	2.0 / 3.5	3 / 2 / 1	18 / 7			SAND - brown, iron staining, fine to coarse; trace fine gravel; wire, other debris	0830
2 / SPT	4.5 / 6.0	1 / 1 / 1	18 / 4		5	SAND - as above; glass, other debris	0835
3 / SPT	7.0 / 8.5	5 / 6 / 7	18 / 8			SAND - dark gray, fine to medium; volcanic and quartz grains; wet	0840
4 / SPT	9.5 / 11.0	1 / 1 / 1	18 / 18		10	SILT AND SAND INTERBEDDED - dark gray to gray; fine to medium; laminated; trace of plant debris; faint fuel oil odor	0850
				1 / 0		WL 0845	
5 / SPT	12.0 / 13.5	4 / 1 / 2	18 / 18			CLAYEY SILT - brown; laminated; blocky structure; abundant plant matter; trace fine sand at top; tight, moist	0900
6 / SPT	14.5 / 16.0	1 / 1 / 2	18 / 18		15	SILT - gray; laminated; plant stems abundant	0910
7 / SPT	17.5 / 19.0	3 / 3 / 6	18 / 18			SILT - as above; fine to medium sand bed at base	0920
					20	END OF HOLE: Total depth measured as 15.5 feet inside auger; hole bottom mushy, but no water table; hole backfilled with cuttings to surface	

SUBTERRANEAN

DRILLING CONTRACTOR CM

DRILLER

SHE

BY

DATE 2-17-86

CHKD BY SH

HONG CONSULTING ENGINEERS, INC.

PAGE 1 OF 1

LOCATION OF BORING: KING CO. SOUTH PARK TRANSFER STATION

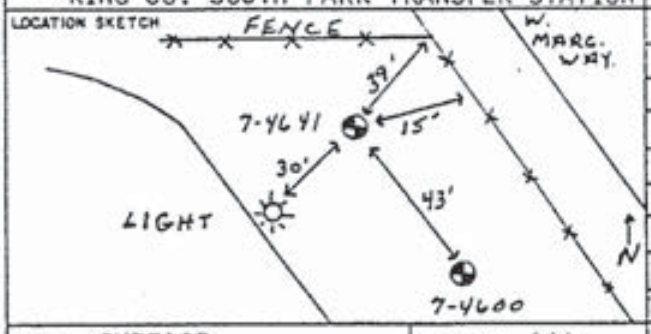
JOB NO. 8546 | CLIENT URS/METRO | BORING NO. 7-4641

PROJECT NAME METRO ETS-7

DRILLING METHOD: HOLLOW STEM AUGER

SAMPLING METHOD: STANDARD PENETRATION TEST
140 LB. SAFETY HAMMER DROPPED 30 INCHES

LOCATION SKETCH



					START	FINISH
WATER LEVEL	11'	10.7'	15.7'		TIME	TIME
TIME	1020	1055	1105		1000	1130
DATE	2-17-86	2-17-86	2-17-86		DATE	DATE
CASING DEPTH					2-17-86	2-17-86

DATUM SURFACE | ELEVATION 14'

SURFACE CONDITION: GRASS COVER
HNu BACKGROUND = "B"

SAMPLE NO / SAMPLE TYPE	SAMPLE DEPTH	BLOWS PER 6 INCHES	INCHES DRIVEN / INCHES RECOVERED	HNu / CH4	DEPTH IN FEET	CLASSIFICATION / DESCRIPTION	
					0	FILL	
1 / SPT	2.5 / 4.0	17 / 21 / 10	18 / 8	0 / —		SAND - brown, some iron staining, fine to medium ; some fine to coarse gravel; wire, other debris; dry	1030
2 / SPT	5.0 / 6.5	6 / 5 / 3	18 / 1	— / —	5	SAMPLE TO SMALL TO PROPERLY LOG - one large chunk of what appears to be pumice, plus sand debris	1040
3 / SPT	7.5 / 9.0	3 / 4 / 4	18 / 6	8 / —		SAND - dark gray, fine to medium; trace of plant debris; volcanic quartz grains; wet	1045
4 / SPT	10.0 / 11.5	1 / 1 / 1	18 / 12	8 / —	10	SAND - as above; glass and small bit of fill incorporated into middle of sample; wet	1050
				8 / 0			
5 / SPT	12.5 / 14.0	1 / 1 / 1	18 / 18	8 / —		CLAYEY SILT - gray with black organic laminations; silt at top, laminated; at tip blocky with abundant plant fibers; organic odor; moist	1100
6 / SPT	15.0 / 16.5	3 / 4 / 5	18 / 18		15	INTERBEDDED SILT AND SAND - gray, laminated; fine; trace of plant debris; wet	1115
7 / SPT	18.5 / 20.0	2 / 2 / 4	18 / 18		20	SANDY SILT - gray, laminated; fine; trace of plant debris; wet	1125
						END OF HOLE: Total depth 16.6 feet inside auger; hole backfilled to surface with cuttings	

WL 1055

DRILLING CONTRACTOR SUBTERRANEAN
DRILLER CW
BY SHE
DATE 2-17-86
CHKD BY SH

ALN-493

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

211261

24-4E 29 K

HOLT DRILLING, INC.

Resource Protection Well Report

Project Name: South Park Home Station

Well Identification #: ALN493

Drilling Method: 6" M/R

Driller: Jon Bennett

License #: 2818

Date: 10-20-06

County: King, NW ¼ SE ¼

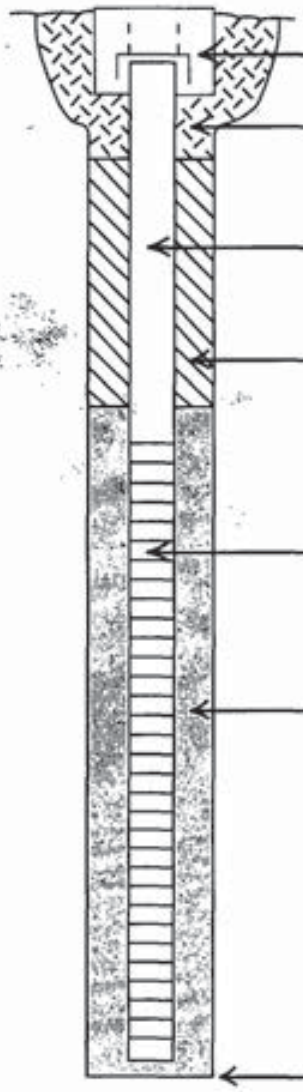
Section: 29 T. 24N R. 4E

Street Address: 7th & Riverside Ave

Start Card: R 70562

Consulting Firm: SPU

AS-BUILT



WELL DATA

MONUMENT TYPE: Flush

CONCRETE SURFACE SEAL: Bentonite Chips 12.5 ft.

PVC BLANK: 2" x 15'

BACKFILL: 2.5 ft.

TYPE: 10-20 Silica Sand

PVC SCREEN: 2" x 10'

SLOT SIZE: .20

TYPE: Schedule 40 Flush Thread

GRAVEL PACK: 10 ft.

MATERIAL: 10-20 Silica Sand

WELL DEPTH: 25'

FORMATION DESCRIPTION

0 - 2" ft. asphalt

2" - 3' ft. crushed rock base rock

3' - 15' ft. soft silty peat

15' - 25 ft. med to fine black sand 420 bearing

- ft.

RECEIVED
NOV 0 1 2006
DEPT. OF ECOLOGY

REMARKS

Signature: [signature]

VAV039.CDR

Historical Kenyon Street Bus Yard Borings

B-4

SOIL DESCRIPTION

Surface Elevation: 16 NAVD88

Gravel surfacing.

FILL

Cuttings are dark brown, SILTY SAND WITH GRAVEL, moist

Loose, dark brown, fine to medium SAND WITH SILT, moist, trace organics, roots, wood fragments, and pockets of brown silt.

Very loose, brown to gray, fine SILTY SAND; moist to wet; trace mica flakes and organics.

ALLUVIUM

Very loose, brown to black, fine SAND, trace silt; wet.

Very soft, gray, CLAY, few silt, trace sand, wet; trace organics

Very soft, gray, SILT, few clay, trace sand; wet; few organics, dilatent.

Decreased clay, decreased organics.

Trace organics.

Increased clay and organics, trace pockets of light brown clay.

Bottom of boring at 21.5 feet below ground surface
Groundwater encountered at 7 feet below ground surface at time of drilling. Temporary well (TW-4) screen set at 3 to 13 feet below ground surface
Boring backfilled with cuttings and silica sand

Samples	Blows/6"	Lab tests	PID
1	2,4,5		0
2	1,1,2		0
3	2,1,1		0
4	0,0,0	ENV	0
5	0,1,1		0
6	0,0,1	ENV	0
7	0,0,0		0
8	0,0,0		0

Penetration Resistance
Blows per foot (SPT)
Blows per foot (non-standard)
PL Water Content % LL

Date Completed: 2/7/2008
Driller: Gregory Drilling, Inc
Equipment: Truck-mounted CME 75
Drilling Method: 4-in ID HSA
Hammer System: Auto-Trip Hummer

Approximate Location: 65 ft. N, 330 ft. W of intersection of S Kenyon St. and 2nd Ave. S. (N: 1270020 E: 197730)

South Recycling and Disposal Station - Bus Yard
Seattle, WA

Seattle Public Utilities Materials Laboratory

LOG OF BORING B-4

C207006

FIGURE B-5

Logged by: CAN

Reviewed by: TS

Sheet 1 of 1

B-5

SOIL DESCRIPTION

Surface Elevation: 16 NAVD88

Gravel Surfacing.

FILL

Cuttings are brown, SILTY SAND WITH GRAVEL, moist

Medium dense, brown, fine to coarse SAND, few gravel; dry to moist

Medium stiff, gray, SILT, trace fine gravel; moist, trace organics, brown silty sand with gravel in tip

Medium dense, gray, SILTY SAND WITH GRAVEL; dry to moist, trace seams of organics, rock in tip

ALLUVIUM

Loose, black, SAND, trace silt, moist to wet, trace organics

Very soft, brown, SILT; moist; few seams of organics, horizontally bedded.

Soft, gray, fine SANDY SILT; wet, few organics, one 4 inch long wood chunk at 15.2 to 15.5, hydrocarbon odor in cuttings at 17 feet (10 ppm).

Loose, black, fine SAND, trace silt; wet; trace organics.

Becomes very loose, few red sand grains, trace silt in top of sampler only.

Bottom of boring at 21.5 feet below ground surface. Groundwater encountered at 12 feet below ground surface at time of drilling. Temporary well (TW-5A) screen set at 4 to 14 feet below ground surface. Boring backfilled with cuttings and silica sand

Samples	Blows/6"	Lab tests	PID
1	9,12,8		0
2	0,2,3	ENV	0
3	8,14,7		0
4	1,4,3		0
5	1,1,2	ENV	0
6	1,1,3		0
7	1,2,3		0
8	0,0,0		0

Ground Water: Dewatered

Penetration Resistance: ▲ Blows per foot (SPT); ▼ Blows per foot (non-standard); PL — Water Content % — LL

Date Completed: 9/7/2009
Driller: Gregory Drilling, Inc.
Equipment: Truck mounted CME 75
Drilling Method: 4-in ID HSA
Hammer System: Auto-Trip Hammer

Approximate Location: 100 ft N, 30 ft W of intersection of S Kenyon St. and 2nd Ave S (N. 1270320 E: 197810)

South Recycling and Disposal Station - Bus Yard
Seattle, WA

Seattle Public Utilities Materials Laboratory

LOG OF BORING B-5

C207006

FIGURE B-6

Logged by: CAN Reviewed by: TS Sheet 1 of 1

LOG OF BORING - NEW SOUTH TRANSFER STATION BUS YARD GPJ SEATTLE PUBLIC UTIL 4/18/06

DB-6

SOIL DESCRIPTION

Surface Elevation: 15.5 NAVD88

Depth, FT | Symbol | USCS | Samples | Blows/6" | Lab tests | PID | Ground Water | Depth, FT | Penetration Resistance

GLACIAL TILL

Hard, gray SANDY SILT WITH GRAVEL, moist

Bottom of boring at 121.5 feet. Groundwater encountered at 118 feet at time of drilling. Boring backfilled with cuttings and bentonite.

Date Completed: 2/17/2016
Driller: Gregory Drilling, Inc.
Equipment: Truck-mounted CME 75
Drilling Method: 4-in. Temporary 8.75-in. CME Mud Rotary
Hammer System: Auto-Trip Hammer

Approximate Location: 23.5 ft. E of E. Marginal Way S. and 3rd Ave S. (N 1270400.0 E 1277421)

South Recycling and Disposal Station - Bus Yard
Seattle, WA

LOG OF BORING DB-6

Seattle Public Utilities Materials Laboratory

C207006

FIGURE B-7

Logged by: CAN | Reviewed by: | Sheet 2 of 4

B-7 MW-5

SOIL DESCRIPTION

Surface Elevation: 15.5 NAVD88

Depth, FT | Symbol | USCS | Samples | Blows/6" | Lab tests | PID | Ground Water | Depth, FT | Penetration Resistance

FILL

Very loose, very dark brown SILTY SAND WITH GRAVEL

Medium dense, gray, fine to coarse SAND, trace gravel, moist. Sand is medium to coarse grained, subangular to subrounded, poorly graded.

Medium dense, black, fine to medium SAND with silt, moist. Sand is medium grained.

ALLUVIUM

Loose, black, fine to coarse SAND, trace fine gravel, wet. Sand is fine to coarse grained, subangular to subrounded, poorly graded.

Stiff, dark olive brown to gray SILT, trace fine sand, moist. Sand is fine grained, subangular, poorly graded.

Dense, very dark gray, well graded SAND, wet. Sand is fine to coarse grained, subangular to subrounded.

Interbedded silt

Loose, black, fine to medium SAND, wet. Sand is fine grained.

Becomes very loose. Sand is fine grained from 19 to 21 feet.

Well screened from 19.5 to 24.5 feet. Groundwater encountered at 7 feet bgs at time of drilling. Monitoring well MW-5 is grouted with well screen from 4 to 19 feet. Boring sealed with bentonite chips from 19 to 24.5 bgs.

Date Completed: 2/18/2016
Driller: Gregory Drilling, Inc.
Equipment: Truck-mounted CME 75
Drilling Method: 4-in ID HSA
Hammer System: Auto-Trip Hammer

Approximate Location: 24.5 ft. N. of E. Marginal Way S. and 3rd Ave S. (N 1270453.1 E 1277431)

South Recycling and Disposal Station - Bus Yard
Seattle, WA

LOG OF BORING B-7 (MW-5)

Seattle Public Utilities Materials Laboratory

C207006

FIGURE B-8

Logged by: CAN | Reviewed by:

DEPTH (ft bgs)	GRAPHIC LOG	USCS SYMBOL	SOIL DESCRIPTION	SAMPLE	BLOW COUNT SPT 'N' VALUE	VOLATILE READING (ppm)	GROUNDWATER	FIELD AND LABORATORY TESTING
0		SM	Asphalt.					
			Brown, silty, fine to coarse SAND, damp to moist (Fill)					
		SM-ML	Gray, silty, fine SAND to SILT with fine sand, micaceous, moist.			0.0		
		SP	Gray, fine SAND with some silt, abundant black organics, moist					
		ML	Gray to olive-gray SILT with fine sand and organics (fine roots), moist.			0.0		MW7-3.5' @8:50
		SM	Olive to brown, silty, fine to medium SAND with organics (fine roots + old surface cover), iron-oxide staining, micaceous; moist			0.0		
5						0.0		MW7-8' @9:10
		SP	Gray, fine SAND with silt, some brown organics (wood chunks approximately 1-inch long, not decayed), wet.			0.0		
10						0.0		
			Same as above.					
15		ML	Soft to stiff in places, gray to dark brown SILT with some fine sand, trace clay, abundant decayed organics, micaceous, slightly plastic; wet (Old stream deposits)					
			End of boring at 16 ft bgs.					
20								

WELL SCHEMATIC

- Flush-mount Monument with Locking Cap
- Concrete
- Bentonite Chips
- Casing (Schedule 40 PVC, 2.0-inch I.D.)
- 20/40 Colorado Silica Sand
- Well Screen (Schedule 40 PVC, 2.0-inch I.D. with 0.010-inch slots)
- Threaded End Cap

BORING METHOD: Direct Push/HSA

BOREHOLE DIAMETER: 9.0 (in)

DRILL RIG: Power Probe 9030

CONTRACTOR: ESN-NW

LOGGED BY: AIS/CI

ELEVATION REFERENCE: NAVD 88

GROUND SURFACE ELEVATION: 18.67 feet

CASING ELEVATION: 18.22 feet

START CARD/TAG ID: /BAF/253

DRILLING DATES: 07/21/2008 - 07/21/2008

REMARKS:

SPU Bus Yard

8-916-16289-A

AMEC Earth and Environmental, Inc.
11810 North Creek Parkway N
Bothell, Washington
USA 98011
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LOG OF BORING
MW-07

MW-07

DEPTH (ft bgs)	GRAPHIC LOG	USCS SYMBOL	SOIL DESCRIPTION	SAMPLE	SLOW COUNT SPT N VALUE	VOLATILE READING (ppm)	GROUNDWATER	FIELD AND LABORATORY TESTING	WELL SCHEMATIC
0		SM	Gravel at surface.						
			Brown, silty, fine to coarse SAND with gravel, moist (Fill)						
			Gray concrete chunks from 2-3 ft bgs.						
		SM	Brown to red-brown (iron-oxide), silty fine to coarse SAND with trace dark brown organics (decayed wood chips). (Fill)			0.0			
5			With fine to coarse gravel (Fill)			0.0			
			No recovery - rock in shoe from 5-6 ft bgs.						
		SP	Dark brown, fine to coarse SAND with some silt; wet. (Black Duwamish Sand)						
10						0.0			
			Organics (fresh wood, > 1-inch thick) in shoe.				▼		
			End of boring at 11 ft bgs due to refusal.						
			Moved approximately 2 ft to N to drill MW-11a. Borehole was backfilled with bentonite chips which were hydrated upon placement.						
15									
20									

BORING METHOD: Direct Push
BOREHOLE DIAMETER: 9.0 (in)
DRILL RIG: Power Probe 9630
CONTRACTOR: ESN-NW
LOGGED BY: AIB/CI

ELEVATION REFERENCE: NAVD 88
GROUND SURFACE ELEVATION: 18.79 feet
CASING ELEVATION: 18.46 feet
START CARD/TAG ID: /BAI 203
DRILLING DATES: 07/22/2008 - 07/22/2008

REMARKS:

SPU Bus Yard

8-916-16289-A

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LOG OF BORING
MW-11

ENVR-WELL BORING 8-8-16289-A.GPJ AMEC PORTLAND.GDT 2/1/09

MW-11

DEPTH (ft bgs)	GRAPHIC LOG	USCS SYMBOL	SOIL DESCRIPTION	SAMPLE	BLOW COUNT SPT N VALUE	VOLATILE READING (ppm)	GROUNDWATER	FIELD AND LABORATORY TESTING
0		SM	GRAVEL at surface.					
			Brown, silty, fine to coarse SAND with gravel, bricks and organics (burnt wood), moist. Weak petroleum-like odor (Fill)					MW11a-1' @14:10
			Organics (wood, approximately 3 inches thick)					
		SP	Olive-brown to red-brown, iron-oxide staining, fine to coarse SAND with gravel, moist (Duwamish Sand) (Fill)					
5						0.0		
		SM	Brown to red-brown (iron-oxide), silty, fine to coarse SAND with fine to coarse gravel, silt lenses, moist. (Fill)			0.0		
10							▽	MW11a-10' @14:20
		SP	Gray, fine to coarse SAND with olive-brown, silty SAND lenses (0.5 inches thick), wet.			0.0		
15		SP-SM	Olive-gray, fine SAND with silt to silty SAND, micaceous; wet.			0.0		
			End of push probe boring at 16 ft bgs. End of hollow stem auger boring at 16 ft bgs					
20								

WELL SCHEMATIC

- Flush-mount Monument with Locking Cap
- Concrete
- Bentonite Chips
- Casing (Schedule 40 PVC, 2.0-inch I.D.)
- 20/40 Colorado Silica Sand
- Well Screen (Schedule 40 PVC, 2.0-inch I.D. with 0.010-inch slots)
- Threaded End Cap

BORING METHOD: Direct Push/HSA

BOREHOLE DIAMETER: 6.0 (in)

DRILL RIG: Power Probe 9630

CONTRACTOR: ESN-NW

LOGGED BY: AIS/CI

ELEVATION REFERENCE: NAVD 88

GROUND SURFACE ELEVATION: NA

CASING ELEVATION: NA

START CARD/TAG ID: NA

DRILLING DATES: 07/22/2008 - 07/22/2008

REMARKS:

SPU Bus Yard

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LOG OF BORING
MW-11a

ENVIRONMENTAL BORING 8-915-16289-A GPJ AMEC PORTLAND GDT 2/1/09

MW-11A

DEPTH (ft bgs)	USCS SYMBOL	SOIL DESCRIPTION	FIELD AND LABORATORY TESTING
0	SP	Loose, greyish-brown, medium SAND with gravel (to 0.5-inch diameter), dry. (Fill)	
	SP	Reddish-brown, medium SAND with trace fine sand, dry.	
	SP	Brown, medium SAND	MW-13-2
	ML	Medium stiff, brown to reddish brown SILT with some to little clay, slightly moist	
5	SP	Loose, brown, medium SAND with trace fine sand, slightly moist.	
	SP	Brown, fine SAND with trace very fine sand wet.	MW-13-8.5
	CL	Gray CLAY with little to trace silt, slightly plastic; moist.	
10	ML	Brown, clayey SILT, moist to wet	
		Brown, clayey SILT, moist to wet	
	SP	Gray-brown, medium SAND with trace fine sand.	
15			
		End of boring at 16 ft bgs.	
20			

SAMPLE | BLOW COUNT SPT N VALUE | VOLATILE READING (ppm) | GROUNDWATER

WELL SCHEMATIC: Above-ground Monument with Locking Cap & Bollards; Bentonite Chips; Casing (Schedule 40 PVC, 2.0-inch I.D.); 20/40 Colorado Silica Sand; Well Screen (Schedule 40 PVC, 2.0 inch I.D. with 0.010-inch slots); Threaded End Cap

BORING METHOD: Direct Push	ELEVATION REFERENCE: NAVD 88
BOREHOLE DIAMETER: 9.0 (in)	GROUND SURFACE ELEVATION: 17.6 feet
DRILL RIG: Power Probe 9630	CASING ELEVATION: 20.31 feet
CONTRACTOR: EBN-NW	START CARD/TAG ID: IBAF390
LOGGED BY: H. Vick	DRILLING DATES: 10/16/2008 - 10/16/2008

REMARKS:

SPU Bus Yard

8-915-16289-A

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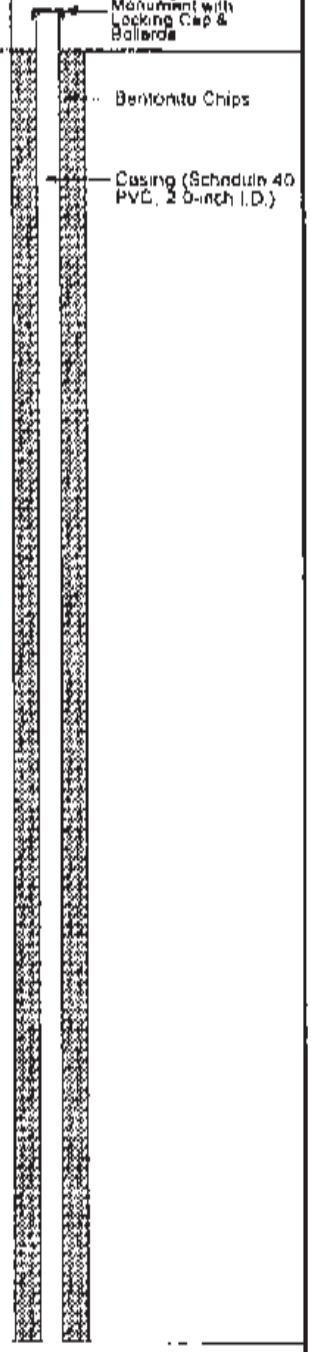
LOG OF BORING
MW-13

ENGR-WELL BORING 8-915-16289-A.GPJ AMEC PORTLAND.GDT 2/11/09

MW-13

DEPTH (ft bgs)	GRAPHIC LOG	USCS SYMBOL	SOIL DESCRIPTION	SAMPLE	BLOW COUNT SPT N VALUE	VOLATILE READING (ppm)	GROUNDWATER	FIELD AND LABORATORY TESTING
0		SP	Loose, light brown, fine SAND, dry.					
		SM	Reddish-brown, silty SAND, dry.		7	0.0		
5		SP	Reddish-brown, fine to very fine SAND with trace silt, dry			0.0		
		SW	Reddish-brown, fine to medium SAND, dry		11			
		ML CL	Stiff, olive-gray, clayey SILT, non-plastic, slightly moist					
					10	0.0		
10		OL	Brown, clayey SILT with trace organics (plant fibers); moist		4	0.0		
			Brown, clayey SILT.		4	0.0		
		ML	Stiff, gray, sandy SILT, moist to wet					
15		SP	Brownish-gray, fine SAND with trace silt, wet.			0.0		
		SM	Dark grayish-brown, fine to very fine SAND with trace silt, moist to wet. Grayish brown, silty, fine SAND to sandy SILT; moist		6			
20								

WELL SCHEMATIC



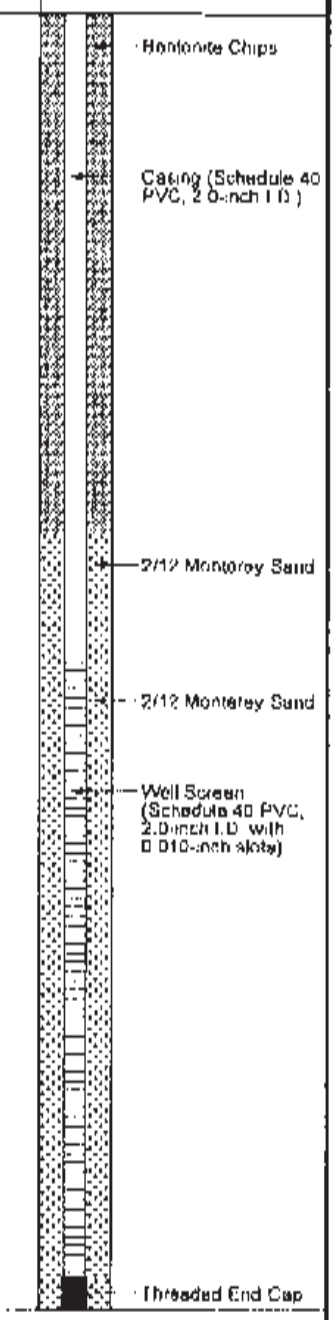
BORING METHOD: Hollow Stem Auger	ELEVATION REFERENCE: NAVD 88
BOREHOLE DIAMETER: 7.0 (in)	GROUND SURFACE ELEVATION: 18.0 feet
DRILL RIG: CME 75	CASING ELEVATION: 20.64 feet
CONTRACTOR: Cascade Drilling	START CARD/TAG ID: /APE286
LOGGED BY: H. Vick	DRILLING DATES: 10/09/2008 - 10/09/2008

REMARKS:

SPU Bus Yard 8-915-16289-A	AMEC Earth and Environmental, Inc. 11810 North Creek Parkway N Bothell, Washington USA 98011 Tel (425) 368-1000 Fax (425) 368-1001	LOG OF BORING MW-19 PAGE 1 OF 3

MW-19

DEPTH (ft bgs)	GRAPHIC LOG	USCS SYMBOL	SOIL DESCRIPTION	SAMPLE	BLOW COUNT SPT N VALUE	VOLATILE READING (ppm)	GROUNDWATER	FIELD AND LABORATORY TESTING
20		ML-SM	Stiff, brownish-gray, sandy SILT (very fine sand in mostly silt matrix), wet			0.0		
25		SP	Dark gray, medium SAND with some fine sand and trace silt; moist to wet.			0.0		
30		SW	Dark gray, fine to medium SAND with some very fine sand and trace silt, moist to wet.		12	0.0		
35		SW	Dark gray, fine to medium SAND with some very fine sand and trace silt; wet.		12	0.0		
40								



BORING METHOD: Hollow Stem Auger
BOREHOLE DIAMETER: 7.0 (in)
DRILL RIG: CME 75
CONTRACTOR: Cascade Drilling
LOGGED BY: H. Vick

ELEVATION REFERENCE: NAVD 88
GROUND SURFACE ELEVATION: 18.0 feet
CASING ELEVATION: 20.54 feet
START CARD/TAG ID: /APE285
DRILLING DATES: 10/09/2008 - 10/09/2008

REMARKS:

SPU Bus Yard

8-915-16289-A

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LOG OF BORING
MW-19

ENVIROWELL BORING 8-915-16289-A.GPJ AMEC PORTLAND.GDT 2/1/09

DEPTH (ft bgs)	GRAPHIC LOG	USCS SYMBOL	SOIL DESCRIPTION	SAMPLE	BLOW COUNT SPT N VALUE	VOLATILE READING (ppm)	GROUNDWATER	FIELD AND LABORATORY TESTING	WELL SCHEMATIC
40		SW	Medium dense, gray, fine to medium SAND; moist.		13	0.0			
45		ML	Dark gray SILT with trace clay, wet		15	0.0			
			End of boring at 46.5 ft bgs.						
50									
55									
60									

BORING METHOD: Hollow Stem Auger
BOREHOLE DIAMETER: 7.6 (in)
DRILL RIG: CME 75
CONTRACTOR: Cascade Drilling
LOGGED BY: H. Vick

ELEVATION REFERENCE: NAVD 88
GROUND SURFACE ELEVATION: 18.0 feet
CASING ELEVATION: 20.54 feet
START CARD/TAG ID: /APE285
DRILLING DATES: 10/09/2008 - 10/09/2008

REMARKS:

SPU Bus Yard

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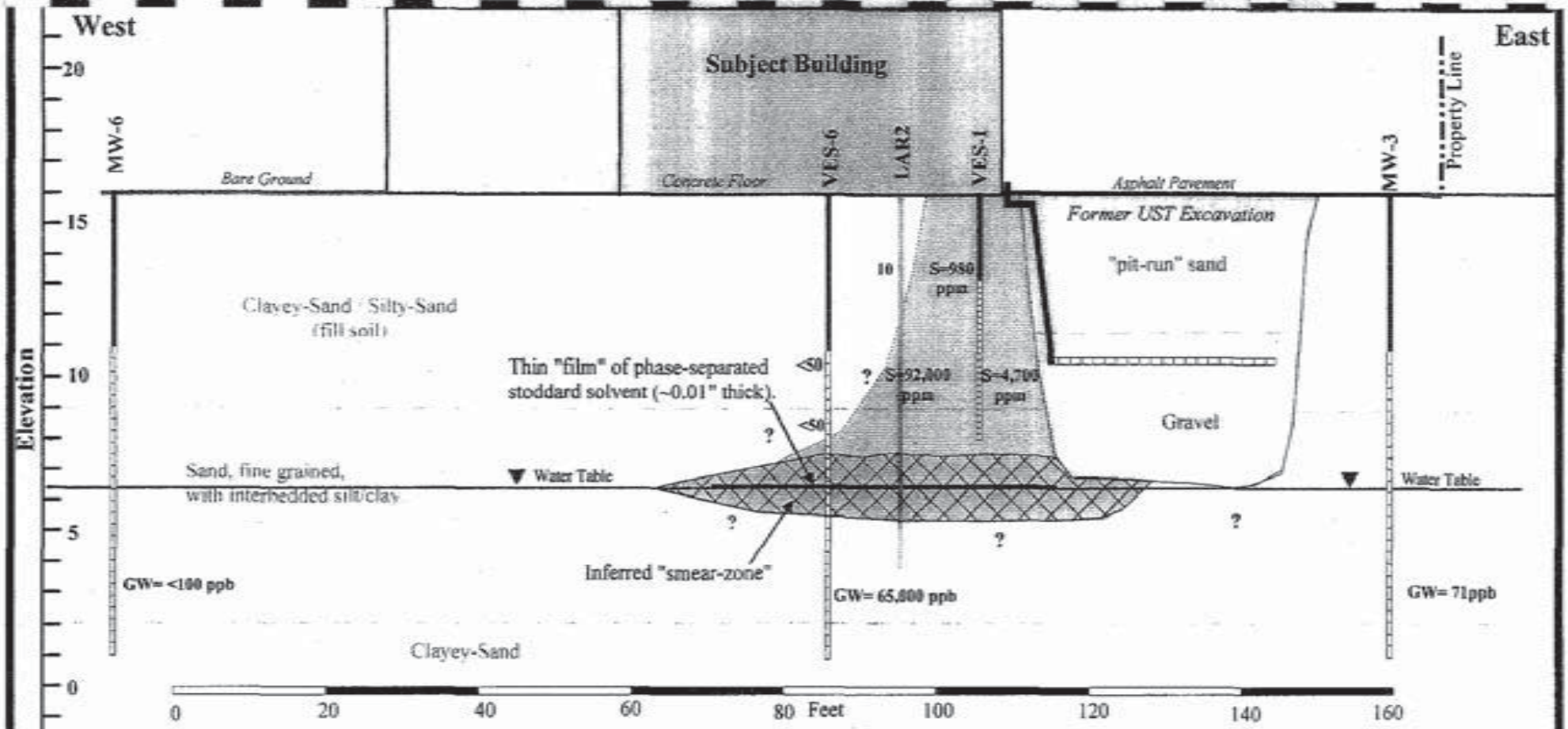
LOG OF BORING
MW-19

ENVR-WELL BORING 8-915-16289-A.GPJ AMEC PORT JAN 08 07 2011 09

Cross Section of Subsurface at Glitsa Property



No boring logs were available for monitoring wells at the Glitsa site; however, this cross section indicates the depth and soil type available. Based on this section, the wells on-site appear to be completed in the silt overbank deposits and represent shallow perched groundwater.

Conceptualized area of stoddard solvent impacted soil deduced by observations made at VES-1 through VES-6. Actual area and volumes may vary.

S = Concentrations of stoddard solvent in soil in parts per million (ppm). GW = Concentrations of stoddard solvent in groundwater in parts per billion (ppb)
Red denotes concentrations above the WDOE' s target compliance levels of 100 ppm (soil) and 800 ppb (GW).

ENVIRONMENTAL ASSOCIATES, INC.

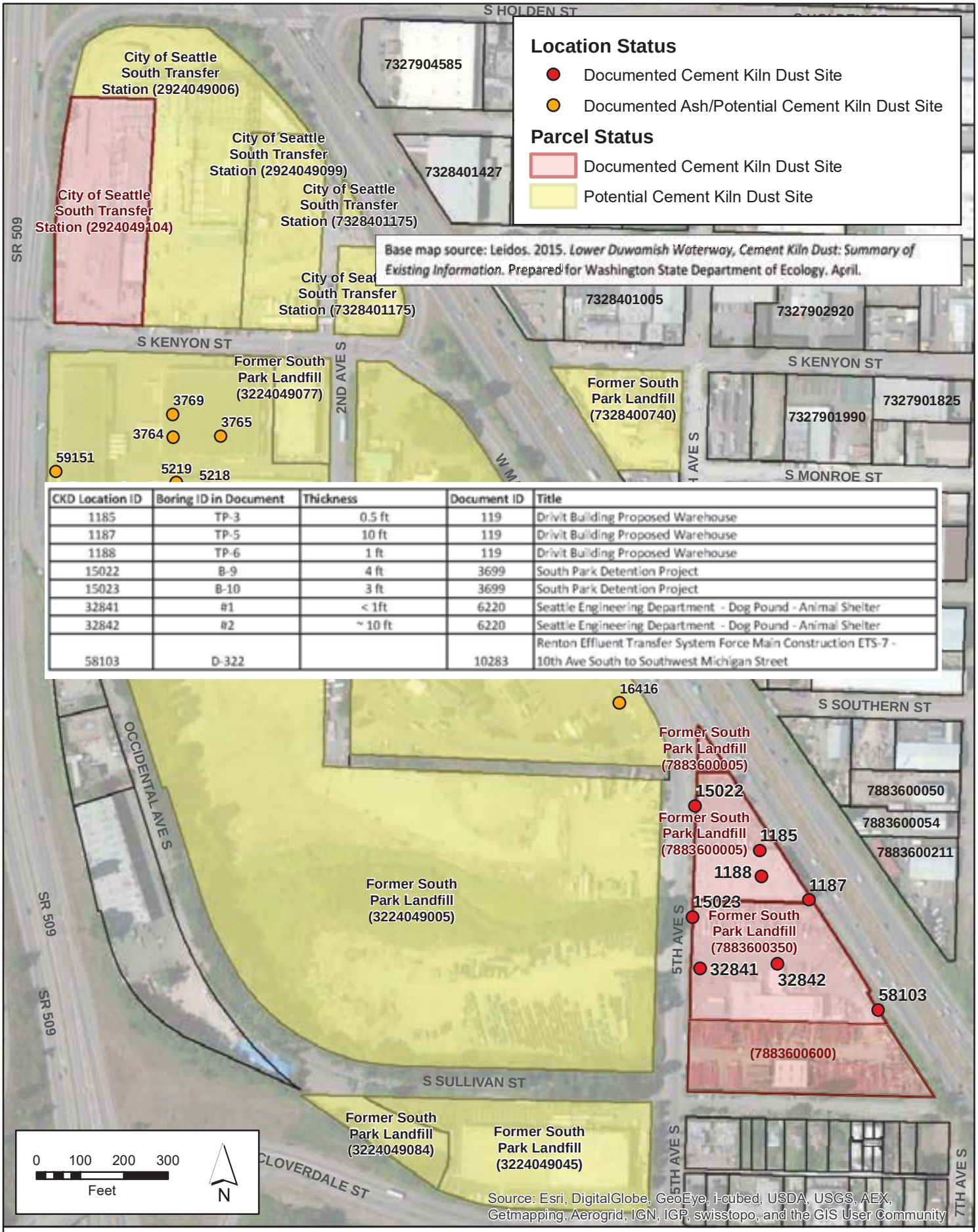
1380 - 112th Avenue NE, Suite 300
Bellevue, Washington 98004

WEST-EAST CROSS-SECTION

Former Glitsa, Inc. Property
327 South Kenyon Street
Seattle, Washington

Job Number:	Date:	Scale:	Plate:
JN 28275-3	June 2009	Horizontal: 1"=20' Vertical: 1"= 5'	4

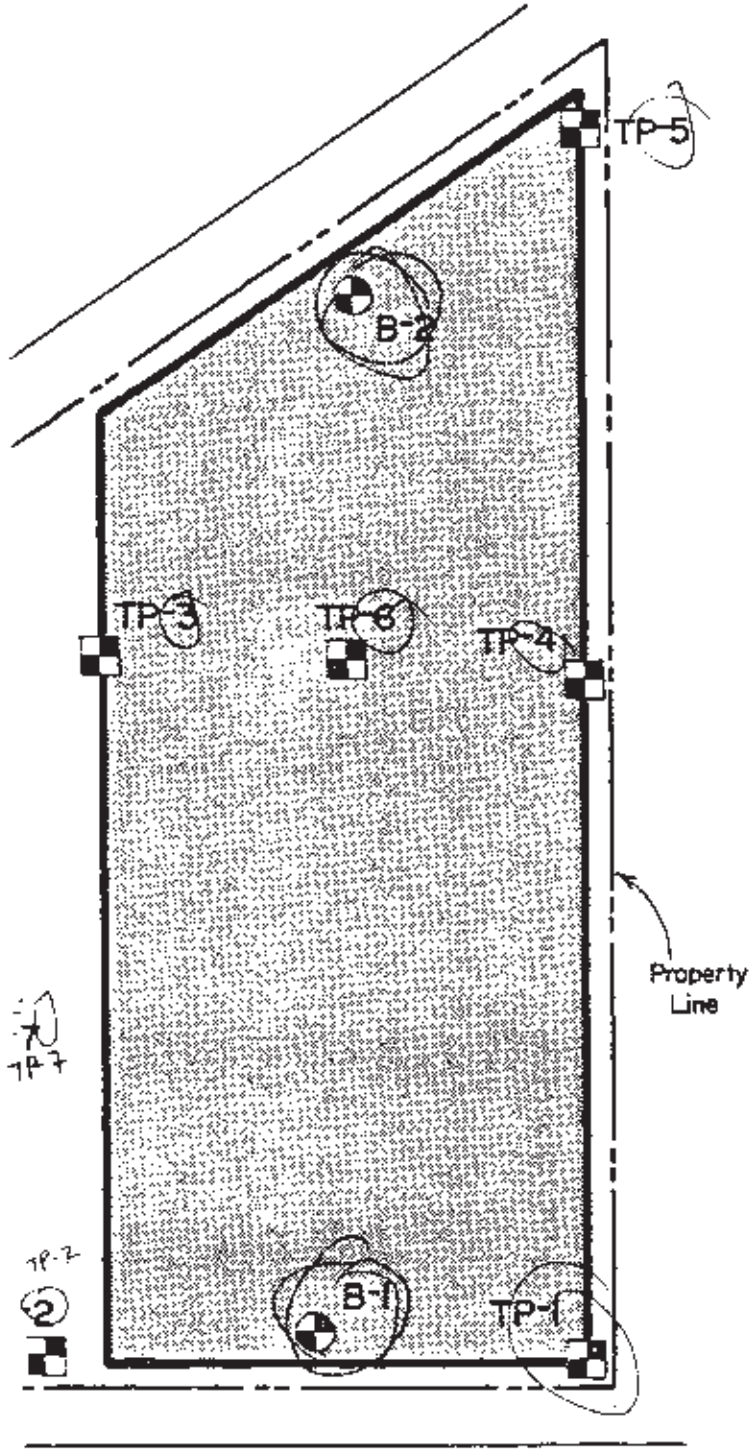
5th Ave South Property Logs From Ecology CKD Study



CKD Location ID	Boring ID in Document	Thickness	Document ID	Title
1185	TP-3	0.5 ft	119	Drivit Building Proposed Warehouse
1187	TP-5	10 ft	119	Drivit Building Proposed Warehouse
1188	TP-6	1 ft	119	Drivit Building Proposed Warehouse
15022	B-9	4 ft	3699	South Park Detention Project
15023	B-10	3 ft	3699	South Park Detention Project
32841	#1	< 1ft	6220	Seattle Engineering Department - Dog Pound - Animal Shelter
32842	#2	~ 10 ft	6220	Seattle Engineering Department - Dog Pound - Animal Shelter
58103	D-322		10283	Renton Effluent Transfer System Force Main Construction ETS-7 - 10th Ave South to Southwest Michigan Street

Source: GeoMap NW

Figure 9. Cement Kiln Dust Locations: City of Seattle South Transfer Station Property and former South Park Landfill



ITH

Approximate Scale

0 20 40 80 ft.

LEGEND

TP-2	Approximate Test Pit Location
	Proposed Building
B-1	Approximate Boring Location

Reference :
Site Plan
By Paul Panagakis & Company
Dated 2/20/80

Earth Consultants Inc.
GEOTECHNICAL ENGINEERING & GEOLOGY

Test Pit Location Plan
Dryvit Building
Seattle, Washington

Proj. No. 1371	Date Aug. '80	Plate 1

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (little or no fines)		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO 4 SIEVE	GRAVELS WITH FINES (appreciable amount of fines)		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SAND (little or no fines)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING NO 4 SIEVE	SANDS WITH FINES (appreciable amount of fines)		SM	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, MUCK, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

TOPSOIL		Humus and Duff Layer
FILL		Uncontrolled with Highly Variable Constituents

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

SOIL CLASSIFICATION CHART

THE DISCUSSION IN THE TEXT OF THIS REPORT IS NECESSARY FOR A PROPER UNDERSTANDING OF THE NATURE OF THE MATERIAL PRESENTED IN THE ATTACHED LOGS

I 2" O.D. Split Spoon Sampler
II Ring or Shelby Sample
P Sampler Pushed
✱ Sample Not Recovered
▽ Water Level (date)
T_v Torvane Reading
PP Penetrometer Readings
WO Water Observation Well

Earth Consultants Inc.

LEGEND

Proj. No. 1371	Date Aug. '80	Plate 2

BORING NO. 1

Logged By BT

Date 8/25/80

ELEV. +0.5*

Graph	US CS	Soil Description	Depth (ft.)	Sample	(N) Blows Ft.	W (%)
	SM ML	Brown grades to blue-gray gravelly silty SAND with clay to sandy clayey SILT with gravel, with wood, asphalt and organic debris, loose to medium dense. (FILL)	5		10	14
					4	21
			10		11	17
	SM SP	Gray-black SAND with silt, loose to medium dense, moist to wet. (lens of clayey SILT from 16 to 17 feet)	15		14	27
			20		4	33
			25		17	38
					21	24

Boring terminated at 29 feet below the existing grade.
Water observation well installed to 29 feet.

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GEOTECHNICAL ENGINEERING & GEOLOGY

BORING LOG
DRYVIT BUILDING
SEATTLE, WASHINGTON

Proj. No. 1371	Date August '80	Plate 3

BORING NO. 2

Logged By BT

Date 8/25/80

ELEV. +1

Graph	US CS	Soil Description	Depth (ft.)	Sample	(N) Blows Ft.	W (%)	
	SM ML	Tan with pockets of brown, silty gravelly SAND with wood and brick debris, loose to medium dense, moist. (FILL) (grades to mottled sandy clayey gravelly SILT below 7.5 feet)	5		19	8	
					7	17	
					7	18	
	SM SP	Gray-black SAND with silt, loose to medium dense, moist grades to wet.	10		12	30	
			15		4	23	(qu=7.5 to 1.25 tsf)
	OH	Gray-tan clayey SILT with wood debris, medium stiff to stiff, moist to wet.			4	59	LL=57 PL=46 PI=11
	SM SP	Gray-tan SAND with silt, medium dense, wet.	20		19	26	

Boring terminated at 24 feet.

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BORING LOG

DRYVIT BUILDING
SEATTLE, WASHINGTON

Proj. No. 1371 | Date August '80 | Plate 4

TEST PIT NO. 1

Logged By BT

Date 8/13/80

Elev. 0*

Depth (ft.)	USCS	Soil Description	W (%)	Lab Data
0		Crushed rock (FILL)		
	SM	Tan gravelly silty SAND with wood, brick, metal and concrete debris, loose, moist grades brown below 2 feet. (FILL)	9	
5			14	
			15	
10	SM SP	Gray-black gravelly SAND with silt, medium dense, moist.	15	
15		Test pit terminated at 14 feet.		

No groundwater encountered.
Caving in the fill unit from 2.5 to 10.5 feet.

TEST PIT NO. 2

Logged By BT

Date 8/13/80

Elev. +1

Depth (ft.)	USCS	Soil Description	W (%)	Lab Data
0		Crushed rock (FILL)		
	SM ML	Brown grades to tan, gravelly silty SAND to gravelly sandy SILT with wood, concrete and metal debris, loose to medium dense, moist. (FILL)	18	
5			14	
10	SM SP	Gray-black SAND with silt with trace of wood debris, loose to medium dense, moist.	10	
15		Test pit terminated at 14 feet.		

No groundwater encountered.
Moderate caving of Test Pit walls.

Earth Consultants Inc.
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TEST PIT LOGS

DRYVIT BUILDING
SEATTLE, WASHINGTON

Proj. No. 1371 | Date August '80 | Plate 5

TEST PIT NO. 3

Logged By BT

Date 8/13/80

Elev. +1

Depth (Ft.)	USCS	Soil Description	W (%)	Lab Data
0	SM	(6" Crushed rock - FILL) Tan gravelly silty SAND, medium dense, moist. (FILL)	14	
		Cement by-product	48	
5	ML	Tan gravelly sandy SILT with wood, bottles, metal and concrete debris, loose, moist (layer of brown topsoil like material at base) (FILL)	14	
	SM SP	Gray SAND with silt, with trace of wood debris, loose to medium dense, moist.	16	
10		Test pit terminated at 10 feet. No groundwater encountered. Heavy caving above 7 feet.		
15				

TEST PIT NO. 4

Logged By BT

Date 8/13/80

Elev. +1

Depth (Ft.)	USCS	Soil Description	W (%)	Lab Data
0		(6" Crushed rock - Fill)		
	SM	Tan to brown gravelly silty SAND with boulders, wood, concrete and metal debris, loose to medium dense, moist.	13	
5			12	
	ML	(Asphalt debris at 8 feet) Grades to tan sandy clayey SILT with wood and asphalt debris, soft to medium stiff.	24	qu=0.5to 1.0 tsf
10	SM SP	Black SAND with silt, medium dense, moist.	19	
15		Test pit terminated at 14 feet. Moderate seepage at 13.5 feet.		

Earth Consultants Inc.
GEOTECHNICAL ENGINEERING & GEOLOGY

TEST PIT LOGS

DRYVIT BUILDING
SEATTLE, WASHINGTON

Proj. No. 1371	Date August '80	Plate 6

TEST PIT NO. 5

Logged By BT

Date 8/13/80

Elev. ±1.5

Depth (ft.)	USCS	Soil Description	W (%)	Lab Data
0	ML	Brown sandy SILT with roots, loose, moist. (FILL)		
		Tan-white CEMENT by-product, medium dense, moist. (FILL)	45	
5			53	
10	SM	Black silty SAND with roots and piece of concrete debris, loose to medium dense, wet. (FILL)	19	
	SM SP	Black SAND with silt and pockets of silt, medium dense, wet.	26	
15				

Test pit terminated at 14.5 feet.
Heavy seepage at 14.5 feet.

TEST PIT NO. 6

Logged By BT

Date 8/13/80

Elev. +1

Depth (ft.)	USCS	Soil Description	W (%)	Lab Data
0	ML	(6" Crushed rock - fill) Brown sandy SILT, loose, moist. (FILL)		
	SM	Gray-white cement by-product, medium dense, moist. (FILL)	34	
5	SM	Brown gravelly silty SAND with wood debris and pockets of blue-green silt, loose to medium dense, moist.	12	
	ML	Grades to clayey sandy SILT with gravel, wood and asphalt debris. (FILL)		
10	SM SP	Black SAND with silt and lenses of silt, loose to medium dense, moist.	12	
	ML OL	Brown peaty SILT with pockets of sand, medium stiff, moist.	56	qu=1.25 tsf
15				

Test pit terminated at 14.5 feet.
No groundwater encountered. Caving below 2 feet.

Earth Consultants Inc.
GEOTECHNICAL ENGINEERING & GEOLOGY

TEST PIT LOGS
DRYVIT BUILDING
SEATTLE, WASHINGTON

Proj. No. 1371	Date August '80	Plate 7

TEST PIT NO. 7

Logged By BT

Date 8/13/80

Elev. ±1

Depth (ft.)	USCS	Soil Description	W (%)	Lab Data
0	ML	(12" Crushed rock - fill) Brown sandy SILT, medium dense, moist.		
	SM	Brown gravelly silty SAND with wood and brick debris, loose to medium dense, moist.	13	
5		(Grades to gravelly silty SAND with clay, medium dense) (FILL)	7	
10	SM SP	Black SAND with silt, medium dense, with pockets of SILT with organics, medium dense, moist to wet.	7	
15				

Test pit terminated at 15 feet.
No groundwater encountered.

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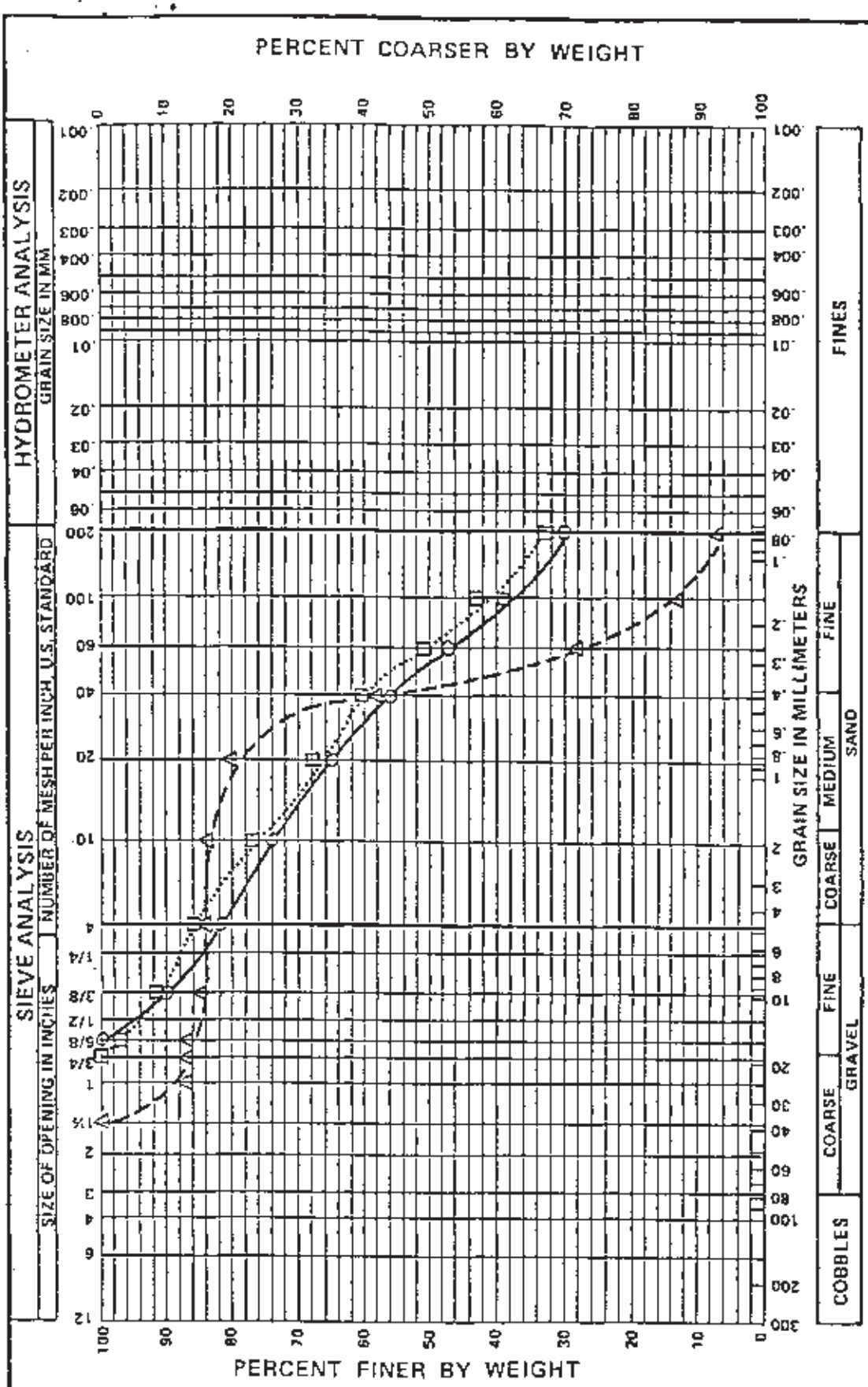
GEOTECHNICAL ENGINEERING & GEOLOGY

TEST PIT LOGS
DRYVIT BUILDING
SEATTLE, WASHINGTON

Proj. No. 1371 | Date August '80 | Plate 8



KEY	Boring or Test Pit No.	DEPTH (ft.)	USCS	DESCRIPTION	Moisture Content (%)	LL	PL
○ ——	TP-1	1.5	SM	Gravelly silty SAND	9		
△ — — —	TP-1	12.0	SM/SP	Gravelly SAND with silt	15		
□ ·····	TP-4	3.0	SM/SP	Gravelly silty SAND	13		

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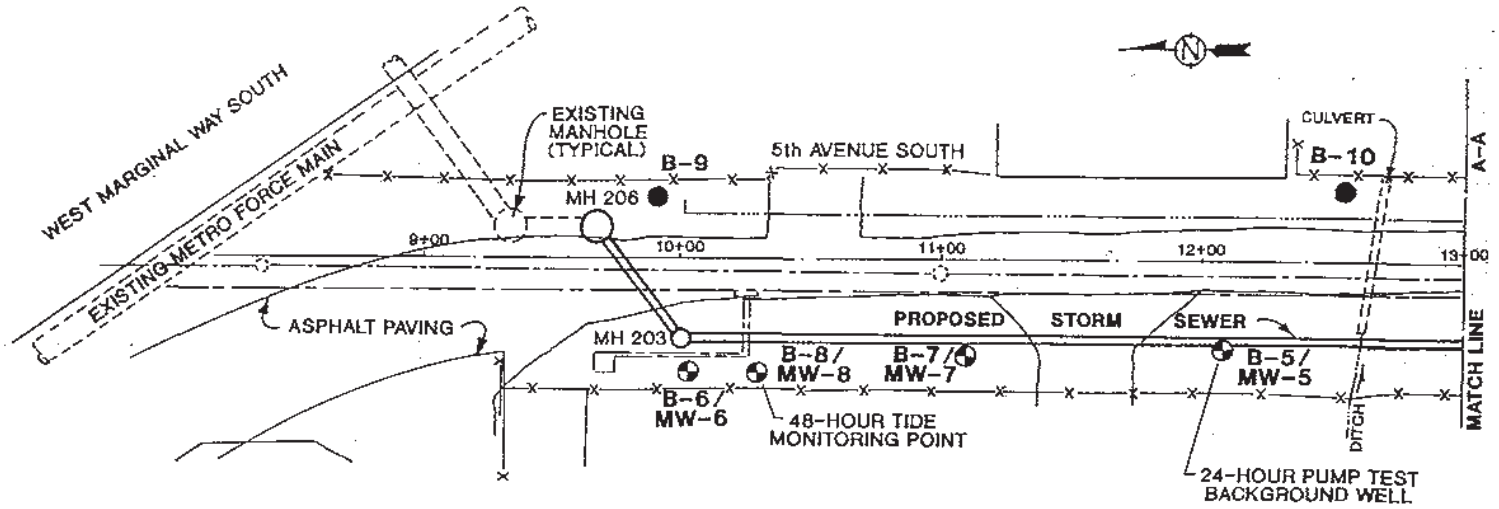
GEOTECHNICAL ENGINEERING & GEOLOGY

GRAIN SIZE ANALYSES
DRYVIT BUILDING
SEATTLE, WASHINGTON

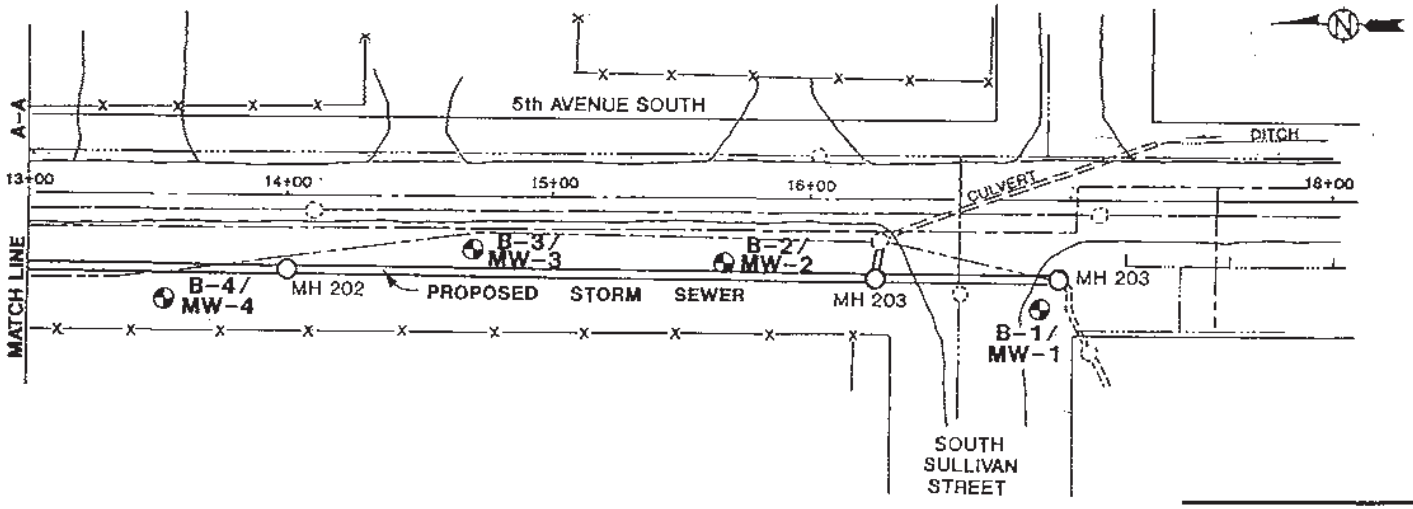
Proj. No. 1371 | Date August '80 | Plate 9

1371



LEGEND

- B-8/ MW-8 — INDICATES BORING/MONITORING WELL NUMBER AND APPROXIMATE LOCATION
- INDICATES EXISTING PSS LINE
- INDICATES EXISTING WATER LINE
- INDICATES EXISTING GAS LINE
- INDICATES EXISTING IRR. LINE
- EXISTING FENCE
- INDICATES EXISTING LINE TO BE REMOVED
- B-13 — BORING NUMBER AND LOCATION



0 50 100
Scale in Feet

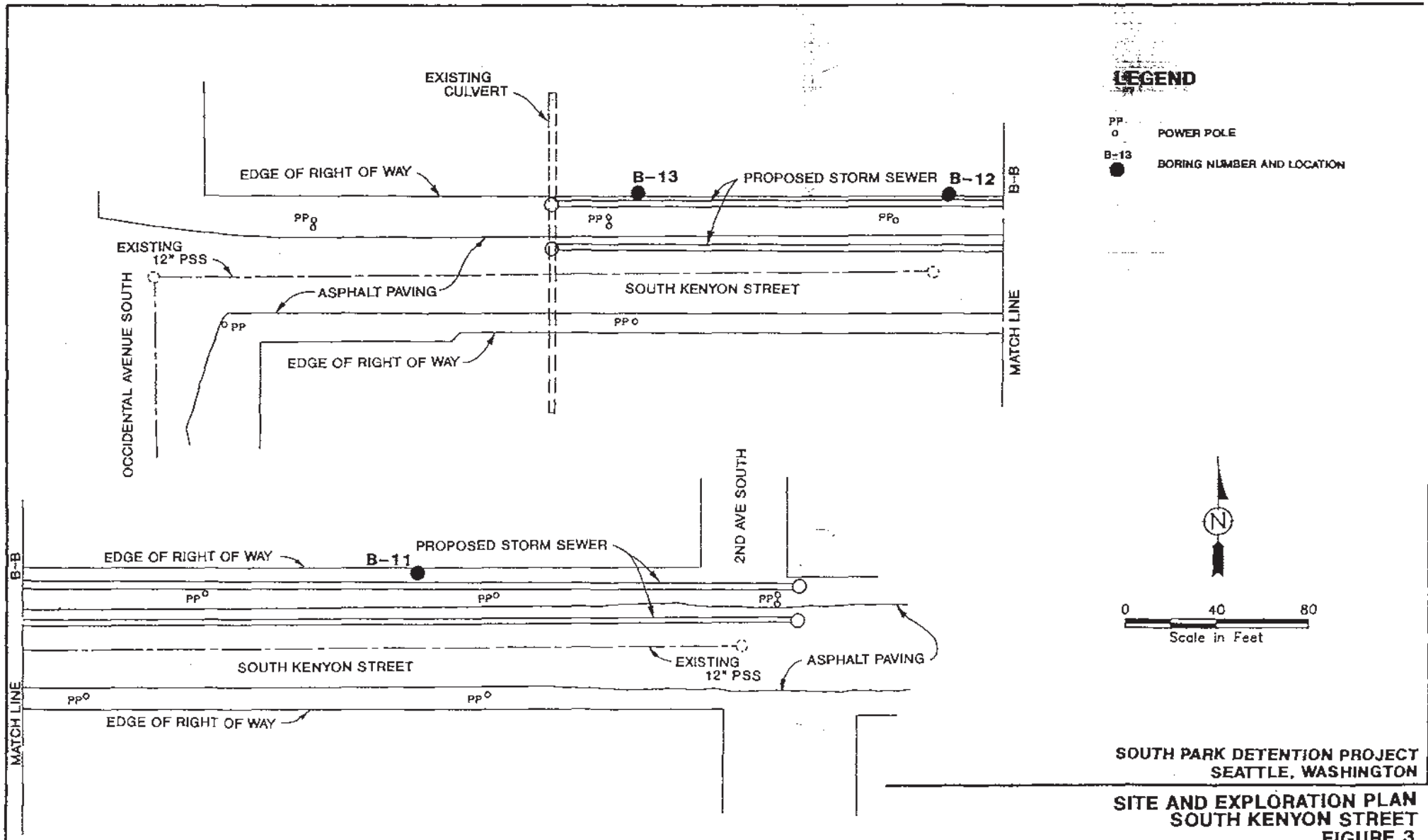
SOUTH PARK DETENTION PROJECT
SEATTLE, WASHINGTON

SITE & EXPLORATION PLAN
5TH AVENUE SOUTH
FIGURE 2

W.O. W-7490
BY WB
DATE SEPT 1991
SCALE 1"=50'

RITTENHOUSE-ZEMAN & ASSOCIATES, INC.
Geotechnical & Environmental Consultants
1400 140th Avenue N.E.
Bellevue, Washington 98005

BASED ON A SITE PLAN SUPPLIED BY THE SEATTLE ENGINEERING DEPARTMENT.



BASED ON A SITE PLAN SUPPLIED BY THE SEATTLE ENGINEERING DEPARTMENT.

SOUTH PARK DETENTION PROJECT
SEATTLE, WASHINGTON

SITE AND EXPLORATION PLAN
SOUTH KENYON STREET
FIGURE 3

W.O. W-7490-1
BY WB
DATE SEPT 1991
SCALE 1"=40'

RITTENHOUSE-ZEMAN & ASSOCIATES, INC.
Geotechnical & Environmental Consultants
1400 140th Avenue N.E.
Bellevue, Washington 98005

RZA

PROJECT *South Park Detention Project* W.O. *W-7490-1* BORING NO. *B-9*

DEPTH (feet)	SOIL DESCRIPTION Approximate ground surface elevation:	SAMPLE TYPE	SAMPLE NUMBER	OVM (ppm)	GROUND WATER	STANDARD PENETRATION RESISTANCE (Blows per foot)	TESTING
0							
	Loose, moist, grayish brown, sandy SILT (Cement waste)		S-1	3			
	Loose, moist, black silty fine sand with trace debris (brick particulate)						
5							
	Medium dense, moist, black, silty fine SAND with some debris (glass and brick, Fill)		S-2	54			418.1 8010 8020 TOX 1311
	Blowcounts may be overstated						
10				AID			
	Loose, wet, dark gray to black, fine SAND, trace silt		S-3	45			418.1 TOX
15							
	Loose, wet, dark gray, very fine SAND with some silt		S-4	5			
20	*Boring terminated at approximately 19.0 feet*						
25							
30							

Blows per foot: 0, 10, 20, 30, 40, 50

LEGEND

2-inch OD split-spoon sample

Groundwater level at time of drilling (AID)

EPA Analysis Method Shown (418.1, 8010, 8020, TOX, 1311)

MOISTURE CONTENT: Plastic limit — Natural — Liquid limit

RZA - AGRA

Engineering & Environmental Services

11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started: *20 August 1991* Drilling completed: *20 August 1991* Logged by: *GS*

PROJECT *South Park Detention Project* W.O. *W-7490-1* BORING NO. *B-10*

DEPTH (feet)	SOIL DESCRIPTION Approximate ground surface elevation:	SAMPLE TYPE	SAMPLE NUMBER	OVM (ppm)	GROUND WATER	STANDARD PENETRATION RESISTANCE (Blows per foot)	TESTING
0	*Moist, dark brown, silty fine SAND (Topsoil)*						
	Very loose, dry, light gray, silty, very fine SAND (Cement waste)		S-1	2			
5	*Medium dense, moist, dark gray silty fine to medium SAND with trace of gravel and scattered brick debris (Fill)*		S-2	0			418.1 8010 8020 TOX 1311
10	*Loose, wet, dark gray to black, fine SAND, trace silt*		S-3	0	AID		418.1 TOX
15	*Loose, wet, black, fine to very fine SAND with trace of interbedded sandy silt*		S-4	0			
20	*Boring terminated at approximately 19.0 feet*						
25							
30							

Scale: 0, 10, 20, 30, 40, 50

LEGEND

- 2-inch OD split-spoon sample
- Groundwater level at time of drilling (AID)
- EPA Analysis Method Shown

MOISTURE CONTENT: Plastic limit — Natural — Liquid limit

RZA - AGRA
Engineering & Environmental Services
11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-8918

Drilling started: *20 August 1991* Drilling completed: *20 August 1991* Logged by: *GS*

Start here

PROJECT *South Park Detention Project* W.O. *W-7490-1* BORING NO. *B-11*

DEPTH (feet)	SOIL DESCRIPTION Approximate ground surface elevation:	SAMPLE TYPE	SAMPLE NUMBER	OVM (ppm)	GROUND WATER	STANDARD PENETRATION RESISTANCE ▲ Blows per foot 0 10 20 30 40 50	TESTING
0	*2 inches asphalt*						
	Loose, dry, brown, medium SAND with trace gravel (Fill)		S-1	0			1311
5	*Loose, dry, gray, fine to very fine, sandy SILT*						
	Stiff, moist, gray-red mottled, sandy SILT		S-2	0			
10	*Medium dense, wet, dark grey, fine SAND, trace silt*						
			S-3	0			
15	*Loose, moist, grayish-brown, medium to fine SAND with a trace of silt*						
	Loose, moist, gray, fine to very fine, silty SAND		S-4	0			
20	*Boring terminated at approximately 19.0 feet*						
25							
30							

LEGEND

I 2-inch OD split-spoon sample

▽ Groundwater level at time of drilling

EPA Analysis Method Shown

MOISTURE CONTENT

Plastic limit — Natural — Liquid limit

RZA - AGRA

Engineering & Environmental Services

11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started: *20 August 1991* Drilling completed: *20 August 1991* Logged by: *GS*

PROJECT *South Park Detention Project* W.O. *W-7490-1* BORING NO. *B-12*

DEPTH (feet)	SOIL DESCRIPTION Approximate ground surface elevation:	SAMPLE TYPE	SAMPLE NUMBER	OVM (ppm)	GROUND WATER	STANDARD PENETRATION RESISTANCE (Blows per foot)	TESTING
0	*Dry, dark brown, silty fine SAND (Topsoil)*						
	No recovery, geology inferred: Loose, dry, brown, medium SAND (Fill)	X	S-1	0			
5							
	Soft, moist, gray SILT with a trace of sand, organics and gravel	I	S-2	0			418.1 8015
10					AID		
	Soft, wet, gray, sandy SILT with a trace of organics (Twigs)	I	S-3	0			
15							
	Loose, wet, brownish gray, sandy SILT, interbedded with silty fine sand	I	S-4	0			
20	*Boring terminated at approximately 19.0 feet*						
25							
30							

Scale: 0, 10, 20, 30, 40, 50

LEGEND

I 2-inch OD split-spoon sample

X Sample not recovered

AID Groundwater level at time of drilling

EPA Analysis Method Shown

MOISTURE CONTENT

Plastic limit — Natural — Liquid limit

RZA - AGRA

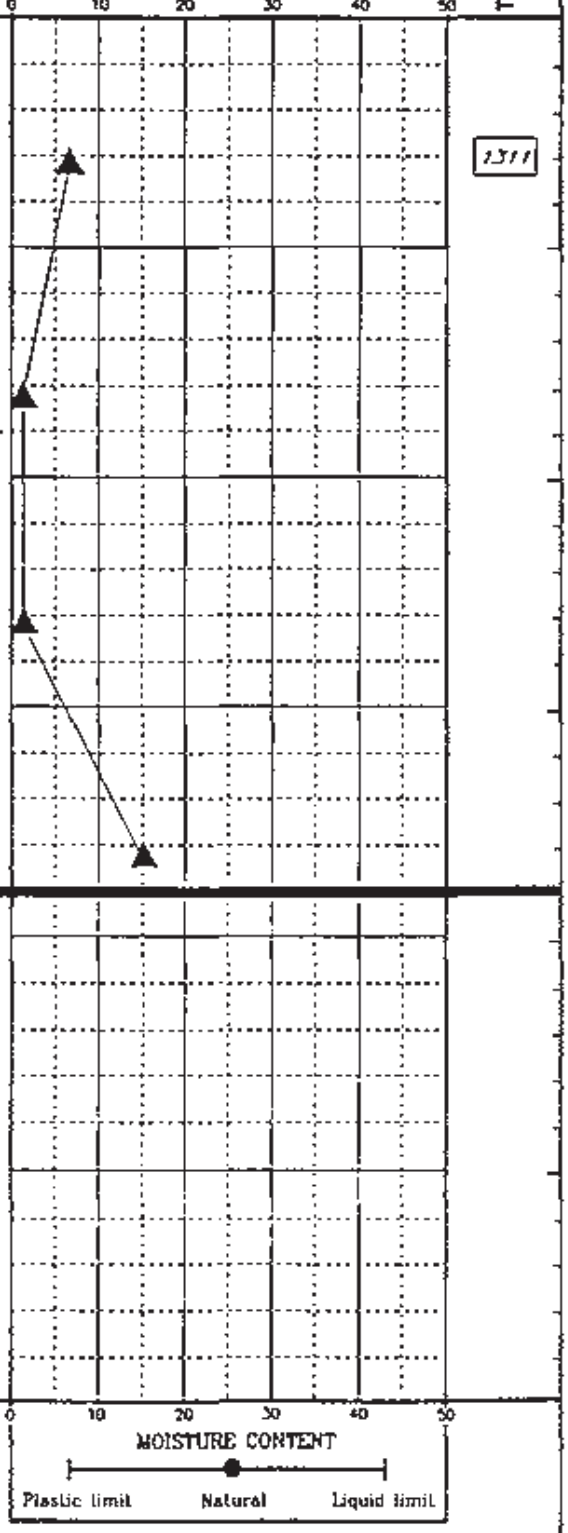
Engineering & Environmental Services

11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started: *20 August 1991* Drilling completed: *20 August 1991* Logged by: *GS*

PROJECT *South Park Detention Project* W.O. *W-7490-1* BORING NO. *B-13*

DEPTH (feet)	SOIL DESCRIPTION Approximate ground surface elevation:	SAMPLE TYPE	SAMPLE NUMBER	OVM (ppm)	GROUND WATER	STANDARD PENETRATION RESISTANCE (Blows per foot)	TESTING
0	*Loose, moist, brown, medium SAND with trace of gravel (fill)*		S-1	0			1311
5	*Loose, wet, gray, fine to very fine SAND Trace silt*		S-2	0	AID		
10	*Soft, wet, gray, sandy SILT with trace of organics (Twigs)*		S-3	0			
15	*Medium dense, wet, gray, very fine SAND*		S-4	0			
20	*Boring terminated at approximately 19.0 feet*						
25							
30							



LEGEND

2-inch OD split-spoon sample

Groundwater level at time of drilling

EPA Analysis Method Shown

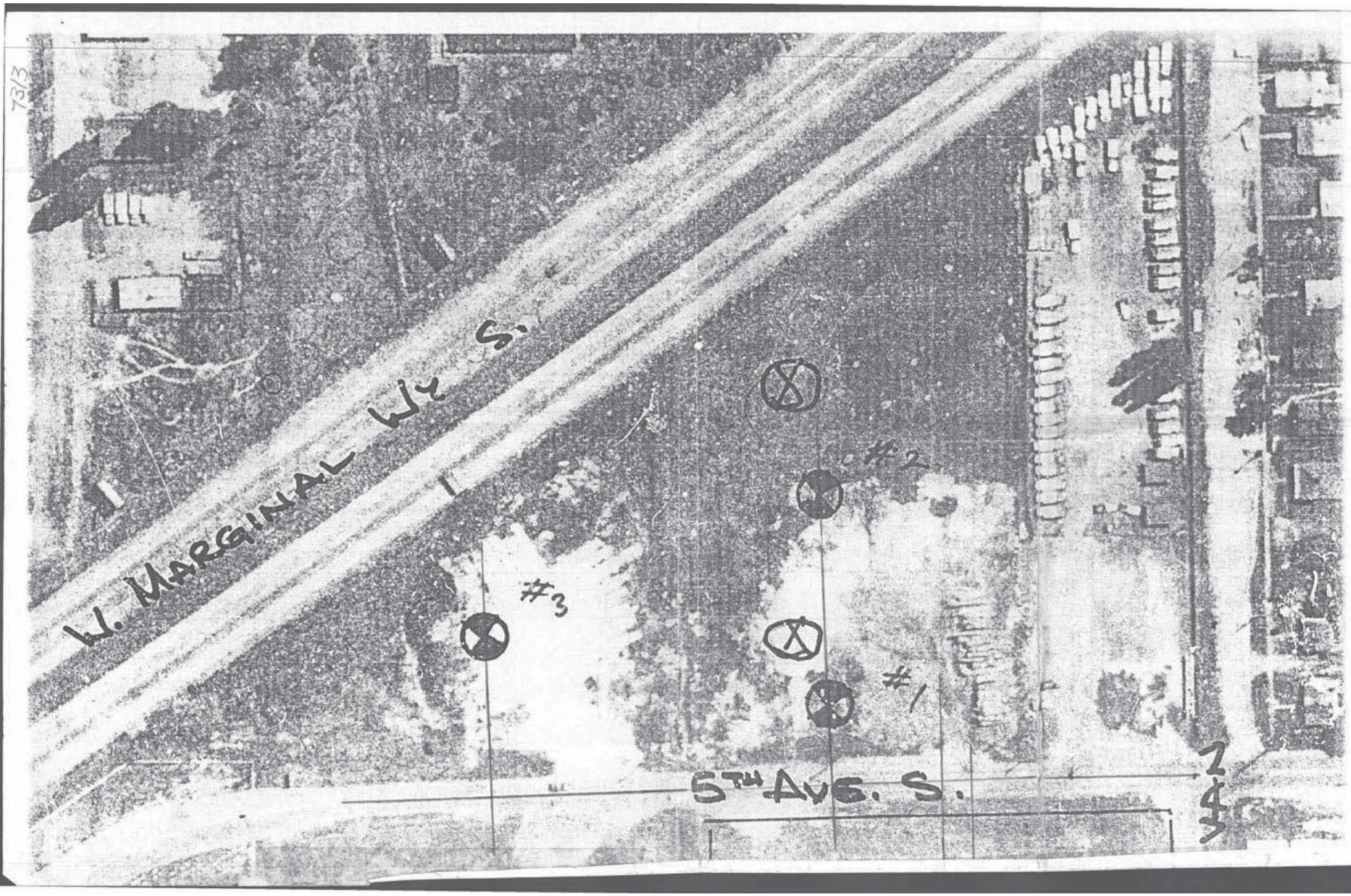
RZA - AGRA

Engineering & Environmental Services

11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started: *20 August 1991* Drilling completed: *20 August 1991* Logged by: *GS*

#4
#4
S. SULLIVAN
S. SAYERS


W. MARGINAL WAY S.
#3
#2
#1
5TH AVE. S.

Dog Pound

U6314

SEATTLE ENGINEERING DEPARTMENT
MATERIALS LABORATORY

GB 7.241

LOG OF TEST BORING

DATE 8-15-72 HOLE NO. 1

PROJECT Dog Pound - Animal Shelter GRD. ELEV.

LOCATION 45 ft E Power Pole Per Plan

STRATA	DEPTH	SAMPLE NO.	BLOW COUNT			STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
Loose, Silty SAND & WOOD w/ Cement Waste							6" white cement waste				
							Dark Brn silty SAND w/gravel & wood				
							Top 1" CLAY			Mixed	
		A	1	2	5	7	silty SAND w/trace brick	Loose	moist	white brn	
	5						Bott 2" cement waste			gray	
		B	3	5	4	9	WOOD mixed w/silty SAND	Loose	wet	black	
	10										
		C	5	9	6	15	WOOD & black fine-med SAND	firm	wet	black	
Loose Black SAND & Very Soft SILT	15										8-16-72 8-17-72
		D	—	1	—	1	ORGANIC SILT w/roots	very soft	sat	brn	
	20						Bott 1" black fine-med SAND				Piezometer Installed 8-18-72
							heaved 18"				
							trace -				
		E					Black fine-med SAND				
	25										

INSPECTOR AC Rice

Dog pound

07314

SEATTLE ENGINEERING DEPARTMENT
MATERIALS LABORATORY

CB 7.241

LOG OF TEST BORING

DATE 8-15-72 HOLE NO. [redacted]

PROJECT Dog Pound — Animal Shelter GRD. ELEV.

LOCATION Per Plan
165 ft E TH 1

STRATA	DEPTH	SAMPLE NO.	BLOW COUNT			STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
White, compact, cement waste							White Cement Waste				
	5	A	2	21	31	52	very fine Cement Waste		moist	white	
	10	B	17	37	21	58	very fine Cement Waste		moist	white	
Loose, black sand / very soft silt or peat	15	C	—	2	5	7	fine-med. SAND	Loose	moist	black	8-16-72 8-17-72
	20	D	-1-		1	2	ORGANIC SILT to PEAT	very soft	wet	brn	Piezometer installed 8-15-72
	25	E	PUSH				12" PEAT	very soft	wet	brn	
							6" fine-med SAND		sat	black	
							heaved 12"				
	30										

INSPECTOR A C Rice

Dog Pound

07315

SEATTLE ENGINEERING DEPARTMENT
MATERIALS LABORATORY

CB 7.241

LOG OF TEST BORING

DATE 8-16-72 HOLE NO. [redacted]

PROJECT Dog Pound - ANIMAL SHELTER GRD. ELEV.

LOCATION PER PLAN

STRATA	DEPTH	SAMPLE NO.	BLOW COUNT			STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
LOOSE SILTY SAND w/ SILT							Brn sandy SILT w/ gravel				
							Top 4" SILT				
	5	A	2	2	1	3	silty SAND w/ gravel	Loose	moist	Brn	
		B	1	1	4	5	silty SAND w/ gravel w/ SLAG	Loose	moist	Brn	
		C	-1-		2	3	silty SAND 3" fine-med SAND	Loose	moist	Brn w/ gray black	
LOOSE, BLACK SAND w/ LAYER VERY SOFT SILT	10	D	3	4	5	9	fine-medium SAND	Loose	moist fine wet	black	8-16-72 ▼ 8-17-72
		E	-	-1-		1	ORGANIC SILT, fine SAND & very fine SAND layers	very soft	sat	black Brn	
	15	F	PUSH		1	1	fine-med SAND w/ occ. thin SILT layer	Loose	sat	black	
		G	0	1	1	2	f-m SAND w/ occ. thin SILT layer	Loose	sat	black	PIEZOMETER INSTALLED 8-16-72
	20	H	1	2	4	6	f-m SAND w/ 3" layer	Loose	sat	black	

INSPECTOR ACRice

Dog Pound

07315

SEATTLE ENGINEERING DEPARTMENT
MATERIALS LABORATORY

LOG OF TEST BORING

DATE 8-16-72 HOLE NO. 4

PROJECT DOG POUND - ANIMAL SHELTER GRD. ELEV.

LOCATION PER PLAN

STRATA	DEPTH	SAMPLE NO.	BLOW COUNT			STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
WOOD & PAPER MIXED w/ SOME SOILS METAL OIL & GARBAGE							Brn silty SAND & WOOD				
		A	2	16	11	27	clayey sand, SILT w/ WOOD		moist	mixed gray & brn	
	5	B	8	8	11	19	WOOD		moist	brn	
							Rubber & WOOD on Augers				
		C	8	4	3	7	No Recovery				
	10	D	1	2	1	3	PAPER & WOOD w/ OIL		moist	white & black	
		E	0	1	1	2	GARBAGE PAPER, WOOD etc.		moist	Black white Red	
	15	F	5	5	2	7	WOOD & PAPER w/ oil		moist	Black & brn	
		G	3	4	6	10	WIRE, OIL, PAPER, WOOD SAND & SILT mixed		moist	brn & black	
	20	H	6	10	7	17	WOOD & ORGANICS		moist	brn & black	
		I	2	4	1	5	CLAY-SILT & PAPER		wet	Gray white black	8-18-72 ⊥ 8-17-72
	25	J	1	1	2	3	No Recovery				
VERY SOFT SILT		K	1/9"		2		Fibrous ORGANIC SILT ← Heaved 18" @ 29 ft	very soft	wet	brn	PIEZO INSTALLED 8-16-72 SAND IN TIP.
BOTTOM 8-16-72	30	L									

INSPECTOR A C Rice

Dog Pound

07316

SEATTLE ENGINEERING DEPARTMENT
MATERIALS LABORATORY

LOG OF TEST BORING

DATE 8-16-72 HOLE NO. 3

PROJECT DOG POUND - ANIMAL SHELTER GRD. ELEV.

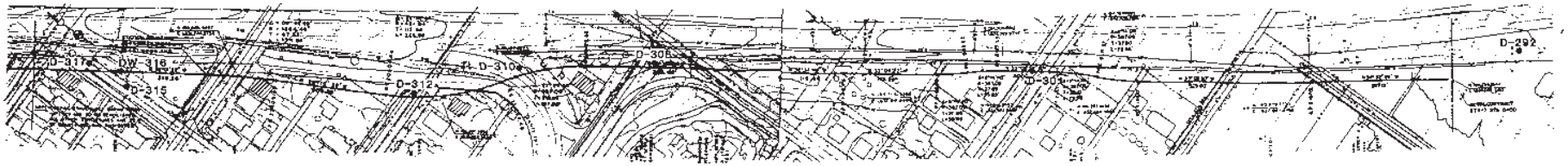
LOCATION PER PLAN

STRATA	DEPTH	SAMPLE NO.	BLOW COUNT			STD. PEN.	DESCRIPTION OF MATERIAL: COMPOSITION	CONSISTENCY	MOISTURE	COLOR	WATER LEVEL
							BRN SILTY SAND & WOOD & STEEL				
		A	3	3	8	11	SILTY SAND W/GRAVEL SOME WOOD, ROCK IN SWTP	FIRM	MOIST	GRAY	
	5	B	16	6	11	17	WOOD & PAPER		MOIST		
		C	6	3	1	4	SILTY SAND & GRAVEL WOOD & CLOTH	LOOSE	MOIST	GRAY	
	10	D	2	15	20	35	WOOD & PAPER & GARBAGE		MOIST	GRAY & WHITE & GREEN	
		E	1	2	3	5	WOOD, PAPER, METAL		MOIST	BLACK GRAY WHITE	
	15	F	5	16	28	44	WOOD W/SILTY SAND & GRAVEL IN TIP		MOIST	BLACK & BRN	
		G	11	6	1	7	SAND & GRAVEL W/SILT WOOD & CREOSOTE IN TIP		MOIST	GRAY BLACK	
	20	H	6	6	10	16	WOOD		MOIST	GRAY	
		I	4	8	11	19	WOOD		MOIST	GRAY	
	25	J	1	2	3	5	WOOD & SHELL CHIPS		SAT	BLK	
							WOOD CHIPS		SAT	BRN	↓ 8-18-72
											↓ 8-17-72
		K	2	3	4	7	WOOD CHIPS		SAT	BRN	
	30			12"							
VERY SOFT SILT			1	1	1	1	SILT W/SOME WOOD	VERY SOFT	SAT	BRN	

WOOD MIXED W/ PAPER METAL GARBAGE & SOME SILTY SAND W/ GRAVEL

PIEZOMETER INSTALLED 8-24-72 SAND FILL

INSPECTOR



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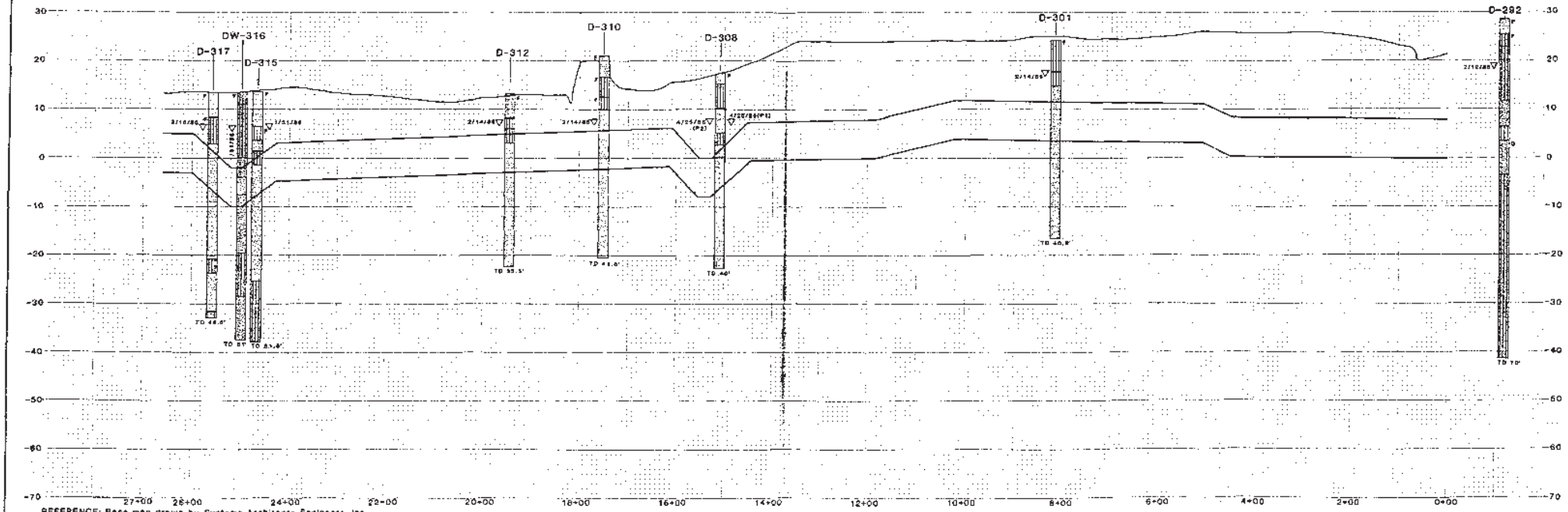


REFERENCE: Base map drawn by Systems Architects Engineers, Inc.

NO.	REVISION	BY	DATE

URS ENGINEERS
Engineering and Environmental Consultants
Seattle, Washington

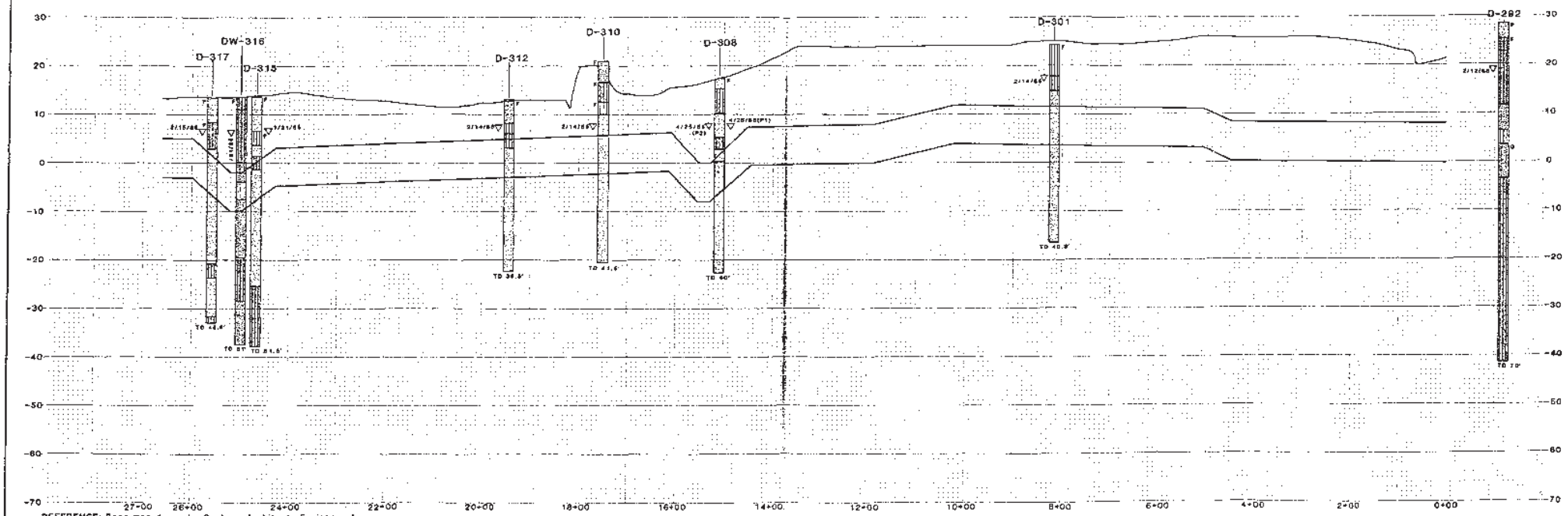
Converse Consultants
Geotechnical Engineering and Applied Sciences

DESIGNED BY:
DRAWN BY: WS
CHECKED BY: WRH
PROJ. ENGR: JCB
APPROVED BY: JCB
DATE: MAY 1985
SCALE: NOTED
CONTRACT NUMBER: CW/F2-82

METRO Municipality of Metropolitan Seattle
RENTON EFFLUENT TRANSFER SYSTEM
PLAN AND PROFILE – PROJECT SECTION ETS 7
STATION 0+00 TO 26+00

DATE: 5/17/85
AREA:
FILE: 84-5226
DRAWING NUMBER:
SHEET 1 OF 4

0 100 200 300
SCALE IN FEET



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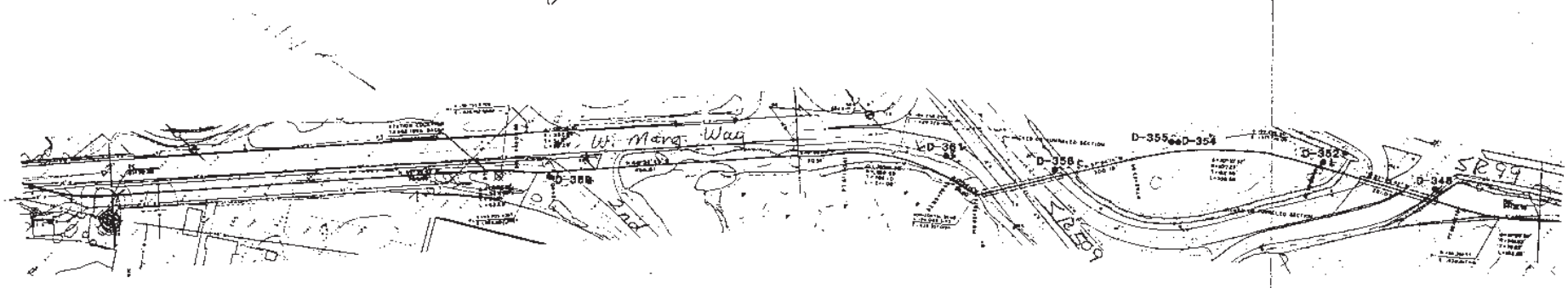
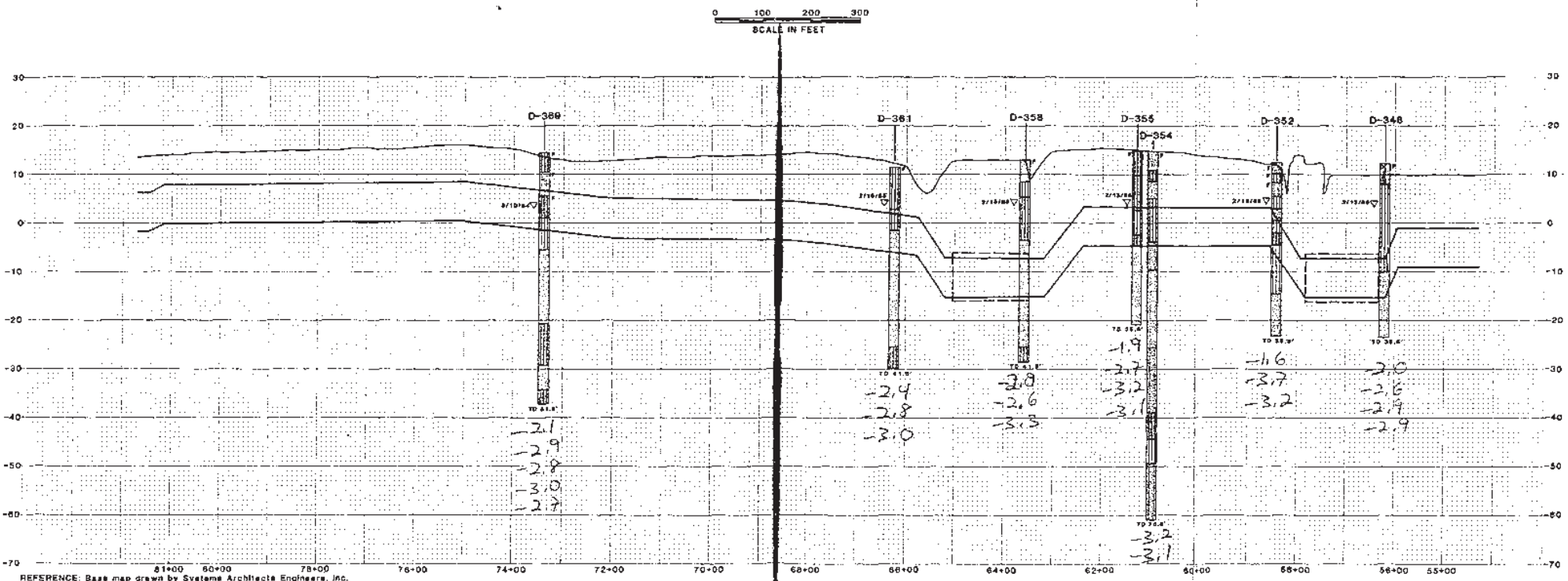
METRO Municipality of Metropolitan Seattle
RENTON EFFLUENT TRANSFER SYSTEM
PLAN AND PROFILE - PROJECT SECTION ETS 7
STATION 0+00 TO 26+00

DATE: 5/17/85
APPR.
FILE: 84-5226
DRAWING NUMBER
SHEET 1 OF 4

B 11147 microfilmed





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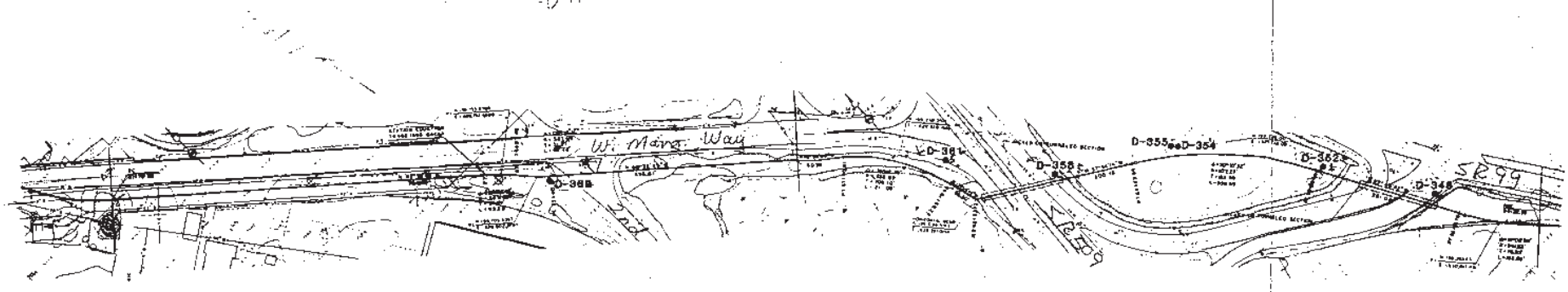
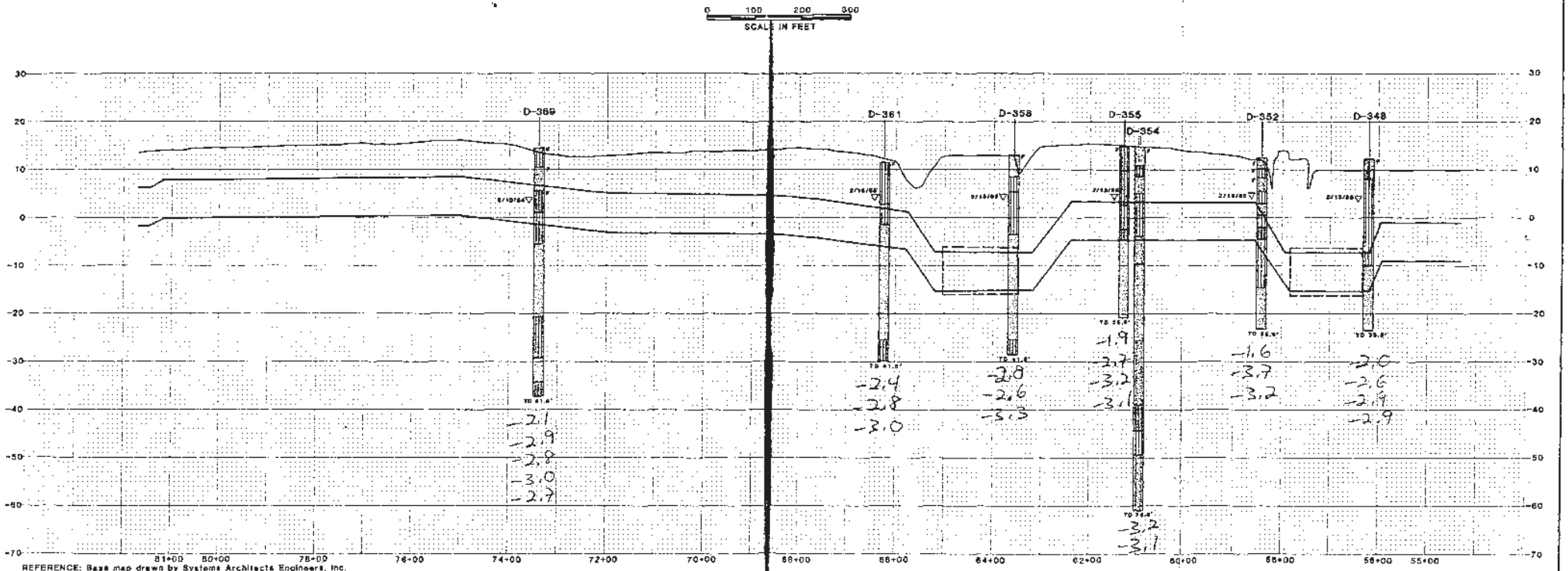
DESIGNED BY:
DRAWN BY: WS
CHECKED BY: WRM
PROJ. ENGR. JCB
APPROVED BY: JCB
DATE: MAY 1985
SCALE: NOTED
CONTRACT NUMBER: CW/F2-82

METRO Municipality of Metropolitan Seattle
RENTON EFFLUENT TRANSFER SYSTEM
PLAN AND PROFILE – PROJECT SECTION ETS 7
STATION 55+00 TO 81+00

DATE: 5/17/85
APPR:
FILE: 84-5228
DRAWING NUMBER
SHEET 3 OF 4

B 11147 microfilmed





REFERENCE: Base map drawn by Systems Architects Engineers, Inc.

NO	REVISION	BY	DATE

URS ENGINEERS
Engineering and Environmental Consultants
Seattle, Washington

Converse Consultants
Geotechnical Engineering and Applied Sciences

DESIGNED BY:
DRAWN BY: WS
CHECKED BY: WRH
PROJ ENGR. JCB
APPROVED BY: JCB
DATE: MAY 1985
SCALE: NOTED
CONTRACT NUMBER: CW/F2-62

METRO Municipality of Metropolitan Seattle
RENTON EFFLUENT TRANSFER SYSTEM
PLAN AND PROFILE - PROJECT SECTION ETS 7
STATION 55+00 TO 81+00

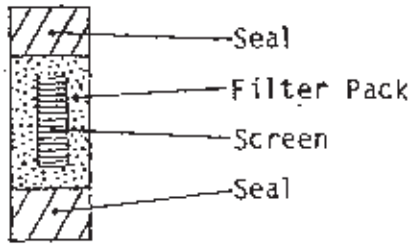
DATE: 5/17/85
APPR:
FILE: 84-6228
DRAWING NUMBER
SHEET 3 OF 4

BORING LOG LEGEND

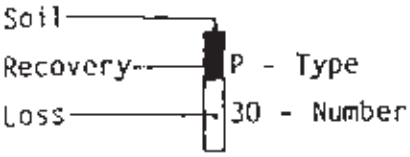
GRAPHIC REPRESENTATION

- SANDY GRAVEL, GRAVEL AND SAND
- GRAVELLY SAND, SAND AND GRAVEL
- SAND
- SILTY SAND, SAND AND SILT
- SANDY SILT, SILT AND SAND
- SILT, CLAYEY SILT
- SILTY CLAY, CLAY
- SEDIMENTARY ROCK
- IGNEOUS ROCK

PIEZOMETER DETAIL



SAMPLE LOCATION



SAMPLE TYPES

B	Grab sample - hand collected from auger or bit
M	Bailer sample - mixed and hand collected
C	Cutting sample - hand collected from drill fluid return or bailer
RD	3" O.D. split barrel ring sampler - driven with 300 lb. down hole slip-jar hammer with 30" drop
RS	3" O.D. split barrel ring sampler - driven with a 140 lb. surface hammer with 30" drop
SPT	2" O.D. split spoon sampler - driven with 140 lb. surface hammer with 30" drop
SS	2" O.D. split spoon sampler - driven with 300 lb. down hole slip-jar hammer with 30" drop
P	Pitcher sampler - 3" O.D. thin walled shelby tube pushed with rotating cutting barrel
SH	3" O.D. thin walled shelby tube - pushed with hydraulics

LABORATORY TESTS

G	Grain size distribution	T	Petrographic thin section
C	Consolidation	UC	Unconfined compression
CU	Consolidated, undrained triaxial	DS	Direct shear
-200	No. 200 standard sieve wash		Moisture Content - % of dry weight
UU	Unconsolidated, undrained triaxial		Dry Density - lbs. per cubic foot

ATTERBERG LIMITS

LL	Liquid limit	PL	Plastic limit
PI	Plasticity index		

NOTE: See Appendix A text for description of additional data presented on boring logs.

Drawing No. A-1

LEGEND

D-189	Boring performed for Preliminary Design of RETS
●	Boring by others, surface elevation at time of drilling
103.0	Elevation of boring
64 / 38	Elevation of top of bedrock Depth of bedrock
NR	No bedrock encountered
40	Approximate elevation contour of top of rock Contours based on review of available information

Geologic Units

F	Fill
G	Glacial deposits
L	Glacial lacustrine deposits

Lithologic Units

Soil

- Sandy gravel, gravel and sand, sand and gravel, silty sandy gravel
- Gravelly sand
- Sand
- Sand, little silt
- Silty sand, silt and sand, sand and silt, sandy silt
- Silt, clayey silt
- Silty clay, clay

Rock

- Sandstone, siltstone
- Basalt, andesite

METRO Municipality of Metropolitan Seattle

DATE FEB 85	U R S ENGINEERS	Converse Consultants	SCALE
BY WES	RENTON EFFLUENT TRANSFER SYSTEM		FILE NO.
APPROVED JCB	EXPLANATION OF SYMBOLS		SHEET OF

SUMMARY: BORING NO. D-292

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/11/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE / SAMPLE NO.	GRAPHIC SYMBOL			PIEZOMETER	BLOWS/6 IN	LAB TESTS	DRY DENSITY	MOISTURE	ATTERBERG LIMITS
29	0	SPT 1		FILL SAND (MEDIUM DENSE)	MOTTLED BROWN AND GRAY; FINE TO MEDIUM, TRACE COARSE; LITTLE SILT; TRACE FINE TO COARSE GRAVEL, SUBROUNDED; NO BEDDING EVIDENT; MOIST; (SM); SURFACE CONDITIONS, ASPHALT CONCRETE.			3 3 10	G	21%	
	5			SAND AND CLAYEY SILT (STIFF)	BROWN; FINE TO MEDIUM SAND; TRACE FINE GRAVEL; SCATTERED BURNT WOOD; NO BEDDING EVIDENT; (SP-ML).						
20	10	SPT 2		ALLUVIUM SILTY SAND (MEDIUM DENSE)	OLIVE BROWN; FINE, TRACE MEDIUM; THINLY BEDDED WITH FINE SAND; WET; (SM/SP).	2/12/85 3/4/85		9 9 11	G	23%	
	15	SPT 3		SANDY SILT (MEDIUM DENSE)	LIGHT BROWN; FINE, TRACE MEDIUM SAND; THINLY BEDDED WITH FINE SAND; TRACE SILT; (ML/SP).			3 5 7	G	33%	
10	20	SPT 4		SAND (DENSE)	GRAY; FINE, TRACE MEDIUM; LITTLE SILT; NO BEDDING EVIDENT; WET; (SP). (CONTINUED)			16 22 24	G	26%	

SAMPLE TYPES

- B — BULK SAMPLE - HAND COLLECTED FROM AUGER OR PIT
- M — BAILER SAMPLE - WASHED AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 3"O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 340 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2"O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- AA — API. RECEPT DRIVEN WITH 140 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3"O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3"O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

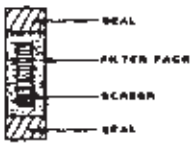
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

Drawing No. A-2

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

SUMMARY: BORING NO. D-292

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DATE DRILLED: 1/11/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE / SAMPLE NO.	GRAPHIC SYMBOL			PIEZOMETER	BLOWS/6 IN	LAB TESTS	MOISTURE	DRY DENSITY	ATTERBERG LIMITS
	20			ALLUVIUM SAND (DENSE)							
		SPT 5		SILT (VERY HARD)	LIGHT OLIVE BROWN; THINLY BEDDED WITH FINE TO COARSE SAND; TRACE FINE GRAVEL. ROUNDED; (ML/SW).		22 50/2"	G	29%		
	25	RD 6		GLACIAL DEPOSITS SAND (VERY DENSE)	OLIVE BROWN; FINE TO COARSE; LITTLE FINE TO COARSE GRAVEL, ROUNDED; LITTLE SILT; NO BEDDING EVIDENT; WET; (SW).		65				
		SPT 7					8 5 43				
0											
	30	RD 8			LIGHT BROWN; FINE; LITTLE SILT; THINLY LAMINATED TO THINLY BEDDED WITH SILT, LITTLE FINE SAND; WET; (SM/ML). OCCASIONAL COBBLE.		25 50				
		SPT 9 8 10		SILTY SAND (VERY DENSE)	GRAY; FINE TO MEDIUM, TRACE COARSE; LITTLE FINE TO COARSE GRAVEL, ROUNDED; SCATTERED COBBLES, ROUNDED; NO BEDDING EVIDENT; WET; (SM).		50/5"				
	35	RD 11					100/2"				
		RD 12					100/3"				
-10											
	40				(CONTINUED)						

SAMPLE TYPES

- B — BRAS SAMPLE - HAND COLLECTED FROM AUGER OR PIT
- M — BAILER SAMPLE - MIXED AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 3" O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 140 LB DOWN HOLE SLIP-JAR HAMMER
- SPT — 2" O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB SURFACE HAMMER WITH 30" DROP
- SG — SPT, EXCEPT DRIVEN WITH 300 LB DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3" O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3" O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

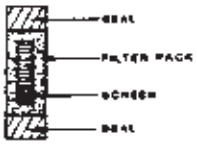
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — MINI VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

Drawing No. A-3

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

SUMMARY: BORING NO. D-292

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DATE DRILLED: 1/11/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE / SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN.	LAB TESTS	DRY DENSITY	MOISTURE	ATTERBERG LIMITS
	40	RD 13		GLACIAL DEPOSITS SILTY SAND (VERY DENSE)			100 / 5 1/2"			
	45	RD 14		GRADES TO TRACE FINE GRAVEL, SUBROUNDED.			100 / 2"			
-20										
	50	RD 15		GRADES TO LITTLE FINE TO COARSE GRAVEL.			100 / 5 1/2"	G	13%	
	55	RD 16					85			
-30										
	60			(CONTINUED)						

SAMPLE TYPES

- B — GRAB SAMPLE - HAND COLLECTED FROM AUGER OR PIT
- M — BAILER SAMPLE - MIXED AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 6" O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2" O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SB — SPT, RECEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 30" DROP
- P — PITCHER SAMPLER - 6" O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3" O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

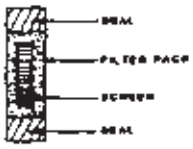
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — VAN TONE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

Drawing No. A-4

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

SUMMARY: BORING NO. D-292

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DATE DRILLED: 1/11/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	GRAPHIC SYMBOL	PIEZOMETER	BLOWS/6 IN	LAB TESTS	MOISTURE	DRY DENSITY	ATTERBERG LIMITS
	60		RD 17			75 / 3"				
	65		RD 18			75 / 4"				
-40			RD 19							
	70									
	75									
	80									

GLACIAL DEPOSITS
SILTY SAND
(VERY DENSE)

SAMPLE 19: UNSUCCESSFUL DUE TO DOWNHOLE SLIP JAR HAMMER CAUGHT AGAINST THE SIDE OF THE HOLE.

TOTAL DEPTH, 70.0 FEET.

PIEZOMETER:

THREE QUARTER INCH DIAMETER PVC.
SEAL DEPTH: 3.0 TO 8.0 FEET.
SCREEN DEPTH: 45.0 TO 65.0 FEET.

SAMPLE TYPES

- A — GRAB SAMPLE - HAND COLLECTED FROM AUGER OR BIT
- M — SAMPLE SAMPLE - MIXED AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 3" O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2" O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SS — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3" O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3" O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

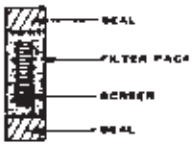
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — MINI VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-06G

Drawing No. A-5

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

SUMMARY: BORING NO. D-301

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/11-12/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE / SAMPLE NO.	GRAPHIC SYMBOL			PIEZOMETER	BLOWS/6 IN	LAB TESTS	MOISTURE / DRY DENSITY	ATTERBERG LIMITS
24	0			FILL CLAYEY SILT (STIFF)	MOTTLED GRAY; SOME FINE TO MEDIUM SAND; SCATTERED FINE TO COARSE GRAVEL, ROUNDED; SCATTERED ROOTS; OCCASIONAL ASPHALT CHUNKS; NO BEDDING EVIDENT; (ML); SURFACE CONDITIONS, ASPHALT CONCRETE.					
		B 1								
20										
	5	RD 2						7 9 8		
		SPT 3		ALLUVIUM SILT (MEDIUM DENSE)	GRAY-BROWN; TRACE FINE SAND; THINLY LAMINATED; (ML). 2/14/85 ▼ 2/16/85 ▼			4 5 7	G	34%
	10	RD 4		SAND (MEDIUM DENSE)	BROWN; FINE; LITTLE SILT; NO BEDDING EVIDENT; WET; (SM).			9 12 8		
		SPT 5		(DENSE)	GRAY; FINE; TRACE SILT; THINLY BEDDED WITH SILT AND SAND; WET; (SP/ML).			11 19 25	G	29%
10	15	RD 6		(VERY DENSE)	BROWN; FINE TO MEDIUM; TRACE SILT; NO BEDDING EVIDENT; WET; (SP).			12 16 18	G DS	26% 99
		SPT 7			(CONTINUED)			19 27 33		
	20									

SAMPLE TYPES

- B — BRASS SAMPLE – HAND COLLECTED FROM AUGER OR PIT
- W — BAILER SAMPLE – MIXED AND HAND COLLECTED
- C — CUTTING SAMPLE – HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 2" O.D. SPLIT BARREL RING SAMPLER – DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2" O.D. SPLIT SPOON SAMPLER – DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SB — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER – 3" O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3" O.D. THIN WALLED SHELBY TUBE – PUSHED WITH HYDRAULICS

MOISTURE CONTENT – PERCENT OF DRY WEIGHT
DRY DENSITY – POUNDS PER CUBIC FOOT

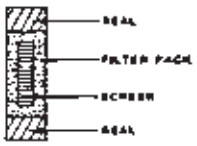
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — MINI VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

Drawing No. A-6

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

SUMMARY: BORING NO. D-301

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/11-12/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	GRAPHIC SYMBOL	DESCRIPTION	PIEZOMETER	BLOWS/6 IN	LAB TESTS	DRY DENSITY	MOISTURE	ATTERBERG LIMITS
	20	RD	8		ALLUVIUM SAND (VERY DENSE) GRAY-BROWN.		14 18 23	G DS		23% 98	
		RD	9				16 28 35	G DS		22% 105	
0											
	25										
		SPT	10				28 50 5"				
	30										
		RD	11				13 23 26	G		23% 102	
-10	35										
					GRAY-BROWN; FINE TO COARSE; TRACE SILT; THINLY BEDDED WITH FINE TO MEDIUM SAND; WET; (SP).						
					(CONTINUED)						
	40										

SAMPLE TYPES

- B — BAG SAMPLE – HAND COLLECTED FROM AUGER OR PIT
- M — MARLEN SAMPLE – MIXED AND HAND COLLECTED
- C — CUTTING SAMPLE – HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 3" O.D. SPLIT BARREL RING SAMPLER – DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2" O.D. SPLIT SPOON SAMPLER – DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SS — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER – 3" O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3" O.D. THIN WALLED SHELBY TUBE – PUSHED WITH HYDRAULICS

MOISTURE CONTENT – PERCENT OF DRY WEIGHT
DRY DENSITY – POUNDS PER CUBIC FOOT

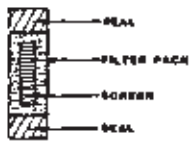
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

Drawing No. A-7

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

SUMMARY: BORING NO. D-301

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/11-12/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN.	LAB TESTS	DRY DENSITY	MOISTURE	ATTERBERG LIMITS
	40	SPT	12		ALLUVIUM SAND		36 50 3"				
					TOTAL DEPTH, 40.8 FEET.						
					PIEZOMETER: THREE QUARTER INCH DIAMETER PVC. SCREEN DEPTH: 25 TO 35 FEET. SEAL DEPTH: 3 TO 8 FEET						
-20											
	45										

SAMPLE TYPES

- B — BAG SAMPLE - HAND COLLECTED FROM AUGER OR PIT
- M — BAKER SAMPLE - MECH AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 3"O.D. SPLIT BARREL DRIVE SAMPLER - DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 1"O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SB — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3"O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3"O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — UNIF VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL

SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

Drawing No. A-8

SUMMARY: BORING NO. D-308

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 3/20-21/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	GRAPHIC SYMBOL			PIEZOMETER	BLOWS/6 IN.	LAB TESTS	DRY DENSITY	MOISTURE	ATTERBERG LIMITS
18	0				FILL SAND (loose)	brown; fine to medium; trace silt; no bedding evident; (SP)						
		B	1		ALLUVIUM SANDY SILT (medium dense)	mottled gray, brown; fine sand; scattered roots and branches; no bedding evident; (ML) grades to laminated with clayey silt						
	5	RD	2					5 9 9				
10		SPT	3		SAND (medium dense)	dark gray; fine to medium; trace silt; occasional laminations of sandy silt; very moist to wet; (SP) scattered fine gravel, subrounded (P2)4/25/85 (P1) 4/25/85		16 12 9	G		11%	
	10	RD	4					6 7 7				
		SPT	5		SANDY SILT (very loose)	gray; fine to medium; thinly bedded with sand; (ML)		0 0 1	G		31%	
	15	RD	6		SAND (medium dense)	dark gray; fine to medium; trace silt; scattered sandstone fragments; occ. thin laminations of clayey silt; wet; (SP)		12 13 16	G		23% 102	
0		SPT	7		BEDROCK SANDSTONE (medium hard to hard)	dark green; fine; unweathered; occasional thin laminations of organic debris at 50° from horizontal; widely fractured		50/ 3"				
			1	100/100								
	20											

(Continued)

SAMPLE TYPES

- B — GRAB SAMPLE - HAND COLLECTED FROM AUGER OR PIT
- M — BAILER SAMPLE - MIXED AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 3"O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2"O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SS — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3"O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3"O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

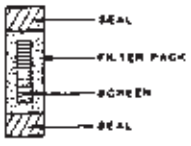
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — MINI VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 84-5226

Converse Consultants — Geotechnical Engineering and Applied Sciences

Drawing No. A-9

SUMMARY: BORING NO. D-308

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 3/20-21/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	RUN NUMBER	% REC. / RQD %		PIEZOMETER	BLOWS/6 IN	LAB TESTS	MOISTURE / DRY DENSITY	ATTERBERG LIMITS
	20	1	100/100	BEDROCK SANDSTONE (medium hard to hard) at 40° to 60° from horizontal; planar; rough; clean to clay filled; carbonized organic debris and rounded pebble clasts oriented at 50° from horizontal medium to widely fractured at 20° to 30° from horizontal				UC	126
	25	2	100/68	widely fractured					
10									
	30	3	100/100						
	35	4	100/100						
20									
		5	100/0						
	40								

SAMPLE TYPES

- B — GRAB SAMPLE - HAND COLLECTED FROM AUGER OR BIT
- M — BAILER SAMPLE - MIXED AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 3" O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2" O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SS — SPT. EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3" O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3" O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

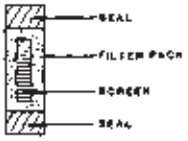
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — MINI VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 84-5226

Converse Consultants — Geotechnical Engineering and Applied Sciences

Drawing No. A-10

SUMMARY: BORING NO. D-308

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 3/20-21/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN.	LAB TESTS	MOISTURE DRY DENSITY	ATTERBERG LIMITS
	40				Total depth, 40.0' Piezometer 1: 3/4" dia. PVC Screen depth: 12' to 15' Seal depth: 0' to 2' Piezometer 2: 3/4" dia. PVC Screen depth: 21' to 38' Seal depth: 17' to 21'					

SAMPLE TYPES

- B — BRASS SAMPLE - HAND COLLECTED FROM AUGER OR BIT
- W — BAILER SAMPLE - MIXED AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 3" O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2" O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SS — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3" O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SN — 3" O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

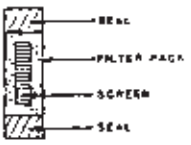
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — MINI VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 84-5226

Converse Consultants — Geotechnical Engineering and Applied Sciences

Drawing No. A-11

SUMMARY: BORING NO. D-310

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/12/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE / SAMPLE NO.	GRAPHIC SYMBOL			PIEZOMETER	BLOWS/6 IN	LAB TESTS	DRY DENSITY	MOISTURE	ATTERBERG LIMITS
21	0	B 1		FILL SAND (LOOSE)	GRAY-BROWN; FINE TO MEDIUM, TRACE COARSE; LITTLE SILT; TRACE FINE TO COARSE GRAVEL, SUBROUNDED TO ROUNDED; SCATTERED INCLUSIONS OF CLAYEY SILT; NO BEDDING EVIDENT; MOIST; (SM).						
	5	RD 2		SAND AND SILT (MEDIUM DENSE)	BROWN; FINE TO COARSE; TRACE FINE TO COARSE GRAVEL, SUBROUNDED TO ROUNDED; NO BEDDING EVIDENT; (SW-ML).		13 14 16	G	16% / 116		
		SPT 3					18 9 12				
				CLAYEY SILT (STIFF)	MOTTLED GRAY-BROWN; TRACE FINE TO COARSE SAND; NO BEDDING EVIDENT; (ML).						
	10	RD 4					7 10 15		34% / 82	LL 30 PL 28 PI 2	
10				ALLUVIUM SAND (DENSE)	DARK GRAY; FINE TO MEDIUM; TRACE SILT; LAMINATED TO THINLY BEDDED WITH BROWN SILT AND GRAY FINE SAND; WET; (SP/ML).						
		SPT 5					23 20 30				
						2/14/85					
	15	RD 6			NO BEDDING EVIDENT; (SP).	5/13/85	16 17 20	DS G	22% / 96		
		7 SPT		(VERY DENSE)	TRACE FINE TO COARSE GRAVEL, ROUNDED.		23 30 43				
	20				(CONTINUED)						

SAMPLE TYPES

- B — BRAS SAMPLE - HAND COLLECTED FROM AUGER OR PIT
- M — BAILER SAMPLE - MIXER AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 3"O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2"O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SS — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3"O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3"O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

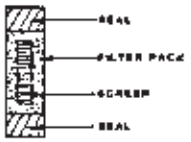
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — MIN VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

Drawing No. A-12

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

SUMMARY: BORING NO. D-310

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/12/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN.	LAB TESTS	DRY DENSITY	MOISTURE	ATTERBERG LIMITS
	20	RD	8		ALLUVIUM SAND (VERY DENSE)		20 28 39	G		26%	98
0		RD	9		DARK GRAY; FINE TO MEDIUM; TRACE SILT; INCLUSIONS OF BROWN CLAYEY SILT; SCATTERED TWIGS; NO BEDDING EVIDENT; WET; (SP/ML).		12 10 11	G		31%	88
	25										
		SPT	10		DARK GRAY; FINE TO MEDIUM; TRACE SILT; NO BEDDING EVIDENT; WET; (SP).		21 32 38				
	30										
-10											
		RD	11		FINE, TRACE MEDIUM.		15 13 14	G		40%	81
	35										
	40				(CONTINUED)						

SAMPLE TYPES

- B — BRAS SAMPLE - HAND COLLECTED FROM AUGER OR PIT
- M — BAILER SAMPLE - MESH AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 2" O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 340 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2" O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- 3S — SPT, EXCEPT DRIVEN WITH 340 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3" O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3" O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

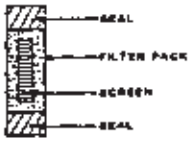
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — MINI VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

Drawing No. A-13

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

SUMMARY: BORING NO. D-310

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/12/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN.	LAB TESTS	MOISTURE DRY DENSITY	ATTERBERG LIMITS
	40	SPT	12		ALLUVIUM SAND (VERY DENSE) GRADES COARSER.		19 26 38			
	-20				TOTAL DEPTH, 41.5 FEET. PIEZOMETER: THREE INCH DIAMETER PVC. SCREEN DEPTH: 20 TO 35 FEET. SEAL DEPTH: 3 TO 8 FEET.					
	-45									

SAMPLE TYPES

- B — BRAS SAMPLE – HAND COLLECTED FROM AUGER OR PIT
- M — BAKER SAMPLE – MIXED AND HAND COLLECTED
- C — CUTTING SAMPLE – HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 3"O.D. SPLIT BARREL RING SAMPLER – DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2"O.D. SPLIT SPOON SAMPLER – DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SS — SPT. EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER – 3"O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- 3H — 3"O.D. THIN WALLED SHELBY TUBE – PUSHED WITH HYDRAULICS

MOISTURE CONTENT – PERCENT OF DRY WEIGHT
DRY DENSITY – POUNDS PER CUBIC FOOT

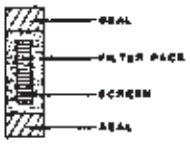
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — MINI VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

Drawing No. A-14

SUMMARY: BORING NO. D-312

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/12/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE / SAMPLE NO.	GRAPHIC SYMBOL			PIEZOMETER	BLOWS/6 IN.	LAB TESTS	DRY DENSITY	MOISTURE	ATTERBERG LIMITS
13	0	B 1		FILL SAND (LOOSE)	GRAY–BROWN; FINE TO MEDIUM; LITTLE FINE TO COARSE GRAVEL, ROUNDED; TRACE TO LITTLE SILT; NO BEDDING EVIDENT; MOIST; (SP); SURFACE CONDITIONS, ASPHALT CONCRETE, ABUNDANT COBBLES, 0 TO 15 FEET. SAND AND GRAVEL, 3.5 TO 4.5 FEET.						
	5	RD 2		ALLUVIUM CLAYEY SILT (FIRM)	GRAY; IRON OXIDE STAINED; SCATTERED ROOTS; NO BEDDING EVIDENT; (ML). 2/14/85			5 4 5		33% 85	LL 36 PL 31 PI 5
		SPT 3		SILTY SAND (MEDIUM DENSE)	GRAY; FINE; THINLY LAMINATED TO LAMINATED WITH SILT; WET; (SM/ML). 5/13/85			6 8 10			
	10	RD 4		SAND (MEDIUM DENSE)	DARK GRAY; FINE TO MEDIUM; TRACE TO LITTLE SILT; NO BEDDING EVIDENT; WET; (SP).			6 6 4	G	23% 92	
0		SPT 5						4 5 18			
	15	RD 6			WITH SCATTERED BROKEN BRANCHES AND TWIGS.			8 12 17	DS G	38% 83	
		SPT 7			WITH THIN BEDS OF BROWN CLAYEY SILT.			8 13 16	G	26%	
	20				(CONTINUED)						

SAMPLE TYPES

- B — BRAB SAMPLE – HAND COLLECTED FROM AUGER OR PIT
- M — BAGGED SAMPLE – MIXED AND HAND COLLECTED
- C — CUTTING SAMPLE – HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 2"O.D. SPLIT BARREL RING SAMPLER – DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2"O.D. SPLIT SPOON SAMPLER – DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- 33 — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER – 3"O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3"O.D. THIN WALLED SHELBY TUBE – PUSHED WITH HYDRAULICS

MOISTURE CONTENT – PERCENT OF DRY WEIGHT
DRY DENSITY – POUNDS PER CUBIC FOOT

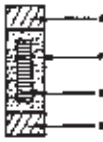
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — MINI VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED–UNDRAINED TRIAXIAL
- CU — CONSOLIDATED–UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No.
275-05G

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

Drawing No.
A-15

SUMMARY: BORING NO. D-312

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/12/85

APPROX. ELEV. (MSL) / DEPTH (FT.)	SAMPLE TYPE / SAMPLE NO.	GRAPHIC SYMBOL	DESCRIPTION	PIEZOMETER	BLOWS/6 IN.	LAB TESTS	DRY DENSITY	MOISTURE	ATTERBERG LIMITS
20	RD 8		ALLUVIUM SAND (MEDIUM DENSE)		8 10 12	G		28% 89	
-10	RD 9				16 15 21				
-25	SPT 10		ONE INCH DIAMETER ROOT.		12 12 18	G		32%	
-30									
-20									
-35	RD 11				10 15 15				
40			TOTAL DEPTH, 35.5 FEET. PIEZOMETER: THREE QUARTER INCH DIAMETER PVC. SCREEN DEPTH: 20 TO 30 FEET. SEAL DEPTH: 3 TO 8 FEET.						

SAMPLE TYPES

- B — BAG SAMPLE - HAND COLLECTED FROM AUGER OR BIT
- M — BARLER SAMPLE - MIXED AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 3"O.D. SPLIT BARREL PIPE SAMPLER - DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2"O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- 33 — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3"O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3"O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

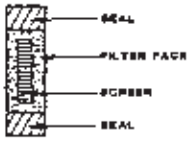
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — MINI VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

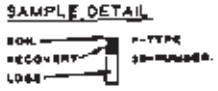
ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL



RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

Drawing No. A-16

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

SUMMARY: BORING NO. D-315

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/15/85

APPROX. ELEV. (MSL)	DEPTH (FT)	SAMPLE TYPE / SAMPLE NO.	GRAPHIC SYMBOL			PIEZOMETER	BLOWS/6 IN	LAB TESTS	MOISTURE	DRY DENSITY	ATTERBERG LIMITS
13	0			FILL SAND (LOOSE)	DARK BROWN; FINE TO MEDIUM, TRACE COARSE; TRACE FINE GRAVEL, ROUNDED; TRACE SILT ; NO BEDDING EVIDENT; MOIST; (SP); SURFACE CONDITIONS, ASPHALT CONCRETE.						
		B 1									
10					SCATTERED BRICK PIECES.						
	5	RD 2			WITH INCLUSIONS OF CLAYEY SILT.			7 7 4	G	15% 107	
		SPT 3		SILT (LOOSE)	GRAY; LITTLE FINE SAND, TRACE MEDIUM TO COARSE; SCATTERED FINE GRAVEL; SCATTERED ROOTS; NO BEDDING EVIDENT; (ML).	1/31/85		4 4 2	G	28%	
	10	RD 4		ALLUVIUM SAND (LOOSE)	GRAY; FINE TO MEDIUM; TRACE SILT; INCLUSIONS OF SANDY SILT; WET; (SP/ML).			1 4 5			
0		SPT 5		SILTY SAND (MEDIUM DENSE)	DARK GRAY; FINE; SCATTERED TWIGS AND ROOTS; THINLY BEDDED WITH FINE TO MEDIUM SAND; WET; (SM/SP).			7 13 15	G	28%	
	15	RD 6		SAND (MEDIUM DENSE)	DARK GRAY; FINE TO MEDIUM; TRACE SILT; NO BEDDING EVIDENT; WET, (SP).			7 11 18			
		SPT 7		(VERY DENSE)	FINER GRAINED.			15 19 33	G	25%	
	20				(CONTINUED)						

SAMPLE TYPES

- B — BRAS SAMPLE - HAND COLLECTED FROM AUGER OR PIT
- M — MAILER SAMPLE - MIXED AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 3"O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 1"O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SS — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 4"O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 4"O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

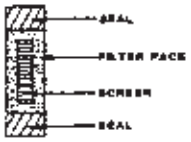
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — IN-SITU VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

Drawing No. A-17

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

SUMMARY: BORING NO. D-315

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/15/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE / SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN	LAB TESTS	MOISTURE / DRY DENSITY	ATTERBERG LIMITS
	20	RD 8		ALLUVIUM SAND (VERY DENSE)		15 20 30			
-10		RD 9		THINLY BEDDED WITH SANDY SILT.		12 12 12	G	30% 93	
	25								
		SPT 10		NO BEDDING EVIDENT.		10 28 50 5"	G	22%	
	30								
-20									
		RD 11				11 12 14			
	35								
	40			DESCRIPTION ON FOLLOWING PAGE.					

SAMPLE TYPES

- B — BAG SAMPLE - HAND COLLECTED FROM AUGER OR PIT
- M — BAILER SAMPLE - MIXED AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 3"O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2"O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SS — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3"O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3"O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — MINI VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL

SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

Drawing No. A-18

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

SUMMARY: BORING NO. D-315

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/15/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN	LAB TESTS	MOISTURE DRY DENSITY	ATTERBERG LIMITS
	40	SPT	12		ALLUVIUM SILTY SAND (MEDIUM DENSE) DARK GRAY; FINE; SCATTERED ORGANIC FIBERS; NO BEDDING EVIDENT; WET; (SM).		5 4 9			
-30										
	45	RD	13				14 12 14			
	50	SPT	14				9 10 12			
-40					TOTAL DEPTH, 51.5 FEET. PIEZOMETER: THREE INCH DIAMETER PVC. SCREEN DEPTH: 10.0 TO 30.0 FEET. SEAL DEPTH: 3.0 TO 8.0 FEET.					
	55									

SAMPLE TYPES

- B — BRAB SAMPLE – HAND COLLECTED FROM AUGER OR PIT
- M — BAILER SAMPLE – MIXED ARE HAND COLLECTED
- C — CUTTING SAMPLE – HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 3"O.D. SPLIT BARREL RING SAMPLER – DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2"O.D. SPLIT SPOON SAMPLER – DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SS — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER – 3"O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3"O.D. THIN WALLED SHELBY TUBE – PUSHED WITH HYDRAULICS

MOISTURE CONTENT – PERCENT OF DRY WEIGHT
DRY DENSITY – POUNDS PER CUBIC FOOT

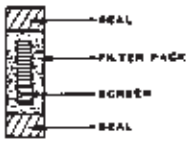
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — MINI VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED–UNDRAINED TRIAXIAL
- CU — CONSOLIDATED–UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

Drawing No. A-19

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

SUMMARY: BORING NO. DW-316

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED 1/16-17/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN.	LAB TESTS	DRY DENSITY	MOISTURE	ATTERBERG LIMITS
	20	M	5		**ALLUVIUM** **SAND** (dense) — grades to little silt; scattered pumice and wood						
-10											
	25	M	6		grades to trace to little silt; with layers of peat and wood				G		
		M	7		grades to fine, trace medium				G		
	30	M	8								
		M	9						G		
-20											
	35	M	10		**SILTY SAND** (very dense) — gray; fine; scattered wood; thinly bedded with fine to medium sand; wet; (SM)						
		M	11		**SANDY SILT** (medium dense) — gray; fine sand; scattered wood; thinly bedded with fine to medium sand; (ML/SP)				G		
	40	M	12								

SAMPLE TYPES

- B — GRAB SAMPLE - HAND COLLECTED FROM AUGER OR PIT
- M — BAKER SAMPLE - MIXED AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RO — 3"O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2"O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SS — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 14" DROP
- P — PITCHER SAMPLER - 3"O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3"O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

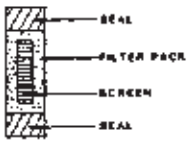
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — MINI VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 84-5226

Drawing No. A-21

Converse Consultants — Geotechnical Engineering and Applied Sciences

SUMMARY: BORING NO. D-317

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 6/17 - 6/18/84

ELEV. (FT)	DEPTH (FT)	SAMPLE TYPE / SAMPLE NO.	GRAPHIC SYMBOL			PIEZOMETER	BLOWS/6 IN	LAB TESTS	DRY DENSITY	MOISTURE	ATTERBERG LIMITS
13		B 1		FILL SAND (LOOSE)	LIGHT BROWN; FINE TO MEDIUM; TRACE SILT; TRACE FINE TO COARSE GRAVEL, ROUNDED; TRACE INCLUSIONS OF GRAY SILT ; NO BEDDING EVIDENT; MOIST; (SP).						
	5	RD 2		SILTY SAND (LOOSE)	LIGHT BROWN; FINE TO MEDIUM; SCATTERED INCLUSIONS OF SILT; NO BEDDING EVIDENT; MOIST TO WET; (SM).			5 4 4			
					2/15/85						
					7/12/84						
	10	RD 3		ALLUVIUM SAND (VERY LOOSE)	GRAY; FINE, TRACE MEDIUM; TRACE SILT; TRACE FINE GRAVEL; SCATTERED INCLUSIONS OF SILT; NO BEDDING EVIDENT; WET; (SP).			0 0 0			
0		RD 4		(LOOSE)	DARK GRAY; FINE TO MEDIUM.			5 7 8	G	27% / 98	
	15	SPT 5		(DENSE)				15 17 14			
		RD 6						7 12 14			
	20	SPT 7						15 25 27			

(CONTINUED)

NOTE: SEE BORING LEGEND FOR EXPLANATION OF SYMBOLS, AND CLASSIFICATION SYSTEM.

RENTON EFFLUENT TRANSFER SYSTEM
King County, Washington
for METRO

GRC Project No.
275-4G

Drawing No.
A-23

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

SUMMARY: BORING NO. D-317

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 6/17 - 6/18/84

ELEV. (FT)	DEPTH (FT)	SAMPLE TYPE / SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN	LAB TESTS	MOISTURE / DRY DENSITY	ATTERBERG LIMITS
		RD 16		ALLUVIUM SANDY SILT (MEDIUM DENSE) GRAY; FINE SAND, TRACE MEDIUM; NO BEDDING EVIDENT; (ML).		4 6 9	G	31% 92	
				TOTAL DEPTH, 46.5 FEET.					
				PIEZOMETER: THREE INCH DIAMETER PVC. SCREEN DEPTH: 35.0 TO 45.0 FEET.					
	50								

NOTE: SEE BORING LEGEND FOR EXPLANATION OF SYMBOLS, AND CLASSIFICATION SYSTEM.

RENTON EFFLUENT TRANSFER SYSTEM
King County, Washington
for METRO

GRC Project No.
275-4G

Drawing No.
A-25

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineer

SUMMARY: BORING NO. D-322

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/16/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	GRAPHIC SYMBOL			PIEZOMETER	BLOWS/6 IN	LAB TESTS	MOISTURE DRY DENSITY	ATTERBERG LIMITS
	0	RD	7		ALLUVIUM SILT (LOOSE)	GRAY-BROWN; LITTLE FINE SAND; SCATTERED ROOTS AND ORGANIC FIBERS; NO BEDDING EVIDENT; (ML).		2 3 5	DS C	41% / 80	
						TOTAL DEPTH, 21.5 FEET.					
						PIEZOMETER: THREE INCH DIAMETER PVC. SEAL DEPTH: 3 TO 8 FEET. SCREEN DEPTH: 10 TO 20 FEET.					
	25										

SAMPLE TYPES

- B — BRAB SAMPLE - HAND COLLECTED FROM AUGER OR PIT
- M — BAILER SAMPLE - WATER AND MUD COLLECTED
- C — CUTTING SAMPLE - MUD COLLECTED FROM DRILL FLUID RETURN
- RD — 3"O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2"O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. AIRFACE HAMMER WITH 30" DROP
- BC — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3"O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3"O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

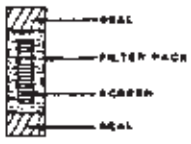
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — SHEAR VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

Drawing No. A-27

SUMMARY: BORING NO. DM-327

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/17-22/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE / SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN	LAB TESTS	MOISTURE / DRY DENSITY	ATTERBERG LIMITS
	20	SS 7		ALLUVIUM SILTY SAND (medium dense)		NA			
	25	SS 8		SAND (medium dense) dark gray; fine to medium; trace to little silt; no bedding evident; wet; (SP)		NA			
-10									
	30	SS 9				NA			
				grades finer					
	35	SS 10				NA			
-20				Total depth, 36.5' Piezometer: 4" dia. PVC Screen depth: 10' to 30' Seal depth: 0' to 5'					

SAMPLE TYPES

- B — BRAB SAMPLE - HAND COLLECTED FROM AUGER OR BIT
- M — BAKER SAMPLE - MIXED AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 2"O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2"O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SS — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3"O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3"O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

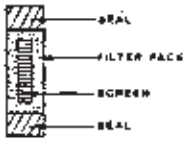
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — MINI VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

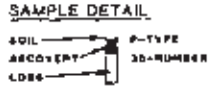
ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL



RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 84-5226

Converse Consultants — Geotechnical Engineering and Applied Sciences

Drawing No. A-29

SUMMARY: BORING NO. DM-329

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 7-5-84

ELEV. (FT)	DEPTH (FT)	SAMPLE TYPE / SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN	LAB TESTS	DRY DENSITY	MOISTURE	ATTERBERG LIMITS
				ALLUVIUM. SAND (Medium dense) scattered fine gravel; no bedding evident						
	25	SS 8					NA			
-10										
	30	SS 9		(Dense)			NA			
		C 10		occasional thin beds of brown, sandy silt						
	35									
-20										
				gray; fine; little silt; medium bedded with fine sandy silt; wet (SM/ML)						
	40	SS 11					NA			
				Total depth, 41.5' Piezometer: 4-inch diameter PVC Screen depth: 15.3 to 35.3' Seal depth: 0.0 to 9.1'						
	45									

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 84-5164

Converse Consultants — Geotechnical Engineering and Applied Sciences

Drawing No. A-31

SUMMARY: BORING NO. DM-335

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/23/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN	LAB TESTS	MOISTURE DRY DENSITY	ATTERBERG LIMITS
	20	SS	7		ORGANIC SILT		NA			
					SILTY SAND (medium dense) — gray-brown; fine; scattered organics; no bedding evident; wet; (SM)					
	25	SS	8		SAND (medium dense) — gray-brown; fine to medium; trace to little silt; scattered fine to coarse gravel, subrounded; scattered organics; no bedding evident; wet; (SP)		NA			
-10										
	30	SS	9		dark gray; fine to medium; trace silt		NA			
	35	SS	10				NA			
-20					Total depth, 36.5' Piezometer: 4" dia. PVC Screen depth: 10' to 30' Seal depth: 0' to 5'					

SAMPLE TYPES

- B — BRAB SAMPLE – HAND COLLECTED FROM AUGER OR PIT
- M — BAILER SAMPLE – MIXED AND HAND COLLECTED
- C — CUTTING SAMPLE – HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 3"O.D. SPLIT BARREL RING SAMPLER – DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 1"O.D. SPLIT SPOON SAMPLER – DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SS — 3PT. EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER – 3"O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3"O.D. THIN WALLED SHELBY TUBE – PUSHED WITH HYDRAULICS

MOISTURE CONTENT – PERCENT OF DRY WEIGHT
DRY DENSITY – POUNDS PER CUBIC FOOT

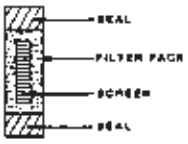
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — MIN VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 84-5226

Converse Consultants — Geotechnical Engineering and Applied Sciences

Drawing No. A-33

SUMMARY: BORING NO. D-340

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 7-7-84

ELEV. (FT)	DEPTH (FT)	SAMPLE TYPE / SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN	LAB TESTS	DRY DENSITY	MOISTURE	ATTERBERG LIMITS
		RD 7		ALLUVIUM SAND (Dense)		9 7 9				
-10	25	RD 8				17 19 21	G		25% 96	
				scattered organic fibers, roots, and broken twigs						
	30	RD 9				14 20 30				
-20	35	RD 10				7 8 12				
		SPT 11		(Medium dense) trace coarse sand; no organics		16 9 4				
	40	RD 12		medium bedded with silt		3 4 12				
-30	45			Total depth, 41.5' Piezometer: 3-inch diameter PVC Screen depth: 31.5 to 41.5' Seal depth: 8.0 to 10.0'						

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 84-5164

Converse Consultants — Geotechnical Engineering and Applied Sciences

Drawing No. A-35

SUMMARY: BORING NO. D-348

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/22/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE / SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN	LAB TESTS	DRY DENSITY	MOISTURE	ATTERBERG LIMITS
	20	RD 8		ALLUVIUM ORGANIC SILT (VERY LOOSE)		20 18 16				
	-10	RD 9		SAND (DENSE) DARK GRAY; FINE TO MEDIUM; TRACE SILT; NO BEDDING EVIDENT; WET; (SP).		15 19 21	DS G		25% 96	
	-25	SPT 10		(VERY DENSE)		13 26 30				
	-30									
	-20									
	-35	RD 11		SCATTERED ORGANIC FIBERS.		18 20 25				
	-40			TOTAL DEPTH: 35.5 FEET. PIEZOMETER: THREE INCH DIAMETER PVC. SCREEN DEPTH: 20 TO 30 FEET. SEAL DEPTH: 3.0 TO 8.0 FEET.						

SAMPLE TYPES

- B — BAG SAMPLE – HAND COLLECTED FROM AUGER OR PIT
- M — BAILER SAMPLE – MIXED AND HAND COLLECTED
- C — CUTTING SAMPLE – HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 2"O.D. SPLIT BARREL PIPE SAMPLER – DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2"O.D. SPLIT WOOD SAMPLER – DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SS — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER – 3"O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3"O.D. THIN WALLED SHELBY TUBE – PUSHED WITH HYDRAULICS

MOISTURE CONTENT – PERCENT OF DRY WEIGHT
DRY DENSITY – POUNDS PER CUBIC FOOT

LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL

SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

Drawing No. A-37

SUMMARY: BORING NO. D-352

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/22/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE / SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN	LAB TESTS	DRY DENSITY	MOISTURE	ATTERBERG LIMITS
	20	RD 8		ALLUVIUM SILT (LOOSE)		1 2 3	G		39% 81	
-10		RD 9				2 3 3				
	25									
		SPT 10		SAND (DENSE)	DARK GRAY; FINE TO COARSE; TRACE SILT; NO BEDDING EVIDENT; WET; (SW).	10 17 27				
	30									
-20					DARK GRAY; FINE TO MEDIUM, TRACE COARSE; TRACE SILT; SCATTERED TWIGS AND PIECES OF BARK; NO BEDDING EVIDENT; WET; (SP).					
		RD 11				20 22 29				
	35									
	40									

TOTAL DEPTH, 35.5 FEET.

PIEZOMETER:

THREE QUARTER INCH DIAMETER PVC.
SCREEN DEPTH: 20 TO 30 FEET.
SEAL DEPTH: 3 TO 8 FEET.

SAMPLE TYPES

- B — BRAS SAMPLE - HAND COLLECTED FROM AUGER OR PIT
- M — SHELBY SAMPLE - MEED AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 2"O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2"O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- DO — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3"O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3"O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — VAN PANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL

SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

Drawing No. A-39

SUMMARY: BORING NO. D-354

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 5/1/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	GRAPHIC SYMBOL	DESCRIPTION	PIEZOMETER	BLOWS/6 IN	LAB TESTS	MOISTURE-DRY DENSITY	ATTERBERG LIMITS
	40	SPT	8		ALLUVIUM SAND (MEDIUM DENSE) — FINE; THINLY LAMINATED TO THINLY BEDDED WITH SILT AND SANDY SILT.		4 10 14	G	34%	
	45	SPT	9		WITH SCATTERED ORGANIC FIBERS.		10 14 15			
	50	SPT	10				8 7 10			
	55	SPT	11		SILTY SAND (MEDIUM DENSE) — GRAY; FINE; SCATTERED ORGANIC FIBERS; THINLY LAMINATED TO THINLY BEDDED WITH SANDY SILT AND CLAYEY SILT; WET; (SM/ML).		0 11 7	G	30%	
	60				DESCRIPTION ON FOLLOWING PAGE.					

SAMPLE TYPES

- B — BRASS SAMPLE – HAND COLLECTED FROM AUGER OR PIT
- M — MOLDED SAMPLE – SHAPED AND HAND COLLECTED
- C — CUTTING SAMPLE – HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 2" O.D. SPLIT BARREL, RING SAMPLER – DRIVEN WITH 140 LB. DROP HOLE SLIP-JAR HAMMER
- SPT — 2" O.D. SPLIT SPOON SAMPLER – DRIVEN WITH 140 LB. DRIVING HAMMER WITH 30" DROP
- DS — SPT, EXCEPT DRIVEN WITH 300 LB. DROP HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER – 3" O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3" O.D. THIN WALLED SHELBY TUBE – PUSHED WITH HYDRAULICS

MOISTURE CONTENT – PERCENT OF DRY WEIGHT
DRY DENSITY – POUNDS PER CUBIC FOOT

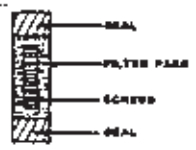
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — MINI VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

Drawing No. A-42

SUMMARY: BORING NO. D-354

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 5/1/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE / SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN.	LAB TESTS	MOISTURE / DRY DENSITY	ATTERBERG LIMITS
	60	SPT 12		**ALLUVIUM** SILT (LOOSE) — GRAY-BROWN; TRACE FINE SAND; THINLY LAMINATED, OCCASIONAL THIN LAMINATIONS OF FINE TO MEDIUM SAND; (ML).		1 2 3			
	65	SPT 13		**ESTUARINE DEPOSITS** SAND (VERY DENSE) — GRAY-GREEN; FINE TO MEDIUM; LITTLE SILT; SCATTERED SHELL FRAGMENTS; NO BEDDING EVIDENT; WET; (SM).		23 35 38			
	70	SPT 14				50/4"			
	75	SPT 15		FINE TO COARSE, LITTLE FINE TO COARSE GRAVEL, ROUNDED.		34 50/3"			
	80			TOTAL DEPTH, 75.8 FEET.					

PIEZOMETER:

THREE INCH DIAMETER PVC.
SCREEN DEPTH: 25 TO 45 FEET.
SEAL DEPTH: 3 TO 6 FEET.

SAMPLE TYPES

- B — BULK SAMPLE – HAND COLLECTED FROM AUGER OR PIT
- M — BARLER SAMPLE – SIEVE AND HAND COLLECTED
- C — CUTTING SAMPLE – HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 2"O.D. SPLIT BARREL RING SAMPLER – DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2"O.D. SPLIT SPOON SAMPLER – DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SS — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER – 3"O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3"O.D. THIN WALLED SHELBY TUBE – PUSHED WITH HYDRAULICS

MOISTURE CONTENT – PERCENT OF DRY WEIGHT
DRY DENSITY – POUNDS PER CUBIC FOOT

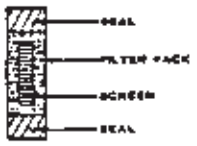
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — VANE TAKE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

Drawing No. A-43

SUMMARY: BORING NO. D-355

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/22/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE / SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN	LAB TESTS	MOISTURE DRY DENSITY	ATTERBERG LIMITS
	20	RD 8		ALLUVIUM SAND (LOOSE) GRAY; FINE; TRACE SILT; THINLY LAYERED WITH SILTY FINE SAND; WET; (SP/SM).		5 5 6	G	24%	
		RD 9		(DENSE) DARK GRAY; FINE TO MEDIUM; TRACE SILT; NO BEDDING EVIDENT; WET; (SP).		11 18 24			
-10	25								
		SPT 10				11 18 20			
	30								
		RD 11		GRAY; FINE.		11 12 13			
-20	35								
				TOTAL DEPTH, 35.5 FEET. PIEZOMETER: THREE QUARTER INCH DIAMETER PVC. SCREEN DEPTH: 20 TO 30 FEET. SEAL DEPTH: 3 TO 8 FEET.					
	40								

SAMPLE TYPES

- B — GRAB SAMPLE - HAND COLLECTED FROM AUGER OR PIT
- M — MARLED SAMPLE - MIXED AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 4" O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2" O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SB — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3" O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- 3H — 3" O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

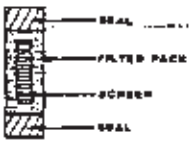
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — VAN PANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

Drawing No. A-45

SUMMARY: BORING NO. D-358

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/23/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN	LAB TESTS	MOISTURE	DRY DENSITY	ATTERBERG LIMITS
	20	RD	8		ALLUVIUM SAND (MEDIUM DENSE) DARK GRAY; NO BEDDING EVIDENT.		5 7 10	G		25%	
-10		RD	9		FINE TO MEDIUM, TRACE COARSE.		11 17 21				
	25										
		SPT	10		(VERY DENSE)		9 17 34				
	30										
-20											
		RD	11		FINE; SCATTERED TWIGS.		15 14 19				
	35										
	40				DESCRIPTION ON FOLLOWING PAGE						

SAMPLE TYPES

- B — BULK SAMPLE - HAND COLLECTED FROM AUGER OR PIT
- M — BAILER SAMPLE - MUDDY AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 3" O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2" O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SG — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3" O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3" O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

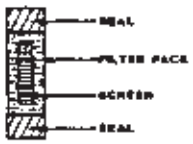
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — VAN VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

Drawing No. A-47

SUMMARY: BORING NO. D-361

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/23/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN	LAB TESTS	MOISTURE DRY DENSITY	ATTERBERG LIMITS
	20	RD	8		**ALLUVIUM** SAND (MEDIUM DENSE) — NO BEDDING EVIDENT.		9 10 14	G	32%	
-10		RD	9				5 12 15			
	25									
		SPT	10		(VERY DENSE)		19 27 31			
	30									
-20					FINE.					
		RD	11		SCATTERED ROOTS.		9 19 20			
	35									
					SAND AND SILT (MEDIUM DENSE) — GRAY; FINE SAND; SCATTERED ORGANIC FIBERS; NO BEDDING EVIDENT; (SP-ML).					
	40				(CONTINUED)					

SAMPLE TYPES

- B — BAG SAMPLE - HAND COLLECTED FROM AUGER OR PIT
- M — BAGGER SAMPLE - MECH AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURNS
- RD — 3"O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 300 LB. DOWN HOLE SLIDE-JAR HAMMER
- SPT — 2"O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SS — API, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIDE-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3"O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING HEADS
- SH — 3"O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

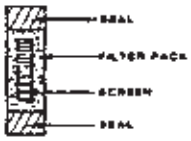
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — MINI VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

Drawing No. A-50

SUMMARY: BORING NO. D-361

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/23/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN	LAB TESTS	MOISTURE DRY DENSITY	ATTERBERG LIMITS
	40	RD	12		ALLUVIUM SAND AND SILT (MEDIUM DENSE)		11 10 19			
	-30				TOTAL DEPTH, 41.5 FEET. PIEZOMETER: THREE INCH DIAMETER PVC. SCREEN DEPTH: 20 TO 30 FEET. SEAL DEPTH: 13 TO 18 FEET.					
	45									

SAMPLE TYPES

- B — BULK SAMPLE - HAND COLLECTED FROM AUGER OR PIT
- M — BAILER SAMPLE - MIXED AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 3"O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 300 LB. BORE HOLE SLIP-JAR HAMMER
- SPT — 2"O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- DS — SPT, EXCEPT DRIVEN WITH 300 LB. BORE HOLE SLIP-JAR HAMMER WITH 30" DROP
- P — PITCHER SAMPLER - 3"O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3"O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

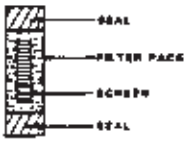
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

Drawing No. A-51

SUMMARY: BORING NO. D-369

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 7-9-84

ELEV. (FT)	DEPTH (FT)	SAMPLE TYPE / SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN	LAB TESTS	MOISTURE / DRY DENSITY	ATTERBERG LIMITS
		SPT 5		**ALLUVIUM** **SAND** (Medium dense) dark gray; fine to medium, trace coarse; trace fine gravel, sub-rounded; trace silt; no bedding evident; wet (SP)		13 13 14	G	22%	
-10	25	RD 6				13 15 22			
	30	RD 7		(Dense)		14 20 38			
-20	35	RD 8		dark gray; fine, trace medium; some silt; scattered broken twigs; thinly laminated; wet (SM)		9 11 20	G	28% / 95	
				SAND AND SILT (Medium dense) gray-brown; fine sand; no bedding evident; wet (SP-ML)					
	40	RD 9				6 6 8			
-30				**SAND** (Dense) (description on following page)					
	45								

continued

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 84-5164

Converse Consultants — Geotechnical Engineering and Applied Sciences

Drawing No. A-53

SUMMARY: BORING NO. D-376

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/24/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN	LAB TESTS	DRY DENSITY	MOISTURE	ATTERBERG LIMITS
	20	RD	8		ALLUVIUM SILTY SAND (LOOSE)		3 3 4				
		RD	9		SAND (MEDIUM DENSE) GRAY; FINE; LITTLE SILT; SCATTERED ORGANIC FIBERS; OCCASIONAL BEDS OF SILT; THINLY LAMINATED; WET; (SM).		5 6 6	G		31% 92	
	25										
-10											
		SPT	10		(DENSE) DARK GRAY; FINE; TRACE SILT; LAMINATED TO THINLY BEDDED WITH SILT; WET; (SP/ML).		5 17 21	G		34%	
	30										
	35	RD	11		TOTAL DEPTH, 36.5 FEET.		7 9 16				
-20											
	40										

PIEZOMETERS:
THREE-QUARTER INCH DIAMETER PVC.
PIEZOMETER 1:
SCREEN DEPTH: 10 TO 15 FEET.
SEAL DEPTH: 3 TO 7 FEET.
PIEZOMETER 2:
SCREEN DEPTH: 25 TO 35 FEET.
SEAL DEPTH: 15 TO 20 FEET.

SAMPLE TYPES

- B — BAG SAMPLE - HAND COLLECTED FROM AUGER OR PIT
- M — BARREL SAMPLE - MECH AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURNS
- RD — 3" O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2" O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SB — SPT. EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3" O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3" O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

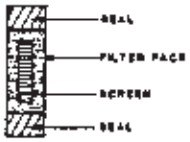
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — WING VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

Drawing No. A-56

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

SUMMARY: BORING NO. D-379

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/24/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE / SAMPLE NO.	GRAPHIC SYMBOL			PIEZOMETER	BLOWS/6 IN.	LAB TESTS	MOISTURE / DRY DENSITY	ATTERBERG LIMITS
16	0	B 1		FILL SAND	DARK GRAY-BROWN; FINE TO MEDIUM; TRACE SILT; NO BEDDING EVIDENT; MOIST; (SP); SURFACE CONDITIONS, ASPHALT CONCRETE.					
	5									
10					DARK GRAY; OCCASIONAL INCLUSIONS OF CLAYEY SILT.					
		SPT 2		(DENSE)			6 11 20	G	12%	
	10	RD 3					14 11			
		RD 4					10 10 6 6			
						2/15/85 3/6/85				
				CLAYEY SILT (STIFF)	GRAY; SOME FINE TO COARSE GRAVEL; ROUNDED; TRACE FINE TO MEDIUM SAND; NO BEDDING EVIDENT; (ML).					
	15	RD 5		GRAVEL (LOOSE)	GRAY-BROWN; FINE TO COARSE, ROUNDED; LITTLE FINE TO COARSE SAND; LITTLE CLAYEY SILT; NO BEDDING EVIDENT; WET; (GM).		4 4 6			
0		SPT 6		SILTY CLAY (HARD)	LIGHT BROWN; NO BEDDING EVIDENT; (CH).		13 15 19		28%	LL 51 PL 27 PI 24
					DESCRIPTION ON FOLLOWING PAGE.					
20										

SAMPLE TYPES

- B — BRAB SAMPLE - HAND COLLECTED FROM AUGER OR PIT
- M — BARLEY SAMPLE - MIXED AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 2" O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2" O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SS — SPT. EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3" O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3" O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — MINI VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL

SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

Drawing No. A-57

SUMMARY: BORING NO. D-379

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/24/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN	LAB TESTS	DRY DENSITY	MOISTURE	ATTERBERG LIMITS
	40	RD	13		ALLUVIUM SAND (VERY DENSE)		26 39 39				
		RD	14				39 28 40				
	45				TOTAL DEPTH, 44.3 FEET.						
-30					PIEZOMETER:						
					THREE INCH DIAMETER PVC, SCREEN DEPTH: 24 TO 39 FEET, SEAL DEPTH: 0 TO 29 FEET.						

SAMPLE TYPES

- B — BRAS SAMPLE - HAND COLLECTED FROM AUGER OR PIT
- M — BAILER SAMPLE - MIXED AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 6" O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 300 LB. DROP HOLE SLIP-JAR HAMMER
- SPT — 2" O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- SS — SPT, EXCEPT DRIVEN WITH 300 LB. DROP HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3" O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3" O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

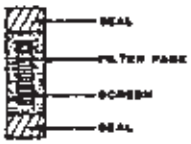
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — VAN VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

Drawing No. A-59

SUMMARY: BORING NO. D-382

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/25/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE / SAMPLE NO.	GRAPHIC SYMBOL			PIEZOMETER	BLOWS/6 IN	LAB TESTS	MOISTURE DRY DENSITY	ATTERBERG LIMITS
	20	RD 8		ALLUVIUM SILT AND SAND (LOOSE TO MEDIUM DENSE)	GRAY; FINE SAND; SCATTERED ORGANIC FIBERS; THINLY LAMINATED; (ML-SP).		3 4 5			
		RD 9			LITTLE SILT;		6 7 9			
-10	25	RD 10					6 7 33			
		RD 11		SAND (DENSE)	DARK GRAY; FINE, TRACE MEDIUM; TRACE SILT; NO BEDDING EVIDENT; WET; (SP).		28 20 30	DS 6	26% / 97	
	30			GLACIAL LACUSTRINE DEPOSITS CLAYEY SILT (VERY HARD)	GRAY; NO BEDDING EVIDENT; (ML).					
-20	35	RD 12					35 50 / 5"			
				SILT (VERY DENSE)	GRAY-BROWN; LITTLE FINE SAND; SCATTERED FINE TO COARSE GRAVEL, ROUNDED; NO BEDDING EVIDENT; (ML).					
	40				(CONTINUED)					

SAMPLE TYPES

- B — BRAG SAMPLE - HAND COLLECTED FROM AUGER OR PIT
- BS — BAGGER SAMPLE - MECH AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 6" O.D. SPLIT BARREL, RING SAMPLER - DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2" O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- DS — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3" O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3" O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

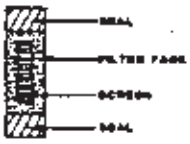
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — MINI VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

Drawing No. A-61

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

SUMMARY: BORING NO. D-384

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/25/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	GRAPHIC SYMBOL	DESCRIPTION	PIEZOMETER	BLOWS/6 IN.	LAB TESTS	DRY DENSITY	MOISTURE	ATTERBERG LIMITS
15	0				**FILL** CLAYEY SILT (SOFT) — MOTTLED DARK TO MEDIUM GRAY; LITTLE FINE TO COARSE SAND; LITTLE FINE TO COARSE GRAVEL, ROUNDED; OCCASIONAL COBBLE; NO BEDDING EVIDENT; (ML); SURFACE CONDITIONS, ASPHALT CONCRETE UNDERLAIN BY SAND AND GRAVEL BACKFILL.						
		B	1								
10	5	RD	2		GRADES TO GRAY-BROWN; BRICK AT 4.0 AND 5.5 FEET.		7 7 10				
		SPT	3				2 2 1				
	10	RD	4				4 6 6				
					ALLUVIUM ORGANIC SILT (VERY LOOSE) — BROWN; TRACE FINE SAND; ABUNDANT ORGANIC FIBERS AND ROOTS; NO BEDDING EVIDENT; (OL).	2/15/85 3/16/85					
		RD	5				1 1 2	G	60%	62	
0	15	RD	6				3 4 5				
		SPT	7		SILT (LOOSE) — GRAY-BROWN; TRACE FINE SAND; SCATTERED ORGANIC FIBERS; NO BEDDING EVIDENT; (ML).		2 2 3	G	38%		
20					DESCRIPTION ON FOLLOWING PAGE						

SAMPLE TYPES

- B — BRAB SAMPLE - HAND COLLECTED FROM AUGER OR PIT
- H — BAILER SAMPLE - MEED AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 2"O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2"O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- BS — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3"O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- BH — 3"O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL

SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

Drawing No. A-63

SUMMARY: BORING NO. D-384

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED ARE A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

DATE DRILLED: 1/25/85

APPROX. ELEV. (MSL)	DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	GRAPHIC SYMBOL		PIEZOMETER	BLOWS/6 IN	LAB TESTS	DRY DENSITY	MOISTURE	ATTERBERG LIMITS
	40	RD	13		ALLUVIUM SAND AND GRAVEL		60/2"				
-30	45										

TOTAL DEPTH, 40.2 FEET.

PIEZOMETER:

THREE INCH DIAMETER PVC.
SCREEN DEPTH: 20 TO 30 FEET.
SEAL DEPTH: 9 TO 14 FEET.

SAMPLE TYPES

- B — GRAB SAMPLE - HAND COLLECTED FROM AUGER OR BIT
- M — BAILER SAMPLE - MIXED AND HAND COLLECTED
- C — CUTTING SAMPLE - HAND COLLECTED FROM DRILL FLUID RETURN
- RD — 3"O.D. SPLIT BARREL RING SAMPLER - DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER
- SPT — 2"O.D. SPLIT SPOON SAMPLER - DRIVEN WITH 140 LB. SURFACE HAMMER WITH 30" DROP
- DB — SPT, EXCEPT DRIVEN WITH 300 LB. DOWN HOLE SLIP-JAR HAMMER WITH 18" DROP
- P — PITCHER SAMPLER - 3"O.D. THIN WALLED SHELBY TUBE PUSHED WITH ROTATING CUTTING BARREL
- SH — 3"O.D. THIN WALLED SHELBY TUBE - PUSHED WITH HYDRAULICS

MOISTURE CONTENT - PERCENT OF DRY WEIGHT
DRY DENSITY - POUNDS PER CUBIC FOOT

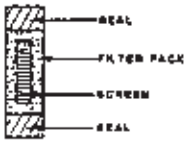
LABORATORY TESTS

- G — GRAIN SIZE DISTRIBUTION
- A — ATTERBERG LIMITS
- V — VANE VANE SHEAR
- C — CONSOLIDATION
- UU — UNCONSOLIDATED-UNDRAINED TRIAXIAL
- CU — CONSOLIDATED-UNDRAINED TRIAXIAL
- PP — POCKET PENETROMETER
- T — PETROGRAPHIC THIN SECTION

ATTERBERG LIMITS

- LL — LIQUID LIMIT
- PL — PLASTIC LIMIT
- PI — PLASTICITY INDEX

PIEZOMETER DETAIL



SAMPLE DETAIL

RENTON EFFLUENT TRANSFER SYSTEM DUWAMISH ALIGNMENT
King County, Washington
for METRO

Project No. 275-05G

GEO/RESOURCE CONSULTANTS, INC.
Geologists/Geophysicists/Geotechnical Engineers

Drawing No. A-65

South Park Landfill

Remedial Investigation/ Feasibility Study

Appendix C
Analytical Data Summaries

Table of Contents

This appendix contains the following items:

- Chemicals Tested for but Not Detected in Soils/Solid Waste Samples on the SPPD Parcel (Table C.1)
- Frequency of Detections and Exceedances in Soil/Solid Waste Samples on the SPPD Parcel (Table C.2)
- Chemicals Tested for but Not Detected in West Ditch Solids Samples (Table C.3)
- Frequency of Detections and Exceedances in Solids Samples from the West Ditch (Table C.4)
- Chemicals Tested for but Not Detected in Groundwater Samples—On-site and Downgradient (Table C.5)
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- Chemicals Detected in Soil Vapor Samples for Volatile Organic Compounds (Table C.16)
- Total Petroleum Hydrocarbon Chromatograms and Reference Chromatograms for the West Ditch

Table C.1
Chemicals Tested for but Not Detected in Soil/Solid Waste Samples on the SPPD Parcel

Chemical	Unit	Number of Results	Number of Non-Detect Results	Percent of Non-Detect Results	Minimum Non-Detect Value	Maximum Non-Detect Value[1]
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/kg	71	71	100.00%	15	20
1,1,2,2-Tetrachloroethane	µg/kg	71	71	100.00%	15	20
1,1,2-Trichloroethane	µg/kg	71	71	100.00%	15	20
1,1-Dichloroethane	µg/kg	71	71	100.00%	15	20
1,1-Dichloroethene	µg/kg	71	71	100.00%	15	20
1,2,4-Trichlorobenzene	µg/kg	78	78	100.00%	69	2,000
1,2-Dichlorobenzene	µg/kg	78	78	100.00%	34	2,000
1,2-Dichloroethane	µg/kg	71	71	100.00%	15	20
1,2-Dichloropropane	µg/kg	71	71	100.00%	15	20
1,3-Dichlorobenzene	µg/kg	78	78	100.00%	34	2,000
1,4-Dichlorobenzene	µg/kg	78	78	100.00%	34	2,000
2,4-Dinitrotoluene	µg/kg	78	78	100.00%	69	4,000
2,6-Dinitrotoluene	µg/kg	78	78	100.00%	170	4,000
2-Hexanone	µg/kg	71	71	100.00%	26	34
2-Nitroaniline	µg/kg	78	78	100.00%	69	4,000
3,3'-Dichlorobenzidine	µg/kg	78	78	100.00%	69	20,000
3-Nitroaniline	µg/kg	78	78	100.00%	69	10,000
4-Bromophenyl phenyl ether	µg/kg	78	78	100.00%	69	4,000
4-Chloroaniline	µg/kg	78	78	100.00%	34	2,000
4-Chlorophenyl phenyl ether	µg/kg	78	78	100.00%	69	2,000
4-Nitroaniline	µg/kg	78	78	100.00%	69	4,000
Benzene	µg/kg	71	71	100.00%	15	20
bis(2-chloroethyl)ether	µg/kg	78	78	100.00%	34	2,000
Bromodichloromethane	µg/kg	71	71	100.00%	15	20
Bromoform	µg/kg	71	71	100.00%	15	20
Bromomethane	µg/kg	71	71	100.00%	15	20
Carbon tetrachloride	µg/kg	71	71	100.00%	15	20
Chlorobenzene	µg/kg	71	71	100.00%	15	20
Chloroethane	µg/kg	71	71	100.00%	15	20
Chloroform	µg/kg	71	71	100.00%	15	20
Chloromethane	µg/kg	71	71	100.00%	15	20
cis-1,2-Dichloroethene	µg/kg	71	71	100.00%	15	20
cis-1,3-Dichloropropene	µg/kg	71	71	100.00%	15	20
Dibromochloromethane	µg/kg	71	71	100.00%	15	20
Dichlorodifluoromethane	µg/kg	71	71	100.00%	15	20
Ethylbenzene	µg/kg	71	71	100.00%	15	20
Hexachlorobenzene	µg/kg	78	78	100.00%	69	4,000
Hexachloroethane	µg/kg	78	78	100.00%	34	4,000
Methyl iso butyl ketone	µg/kg	71	71	100.00%	26	34
Nitrobenzene	µg/kg	78	78	100.00%	69	2,000
Styrene	µg/kg	71	71	100.00%	15	20
Toluene	µg/kg	71	71	100.00%	15	20
trans-1,2-Dichloroethene	µg/kg	71	71	100.00%	15	20
trans-1,3-Dichloropropene	µg/kg	71	71	100.00%	15	20
Trichloroethene	µg/kg	71	71	100.00%	15	20
Trichlorofluoromethane	µg/kg	71	71	100.00%	15	20
Vinyl chloride	µg/kg	71	71	100.00%	15	20
Xylene (meta & para)	µg/kg	71	71	100.00%	15	20
Semivolatile Organic Compounds						
1,2-Diphenylhydrazine	µg/kg	7	7	100.00%	80	4,000
2,4,5-Trichlorophenol	µg/kg	78	78	100.00%	69	4,000
2,4,6-Trichlorophenol	µg/kg	78	78	100.00%	34	4,000
2,4-Dichlorophenol	µg/kg	78	78	100.00%	69	4,000
2,4-Dimethylphenol	µg/kg	78	78	100.00%	170	2,000
2,4-Dinitrophenol	µg/kg	78	78	100.00%	170	20,000
2-Chlorophenol	µg/kg	78	78	100.00%	34	2,000
2-Methylphenol	µg/kg	78	78	100.00%	69	2,000
2-Nitrophenol	µg/kg	78	78	100.00%	69	4,000
4,6-Dinitro-o-cresol	µg/kg	78	78	100.00%	170	20,000
4-Chloro-3-methylphenol	µg/kg	78	78	100.00%	69	4,000
4-Methylphenol	µg/kg	78	78	100.00%	69	2,000
4-Nitrophenol	µg/kg	78	78	100.00%	170	20,000
Acenaphthylene	µg/kg	78	78	100.00%	34	2,000
Aniline	µg/kg	78	78	100.00%	520	10,000
Benzidine	µg/kg	7	7	100.00%	3,000	51,000
Benzoic acid	µg/kg	78	78	100.00%	170	51,000
Benzyl alcohol	µg/kg	78	78	100.00%	69	2,000

Table C.1
Chemicals Tested for but Not Detected in Soil/Solid Waste Samples on the SPPD Parcel

Chemical	Unit	Number of Results	Number of Non-Detect Results	Percent of Non-Detect Results	Minimum Non-Detect Value	Maximum Non-Detect Value[1]
Semivolatile Organic Compounds (continued)						
bis(2-chloroethoxy)methane	µg/kg	78	78	100.00%	69	2,000
bis-chloroisopropyl ether	µg/kg	78	78	100.00%	69	2,000
Diethylphthalate	µg/kg	78	78	100.00%	69	2,000
Dimethyl phthalate	µg/kg	78	78	100.00%	69	2,000
Hexachlorobutadiene	µg/kg	78	78	100.00%	34	2,000
Hexachlorocyclopentadiene	µg/kg	78	78	100.00%	69	4,000
Isophorone	µg/kg	78	78	100.00%	69	2,000
N-Nitrosodiethylamine	µg/kg	78	78	100.00%	69	2,000
N-Nitroso-di-n-propylamine	µg/kg	78	78	100.00%	69	2,000
Phenol	µg/kg	78	78	100.00%	170	2,000
Polychlorinated Biphenyls						
PCB Aroclor 1221	µg/kg	71	71	100.00%	34	1,700
PCB Aroclor 1232	µg/kg	71	71	100.00%	34	1,700
PCB Aroclor 1242	µg/kg	71	71	100.00%	34	1,700
Herbicides and Pesticides						
alpha-BHC	µg/kg	71	71	100.00%	1.8	89
alpha-Endosulfan	µg/kg	71	71	100.00%	1.8	89
beta-BHC	µg/kg	71	71	100.00%	1.8	89
beta-Endosulfan	µg/kg	71	71	100.00%	3.4	170
delta-BHC	µg/kg	71	71	100.00%	1.8	89
Endosulfan sulfate	µg/kg	71	71	100.00%	3.4	170
Endrin	µg/kg	71	71	100.00%	3.4	170
Endrin aldehyde	µg/kg	71	71	100.00%	3.4	170
Endrin ketone	µg/kg	71	71	100.00%	3.4	170
gamma-BHC	µg/kg	71	71	100.00%	1.8	89
Heptachlor	µg/kg	71	71	100.00%	1.8	89
Toxaphene	µg/kg	71	71	100.00%	34	1,700
Petroleum Hydrocarbons						
C10-C12 Aromatics	mg/kg	6	6	100.00%	5	10
Diesel	mg/kg	1	1	100.00%	50	50
Gasoline-range	mg/kg	75	75	100.00%	10	20
Kerosene	mg/kg	75	75	100.00%	10	50
Metals						
Selenium	mg/kg	73	73	100.00%	17	26
Thallium	mg/kg	73	73	100.00%	0.42	2.2

Note:

1 Elevated detection limits are due to the presence of other chemicals in the sample that force the sample to be diluted.

Abbreviations:

BHC 1,2,3,4,5,6-Hexachlorocyclohexane
µg/kg Micrograms per kilogram
mg/kg Milligrams per kilogram
ND Not detected
PCB Polychlorinated biphenyl
SPPD South Park Property Development, LLC

Table C.2
Frequency of Detections and Exceedances in Soil/Solid Waste Samples on the SPPD Parcel

Potential Chemical of Concern	Unit	Number of Results	Number of Detected Results	Percent of Detected Results	Minimum Detected Value	Maximum Detected Value	MTCA Method C Cleanup Level	Exceeds MTCA Method C
Volatile Organic Compounds								
Acetone	µg/kg	71	8	11%	33	270	Not toxic	No
Carbon disulfide	µg/kg	71	1	1%	22	22	35,000,000	No
Methyl ethyl ketone	µg/kg	71	1	1%	71	71	2,100,000,000	No
Methylene Chloride	µg/kg	71	45	63%	17	53	18,000,000	No
Tetrachloroethene	µg/kg	71	1	1%	20	20	35,000,000	No
Xylene (Total)	µg/kg	71	2	3%	20	29	750,000,000	No
Semivolatile Organic Compounds: PAHs and Phthalates								
CPAHs as BaP TEQ using half RL	µg/kg	78	28	36%	49	3,100	18,000	No
CPAHs as BaP TEQ using zero as RL	µg/kg	78	27	35%	0.52	3,100	18,000	No
Benzo(a)anthracene	µg/kg	78	13	17%	140	2,900	Evaluated as total CPAHs calculated as a BaP toxicity equivalent quotient (refer to CPAHs as BaP TEQ above)	
Benzo(a)pyrene	µg/kg	78	8	10%	79	2,200		
Benzo(b)fluoranthene	µg/kg	78	13	17%	79	2,800		
Benzo(g,h,i)perylene	µg/kg	78	4	5%	200	750		
Benzo(j)fluoranthene	µg/kg	78	5	6%	150	1,800		
Chrysene	µg/kg	78	27	35%	52	3,200		
2-Methylnaphthalene	µg/kg	78	4	5%	110	380	14,000,000	No
Acenaphthene	µg/kg	78	5	6%	45	290	210,000,000	No
Anthracene	µg/kg	78	1	1%	480	480	1,100,000,000	No
bis(2-ethylhexyl)phthalate	µg/kg	78	27	35%	86	27,000	9,400,000	No
Butyl benzyl phthalate	µg/kg	78	3	4%	410	1,500	69,000,000	No
Carbazole	µg/kg	78	1	1%	170	170	R-ND	No
2-Chloronaphthalene	µg/kg	78	1	1%	1,400	1,400	28,000,000	No
Di-n-butyl phthalate	µg/kg	78	2	3%	200	230	350,000,000	No
Di-n-octyl phthalate	µg/kg	78	4	5%	190	710	R-ND	No
Dibenzo(a,h)anthracene	µg/kg	78	1	1%	510	510	180,000	No
Dibenzofuran	µg/kg	78	2	3%	140	180	3,500,000	No
Fluoranthene	µg/kg	78	30	38%	43	3,400	140,000,000	No
Fluorene	µg/kg	78	4	5%	110	350	140,000,000	No
Indeno(1,2,3-cd)pyrene	µg/kg	78	3	4%	200	830	180,000	No
Naphthalene	µg/kg	78	5	6%	41	1,000	70,000,000	No
Pentachlorophenol	µg/kg	78	1	1%	14,000	14,000	330,000	No
Phenanthrene	µg/kg	78	15	19%	120	2,000	R-ND	No
Pyrene	µg/kg	78	23	29%	83	3,200	110,000,000	No
Polychlorinated Biphenyls[1]								
PCB Arochlor 1016	µg/kg	71	1	1%	270	270	10,000	No
PCB Arochlor 1248	µg/kg	71	1	1%	1,100	1,100	10,000	No
PCB Aroclor 1254	µg/kg	71	13	18%	130	4,300	10,000	No
PCB Aroclor 1260	µg/kg	71	17	24%	79	18,000	10,000	No, refer to text
Total PCBs	µg/kg	71	22	31%	79	18,000	10,000	No, refer to text
Herbicides and Pesticides								
alpha-Chlordane	µg/kg	71	1	1%	8.4	72	380,000 [2]	No
Chlordane	µg/kg	71	1	1%	9.3	32	380,000	No
Dieldrin	µg/kg	71	9	13%	8.2	500	380,000	No
p,p'-DDD	µg/kg	71	8	11%	8.2	2,600	550,000	No
p,p'-DDE	µg/kg	71	4	6%	12	51	390,000	No
p,p'-DDT	µg/kg	71	7	10%	7.6	78	390,000	No
Heptachlor	µg/kg	71	2	3%	12	13	29,000	No
Methoxychlor	µg/kg	71	1	1%	86	86	18,000,000	No
Petroleum Hydrocarbons								
Diesel-range Hydrocarbons	mg/kg	76	9	12%	32.1	2,580	7,000 [3]	No
Motor Oil-range Hydrocarbons	mg/kg	92	37	40%	37.1	5,940	7,000 [3]	No
Metals								
Antimony	mg/kg	73	18	25%	6.1	110	1,400	No
Arsenic	mg/kg	73	73	100%	2	180	88	**Yes**
Beryllium	mg/kg	73	3	4%	0.55	0.58	7,000	No
Cadmium	mg/kg	73	30	41%	1	34	3,500	No
Chromium	mg/kg	73	73	100%	12	260	5,250,000	No
Copper	mg/kg	73	73	100%	9	4,300	130,000	No
Lead	mg/kg	73	70	96%	9.6	6,800	1,000 [4]	**Yes**
Mercury	mg/kg	73	31	42%	0.1	5	1,050	No
Nickel	mg/kg	73	73	100%	8	770	70,000	No
Silver	mg/kg	73	12	16%	1.3	80	17,500	No
Zinc	mg/kg	73	73	100%	29	7,900	1,100,000	No

Notes:

Mixture of CPAHs considered for toxicity equivalency quotient calculations.

Lead Highlighted chemical is a chemical of concern for this media.

PCB Chemical was considered for inclusion as a chemical of concern but not retained. Refer to text for details.

1 The MTCA Method A value for industrial soil has been used in place of MTCA Method C value which conflicts with a Federal ARAR. The following is a footnote from MTCA for the Method A value: "Cleanup level based on applicable federal law (40 C.F.R. 761.61). This is a total value for all PCBs. This value may be used only if the PCB contaminated soils are capped and the cap maintained as required by 40 C.F.R. 761.61. If this condition cannot be met, the value in Table 740-1 must be used."

2 Value for chlordane.

3 A site-specific MTCA Method C Cleanup Value was calculated using Washington State Department of Ecology's MTCATPH11.1 worksheets.

4 MTCA Method A value was used for industrial soils for lead, as no Method B or C values exist.

Abbreviations:

ARAR Applicable or Relevant and Appropriate Requireme
BaP Benzo(a)pyrene
CPAH Carcinogenic polycyclic aromatic hydrocarbon
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethylene
DDT Dichlorodiphenyltrichloroethane
FOD Frequency of detection
FOE Frequency of exceedance
µg/kg Micrograms per kilogram
mg/kg Milligrams per kilogram
MTCA Model Toxics Control Act
NR The chemical was not researched by the Washington State Department of Ecology
PAH Polycyclic aromatic hydrocarbon
PCB Polychlorinated biphenyl
RL Reporting limit
R-ND The chemical was researched by the Washington State Department of Ecology, and no toxicity data of acceptable quality was found
SPPD South Park Property Development, LLC
TEQ Toxic equivalency quotient
USEPA U.S. Environmental Protection Agency

Table C.3
Chemicals Tested for but Not Detected in West Ditch Solids Samples

Chemicals	Unit	Number of Samples	Range of Detection Limits	
			Minimum Value	Maximum Value[1]
Semivolatile Organic Compounds (Method 8270D/8270-SIM)				
1,2,4-Trichlorobenzene	µg/kg	11	23	180
1,2-Dichlorobenzene	µg/kg	11	23	180
1,2-Diphenylhydrazine	µg/kg	11	23	180
1,3-Dichlorobenzene	µg/kg	11	23	180
2,3,4,6-Tetrachlorophenol	µg/kg	11	23	180
2,3,5,6-Tetrachlorophenol	µg/kg	11	23	180
2,4,5-Trichlorophenol	µg/kg	11	110	900
2,4,6-Trichlorophenol	µg/kg	11	110	900
2,4-Dichlorophenol	µg/kg	11	110	900
2,4-Dimethylphenol	µg/kg	11	23	180
2,4-Dinitrophenol	µg/kg	11	230	1,800
2,4-Dinitrotoluene	µg/kg	11	110	900
2,6-Dinitrotoluene	µg/kg	11	110	900
2-Chloronaphthalene	µg/kg	11	23	180
2-Chlorophenol	µg/kg	11	23	180
2-Methylphenol	µg/kg	11	23	180
2-Nitroaniline	µg/kg	11	110	900
2-Nitrophenol	µg/kg	11	23	180
3,3'-Dichlorobenzidine	µg/kg	11	110	900
3-Nitroaniline	µg/kg	11	110	900
4,6-Dinitro-o-cresol	µg/kg	11	230	1,800
4-Bromophenyl phenyl ether	µg/kg	11	23	180
4-Chloro-3-methylphenol	µg/kg	11	110	900
4-Chloroaniline	µg/kg	11	170	900
4-Chlorophenyl phenyl ether	µg/kg	11	23	180
4-Nitroaniline	µg/kg	11	110	900
4-Nitrophenol	µg/kg	11	110	900
Aniline	µg/kg	11	23	180
Azobenzene	µg/kg	11	23	180
Benzyl alcohol	µg/kg	11	110	900
bis(2-chloroethoxy)methane	µg/kg	11	23	180
bis(2-chloroethyl)ether	µg/kg	11	23	180
bis-chloroisopropyl ether	µg/kg	11	23	180
Demeton-S	µg/kg	12	230	440
Dibenzo(a,h)anthracene	µg/kg	11	23	180
Dichlorvos/Naled	µg/kg	12	47	87
Dimethoate	µg/kg	12	47	87
Di-n-octyl phthalate	µg/kg	11	23	180
Ethyl p-nitrophenyl phenylphosphorothioate	µg/kg	12	230	740
Fensulfothion	µg/kg	12	230	440
Hexachlorobenzene	µg/kg	11	23	180
Hexachlorobutadiene	µg/kg	11	23	180
Hexachlorocyclopentadiene	µg/kg	11	110	900
Hexachloroethane	µg/kg	11	23	180
Isophorone	µg/kg	11	23	180
Merphos Oxone	µg/kg	12	230	440
Monocrotophos	µg/kg	12	230	440
Nitrobenzene	µg/kg	11	23	180
N-Nitrosodimethylamine	µg/kg	11	110	900
N-Nitroso-di-n-propylamine	µg/kg	11	23	180
N-Nitrosodiphenylamine	µg/kg	11	23	180
Phenol	µg/kg	11	23	180
Pyridine	µg/kg	11	110	900
Polychlorinated Biphenyls (USEPA 8082)				
PCB Aroclor 1016	µg/kg	11	32	160
PCB Aroclor 1221	µg/kg	11	32	160
PCB Aroclor 1232	µg/kg	11	32	160
Herbicides and Pesticides (USEPA 8081B/8151A/8270D-SIM)				
2-(2-Methyl-4-chlorophenoxy) propionic acid	µg/kg	11	11,000	38,000
2,4,5 Trichlorophenoxyacetic acid	µg/kg	11	11	38
2,4-DB	µg/kg	11	210	760
2,4-Dichlorophenoxyacetic acid	µg/kg	11	43	150
Aldrin	µg/kg	11	2	30
alpha-BHC	µg/kg	11	2	8
alpha-Endosulfan	µg/kg	11	2	28
beta-BHC	µg/kg	11	2	19
beta-Endosulfan	µg/kg	11	3	16

Table C.3
Chemicals Tested for but Not Detected in West Ditch Solids Samples

Chemicals	Unit	Number of Samples	Range of Detection Limits	
			Minimum Value	Maximum Value[1]
Herbicides and Pesticides (USEPA 8081B/8151A/8270D-SIM) (continued)				
Chlorpyrifos	µg/kg	12	47	87
Coumaphos	µg/kg	12	230	440
Dalapon	µg/kg	11	43	150
delta-BHC	µg/kg	11	2	38
Diazinon	µg/kg	12	47	87
Dicamba	µg/kg	11	21	76
Dichloroprop	µg/kg	11	43	150
Dieldrin	µg/kg	11	3	65
Dinoseb	µg/kg	11	21	76
Disulfoton	µg/kg	12	47	87
Endosulfan sulfate	µg/kg	11	3	16
Endrin	µg/kg	11	3	20
Endrin aldehyde	µg/kg	11	3	16
Endrin ketone	µg/kg	11	3	16
Fenthion	µg/kg	12	47	87
gamma-BHC	µg/kg	11	2	16
Guthion	µg/kg	12	230	440
Heptachlor	µg/kg	11	2	24
Heptachlor epoxide	µg/kg	11	2	180
Malathion	µg/kg	12	47	87
MCPA	µg/kg	11	11,000	38,000
Methoxychlor	µg/kg	11	15	81
Methyl parathion	µg/kg	12	47	87
Mevinphos	µg/kg	12	47	87
Parathion	µg/kg	12	230	440
Phorate	µg/kg	12	47	87
Prothiophos	µg/kg	12	230	440
Ronnel	µg/kg	12	47	87
Silvex	µg/kg	11	11	38
Sulprofos	µg/kg	12	47	87
Tetrachlorvinphos	µg/kg	12	230	440
Tetraethyl dithiopyrophosphate	µg/kg	12	47	87
Toxaphene	µg/kg	11	150	810
Trichloronate	µg/kg	12	47	87
Petroleum Hydrocarbons (NWTPH-Gx)				
Gasoline-range Hydrocarbons	mg/kg	11	5	47
Metals (USEPA 6010B)				
Selenium	mg/kg	11	6	40

Note:

1 Elevated detection limits are due to the presence of other chemicals in the sample that force the sample to be diluted.

Abbreviations:

2,4-DB 4-(2,4-dichlorophenoxy)butyric acid
BHC Benzene hexachloride
µg/kg Micrograms per kilogram
mg/kg Milligrams per kilogram
MCPA 2-methyl-4-chlorophenoxyacetic acid
ND Not detected
NWTPH-Gx Northwest total petroleum hydrocarbons in the gas range
PCB Polychlorinated biphenyl
USEPA U.S. Environmental Protection Agency

Table C.4
Frequency of Detections and Exceedances in Solids Samples from the West Ditch

Potential Chemical of Concern	Unit	Number of Samples	Number of Detected Results	Percent of Detected Results	Minimum Detected Value	Maximum Detected Value	MTCA Method C Cleanup Level	Exceeds MTCA Criteria?
Semivolatile Organic Compounds								
CPAHs as BaP TEQ using half RL	µg/kg	11	10	91%	24	1,100	18,000	No
CPAHs as BaP TEQ using zero as RL	µg/kg	11	10	91%	34	1,100	18,000	No
Benzo(a)anthracene	µg/kg	11	10	91%	34	710	Evaluated as total CPAHs calculated as a BaP toxicity equivalent quotient (refer to CPAHs as BaP TEQ above)	
Benzo(a)pyrene	µg/kg	11	10	91%	26	870		
Benzo(g,h,i)perylene	µg/kg	11	10	91%	22	470		
Benzofluoranthenes (Total)	µg/kg	11	10	91%	41	1,200		
Chrysene	µg/kg	11	10	91%	48	1,000		
Indeno(1,2,3-cd)pyrene	µg/kg	11	8	73%	46	380		
1-Methylnaphthalene	µg/kg	11	2	18%	48	99	NR	No
2-Methylnaphthalene	µg/kg	11	2	18%	140	160	14,000,000	No
Acenaphthene	µg/kg	11	9	82%	25	250	210,000,000	No
Acenaphthylene	µg/kg	11	1	9%	36	36	210,000,000	No
Anthracene	µg/kg	11	7	64%	12	350	1,100,000,000	No
Fluoranthene	µg/kg	11	11	100%	73	2,000	140,000,000	No
Fluorene	µg/kg	11	7	64%	32	200	140,000,000	No
Naphthalene	µg/kg	11	1	9%	210	210	70,000,000	No
Phenanthrene	µg/kg	11	11	100%	43	1,900	R-ND	No
Pyrene	µg/kg	11	11	100%	56	1,900	110,000,000	No
bis(2-ethylhexyl)phthalate	µg/kg	11	5	50%	370	8,400	9,400,000	No
Butyl benzyl phthalate	µg/kg	11	1	9%	71	71	69,000,000	No
Diethylphthalate	µg/kg	11	3	27%	13	160	--	No
Dimethyl phthalate	µg/kg	11	2	18%	24	60	R-ND	No
Di-n-butyl phthalate	µg/kg	11	1	9%	21	21	--	No
1,4-Dichlorobenzene	µg/kg	11	1	9%	240	240	R-ND	No
4-Methylphenol	µg/kg	11	1	9%	25	25	18,000,000	No
Carbazole	µg/kg	11	1	9%	140	140	R-ND	No
Dibenzofuran	µg/kg	11	3	27%	57	130	3,500,000	No
Pentachlorophenol (by USEPA 8041)	µg/kg	11	0	0%	0	0	330,000	No
Pentachlorophenol (by USEPA 8270D)	µg/kg	11	1	9%	50	50	330,000	No
Polychlorinated Biphenyls[1]								
PCB Aroclor 1242	µg/kg	11	4	36%	180	2,800	10,000	No
PCB Aroclor 1248	µg/kg	11	6	55%	430	1,700	10,000	No
PCB Aroclor 1254	µg/kg	11	10	91%	150	2,300	10,000	No
PCB Aroclor 1260	µg/kg	11	9	82%	90	1,300	10,000	No
Total PCBs	µg/kg	11	10	91%	426	5,200	10,000	No
Herbicides and Pesticides								
alpha-Chlordane	µg/kg	11	10	91%	3.6	480	350,000	No
gamma-Chlordane	µg/kg	11	10	91%	7.1	440	350,000	No
p,p'-DDD	µg/kg	11	10	91%	24	5,100	550,000	No
p,p'-DDE	µg/kg	11	10	91%	17	680	390,000	No
p,p'-DDT	µg/kg	6	5	83%	6.3	450	390,000	No
Petroleum Hydrocarbons								
Motor Oil-Range Hydrocarbons	mg/kg	11	11	100%	76	3,200	7,000 [2]	No
Diesel-Range Hydrocarbons	mg/kg	11	11	100%	49	930	7,000 [2]	No
Metals[3]								
Aluminum	mg/kg	11	11	100%	7,050	28,100	NR	No
Arsenic	mg/kg	11	9	82%	7	60	88	No
Barium	mg/kg	11	11	100%	26	325	700,000	No
Cadmium	mg/kg	11	9	82%	0.6	10	3,500	No
Chromium	mg/kg	11	11	100%	14	101	5,250,000	No
Copper	mg/kg	11	11	100%	14	324	130,000	No
Iron	mg/kg	11	11	100%	11,100	92,800	NR	No
Lead	mg/kg	11	11	100%	6.0	620	1,000	No
Manganese	mg/kg	11	11	100%	120	535	490,000	No
Mercury	mg/kg	11	10	91%	0.04	1	1,050	No
Nickel	mg/kg	11	11	100%	10	90	70,000	No
Silver	mg/kg	11	5	45%	0.8	4	17,500	No
Zinc	mg/kg	11	11	100%	45	1,760	1,100,000	No

Notes:

Mixture of CPAHs considered for toxicity equivalency quotient calculations.

-- No value

1 The MTCA Method A value for industrial soil has been used in place of MTCA Method C value, which conflicts with a Federal ARAR. The following is a footnote from MTCA for the Method A value: "Cleanup level based on applicable federal law (40 C.F.R. 761.61). This is a total value for all PCBs. This value may be used only if the PCB contaminated soils are capped and the cap maintained as required by 40 C.F.R. 761.61. If this condition cannot be met, the value in Table 740-1 must be used."

2 A site-specific MTCA Method C Cleanup Value was calculated using Washington State Department of Ecology's MTCATPH11.1 worksheets.

3 Natural Background Soil Metals Concentrations in Washington State (Ecology 1994), Statewide 90th Percentile Values are as follows: arsenic—7 mg/kg, cadmium—1 mg/kg, chromium—42 mg/kg, copper—36 mg/kg, lead—17 mg/kg, mercury—0.07 mg/kg, nickel—38 mg/kg, and zinc—86 mg/kg; however, the arsenic value was reevaluated and a value of 20 mg/kg replaced the 1994 Ecology value (Task Force 2003).

Abbreviations:

ARAR Applicable or Relevant and Appropriate Requirement
BaP Benzo(a)pyrene
CPAH Carcinogenic polycyclic aromatic hydrocarbon
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethylene
DDT Dichlorodiphenyltrichloroethane
FOD Frequency of detection
FOE Frequency of exceedance
µg/kg Micrograms per kilogram
mg/kg Milligrams per kilogram
MTCA Model Toxics Control Act
NR The chemical was not researched by the Washington State Department of Ecology
PCB Polychlorinated biphenyl
R-ND The chemical was researched by the Washington State Department of Ecology, and no toxicity data of acceptable quality was found
RL Reporting limit
TEQ Toxic equivalency quotient
USEPA U.S. Environmental Protection Agency

Table C.5
Chemicals Tested for but Not Detected in Groundwater Samples—On-site and Downgradient

Chemical	Unit	Number of Results	Percent Non-Detects	Minimum Non-Detect Value	Maximum Non-Detect Value[1]
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	160	100.00%	0.2	2
1,1,2,2-Tetrachloroethane	µg/L	160	100.00%	0.2	20
1,1,2-Trichloroethane	µg/L	160	100.00%	0.2	2
1,1,2-Trichlorotrifluoroethane	µg/L	3	100.00%	2	2
1,1-Dichloropropene	µg/L	123	100.00%	0.2	2
1,2,3-Trichlorobenzene	µg/L	50	100.00%	0.2	2
1,2,3-Trichloropropane	µg/L	168	100.00%	0.2	2
1,2,4-Trimethylbenzene	µg/L	11	100.00%	1	2
1,2-Dibromo-3-chloropropane	µg/L	172	100.00%	0.2	10
1,2-Dibromoethane	µg/L	160	100.00%	0.2	2
1,3,5-Trimethylbenzene	µg/L	11	100.00%	1	2
1,3-Dichloropropane	µg/L	123	100.00%	0.2	2
1,3-Dichloropropene	µg/L	77	100.00%	0.2	0.2
2,2-Dichloropropane	µg/L	123	100.00%	0.2	2
2-Chloroethyl vinyl ether	µg/L	112	100.00%	0.2	2
2-Chlorotoluene	µg/L	46	100.00%	0.2	2
2-Hexanone	µg/L	125	100.00%	1	10
2-Nitroaniline	µg/L	77	100.00%	3.4	3.7
4-Chlorotoluene	µg/L	46	100.00%	0.2	2
Acetonitrile	µg/L	77	100.00%	100	100
Acrolein	µg/L	89	100.00%	5	10
Acrylonitrile	µg/L	122	100.00%	10	10
Allyl chloride	µg/L	77	100.00%	10	10
beta-Chloroprene	µg/L	77	100.00%	0.2	20
Bromobenzene	µg/L	46	100.00%	0.2	2
Bromochloromethane	µg/L	160	100.00%	0.2	2
Bromodichloromethane	µg/L	160	100.00%	0.2	2
Bromoethane	µg/L	77	100.00%	0.2	0.2
Bromoform	µg/L	160	100.00%	0.2	2
Bromomethane	µg/L	160	100.00%	0.2	2
Carbon disulfide	µg/L	117	100.00%	0.2	2
Carbon tetrachloride	µg/L	172	100.00%	0.2	2
Chloroform	µg/L	160	100.00%	0.2	2
cis-1,3-Dichloropropene	µg/L	160	100.00%	0.2	2
Cymene	µg/L	11	100.00%	1	2
Dibromochloromethane	µg/L	160	100.00%	0.2	2
Dibromomethane	µg/L	160	100.00%	0.2	2
Dichlorodifluoromethane	µg/L	123	100.00%	0.2	5
Ethyl ether	µg/L	3	100.00%	1	1
Ethylbenzene	µg/L	132	100.00%	0.2	2
Iodomethane	µg/L	152	100.00%	0.2	2
Isobutyl alcohol	µg/L	77	100.00%	100	100
iso-Propylbenzene	µg/L	11	100.00%	1	2
Methacrylonitrile	µg/L	77	100.00%	5	5
Methyl ethyl ketone	µg/L	125	100.00%	2	10
Methyl iso butyl ketone	µg/L	125	100.00%	1	10
Methyl methacrylate	µg/L	77	100.00%	2	2
Methyl-Tert-Butyl Ether	µg/L	11	100.00%	1	2
n-Butylbenzene	µg/L	11	100.00%	1	2
n-Propylbenzene	µg/L	11	100.00%	1	2
Pentachloroethane	µg/L	3	100.00%	1	1
Propionitrile	µg/L	77	100.00%	60	60
sec-Butylbenzene	µg/L	11	100.00%	1	2
Styrene	µg/L	137	100.00%	0.2	2
tert-Butylbenzene	µg/L	11	100.00%	1	2
Tetrachloroethene	µg/L	177	100.00%	0.2	2
Tetrahydrofuran	µg/L	3	100.00%	2	2
Toluene	µg/L	132	100.00%	0.2	2
trans-1,3-Dichloropropene	µg/L	160	100.00%	0.2	2
trans-1,4-Dichloro-2-butene	µg/L	117	100.00%	1	100
Trichlorofluoromethane	µg/L	160	100.00%	0.2	5
Vinyl acetate	µg/L	114	100.00%	0.2	0.2
Xylene (meta & para)	µg/L	10	100.00%	1	2
Xylene (ortho)	µg/L	95	100.00%	0.2	2
Xylene (total)	µg/L	122	100.00%	0.4	4
Semivolatile Organic Compounds					
1,2,4-Trichlorobenzene	µg/L	123	100.00%	0.2	3.6
1,2-Diphenylhydrazine	µg/L	89	100.00%	0.5	2
1,3-Dichlorobenzene	µg/L	125	100.00%	0.2	3.4
1,4-Dichlorobenzene	µg/L	162	100.00%	0.2	3.8
2,4,5-Trichlorophenol	µg/L	77	100.00%	2.5	2.8

Table C.5
Chemicals Tested for but Not Detected in Groundwater Samples—On-site and Downgradient

Chemical	Unit	Number of Results	Percent Non-Detects	Minimum Non-Detect Value	Maximum Non-Detect Value[1]
Semivolatile Organic Compounds (continued)					
2,4,6-Trichlorophenol	µg/L	77	100.00%	2.1	2.3
2,4-Dichlorophenol	µg/L	77	100.00%	3.5	3.8
2,4-Dimethylphenol	µg/L	77	100.00%	10	11
2,4-Dinitrophenol	µg/L	77	100.00%	7.1	7.7
2,4-Dinitrotoluene	µg/L	77	100.00%	0.8	0.9
2,6-Dinitrotoluene	µg/L	77	100.00%	1.8	2
2-Chloronaphthalene	µg/L	77	100.00%	2.2	2.4
2-Chlorophenol	µg/L	77	100.00%	3.9	4.2
2-Methylnaphthalene	µg/L	77	100.00%	2.9	3.2
2-Methylphenol	µg/L	77	100.00%	6.1	6.7
2-Nitroaniline	µg/L	77	100.00%	3.4	3.7
2-Nitrophenol	µg/L	77	100.00%	3.8	4.1
3,3'-Dichlorobenzidine	µg/L	89	100.00%	2.5	7.2
3-Nitroaniline	µg/L	77	100.00%	1.7	1.9
4,6-Dinitro-o-cresol	µg/L	77	100.00%	1.6	1.8
4-Bromophenyl phenyl ether	µg/L	77	100.00%	2.1	2.3
4-Chloro-3-methylphenol	µg/L	77	100.00%	2.6	2.9
4-Chloroaniline	µg/L	77	100.00%	2.5	2.7
4-Chlorophenyl phenyl ether	µg/L	77	100.00%	2.3	5.4
4-Methylphenol	µg/L	76	100.00%	5.7	6.2
4-Nitroaniline	µg/L	77	100.00%	4.7	5.2
4-Nitrophenol	µg/L	77	100.00%	3.8	4.1
Acenaphthene	µg/L	77	100.00%	2.5	2.8
Acenaphthylene	µg/L	77	100.00%	2.6	2.9
Anthracene	µg/L	77	100.00%	2.1	2.3
Azobenzene	µg/L	12	100.00%	0.5	0.5
Benzo(a)anthracene	µg/L	77	100.00%	2.1	2.3
Benzo(a)pyrene	µg/L	89	100.00%	0.01	2.9
Benzo(b)fluoranthene	µg/L	77	100.00%	2.2	2.4
Benzo(g,h,i)perylene	µg/L	77	100.00%	3.4	3.7
Benzo(j)fluoranthene	µg/L	6	100.00%	4.6	4.7
Benzo(k)fluoranthene	µg/L	71	100.00%	4.3	4.6
Benzofluoranthenes (total)	µg/L	77	100.00%	4.3	4.7
Benzoic acid	µg/L	77	100.00%	16	18
Benzyl alcohol	µg/L	77	100.00%	3.6	3.9
bis(2-chloroethoxy)methane	µg/L	77	100.00%	3.8	4.1
bis(2-chloroethyl)ether	µg/L	89	100.00%	0.5	3.9
bis(2-ethylhexyl)phthalate	µg/L	77	100.00%	5.2	5.7
bis-chloroisopropyl ether	µg/L	77	100.00%	3.6	3.9
Butyl benzyl phthalate	µg/L	77	100.00%	2.9	3.2
Carbazole	µg/L	77	100.00%	0.9	1
Chrysene	µg/L	77	100.00%	1.6	1.8
Dibenzo(a,h)anthracene	µg/L	77	100.00%	3.6	3.9
Dibenzofuran	µg/L	77	100.00%	1.6	17
Diethylphthalate	µg/L	77	100.00%	2.2	2.4
Dimethyl phthalate	µg/L	77	100.00%	1.18	2
Di-n-butyl phthalate	µg/L	77	100.00%	1.6	1.8
Di-n-octyl phthalate	µg/L	77	100.00%	5.2	5.7
Fluoranthene	µg/L	77	100.00%	1.3	1.4
Fluorene	µg/L	77	100.00%	1.8	2
Hexachlorobenzene	µg/L	77	100.00%	2.6	2.9
Hexachlorobutadiene	µg/L	123	100.00%	0.2	3.9
Hexachlorocyclopentadiene	µg/L	89	100.00%	2.5	7.7
Hexachloroethane	µg/L	92	100.00%	0.5	4.2
Indeno(1,2,3-cd)pyrene	µg/L	77	100.00%	3	3.3
Isophorone	µg/L	77	100.00%	3.5	3.8
Nitrobenzene	µg/L	77	100.00%	3.2	3.5
N-Nitrosodiethylamine	µg/L	6	100.00%	4.7	4.8
N-Nitrosodimethylamine	µg/L	77	100.00%	4.7	5.2
N-Nitroso-di-n-propylamine	µg/L	77	100.00%	4.1	4.4
N-Nitrosodiphenylamine	µg/L	71	100.00%	4.4	4.7
Pentachlorophenol	µg/L	101	100.00%	0.25	2.5
Phenanthrene	µg/L	77	100.00%	1.6	1.8
Phenol	µg/L	77	100.00%	3.2	3.5
Pyrene	µg/L	77	100.00%	3	3.3
Polychlorinated Biphenyls					
PCB Aroclor 1016	µg/L	77	100.00%	0.009	0.01
PCB Aroclor 1221	µg/L	77	100.00%	0.009	0.01
PCB Aroclor 1232	µg/L	77	100.00%	0.009	0.01
PCB Aroclor 1242	µg/L	77	100.00%	0.009	0.01
PCB Aroclor 1248	µg/L	77	100.00%	0.009	0.01

Table C.5
Chemicals Tested for but Not Detected in Groundwater Samples—On-site and Downgradient

Chemical	Unit	Number of Results	Percent Non-Detects	Minimum Non-Detect Value	Maximum Non-Detect Value[1]
Polychlorinated Biphenyls (continued)					
PCB Aroclor 1254	µg/L	77	100.00%	0.009	0.01
PCB Aroclor 1260	µg/L	77	100.00%	0.009	0.01
Herbicides and Pesticides					
2,4,5 Trichlorophenoxyacetic acid	µg/L	77	100.00%	2	2
2,4-Dichlorophenoxyacetic acid	µg/L	77	100.00%	5	5
Aldrin	µg/L	89	100.00%	0.00083	0.025
alpha-BHC	µg/L	77	100.00%	0.024	0.025
alpha-Chlordane	µg/L	77	100.00%	0.024	0.025
alpha-Endosulfan	µg/L	77	100.00%	0.094	0.1
beta-BHC	µg/L	77	100.00%	0.024	0.025
beta-Endosulfan	µg/L	77	100.00%	0.094	0.1
delta-BHC	µg/L	77	100.00%	0.094	0.1
Dieldrin	µg/L	89	100.00%	0.0017	0.1
Dinoseb	µg/L	77	100.00%	1	1
Endosulfan sulfate	µg/L	77	100.00%	0.47	0.51
Endrin	µg/L	77	100.00%	0.094	0.1
Endrin aldehyde	µg/L	77	100.00%	0.19	0.2
gamma-BHC	µg/L	77	100.00%	0.024	0.025
Heptachlor	µg/L	89	100.00%	0.00083	0.025
Heptachlor epoxide	µg/L	89	100.00%	0.00083	0.025
Idodrin	µg/L	77	100.00%	9.4	10
Methoxychlor	µg/L	77	100.00%	1.9	2
p,p'-DDD	µg/L	77	100.00%	0.094	0.1
p,p'-DDE	µg/L	77	100.00%	0.094	0.1
p,p'-DDT	µg/L	77	100.00%	0.094	0.1
Silvex	µg/L	77	100.00%	1	1
Toxaphene	µg/L	77	100.00%	2.4	2.5
Metals, Dissolved (Filtered)					
Beryllium	mg/L	114	100.00%	0.001	0.001
Tin	mg/L	78	100.00%	0.01	0.01
Metals, Totals (Unfiltered)					
Beryllium	mg/L	85	100.00%	0.001	0.005
Cobalt	mg/L	85	100.00%	0.003	0.015
Nickel	mg/L	85	100.00%	0.01	0.05
Silver	mg/L	120	100.00%	0.003	0.011
Tin	mg/L	81	100.00%	0.01	0.01
Conventionals					
Cyanide	mg/L	77	100.00%	0.02	0.02
Dissolved Gases					
Ethene	µg/L	42	100.00%	0.5	500

Note:

1 Elevated detection limits are due to the presence of other chemicals in the sample that force the sample to be diluted.

Abbreviations:

BHC Benzene hexachloride
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichlorethylene
DDT Dichlorodiphenyltirchloroethane
GW Groundwater
µg/L Micrograms per liter
mg/L Milligrams per liter
nd Not detected
PCB Polychlorinated biphenyl

Table C.6
Frequency of Detections in Groundwater Samples—On-site and Downgradient

Chemical	Unit	Number of Results	Number of Detections	Percent Detected	Minimum Detected Value	Maximum Detected Value	Location	Date of Maximum Detection
Volatile Organic Compounds								
1,1,1-Trichloroethane	µg/L	160	6	4%	0.25	0.54	MW-26	2/27/2006
1,1,1-Trichloroethane	µg/L	160	6	4%	0.25	0.54	MW-26	2/27/2006
1,1-Dichloroethane	µg/L	160	25	16%	0.21	0.68	MW-26	2/27/2006
1,1-Dichloroethene	µg/L	165	1	1%	0.34	0.34	MW-24	6/22/2001
1,2-Dichloroethane	µg/L	160	1	1%	0.2	0.2	MW-10	3/19/1999
1,2-Dichloropropane	µg/L	160	9	6%	0.2	0.32	MW-10	12/17/2002
Acetone	µg/L	125	1	1%	4.5	4.5	FB-14	3/11/2011
Benzene	µg/L	144	35	24%	0.29	5.8	MW-25	1/27/2011
Chlorobenzene	µg/L	160	85	53%	0.2	46	MW-25	3/31/2009
Chloroethane	µg/L	160	2	1%	0.26	0.28	MW-24	3/24/2000
Chloromethane	µg/L	160	3	2%	0.46	0.66	MW-24	9/29/2004
cis-1,2-Dichloroethene	µg/L	182	101	55%	0.2	23	FB-14	3/11/2011
Methylene chloride	µg/L	172	2	1%	0.26	0.69	FB-14	3/11/2011
trans-1,2-Dichloroethene	µg/L	182	51	28%	0.21	3.2	FB-14	3/11/2011
Trichloroethene	µg/L	182	15	8%	0.26	3.5	FB-14	3/11/2011
Vinyl chloride	µg/L	182	131	72%	0.02	11	MW-24	12/27/1999
Semivolatile Organic Compounds								
1,2-Dichlorobenzene	µg/L	162	10	6%	0.23	0.68	MW-25	3/31/2009
Naphthalene	µg/L	99	2	2%	0.12	0.3	KMW-03A	1/27/2011
Petroleum Hydrocarbons								
Diesel-range Hydrocarbons	mg/L	149	77	52%	0.085	0.97	MW-24	12/18/2002
Gasoline-range Hydrocarbons	mg/L	129	23	18%	0.027	0.56	MW-10	5/6/1999
Heavy Oil-range	mg/L	145	2	1%	0.44	0.46	MW-24	3/24/2000
Oil and Grease (Total)	mg/L	75	14	19%	1	11	MW-08, MW-	3/22/2000
Metals, Dissolved (Filtered)								
Aluminum	mg/L	78	16	21%	0.024	0.1	MW-08	12/22/2000
Antimony	mg/L	114	2	2%	0.001	0.001	MW-18	9/28/2004
Antimony	mg/L	114	2	2%	0.001	0.001	MW-24	12/27/1999
Arsenic	mg/L	176	75	43%	0.0002	0.025	MW-27	3/31/2009
Barium	mg/L	157	122	78%	0.006	6.0	KMW-03A	12/18/2007
Cadmium	mg/L	160	14	9%	0.002	0.009	MW-10	10/26/1999
Calcium	mg/L	110	110	100%	25.9	93000	MW-24	6/18/2004
Chromium	mg/L	169	6	4%	0.00108	0.0058	MW-25	2/27/2006
Cobalt	mg/L	114	4	4%	0.000185	0.000473	MW-24	9/16/2005
Copper	mg/L	114	32	28%	0.00115	0.00716	MW-08	9/21/2005
Iron	mg/L	117	117	100%	5.9	63	MW-18	12/28/1999
Lead	mg/L	169	9	5%	0.000089	0.0024	MW-27	10/23/2008
Magnesium	mg/L	110	110	100%	17	84	MW-08	12/27/1999
Manganese	mg/L	125	125	100%	0.0298	3.5	MW-10	12/13/2004
Mercury	mg/L	165	3	2%	0.0001	0.0003	MW-10	3/19/1999
Nickel	mg/L	114	4	4%	0.000818	0.00348	MW-10	9/16/2005
Potassium	mg/L	110	110	100%	4.9	20	MW-08	3/26/2002
Selenium	mg/L	157	108	69%	0.001	0.055	MW-08	9/13/2001
Silver	mg/L	157	1	1%	0.00008	0.00008	MW-08	9/21/2005
Sodium	mg/L	110	110	100%	24	690000	MW-10	9/25/2002
Thallium	mg/L	114	2	2%	0.001	0.002	MW-08	8/3/2000
Vanadium	mg/L	114	57	50%	0.00145	0.013	MW-25	2/27/2006
Zinc	mg/L	114	27	24%	0.00234	0.2	MW-24	12/27/1999
Metals, Totals (Unfiltered)								
Aluminum	mg/L	81	47	58%	0.021	0.55	MW-10	3/19/1999
Antimony	mg/L	85	1	1%	0.021	0.021	MW-08	3/12/2003
Arsenic	mg/L	137	52	38%	0.0003	0.055	MW-27	3/27/2007
Barium	mg/L	120	85	71%	0.005	0.086	MW-18	10/28/1999
Cadmium	mg/L	120	4	3%	0.006	0.009	MW-24	10/27/1999
Calcium	mg/L	81	81	100%	15	130	MW-08	8/27/1999
Chromium	mg/L	132	3	2%	0.0007	0.0064	MW-25	2/27/2006
Copper	mg/L	85	21	25%	0.002	0.013	MW-08	8/3/2000
Iron	mg/L	88	88	100%	0.046	61	MW-18	12/28/1999
Lead	mg/L	132	10	8%	0.0017	0.023	KMW-01A	1/28/2011
Magnesium	mg/L	81	81	100%	11	84	MW-08	12/27/1999
Manganese	mg/L	97	96	99%	0.0298	3.3	MW-10	10/27/1999
Mercury	mg/L	128	2	2%	0.0001	0.0001	MW-18	12/18/2002
Mercury	mg/L	128	2	2%	0.0001	0.0001	MW-08	3/19/1999
Potassium	mg/L	81	81	100%	1.8	20	MW-08	3/26/2002
Selenium	mg/L	120	81	68%	0.001	0.062	MW-08	3/26/2002
Sodium	mg/L	81	81	100%	9	64000	MW-24	9/24/2002
Thallium	mg/L	85	1	1%	0.001	0.001	MW-08	8/3/2000
Vanadium	mg/L	85	39	46%	0.002	0.016	MW-25	2/27/2006
Zinc	mg/L	85	12	14%	0.005	0.011	MW-10	3/19/1999

Table C.6
Frequency of Detections in Groundwater Samples—On-site and Downgradient

Chemical	Unit	Number of Results	Number of Detections	Percent Detected	Minimum Detected Value	Maximum Detected Value	Location	Date of Maximum Detection
Conventional Analyses								
Alkalinity (as $CaCO_3$)	mg/L	117	117	100%	37.4	940	MW-18	6/14/2000
Ammonia	mg/L	106	105	99%	0.64	5.8	MW-10	6/17/2005
Chemical oxygen demand	mg-O_2/L	77	76	99%	6	39	MW-24	12/27/1999
Chloride	mg/L	106	106	100%	10	530	MW-08	12/22/2000, 3/22/2001
Dissolved Organic Carbon	mg/L	7	7	100%	3.24	19.4	MW-25	1/27/2011
Fluoride	mg/L	77	4	5%	1	1.6	MW-08	6/15/2000
Halides, Total Organic (TOX)	mg/L	77	44	57%	0.02	0.12	MW-24	6/15/2000
Nitrate + Nitrite	mg-N/L	109	30	28%	0.01	0.28	MW-08	3/12/2003
Nitrogen	mg/L	4	4	100%	0.38	3.4	MW-10	9/16/2005
N-Nitrate	mg-N/L	117	28	24%	0.01	0.28	MW-08	3/12/2003
N-Nitrite	mg-N/L	109	16	15%	0.01	0.15	MW-24	9/13/2001
Organic Content	%	3	3	100%	0.4	0.5	MW-25, MW-	2/23/2006
pH	pH	110	110	100%	6.4	7	MW-18, MW-24	9/28/2004, 10/27/1999
Specific Conductance	µS/cm	110	110	100%	440	12000	MW-08	6/15/2000
Sulfate	mg/L	115	82	71%	0.71	240	MW-10	3/10/2004, 9/27/2004
Sulfide	mg/L	78	29	37%	0.4	7.2	MW-18	8/3/2000
Total Dissolved Solids	mg/L	110	110	100%	80	1800	MW-18	12/13/2004
Total Organic Carbon	mg/L	110	109	99%	5	17	MW-08	8/27/1999
Total Phosphate	mg/L	57	57	100%	0.11	2.4	MW-10	6/18/2003
Total Solids	mg/L	110	110	100%	120	1800	MW-18	12/13/2004
Total Suspended Solids	mg/L	110	110	100%	1	120	MW-10, MW-	3/19/1999, 3/22/2001
Turbidity	ntu	77	77	100%	14	230	MW-08	3/22/2000
Dissolved Gases								
Ethane	µg/L	42	11	26%	5.4	65	MW-25	3/5/2008
Methane	µg/L	42	41	98%	0.71	8200	MW-18	3/4/2008

Abbreviations:

$CaCO_3$ Calcium carbonate
FOD Frequency of detection
GW Groundwater
µg/L Micrograms per liter
µS/cm Microsiemens per centimeter
mg/L Milligrams per liter
mg-N/L Milligrams nitrogen per liter
mg-O_2/L Milligrams molecular oxygen per liter
ntu Nephelometric turbidity unit
TOX Total organic halides

Table C.7
Chemicals Tested for but Not Detected in Groundwater Samples—Off-site and Upgradient

Chemical	Unit	Number of Results	Percent Non-Detects	Minimum Non-Detect Value	Maximum Non-Detect Value[1]
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	214	100.00%	0.2	10
1,1,2,2-Tetrachloroethane	µg/L	214	100.00%	0.2	10
1,1,2-Trichloroethane	µg/L	214	100.00%	0.2	10
1,1-Dichloropropene	µg/L	158	100.00%	0.2	10
1,2,3-Trichlorobenzene	µg/L	38	100.00%	0.2	10
1,2,3-Trichloropropane	µg/L	217	100.00%	0.2	10
1,2,4-Trimethylbenzene	µg/L	5	100.00%	2	10
1,2-Dibromo-3-chloropropane	µg/L	223	100.00%	0.2	50
1,2-Dibromoethane	µg/L	214	100.00%	0.2	10
1,2-Dichloroethane	µg/L	214	100.00%	0.2	10
1,2-Dichloropropane	µg/L	214	100.00%	0.2	10
1,3,5-Trimethylbenzene	µg/L	5	100.00%	2	10
1,3-Dichloropropane	µg/L	158	100.00%	0.2	10
1,3-Dichloropropene	µg/L	126	100.00%	0.2	2
2,2-Dichloropropane	µg/L	158	100.00%	0.2	10
2-Chloroethyl vinyl ether	µg/L	153	100.00%	0.2	2
2-Chlorotoluene	µg/L	32	100.00%	0.2	10
2-Hexanone	µg/L	187	100.00%	4	50
2-Nitroaniline	µg/L	126	100.00%	3.4	3.9
4-Chlorotoluene	µg/L	32	100.00%	0.2	10
Acetonitrile	µg/L	124	100.00%	100	100
Acrolein	µg/L	135	100.00%	5	100
Acrylonitrile	µg/L	187	100.00%	10	100
Allyl chloride	µg/L	126	100.00%	10	100
beta-Chloroprene	µg/L	126	100.00%	20	200
Bromobenzene	µg/L	32	100.00%	0.2	10
Bromochloromethane	µg/L	214	100.00%	0.2	10
Bromodichloromethane	µg/L	214	100.00%	0.2	10
Bromoethane	µg/L	126	100.00%	0.2	2
Bromoform	µg/L	214	100.00%	0.2	10
Carbon tetrachloride	µg/L	223	100.00%	0.2	10
Chloroethane	µg/L	214	100.00%	0.2	10
Chloroform	µg/L	214	100.00%	0.2	10
cis-1,3-Dichloropropene	µg/L	214	100.00%	0.2	10
Cymene	µg/L	5	100.00%	2	10
Dibromochloromethane	µg/L	214	100.00%	0.2	10
Dibromomethane	µg/L	214	100.00%	0.2	10
Dichlorodifluoromethane	µg/L	158	100.00%	0.2	10
Ethylbenzene	µg/L	196	100.00%	0.2	10
Iodomethane	µg/L	209	100.00%	0.2	2
Isobutyl alcohol	µg/L	124	100.00%	100	100
iso-Propylbenzene	µg/L	5	100.00%	2	10
Methacrylonitrile	µg/L	126	100.00%	5	50
Methyl ethyl ketone	µg/L	187	100.00%	4	50
Methyl iso butyl ketone	µg/L	187	100.00%	4	50
Methyl methacrylate	µg/L	126	100.00%	2	20
Methyl-Tert-Butyl Ether	µg/L	5	100.00%	2	10
n-Butylbenzene	µg/L	5	100.00%	2	10
n-Propylbenzene	µg/L	5	100.00%	2	10
Propionitrile	µg/L	124	100.00%	60	60
sec-Butylbenzene	µg/L	5	100.00%	2	10
tert-Butylbenzene	µg/L	5	100.00%	2	10
Tetrachloroethene	µg/L	223	100.00%	0.2	10
trans-1,3-Dichloropropene	µg/L	214	100.00%	0.2	10
trans-1,4-Dichloro-2-butene	µg/L	182	100.00%	100	1000
Vinyl acetate	µg/L	182	100.00%	0.2	2
Xylene (meta & para)	µg/L	9	100.00%	1	1
Xylene (ortho)	µg/L	140	100.00%	0.2	10
Xylene (total)	µg/L	187	100.00%	0.4	20
Semivolatile Organic Compounds					
1,2,4-Trichlorobenzene	µg/L	158	100.00%	0.2	10
1,2-Diphenylhydrazine	µg/L	135	100.00%	0.5	2.1
1,3-Dichlorobenzene	µg/L	159	100.00%	0.2	10
1,4-Dichlorobenzene	µg/L	215	100.00%	0.2	10
2,4,5-Trichlorophenol	µg/L	126	100.00%	2.5	2.9
2,4,6-Trichlorophenol	µg/L	126	100.00%	2.1	2.4
2,4-Dichlorophenol	µg/L	126	100.00%	3.5	4
2,4-Dimethylphenol	µg/L	126	100.00%	10	12

Table C.7
Chemicals Tested for but Not Detected in Groundwater Samples—Off-site and Upgradient

Chemical	Unit	Number of Results	Percent Non-Detects	Minimum Non-Detect Value	Maximum Non-Detect Value[1]
Semivolatile Organic Compounds (continued)					
2,4-Dinitrophenol	µg/L	126	100.00%	7	8.2
2,4-Dinitrotoluene	µg/L	126	100.00%	0.8	1
2,6-Dinitrotoluene	µg/L	126	100.00%	1.8	2.1
2-Chloronaphthalene	µg/L	126	100.00%	2.1	2.5
2-Chlorophenol	µg/L	126	100.00%	3.8	4.5
2-Methylnaphthalene	µg/L	126	100.00%	2.9	3.4
2-Methylphenol	µg/L	126	100.00%	6.1	7.1
2-Nitroaniline	µg/L	126	100.00%	3.4	3.9
2-Nitrophenol	µg/L	126	100.00%	3.7	4.3
3,3'-Dichlorobenzidine	µg/L	135	100.00%	2.5	7.6
3-Nitroaniline	µg/L	126	100.00%	1.7	2
4,6-Dinitro-o-cresol	µg/L	126	100.00%	1.6	1.8
4-Bromophenyl phenyl ether	µg/L	126	100.00%	2.1	2.4
4-Chloro-3-methylphenol	µg/L	126	100.00%	2.6	3
4-Chloroaniline	µg/L	126	100.00%	2.4	2.8
4-Chlorophenyl phenyl ether	µg/L	126	100.00%	2.2	2.6
4-Methylphenol	µg/L	126	100.00%	5.6	6.5
4-Nitroaniline	µg/L	126	100.00%	4.7	5.4
4-Nitrophenol	µg/L	126	100.00%	3.7	4.3
Acenaphthylene	µg/L	126	100.00%	2.6	3
Anthracene	µg/L	126	100.00%	2.1	2.4
Azobenzene	µg/L	9	100.00%	0.5	0.5
Benzo(a)anthracene	µg/L	126	100.00%	2.1	2.4
Benzo(b)fluoranthene	µg/L	126	100.00%	2.1	2.5
Benzo(g,h,i)perylene	µg/L	126	100.00%	3.4	3.9
Benzo(j)fluoranthene	µg/L	6	100.00%	4.6	4.8
Benzo(k)fluoranthene	µg/L	120	100.00%	4.3	5
Benzofluoranthenes (total)	µg/L	126	100.00%	4.3	5
Benzoic acid	µg/L	126	100.00%	16	18
Benzyl alcohol	µg/L	126	100.00%	3.6	4.1
bis(2-chloroethoxy)methane	µg/L	126	100.00%	3.7	4.3
bis(2-chloroethyl)ether	µg/L	135	100.00%	0.5	4.1
bis(2-ethylhexyl)phthalate	µg/L	126	100.00%	5.1	6
bis-chloroisopropyl ether	µg/L	126	100.00%	3.6	4.1
Butyl benzyl phthalate	µg/L	126	100.00%	2.9	3.4
Chrysene	µg/L	126	100.00%	1.6	1.8
Dibenzo(a,h)anthracene	µg/L	126	100.00%	3.6	4.1
Dibenzofuran	µg/L	126	100.00%	1.6	1.8
Diethylphthalate	µg/L	126	100.00%	2.1	2.5
Dimethyl phthalate	µg/L	126	100.00%	1.8	2.1
Di-n-butyl phthalate	µg/L	126	100.00%	1.6	1.8
Di-n-octyl phthalate	µg/L	126	100.00%	5.1	6
Fluoranthene	µg/L	126	100.00%	1.3	1.5
Hexachlorobenzene	µg/L	126	100.00%	2.6	3
Hexachlorobutadiene	µg/L	158	100.00%	0.2	10
Hexachlorocyclopentadiene	µg/L	135	100.00%	2.5	8.2
Hexachloroethane	µg/L	135	100.00%	0.5	4.5
Indeno(1,2,3-cd)pyrene	µg/L	126	100.00%	3	3.5
Isophorone	µg/L	126	100.00%	3.5	4
Nitrobenzene	µg/L	126	100.00%	3.2	3.7
N-Nitrosodiethylamine	µg/L	6	100.00%	4.7	4.9
N-Nitrosodimethylamine	µg/L	126	100.00%	4.7	5.4
N-Nitroso-di-n-propylamine	µg/L	126	100.00%	4	4.7
N-Nitrosodiphenylamine	µg/L	120	100.00%	4.4	5.1
Phenol	µg/L	126	100.00%	3.2	3.7
Pyrene	µg/L	126	100.00%	3	3.5
Polychlorinated Biphenyls					
PCB Aroclor 1016	µg/L	126	100.00%	0.009	0.02
PCB Aroclor 1221	µg/L	126	100.00%	0.009	0.02
PCB Aroclor 1232	µg/L	126	100.00%	0.009	0.02
PCB Aroclor 1242	µg/L	126	100.00%	0.009	0.02
PCB Aroclor 1248	µg/L	126	100.00%	0.009	0.02
PCB Aroclor 1254	µg/L	126	100.00%	0.009	0.02
Pesticides and Herbicides					
alpha-BHC	µg/L	126	100.00%	0.024	0.05
alpha-Chlordane	µg/L	126	100.00%	0.024	0.05
alpha-Endosulfan	µg/L	126	100.00%	0.094	0.2
beta-BHC	µg/L	126	100.00%	0.024	0.05
beta-Endosulfan	µg/L	126	100.00%	0.094	0.2
delta-BHC	µg/L	126	100.00%	0.094	0.2
Endosulfan sulfate	µg/L	126	100.00%	0.47	1
Endrin	µg/L	126	100.00%	0.094	0.2

Table C.7
Chemicals Tested for but Not Detected in Groundwater Samples—Off-site and Upgradient

Chemical	Unit	Number of Results	Percent Non-Detects	Minimum Non-Detect Value	Maximum Non-Detect Value[1]
Pesticides and Herbicides (continued)					
Endrin aldehyde	µg/L	126	100.00%	0.19	0.4
gamma-BHC	µg/L	126	100.00%	0.024	0.05
Idodrin	µg/L	126	100.00%	9.4	20
Methoxychlor	µg/L	126	100.00%	1.9	4
p,p'-DDD	µg/L	126	100.00%	0.094	0.2
p,p'-DDE	µg/L	126	100.00%	0.094	0.2
p,p'-DDT	µg/L	126	100.00%	0.094	0.2
Toxaphene	µg/L	126	100.00%	2.4	5
Aldrin	µg/L	135	100.00%	0.00083	0.05
Dieldrin	µg/L	135	100.00%	0.0017	0.2
Heptachlor	µg/L	135	100.00%	0.00083	0.05
Heptachlor epoxide	µg/L	135	100.00%	0.00083	0.05
2,4,5 Trichlorophenoxyacetic acid	µg/L	126	100.00%	2	2
2,4-Dichlorophenoxyacetic acid	µg/L	126	100.00%	5	5
Dinoseb	µg/L	126	100.00%	1	1
Silvex	µg/L	126	100.00%	1	1
Metals, Dissolved (Filtered)					
Beryllium	mg/L	182	100.00%	0.001	0.001
Thallium	mg/L	182	100.00%	0.001	0.002
Tin	mg/L	126	100.00%	0.01	0.01
Metals, Totals (Unfiltered)					
Beryllium	mg/L	136	100.00%	0.001	0.005
Silver	mg/L	163	100.00%	0.003	0.011
Thallium	mg/L	136	100.00%	0.001	0.001
Tin	mg/L	133	100.00%	0.01	0.01
Conventional Analyses					
Cyanide	mg/L	126	100.00%	0.02	0.02
Dissolved Gases					
Ethene	µg/L	6	100.00%	1.8	50

Note:

1 Elevated detection limits are due to the presence of other chemicals in the sample that force the sample to be diluted.

Abbreviations:

BHC Benzene hexachloride
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichlorethylene
DDT Dichlorodiphenyltirchloroethane
GW Groundwater
µg/L Micrograms per liter
mg/L Milligrams per liter
ND Not detected
PCB Polychlorinated biphenyl

Table C.8
Frequency of Detections in Groundwater Samples—Off-site and Upgradient

Chemical	Unit	Number of Results	Number of Detections	Percent Detected	Minimum Detected Value	Maximum Detected Value	Location	Date of Maximum Detection
Volatile Organic Compounds								
1,1,1-Trichloroethane	µg/L	214	2	1%	0.43	0.9	MW-12	12/28/1999
1,1-Dichloroethane	µg/L	214	16	7%	0.21	1.1	MW-12	12/28/1999
1,1-Dichloroethene	µg/L	214	7	3%	0.2	0.37	MW-03	3/22/2001
Acetone	µg/L	187	2	1%	40	140	MW-01	3/18/2005
Benzene	µg/L	205	2	1%	0.46	5.6	KMW-05	1/27/2011
Bromomethane	µg/L	214	1	0%	0.66	0.66	MW-12	9/26/2003
Carbon disulfide	µg/L	182	2	1%	0.3	0.66	MW-01	10/29/1999
Chlorobenzene	µg/L	214	3	1%	0.21	0.79	MW-03	3/22/2001
Chloromethane	µg/L	214	4	2%	0.26	0.57	MW-12	9/28/2004
cis-1,2-Dichloroethene	µg/L	229	40	17%	0.4	44	MW-12	12/18/2002
Methylene chloride	µg/L	223	8	4%	0.69	11	MW-02	6/27/2001
Styrene	µg/L	196	2	1%	6.8	13	KMW-05	10/22/2008
Toluene	µg/L	196	3	2%	1.1	10	KMW-05	10/22/2008
trans-1,2-Dichloroethene	µg/L	229	13	6%	0.21	0.67	MW-12	9/26/2003
Trichloroethene	µg/L	229	35	15%	0.6	14	MW-12	9/14/2001
Trichlorofluoromethane	µg/L	214	2	1%	0.33	0.45	MW-01	3/23/2000
Vinyl chloride	µg/L	229	39	17%	0.026	2	MW-12	12/20/2000
Semivolatile Organic Compounds								
1,2-Dichlorobenzene	µg/L	215	1	0%	0.23	0.23	MW-03	3/22/2001
Acenaphthene	µg/L	126	1	1%	5.2	5.2	MW-04	3/19/1999
Benzo(a)pyrene	µg/L	135	1	1%	0.31	0.31	KMW-05	1/27/2011
Carbazole	µg/L	126	1	1%	1	1	MW-04	3/19/1999
Fluorene	µg/L	126	1	1%	3.1	3.1	MW-04	3/19/1999
Naphthalene	µg/L	140	5	4%	0.035	170	KMW-05	10/22/2008
Pentachlorophenol	µg/L	144	2	1%	4	5.9	KMW-05	1/27/2011
Phenanthrene	µg/L	126	3	2%	2	3.9	MW-04	3/19/1999
Polychlorinated Biphenyls								
PCB Aroclor 1260	µg/L	126	1	1%	0.073	0.073	MW-01	9/26/2002
Petroleum Hydrocarbons								
Gasoline-range Hydrocarbons	mg/L	187	3	2%	0.025	3	KMW-05	10/22/2008
Diesel-range Hydrocarbons	mg/L	207	23	11%	0.12	5.1	KMW-08	10/22/2008
Heavy Oil-range Hydrocarbons	mg/L	201	6	3%	0.98	7.8	KMW-05	10/22/2008
Oil and Grease (Total)	mg/L	124	20	16%	1	11	MW-04	3/22/2000
Metals, Dissolved (Filtered)								
Aluminum	mg/L	126	40	32%	0.02	0.29	MW-02	12/29/1999
Antimony	mg/L	182	31	17%	0.001	0.014	MW-03	3/12/2004
Arsenic	mg/L	229	120	52%	0.000233	1.21	KMW-05	1/27/2011
Barium	mg/L	214	181	85%	0.001	0.58	MW-03	10/29/1999
Cadmium	mg/L	219	15	7%	0.002	0.0098	MW-03	9/29/2004
Calcium	mg/L	179	178	99%	11	160	MW-02	12/29/1999
Chromium	mg/L	223	11	5%	0.0007	0.15	KMW-05	1/27/2011
Cobalt	mg/L	182	25	14%	0.000127	0.015	MW-02	12/26/2000
Copper	mg/L	182	36	20%	0.000552	0.031	MW-03	12/19/2002
Iron	mg/L	179	178	99%	0.049	40	MW-02	6/16/2000
Lead	mg/L	223	13	6%	8.19E-05	0.29	KMW-05	10/22/2008
Magnesium	mg/L	179	178	99%	0.71	42	MW-06	12/13/2004
Manganese	mg/L	189	177	94%	0.001	2	MW-12	3/22/2002
Mercury	mg/L	220	6	3%	0.0001	0.0006	KMW-05	1/27/2011
Nickel	mg/L	182	7	4%	0.000917	0.012	MW-14	6/17/2004
Potassium	mg/L	179	178	99%	0.52	41	MW-12	3/25/2002
Selenium	mg/L	214	131	61%	0.000812	0.016	MW-06	9/14/2001
Silver	mg/L	214	3	1%	3.57E-05	0.000106	MW-06	9/21/2005
Sodium	mg/L	179	178	99%	1.5	78	MW-12	3/22/2002
Vanadium	mg/L	182	98	54%	0.000288	2.1	MW-12	3/22/2002
Zinc	mg/L	182	67	37%	0.00137	0.17	MW-12	12/28/1999
Metals, Totals (Unfiltered)								
Aluminum	mg/L	133	89	67%	0.023	71	MW-02	12/26/2000
Antimony	mg/L	136	20	15%	0.001	0.004	MW-02	10/29/1999
Arsenic	mg/L	178	100	56%	0.0003	1.23	KMW-05	1/27/2011
Barium	mg/L	163	136	83%	0.001	0.24	MW-02	12/26/2000
Cadmium	mg/L	163	3	2%	0.004	0.006	MW-06	10/26/1999
Calcium	mg/L	133	133	100%	13	160	MW-02	12/26/2000
Chromium	mg/L	172	8	5%	0.0031	0.15	KMW-05	1/27/2011
Cobalt	mg/L	136	17	13%	0.004	0.067	MW-02	12/26/2000
Copper	mg/L	136	33	24%	0.002	0.12	MW-02	12/26/2000
Iron	mg/L	133	133	100%	0.12	96	MW-02	12/26/2000
Lead	mg/L	172	24	14%	0.001	0.166	KMW-05	1/27/2011
Magnesium	mg/L	133	133	100%	1.5	39	MW-06	12/18/2002

Table C.8
Frequency of Detections in Groundwater Samples—Off-site and Upgradient

Chemical	Unit	Number of Results	Number of Detections	Percent Detected	Minimum Detected Value	Maximum Detected Value	Location	Date of Maximum Detection
Metals, Totals (Unfiltered) (continued)								
Manganese	mg/L	145	139	96%	0.001	8.9	MW-02	6/20/2002
Mercury	mg/L	169	3	2%	0.0001	0.00062	KMW-05	1/27/2011
Nickel	mg/L	136	4	3%	0.01	0.054	MW-02	12/26/2000
Potassium	mg/L	133	133	100%	1	19	MW-06	9/14/2001
Selenium	mg/L	163	105	64%	0.001	0.009	MW-02	10/29/1999
Sodium	mg/L	133	133	100%	1.4	78	MW-12	3/22/2002
Vanadium	mg/L	136	73	54%	0.002	0.23	MW-02	12/26/2000
Zinc	mg/L	136	48	35%	0.004	0.17	MW-02	12/26/2000
Conventional Analyses								
Alkalinity (as $CaCO_3$)	mg/L	179	179	100%	88	570	MW-14	6/14/2000
Ammonia	mg/L	173	159	92%	0.01	4.6	MW-14	12/13/2004
Chemical oxygen demand	mg-O_2/L	126	84	67%	5	100	MW-02	6/16/2000
Chloride	mg/L	178	177	99%	2	35	MW-12	3/22/2002
Fluoride	mg/L	126	1	1%	1	1	MW-02	3/20/2001
Halides, Total Organic	mg/L	126	15	12%	0.02	0.08	MW-01	12/22/2000, 3/22/2001
Nitrate + Nitrite	mg-N/L	167	56	34%	0.01	0.67	MW-03	12/19/2002
Nitrogen	mg/L	6	6	100%	0.19	1.5	MW-06	9/21/2005
N-Nitrate	mg-N/L	179	56	31%	0.01	0.67	MW-03	12/19/2002
N-Nitrite	mg-N/L	167	22	13%	0.01	0.07	MW-02	9/18/2001
pH	pH	179	179	100%	6.46	8.2	MW-06	12/19/2001
Specific Conductance	µS/cm	179	179	100%	200	890	MW-12	3/22/2002
Sulfate	mg/L	178	161	90%	1	78	MW-03	9/20/2003
Sulfide	mg/L	120	17	14%	0.4	2.1	MW-04	12/22/2000
Total Dissolved Solids	mg/L	179	179	100%	150	620	MW-02	6/16/2000
Total Organic Carbon	mg/L	179	166	93%	1	43	MW-02	6/16/2000
Total Phosphate	mg/L	99	98	99%	0.01	3.1	MW-02	12/26/2000
Total Solids	mg/L	179	179	100%	150	2700	MW-02	12/26/2000
Total Suspended Solids	mg/L	179	140	78%	1	950	MW-02	6/16/2000
Turbidity	ntu	126	76	60%	1	220	MW-02	3/23/2000
Dissolved Gases								
Ethane	µg/L	6	1	17%	3.5	3.5	MW-14	2/27/2006
Methane	µg/L	6	5	83%	30	840	MW-14	3/4/2008

Abbreviations:

$CaCO_3$ Calcium carbonate
FOD Frequency of detection
GW Groundwater
µg/L Micrograms per liter
µS/cm centimeter
mg/L Milligrams per liter
mg-N/L liter
mg-O_2/L Milligrams molecular oxygen per
ntu turbidity unit

Table C.9
Results of January 2011 through March 2014 Groundwater Sampling Events

Location Name		KMW-01A	KMW-03A		
Field Sample ID		KMW-01A-012811	KMW-03A-012711	SPL-GW-KMW03A-040313	SPL-GW-KMW03A-071813
Use Date		01/28/2011	01/27/2011	04/03/2013	07/18/2013
Depth		19–29 ft	5–20 ft		
Detected Chemicals					
Volatile Organic Compounds (USEPA 8260C/8260C-SIM)					
Benzene	µg/L	0.2 U	0.2 U	--	--
cis-1,2-Dichloroethene	µg/L	0.2 U	0.2 U	0.2 U	0.2 U
trans-1,2-Dichloroethene	µg/L	0.2 U	0.2 U	--	--
Styrene	µg/L	0.2 U	0.2 U	--	--
Trichloroethene	µg/L	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl chloride	µg/L	**0.091**	**0.39**	**0.3**	**0.35**
Semivolatile Organic Compounds (USEPA 8270D/8070D-SIM/8041)					
Benzo(a)pyrene	µg/L	0.01 U	0.01 U	--	--
Naphthalene	µg/L	0.013 UB	**0.3**	--	--
Pentachlorophenol (by USEPA 8041)	µg/L	0.25 U	0.25 U	--	--
Pentachlorophenol (by USEPA 8270D)	µg/L	2.5 U	2.5 U	--	--
Petroleum Hydrocarbons (NWTPH)					
Gasoline-range Hydrocarbons	mg/L	0.25 U	0.25 U	--	--
Diesel-range Hydrocarbons	mg/L	0.1 U	0.1 U	--	--
Motor Oil-range Hydrocarbons	mg/L	0.2 U	0.2 U	--	--
Metals (USEPA 200.8/6010C/7470A)					
Arsenic (Dissolved)	mg/L	**0.0006**	**0.008**	--	--
Arsenic (Total)	mg/L	**0.0008**	**0.0087**	--	--
Calcium (Dissolved)	mg/L	--	--	**84**	**76**
Chromium (Dissolved)	mg/L	0.0005 U	0.0005 U	--	--
Chromium (Total)	mg/L	**0.0007**	0.0005 U	--	--
Iron (Dissolved)	mg/L	--	--	**10**	**10**
Iron (Total)	mg/L	--	--	**10**	**11**
Lead (Dissolved)	mg/L	0.001 U	0.001 U	--	--
Lead (Total)	mg/L	**0.023**	**0.005**	--	--
Magnesium (Dissolved)	mg/L	--	--	**27**	**26**
Manganese (Dissolved)	mg/L	**1.6**	**0.047**	**0.048**	**0.036**
Manganese (Total)	mg/L	**1.6**	**0.048**	**0.05**	**0.04**
Mercury (Dissolved)	mg/L	0.00002 U	0.00002 U	--	--
Mercury (Total)	mg/L	0.00002 U	0.00002 U	--	--
Potassium (Dissolved)	mg/L	--	--	**16**	**15**
Sodium (Dissolved)	mg/L	--	--	**25**	**23**
Conventionals (Various)[1]					
Alkalinity (as $CaCO_3$)	mg-$CaCO_3$/L	--	--	**370**	**350**
Bicarbonate (as $CaCO_3$)	mg-$CaCO_3$/L	--	--	**370**	**350**
Carbonate (as $CaCO_3$)	mg-$CaCO_3$/L	--	--	1 U	1 U
Hydroxide (as $CaCO_3$)	mg-$CaCO_3$/L	--	--	1 U	1 U
Ammonia (total as nitrogen)	mg-N/L	--	--	**3**	**3.1**
N-Nitrate	mg-N/L	--	--	0.1 U	0.1 U
N-Nitrite	mg-N/L	--	--	--	--
Chloride	mg/L	--	--	**13**	**13**
Dissolved Organic Carbon	mg/L	--	--	--	--
Sulfate	mg/L	--	--	**0.4**	0.1 U
Sulfide	mg/L	--	--	0.05 U	0.05 U
Dissolved Gases (RSK 175)					
Ethane	µg/L	--	--	--	--
Methane	µg/L	--	--	--	--

Notes:

BOLD Detected.

-- Not Analyzed.

1 Analytical methods for conventional analysis: alaklinity, bicarbonate, carbonate and hydroxide by SM2320, ammonia by 350.1 and 350.1M, N-Nitrate by USEPA 300, N-Nitrite by USEPA 353.2, chloride by USPEA 300, dissolved organic carbon by USEPA 415.1, sulfate by USEPA 300 and USEPA 375.2, and sulfide by USEPA 376.2.

Abbreviations:

$CaCO_3$ Calcium carbonate
dup Duplicate
ft Feet
µg/L Micrograms per liter
mg/L Milligrams per liter
mg-N/L Milligrams of nitrogen per liter
NWTPH Northwest total petroleum hydrocarbon
RSK Dissolved gas analysis in water
USEPA U.S. Environmetnal Protection Agency

Qualifiers:

J Estimated value
JB Estimated due to presence of blank contamination
JM Estimated due to poor spectral match
U Not detected
UB Not detected at elevated reporting limit due to blank contamination

Table C.9
Results of January 2011 through March 2014 Groundwater Sampling Events

Location Name		KMW-03A	KMW-04	KMW-05		
Field Sample ID		SPL-GW-KMW03A-031714	KMW-04-012811	KMW-05-012711	SPL-GW-KMW05-040313	SPL-GW-KMW05-071813
Use Date		03/17/2014	01/28/2011	01/27/2011	04/03/2013	07/18/2013
Depth		5–20 ft	5–20 ft	5–20 ft		
Detected Chemicals						
Volatile Organic Compounds (USEPA 8260C/8260C-SIM)						
Benzene	µg/L	--	0.2 U	**5.6**	**8.2**	**7.2**
cis-1,2-Dichloroethene	µg/L	0.2 U	0.2 U	4 U	4 U	4 U
trans-1,2-Dichloroethene	µg/L	--	0.2 U	4 U	--	--
Styrene	µg/L	--	0.2 U	**6.8**	--	--
Trichloroethene	µg/L	0.2 U	0.2 U	4 U	4 U	4 U
Vinyl chloride	µg/L	**0.3**	**0.22**	0.2 U	0.4 U	0.4 U
Semivolatile Organic Compounds (USEPA 8270D/8070D-SIM/8041)						
Benzo(a)pyrene	µg/L	--	0.01 U	**0.31**	--	--
Naphthalene	µg/L	--	0.016 UB	**140**	--	--
Pentachlorophenol (by USEPA 8041)	µg/L	--	0.25 U	**5.9 J**	--	--
Pentachlorophenol (by USEPA 8270D)	µg/L	--	2.5 U	**4**	--	--
Petroleum Hydrocarbons (NWTPH)						
Gasoline-range Hydrocarbons	mg/L	--	0.25 U	**1.5 J**	--	--
Diesel-range Hydrocarbons	mg/L	--	0.1 U	**0.48 J**	--	--
Motor Oil-range Hydrocarbons	mg/L	--	0.2 U	**2.5 J**	--	--
Metals (USEPA 200.8/6010C/7470A)						
Arsenic (Dissolved)	mg/L	--	**0.0027**	**1.2**	--	--
Arsenic (Total)	mg/L	--	**0.0026**	**1.2**	--	--
Calcium (Dissolved)	mg/L	**85.8**	--	--	**9.8**	**11**
Chromium (Dissolved)	mg/L	--	0.001 U	**0.15**	--	--
Chromium (Total)	mg/L	--	0.0005 U	**0.15**	--	--
Iron (Dissolved)	mg/L	**11.2**	--	--	**5**	**5.2**
Iron (Total)	mg/L	**11.3**	--	--	**5.7**	**5.9**
Lead (Dissolved)	mg/L	--	0.001 U	**0.13**	--	--
Lead (Total)	mg/L	--	0.001 U	**0.17**	--	--
Magnesium (Dissolved)	mg/L	**25.7**	--	--	0.5 U	0.5 U
Manganese (Dissolved)	mg/L	**0.058**	**0.08**	0.02 U	0.01 U	0.01 U
Manganese (Total)	mg/L	**0.06**	**0.069**	**0.01**	0.01 U	0.01 U
Mercury (Dissolved)	mg/L	--	0.00002 U	**0.0006**	--	--
Mercury (Total)	mg/L	--	0.00002 U	**0.00062**	--	--
Potassium (Dissolved)	mg/L	**14.1**	--	--	**4,200**	**4,300**
Sodium (Dissolved)	mg/L	**24.5**	--	--	**1,500**	**1,600**
Conventionals (Various)[1]						
Alkalinity (as $CaCO_3$)	mg-$CaCO_3$/L	**378**	--	--	**7,500**	**7,900**
Bicarbonate (as $CaCO_3$)	mg-$CaCO_3$/L	**378**	--	--	1 U	1 U
Carbonate (as $CaCO_3$)	mg-$CaCO_3$/L	1 U	--	--	**2,600**	**2,600**
Hydroxide (as $CaCO_3$)	mg-$CaCO_3$/L	1 U	--	--	**4,900**	**5,400**
Ammonia (total as nitrogen)	mg-N/L	**3.17**	--	--	**74**	**64**
N-Nitrate	mg-N/L	0.1	--	--	5 U	10 U
N-Nitrite	mg-N/L	--	--	--	--	--
Chloride	mg/L	**15.4**	**--**	**--**	**160**	**160**
Dissolved Organic Carbon	mg/L	--	--	--	--	--
Sulfate	mg/L	**0.4**	--	--	**1,200**	**1,100**
Sulfide	mg/L	0.05 U	--	--	**31**	**24**
Dissolved Gases (RSK 175)						
Ethane	µg/L	--	--	--	--	--
Methane	µg/L	--	--	--	--	--

Notes:

BOLD Detected.
-- Not Analyzed.
1 Analytical methods for conventional analysis: alaklinity, bicarbonate, carbonate and hydroxide by SM2320, ammonia by 350.1 and 350.1M, N-Nitrate by USEPA 300, N-Nitrite by USEPA 353.2, chloride by USPEA 300, dissolved organic carbon by USEPA 415.1, sulfate by USEPA 300 and USEPA 375.2, and sulfide by USEPA 376.2.

Abbreviations:

$CaCO_3$ Calcium carbonate
dup Duplicate
ft Feet
µg/L Micrograms per liter
mg/L Milligrams per liter
mg-N/L Milligrams of nitrogen per liter
NWTPH Northwest total petroleum hydrocarbon
RSK Dissolved gas analysis in water
USEPA U.S. Environmetnal Protection Agency

Qualifiers:

J Estimated value
JB Estimated due to presence of blank contamination
JM Estimated due to poor spectral match
U Not detected
UB Not detected at elevated reporting limit due to blank contamination

Table C.9
Results of January 2011 through March 2014 Groundwater Sampling Events

Location Name		KMW-05	KMW-06	KMW-07	KMW-08	
Field Sample ID		SPL-GW-KMW05-031714	KMW-06-012711	KMW-07-012711	KMW-08-012811	SPL-GW-KMW08-040413
Use Date		03/17/2014	01/27/2011	01/27/2011	01/28/2011	04/04/2013
Depth		5–20 ft	5–20 ft	5–20 ft	15–20 ft	
Detected Chemicals						
Volatile Organic Compounds (USEPA 8260C/8260C-SIM)						
Benzene	µg/L	**7.4**	0.2 U	0.2 U	0.2 U	0.2 U
cis-1,2-Dichloroethene	µg/L	2 U	0.2 U	0.2 U	0.2 U	0.2 U
trans-1,2-Dichloroethene	µg/L	--	0.2 U	0.2 U	0.2 U	--
Styrene	µg/L	--	0.2 U	0.2 U	0.2 U	--
Trichloroethene	µg/L	2 U	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl chloride	µg/L	0.2 U	**0.31**	0.02 U	0.02 U	0.02 U
Semivolatile Organic Compounds (USEPA 8270D/8070D-SIM/8041)						
Benzo(a)pyrene	µg/L	--	0.01 U	0.01 U	0.01 U	--
Naphthalene	µg/L	--	**0.12**	**0.079**	0.015 UB	--
Pentachlorophenol (by USEPA 8041)	µg/L	--	0.25 U	0.25 U	0.25 U	--
Pentachlorophenol (by USEPA 8270D)	µg/L	--	2.5 U	2.5 U	2.5 U	--
Petroleum Hydrocarbons (NWTPH)						
Gasoline-range Hydrocarbons	mg/L	--	0.25 U	0.25 U	0.25 U	--
Diesel-range Hydrocarbons	mg/L	--	0.1 U	0.1 U	0.1 U	--
Motor Oil-range Hydrocarbons	mg/L	--	0.2 U	0.2 U	0.2 U	--
Metals (USEPA 200.8/6010C/7470A)						
Arsenic (Dissolved)	mg/L	--	**0.0015**	**0.0042**	**0.0042**	--
Arsenic (Total)	mg/L	--	**0.0013**	**0.0057**	**0.0051**	--
Calcium (Dissolved)	mg/L	**12.3**	--	--	--	**40**
Chromium (Dissolved)	mg/L	--	0.0005 U	0.0005 U	0.001 U	--
Chromium (Total)	mg/L	--	0.0005 U	0.0005 U	0.001 U	--
Iron (Dissolved)	mg/L	**6.5**	--	--	--	**0.07**
Iron (Total)	mg/L	**6.9**	--	--	--	**0.15**
Lead (Dissolved)	mg/L	--	0.001 U	0.001 U	0.001 U	--
Lead (Total)	mg/L	--	**0.003**	0.001 U	0.001 U	--
Magnesium (Dissolved)	mg/L	0.5 U	--	--	--	**8.9**
Manganese (Dissolved)	mg/L	**0.02**	**0.03**	**0.2**	**0.36**	**0.24**
Manganese (Total)	mg/L	**0.02**	**0.03**	**0.26**	**0.36**	**0.24**
Mercury (Dissolved)	mg/L	--	0.00002 U	0.00002 U	0.00002 U	--
Mercury (Total)	mg/L	--	0.00002 U	0.00002 U	0.00002 U	--
Potassium (Dissolved)	mg/L	**4,370**	--	--	--	**23**
Sodium (Dissolved)	mg/L	**1,620**	--	--	--	**23**
Conventionals (Various)[1]						
Alkalinity (as $CaCO_3$)	mg-$CaCO_3$/L	**8,290**	--	--	--	**150**
Bicarbonate (as $CaCO_3$)	mg-$CaCO_3$/L	1 U	--	--	--	**150**
Carbonate (as $CaCO_3$)	mg-$CaCO_3$/L	**2,820**	--	--	--	1 U
Hydroxide (as $CaCO_3$)	mg-$CaCO_3$/L	**5,460**	--	--	--	1 U
Ammonia (total as nitrogen)	mg-N/L	**64.2**	--	--	--	**0.22**
N-Nitrate	mg-N/L	2 U	--	--	--	0.1 U
N-Nitrite	mg-N/L	--	--	--	--	--
Chloride	mg/L	**154**	--	--	--	**9.5**
Dissolved Organic Carbon	mg/L	--	--	--	--	--
Sulfate	mg/L	**1,000**	--	--	--	**28**
Sulfide	mg/L	**28.1**	--	--	--	0.05 U
Dissolved Gases (RSK 175)						
Ethane	µg/L	--	--	--	--	--
Methane	µg/L	--	--	--	--	--

Notes:

BOLD Detected.

-- Not Analyzed.

1 Analytical methods for conventional analysis: alaklinity, bicarbonate, carbonate and hydroxide by SM2320, ammonia by 350.1 and 350.1M, N-Nitrate by USEPA 300, N-Nitrite by USEPA 353.2, chloride by USPEA 300, dissolved organic carbon by USEPA 415.1, sulfate by USEPA 300 and USEPA 375.2, and sulfide by USEPA 376.2.

Abbreviations:

$CaCO_3$ Calcium carbonate
dup Duplicate
ft Feet
µg/L Micrograms per liter
mg/L Milligrams per liter
mg-N/L Milligrams of nitrogen per liter
NWTPH Northwest total petroleum hydrocarbon
RSK Dissolved gas analysis in water
USEPA U.S. Environmetnal Protection Agency

Qualifiers:

J Estimated value
JB Estimated due to presence of blank contamination
JM Estimated due to poor spectral match
U Not detected
UB Not detected at elevated reporting limit due to blank contamination

Table C.9
Results of January 2011 through March 2014 Groundwater Sampling Events

Location Name		KMW-08				
Field Sample ID		SPL-GW-MW61-040413 (dup)	SPL-GW-KMW08-071813	SPL-GW-MW61-071813 (dup)	SPL-GW-KMW08-031714	SPL-GW-MW61-031714 (dup)
Use Date		04/04/2013	07/18/2013	07/18/2013	03/17/2014	03/17/2014
Depth		15–20 ft				
Detected Chemicals						
Volatile Organic Compounds (USEPA 8260C/8260C-SIM)						
Benzene	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
cis-1,2-Dichloroethene	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
trans-1,2-Dichloroethene	µg/L	--	--	--	--	--
Styrene	µg/L	--	--	--	--	--
Trichloroethene	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl chloride	µg/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Semivolatile Organic Compounds (USEPA 8270D/8070D-SIM/8041)						
Benzo(a)pyrene	µg/L	--	--	--	--	--
Naphthalene	µg/L	--	--	--	--	--
Pentachlorophenol (by USEPA 8041)	µg/L	--	--	--	--	--
Pentachlorophenol (by USEPA 8270D)	µg/L	--	--	--	--	--
Petroleum Hydrocarbons (NWTPH)						
Gasoline-range Hydrocarbons	mg/L	--	--	--	--	--
Diesel-range Hydrocarbons	mg/L	--	--	--	--	--
Motor Oil-range Hydrocarbons	mg/L	--	--	--	--	--
Metals (USEPA 200.8/6010C/7470A)						
Arsenic (Dissolved)	mg/L	--	--	--	--	--
Arsenic (Total)	mg/L	--	--	--	--	--
Calcium (Dissolved)	mg/L	**40**	**30**	**30**	**42.4**	**42.7**
Chromium (Dissolved)	mg/L	--	--	--	--	--
Chromium (Total)	mg/L	--	--	--	--	--
Iron (Dissolved)	mg/L	**0.07**	**0.16**	**0.16**	**0.21**	**0.17**
Iron (Total)	mg/L	**0.15**	**0.31**	**0.29**	**0.3**	**0.31**
Lead (Dissolved)	mg/L	--	--	--	--	--
Lead (Total)	mg/L	--	--	--	--	--
Magnesium (Dissolved)	mg/L	**8.9**	**6.5**	**6.5**	**10**	**9.86**
Manganese (Dissolved)	mg/L	**0.24**	**0.17**	**0.17**	**0.298**	**0.298**
Manganese (Total)	mg/L	**0.24**	**0.17**	**0.17**	**0.305**	**0.302**
Mercury (Dissolved)	mg/L	--	--	--	--	--
Mercury (Total)	mg/L	--	--	--	--	--
Potassium (Dissolved)	mg/L	**23**	**28**	**28**	**29.3**	**28.5**
Sodium (Dissolved)	mg/L	**22**	**24**	**24**	**29.8**	**29.7**
Conventionals (Various)[1]						
Alkalinity (as $CaCO_3$)	mg-$CaCO_3$/L	**160**	**160**	**150**	**186**	**186**
Bicarbonate (as $CaCO_3$)	mg-$CaCO_3$/L	**160**	**160**	**150**	**186**	**186**
Carbonate (as $CaCO_3$)	mg-$CaCO_3$/L	1 U	1 U	1 U	1 U	1 U
Hydroxide (as $CaCO_3$)	mg-$CaCO_3$/L	1 U	1 U	1 U	1 U	1 U
Ammonia (total as nitrogen)	mg-N/L	**0.24**	**0.6**	**0.34**	**0.342**	**0.36**
N-Nitrate	mg-N/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
N-Nitrite	mg-N/L	--	--	--	--	--
Chloride	mg/L	**9.4**	**8.4**	**8.4**	**14.7**	**14.7**
Dissolved Organic Carbon	mg/L	--	--	--	--	--
Sulfate	mg/L	**28**	**24**	**24**	**27.9**	**27.7**
Sulfide	mg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dissolved Gases (RSK 175)						
Ethane	µg/L	--	--	--	--	--
Methane	µg/L	--	--	--	--	--

Notes:

BOLD Detected.

-- Not Analyzed.

1 Analytical methods for conventional analysis: alaklinity, bicarbonate, carbonate and hydroxide by SM2320, ammonia by 350.1 and 350.1M, N-Nitrate by USEPA 300, N-Nitrite by USEPA 353.2, chloride by USPEA 300, dissolved organic carbon by USEPA 415.1, sulfate by USEPA 300 and USEPA 375.2, and sulfide by USEPA 376.2.

Abbreviations:

$CaCO_3$ Calcium carbonate
dup Duplicate
ft Feet
µg/L Micrograms per liter
mg/L Milligrams per liter
mg-N/L Milligrams of nitrogen per liter
NWTPH Northwest total petroleum hydrocarbon
RSK Dissolved gas analysis in water
USEPA U.S. Environmetnal Protection Agency

Qualifiers:

J Estimated value
JB Estimated due to presence of blank contamination
JM Estimated due to poor spectral match
U Not detected
UB Not detected at elevated reporting limit due to blank contamination

Table C.9
Results of January 2011 through March 2014 Groundwater Sampling Events

Location Name		MW-01	MW-03	MW-04	MW-08	
Field Sample ID		MW-01-012711	MW-03-012711	MW-04-012611	MW-09	SPL-GW-MW08-040213
Use Date		01/27/2011	01/27/2011	01/26/2011	MW-10	04/02/2013
Depth		3–13 ft	3–13 ft	40–50 ft	MW-11	
Detected Chemicals						
Volatile Organic Compounds (USEPA 8260C/8260C-SIM)						
Benzene	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	--
cis-1,2-Dichloroethene	µg/L	0.2 U	0.2 U	0.2 U	**0.3**	0.2 U
trans-1,2-Dichloroethene	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	--
Styrene	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	--
Trichloroethene	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl chloride	µg/L	0.02 U	0.02 U	0.02 U	**0.15**	**0.063**
Semivolatile Organic Compounds (USEPA 8270D/8070D-SIM/8041)						
Benzo(a)pyrene	µg/L	0.01 U	0.01 U	0.01 U	0.01 U	--
Naphthalene	µg/L	**0.035**	**0.058**	0.01 U	0.01 U	--
Pentachlorophenol (by USEPA 8041)	µg/L	0.25 U	0.25 U	0.25 U	0.25 U	--
Pentachlorophenol (by USEPA 8270D)	µg/L	2.5 U	2.5 U	2.5 U	2.5 U	--
Petroleum Hydrocarbons (NWTPH)						
Gasoline-range Hydrocarbons	mg/L	0.25 U	0.25 U	0.25 U	0.25 U	--
Diesel-range Hydrocarbons	mg/L	0.1 U	0.1 U	0.1 U	0.1 U	--
Motor Oil-range Hydrocarbons	mg/L	0.2 U	0.2 U	0.2 U	0.2 U	--
Metals (USEPA 200.8/6010C/7470A)						
Arsenic (Dissolved)	mg/L	**0.0032**	**0.001**	0.0002 U	0.0006	--
Arsenic (Total)	mg/L	**0.0035**	**0.001**	0.0002 U	0.0006	--
Calcium (Dissolved)	mg/L	--	--	--	--	**46**
Chromium (Dissolved)	mg/L	0.0005 U	0.0005 U	0.0005 U	0.001 U	--
Chromium (Total)	mg/L	0.0005 U	0.0005 U	0.0005 U	0.002 U	--
Iron (Dissolved)	mg/L	--	--	--	**15**	**19**
Iron (Total)	mg/L	--	--	--	**18**	**19**
Lead (Dissolved)	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	--
Lead (Total)	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	--
Magnesium (Dissolved)	mg/L	--	--	--	--	**48**
Manganese (Dissolved)	mg/L	**0.49**	**0.0046**	**0.0097**	**1.2**	**1.2**
Manganese (Total)	mg/L	**0.49**	**0.0071**	**0.009**	**1.1**	**1.2**
Mercury (Dissolved)	mg/L	0.00002 U	0.00002 U	0.00002 U	0.00002 U	--
Mercury (Total)	mg/L	0.00002 U	0.00002 U	0.00002 U	0.00002 U	--
Potassium (Dissolved)	mg/L	--	--	--	--	**17**
Sodium (Dissolved)	mg/L	--	--	--	--	**160**
Conventionals (Various)[1]						
Alkalinity (as $CaCO_3$)	mg-$CaCO_3$/L	--	--	--	**380**	**380**
Bicarbonate (as $CaCO_3$)	mg-$CaCO_3$/L	--	--	--	--	**380**
Carbonate (as $CaCO_3$)	mg-$CaCO_3$/L	--	--	--	--	1 U
Hydroxide (as $CaCO_3$)	mg-$CaCO_3$/L	--	--	--	--	1 U
Ammonia (total as nitrogen)	mg-N/L	--	--	--	--	**3**
N-Nitrate	mg-N/L	--	--	--	--	0.1 U
N-Nitrite	mg-N/L	--	--	--	0.05 U	--
Chloride	mg/L	--	--	--	--	**190**
Dissolved Organic Carbon	mg/L	--	--	--	**9.6**	--
Sulfate	mg/L	--	--	--	**9.5 J**	**3.8**
Sulfide	mg/L	--	--	--	0.05 U	0.05 U
Dissolved Gases (RSK 175)						
Ethane	µg/L	--	--	--	1.2 U	--
Methane	µg/L	--	--	--	**1,690**	--

Notes:

BOLD Detected.
-- Not Analyzed.
1 Analytical methods for conventional analysis: alaklinity, bicarbonate, carbonate and hydroxide by SM2320, ammonia by 350.1 and 350.1M, N-Nitrate by USEPA 300, N-Nitrite by USEPA 353.2, chloride by USPEA 300, dissolved organic carbon by USEPA 415.1, sulfate by USEPA 300 and USEPA 375.2, and sulfide by USEPA 376.2.

Abbreviations:

$CaCO_3$ Calcium carbonate
dup Duplicate
ft Feet
µg/L Micrograms per liter
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NWTPH Northwest total petroleum hydrocarbon
RSK Dissolved gas analysis in water
USEPA U.S. Environmetnal Protection Agency

Qualifiers:

J Estimated value
JB Estimated due to presence of blank contamination
JM Estimated due to poor spectral match
U Not detected
UB Not detected at elevated reporting limit due to blank contamination

Table C.9
Results of January 2011 through March 2014 Groundwater Sampling Events

Location Name		MW-08		MW-10		
Field Sample ID		SPL-GW-MW08-071613	SPL-GW-MW08-031914	MW-10-012811	SPL-GW-MW10-040213	SPL-GW-MW10-071513
Use Date		07/16/2013	03/19/2014	01/28/2011	04/02/2013	07/15/2013
Depth		MW-11		35–45 ft		
Detected Chemicals						
Volatile Organic Compounds (USEPA 8260C/8260C-SIM)						
Benzene	µg/L	--	--	0.2 U	--	--
cis-1,2-Dichloroethene	µg/L	0.2 U	0.2 U	**1.1**	**1.8**	**1.6**
trans-1,2-Dichloroethene	µg/L	--	--	0.2 U	--	--
Styrene	µg/L	--	--	0.2 U	--	--
Trichloroethene	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl chloride	µg/L	**0.063**	**0.08**	**0.26**	**1.2**	**0.84**
Semivolatile Organic Compounds (USEPA 8270D/8070D-SIM/8041)						
Benzo(a)pyrene	µg/L	--	--	0.01 U	--	--
Naphthalene	µg/L	--	--	0.01 U	--	--
Pentachlorophenol (by USEPA 8041)	µg/L	--	--	0.25 U	--	--
Pentachlorophenol (by USEPA 8270D)	µg/L	--	--	2.5 U	--	--
Petroleum Hydrocarbons (NWTPH)						
Gasoline-range Hydrocarbons	mg/L	--	--	0.25 U	--	--
Diesel-range Hydrocarbons	mg/L	--	--	0.1 U	--	--
Motor Oil-range Hydrocarbons	mg/L	--	--	0.2 U	--	--
Metals (USEPA 200.8/6010C/7470A)						
Arsenic (Dissolved)	mg/L	--	--	**0.0003**	--	--
Arsenic (Total)	mg/L	--	--	**0.0003**	--	--
Calcium (Dissolved)	mg/L	**42**	**42.6**	--	**44**	**50**
Chromium (Dissolved)	mg/L	--	--	0.001 U	--	--
Chromium (Total)	mg/L	--	--	0.002 U	--	--
Iron (Dissolved)	mg/L	**18**	**16.4**	**40**	**19**	**22**
Iron (Total)	mg/L	**18**	**21.3**	**42**	**18**	**23**
Lead (Dissolved)	mg/L	--	--	0.001 U	--	--
Lead (Total)	mg/L	--	--	0.001 U	--	--
Magnesium (Dissolved)	mg/L	**38**	**47.2**	--	**28**	**31**
Manganese (Dissolved)	mg/L	**1.1**	**1.13**	**3.3**	**1.1**	**1.3**
Manganese (Total)	mg/L	**1**	**1.13**	**3.3**	**1.1**	**1.3**
Mercury (Dissolved)	mg/L	--	--	0.00002 U	--	--
Mercury (Total)	mg/L	--	--	0.00002 U	--	--
Potassium (Dissolved)	mg/L	**15**	**16.7**	--	**9.2**	**9.2**
Sodium (Dissolved)	mg/L	**130**	**154**	--	**59**	**57**
Conventionals (Various)[1]						
Alkalinity (as $CaCO_3$)	mg-$CaCO_3$/L	**360**	**378**	**680**	**280**	**310**
Bicarbonate (as $CaCO_3$)	mg-$CaCO_3$/L	**360**	**378**	--	**280**	**310**
Carbonate (as $CaCO_3$)	mg-$CaCO_3$/L	1 U	1 U	--	1 U	1 U
Hydroxide (as $CaCO_3$)	mg-$CaCO_3$/L	1 U	1 U	--	1 U	1 U
Ammonia (total as nitrogen)	mg-N/L	**3.1**	**2.9**	--	**3.7**	**3.7**
N-Nitrate	mg-N/L	0.1 U	0.1	--	0.1 U	0.1 U
N-Nitrite	mg-N/L	--	--	**0.073**	--	--
Chloride	mg/L	**150**	**194**	--	**16**	**17**
Dissolved Organic Carbon	mg/L	--	--	11	--	--
Sulfate	mg/L	**2.3**	**2.6**	**180 J**	**56**	**69**
Sulfide	mg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dissolved Gases (RSK 175)						
Ethane	µg/L	--	--	**18.2**	--	--
Methane	µg/L	--	--	**51**	--	--

Notes:

BOLD Detected.
-- Not Analyzed.
1 Analytical methods for conventional analysis: alaklinity, bicarbonate, carbonate and hydroxide by SM2320, ammonia by 350.1 and 350.1M, N-Nitrate by USEPA 300, N-Nitrite by USEPA 353.2, chloride by USPEA 300, dissolved organic carbon by USEPA 415.1, sulfate by USEPA 300 and USEPA 375.2, and sulfide by USEPA 376.2.

Abbreviations:

$CaCO_3$ Calcium carbonate
dup Duplicate
ft Feet
µg/L Micrograms per liter
mg/L Milligrams per liter
mg-N/L Milligrams of nitrogen per liter
NWTPH Northwest total petroleum hydrocarbon
RSK Dissolved gas analysis in water
USEPA U.S. Environmetnal Protection Agency

Qualifiers:

J Estimated value
JB Estimated due to presence of blank contamination
JM Estimated due to poor spectral match
U Not detected
UB Not detected at elevated reporting limit due to blank contamination

Table C.9
Results of January 2011 through March 2014 Groundwater Sampling Events

Location Name		MW-10	MW-12			
Field Sample ID		SPL-GW-MW10-031714	MW-12-012611	SPL-GW-MW12-040313	SPL-GW-MW12-071713	SPL-GW-MW12-031814
Use Date		03/17/2014	01/26/2011	04/03/2013	07/17/2013	03/18/2014
Depth		35–45 ft	10–15 ft			
Detected Chemicals						
Volatile Organic Compounds (USEPA 8260C/8260C-SIM)						
Benzene	µg/L	--	0.2 U	--	--	--
cis-1,2-Dichloroethene	µg/L	**1.9**	**5.7**	**3.1**	**5.4 J**	**4.5**
trans-1,2-Dichloroethene	µg/L	--	0.2 U	--	--	--
Styrene	µg/L	--	0.2 U	--	--	--
Trichloroethene	µg/L	0.2 U	**0.6**	**0.37**	**0.15**	**0.3**
Vinyl chloride	µg/L	**0.49**	**0.26**	**0.1**	**0.22**	**0.22**
Semivolatile Organic Compounds (USEPA 8270D/8070D-SIM/8041)						
Benzo(a)pyrene	µg/L	--	0.01 U	--	--	--
Naphthalene	µg/L	--	0.01 U	--	--	--
Pentachlorophenol (by USEPA 8041)	µg/L	--	0.25 U	--	--	--
Pentachlorophenol (by USEPA 8270D)	µg/L	--	2.5 U	--	--	--
Petroleum Hydrocarbons (NWTPH)						
Gasoline-range Hydrocarbons	mg/L	--	0.25 U	--	--	--
Diesel-range Hydrocarbons	mg/L	--	0.1 U	--	--	--
Motor Oil-range Hydrocarbons	mg/L	--	0.2 U	--	--	--
Metals (USEPA 200.8/6010C/7470A)						
Arsenic (Dissolved)	mg/L	--	**0.0032**	--	--	--
Arsenic (Total)	mg/L	--	**0.0064**	--	--	--
Calcium (Dissolved)	mg/L	**77.5**	--	**31**	**31**	**32.6**
Chromium (Dissolved)	mg/L	--	**0.0007**	--	--	--
Chromium (Total)	mg/L	--	0.001 U	--	--	--
Iron (Dissolved)	mg/L	**29.7**	--	**8**	**8.5**	**9.01**
Iron (Total)	mg/L	**29.6**	--	**11**	**18**	**11.1**
Lead (Dissolved)	mg/L	--	0.001 U	--	--	--
Lead (Total)	mg/L	--	0.001 U	--	--	--
Magnesium (Dissolved)	mg/L	**43.3**	--	**16**	**15**	**16.9**
Manganese (Dissolved)	mg/L	**2.06**	**0.68**	**0.74**	**0.5**	**0.722**
Manganese (Total)	mg/L	**2.04**	**0.71**	**0.77**	**0.5**	**0.768**
Mercury (Dissolved)	mg/L	--	0.00002 U	--	--	--
Mercury (Total)	mg/L	--	0.00002 U	--	--	--
Potassium (Dissolved)	mg/L	**10.6**	--	**4**	**3.7**	**4**
Sodium (Dissolved)	mg/L	**55.4**	--	**21**	**22**	**22.6**
Conventionals (Various)[1]						
Alkalinity (as $CaCO_3$)	mg-$CaCO_3$/L	**372**	--	**150**	**170**	**186**
Bicarbonate (as $CaCO_3$)	mg-$CaCO_3$/L	**372**	--	**150**	**170**	**186**
Carbonate (as $CaCO_3$)	mg-$CaCO_3$/L	1 U	--	1 U	1 U	1 U
Hydroxide (as $CaCO_3$)	mg-$CaCO_3$/L	1 U	--	1 U	1 U	1 U
Ammonia (total as nitrogen)	mg-N/L	**4.87**	--	**0.69**	**0.74**	**0.734**
N-Nitrate	mg-N/L	0.1 U	--	0.1 U	0.1 U	0.1
N-Nitrite	mg-N/L	--	--	--	--	--
Chloride	mg/L	**25**	--	**17**	**14**	**20.1**
Dissolved Organic Carbon	mg/L	--	--	--	--	--
Sulfate	mg/L	**109**	--	**18**	**5.4**	**13.2**
Sulfide	mg/L	0.05 U	--	0.05 U	0.05 U	0.05 U
Dissolved Gases (RSK 175)						
Ethane	µg/L	--	--	--	--	--
Methane	µg/L	--	--	--	--	--

Notes:

BOLD Detected.

-- Not Analyzed.

1 Analytical methods for conventional analysis: alaklinity, bicarbonate, carbonate and hydroxide by SM2320, ammonia by 350.1 and 350.1M, N-Nitrate by USEPA 300, N-Nitrite by USEPA 353.2, chloride by USPEA 300, dissolved organic carbon by USEPA 415.1, sulfate by USEPA 300 and USEPA 375.2, and sulfide by USEPA 376.2.

Abbreviations:

$CaCO_3$ Calcium carbonate
dup Duplicate
ft Feet
µg/L Micrograms per liter
mg/L Milligrams per liter
mg-N/L Milligrams of nitrogen per liter
NWTPH Northwest total petroleum hydrocarbon
RSK Dissolved gas analysis in water
USEPA U.S. Environmetnal Protection Agency

Qualifiers:

J Estimated value
JB Estimated due to presence of blank contamination
JM Estimated due to poor spectral match
U Not detected
UB Not detected at elevated reporting limit due to blank contamination

Table C.9
Results of January 2011 through March 2014 Groundwater Sampling Events

Location Name		MW-14				MW-18
Field Sample ID		MW-14-012611	SPL-GW-MW14-040313	SPL-GW-MW14-071713	SPL-GW-MW14-031814	MW-18-012611
Use Date		01/26/2011	04/03/2013	07/17/2013	03/18/2014	01/26/2011
Depth		11.5–21.5 ft				30–40 ft
Detected Chemicals						
Volatile Organic Compounds (USEPA 8260C/8260C-SIM)						
Benzene	µg/L	0.2 U	--	--	--	0.2 U
cis-1,2-Dichloroethene	µg/L	0.2 U	0.2 U	0.02 U	0.2 U	0.2 U
trans-1,2-Dichloroethene	µg/L	0.2 U	--	--	--	0.2 U
Styrene	µg/L	0.2 U	--	--	--	0.2 U
Trichloroethene	µg/L	0.2 U	0.2 U	0.02 U	0.2 U	0.2 U
Vinyl chloride	µg/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Semivolatile Organic Compounds (USEPA 8270D/8070D-SIM/8041)						
Benzo(a)pyrene	µg/L	0.01 U	--	--	--	0.01 U
Naphthalene	µg/L	0.01 U	--	--	--	0.01 U
Pentachlorophenol (by USEPA 8041)	µg/L	0.25 U	--	--	--	0.25 U
Pentachlorophenol (by USEPA 8270D)	µg/L	2.5 U	--	--	--	2.5 U
Petroleum Hydrocarbons (NWTPH)						
Gasoline-range Hydrocarbons	mg/L	0.25 U	--	--	--	0.25 U
Diesel-range Hydrocarbons	mg/L	0.1 U	--	--	--	0.1 U
Motor Oil-range Hydrocarbons	mg/L	0.2 U	--	--	--	0.2 U
Metals (USEPA 200.8/6010C/7470A)						
Arsenic (Dissolved)	mg/L	**0.0003**	--	--	--	**0.0002**
Arsenic (Total)	mg/L	**0.0003**	--	--	--	**0.0003**
Calcium (Dissolved)	mg/L	--	**51**	**43**	**48.9**	--
Chromium (Dissolved)	mg/L	0.0005 U	--	--	--	0.001 U
Chromium (Total)	mg/L	0.001 U	--	--	--	0.001 U
Iron (Dissolved)	mg/L	--	**4.3**	**4**	**4.56**	--
Iron (Total)	mg/L	--	**4.8**	**4.6**	**5.76**	--
Lead (Dissolved)	mg/L	0.001 U	--	--	--	0.001 U
Lead (Total)	mg/L	0.001 U	--	--	--	0.001 U
Magnesium (Dissolved)	mg/L	--	**31**	**24**	**28**	--
Manganese (Dissolved)	mg/L	**0.37**	**0.58**	**0.49**	**0.656**	**0.66**
Manganese (Total)	mg/L	**0.37**	**0.59**	**0.48**	**0.669**	**0.66**
Mercury (Dissolved)	mg/L	0.00002 U	--	--	--	0.00002 U
Mercury (Total)	mg/L	0.00002 U	--	--	--	0.00002 U
Potassium (Dissolved)	mg/L	--	**4.9**	**4.6**	**4.9**	--
Sodium (Dissolved)	mg/L	--	**16**	**16**	**17**	--
Conventionals (Various)[1]						
Alkalinity (as $CaCO_3$)	mg-$CaCO_3$/L	--	**260**	**210**	**246**	--
Bicarbonate (as $CaCO_3$)	mg-$CaCO_3$/L	--	**260**	**210**	**246**	--
Carbonate (as $CaCO_3$)	mg-$CaCO_3$/L	--	1 U	1 U	1 U	--
Hydroxide (as $CaCO_3$)	mg-$CaCO_3$/L	--	1 U	1 U	1 U	--
Ammonia (total as nitrogen)	mg-N/L	--	**0.24**	**0.23**	**0.204**	--
N-Nitrate	mg-N/L	--	0.1 U	0.1 U	0.1	--
N-Nitrite	mg-N/L	--	--	--	--	--
Chloride	mg/L	--	**13**	**26**	**19.6**	--
Dissolved Organic Carbon	mg/L	--	--	--	--	--
Sulfate	mg/L	--	**2.3**	**3.4**	**2**	--
Sulfide	mg/L	--	0.05 U	0.12	0.05 U	--
Dissolved Gases (RSK 175)						
Ethane	µg/L	--	--	--	--	--
Methane	µg/L	--	--	--	--	--

Notes:

BOLD Detected.

-- Not Analyzed.

1 Analytical methods for conventional analysis: alaklinity, bicarbonate, carbonate and hydroxide by SM2320, ammonia by 350.1 and 350.1M, N-Nitrate by USEPA 300, N-Nitrite by USEPA 353.2, chloride by USPEA 300, dissolved organic carbon by USEPA 415.1, sulfate by USEPA 300 and USEPA 375.2, and sulfide by USEPA 376.2.

Abbreviations:

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RSK Dissolved gas analysis in water
USEPA U.S. Environmetnal Protection Agency

Qualifiers:

J Estimated value
JB Estimated due to presence of blank contamination
JM Estimated due to poor spectral match
U Not detected
UB Not detected at elevated reporting limit due to blank contamination

Table C.9
Results of January 2011 through March 2014 Groundwater Sampling Events

Location Name		MW-18			MW-24	
Field Sample ID		SPL-GW-MW18-040313	SPL-GW-MW18-071713	SPL-GW-MW18-031814	MW-24-012711	SPL-GW-MW24-040213
Use Date		04/03/2013	07/17/2013	03/18/2014	01/27/2011	04/02/2013
Depth		30–40 ft			35–45 ft	
Detected Chemicals						
Volatile Organic Compounds (USEPA 8260C/8260C-SIM)						
Benzene	µg/L	--	--	--	0.2 U	--
cis-1,2-Dichloroethene	µg/L	0.2 U	0.044	0.2 U	0.2 U	0.2 U
trans-1,2-Dichloroethene	µg/L	--	--	--	0.2 U	--
Styrene	µg/L	--	--	--	0.2 U	--
Trichloroethene	µg/L	0.2 U	0.02 U	0.2 U	0.2 U	0.2 U
Vinyl chloride	µg/L	**0.072**	**0.075**	0.02 U	**0.051**	**0.032**
Semivolatile Organic Compounds (USEPA 8270D/8070D-SIM/8041)						
Benzo(a)pyrene	µg/L	--	--	--	0.01 U	--
Naphthalene	µg/L	--	--	--	0.01 U	--
Pentachlorophenol (by USEPA 8041)	µg/L	--	--	--	0.25 U	--
Pentachlorophenol (by USEPA 8270D)	µg/L	--	--	--	2.5 U	--
Petroleum Hydrocarbons (NWTPH)						
Gasoline-range Hydrocarbons	mg/L	--	--	--	0.25 U	--
Diesel-range Hydrocarbons	mg/L	--	--	--	0.1 U	--
Motor Oil-range Hydrocarbons	mg/L	--	--	--	0.2 U	--
Metals (USEPA 200.8/6010C/7470A)						
Arsenic (Dissolved)	mg/L	--	--	--	**0.0003**	--
Arsenic (Total)	mg/L	--	--	--	**0.0003**	--
Calcium (Dissolved)	mg/L	**71**	**70**	**45.2**	--	**73**
Chromium (Dissolved)	mg/L	--	--	--	0.002 U	--
Chromium (Total)	mg/L	--	--	--	0.001 U	--
Iron (Dissolved)	mg/L	**60**	**44**	**34.8**	**23**	**26**
Iron (Total)	mg/L	**60**	**49**	**33.3**	**24**	**30**
Lead (Dissolved)	mg/L	--	--	--	0.001 U	--
Lead (Total)	mg/L	--	--	--	0.001 U	--
Magnesium (Dissolved)	mg/L	**62**	**66**	**41.7**	--	**33**
Manganese (Dissolved)	mg/L	**1.6**	**1.8**	**1.2**	**1.6**	**1.6**
Manganese (Total)	mg/L	**1.6**	**1.8**	**1.24**	**1.6**	**1.8**
Mercury (Dissolved)	mg/L	--	--	--	0.00002 U	--
Mercury (Total)	mg/L	--	--	--	0.00002 U	--
Potassium (Dissolved)	mg/L	**17**	**17**	**13.8**	--	**12**
Sodium (Dissolved)	mg/L	**34**	**46**	**34.6**	--	**59**
Conventionals (Various)[1]						
Alkalinity (as $CaCO_3$)	mg-$CaCO_3$/L	**430**	**570**	**361**	**490**	**420**
Bicarbonate (as $CaCO_3$)	mg-$CaCO_3$/L	**430**	**570**	**361**	--	**420**
Carbonate (as $CaCO_3$)	mg-$CaCO_3$/L	1 U	1 U	1 U	--	1 U
Hydroxide (as $CaCO_3$)	mg-$CaCO_3$/L	1 U	1 U	1 U	--	1 U
Ammonia (total as nitrogen)	mg-N/L	**2.3**	**2.6**	**1.98**	--	**3.5**
N-Nitrate	mg-N/L	0.1 U	0.1 U	0.1 U	--	0.1 U
N-Nitrite	mg-N/L	--	--	--	0.05 U	--
Chloride	mg/L	**16**	**22**	**13.3**	--	**33**
Dissolved Organic Carbon	mg/L	--	--	--	**13**	--
Sulfate	mg/L	**77**	**11**	0.1 U	**5.8 J**	**0.3**
Sulfide	mg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dissolved Gases (RSK 175)						
Ethane	µg/L	--	--	--	**12.1**	--
Methane	µg/L	--	--	--	**7,320**	--

Notes:

BOLD Detected.
-- Not Analyzed.
1 Analytical methods for conventional analysis: alaklinity, bicarbonate, carbonate and hydroxide by SM2320, ammonia by 350.1 and 350.1M, N-Nitrate by USEPA 300, N-Nitrite by USEPA 353.2, chloride by USPEA 300, dissolved organic carbon by USEPA 415.1, sulfate by USEPA 300 and USEPA 375.2, and sulfide by USEPA 376.2.

Abbreviations:

$CaCO_3$ Calcium carbonate
dup Duplicate
ft Feet
µg/L Micrograms per liter
mg/L Milligrams per liter
mg-N/L Milligrams of nitrogen per liter
NWTPH Northwest total petroleum hydrocarbon
RSK Dissolved gas analysis in water
USEPA U.S. Environmetnal Protection Agency

Qualifiers:

J Estimated value
JB Estimated due to presence of blank contamination
JM Estimated due to poor spectral match
U Not detected
UB Not detected at elevated reporting limit due to blank contamination

Table C.9
Results of January 2011 through March 2014 Groundwater Sampling Events

Location Name		MW-24		MW-25		
Field Sample ID		SPL-GW-MW24-071613	SPL-GW-MW24-031914	MW-25-012711	MW-30-012711 (dup)	SPL-GW-MW25-040113
Use Date		07/16/2013	03/19/2014	01/27/2011	01/27/2011	04/01/2013
Depth		35–45 ft		22–27 ft		
Detected Chemicals						
Volatile Organic Compounds (USEPA 8260C/8260C-SIM)						
Benzene	µg/L	--	--	**5.7**	**5.8**	**0.43**
cis-1,2-Dichloroethene	µg/L	0.2 U	0.2 U	**0.6**	**0.5**	**0.72**
trans-1,2-Dichloroethene	µg/L	--	--	**0.3**	**0.3**	--
Styrene	µg/L	--	--	0.2 U	0.2 U	--
Trichloroethene	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl chloride	µg/L	0.02 U	**0.034**	**0.79**	**0.81**	**1.4**
Semivolatile Organic Compounds (USEPA 8270D/8070D-SIM/8041)						
Benzo(a)pyrene	µg/L	--	--	0.01 U	0.01 U	--
Naphthalene	µg/L	--	--	0.01 U	0.01 U	--
Pentachlorophenol (by USEPA 8041)	µg/L	--	--	0.25 U	0.25 U	--
Pentachlorophenol (by USEPA 8270D)	µg/L	--	--	2.5 U	2.5 U	--
Petroleum Hydrocarbons (NWTPH)						
Gasoline-range Hydrocarbons	mg/L	--	--	0.25 U	0.25 U	--
Diesel-range Hydrocarbons	mg/L	--	--	0.1 U	0.1 U	--
Motor Oil-range Hydrocarbons	mg/L	--	--	0.2 U	0.2 U	--
Metals (USEPA 200.8/6010C/7470A)						
Arsenic (Dissolved)	mg/L	--	--	**0.0006**	**0.0006**	--
Arsenic (Total)	mg/L	--	--	**0.0006**	**0.0006**	--
Calcium (Dissolved)	mg/L	**59**	**70.1**	--	--	**20**
Chromium (Dissolved)	mg/L	--	--	0.001 U	0.001 U	--
Chromium (Total)	mg/L	--	--	0.002 U	0.002 U	--
Iron (Dissolved)	mg/L	**15**	**24.6**	**29**	**29**	**6.7**
Iron (Total)	mg/L	**14**	**25.9**	**32**	**31**	**7.3**
Lead (Dissolved)	mg/L	--	--	0.001 U	0.001 U	--
Lead (Total)	mg/L	--	--	0.001 U	0.001 U	--
Magnesium (Dissolved)	mg/L	**27**	**29.4**	--	--	**5.2**
Manganese (Dissolved)	mg/L	**1.2**	**1.45**	**2.9**	**3.1**	**0.53**
Manganese (Total)	mg/L	**1.1**	**1.47**	**3.1**	**3**	**0.54**
Mercury (Dissolved)	mg/L	--	--	0.00002 U	0.00002 U	--
Mercury (Total)	mg/L	--	--	0.00002 U	0.00002 U	--
Potassium (Dissolved)	mg/L	**11**	**12.6**	--	--	**2.8**
Sodium (Dissolved)	mg/L	**58**	**60.8**	--	--	**34**
Conventionals (Various)[1]						
Alkalinity (as $CaCO_3$)	mg-$CaCO_3$/L	**340**	**405**	**630**	**640**	**130**
Bicarbonate (as $CaCO_3$)	mg-$CaCO_3$/L	**340**	**405**	--	--	**130**
Carbonate (as $CaCO_3$)	mg-$CaCO_3$/L	1 U	1 U	--	--	1 U
Hydroxide (as $CaCO_3$)	mg-$CaCO_3$/L	1 U	1 U	--	--	1 U
Ammonia (total as nitrogen)	mg-N/L	**2.5**	**3.8**	--	--	**2.1**
N-Nitrate	mg-N/L	0.1 U	0.1	--	--	0.1 U
N-Nitrite	mg-N/L	--	--	0.1 U	0.1 U	--
Chloride	mg/L	**38**	**42.3**	--	--	**6.1**
Dissolved Organic Carbon	mg/L	--	--	**19**	**19**	--
Sulfate	mg/L	**4.9**	**0.5**	**27 J**	**27 J**	**4**
Sulfide	mg/L	0.077	0.05 U	0.05 U	0.05 U	0.05 U
Dissolved Gases (RSK 175)						
Ethane	µg/L	--	--	**57.3**	**53.9**	--
Methane	µg/L	--	--	**3,490**	**3,330**	--

Notes:

BOLD Detected.
-- Not Analyzed.
1 Analytical methods for conventional analysis: alaklinity, bicarbonate, carbonate and hydroxide by SM2320, ammonia by 350.1 and 350.1M, N-Nitrate by USEPA 300, N-Nitrite by USEPA 353.2, chloride by USPEA 300, dissolved organic carbon by USEPA 415.1, sulfate by USEPA 300 and USEPA 375.2, and sulfide by USEPA 376.2.

Abbreviations:

$CaCO_3$ Calcium carbonate
dup Duplicate
ft Feet
µg/L Micrograms per liter
mg/L Milligrams per liter
mg-N/L Milligrams of nitrogen per liter
NWTPH Northwest total petroleum hydrocarbon
RSK Dissolved gas analysis in water
USEPA U.S. Environmetnal Protection Agency

Qualifiers:

J Estimated value
JB Estimated due to presence of blank contamination
JM Estimated due to poor spectral match
U Not detected
UB Not detected at elevated reporting limit due to blank contamination

Table C.9
Results of January 2011 through March 2014 Groundwater Sampling Events

Location Name		MW-25				
Field Sample ID		SPL-GW-MW60-040113 (dup)	SPL-GW-MW25-071513	SPL-GW-MW60-071513 (dup)	SPL-GW-MW25-031714	SPL-GW-MW60-031714 (dup)
Use Date		04/01/2013	07/15/2013	07/15/2013	03/17/2014	03/17/2014
Depth		22–27 ft				
Detected Chemicals						
Volatile Organic Compounds (USEPA 8260C/8260C-SIM)						
Benzene	µg/L	**0.4**	**0.28**	**0.33**	0.2 U	0.2 U
cis-1,2-Dichloroethene	µg/L	**0.8**	**0.75**	**0.7**	**0.48**	**0.5**
trans-1,2-Dichloroethene	µg/L	--	--	--	--	--
Styrene	µg/L	--	--	--	--	--
Trichloroethene	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl chloride	µg/L	**1.4**	**1.1**	**0.99**	**0.99**	**0.98**
Semivolatile Organic Compounds (USEPA 8270D/8070D-SIM/8041)						
Benzo(a)pyrene	µg/L	--	--	--	--	--
Naphthalene	µg/L	--	--	--	--	--
Pentachlorophenol (by USEPA 8041)	µg/L	--	--	--	--	--
Pentachlorophenol (by USEPA 8270D)	µg/L	--	--	--	--	--
Petroleum Hydrocarbons (NWTPH)						
Gasoline-range Hydrocarbons	mg/L	--	--	--	--	--
Diesel-range Hydrocarbons	mg/L	--	--	--	--	--
Motor Oil-range Hydrocarbons	mg/L	--	--	--	--	--
Metals (USEPA 200.8/6010C/7470A)						
Arsenic (Dissolved)	mg/L	--	--	--	--	--
Arsenic (Total)	mg/L	--	--	--	--	--
Calcium (Dissolved)	mg/L	**20**	**32**	**33**	**29.8**	**30**
Chromium (Dissolved)	mg/L	--	--	--	--	--
Chromium (Total)	mg/L	--	--	--	--	--
Iron (Dissolved)	mg/L	**6.7**	**11**	**11**	**11.4**	**11.5**
Iron (Total)	mg/L	**7.3**	**12**	**12**	**11.6**	**11.5**
Lead (Dissolved)	mg/L	--	--	--	--	--
Lead (Total)	mg/L	--	--	--	--	--
Magnesium (Dissolved)	mg/L	**5.2**	**8.8**	**8.8**	**8.85**	**8.92**
Manganese (Dissolved)	mg/L	**0.53**	**0.84**	**0.83**	**0.924**	**0.943**
Manganese (Total)	mg/L	**0.53**	**0.86**	**0.84**	**0.923**	**0.916**
Mercury (Dissolved)	mg/L	--	--	--	--	--
Mercury (Total)	mg/L	--	--	--	--	--
Potassium (Dissolved)	mg/L	**2.8**	**3.4**	**3.5**	**4.7**	**3.8**
Sodium (Dissolved)	mg/L	**34**	**35**	**36**	**31.9**	**31.6**
Conventionals (Various)[1]						
Alkalinity (as $CaCO_3$)	mg-$CaCO_3$/L	**140**	**190**	**190**	**169**	**169**
Bicarbonate (as $CaCO_3$)	mg-$CaCO_3$/L	**140**	**190**	**190**	**169**	**169**
Carbonate (as $CaCO_3$)	mg-$CaCO_3$/L	1 U	1 U	1 U	1 U	1 U
Hydroxide (as $CaCO_3$)	mg-$CaCO_3$/L	1 U	1 U	1 U	1 U	1 U
Ammonia (total as nitrogen)	mg-N/L	**2.1**	**2.8**	**2.9**	**2.87**	**2.89**
N-Nitrate	mg-N/L	0.1 U	0.1 U	0.1 U	0.1	0.1
N-Nitrite	mg-N/L	--	--	--	--	--
Chloride	mg/L	**6.2**	**7.5**	**7.6**	**8.6**	**8.7**
Dissolved Organic Carbon	mg/L	--	--	--	--	--
Sulfate	mg/L	**4.5**	**0.4**	**0.4**	**7.7**	**7.7**
Sulfide	mg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dissolved Gases (RSK 175)						
Ethane	µg/L	--	--	--	--	--
Methane	µg/L	--	--	--	--	--

Notes:

BOLD Detected.

-- Not Analyzed.

1 Analytical methods for conventional analysis: alaklinity, bicarbonate, carbonate and hydroxide by SM2320, ammonia by 350.1 and 350.1M, N-Nitrate by USEPA 300, N-Nitrite by USEPA 353.2, chloride by USPEA 300, dissolved organic carbon by USEPA 415.1, sulfate by USEPA 300 and USEPA 375.2, and sulfide by USEPA 376.2.

Abbreviations:

$CaCO_3$ Calcium carbonate
dup Duplicate
ft Feet
µg/L Micrograms per liter
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NWTPH Northwest total petroleum hydrocarbon
RSK Dissolved gas analysis in water
USEPA U.S. Environmetnal Protection Agency

Qualifiers:

J Estimated value
JB Estimated due to presence of blank contamination
JM Estimated due to poor spectral match
U Not detected
UB Not detected at elevated reporting limit due to blank contamination

Table C.9
Results of January 2011 through March 2014 Groundwater Sampling Events

Location Name		MW-26				MW-27
Field Sample ID		MW-26-012711	SPL-GW-MW26-040213	SPL-GW-MW26-071613	SPL-GW-MW26-031914	MW-27-012711
Use Date		01/27/2011	04/02/2013	07/16/2013	03/19/2014	01/27/2011
Depth		15–25 ft				10–20 ft
Detected Chemicals						
Volatile Organic Compounds (USEPA 8260C/8260C-SIM)						
Benzene	µg/L	0.2 U	--	--	--	0.2 U
cis-1,2-Dichloroethene	µg/L	**0.2**	**0.33**	**0.3**	**0.43**	**0.4**
trans-1,2-Dichloroethene	µg/L	0.2 U	--	--	--	0.2 U
Styrene	µg/L	0.2 U	--	--	--	0.2 U
Trichloroethene	µg/L	**0.4**	**0.31**	**0.37 JM**	**0.42**	0.2 U
Vinyl chloride	µg/L	**0.04**	0.02 U	0.022	**0.053**	**0.31**
Semivolatile Organic Compounds (USEPA 8270D/8070D-SIM/8041)						
Benzo(a)pyrene	µg/L	0.01 U	--	--	--	0.01 U
Naphthalene	µg/L	0.01 U	--	--	--	0.01 U
Pentachlorophenol (by USEPA 8041)	µg/L	0.25 U	--	--	--	0.25 U
Pentachlorophenol (by USEPA 8270D)	µg/L	2.5 U	--	--	--	2.5 U
Petroleum Hydrocarbons (NWTPH)						
Gasoline-range Hydrocarbons	mg/L	0.25 U	--	--	--	0.25 U
Diesel-range Hydrocarbons	mg/L	0.1 U	--	--	--	0.1 U
Motor Oil-range Hydrocarbons	mg/L	0.2 U	--	--	--	0.2 U
Metals (USEPA 200.8/6010C/7470A)						
Arsenic (Dissolved)	mg/L	**0.0007**	--	--	--	**0.014**
Arsenic (Total)	mg/L	**0.0009**	--	--	--	**0.027**
Calcium (Dissolved)	mg/L	--	**8.9**	**11**	**12.7**	--
Chromium (Dissolved)	mg/L	0.001 U	--	--	--	**0.002**
Chromium (Total)	mg/L	0.002 U	--	--	--	**0.004**
Iron (Dissolved)	mg/L	**6**	**5.6**	**7.1**	**6.18**	**6.4**
Iron (Total)	mg/L	**7.1**	**8.3**	**10**	**13.9**	**16**
Lead (Dissolved)	mg/L	0.001 U	--	--	--	0.001 U
Lead (Total)	mg/L	0.001 U	--	--	--	0.001 U
Magnesium (Dissolved)	mg/L	--	**3.3**	**4.1**	**4.29**	--
Manganese (Dissolved)	mg/L	**0.16**	**0.13**	**0.16**	**0.145**	**0.39**
Manganese (Total)	mg/L	**0.17**	**0.14**	**0.17**	**0.147**	**0.58**
Mercury (Dissolved)	mg/L	0.00002 U	--	--	--	0.00002 U
Mercury (Total)	mg/L	0.00002 U	--	--	--	0.00002 U
Potassium (Dissolved)	mg/L	--	**2.9**	**3.1**	**3.2**	--
Sodium (Dissolved)	mg/L	--	**9.5**	**11**	**9.8**	--
Conventionals (Various)[1]						
Alkalinity (as $CaCO_3$)	mg-$CaCO_3$/L	**37**	**34**	**48**	**52.3**	**140**
Bicarbonate (as $CaCO_3$)	mg-$CaCO_3$/L	--	**34**	**48**	**52.3**	--
Carbonate (as $CaCO_3$)	mg-$CaCO_3$/L	--	1 U	1 U	1 U	--
Hydroxide (as $CaCO_3$)	mg-$CaCO_3$/L	--	1 U	1 U	1 U	--
Ammonia (total as nitrogen)	mg-N/L	--	**0.18**	**0.1**	**0.084**	--
N-Nitrate	mg-N/L	--	0.1 U	0.1 U	0.1	--
N-Nitrite	mg-N/L	0.05 U	--	--	--	0.01 U
Chloride	mg/L	--	**11**	**15**	**9.2**	--
Dissolved Organic Carbon	mg/L	**3.2**	--	--	--	**7.8**
Sulfate	mg/L	**5.8 J**	**12**	**12**	**8.9**	**19 J**
Sulfide	mg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dissolved Gases (RSK 175)						
Ethane	µg/L	1.2 U	--	--	--	1.2 U
Methane	µg/L	**11.6**	--	--	--	**494**

Notes:

BOLD Detected.
-- Not Analyzed.
1 Analytical methods for conventional analysis: alaklinity, bicarbonate, carbonate and hydroxide by SM2320, ammonia by 350.1 and 350.1M, N-Nitrate by USEPA 300, N-Nitrite by USEPA 353.2, chloride by USPEA 300, dissolved organic carbon by USEPA 415.1, sulfate by USEPA 300 and USEPA 375.2, and sulfide by USEPA 376.2.

Abbreviations:

$CaCO_3$ Calcium carbonate
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ft Feet
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Qualifiers:

J Estimated value
JB Estimated due to presence of blank contamination
JM Estimated due to poor spectral match
U Not detected
UB Not detected at elevated reporting limit due to blank contamination

Table C.9
Results of January 2011 through March 2014 Groundwater Sampling Events

Location Name		MW-27			MW-29	
Field Sample ID		SPL-GW-MW27-040213	SPL-GW-MW27-071613	SPL-GW-MW27-031914	MW-29-012611	SPL-GW-MW29-040313
Use Date		04/02/2013	07/16/2013	03/19/2014	01/26/2011	04/03/2013
Depth		10–20 ft			20–30 ft	
Detected Chemicals						
Volatile Organic Compounds (USEPA 8260C/8260C-SIM)						
Benzene	µg/L	--	--	--	0.2 U	--
cis-1,2-Dichloroethene	µg/L	**0.4**	**0.41**	0.2 U	0.2 U	0.2 U
trans-1,2-Dichloroethene	µg/L	--	--	--	0.2 U	--
Styrene	µg/L	--	--	--	0.2 U	--
Trichloroethene	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl chloride	µg/L	**0.25**	**0.14**	**0.11**	0.02 U	0.02 U
Semivolatile Organic Compounds (USEPA 8270D/8070D-SIM/8041)						
Benzo(a)pyrene	µg/L	--	--	--	0.01 U	--
Naphthalene	µg/L	--	--	--	0.01 UB	--
Pentachlorophenol (by USEPA 8041)	µg/L	--	--	--	0.25 U	--
Pentachlorophenol (by USEPA 8270D)	µg/L	--	--	--	2.5 U	--
Petroleum Hydrocarbons (NWTPH)						
Gasoline-range Hydrocarbons	mg/L	--	--	--	0.25 U	--
Diesel-range Hydrocarbons	mg/L	--	--	--	0.1 U	--
Motor Oil-range Hydrocarbons	mg/L	--	--	--	0.2 U	--
Metals (USEPA 200.8/6010C/7470A)						
Arsenic (Dissolved)	mg/L	--	--	--	**0.0009**	--
Arsenic (Total)	mg/L	--	--	--	**0.0009**	--
Calcium (Dissolved)	mg/L	**16**	**14**	**24.7**	--	**150**
Chromium (Dissolved)	mg/L	--	--	--	**0.003**	--
Chromium (Total)	mg/L	--	--	--	**0.0031**	--
Iron (Dissolved)	mg/L	**13**	**18**	**1.69**	--	**16**
Iron (Total)	mg/L	**22**	**20**	**4.01**	--	**17**
Lead (Dissolved)	mg/L	--	--	--	0.001 U	--
Lead (Total)	mg/L	--	--	--	0.001 U	--
Magnesium (Dissolved)	mg/L	**4.4**	**4.4**	**5.84**	--	**36**
Manganese (Dissolved)	mg/L	**0.4**	**0.51**	**0.167**	**1.1**	**1.3**
Manganese (Total)	mg/L	**0.42**	**0.53**	**0.177**	**1.1**	**1.4**
Mercury (Dissolved)	mg/L	--	--	--	0.00002 U	--
Mercury (Total)	mg/L	--	--	--	0.00002 U	--
Potassium (Dissolved)	mg/L	**3.3**	**3.4**	**3.2**	--	**11**
Sodium (Dissolved)	mg/L	**30**	**31**	**18.2**	--	**21**
Conventionals (Various)[1]						
Alkalinity (as $CaCO_3$)	mg-$CaCO_3$/L	**100**	**100**	**99.2**	--	**260**
Bicarbonate (as $CaCO_3$)	mg-$CaCO_3$/L	**100**	**100**	**99.2**	--	**260**
Carbonate (as $CaCO_3$)	mg-$CaCO_3$/L	1 U	1 U	1 U	--	1 U
Hydroxide (as $CaCO_3$)	mg-$CaCO_3$/L	1 U	1 U	1 U	--	1 U
Ammonia (total as nitrogen)	mg-N/L	**1.6**	**2**	**0.471**	--	**0.75**
N-Nitrate	mg-N/L	0.1 U	0.1 U	**0.2**	--	0.1 U
N-Nitrite	mg-N/L	--	--	--	--	--
Chloride	mg/L	**12**	**25**	**15.9**	--	**18**
Dissolved Organic Carbon	mg/L	--	--	--	--	--
Sulfate	mg/L	**6.2**	**0.4**	**6.9**	--	**280**
Sulfide	mg/L	0.05 U	0.05 U	0.05 U	--	0.05 U
Dissolved Gases (RSK 175)						
Ethane	µg/L	--	--	--	--	--
Methane	µg/L	--	--	--	--	--

Notes:

BOLD Detected.

-- Not Analyzed.

1 Analytical methods for conventional analysis: alaklinity, bicarbonate, carbonate and hydroxide by SM2320, ammonia by 350.1 and 350.1M, N-Nitrate by USEPA 300, N-Nitrite by USEPA 353.2, chloride by USPEA 300, dissolved organic carbon by USEPA 415.1, sulfate by USEPA 300 and USEPA 375.2, and sulfide by USEPA 376.2.

Abbreviations:

$CaCO_3$ Calcium carbonate
dup Duplicate
ft Feet
µg/L Micrograms per liter
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NWTPH Northwest total petroleum hydrocarbon
RSK Dissolved gas analysis in water
USEPA U.S. Environmetnal Protection Agency

Qualifiers:

J Estimated value
JB Estimated due to presence of blank contamination
JM Estimated due to poor spectral match
U Not detected
UB Not detected at elevated reporting limit due to blank contamination

Table C.9
Results of January 2011 through March 2014 Groundwater Sampling Events

Location Name		MW-29		MW-30		
Field Sample ID		SPL-GW-MW29-071713	SPL-GW-MW29-031814	MW-30-070811	SPL-GW-MW30-040213	SPL-GW-MW30-071613
Use Date		07/17/2013	03/18/2014	07/08/2011	04/02/2013	07/16/2013
Depth		20–30 ft		8–13 ft		
Detected Chemicals						
Volatile Organic Compounds (USEPA 8260C/8260C-SIM)						
Benzene	µg/L	--	--	--	--	--
cis-1,2-Dichloroethene	µg/L	**0.034**	0.2 U	**3.2**	**0.64**	**1.6**
trans-1,2-Dichloroethene	µg/L	--	--	0.2 U	--	--
Styrene	µg/L	--	--	--	--	--
Trichloroethene	µg/L	0.02 U	0.2 U	**0.5**	**0.6**	**0.75**
Vinyl chloride	µg/L	0.02 U	0.02 U	**2.2**	**0.12**	**0.5**
Semivolatile Organic Compounds (USEPA 8270D/8070D-SIM/8041)						
Benzo(a)pyrene	µg/L	--	--	--	--	--
Naphthalene	µg/L	--	--	--	--	--
Pentachlorophenol (by USEPA 8041)	µg/L	--	--	--	--	--
Pentachlorophenol (by USEPA 8270D)	µg/L	--	--	--	--	--
Petroleum Hydrocarbons (NWTPH)						
Gasoline-range Hydrocarbons	mg/L	--	--	--	--	--
Diesel-range Hydrocarbons	mg/L	--	--	--	--	--
Motor Oil-range Hydrocarbons	mg/L	--	--	--	--	--
Metals (USEPA 200.8/6010C/7470A)						
Arsenic (Dissolved)	mg/L	--	--	--	--	--
Arsenic (Total)	mg/L	--	--	--	--	--
Calcium (Dissolved)	mg/L	**160**	**190**	--	**65**	**69**
Chromium (Dissolved)	mg/L	--	--	--	--	--
Chromium (Total)	mg/L	--	--	--	--	--
Iron (Dissolved)	mg/L	**18**	**26.4**	--	**2.2**	**4.6**
Iron (Total)	mg/L	**18**	**26.6**	--	**2.3**	**4.5**
Lead (Dissolved)	mg/L	--	--	--	--	--
Lead (Total)	mg/L	--	--	--	--	--
Magnesium (Dissolved)	mg/L	**37**	**49.4**	--	**12**	**13**
Manganese (Dissolved)	mg/L	**1.3**	**2.04**	--	**0.079**	**0.11**
Manganese (Total)	mg/L	**1.2**	**2.07**	--	**0.08**	**0.11**
Mercury (Dissolved)	mg/L	--	--	--	--	--
Mercury (Total)	mg/L	--	--	--	--	--
Potassium (Dissolved)	mg/L	**11**	**13.5**	--	**3.9**	**5**
Sodium (Dissolved)	mg/L	**23**	**30.3**	--	**14**	**17**
Conventionals (Various)[1]						
Alkalinity (as $CaCO_3$)	mg-$CaCO_3$/L	**280**	**391**	--	**170**	**220**
Bicarbonate (as $CaCO_3$)	mg-$CaCO_3$/L	**280**	**391**	--	**170**	**220**
Carbonate (as $CaCO_3$)	mg-$CaCO_3$/L	1 U	1 U	--	1 U	1 U
Hydroxide (as $CaCO_3$)	mg-$CaCO_3$/L	1 U	1 U	--	1 U	1 U
Ammonia (total as nitrogen)	mg-N/L	**0.86**	**0.976**	--	**0.3**	**0.52**
N-Nitrate	mg-N/L	0.1 U	0.1 U	--	0.1 U	0.1 U
N-Nitrite	mg-N/L	--	--	--	--	--
Chloride	mg/L	**18**	**37.2**	--	**37**	**30**
Dissolved Organic Carbon	mg/L	--	--	--	--	--
Sulfate	mg/L	**300**	**286**	--	**19**	**11**
Sulfide	mg/L	0.05 U	**0.053**	--	0.05 U	0.05 U
Dissolved Gases (RSK 175)						
Ethane	µg/L	--	--	--	--	--
Methane	µg/L	--	--	--	--	--

Notes:

BOLD Detected.

-- Not Analyzed.

1 Analytical methods for conventional analysis: alaklinity, bicarbonate, carbonate and hydroxide by SM2320, ammonia by 350.1 and 350.1M, N-Nitrate by USEPA 300, N-Nitrite by USEPA 353.2, chloride by USPEA 300, dissolved organic carbon by USEPA 415.1, sulfate by USEPA 300 and USEPA 375.2, and sulfide by USEPA 376.2.

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USEPA U.S. Environmetnal Protection Agency

Qualifiers:

J Estimated value
JB Estimated due to presence of blank contamination
JM Estimated due to poor spectral match
U Not detected
UB Not detected at elevated reporting limit due to blank contamination

Table C.9
Results of January 2011 through March 2014 Groundwater Sampling Events

Location Name		MW-30	MW-31			
Field Sample ID		SPL-GW-MW30-031914	MW-31-070811	SPL-GW-MW31-040213	SPL-GW-MW31-071613	SPL-GW-MW31-031914
Use Date		03/19/2014	07/08/2011	04/02/2013	07/16/2013	03/19/2014
Depth		8–13 ft	18–23 ft			
Detected Chemicals						
Volatile Organic Compounds (USEPA 8260C/8260C-SIM)						
Benzene	µg/L	--	--	--	--	--
cis-1,2-Dichloroethene	µg/L	**0.89**	**6.3**	**5.2**	**5.2**	**3.9**
trans-1,2-Dichloroethene	µg/L	--	**1.2**	--	--	--
Styrene	µg/L	--	--	--	--	--
Trichloroethene	µg/L	**0.49**	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl chloride	µg/L	**0.2**	**9**	**4.7**	**4.3**	**5.1**
Semivolatile Organic Compounds (USEPA 8270D/8070D-SIM/8041)						
Benzo(a)pyrene	µg/L	--	--	--	--	--
Naphthalene	µg/L	--	--	--	--	--
Pentachlorophenol (by USEPA 8041)	µg/L	--	--	--	--	--
Pentachlorophenol (by USEPA 8270D)	µg/L	--	--	--	--	--
Petroleum Hydrocarbons (NWTPH)						
Gasoline-range Hydrocarbons	mg/L	--	--	--	--	--
Diesel-range Hydrocarbons	mg/L	--	--	--	--	--
Motor Oil-range Hydrocarbons	mg/L	--	--	--	--	--
Metals (USEPA 200.8/6010C/7470A)						
Arsenic (Dissolved)	mg/L	--	--	--	--	--
Arsenic (Total)	mg/L	--	--	--	--	--
Calcium (Dissolved)	mg/L	**60**	--	**25**	**14**	**13.6**
Chromium (Dissolved)	mg/L	--	--	--	--	--
Chromium (Total)	mg/L	--	--	--	--	--
Iron (Dissolved)	mg/L	**2.8**	--	**12**	**7.9**	**7.54**
Iron (Total)	mg/L	**3.08**	--	**18**	**8.3**	**8.29**
Lead (Dissolved)	mg/L	--	--	--	--	--
Lead (Total)	mg/L	--	--	--	--	--
Magnesium (Dissolved)	mg/L	**11.9**	--	**7.1**	**4**	**4.8**
Manganese (Dissolved)	mg/L	**0.09**	--	**0.44**	**0.26**	**0.306**
Manganese (Total)	mg/L	**0.09**	--	**0.51**	**0.26**	**0.303**
Mercury (Dissolved)	mg/L	--	--	--	--	--
Mercury (Total)	mg/L	--	--	--	--	--
Potassium (Dissolved)	mg/L	**4.7**	--	**4.2**	**3.1**	**3**
Sodium (Dissolved)	mg/L	**17.4**	--	**40**	**35**	**29.2**
Conventionals (Various)[1]						
Alkalinity (as $CaCO_3$)	mg-$CaCO_3$/L	**190**	--	**170**	**110**	**95.2**
Bicarbonate (as $CaCO_3$)	mg-$CaCO_3$/L	**190**	--	**170**	**110**	**95.2**
Carbonate (as $CaCO_3$)	mg-$CaCO_3$/L	1 U	--	1 U	1 U	1 U
Hydroxide (as $CaCO_3$)	mg-$CaCO_3$/L	1 U	--	1 U	1 U	1 U
Ammonia (total as nitrogen)	mg-N/L	**0.396**	--	**2.2**	**1.7**	**1.58**
N-Nitrate	mg-N/L	0.2	--	0.1 U	0.1 U	**0.1**
N-Nitrite	mg-N/L	--	--	--	--	--
Chloride	mg/L	**24.8**	--	**13**	**16**	**20.1**
Dissolved Organic Carbon	mg/L	--	--	--	--	--
Sulfate	mg/L	**20.6**	--	**0.1**	**0.1**	**0.4**
Sulfide	mg/L	0.05 U	--	0.05 U	0.05 U	0.05 U
Dissolved Gases (RSK 175)						
Ethane	µg/L	--	--	--	--	--
Methane	µg/L	--	--	--	--	--

Notes:

BOLD Detected.
-- Not Analyzed.
1 Analytical methods for conventional analysis: alaklinity, bicarbonate, carbonate and hydroxide by SM2320, ammonia by 350.1 and 350.1M, N-Nitrate by USEPA 300, N-Nitrite by USEPA 353.2, chloride by USPEA 300, dissolved organic carbon by USEPA 415.1, sulfate by USEPA 300 and USEPA 375.2, and sulfide by USEPA 376.2.

Abbreviations:

$CaCO_3$ Calcium carbonate
dup Duplicate
ft Feet
µg/L Micrograms per liter
mg/L Milligrams per liter
mg-N/L Milligrams of nitrogen per liter
NWTPH Northwest total petroleum hydrocarbon
RSK Dissolved gas analysis in water
USEPA U.S. Environmetnal Protection Agency

Qualifiers:

J Estimated value
JB Estimated due to presence of blank contamination
JM Estimated due to poor spectral match
U Not detected
UB Not detected at elevated reporting limit due to blank contamination

Table C.9
Results of January 2011 through March 2014 Groundwater Sampling Events

Location Name		MW-32				
Field Sample ID		MW-32-070811	MW-34-070811 (dup)	SPL-GW-MW32-040113	SPL-GW-MW32-071513	SPL-GW-MW32-031814
Use Date		07/08/2011	07/08/2011	04/01/2013	07/15/2013	03/18/2014
Depth		19–24 ft				
Detected Chemicals						
Volatile Organic Compounds (USEPA 8260C/8260C-SIM)						
Benzene	µg/L	--	--	--	--	--
cis-1,2-Dichloroethene	µg/L	**2**	**2**	**1.5**	**1.7**	**1.5**
trans-1,2-Dichloroethene	µg/L	**0.3**	**0.3**	--	--	--
Styrene	µg/L	--	--	--	--	--
Trichloroethene	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl chloride	µg/L	**0.2**	**0.2**	**0.28**	**0.3**	**0.36**
Semivolatile Organic Compounds (USEPA 8270D/8070D-SIM/8041)						
Benzo(a)pyrene	µg/L	--	--	--	--	--
Naphthalene	µg/L	--	--	--	--	--
Pentachlorophenol (by USEPA 8041)	µg/L	--	--	--	--	--
Pentachlorophenol (by USEPA 8270D)	µg/L	--	--	--	--	--
Petroleum Hydrocarbons (NWTPH)						
Gasoline-range Hydrocarbons	mg/L	--	--	--	--	--
Diesel-range Hydrocarbons	mg/L	--	--	--	--	--
Motor Oil-range Hydrocarbons	mg/L	--	--	--	--	--
Metals (USEPA 200.8/6010C/7470A)						
Arsenic (Dissolved)	mg/L	--	--	--	--	--
Arsenic (Total)	mg/L	--	--	--	--	--
Calcium (Dissolved)	mg/L	--	--	**68**	**77**	**86.8**
Chromium (Dissolved)	mg/L	--	--	--	--	--
Chromium (Total)	mg/L	--	--	--	--	--
Iron (Dissolved)	mg/L	--	--	**24**	**26**	**28.6**
Iron (Total)	mg/L	--	--	**23**	**27**	**29**
Lead (Dissolved)	mg/L	--	--	--	--	--
Lead (Total)	mg/L	--	--	--	--	--
Magnesium (Dissolved)	mg/L	--	--	**44**	**49**	**55.8**
Manganese (Dissolved)	mg/L	--	--	**2.3**	**2.5**	**2.87**
Manganese (Total)	mg/L	--	--	**2.2**	**2.5**	**2.9**
Mercury (Dissolved)	mg/L	--	--	--	--	--
Mercury (Total)	mg/L	--	--	--	--	--
Potassium (Dissolved)	mg/L	--	--	**15**	**16**	**15.7**
Sodium (Dissolved)	mg/L	--	--	**160**	**140**	**110**
Conventionals (Various)[1]						
Alkalinity (as $CaCO_3$)	mg-$CaCO_3$/L	--	--	**670**	**670**	**607**
Bicarbonate (as $CaCO_3$)	mg-$CaCO_3$/L	--	--	**670**	**670**	**607**
Carbonate (as $CaCO_3$)	mg-$CaCO_3$/L	--	--	1 U	1 U	1 U
Hydroxide (as $CaCO_3$)	mg-$CaCO_3$/L	--	--	1 U	1 U	1 U
Ammonia (total as nitrogen)	mg-N/L	--	--	**9.4**	**10**	**9.26**
N-Nitrate	mg-N/L	--	--	**0.1 U**	**0.1 U**	**0.1**
N-Nitrite	mg-N/L	--	--	--	--	--
Chloride	mg/L	--	--	**34**	**30**	**26**
Dissolved Organic Carbon	mg/L	--	--	--	--	--
Sulfate	mg/L	--	--	**13**	**19**	**71.3**
Sulfide	mg/L	--	--	0.05 U	0.05 U	0.05 U
Dissolved Gases (RSK 175)						
Ethane	µg/L	--	--	--	--	--
Methane	µg/L	--	--	--	--	--

Notes:

BOLD Detected.
-- Not Analyzed.
1 Analytical methods for conventional analysis: alaklinity, bicarbonate, carbonate and hydroxide by SM2320, ammonia by 350.1 and 350.1M, N-Nitrate by USEPA 300, N-Nitrite by USEPA 353.2, chloride by USPEA 300, dissolved organic carbon by USEPA 415.1, sulfate by USEPA 300 and USEPA 375.2, and sulfide by USEPA 376.2.

Abbreviations:

$CaCO_3$ Calcium carbonate
dup Duplicate
ft Feet
µg/L Micrograms per liter
mg/L Milligrams per liter
mg-N/L Milligrams of nitrogen per liter
NWTPH Northwest total petroleum hydrocarbon
RSK Dissolved gas analysis in water
USEPA U.S. Environmetnal Protection Agency

Qualifiers:

J Estimated value
JB Estimated due to presence of blank contamination
JM Estimated due to poor spectral match
U Not detected
UB Not detected at elevated reporting limit due to blank contamination

Table C.9
Results of January 2011 through March 2014 Groundwater Sampling Events

Location Name		MW-33			
Field Sample ID		MW-33-070811	SPL-GW-MW33-040113	SPL-GW-MW33-071513	SPL-GW-MW33-031814
Use Date		07/08/2011	04/01/2013	07/15/2013	03/18/2014
Depth		20–25 ft			
Detected Chemicals					
Volatile Organic Compounds (USEPA 8260C/8260C-SIM)					
Benzene	µg/L	--	--	--	--
cis-1,2-Dichloroethene	µg/L	**0.7**	0.2 U	0.2 U	0.2 U
trans-1,2-Dichloroethene	µg/L	0.2 U	--	--	--
Styrene	µg/L	--	--	--	--
Trichloroethene	µg/L	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl chloride	µg/L	**0.3**	**1.1**	**0.78**	**0.44**
Semivolatile Organic Compounds (USEPA 8270D/8070D-SIM/8041)					
Benzo(a)pyrene	µg/L	--	--	--	--
Naphthalene	µg/L	--	--	--	--
Pentachlorophenol (by USEPA 8041)	µg/L	--	--	--	--
Pentachlorophenol (by USEPA 8270D)	µg/L	--	--	--	--
Petroleum Hydrocarbons (NWTPH)					
Gasoline-range Hydrocarbons	mg/L	--	--	--	--
Diesel-range Hydrocarbons	mg/L	--	--	--	--
Motor Oil-range Hydrocarbons	mg/L	--	--	--	--
Metals (USEPA 200.8/6010C/7470A)					
Arsenic (Dissolved)	mg/L	--	--	--	--
Arsenic (Total)	mg/L	--	--	--	--
Calcium (Dissolved)	mg/L	--	**37**	**38**	**37**
Chromium (Dissolved)	mg/L	--	--	--	--
Chromium (Total)	mg/L	--	--	--	--
Iron (Dissolved)	mg/L	--	**18**	**19**	**18.9**
Iron (Total)	mg/L	--	**18**	**20**	**19.1**
Lead (Dissolved)	mg/L	--	--	--	--
Lead (Total)	mg/L	--	--	--	--
Magnesium (Dissolved)	mg/L	--	**22**	**22**	**21.7**
Manganese (Dissolved)	mg/L	--	**1.8**	**1.9**	**1.95**
Manganese (Total)	mg/L	--	**1.8**	**1.9**	**2.03**
Mercury (Dissolved)	mg/L	--	--	--	--
Mercury (Total)	mg/L	--	--	--	--
Potassium (Dissolved)	mg/L	--	**9.6**	**9.6**	**9.6**
Sodium (Dissolved)	mg/L	--	**270**	**270**	**264**
Conventionals (Various)[1]					
Alkalinity (as $CaCO_3$)	mg-$CaCO_3$/L	--	**660**	**680**	**268**
Bicarbonate (as $CaCO_3$)	mg-$CaCO_3$/L	--	**660**	**680**	**268**
Carbonate (as $CaCO_3$)	mg-$CaCO_3$/L	--	1 U	1 U	1 U
Hydroxide (as $CaCO_3$)	mg-$CaCO_3$/L	--	1 U	1 U	1 U
Ammonia (total as nitrogen)	mg-N/L	--	**15**	**16**	**14.7**
N-Nitrate	mg-N/L	--	0.1 U	0.1 U	0.1 U
N-Nitrite	mg-N/L	--	--	--	--
Chloride	mg/L	--	**89**	**88**	**81.7**
Dissolved Organic Carbon	mg/L	--	--	--	--
Sulfate	mg/L	--	**1.4**	**0.1**	0.1 U
Sulfide	mg/L	--	0.05 U	0.05 U	0.05 U
Dissolved Gases (RSK 175)					
Ethane	µg/L	--	--	--	--
Methane	µg/L	--	--	--	--

Notes:

BOLD Detected.

-- Not Analyzed.

1 Analytical methods for conventional analysis: alaklinity, bicarbonate, carbonate and hydroxide by SM2320, ammonia by 350.1 and 350.1M, N-Nitrate by USEPA 300, N-Nitrite by USEPA 353.2, chloride by USPEA 300, dissolved organic carbon by USEPA 415.1, sulfate by USEPA 300 and USEPA 375.2, and sulfide by USEPA 376.2.

Abbreviations:

$CaCO_3$ Calcium carbonate
dup Duplicate
ft Feet
µg/L Micrograms per liter
mg/L Milligrams per liter
mg-N/L Milligrams of nitrogen per liter
NWTPH Northwest total petroleum hydrocarbon
RSK Dissolved gas analysis in water
USEPA U.S. Environmetnal Protection Agency

Qualifiers:

J Estimated value
JB Estimated due to presence of blank contamination
JM Estimated due to poor spectral match
U Not detected
UB Not detected at elevated reporting limit due to blank contamination

Table C.10
Results of Reconnaissance Groundwater Investigation

Location		FB-07	FB-08	FB-09	FB-10	FB-11	FB-11 (dup)	FB-12	FB-13	FB-14	FB-14	FB-14	FB-14	FB-14	FB-14
Sample ID		FB07-10-030711	FB08-13-030711	FB09-13-030711	FB10-13-030711	FB11-13-030711	FB15-13-030711	FB12-14-030811	FB13-19-030811	FB14-12-031111	DOE FB-14-12	FB14-22-031111	DOE FB-14-22	FB14-38-031111	DOE FB-14-38
Sample Date		3/7/2011	3/7/2011	3/7/2011	3/7/2011	3/7/2011	3/7/2011	3/8/2011	3/8/2011	3/11/2011	3/11/2011	3/11/2011	3/11/2011	3/12/2011	3/11/2011
Depth Range		5–10 ft	8–13 ft	9–14 ft	9–14 ft	10–15 ft	10–15 ft	10–15 ft	15–20 ft	8–13 ft	8–13 ft	17–22 ft	17–22 ft	36–40 ft	34–38 ft
Detected Chemicals	**Units**														
Volatile Organic Compounds (USEPA 8260C/8260-SIM)															
Benzene	µg/L	--	--	--	--	--	--	--	--	--	1 U	--	1 U	--	1 U
cis-1,2-Dichloroethene	µg/L	0.2 U	**12**	**4.3**	**0.4**	**0.5**	**0.5**	**1.7**	0.2 U	**0.4**	**0.36**	**20**	**23**	**7.7**	**8.2**
trans-1,2-Dichloroethene	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	**2.3**	**3.2**	**0.6**	**0.68**
Trichloroethene	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.8**	0.2 U	**2.6**	**3.5**	0.2 U	1 U	0.2 U	1 U
Vinyl chloride	µg/L	0.02 U	**1.2**	**0.11**	**0.026**	0.02 U	0.02 U	**1.4**	**0.34**	**0.029**	1 U	**5.1**	**8.4**	**0.4**	**0.8**
Metals (USEPA 200.8)															
Arsenic (Dissolved)	mg/L	**0.0024**	**0.0015**	**0.0019**	**0.0028**	**0.0026**	**0.0025**	**0.0022**	**0.0016**	**0.0003**	**0.00035**	**0.0004**	**0.0015**	**0.0005**	--
Arsenic (Total)	mg/L	**0.0034**	**0.0009**	**0.0009**	**0.0026**	**0.0015**	**0.0014**	**0.0023**	**0.002**	**0.0004**	--	**0.002**	--	**0.0005**	--

Notes:

BOLD Volatile organic compounds detected at levels greater than the laboratory reporting limit.
-- Not analyzed.

Abbreviations:

dup Duplicate
ft Feet
GW Groundwater
µg/L Micrograms per liter
mg/L Milligrams per liter
USEPA U.S. Environmental Protection Agency

Qualifier:

U Not detected

Table C.11
Historical Landfill Gas Measurements

Sampling Stations	Date	Barometer Reading (inches Hg)	Carbon Dioxide (percent	Hydrogen sulfide (ppmv)	Methane (percent volume)	Oxygen (percent volume)	Volatiles by PID	
							Final Reading (ppmv)	Maximum Reading
Interior LFG Monitoring Probes								
GP-1	5/14/1997	--	8.9	0.2	--	21.3	1	--
GP-1	5/23/1997	30.54	--	--	0	20.9	--	--
GP-1	6/20/1997	30.65	--	--	--	20.8	--	--
GP-1	7/21/1997	29.65	--	--	0	21	--	--
GP-1	8/18/1997	30.67	--	--	0	21	--	--
GP-1	9/8/1997	30.7	--	--	0.025 T	--	--	--
GP-1	10/13/1997	31.08	--	--	6	0	--	--
GP-1	11/19/1997	30.15	--	--	7	0	--	--
GP-1	12/2/1997	30.5	--	--	13	0	--	--
GP-1	1/16/1998	30.15	--	--	7	--	--	--
GP-1	2/19/1998	30.39	--	--	7	0	--	--
GP-1	3/17/1998	30.82	--	--	5	2	--	--
GP-1	4/14/1998	29.63	--	--	4	1	--	--
GP-1	5/19/1998	30.69	--	--	0	0	--	--
GP-1	6/4/1998	30.54	--	--	3	0	--	--
GP-1	7/27/1998	30.58	--	--	2	2	--	--
GP-1	8/4/1998	30.55	--	--	2	2.5	--	--
GP-1	9/17/1998	30.02	--	--	1	8	--	--
GP-1	10/5/1998	30.08	--	--	1	9	--	--
GP-1	11/6/1998	30.39	--	--	0.025 T	5	--	--
GP-1	12/2/1998	30.19	--	--	3	0	--	--
GP-1	1/6/1999	29.7	--	--	6	0	--	--
GP-1	2/12/1999	--	19	13	8.9	14.4	--	--
GP-1	2/18/1999	30	--	--	6	0	--	--
GP-1	3/5/1999	31	--	--	9	0	--	--
GP-1	4/9/1999	30.8	--	--	4	0	--	--
GP-1	5/7/1999	30.85	--	--	6	0	--	--
GP-1	6/23/1999	30.65	--	--	0.025 T	6	--	--
GP-1	7/20/1999	30.5	--	--	0	21	--	--
GP-1	8/20/1999	30.65	--	--	0.025 T	20	--	--
GP-1	9/29/1999	30.8	--	--	0	20	--	--
GP-1	10/15/1999	30.4	18.6	0	0.5	2.1	--	--
GP-1	10/19/1999	30.79	--	--	0	21	--	--
GP-1	10/26/1999	30.01	0.1	--	0	21.4	--	--
GP-1	11/15/1999	30.35	--	--	0	21	--	--
GP-1	12/6/1999	30.4	--	--	0	21	--	--
GP-1	1/11/2000	30.02	--	--	0.025 T	20	--	--
GP-1	2/3/2000	29.93	15.2	2	3.9	3.7	0	--
GP-1	2/7/2000	30.42	--	--	2	21	--	--
GP-1	3/9/2000	30.49	--	--	0.025 T	21	--	--
GP-1	4/7/2000	30.94	--	--	0.025 T	20	--	--
GP-1	5/11/2000	30.46	--	--	0	21	--	--
GP-1	6/5/2000	30.38	--	--	0	21	--	--
GP-1	7/17/2000	30.5	--	--	0	21	--	--
GP-1	8/2/2000	30.08	12.6	0	0.4	8	0	--
GP-1	9/5/2000	29.79	13.7	0	0	7.1	3.9	4.8
GP-1	10/10/2000	29.35	17.2	0	0.2	2.5	0	--
GP-1	11/3/2000	29.86	14.7	0	0	4.6	12.2	26.7
GP-1	12/6/2000	29.57	16.6	0	0.8	2.1	0	--
GP-1	1/5/2001	29.13	13.6	0	0.9	5.3	0	--
GP-1	2/2/2001	29.57	16.7	0	2.9	2.4	0	--
GP-1	3/2/2001	29.57	12.4	0	0.6	7	0	--
GP-1	4/6/2001	29.13	15.3	1	3	4.4	0	1.1
GP-1	5/10/2001	--	19.8	0	3	2.6	0	0.2
GP-1	6/4/2001	29.98	13.9	0	1.1	6	0	0.4
GP-1	7/6/2001	30.1	13.6	0	0.3	6.3	0	--
GP-1	8/3/2001	29.94	12.1	0	0.3	8.7	6.1	6.2
GP-1	9/7/2001	30.25	13.7	0	0	6.1	6.8	6.8
GP-1	10/8/2001	--	16.8	0	0.1	4.2	1.6	1.6
GP-1	11/5/2001	--	17.8	0	0	2.1	10.7	10.7
GP-1	12/7/2001	30.4	18.7	9	2.8	0.9	0	0.7
GP-1	1/11/2002	--	14	0	2.3	3.8	0	0.9
GP-1	2/8/2002	--	13	0	1.7	7.8	0	1.1
GP-1	3/8/2002	--	15.9	0	0.7	4.7	0	0
GP-1	4/4/2002	--	15.9	0	1.8	4.1	0	0
GP-1	5/6/2002	30.2	14	0	2.1	3.9	0	0
GP-1	6/4/2002	--	13.8	0	1.4	5.6	0	0
GP-1	7/3/2002	--	14.3	0	0.6	5.2	5.4	5.4
GP-1	8/2/2002	--	12.9	0	0.2	6.2	0	0
GP-1	9/5/2002	--	13.2	0	0	6	0	0

Table C.11
Historical Landfill Gas Measurements

Sampling Stations	Date	Barometer Reading (inches Hg)	Carbon Dioxide (percent	Hydrogen sulfide (ppmv)	Methane (percent volume)	Oxygen (percent volume)	Volatiles by PID	
							Final Reading (ppmv)	Maximum Reading
Interior LFG Monitoring Probes (cont.)								
GP-1	10/2/2002	--	13	0	0.1	6.8	0	0
GP-1	11/6/2002	--	14.8	0	0	5.5	0	0
GP-1	12/9/2002	--	16.2	0	0.1	4.7	0	0
GP-1	1/3/2003	30.07	15.7	0	0.8	3.8	0	0
GP-1	2/5/2003	--	17.2	7	3.3	1.7	0	0
GP-1	3/7/2003	29.77	15.3	0	2.6	4.6	0	0
GP-1	4/1/2003	29.63	11.9	0	1.3	5.8	0.2	1.1
GP-1	5/5/2003	30.05	12	0	1	7.2	5.4	5.7
GP-1	6/3/2003	30.17	13.3	0	0.7	6	0	0
GP-1	7/2/2003	30.14	14.4	0	0.3	6.3	1.6	1.6
GP-1	8/5/2003	29.24	13.6	0	0.1	5.8	2.2	2.2
GP-1	9/3/2003	29.98	13.4	0	0.2	7.2	1.5	1.5
GP-1	10/2/2003	30.08	14.2	0	0.3	6.3	1.3	1.3
GP-1	11/5/2003	30.2	19.3	1	0	1.8	4.1	4.2
GP-1	12/4/2003	29.76	18.6	0	1.8	2	0	0
GP-1	1/14/2004	30.03	16.3	0	1.7	3	1.4	2.8
GP-1	2/2/2004	29.96	19.1	1	6.7	1.6	0	1.1
GP-1	3/2/2004	30.23	11.4	0	0.6	8	1.2	1.3
GP-1	4/5/2004	30.1	8.9	0	0.9	11.8	1.2	1.7
GP-1	5/3/2004	30.13	11.8	0	0.4	8.4	1.6	2.2
GP-1	6/2/2004	30.09	10.8	0	0.2	9.3	2.2	2.3
GP-1	7/6/2004	30.1	10.7	0	0	9.1	5.4	5.4
GP-1	8/6/2004	29.87	11.4	0	0.1	8.6	4	4
GP-1	9/10/2004	30	13.8	0	0.2	6.9	2.7	2.7
GP-2	5/14/1997	--	0.9	1.1	--	13.3	5	5
GP-2	5/23/1997	30.54	--	--	7	0	--	--
GP-2	6/20/1997	30.65	--	--	--	20.8	--	--
GP-2	7/21/1997	29.65	--	--	0	21	--	--
GP-2	8/18/1997	30.67	--	--	0	21	--	--
GP-2	9/8/1997	30.7	--	--	--	--	--	--
GP-2	10/13/1997	31.08	--	--	14	0	--	--
GP-2	11/19/1997	30.15	--	--	18	0	--	--
GP-2	12/2/1997	30.5	--	--	25	0	--	--
GP-2	1/16/1998	30.15	--	--	16	--	--	--
GP-2	2/19/1998	30.4	--	--	15	0	--	--
GP-2	3/17/1998	30.88	--	--	12	1	--	--
GP-2	4/14/1998	29.63	--	--	11	1	--	--
GP-2	5/19/1998	30.64	--	--	15	0	--	--
GP-2	6/4/1998	30.52	--	--	6	1	--	--
GP-2	7/27/1998	30.57	--	--	2.4	2.5	--	--
GP-2	8/4/1998	30.58	--	--	2.5	2.5	--	--
GP-2	9/17/1998	30.03	--	--	1.4	3	--	--
GP-2	10/5/1998	30.08	--	--	1.6	2.5	--	--
GP-2	11/6/1998	30.39	--	--	--	2	--	--
GP-2	12/2/1998	30.19	--	--	--	0	--	--
GP-2	1/6/1999	29.7	--	--	18	0	--	--
GP-2	3/5/1999	29.95	--	--	15	0	--	--
GP-2	4/9/1999	30.8	--	--	12	0	--	--
GP-2	5/7/1999	30.85	--	--	--	--	--	--
GP-2	6/23/1999	30.65	--	--	5	0	--	--
GP-2	7/20/1999	30.5	--	--	4	0	--	--
GP-2	8/20/1999	30.65	--	--	3	0	--	--
GP-2	9/29/1999	30.8	--	--	3	0	--	--
GP-2	10/15/1999	30.4	13.1	0	2.2	2.5	13.1	--
GP-2	10/19/1999	30.79	--	--	3	0	--	--
GP-2	10/28/1999	29.13	0.7	--	0.2	20.3	--	--
GP-2	11/15/1999	30.35	--	--	3	0	--	--
GP-2	12/6/1999	30.4	--	--	7	0	--	--
GP-2	1/11/2000	30.02	--	--	9	0	--	--
GP-2	2/3/2000	29.79	12.6	24	15.2	0	0	--
GP-2	2/7/2000	30.42	--	--	10	0	--	--
GP-2	3/9/2000	30.49	--	--	10	0	--	--
GP-2	4/7/2000	30.94	--	--	10	0	--	--
GP-2	5/11/2000	30.46	--	--	7	0	--	--
GP-2	6/5/2000	30.38	--	--	3	0	--	--
GP-2	7/17/2000	30.5	--	--	1	4	--	--
GP-2	8/2/2000	29.71	12.8	0	2.2	1.3	0	--
GP-2	9/5/2000	29.93	14.4	0	3	0.4	4.8	4.8
GP-2	10/10/2000	29.49	14.1	0	3	0.9	0	--
GP-2	11/3/2000	29.71	14	9	5.3	0.1	0	--

Table C.11
Historical Landfill Gas Measurements

Sampling Stations	Date	Barometer Reading (inches Hg)	Carbon Dioxide (percent	Hydrogen sulfide (ppmv)	Methane (percent volume)	Oxygen (percent volume)	Volatiles by PID	
							Final Reading (ppmv)	Maximum Reading
Interior LFG Monitoring Probes (cont.)								
GP-2	12/6/2000	29.71	15.2	16	10.9	0	0.4	0.4
GP-2	1/5/2001	29.79	14.2	24	12	0	0	--
GP-2	2/2/2001	29.49	14.5	9	13.7	0	0	0.3
GP-2	3/2/2001	29.42	13.5	16	12.8	0	0	--
GP-2	4/6/2001	29.49	12.5	27	11	0.2	0	--
GP-2	5/10/2001	--	14.5	22	13	0	0	2.2
GP-2	6/4/2001	29.98	10.6	6	6.7	0	0	--
GP-2	7/6/2001	30.1	12.7	0	4	0	0	--
GP-2	8/3/2001	29.94	12.8	0	2.1	1.6	3	5.7
GP-2	9/7/2001	30.25	11.1	0	2.3	3.3	8.1	8.1
GP-2	10/8/2001	--	13.7	0	3.8	0.2	--	--
GP-2	11/5/2001	--	13.8	10	8.4	0	4.4	5.4
GP-2	12/7/2001	30.4	15.4	20	15.3	0	0	--
GP-2	1/11/2002	--	13.1	33	15.7	0	0.5	0.9
GP-2	2/8/2002	--	15	42	15.8	0	7.1	8.2
GP-2	3/8/2002	--	14.9	0	13.4	0.1	0	0
GP-2	4/4/2002	--	13.3	27	11.5	0.1	0	0
GP-2	5/6/2002	30.2	12.8	30	12.6	0	0	0
GP-2	6/4/2002	--	11.9	10	5.7	0	0	0
GP-2	7/3/2002	--	11.8	0	2.2	9	0	0
GP-2	8/2/2002	--	13.1	0	3	0	0	0
GP-2	9/5/2002	--	12.3	0	1.9	3.2	4.7	4.7
GP-2	10/2/2002	--	13.1	0	2.2	2.5	13.1	13.1
GP-2	11/6/2002	--	14.1	0	3	0.7	0	0
GP-2	12/9/2002	--	14.7	4	8.4	0	0	0
GP-2	1/7/2003	30.17	14.4	27	12	0	6	74
GP-2	2/5/2003	30.3	11.1	0	9.5	5.8	6.3	7.3
GP-2	3/7/2003	29.7	14.8	27	12.5	0	0	0
GP-2	4/1/2003	--	13.2	31	12.5	0	0	0
GP-2	5/5/2003	30.07	13.1	20	10.6	0	7.4	7.4
GP-2	6/3/2003	30.22	10	0	3.1	4	0	17
GP-2	7/2/2003	30.16	10.2	0	1.4	5.9	9.2	9.2
GP-2	8/5/2003	30	13.5	0	2.4	1.2	10.9	11
GP-2	9/3/2003	30.01	11.1	0	1	6.2	11.8	11.8
GP-2	10/2/2003	30.03	14.8	0	3.6	1	12	12
GP-2	11/5/2003	30.15	15.9	5	9.8	0	3.5	3.5
GP-2	12/4/2003	29.65	16.3	12	13.3	0	1.5	1.6
GP-2	1/14/2004	29.94	16.2	47	13.8	0	0	3.2
GP-2	2/6/2004	29.98	15.6	0	13.8	0	2.1	3.4
GP-2	3/2/2004	30.22	14.7	11	12.1	0	4.9	6.5
GP-2	4/5/2004	30.1	13.5	3	10	0.1	7.3	13.2
GP-2	5/3/2004	30.14	12.1	0	4.9	0.8	2.5	3.8
GP-2	6/1/2004	30.12	12.3	0	3.3	0.8	7.1	7.5
GP-2	7/6/2004	30.07	13.5	0	1.9	1.6	18.6	19.7
GP-2	8/6/2004	29.84	14.4	0	2.3	0.9	18.7	18.7
GP-2	9/10/2004	29.95	15.6	0	3.7	0.7	12.9	12.9
GP-16	10/15/1999	30.5	16.5	0	0	6.5	--	--
GP-16	10/28/1999	29.42	0.1	--	0.1	20.6	--	--
GP-16	11/15/1999	30.35	--	--	0	20	--	--
GP-16	12/6/1999	30.4	--	--	0	3	--	--
GP-16	1/11/2000	30.02	--	--	0	20	--	--
GP-16	2/3/2000	29.86	15.2	0	0	4.3	40.2	--
GP-16	2/7/2000	30.42	--	--	0	21	--	--
GP-16	3/9/2000	30.49	--	--	0	20	--	--
GP-16	4/7/2000	30.94	--	--	1	18	--	--
GP-16	5/11/2000	30.46	--	--	2	12	--	--
GP-16	6/5/2000	30.38	--	--	2	18	--	--
GP-16	7/17/2000	30.5	--	--	0	20	--	--
GP-16	8/4/2000	29.71	17.8	0	0	2.9	0	--
GP-16	9/5/2000	30.01	16.7	0	0	5.7	2.2	3
GP-16	10/10/2000	29.42	19.2	0	0	3.1	0	--
GP-16	11/3/2000	29.93	16.3	0	0	5.5	0	--
GP-16	12/6/2000	29.86	14.6	0	0	6.4	0	--
GP-16	1/5/2001	29.71	16.7	0	0	2.3	0	--
GP-16	2/2/2001	29.64	15	0	0	4.1	1.2	2.8
GP-16	3/2/2001	29.49	14.1	0	0	5.8	0	--
GP-16	4/6/2001	29.27	16.5	0	0	2.8	4.4	9.9
GP-16	5/10/2001	--	22.6	0	0	2.6	0.4	0.5
GP-16	6/4/2001	29.98	17.9	0	1.2	3.5	0	--
GP-16	7/6/2001	30.1	20.4	0	0.1	2	0	4.1

Table C.11
Historical Landfill Gas Measurements

Sampling Stations	Date	Barometer Reading (inches Hg)	Carbon Dioxide (percent	Hydrogen sulfide (ppmv)	Methane (percent volume)	Oxygen (percent volume)	Volatiles by PID	
							Final Reading (ppmv)	Maximum Reading
Interior LFG Monitoring Probes (cont.)								
GP-16	8/3/2001	29.94	15.7	0	0	7	1.4	2.3
GP-16	9/7/2001	30.25	17.7	0	0	4.5	4	4.1
GP-16	10/8/2001	--	16.5	0	0	6.1	1.1	1.6
GP-16	11/5/2001	--	17	0	0	5.1	13.5	13.5
GP-16	12/7/2001	30.4	16.1	0	0	3.7	0	--
GP-16	1/11/2002	--	14.1	0	0	3.9	0	0.4
GP-16	2/8/2002	--	16.3	0	0	3.8	2.6	3.8
GP-16	3/8/2002	--	15.2	0	0	4.7	0	0
GP-16	4/4/2002	--	15.3	0	0	4.7	0	0
GP-16	5/6/2002	30.2	16.4	0	1	2.6	0	0
GP-16	6/4/2002	--	15.7	0	0	4.5	0	0
GP-16	7/3/2002	--	21	0	0	1	2.4	6.7
GP-16	8/2/2002	--	19.3	0	0	1.8	0	0
GP-16	9/5/2002	--	16.6	0	0	5.5	2.7	2.7
GP-16	10/2/2002	--	17.5	0	0	5.7	3.6	3.6
GP-16	11/6/2002	--	16.9	0	0	6.1	0	0
GP-16	12/9/2002	--	17	0	0.1	5.9	0	0
GP-16	1/3/2003	30.07	17.4	0	0	3.7	0	0
GP-16	2/5/2003	30.3	16.6	0	0	4.6	0	0
GP-16	3/7/2003	29.77	16.7	0	0.1	2.9	0	0
GP-16	4/1/2003	29.63	18.9	0	0.1	2.2	0.9	0.9
GP-16	5/5/2003	30.06	19.5	0	0.1	1.7	6.9	6.9
GP-16	6/3/2003	30.18	20.8	0	0.2	2	0	0
GP-16	7/2/2003	30.15	21.1	0	0.1	1.9	1.3	1.7
GP-16	8/5/2003	29.32	21.1	0	0.1	2.8	1.6	1.8
GP-16	9/3/2003	30.02	20.3	0	0.1	2.5	0.9	2.2
GP-16	10/2/2003	30.08	19	0	0.2	4.7	1.2	1.3
GP-16	11/5/2003	30.2	18	0	0	4.9	0.4	1.1
GP-16	12/4/2003	29.74	15.3	0	0	6.2	0	0
GP-16	1/14/2004	30.03	16.1	0	0	4.5	2.7	2.8
GP-16	2/2/2004	29.64	17	0	0	1.9	1.2	1.9
GP-16	3/2/2004	30.23	15.3	0	0	5.6	2.2	3.1
GP-16	4/5/2004	30.1	18.6	0	0.1	3.2	1.7	1.8
GP-16	5/3/2004	30.15	18.9	0	0.1	3	1.3	1.5
GP-16	6/1/2004	30.11	23	0	1.4	0.6	2.9	2.9
GP-16	7/6/2004	30.1	20.6	0	0	3.1	5.3	5.5
GP-16	8/6/2004	29.88	19.6	0	0.1	3.7	5.2	5.4
GP-17	10/15/1999	30.5	17.5	0	0.6	4.5	--	--
GP-17	10/28/1999	29.35	0.1	--	0	21.4	--	--
GP-17	11/15/1999	30.35	--	--	0	20	--	--
GP-17	12/6/1999	30.4	--	--	9	0	--	--
GP-17	1/11/2000	30.02	--	--	15	3	--	--
GP-17	2/3/2000	29.71	15	0	9.5	3	4	--
GP-17	2/7/2000	30.42	--	--	43	10	--	--
GP-17	3/9/2000	30.49	--	--	0	21	--	--
GP-17	4/7/2000	30.94	--	--	7	2	--	--
GP-17	5/11/2000	30.46	--	--	10	5	--	--
GP-17	6/5/2000	30.38	--	--	5	13	--	--
GP-17	7/17/2000	30.5	--	--	0.025 T	20	--	--
GP-17	8/3/2000	29.2	14.5	0	3.6	7	0	--
GP-17	9/5/2000	29.64	18.3	0	2.5	4.1	0	--
GP-17	10/10/2000	29.42	16.6	0	0	2.4	0	--
GP-17	11/3/2000	29.93	15	0	0.3	5.3	0	--
GP-17	12/6/2000	29.71	15.8	0	2.6	3.8	0.6	0.6
GP-17	1/5/2001	29.71	20.2	0	9.3	0	0	--
GP-17	2/2/2001	29.86	16.1	0	8.7	2.6	8	8
GP-17	3/2/2001	29.57	14.8	0	5.7	2.8	0	--
GP-17	4/6/2001	29.42	14.7	1	9.6	2.6	0	--
GP-17	5/10/2001	--	17.1	0	11.8	2.1	0	--
GP-17	6/4/2001	29.98	17	2	11.5	1	0	--
GP-17	7/6/2001	30.1	16.7	0	2.7	2.5	0	1.1
GP-17	8/3/2001	29.94	16.7	0	8.8	5.4	0	1.3
GP-17	9/7/2001	30.25	14.4	0	0.6	5.9	2.6	2.6
GP-17	10/8/2001	--	15.8	0	1.2	4.4	1.2	1.2
GP-17	11/5/2001	--	17	0	1.4	4.1	10	10.3
GP-17	12/7/2001	30.4	16	0	8.3	3.8	0	--
GP-17	1/11/2002	--	14	0	8	3.1	0	--
GP-17	2/8/2002	--	14.3	0	8.6	4.4	1.4	1.8
GP-17	3/8/2002	--	13.6	0	1.6	4.7	0	0
GP-17	4/4/2002	--	13.8	0	6.4	4.9	0	0

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Historical Landfill Gas Measurements

Sampling Stations	Date	Barometer Reading (inches Hg)	Carbon Dioxide (percent	Hydrogen sulfide (ppmv)	Methane (percent volume)	Oxygen (percent volume)	Volatiles by PID	
							Final Reading (ppmv)	Maximum Reading
Interior LFG Monitoring Probes (cont.)								
GP-17	5/6/2002	30.2	13.1	1	10.6	4.4	0	0
GP-17	6/4/2002	--	13	1	8.8	4.8	0	0
GP-17	7/3/2002	--	16.7	0	7.8	2.5	74	74.8
GP-17	8/2/2002	--	14.9	0	2.7	4.9	0	0
GP-17	9/5/2002	--	13.6	0	2	6.7	0	0
GP-17	10/2/2002	--	10.8	0	0.1	8.5	0	0
GP-17	11/6/2002	--	12	0	0	6.1	14	14
GP-17	12/9/2002	--	14.1	0	0.2	6.7	0	0
GP-17	1/3/2003	30.12	14.8	0	6.7	6.1	0	0
GP-17	2/5/2003	30.34	15.1	0	6.7	2.6	0	0
GP-17	3/7/2003	29.77	13.1	0	6.8	6.1	0	0
GP-17	4/1/2003	29.67	13.6	0	9.7	4	0	0
GP-17	5/5/2003	30.08	16.5	1	10.6	2.1	3.2	4.4
GP-17	6/3/2003	30.17	15.7	0	7.5	3.6	0	0
GP-17	7/2/2003	30.12	15.6	0	4	4.9	1.1	1.1
GP-17	8/5/2003	29.24	16.8	0	3.6	4.9	0.8	1
GP-17	9/3/2003	30	15.2	0	0.1	4.2	1.8	1.8
GP-17	10/2/2003	30.08	13.6	0	0.3	6.9	0.1	0.9
GP-17	11/5/2003	30.25	14.1	0	0.3	6.1	2.5	2.5
GP-17	12/4/2003	29.81	12.9	0	3.9	6.3	0	0
GP-17	1/14/2004	30.03	11.1	0	2.7	6.9	1.9	1.9
GP-17	2/2/2004	29.67	12	0	6.6	5.9	0	0
GP-17	3/2/2004	30.26	10.1	0	3.5	7.8	0.1	0.6
GP-17	4/5/2004	30.14	8.8	0	3.6	9.1	0	0.9
GP-17	5/3/2004	30.15	12.3	0	5	6.2	0.8	0.8
GP-17	6/1/2004	30.08	15.2	3	9.7	4.4	1.5	1.5
GP-17	7/6/2004	30.12	11.3	0	0.6	8.3	2.7	2.7
GP-17	8/6/2004	29.87	14.9	0	4.7	7.2	1.3	1.3
GP-17	9/10/2004	30.03	12.8	0	1.7	8.2	1.4	1.4
GP-19	10/15/1999	30.4	22.1	0	2.7	0	--	--
GP-19	10/28/1999	29.57	0.7	--	0.2	20.3	--	--
GP-19	11/15/1999	30.35	--	--	6	1	--	--
GP-19	12/6/1999	30.4	--	--	7	0	--	--
GP-19	1/11/2000	30.02	--	--	7	0	--	--
GP-19	2/3/2000	29.79	18.2	9	8.3	0	0	--
GP-19	2/7/2000	30.42	--	--	5	0	--	--
GP-19	3/9/2000	30.49	--	--	10	0	--	--
GP-19	4/7/2000	30.94	--	--	4	1	--	--
GP-19	5/11/2000	30.46	--	--	4	0	--	--
GP-19	6/5/2000	30.38	--	--	2	0	--	--
GP-19	7/17/2000	30.5	--	--	2	0	--	--
GP-19	8/3/2000	29.86	17.7	25	1.5	0.2	0	--
GP-19	9/6/2000	29.86	19.8	23	2.2	0	0	--
GP-19	10/10/2000	29.35	20.5	26	3.8	0	0	--
GP-19	11/3/2000	29.42	20.3	22	4.8	0.1	310	310
GP-19	12/6/2000	29.79	19.7	22	6.5	0	1.4	1.6
GP-19	1/5/2001	29.79	19	18	6.6	0	0	--
GP-19	2/2/2001	28.98	18.1	16	6.1	0	0	--
GP-19	3/2/2001	29.57	17.3	20	5.5	0.1	0	--
GP-19	4/6/2001	29.05	16.7	0	4.6	0.2	0	1.1
GP-19	5/10/2001	--	22.7	13	4.6	0	0	0.3
GP-19	6/4/2001	29.98	17.3	2	1.9	0	1	1.4
GP-19	7/6/2001	30.1	18.8	1	0.8	0	2.4	2.7
GP-19	8/3/2001	29.94	19.3	8	1	0	4.1	7.1
GP-19	9/7/2001	30.25	19.2	12	2.5	0	10.4	10.4
GP-19	10/8/2001	--	20.7	18	3.8	0	--	--
GP-19	11/5/2001	--	20.5	20	5.1	0	15.2	15.2
GP-19	12/7/2001	30.4	19.8	23	7.4	0	0.4	0.5
GP-19	1/11/2002	--	17.5	10	7.4	0	1.6	1.8
GP-19	2/8/2002	--	17.5	12	7.4	0	7.9	8.1
GP-19	3/8/2002	--	17	19	3.6	0	0	0
GP-19	4/4/2002	--	17.1	22	3.2	0.1	0	0
GP-19	5/6/2002	30.2	16.1	10	3.7	0	6.7	6.7
GP-19	6/4/2002	--	17.1	10	1.8	0	0	0
GP-19	7/3/2002	--	17.6	0	1.2	0	0	0.9
GP-19	8/2/2002	--	17.9	14	1.3	0	0	0
GP-19	9/5/2002	--	19.3	15	2.5	0.2	8.6	8.6
GP-19	10/2/2002	--	19.9	19	3.8	0.4	9.9	13
GP-19	11/6/2002	--	20.5	20	6.9	0	0	0
GP-19	12/9/2002	--	21	14	7.6	0	0	0

Table C.11
Historical Landfill Gas Measurements

Sampling Stations	Date	Barometer Reading (inches Hg)	Carbon Dioxide (percent	Hydrogen sulfide (ppmv)	Methane (percent volume)	Oxygen (percent volume)	Volatiles by PID	
							Final Reading (ppmv)	Maximum Reading
Interior LFG Monitoring Probes (cont.)								
GP-19	1/7/2003	30.18	19.1	19	7.2	0	0	0
GP-19	2/5/2003	30.3	17.7	18	5.2	0	3	4.5
GP-19	3/7/2003	29.71	17.7	12	5.7	0	0	0
GP-19	4/1/2003	29.63	16.9	19	5	0	0	0
GP-19	5/5/2003	30.09	17.4	12	3.5	0	25.1	25.1
GP-19	6/3/2003	30.22	17.5	9	1.9	0.2	28.7	28.7
GP-19	7/2/2003	30.16	18.2	9	1.2	0.2	10.7	10.7
GP-19	8/5/2003	29.99	19.4	2	1.5	0	10.5	10.5
GP-19	9/3/2003	30	20.3	16	2.1	0	10.2	10.2
GP-19	10/2/2003	30.03	21.5	8	3.6	0	17.5	17.5
GP-19	11/5/2003	30.16	21.4	30	7.4	0	4.3	4.3
GP-19	12/4/2003	29.66	20.3	3	7.9	0	3.3	3.3
GP-19	1/14/2004	29.95	19.1	18	6.3	0	7.5	7.5
GP-19	2/6/2004	29.98	17.8	0	5.4	0	6.3	6.3
GP-19	3/2/2004	30.23	17.1	6	4.2	0.1	7.8	7.8
GP-19	4/5/2004	30.1	17.3	2	3.5	0.2	11.5	11.6
GP-19	5/3/2004	30.14	17.3	0	1.9	0.3	7.8	8.8
GP-19	6/1/2004	30.12	18.2	0	1.8	0.3	15.6	15.6
GP-19	7/6/2004	30.08	18.9	2	1	0.1	20.9	20.9
GP-19	8/6/2004	29.85	20.2	0	1.4	0	15.7	15.7
GP-19	9/10/2004	29.95	20.7	0	3.1	0.2	16.5	16.5
GP-20	10/15/1999	30.4	10.9	0	1.3	0.1	--	--
GP-20	10/28/1999	29.28	1.6	--	0.3	19.1	--	--
GP-20	11/15/1999	30.35	--	--	1	1	--	--
GP-20	12/6/1999	30.4	--	--	3	1	--	--
GP-20	1/11/2000	30.02	--	--	6	0	--	--
GP-20	2/3/2000	29.79	8.2	1	7.4	0	0	--
GP-20	2/7/2000	30.42	--	--	10	0	--	--
GP-20	3/9/2000	30.49	--	--	6	0	--	--
GP-20	4/7/2000	30.94	--	--	5	0	--	--
GP-20	5/11/2000	30.46	--	--	9	0	--	--
GP-20	6/5/2000	30.38	--	--	4	0	--	--
GP-20	7/17/2000	30.5	--	--	3	0	--	--
GP-20	8/3/2000	29.27	12.9	0	2.7	0.3	0	--
GP-20	9/6/2000	30.01	13.7	0	1.9	1	0	--
GP-20	10/10/2000	29.42	12.9	0	1.2	3.3	0.4	1.8
GP-20	11/3/2000	29.79	11.5	0	1.6	0.1	37	1374
GP-20	12/6/2000	29.86	10.6	11	2.6	0	3.2	4
GP-20	1/5/2001	29.71	10.3	23	3.5	0	0	--
GP-20	2/2/2001	29.86	10.3	17	4.2	0	0.1	0.9
GP-20	3/2/2001	29.49	9.8	17	3.8	0	0	--
GP-20	4/6/2001	28.98	9.1	13	3	0.2	3.3	4.4
GP-20	5/10/2001	--	10.6	8	4.7	0	0	2.2
GP-20	6/4/2001	29.98	9.4	1	3.5	0	0	3
GP-20	7/6/2001	30.1	12.6	7	3.3	0	0	1.6
GP-20	8/3/2001	29.94	12.9	2	2.4	0	2.1	7.4
GP-20	9/7/2001	30.25	14	0	2.5	0	4.8	6.4
GP-20	10/8/2001	--	15.3	0	2.4	0	--	--
GP-20	11/5/2001	--	13.6	7	2.4	0	28.5	28.5
GP-20	12/7/2001	30.4	11.6	15	3.6	0	2.3	--
GP-20	1/11/2002	--	9.2	20	4.3	0	2.3	2.5
GP-20	2/8/2002	--	9.9	25	6.1	0	11.9	11.9
GP-20	3/8/2002	--	9.8	17	3.9	0	0	0
GP-20	4/4/2002	--	9.1	12	2.8	0.2	0	0
GP-20	5/6/2002	30.2	8.9	1	3.7	0	2.8	2.8
GP-20	6/4/2002	--	9.6	0	3.4	0	0	0
GP-20	7/3/2002	--	9.6	6	2.1	0	0	0
GP-20	8/2/2002	--	10.7	0	1.7	0	0	0
GP-20	9/5/2002	--	12.7	1	1.6	0.3	5	5.2
GP-20	10/2/2002	--	13.2	0	1.5	0.4	0	2.6
GP-20	11/6/2002	--	13.1	0	10.1	0.2	0	0
GP-20	12/9/2002	--	12.2	7	2.2	0	0	0
GP-20	1/7/2003	30.17	11.1	11	3.1	0	0	0
GP-20	2/5/2003	30.3	10.6	13	4	0	8.7	11.7
GP-20	3/7/2003	29.71	10.9	10	5	0	0	0
GP-20	4/1/2003	--	10.3	11	4.4	0	0	0
GP-20	5/5/2003	30.09	10.2	10	4	0	15	15
GP-20	6/3/2003	30.21	10.4	11	2.9	0.2	22.3	25.4
GP-20	7/2/2003	30.16	10.9	1	1.9	0.2	7.1	7.1
GP-20	8/5/2003	30.01	13.7	0	1.8	0	9.7	9.7

Table C.11
Historical Landfill Gas Measurements

Sampling Stations	Date	Barometer Reading (inches Hg)	Carbon Dioxide (percent	Hydrogen sulfide (ppmv)	Methane (percent volume)	Oxygen (percent volume)	Volatiles by PID	
							Final Reading (ppmv)	Maximum Reading
Interior LFG Monitoring Probes (cont.)								
GP-20	9/3/2003	30.01	14.4	0	1.2	1.1	12.1	12.1
GP-20	10/2/2003	30.03	14.7	0	1.3	0.6	16.4	16.4
GP-20	11/5/2003	30.15	14.9	14	4.5	0	8.4	8.4
GP-20	12/4/2003	29.65	12.7	0	3.8	0.2	7.1	7.1
GP-20	1/14/2004	29.94	12	16	5.1	0	6.3	6.9
GP-20	2/6/2004	29.98	11.2	1	5.3	0	5.8	5.8
GP-20	3/2/2004	30.22	10.5	5	5.6	0	4.3	8.9
GP-20	4/5/2004	30.1	10.3	7	4.1	0.1	9.3	9.5
GP-20	5/3/2004	30.13	10.4	5	4.2	0.3	4.8	5.7
GP-20	6/1/2004	30.11	10.8	7	3.4	0.4	9.2	9.2
GP-20	7/6/2004	30.08	12.5	0	2.2	0.1	18.1	18.1
GP-20	8/6/2004	29.84	13.6	0	0.5	1.8	18.2	18.2
GP-20	9/10/2004	29.95	15	0	0.9	1.4	16.4	16.4
GP-21	10/15/1999	30.4	25.5	40	19.8	0.1	--	--
GP-21	10/28/1999	29.28	0.1	--	0.2	21.4	--	--
GP-21	11/15/1999	30.35	--	--	19	0	--	--
GP-21	12/6/1999	30.4	--	--	19	0	--	--
GP-21	1/11/2000	30.02	--	--	14	0	--	--
GP-21	2/3/2000	29.79	20.3	786	17.4	0	0	--
GP-21	2/7/2000	30.42	--	--	15	0	--	--
GP-21	3/9/2000	30.49	--	--	15	0	--	--
GP-21	4/7/2000	30.94	--	--	5	13	--	--
GP-21	5/11/2000	30.46	--	--	14	0	--	--
GP-21	6/5/2000	30.38	--	--	15	0	--	--
GP-21	7/17/2000	30.5	--	--	17	0	--	--
GP-21	8/2/2000	29.71	20.3	530	14.9	0.3	0	--
GP-21	9/5/2000	29.86	22.4	491	17.9	0	16	27
GP-21	10/10/2000	29.2	23.3	459	18.5	0	0	--
GP-21	11/3/2000	29.86	23.5	491	19.7	0.1	97	97
GP-21	12/6/2000	29.64	24.4	498	22.5	0	2.3	2.8
GP-21	1/5/2001	29.79	22.6	477	22.1	0	0	--
GP-21	2/2/2001	29.79	22.3	460	21.8	0	5.9	8
GP-21	3/2/2001	29.42	21.4	447	19.7	0	0	--
GP-21	4/6/2001	29.13	19.8	412	16.2	0.2	5.5	6.6
GP-21	5/10/2001	--	26.5	453	22.8	0	0	3.3
GP-21	6/4/2001	29.98	20.4	387	18.1	0	0	--
GP-21	7/6/2001	30.1	22	239	18.7	0	4.9	4.9
GP-21	8/3/2001	29.94	22.3	242	17.9	0	4	5.4
GP-21	9/7/2001	30.25	23	362	20.1	0	6	8
GP-21	10/8/2001	--	24.5	475	22.6	0	--	--
GP-21	11/5/2001	--	23.8	445	19.4	0	20.5	20.5
GP-21	12/7/2001	30.4	22.8	544	18.6	0	2.1	2.1
GP-21	1/11/2002	--	19.5	493	17.3	0	18.9	18.9
GP-21	2/8/2002	--	16.7	0	12	1.8	14.4	14.4
GP-21	3/8/2002	--	18.5	310	15.3	0	2.4	2.6
GP-21	4/4/2002	--	0	502	0	20.4	0	0
GP-21	5/6/2002	30.2	17.4	589	14.7	0	25	25
GP-21	6/4/2002	--	18.4	355	18.8	0	0	0
GP-21	7/3/2002	--	20.5	211	16.8	0	0	0
GP-21	8/2/2002	--	20.3	378	17.6	0	0	0
GP-21	9/5/2002	--	20.9	591	17	0.4	4.5	5.6
GP-21	10/2/2002	--	22.1	542	17.6	0.3	7.6	8.4
GP-21	11/6/2002	--	23	562	17.5	0	0	0
GP-21	12/9/2002	--	23.6	535	20.1	0	0	0
GP-21	1/7/2003	--	21.7	513	15	0	0	0
GP-21	2/5/2003	30.29	19.9	471	13.6	0	34.2	68
GP-21	3/7/2003	29.71	19	565	15.6	0	1.7	2
GP-21	4/1/2003	29.59	18.3	547	12.8	0	0	0
GP-21	5/5/2003	30.07	17	538	15.3	0	25	25
GP-21	6/3/2003	30.2	18.9	428	16	0.1	5	5
GP-21	7/2/2003	30.16	19.7	329	15.2	0.1	5.9	5.9
GP-21	8/5/2003	30	20.2	377	13.4	0	10.4	10.5
GP-21	9/3/2003	30.01	21.4	560	14.4	0.1	10.1	10.1
GP-21	10/2/2003	30.03	22.8	599	17.3	0	9.1	9.6
GP-21	11/5/2003	30.15	23.8	577	20.7	0	7.8	8.1
GP-21	12/4/2003	29.63	22.8	528	15.7	0	11.6	11.6
GP-21	1/14/2004	30.03	20.3	624	14.9	0	10.5	10.7
GP-21	2/6/2004	29.98	18.3	523	10.2	0	16.2	16.2
GP-21	3/2/2004	30.23	17.2	473	12.8	0	12	12
GP-21	4/5/2004	--	17.8	460	13.8	0.1	15.4	18.6

Table C.11
Historical Landfill Gas Measurements

Sampling Stations	Date	Barometer Reading (inches Hg)	Carbon Dioxide (percent	Hydrogen sulfide (ppmv)	Methane (percent volume)	Oxygen (percent volume)	Volatiles by PID	
							Final Reading (ppmv)	Maximum Reading
Interior LFG Monitoring Probes (cont.)								
GP-21	5/3/2004	30.14	17.9	569	16.1	0.4	10.5	11.3
GP-21	6/1/2004	30.13	19.4	585	14.8	0.3	17.4	18.9
GP-21	7/6/2004	30.05	20.3	590	15.4	0.1	23.8	23.9
GP-21	8/6/2004	29.87	20.1	643	13.1	0	14.5	15.9
GP-21	9/10/2004	29.95	21.8	644	16.6	0.2	16.6	16.6
GP-22	10/15/1999	30.4	21	0.1	9.2	0	--	--
GP-22	10/28/1999	29.57	0	--	0.2	21.4	--	--
GP-22	11/15/1999	30.35	--	--	9	0	--	--
GP-22	12/6/1999	30.4	--	--	7	0	--	--
GP-22	1/11/2000	30.02	--	--	4	0	--	--
GP-22	2/3/2000	29.79	11.2	22	7	0	0	--
GP-22	2/7/2000	30.42	--	--	5	0	--	--
GP-22	3/9/2000	30.49	--	--	6	0	--	--
GP-22	4/7/2000	30.94	--	--	3	13	--	--
GP-22	5/11/2000	30.46	--	--	7	0	--	--
GP-22	6/5/2000	30.38	--	--	8	0	--	--
GP-22	7/17/2000	30.5	--	--	9	0	--	--
GP-22	8/3/2000	29.71	20.4	16	10	0.2	0	--
GP-22	9/5/2000	29.64	21	13	8.8	0	0	1.3
GP-22	10/10/2000	29.35	20.5	14	8.4	0	0	--
GP-22	11/3/2000	29.35	19.2	31	10.4	0.1	0	--
GP-22	12/6/2000	29.71	16.8	10	11.3	0	0.9	6
GP-22	1/5/2001	29.86	15.7	12	11.6	0	0	0.8
GP-22	2/2/2001	29.64	16.6	8	13.1	0	0	0.1
GP-22	3/2/2001	29.42	15.6	21	11	0	0	--
GP-22	4/6/2001	29.2	15.2	0	10.8	0.7	0	42.8
GP-22	5/10/2001	--	21.2	26	15	0	0	1.8
GP-22	6/4/2001	29.98	17.9	22	11.9	0	0	--
GP-22	7/6/2001	30.1	20.1	23	11.3	0	0	--
GP-22	8/3/2001	29.94	30.7	0	10.4	0	2.8	6.4
GP-22	9/7/2001	30.25	20.4	19	12.2	0	7.7	8.1
GP-22	10/8/2001	--	21.1	24	11.6	0	--	--
GP-22	11/5/2001	--	14.6	0	8.6	4.2	8.8	19.3
GP-22	12/7/2001	30.4	13.2	37	8.2	0	0	0.4
GP-22	1/11/2002	--	9.8	0	7.1	1.7	2.5	3.2
GP-22	2/8/2002	--	8.7	0	3.5	4.1	11.6	12.1
GP-22	3/8/2002	--	10.3	0	5	3.1	0	4.1
GP-22	4/4/2002	--	12.2	21	6.3	0.2	0	0
GP-22	5/6/2002	30.2	12.3	16	6.4	0	0	0
GP-22	6/4/2002	--	5.7	2	2.8	12.4	0	0
GP-22	7/3/2002	--	14.2	0	7	3.3	0	0
GP-22	8/2/2002	--	19.1	0	8.8	0	0	0
GP-22	9/5/2002	--	20.2	26	8.5	0.3	8.9	9.3
GP-22	10/2/2002	--	19.4	6	7.1	0.4	2	15.8
GP-22	11/6/2002	--	14.1	0	4	5.1	0	0
GP-22	12/9/2002	--	18	0	10.3	0	0	0
GP-22	1/7/2003	30.17	12.5	34	7.2	0	0	0
GP-22	2/5/2003	30.28	11.3	23	6.6	0	12.1	21
GP-22	3/7/2003	29.7	12.9	0	8.3	0	0	0.2
GP-22	4/1/2003	29.61	11.6	38	7.1	0	0	0
GP-22	5/5/2003	30.06	12.7	24	7.3	0	25.4	25.4
GP-22	6/3/2003	30.2	15.7	24	8.8	0.1	37.1	860
GP-22	7/2/2003	30.16	19.7	26	8.7	0.2	2.3	2.3
GP-22	8/5/2003	30	22.5	23	9.1	9	4.8	5
GP-22	9/3/2003	30.01	22.1	27	7.5	0.1	3.4	12.9
GP-22	10/2/2003	30.03	21.1	25	7.2	0	5	7.1
GP-22	11/5/2003	30.15	18.2	2	7.1	0	3.1	3.1
GP-22	12/4/2003	29.65	13.5	0	7.1	0.6	2.8	17.2
GP-22	1/14/2004	29.93	11.1	0	6.5	0.3	2.1	6.7
GP-22	2/6/2004	29.98	11.2	0	6	0	5.8	5.8
GP-22	3/2/2004	30.2	12.1	0	7.6	0.1	5.4	13.7
GP-22	4/5/2004	30.1	14	21	9	0.1	10.1	10.2
GP-22	5/3/2004	30.14	15.6	0	10.4	0.7	0.4	5.7
GP-22	6/1/2004	30.11	15.9	0	8.2	3.1	3.1	9.2
GP-22	7/6/2004	30.1	21.6	1	9.9	0.1	9.4	17
GP-22	8/6/2004	29.87	21	0	8.1	0.5	11.2	12.8
GP-22	9/10/2004	29.95	21.9	0	10.5	0.2	9.4	24.1

Table C.11
Historical Landfill Gas Measurements

Sampling Stations	Date	Barometer Reading (inches Hg)	Carbon Dioxide (percent	Hydrogen sulfide (ppmv)	Methane (percent volume)	Oxygen (percent volume)	Volatiles by PID	
							Final Reading (ppmv)	Maximum Reading
Perimeter LFG Monitoring Probes[1]								
GP-3	12/16/1998	--	5.1	0	0	11.4	--	--
GP-3	12/29/1998	--	0	--	0	10.6	--	--
GP-3	1/7/1999	30.08	4.5	--	0	12.1	--	--
GP-3	2/12/1999	--	0.8	0	0	18.2	--	--
GP-3	2/18/1999	30	--	--	1	6	--	--
GP-3	3/5/1999	29.95	--	--	0.025 T	8	--	--
GP-3	4/9/1999	30.85	--	--	5	6	--	--
GP-3	5/7/1999	30.85	--	--	0.025 T	3	--	--
GP-3	6/23/1999	30.65	--	--	2	0	--	--
GP-3	7/20/1999	30.5	--	--	2	0	--	--
GP-3	8/20/1999	30.65	--	--	0.025 T	0	--	--
GP-3	9/29/1999	30.8	--	--	0.025 T	5	--	--
GP-3	10/15/1999	30.5	12.4	0	0.1	8.1	--	--
GP-3	10/19/1999	30.79	--	--	0.025 T	9	--	--
GP-3	10/26/1999	30.01	0.1	--	0	21.8	--	--
GP-3	11/15/1999	30.35	--	--	0	7	--	--
GP-3	12/6/1999	30.4	--	--	0	4	--	--
GP-3	1/11/2000	30.02	--	--	0	7	--	--
GP-3	2/3/2000	29.71	8	0	0	9.3	0	--
GP-3	2/7/2000	30.42	--	--	0.025 T	10	--	--
GP-3	3/9/2000	30.49	--	--	0.025 T	12	--	--
GP-3	4/7/2000	30.94	--	--	0.025 T	10	--	--
GP-3	5/11/2000	30.46	--	--	0.025 T	8	--	--
GP-3	6/5/2000	30.38	--	--	0	7	--	--
GP-3	7/17/2000	30.5	--	--	0.025 T	7	--	--
GP-3	8/2/2000	29.71	13.2	0	0	8.1	0	--
GP-3	9/5/2000	29.79	12.1	0	0	9.7	0	2.1
GP-3	10/10/2000	29.49	8.1	0	0	13.4	0	--
GP-3	11/3/2000	29.86	12	0	0	4.3	0	--
GP-3	12/6/2000	29.35	10.6	0	2.2	2.9	0	--
GP-3	1/5/2001	29.79	9.6	0	0.1	3.5	0	--
GP-3	2/2/2001	29.49	9.2	0	0	5.7	0	--
GP-3	3/2/2001	29.57	7.8	0	0	7.1	0	--
GP-3	4/6/2001	29.42	8.8	0	0	5.5	1.1	3.3
GP-3	5/10/2001	--	11.6	0	0.1	1.4	0.1	0.3
GP-3	6/4/2001	29.98	10.6	0	0.2	3.9	0	--
GP-3	7/6/2001	30.1	12.1	0	0.4	3.2	0	0.3
GP-3	8/3/2001	29.94	11.8	0	0	11.8	3.1	3.1
GP-3	9/7/2001	30.25	10.4	0	0	7.9	0.6	0.7
GP-3	10/8/2001	--	14.5	0	0	4.8	--	--
GP-3	11/5/2001	--	13.2	0	0.6	3.6	3.5	3.5
GP-3	12/7/2001	30.4	8.5	0	0	6.7	0	--
GP-3	2/8/2002	--	5.8	0	0	7.2	8.8	8.9
GP-3	3/8/2002	--	5.8	0	0	8.5	0	0
GP-3	4/4/2002	--	0.4	0	0	17.7	0	0
GP-3	5/6/2002	30.2	7.5	0	0	5.1	1.4	1.6
GP-3	6/4/2002	--	8.4	0	0.3	5.1	0	0
GP-3	7/3/2002	--	10.8	0	0.2	3.7	0	0.2
GP-3	8/2/2002	--	12.6	0	0	3.2	0	0
GP-3	9/5/2002	--	13	0	0.1	5.7	0	0
GP-3	10/2/2002	--	10.6	0	0.1	8.3	21.6	21.6
GP-3	11/6/2002	--	11.7	0	0	6.3	0	0
GP-3	12/9/2002	--	12	0	0.4	4.2	0	0
GP-3	1/7/2003	--	7.9	0	0	7.2	0	0
GP-3	2/5/2003	30.3	6.7	0	0	7.4	0	0
GP-3	3/7/2003	29.74	6.9	0	0.1	6.3	0.6	0.9
GP-3	4/1/2003	29.65	6.4	0	0	7.6	0	0
GP-3	5/5/2003	30.09	7.7	0	0.1	6.3	2.4	2.5
GP-3	6/3/2003	30.21	9.9	0	0.3	6.7	13.7	44.4
GP-3	7/2/2003	30.15	11.3	0	0.2	5.6	1.1	1.2
GP-3	8/5/2003	30	13.1	0	0.1	6.8	1.9	1.9
GP-3	9/3/2003	30	13.2	0	0.1	5.5	1.7	1.9
GP-3	10/2/2003	30.04	13.8	0	0.3	6.8	1	1
GP-3	11/5/2003	30.17	11.2	0	0.4	4.7	0.8	1.1
GP-3	12/4/2003	29.67	8.7	0	0	5.9	0	0
GP-3	1/14/2004	30.01	6.6	0	0	6.8	3.5	3.5
GP-3	2/3/2004	29.8	6.1	0	0	8.6	0.6	0.6
GP-3	3/2/2004	30.23	6.1	0	0	8.3	1.2	1.3
GP-3	4/5/2004	30.1	7.1	0	0	8	3.2	3.3

Table C.11
Historical Landfill Gas Measurements

Sampling Stations	Date	Barometer Reading (inches Hg)	Carbon Dioxide (percent	Hydrogen sulfide (ppmv)	Methane (percent volume)	Oxygen (percent volume)	Volatiles by PID	
							Final Reading (ppmv)	Maximum Reading
Perimeter LFG Monitoring Probes[1] (cont.)								
GP-3	5/3/2004	30.14	8.7	0	0.2	7.2	1.9	2.1
GP-3	6/1/2004	30.11	10.2	0	0.2	4.7	5.5	9
GP-3	7/6/2004	29	11.7	0	0	5.6	8.1	8.2
GP-3	8/6/2004	29.88	13.5	0	0.1	5.7	6.2	6.2
GP-3	9/10/2004	29.96	15.5	0	1.2	1.9	5.2	5.9
GP-5	12/16/1998	--	0	0	0	19.8	--	--
GP-5	1/7/1999	30.16	0	--	0	19.8	--	--
GP-5	2/12/1999	--	0.1	0	0	19	--	--
GP-5	2/18/1999	30	--	--	0	21	--	--
GP-5	3/5/1999	29.95	--	--	0	21	--	--
GP-5	5/7/1999	30.85	--	--	--	--	--	--
GP-5	6/23/1999	30.65	--	--	0	21	--	--
GP-5	7/20/1999	30.55	--	--	0	20	--	--
GP-5	8/20/1999	30.65	--	--	0.025 T	15	--	--
GP-5	9/29/1999	30.8	--	--	0.025 T	17	--	--
GP-5	10/15/1999	30.4	5.5	0	0	12.4	--	--
GP-5	10/19/1999	30.79	--	--	0.025 T	16	--	--
GP-5	10/27/1999	29.5	0.1	--	0	21.1	--	--
GP-5	11/15/1999	30.35	--	--	0	21	--	--
GP-5	12/6/1999	30.4	--	--	0	21	--	--
GP-5	1/11/2000	30.02	--	--	0	21	--	--
GP-5	2/7/2000	30.42	--	--	0	21	--	--
GP-5	3/9/2000	30.49	--	--	0	21	--	--
GP-5	4/7/2000	30.94	--	--	0	20	--	--
GP-5	5/11/2000	30.46	--	--	0	20	--	--
GP-5	6/5/2000	30.38	--	--	0	14	--	--
GP-5	7/17/2000	30.5	--	--	0.025 T	11	--	--
GP-5	8/2/2000	29.49	7.3	0	0	9.7	0	--
GP-5	9/5/2000	29.93	8.4	0	0	9.7	0	--
GP-5	10/10/2000	29.35	5.9	0	0	13.7	0	--
GP-5	11/3/2000	29.57	3.3	0	0	17.5	0	--
GP-5	12/6/2000	29.93	1.6	0	0	18.8	0	--
GP-5	2/2/2001	29.2	1	0	0	20.2	0	--
GP-5	3/2/2001	29.42	0	0	0	21.4	0	--
GP-5	4/6/2001	29.13	0	0	0	21.4	2.2	4.4
GP-5	5/10/2001	--	10.5	0	0	0	0.5	--
GP-5	6/4/2001	29.98	9.8	0	0	0.6	0	--
GP-5	7/6/2001	30.1	11.9	0	0	0	0	--
GP-5	8/3/2001	29.94	10.8	0	0	4.3	3	3
GP-5	9/7/2001	30.25	11.1	0	0	3.8	1.4	1.6
GP-5	10/8/2001	--	14.8	0	0	0.6	1.3	1.3
GP-5	3/8/2002	--	8.2	0	0	3.1	0	0
GP-5	4/4/2002	--	15.5	0	0	4.7	0	0
GP-5	5/6/2002	30.2	8.2	0	0	1.4	1.6	1.6
GP-5	6/4/2002	--	9.6	0	0	0	0	0
GP-5	7/3/2002	--	11.1	0	0	0.4	2.2	2.6
GP-5	8/2/2002	--	12.5	0	0	0	0	0
GP-5	9/5/2002	--	13.7	0	0	0.7	2.1	2.1
GP-5	10/2/2002	--	14	0	0.1	1.1	6.8	6.8
GP-5	11/6/2002	--	13.3	0	0	1	0	0
GP-5	12/9/2002	--	12.7	0	0.1	0	0	0
GP-5	3/7/2003	29.77	8.8	0	0.1	1.1	0	0
GP-5	5/5/2003	30.06	7.8	0	0.1	1.2	5.4	5.4
GP-5	6/3/2003	30.18	9.3	0	0.1	0.9	65.8	65.8
GP-5	7/2/2003	30.14	10.5	0	0.1	1	1.6	1.9
GP-5	8/5/2003	29.98	12.7	0	0.1	0.6	2.2	2.2
GP-5	9/3/2003	30.01	14.2	0	0.1	0.5	1.6	2.1
GP-5	10/2/2003	30.08	14.8	0	0.2	0.5	1	1.4
GP-5	11/5/2003	30.19	12.8	0	0	0.2	1.3	1.4
GP-5	12/4/2003	29.73	0.3	0	0	21.5	0	0
GP-5	2/2/2004	29.98	0.2	0	0	20.5	1	1
GP-5	3/2/2004	30.22	6.6	0	0	2.9	2.1	2.3
GP-5	4/5/2004	30.1	7.2	0	0.1	1.8	4.5	4.5
GP-5	5/3/2004	30.14	8.9	0	0.1	1.4	4.2	4.2
GP-5	6/1/2004	30.11	10	0	0.2	1.6	4	4
GP-5	7/6/2004	30.1	11.6	0	0	0.7	6.3	6.3
GP-5	8/6/2004	29.88	13.5	0	0.1	0.7	4.5	5.1
GP-5	9/10/2004	29.99	14.6	0	0.2	0.5	3.1	3.2
GP-7	12/16/1998	--	0.7	0	0	17.1	--	--

Table C.11
Historical Landfill Gas Measurements

Sampling Stations	Date	Barometer Reading (inches Hg)	Carbon Dioxide (percent	Hydrogen sulfide (ppmv)	Methane (percent volume)	Oxygen (percent volume)	Volatiles by PID	
							Final Reading (ppmv)	Maximum Reading
Perimeter LFG Monitoring Probes[1] (cont.)								
GP-7	12/17/1998	--	0.1	0	0	19.1	--	--
GP-7	1/7/1999	30.16	0.6	--	0	16.3	--	--
GP-7	2/12/1999	--	0.1	0	0	18.9	--	--
GP-7	4/9/1999	30.85	--	--	0	16	--	--
GP-7	5/7/1999	30.85	--	--	--	--	--	--
GP-7	6/23/1999	30.65	--	--	0.025 T	15	--	--
GP-7	7/20/1999	30.5	--	--	0.025 T	13	--	--
GP-7	8/20/1999	30.65	--	--	0.025 T	16	--	--
GP-7	9/29/1999	30.8	--	--	0.025 T	16	--	--
GP-7	10/15/1999	30.5	3	0	0.1	17.2	--	--
GP-7	10/19/1999	30.79	--	--	0.025 T	17	--	--
GP-7	10/27/1999	29.42	0.2	--	0	21.1	--	--
GP-7	11/15/1999	30.35	--	--	0	14	--	--
GP-7	12/6/1999	30.4	--	--	0.025 T	12	--	--
GP-7	1/11/2000	30.02	--	--	0	16	--	--
GP-7	2/3/2000	29.79	1.7	0	0	16	8.1	--
GP-7	2/7/2000	30.42	--	--	0.025 T	17	--	--
GP-7	3/9/2000	30.49	--	--	0	17	--	--
GP-7	4/7/2000	30.94	--	--	0	20	--	--
GP-7	5/11/2000	30.46	--	--	0.025 T	17	--	--
GP-7	6/5/2000	30.38	--	--	0.025 T	16	--	--
GP-7	7/17/2000	30.5	--	--	0.025 T	16	--	--
GP-7	8/3/2000	29.57	4.4	0	0	16.6	0	--
GP-7	9/5/2000	29.86	3.9	0	0	17.9	0	--
GP-7	10/10/2000	29.35	3.3	0	0	17.9	0	--
GP-7	11/3/2000	29.93	3.4	0	0	16.1	0	--
GP-7	12/6/2000	29.79	3.1	0	0	17.2	0	--
GP-7	1/5/2001	29.57	3	0	0	16.8	0	--
GP-7	2/2/2001	29.57	2.8	0	0	18	0	--
GP-7	3/2/2001	29.57	2.3	0	0	18.2	0	--
GP-7	4/6/2001	29.2	2.6	0	0	16.9	3.3	5.5
GP-7	5/10/2001	--	3.6	0	0	17.4	0.5	0.7
GP-7	6/4/2001	29.98	4.1	0	0	15.9	0	--
GP-7	7/6/2001	30.1	5.1	0	0	15	0.5	1.6
GP-7	8/3/2001	29.94	4.4	0	0	16.6	3.1	3.1
GP-7	9/7/2001	30.25	4	0	0	16.5	1	1.1
GP-7	10/8/2001	--	4.5	0	0	15.7	0.8	0.8
GP-7	11/5/2001	--	5.1	0	0	14.9	4.6	4.6
GP-7	12/7/2001	30.4	2.7	0	0	15.7	0	--
GP-7	2/8/2002	--	1.3	0	0	17	8.6	9.3
GP-7	3/8/2002	--	1.2	0	0	18.5	0	0
GP-7	4/4/2002	--	12.6	0	0	3.7	0	0
GP-7	5/6/2002	30.2	1.6	0	0	16.4	0.4	0.6
GP-7	6/4/2002	--	2.3	0	0	16.7	0	0
GP-7	7/3/2002	--	0	0	0	20.6	0	0
GP-7	8/2/2002	--	4	0	0	16.3	0	0
GP-7	9/5/2002	--	4	0	0	16.2	0	0
GP-7	10/2/2002	--	2	0	0	17.6	2.6	2.6
GP-7	11/6/2002	--	2.7	0	0	17.9	0	0
GP-7	12/9/2002	--	3.1	0	0.1	16.3	0	0
GP-7	1/7/2003	--	2.2	0	0	16.3	0	0
GP-7	2/5/2003	--	1.8	0	0	16.6	0	0
GP-7	3/7/2003	29.74	1.7	0	0.1	18.1	0.9	0.9
GP-7	4/1/2003	#VALUE!	1.7	0	0.1	16.7	0	0
GP-7	5/5/2003	30.1	2.1	0	0.1	17	1.6	1.8
GP-7	6/3/2003	30.23	2.5	0	0.1	17	0	0
GP-7	7/2/2003	30.16	2.9	0	0.1	16.7	1.2	1.3
GP-7	8/5/2003	30	3.5	0	0.1	15.9	1.8	1.9
GP-7	9/3/2003	30	0	0	0	19.7	1.5	1.9
GP-7	10/2/2003	30.06	3.4	0	0.2	16.1	0.5	1.1
GP-7	11/5/2003	30.2	2.6	0	0	15.4	0.7	0.9
GP-7	12/4/2003	29.71	2.4	0	0	15.7	0	0
GP-7	1/14/2004	30.03	1.7	0	0	16.8	3.6	3.7
GP-7	3/2/2004	30.23	1.2	0	0	18.3	0.6	1.4
GP-7	4/5/2004	30.12	1.6	0	0.1	17.9	1.6	1.6
GP-7	5/3/2004	30.15	2.2	0	0.2	17.5	7.4	7.4
GP-7	6/1/2004	30.12	2.9	0	0.3	15.8	5.9	5.9
GP-7	7/6/2004	30.1	4	0	0	16.3	6.1	6.1
GP-7	8/6/2004	29.88	4.1	0	0.1	16.2	4	4.3

Table C.11
Historical Landfill Gas Measurements

Sampling Stations	Date	Barometer Reading (inches Hg)	Carbon Dioxide (percent	Hydrogen sulfide (ppmv)	Methane (percent volume)	Oxygen (percent volume)	Volatiles by PID	
							Final Reading (ppmv)	Maximum Reading
Perimeter LFG Monitoring Probes[1] (cont.)								
GP-7	9/10/2004	29.97	5.1	0	0.1	13.7	3.1	3.3
GP-9	12/16/1998	--	8.5	0	0	7.5	--	--
GP-9	1/7/1999	30.16	5.6	--	0	11.1	--	--
GP-9	2/12/1999	--	2.8	0	0	14.4	--	--
GP-9	2/19/1999	30.02	--	--	0.025 T	13	--	--
GP-9	3/5/1999	29.9	--	--	0.025 T	16	--	--
GP-9	4/9/1999	30.8	--	--	0.025 T	16	--	--
GP-9	5/7/1999	30.85	--	--	--	--	--	--
GP-9	6/23/1999	30.65	--	--	0.025 T	11	--	--
GP-9	7/20/1999	30.55	--	--	0.025 T	10	--	--
GP-9	8/20/1999	30.65	--	--	0.025 T	11	--	--
GP-9	9/29/1999	30.8	--	--	0.025 T	14	--	--
GP-9	10/15/1999	30.5	5.5	0	0.1	15.8	--	--
GP-9	10/19/1999	30.79	--	--	0	16	--	--
GP-9	10/27/1999	29.28	0.1	--	0	21.4	--	--
GP-9	11/15/1999	30.35	--	--	0	12	--	--
GP-9	12/6/1999	30.4	--	--	1	7	--	--
GP-9	1/11/2000	30.02	--	--	0.025 T	9	--	--
GP-9	2/3/2000	29.71	7.7	0	0	7.7	2.1	--
GP-9	2/7/2000	30.42	--	--	0.025 T	10	--	--
GP-9	3/9/2000	30.49	--	--	0.025 T	12	--	--
GP-9	4/7/2000	30.94	--	--	0	14	--	--
GP-9	5/11/2000	30.46	--	--	0.025 T	14	--	--
GP-9	6/5/2000	30.38	--	--	0	13	--	--
GP-9	7/17/2000	30.5	--	--	0	16	--	--
GP-9	8/2/2000	29.71	3.9	0	0	17.6	0	--
GP-9	9/5/2000	29.93	5.2	0	0	17.2	0	--
GP-9	10/10/2000	29.57	5	0	0	17	0	--
GP-9	11/3/2000	29.79	6.8	0	0	14.3	0	--
GP-9	12/6/2000	29.79	7.8	0	0	11.5	0.5	0.7
GP-9	1/5/2001	29.79	6.8	0	0	12	0	--
GP-9	2/2/2001	29.64	6	0	0	14.2	0	--
GP-9	3/2/2001	29.13	6	0	0	13.7	0	--
GP-9	4/6/2001	29.05	6.5	0	0	12	1.1	--
GP-9	5/10/2001	--	6.9	0	0	11.8	0.3	--
GP-9	6/4/2001	29.98	7.4	0	0	10.8	0	0.5
GP-9	7/6/2001	30.1	7.1	0	0	13.5	0	0.5
GP-9	8/3/2001	29.94	5.6	0	0	16	3.4	4.1
GP-9	9/7/2001	30.25	4.7	0	0	16.3	1.7	2
GP-9	10/8/2001	--	5.6	1	0	15.5	--	--
GP-9	11/5/2001	--	7	0	0	14.3	5.6	6
GP-9	12/7/2001	30.4	6.5	0	0	12.5	0	--
GP-9	1/11/2002	--	6.6	0	0	8.8	1.4	1.4
GP-9	2/8/2002	--	2.9	0	0	16.4	10	10.2
GP-9	3/8/2002	--	3.8	0	0	15.7	0	0
GP-9	4/4/2002	--	2.5	0	0	12	0	0
GP-9	5/6/2002	30.2	4.6	0	0	13	0.6	0.8
GP-9	6/4/2002	--	5.3	0	0	13.6	0	0
GP-9	7/3/2002	--	5.9	0	0	13.4	0	0
GP-9	8/2/2002	--	5.1	0	0	15.9	0	0
GP-9	9/5/2002	--	5	0	0	16.4	3.5	3.5
GP-9	10/2/2002	--	4.3	0	0.1	16.8	6.2	10.9
GP-9	11/6/2002	--	4.4	0	0	16.8	0	0
GP-9	12/9/2002	--	5	0	0.1	14.8	0	0
GP-9	1/7/2003	30.18	6.9	0	0	9.6	0	0
GP-9	2/5/2003	--	5.8	0	0	10.3	4.1	10.4
GP-9	3/7/2003	29.72	5.1	0	0.1	12.6	0	0
GP-9	4/1/2003	29.63	6.3	0	0	10	0	0
GP-9	5/5/2003	30.08	5.5	0	0.1	12.1	6.8	12.9
GP-9	6/3/2003	30.22	6.2	0	0.1	12.5	0	0
GP-9	7/2/2003	30.16	5.5	0	0.1	14.3	1.5	1.5
GP-9	8/5/2003	30.01	5.3	0	0.1	15.2	1.5	1.5
GP-9	9/3/2003	30	4.9	0	0.1	15.3	2.1	2.1
GP-9	10/2/2003	30.05	4.7	0	0.3	15.5	1.3	1.7
GP-9	11/5/2003	30.17	6.5	0	0.4	11.6	0.9	1
GP-9	12/4/2003	29.66	10.2	0	0	6.4	0	0
GP-9	1/14/2004	30.03	8	0	0	8.5	2	2
GP-9	2/6/2004	29.99	6	0	0	11.2	1.4	1.8
GP-9	3/2/2004	30.22	4.5	0	0	13.9	1.4	1.5

Table C.11
Historical Landfill Gas Measurements

Sampling Stations	Date	Barometer Reading (inches Hg)	Carbon Dioxide (percent	Hydrogen sulfide (ppmv)	Methane (percent volume)	Oxygen (percent volume)	Volatiles by PID	
							Final Reading (ppmv)	Maximum Reading
Perimeter LFG Monitoring Probes[1] (cont.)								
GP-9	4/5/2004	30.1	5.3	0	0	13.8	4.3	4.3
GP-9	5/3/2004	30.15	6.2	0	0.2	13	2.3	2.3
GP-9	6/1/2004	30.13	6.3	0	0.2	13.6	6.9	7.8
GP-9	7/6/2004	30.1	6.3	0	0.1	14.6	8.7	8.7
GP-9	8/6/2004	29.84	5.4	0	0	15.8	6.9	6.9
GP-9	9/10/2004	29.95	6	0	0.1	14.6	5.7	5.7
GP-11	10/15/1999	30.4	1.3	0	0.1	17.5	--	--
GP-11	10/26/1999	30.01	0.1	--	0.2	20.7	--	--
GP-11	11/15/1999	30.35	--	--	0	12	--	--
GP-11	12/6/1999	30.4	--	--	0.025 T	10	--	--
GP-11	1/11/2000	30.02	--	--	0	6	--	--
GP-11	2/3/2000	29.71	3.7	0	0	6.7	0	--
GP-11	2/7/2000	30.42	--	--	0	6	--	--
GP-11	3/9/2000	30.49	--	--	0.025 T	6	--	--
GP-11	4/7/2000	30.94	--	--	0	7	--	--
GP-11	5/11/2000	30.46	--	--	0.025 T	7	--	--
GP-11	6/5/2000	30.38	--	--	0.025 T	9	--	--
GP-11	7/17/2000	30.5	--	--	0.025 T	7	--	--
GP-11	8/3/2000	29.35	6.6	0	0	6.9	0	--
GP-11	9/5/2000	29.64	7.7	0	0	4.4	0	--
GP-11	10/10/2000	29.2	7.8	0	0	4.8	0	--
GP-11	11/3/2000	29.79	7.4	0	0	5.6	0	--
GP-11	12/6/2000	29.79	6.7	0	0	6.6	0.5	0.5
GP-11	1/5/2001	29.49	6.4	0	0	7.1	0	--
GP-11	2/2/2001	29.64	6.1	0	0	8.7	0	--
GP-11	3/2/2001	29.35	5.6	0	0	9.8	0	--
GP-11	4/6/2001	29.2	5.5	0	0	10.4	0	1.1
GP-11	5/10/2001	--	6	0	0	8	0	--
GP-11	6/4/2001	29.98	5.4	0	0	9.5	0	--
GP-11	7/6/2001	30.1	6.6	0	0	8.1	0	--
GP-11	8/3/2001	29.94	7.1	0	0	7	4	4
GP-11	9/7/2001	30.25	7.1	0	0	4.7	1.8	2
GP-11	10/8/2001	--	7.9	0	0	5.6	--	--
GP-11	11/5/2001	--	8.3	0	0	5.6	5.8	5.8
GP-11	12/7/2001	30.4	7	0	0	5.6	0	--
GP-11	1/11/2002	--	3.7	0	0	6.6	0.4	0.5
GP-11	3/8/2002	--	3.5	0	0	10.4	0	0
GP-11	5/6/2002	30.2	3.2	0	0	10	1.6	2
GP-11	6/4/2002	--	3.5	0	0	10.4	0	0
GP-11	7/3/2002	--	4.4	0	0	9.1	0	0
GP-11	8/2/2002	--	4.8	0	0	6.8	0	0
GP-11	9/5/2002	--	5.8	0	0.1	5.9	1.3	1.3
GP-11	10/2/2002	--	6.3	0	0.1	6.1	7.8	9.4
GP-11	11/6/2002	--	6.9	0	0	7.4	0	0
GP-11	12/9/2002	--	6.4	0	0.1	7.4	0	0
GP-11	1/7/2003	--	5.4	0	0	8.1	0	0
GP-11	2/5/2003	--	4.9	0	0	8.6	0	0
GP-11	3/7/2003	29.72	4.7	0	0.1	10.1	0	0
GP-11	4/1/2003	--	3.7	0	0	14.4	0	0
GP-11	5/5/2003	30.08	3.6	0	0.1	14.4	1.1	1.1
GP-11	6/3/2003	30.21	4	0	0.1	12.6	0	0
GP-11	7/2/2003	30.15	4.6	0	0.1	11.1	1	1.5
GP-11	8/5/2003	30.01	5.8	0	0.1	8	1.3	1.6
GP-11	9/3/2003	30.02	6.3	0	0.1	6.5	1.6	2.1
GP-11	10/2/2003	30.05	7.3	0	0.3	6.3	1.1	1.7
GP-11	11/5/2003	30.17	6.8	0	0.4	6.2	0.8	0.9
GP-11	12/4/2003	29.67	5.9	0	0	8.9	0	0
GP-11	1/14/2004	29.9	5.2	0	0	8.8	3.3	3.3
GP-11	2/3/2004	29.77	3.3	0	0	12.9	2.2	2.2
GP-11	3/2/2004	30.22	4.3	0	0	10.4	2.2	2.4
GP-11	4/5/2004	30.1	4.1	0	0	11.5	7.5	8.5
GP-11	5/3/2004	30.15	4.2	0	0.2	12	1.9	2.3
GP-11	6/1/2004	30.15	4.5	0	0.2	12.1	4.1	4.6
GP-11	7/6/2004	30.09	5.2	0	0.1	10.9	7.8	9
GP-11	8/6/2004	29.85	6.2	0	0	8.7	6.6	6.7
GP-11	9/10/2004	29.96	6.5	0	0.1	7.4	4.9	4.9
GP-13	10/15/1999	30.4	4.7	0	0.2	16	--	--
GP-13	10/26/1999	30.01	0.1	--	0	22	--	--
GP-13	11/15/1999	30.35	--	--	0	18	--	--
GP-13	12/6/1999	30.4	--	--	0.025 T	18	--	--

Table C.11
Historical Landfill Gas Measurements

Sampling Stations	Date	Barometer Reading (inches Hg)	Carbon Dioxide (percent	Hydrogen sulfide (ppmv)	Methane (percent volume)	Oxygen (percent volume)	Volatiles by PID	
							Final Reading (ppmv)	Maximum Reading
Perimeter LFG Monitoring Probes[1] (cont.)								
GP-13	1/11/2000	30.02	--	--	0	17	--	--
GP-13	2/7/2000	30.42	--	--	0.025 T	18	--	--
GP-13	3/9/2000	30.49	--	--	0.025 T	16	--	--
GP-13	4/7/2000	30.94	--	--	0	11	--	--
GP-13	5/11/2000	30.46	--	--	0.025 T	7	--	--
GP-13	6/5/2000	30.38	--	--	0	7	--	--
GP-13	7/17/2000	30.5	--	--	0.025 T	11	--	--
GP-13	8/3/2000	29.42	9.4	0	0	12.3	0	--
GP-13	9/5/2000	29.71	10.4	0	0	10.1	0	--
GP-13	10/10/2000	29.2	8.1	0	0	14.6	0	--
GP-13	11/3/2000	29.49	8.4	0	0	9.3	0	--
GP-13	12/6/2000	29.86	8.6	0	0	6.7	0	--
GP-13	1/5/2001	29.86	7.8	0	0	7	0	--
GP-13	2/2/2001	29.57	7	0	0	9.4	0	--
GP-13	3/2/2001	29.49	5.6	0	0	10.6	0	--
GP-13	4/6/2001	29.42	7.5	0	0	6.2	1.1	--
GP-13	5/10/2001	--	9.9	0	0	2.1	0	0.3
GP-13	6/4/2001	29.98	9.7	0	0	7.2	0	--
GP-13	7/6/2001	30.1	10.8	0	0	10.7	0	--
GP-13	8/3/2001	29.94	10.6	0	0	7.6	3.1	3.6
GP-13	9/7/2001	30.25	11.3	0	0	9.1	1	1.4
GP-13	10/8/2001	--	9.7	0	0	12.3	--	--
GP-13	11/5/2001	--	9.2	0	0	9.5	4.9	5.4
GP-13	12/7/2001	30.4	7	0	0	3.5	0	--
GP-13	6/4/2002	--	8.5	0	0	4.4	0	0
GP-13	7/3/2002	--	10.6	0	0	6.2	0	0
GP-13	8/2/2002	--	11.4	0	0	6.5	0	0
GP-13	9/5/2002	--	11.1	0	0	10.3	0	0
GP-13	10/2/2002	--	9.1	0	0.1	12.5	14.8	14.8
GP-13	11/6/2002	--	6.7	0	0	14.8	0	0
GP-13	12/9/2002	--	8.2	0	0.1	10.3	0	0
GP-13	3/7/2003	29.72	--	--	--	--	--	--
GP-13	5/5/2003	30.09	6.3	0	0.1	3.8	3.2	3.2
GP-13	6/3/2003	30.18	9.1	0	0.1	6.9	31	37.9
GP-13	7/2/2003	30.15	11.8	0	0.1	7	1.1	1.4
GP-13	8/5/2003	30	13.6	0	0.1	7.9	1.3	1.4
GP-13	9/3/2003	30	11.6	0	0.1	9.3	1.4	1.6
GP-13	10/2/2003	30.05	10.1	0	0.3	11.5	0.6	0.9
GP-13	11/5/2003	30.17	9.1	0	0.3	0.9	0.8	0.9
GP-13	12/4/2003	29.67	6.6	0	0	0.1	0	0
GP-13	4/5/2004	30.1	4.9	0	0.1	0.2	4.3	4.9
GP-13	5/3/2004	30.14	6.9	0	0.2	0.5	4.5	4.9
GP-13	6/1/2004	30.09	8.6	0	0.2	0.8	6.1	6.3
GP-13	7/6/2004	30.09	11.4	0	0.1	6.1	6.8	6.8
GP-13	8/6/2004	29.85	12.2	0	0	8.4	6.4	6.5
GP-13	9/10/2004	29.96	13.7	0	0.1	6.9	2.3	2.4
GP-15	10/15/1999	30.5	3.3	0	0	18.4	--	--
GP-15	10/28/1999	29.5	0	--	0.1	20.8	--	--
GP-15	11/15/1999	30.35	--	--	0	19	--	--
GP-15	12/6/1999	30.4	--	--	0	20	--	--
GP-15	1/11/2000	30.02	--	--	0	20	--	--
GP-15	2/7/2000	30.42	--	--	0	21	--	--
GP-15	3/9/2000	30.49	--	--	0	21	--	--
GP-15	4/7/2000	30.94	--	--	0	21	--	--
GP-15	5/11/2000	30.46	--	--	0	21	--	--
GP-15	6/5/2000	30.38	--	--	0	21	--	--
GP-15	7/17/2000	30.5	--	--	0.025 T	18	--	--
GP-15	8/4/2000	29.64	0.9	0	0	21	0	--
GP-15	9/5/2000	29.86	4.5	0	0	18	2.3	3.2
GP-15	10/10/2000	29.42	6.8	0	0	16	0	--
GP-15	11/3/2000	29.93	1.3	0	0	20.2	0	--
GP-15	12/6/2000	29.49	0	0	0	22	0	--
GP-15	7/6/2001	30.1	1.3	0	0	19.5	0	0.1
GP-15	8/3/2001	29.94	5.7	0	0	16.7	1.3	2.3
GP-15	9/7/2001	30.25	7.6	0	0	14.5	0.4	0.6
GP-15	10/8/2001	--	8.6	0	0	14	3.3	3.3
GP-15	11/5/2001	--	6.9	0	0	15.4	4.9	4.9
GP-15	5/6/2002	30.2	--	--	--	--	--	--
GP-15	8/2/2002	--	4.8	0	0	15.7	0	0
GP-15	9/5/2002	--	10.5	0	0.1	11.4	0.2	1.1

Table C.11
Historical Landfill Gas Measurements

Sampling Stations	Date	Barometer Reading (inches Hg)	Carbon Dioxide (percent	Hydrogen sulfide (ppmv)	Methane (percent volume)	Oxygen (percent volume)	Volatiles by PID	
							Final Reading (ppmv)	Maximum Reading
Perimeter LFG Monitoring Probes[1] (cont.)								
GP-15	10/2/2002	--	11.5	0	0.1	10.5	3.7	10.4
GP-15	11/6/2002	--	9.7	0	0	12	0	0
GP-15	12/9/2002	--	0.1	0	0.1	20.5	0	0
GP-15	6/3/2003	30.21	0	0	0.1	20.6	4.5	8.1
GP-15	7/2/2003	30.15	7.5	0	0.1	11.4	1	1.2
GP-15	8/5/2003	29.99	14.1	0	0	8.1	1.1	1.6
GP-15	9/3/2003	30.01	14.5	0	0	7.4	1.3	2.1
GP-15	10/2/2003	30.06	17.5	0	0.2	5.5	1.4	1.7
GP-15	5/3/2004	30.14	--	--	--	--	--	--
GP-15	6/1/2004	30.11	--	--	--	--	--	--
GP-15	7/6/2004	29.06	4.9	0	0	15	3.6	3.6
GP-15	8/6/2004	29.88	9.9	0	0.1	10.8	5.6	5.8
GP-23	10/15/1999	30.5	4	0	0	16	--	--
GP-23	10/27/1999	28.76	0.2	--	0	21.6	--	--
GP-23	11/15/1999	30.35	--	--	0	14	--	--
GP-23	12/6/1999	30.4	--	--	0	4	--	--
GP-23	1/11/2000	30.02	--	--	0.025 T	14	--	--
GP-23	2/3/2000	29.79	0	0	0	20.1	0	--
GP-23	2/7/2000	30.42	--	--	0	21	--	--
GP-23	3/9/2000	30.49	--	--	0	20	--	--
GP-23	4/7/2000	30.94	--	--	0	15	--	--
GP-23	5/11/2000	30.46	--	--	0.025 T	12	--	--
GP-23	6/5/2000	30.38	--	--	0.025 T	12	--	--
GP-23	7/17/2000	30.5	--	--	0.025 T	13	--	--
GP-23	8/2/2000	29.79	6.3	0	0	15.4	0	--
GP-23	9/5/2000	30.01	5.1	0	0	17	0.2	0.8
GP-23	10/10/2000	29.42	4.5	0	0	16.9	0	--
GP-23	11/3/2000	29.57	4.9	0	0	15.6	0	--
GP-23	12/6/2000	29.42	14.4	0	0	15.7	0	--
GP-23	1/5/2001	29.71	3.9	0	0	14.4	0	--
GP-23	2/2/2001	29.57	4.3	0	0	15.4	0	--
GP-23	3/2/2001	29.57	3.8	0	0	15.1	0	--
GP-23	4/6/2001	29.27	5.2	0	0	13.3	2.2	4.4
GP-23	5/10/2001	--	7.4	0	0	11.8	0	0.7
GP-23	6/4/2001	29.98	7.9	0	0	10.8	0	--
GP-23	7/6/2001	30.1	9.8	0	0	10.2	0	0.3
GP-23	8/3/2001	29.94	8.8	0	0	12.6	2.7	3.6
GP-23	9/7/2001	30.25	7	0	0	13	2.1	2.1
GP-23	10/8/2001	--	6	0	0	14.1	1.6	1.6
GP-23	11/5/2001	--	6.7	0	0	13.3	5.4	5.4
GP-23	12/7/2001	30.4	0.2	0	0	20.6	0	1.8
GP-23	4/4/2002	--	0.6	0	0	20.4	0	0
GP-23	5/6/2002	30.2	5.6	0	0	11.8	2.8	2.8
GP-23	6/4/2002	--	7.4	0	0	11.9	0	0
GP-23	7/3/2002	--	7.4	0	0	12	2.1	2.2
GP-23	8/2/2002	--	6.3	0	0	14.7	0	0
GP-23	9/5/2002	--	4.7	0	0	16.1	2.8	2.8
GP-23	10/2/2002	--	3.5	0	0	16.9	9.2	12.2
GP-23	11/6/2002	--	3.3	0	0	17.1	0	0
GP-23	12/9/2002	29.83	3.8	0	0.1	15.7	0	0
GP-23	1/7/2003	30.25	--	--	--	--	--	--
GP-23	3/7/2003	29.74	--	--	--	--	--	--
GP-23	6/3/2003	30.23	6.5	0	0.1	12.7	12.8	14
GP-23	7/2/2003	30.16	0	0	0.2	19.4	1.2	2.5
GP-23	8/5/2003	29.99	4.7	0	0.1	15.2	1.4	1.7
GP-23	9/3/2003	30	3.8	0	0	15.7	1.3	1.7
GP-23	10/2/2003	30.06	4	0	0.2	15.5	1.9	1.9
GP-23	11/5/2003	30.19	4.5	0	0	13.8	0.5	0.9
GP-23	12/4/2003	29.71	2.7	0	0	18.4	0	0
GP-23	1/14/2004	29.93	--	--	--	--	--	--
GP-23	4/5/2004	30.1	4.6	0	0.1	14.2	2.6	2.6
GP-23	5/3/2004	30.15	5.8	0	0.2	13.5	5.4	8.2
GP-23	6/1/2004	30.12	6.6	0	0.3	12.6	6.6	6.9
GP-23	7/6/2004	30.09	6.4	0	0	14.3	4.6	5.4
GP-23	8/6/2004	29.88	5.3	0	0.1	15.5	4.9	4.9
GP-23	9/10/2004	29.97	7	0	0.1	12.6	4.2	4.2

Notes:

-- Not recorded.

1 Probes GP-13, GP-15, GP-30, GP-31, and GP-32 were in low-lying areas and were prone to flooding of the well screens.

Abbreviations:

Hg Mercury
LFG Landfill gas
PID Photoionization detector
ppmv Parts per million by volume
T Trace

Table C.12
Chemicals Tested for but Not Detected in Soil Vapor Samples

Chemical	Unit	Number of Results	Number of Non-Detect Results	Percent of Non-Detect Results	Minimum Non-Detect Value	Maximum Non-Detect Value[1]
Volatile Organic Compounds						
1,4-Dioxane	µg/m³	6	6	100%	12	46
Hexachlorobutadiene	µg/m³	6	6	100%	34	140
1,1,1-Trichloroethane	µg/m³	6	6	100%	4.4	18
1,1,2,2-Tetrachloroethane	µg/m³	6	6	100%	5.5	22
1,1,2-Trichloroethane	µg/m³	6	6	100%	4.4	18
1,1,2-Trichlorotrifluoroethane	µg/m³	6	6	100%	6.2	25
1,1-Dichloroethane	µg/m³	6	6	100%	3.2	13
1,2,4-Trichlorobenzene	µg/m³	6	6	100%	24	96
1,2-Dibromoethane	µg/m³	6	6	100%	6.2	25
1,2-Dichlorobenzene	µg/m³	6	6	100%	4.8	19
1,2-Dichloroethane	µg/m³	6	6	100%	3.2	13
1,2-Dichloropropane	µg/m³	6	6	100%	3.7	15
1,3-Butadiene	µg/m³	6	6	100%	1.8	7.1
1,3-Dichlorobenzene	µg/m³	6	6	100%	4.8	19
1,4-Dichlorobenzene	µg/m³	6	6	100%	4.8	19
2-Chlorotoluene	µg/m³	6	6	100%	4.2	17
2-Hexanone	µg/m³	6	6	100%	13	53
Allyl chloride	µg/m³	6	6	100%	10	40
Bromodichloromethane	µg/m³	6	6	100%	5.4	22
Bromoform	µg/m³	6	6	100%	8.3	33
Bromomethane	µg/m³	6	6	100%	3.1	12
Carbon tetrachloride	µg/m³	6	6	100%	5.1	20
Chloroethane	µg/m³	6	6	100%	8.5	34
Chloroform	µg/m³	6	6	100%	3.9	16
Chloromethane	µg/m³	6	6	100%	6.6	26
cis-1,3-Dichloropropene	µg/m³	6	6	100%	3.6	15
Dibromochloromethane	µg/m³	6	6	100%	6.8	27
Freon 114	µg/m³	6	6	100%	5.6	22
Methyl iso butyl ketone	µg/m³	6	6	100%	3.3	13
Methyl-Tert-Butyl Ether	µg/m³	6	6	100%	2.9	12
Tetrahydrofuran	µg/m³	6	6	100%	2.4	9.5
trans-1,3-Dichloropropene	µg/m³	6	6	100%	3.6	15
Trichlorofluoromethane	µg/m³	6	6	100%	4.5	18

Note:

1 Elevated detection limits are due to the presence of other chemicals in the sample that force the sample to be diluted.

Abbreviations:

µg/m³ Micrograms per cubic meter

ND Not detected

Table C.13
Frequency of Detections and Exceedances in Soil Vapor Samples for VOCs

Chemical	Unit	Number of Results	Number of Detect Results	Percent of Detect Results	Minimum Detect Value	Maximum Detect Value	Site Specific Soil Vapor Screening Levels	Detected and Exceeds?	WA Method C Soil Vapor Screening Levels (greater than 15 feet bgs)	Detected and Exceeds?
Chlorinated Volatile Organic Compounds										
Tetrachloroethene	µg/m³	6	2	33%	13	27	231	No	420	No
Trichloroethene	µg/m³	6	1	17%	80	80	55	Yes	100	No
cis-1,2-Dichloroethene	µg/m³	6	1	17%	99	99	1,925	No	3,500	No
1,1-Dichloroethene	µg/m³	6	1	17%	19	19	11,000	No	20,000	No
trans-1,2-Dichloroethene	µg/m³	6	1	17%	45	45	3,850	No	7,000	No
Vinyl chloride	µg/m³	6	3	50%	18	270	154	Yes	280	No
Dichloromethane	µg/m³	6	1	17%	7.4	7.4	2,915	No	5,300	No
Benzen, Toluene, Ethylbenzen, and Xylene Constituents										
Benzene	µg/m³	6	5	83%	8.9	460	176	Yes	320	Yes
Ethylbenzene	µg/m³	6	5	83%	9.7	260	55,000	No	100,000	No
Toluene	µg/m³	6	5	83%	61	790	269,500	No	490,000	No
Xylene (meta and para)	µg/m³	6	5	83%	16	690	5,500	No	10,000	No
Xylene (ortho)	µg/m³	6	5	83%	7.9	210	5,500	No	10,000	No
Other Volatile Organic Compounds Associated with Total Petroleum Hydrocarbons										
1,2,4-Trimethylbenzene	µg/m³	6	4	67%	11	46	11,000	No	20,000	No
1,3,5-Trimethylbenzene	µg/m³	6	4	67%	6.4	35	330	No	600	No
2,2,4-Trimethylpentane	µg/m³	6	4	67%	24	8,800	--	NA	--	NA
4-Ethyltoluene	µg/m³	6	4	67%	10	62	--	NA	--	NA
iso-Propanol	µg/m³	6	2	33%	23	54	--	NA	--	NA
iso-Propylbenzene	µg/m³	6	3	50%	5.1	39	--	NA	--	NA
n-Heptane	µg/m³	6	5	83%	17	1,800	--	NA	--	NA
n-Hexane	µg/m³	6	6	100%	5.7	4,500	38,500	No	70,000	No
n-Propylbenzene	µg/m³	6	2	33%	7	17	--	NA	--	NA
Styrene	µg/m³	6	2	33%	13	86	2,420	No	4,400	No
Miscellaneous Volatile Organic Compounds										
Acetone	µg/m³	6	6	100%	9.8	420	--	NA	--	NA
Carbon disulfide	µg/m³	6	2	33%	27	38	38,500	No	70,000	No
Chlorobenzene	µg/m³	6	2	33%	9.9	20	9,900	No	1,800	No
Cyclohexane	µg/m³	6	6	100%	14	3,600	--	NA	--	NA
Dichlorodifluoromethane	µg/m³	6	1	17%	16	16	--	NA	--	NA
Ethanol	µg/m³	6	3	50%	32	73	--	NA	--	NA
Methyl ethyl ketone	µg/m³	6	2	33%	40	76	55,000	No	100,000	No

Notes:

Yes Chemical detected and exceeds either site-specific or Washington State Department of Ecology MTCA Method C Soil Vapor Screening Levels for depths greater than 15 feet.

-- No screening level calculated or available for this chemical.

Abbreviations:

bgs Below ground surface
FOD Frequency of detection
FOE Frequency of exceedance
µg/m³ Micrograms per cubic meter
MTCA Model Toxics Control Act
NA Not applicable
WA Washington

Table C.14
Landfill Gas Probe Measurements at the Kenyon Industrial Park and South Transfer Station
King County, Washington – October 15, 2015[1]

Results from 2015 Supplemental Investigation at Kenyon Industrial Park								Historical Results	
Location	Date	Time	Barometer (inches Hg)	Carbon Dioxide (% volume)	Oxygen (% volume)	Hydrogen Sulfide (ppmv)	Methane (% volume)	Methane (% volume)	No. of Events
Temporary Gas Probes (CO_2, O_2, and H_2S are from Borehole; CH_4 from Barhole Punch)									
TGP-1	9/29/2015	12:02	29.90	0.1	21	0	1.8	NA	NA
TGP-2	9/29/2015	12:50	29.86	6.6	0.6	0	0.6	NA	NA
TGP-3	9/29/2015	13:30	29.88	0.0	22	0	0.0	NA	NA
TGP-4	9/29/2015	14:18	29.91	1.6	19	0	0.1	NA	NA
TGP-5	9/29/2015	15:25	29.81	20	0.0	1	14	NA	NA
TGP-6	9/29/2015	16:25	29.77	0.0	18	2	0.0	NA	NA
TGP-7	10/13/2015	9:35	30.23	0.7	20	0	18	NA	NA
TGP-8	10/13/2015	10:45	30.24	3.3	13	0	0.0	NA	NA
TGP-9	10/13/2015	11:31	30.25	0.2	17	0	1.7	NA	NA
TGP-10	10/13/2015	12:28	30.23	0.5	20	0	0.0	NA	NA
TGP-11	10/13/2015	13:50	30.22	0.0	21	0	1.4	NA	NA
TGP-12	10/13/2015	15:15	30.21	0.0	21	0	36	NA	NA
TGP-13	10/13/2015	16:40	30.22	0.0	21	0	0.0	NA	NA
TGP-14	10/14/2015	13:20	30.21	0.2	16	0	16	NA	NA
TGP-15	10/14/2015	14:01	30.18	4.6	4.8	0	6.5	NA	NA
TGP-16	10/14/2015	14:36	30.14	0.0	9.8	0	26	NA	NA
TGP-17	10/14/2015	15:15	30.11	0.0	21	0	65	NA	NA
TGP-18	10/14/2015	10:35	30.25	0.2	19	0	0.9	NA	NA
TGP-19	10/14/2015	11:08	30.24	0.0	20	0	1.0	NA	NA
TGP-20	10/14/2015	11:35	30.23	0.0	21	0	16	NA	NA
TGP-21	10/14/2015	12:33	30.22	0.1	21	0	0.2	NA	NA
TGP-22	10/14/2015	15:54	30.12	0.0	22	0	0.0	NA	NA
TGP-23	10/14/2015	16:56	30.12	1.7	0.3	0	4.7	NA	NA
TGP-24	10/14/2015	17:28	30.11	2.8	3.4	0	2.1	NA	NA
TGP-25	10/14/2015	18:00	30.10	6.3	0.3	0	4.4	NA	NA
Groundwater Monitoring Wells Screened across the Unsaturated Zone									
KMW-01A	10/15/2015	13:25	30	7.2	0.1	2	13	13	1
KMW-03A	10/15/2015	12:40	30	0.8	0.1	0	7.5	7.5	1
KMW-04	10/15/2015	13:00	30	1.6	0.0	0	5.2	0	1
KMW-05	10/15/2015	11:38	30	0.0	5.0	0	47	50	1
KMW-06	10/15/2015	10:13	30	4.7	0.2	0	2.1	12	1
KMW-07	10/15/2015	9:31	30.1	0.1	21	0	0	0	1
KMW-08	10/15/2015	8:45	30.1	0	8.4	0	0	0.2	1
LFG Permanent Probes at or adjacent to KIP Parcel									
GP-24	10/15/2015	11:11	30	0.0	0.1	0	53	4.6–48	9
GP-25	10/15/2015	12:05	30	0.1	3.8	0	61	26–85	10
GP-37	10/15/2015	14:15	30	14	1.2	0	0.4	New probes; no historical data available	
GP-38	10/15/2015	13:45	30	16	1.5	0	0.5		

Note:

1 Table sourced from: Herrera Environmental Consultants. 2015. *September/October 2015 LFG Sampling Results at Kenyon Industrial Park* . Technical Memorandum from Bruce Carpenter and Michael Spillane, Herrera, to Teri Floyd, Floyd|Snider. 28 October.

Abbreviations:

CH_4 Methane
CO_2 Carbon Dioxide
H_2O Water
H_2S Hydrogen sulfide
Hg Mercury
KIP Kenyon Industrial Park
LFG Landfill gas
NA Not applicable
O_2 Oxygen
ppmv Parts per million volume

Table C.15
Percent Methane in Perimeter Probes
First Post-SPPD Interim Action Event, March 2016

Well	Date	Methane %	Carbon Dioxide %	Oxygen %
Perimeter Probes				
GP-03	3/18/2016	0.0	3.4	14
GP-07	3/18/2016	0.0	0.3	20
GP-09	3/18/2016	0.0	4.0	15
GP-11	3/18/2016	FWS	FWS	FWS
GP-13	3/18/2016	FWS	FWS	FWS
GP-15	3/18/2016	FWS	FWS	FWS
GP-16	3/18/2016	0.0	0.1	21
GP-23	3/18/2016	FWS	FWS	FWS
GP-24	3/18/2016	0.0	0.0	21
GP-25	3/18/2016	**43**	0.0	5.4
GP-27	3/18/2016	0.4	9.8	0.0
GP-28	3/18/2016	0.0	2.0	13
GP-29	3/18/2016	1.3	11	0.0
GP-31	3/18/2016	0.0	0.5	21
GP-32	3/18/2016	FWS	FWS	FWS
GP-33	3/18/2016	**18**	6	0.0
GP-37	3/18/2016	0.0	12	4.6
GP-38	3/18/2016	0.0	11	2.0
Other Probes Interior to Landfill, but along SPPD Boundary				
GP-17	3/18/2016	28	26	0.0
GP-19	3/18/2016	4.2	14	0.0
GP-20	3/18/2016	5.1	9.9	0.0
GP-22	3/18/2016	19	11	0.0
GP-35	3/18/2016	11	4	0.0
GP-36	3/18/2016	0.0	0.0	20

Note:

Bold & Red Exceeds the screening level of 5%, only applies to perimeter probes.

Abbreviations:

FWS The well screen of the probe was flooded; therefore, it could not be measured

SPPD South Park Property Development, LLC

Table C.16

Chemicals Detected in Soil Vapor Samples for Volatile Organic Compounds[1]

		Location	GP-25	GP-27	KMW-04	KMW-05	North Piezometer	South Piezometer
		Sample Date	5/11/2011	5/11/2011	5/12/2011	5/11/2011	5/12/2011	5/11/2011
		Screen Interval	5–10 ft bgs	9–14 ft bgs	9–19.5 ft	8.5–18.5 ft	~19 ft	~16-20 ft
Chemicals	**Screening Level[1]**	**Unit**	**Results by USEPA Method TO-15**					
Chlorinated Volatile Organic Compounds								
1,1-Dichloroethene	13,000	µg/m³	6.4 U	**19**	13 U	12 U	3.2 U	4.6 U
cis- 1,2-Dichloroethene	--	µg/m³	6.4 U	**99**	13 U	12 U	3.2 U	4.6 U
Chlorobenzene	3,000	µg/m³	**9.9**	**20**	15 U	14 U	3.7 U	5.3 U
Methylene chloride	--	µg/m³	5.6 U	3.0 U	11 U	11 U	**7.4**	4.0 U
Tetrachloroethene	3,000	µg/m³	11 U	**13**	22 U	**27**	5.5 U	7.8 U
trans- 1,2-Dichloroethene	--	µg/m³	6.4 U	**45**	13 U	12 U	3.2 U	4.6 U
Trichloroethene	130	µg/m³	8.7 U	**80**	17 U	17 U	4.3 U	6.2 U
Vinyl chloride	190	µg/m³	4.1 U	**270**	**100**	**18**	2.0 U	2.9 U
Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) Constituents								
Benzene	210	µg/m³	**190**	**22**	**16**	**460**	**8.9**	3.7 U
Ethylbenzene	67,000	µg/m³	**160**	**9.7**	**15**	**260**	**37**	5.0 U
Toluene	330,000	µg/m³	**190**	**61**	**66**	**790**	**110**	4.3 U
Xylene (meta and para)	6,700	µg/m³	**360**	**16**	**46**	**690**	**97**	5.0 U
Xylene (ortho)	6,700	µg/m³	**110**	**7.9**	**16**	**210**	**32**	5.0 U
Other Volatile Organic Compounds Associated with Total Petroleum Hydrocarbons								
1,2,4-Trimethylbenzene	470	µg/m³	**24**	**16**	16 U	**46**	**11**	5.6 U
1,3,5-Trimethylbenzene	--	µg/m³	**17**	**7.3**	16 U	**35**	**6.4**	5.6 U
2,2,4-Trimethylpentane	--	µg/m³	7.6 U	**310**	**110**	**8,800** J	**24**	5.4 U
4-Ethyltoluene	--	µg/m³	**17**	**10**	16 U	**62**	**16**	5.6 U
Cyclohexane	--	µg/m³	**3,600** J	**130**	**220**	**1,600**	**14**	22
iso-Propanol	--	µg/m³	16 U	8.6 U	32 U	**54**	**23**	11 U
iso-Propylbenzene	--	µg/m³	**11**	4.3 U	16 U	**39**	**5.1**	5.6 U
n-Heptane	--	µg/m³	**1,800**	**30**	**72**	**1,400**	**17**	4.7 U
n-Hexane	47,000	µg/m³	**4,500** J	**300**	**540**	**1,700**	**11**	5.7
n-Propylbenzene	--	µg/m³	8 U	**7.0**	16 U	**17**	4.0 U	5.6 U
Styrene	67,000	µg/m³	6.9 U	3.7 U	14 U	**86**	**13**	4.9 U
Miscellaneous Volatile Organic Compounds								
Acetone	--	µg/m³	**28**	**9.8**	**32**	**420**	**110**	**130**
Carbon disulfide	46,700	µg/m³	**27**	11 U	40 U	**38** J	10 U	14 U
Dichlorodifluoromethane	6,700	µg/m³	8.0 U	**16**	16 U	15 U	4.0 U	5.7 U
Ethanol	--	µg/m³	12 U	6.6 U	**32**	**73**	**45**	8.7 U
Methyl ethyl ketone	330,000	µg/m³	19 U	10 U	38 U	**76**	9.5 U	**40**

Notes:

1 Soil gas screening levels were developed by Ecology in their *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action* (October 2009c; revised by Ecology in April 2015 to update toxicity factors). Soil vapor samples from gas probe and monitoring well locations collected at the South Park Landfill are representative of intermediate soil vapor conditions deeper than just below slab and less than the 15 feet bgs guideline depth for the MTCA deep soil vapor screening levels. Therefore, an intermediate site-specific screening level was calculated for each chemical by calculating half the difference between the MTCA Method C below-slab and deep screening levels from Table B-1 in the guidance.

Bold Indicates compound was detected in the sample.

Bold & Red Exceeds the screening level.

-- No screening level value available from Ecology Gudiance.

Abbreviations:

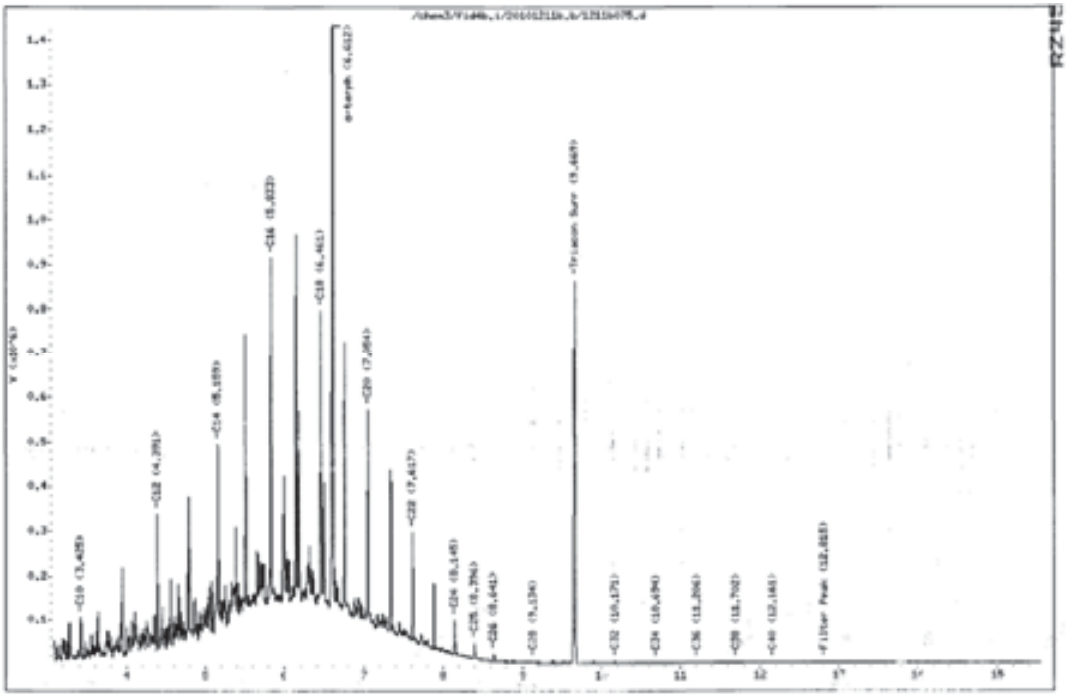
ft Feet
bgs Below ground surface
Ecology Washington State Department of Ecology
µg/m³ Micrograms per cubic meter
MTCA Model Toxics Control Act
VOC Volatile organic compound

Qualifiers:

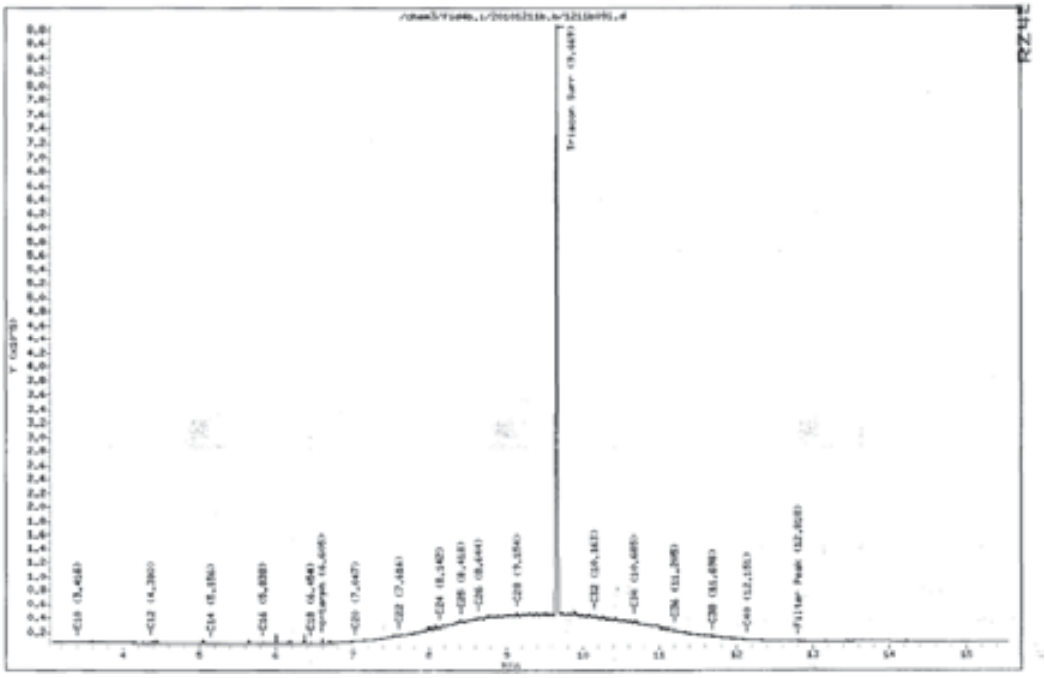
J Estimated value
U Not detected

Total Petroleum Hydrocarbon Chromatograms and Reference Chromatograms for the West Ditch

Calibration Reference Chromatograms

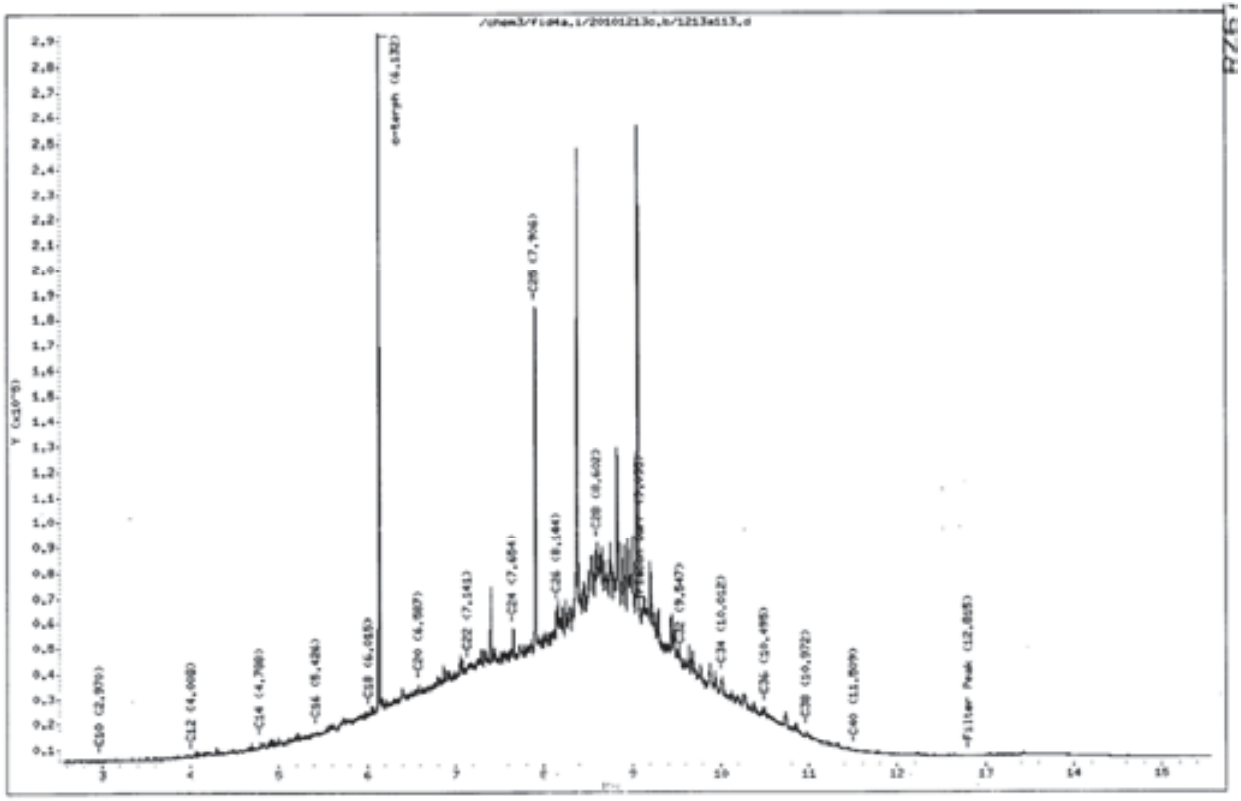


Continuing calibration for diesel No. 2



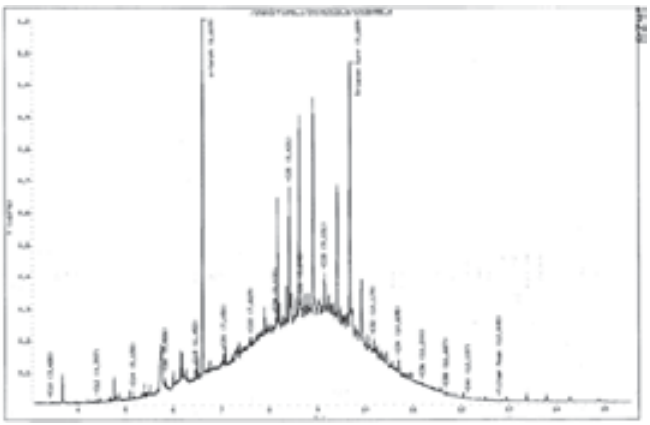
Continuing calibration motor oil

SS-P

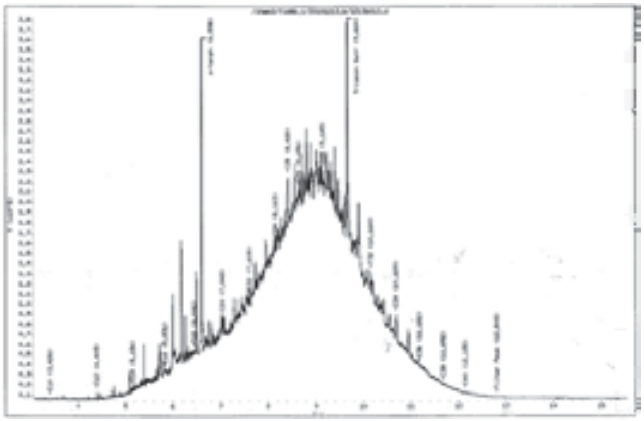


SS-P
Weathered oil pattern

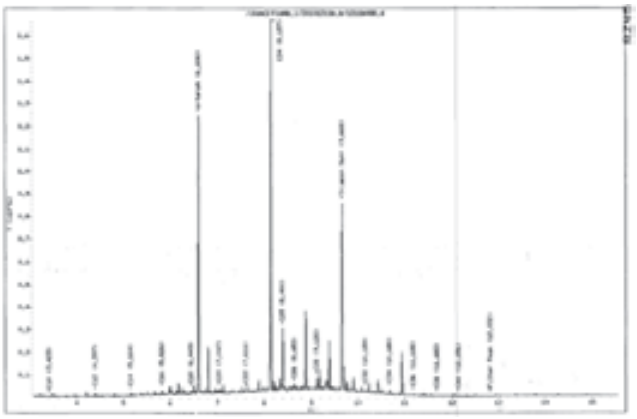
SS-01



SS-01 at 0–2 feet
Weathered oil with pyrogenic exhaust

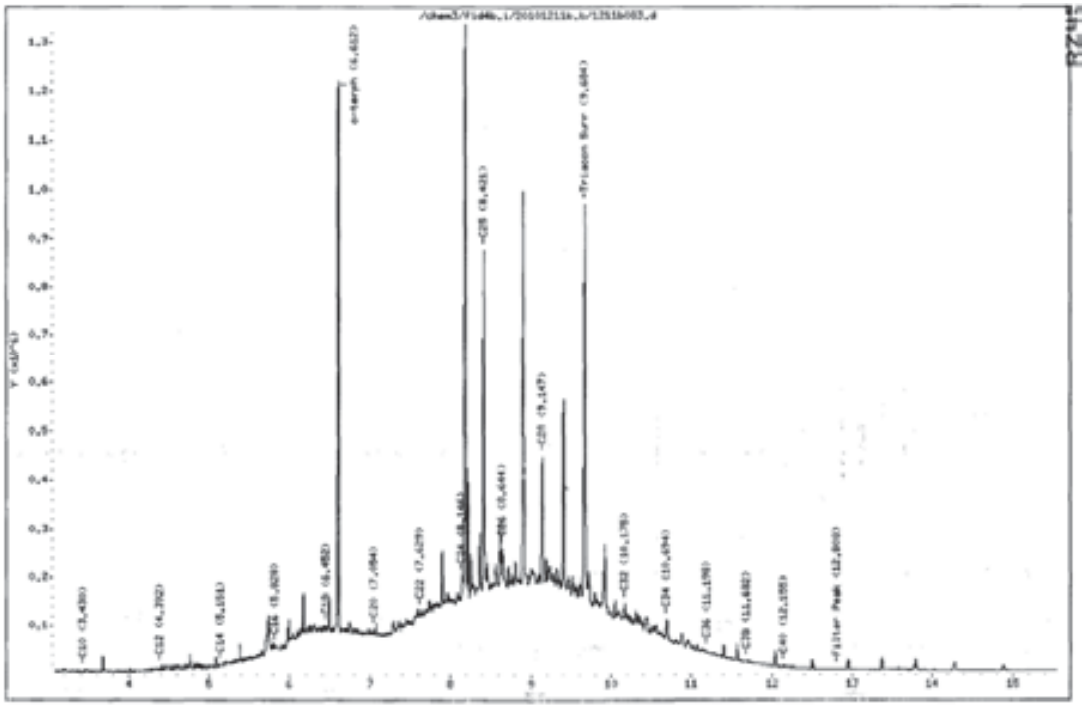


SS-01 at 2–4 feet
Weathered oil with pyrogenic exhaust

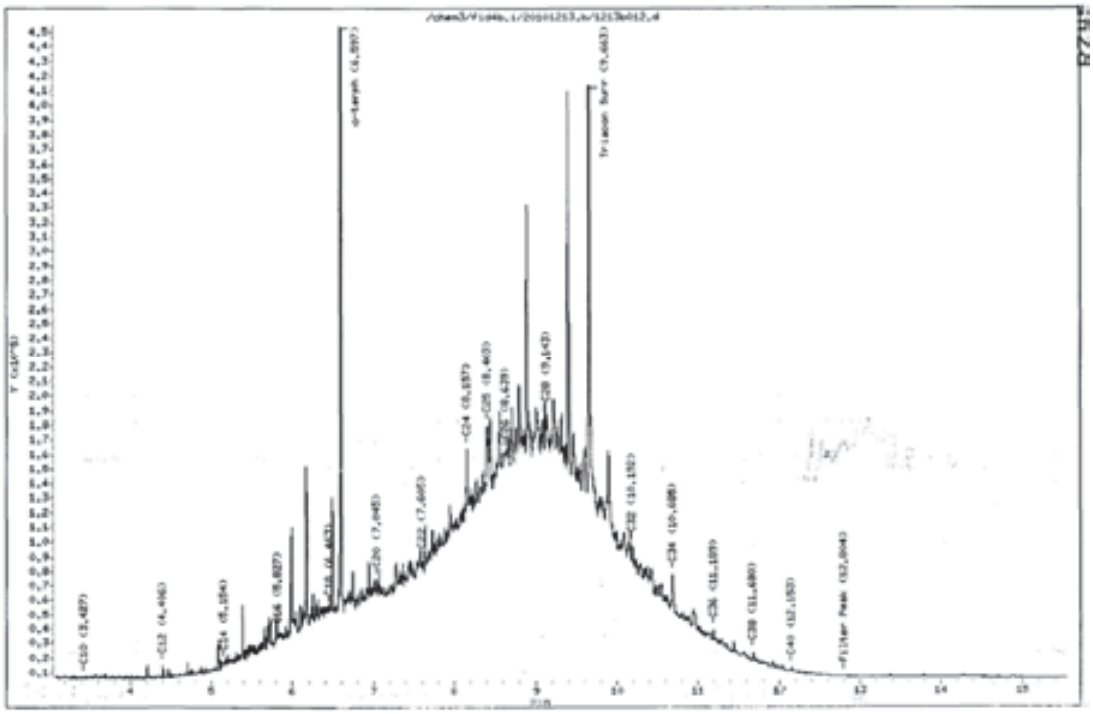


SS-01 at 4–6 feet
No discernable petroleum product; no detectable CPAHs;
likely plant material or natural organic matter

SS-02

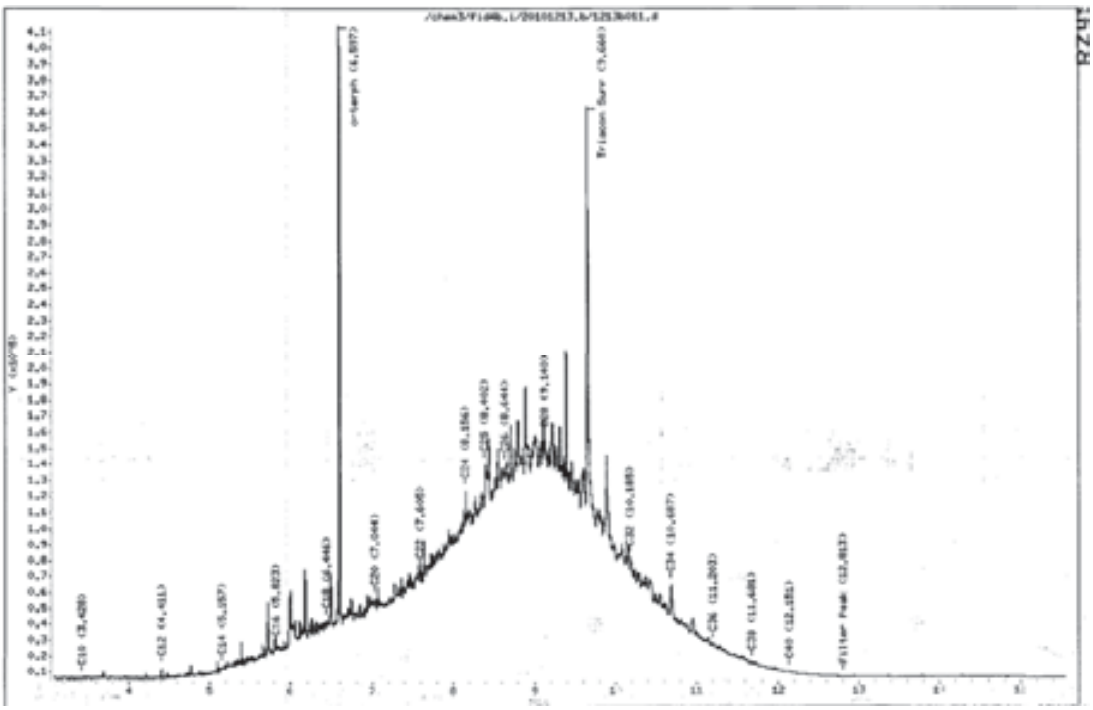


SS-02 at 0–2 feet
Weathered diesel and oil with pyrogenic exhaust pattern

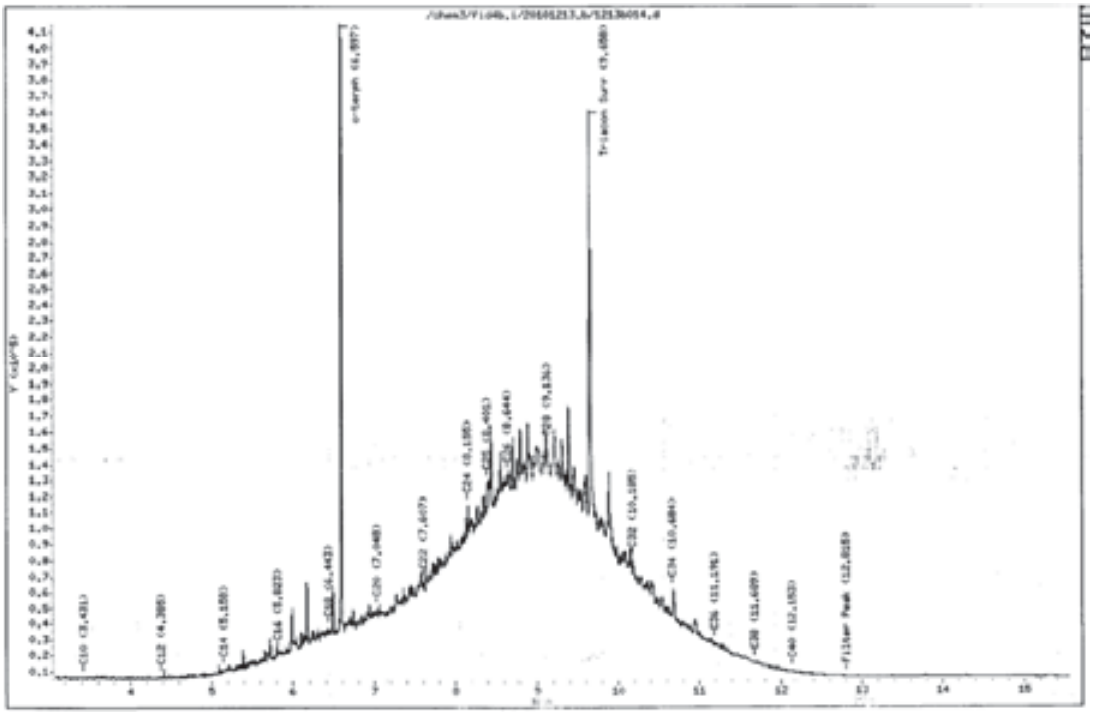


SS-02 at 4–6 feet
Weathered diesel and oil pattern

SS-02

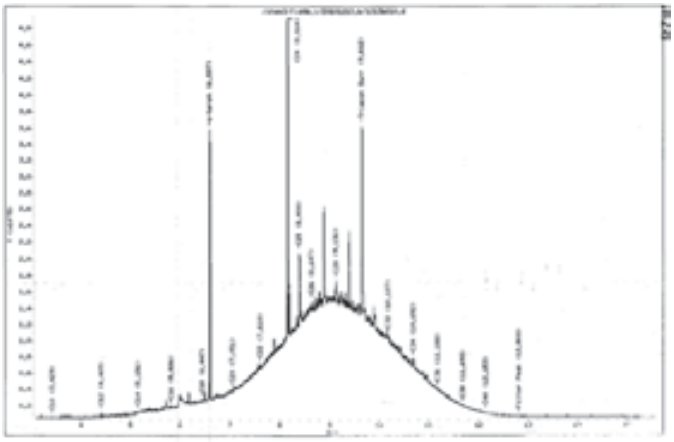


SS-02 at 2–4 feet
Weathered oil with pyrogenic exhaust

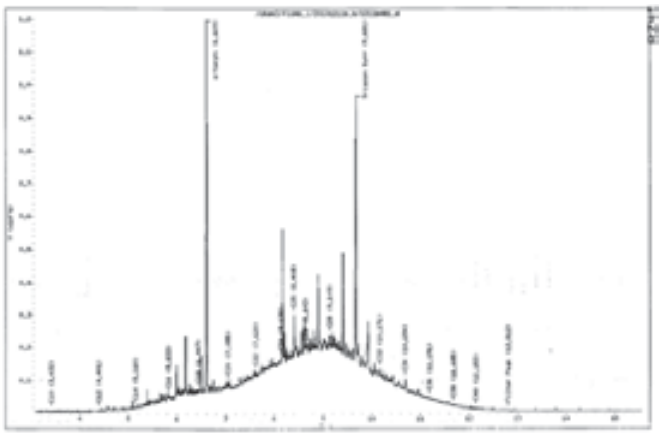


SS-02 at 6–8 feet
Weathered diesel and oil pattern

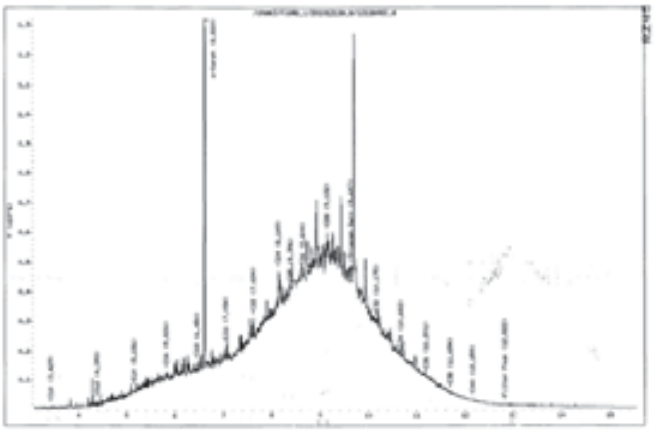
SS-03



SS-03 at 0–2 feet
Motor oil pattern



SS-03 at 2–4 feet
Weathered diesel and oil pattern



SS-03 at 4–6 feet
Weathered diesel and oil pattern

South Park Landfill

Remedial Investigation/ Feasibility Study

Appendix D
Summary of Deviations from Work Plan

Table D.1
Summary of Deviations from Work Plan

Item No.	Deviation	Notes
Additional Field Work[1]		
1	Indoor air monitoring was conducted in the buildings on the KIP parcel, the 7901 2nd Avenue South parcel, and several buildings on 5th Avenue South due to elevated methane readings in gas probes GP-25, GP-27, and GP-29.	All indoor air monitoring results are presented in the RI/FS.
2	A landfill gas monitoring program was implemented to support the existing safety of people and structures and to establish baseline data across the seasons. The landfill gas monitoring program included approximately monthly landfill gas probe monitoring and quarterly indoor air monitoring.	The monitoring plan was presented to and approved by Ecology. The results of the monitoring on private properties was provided to the property owners or their representatives.
3	Due to seasonal high groundwater levels in gas probes GP-30, GP-31, and GP-32, barholes were used to measure landfill gas. The barholes were placed adjacent to the gas probe locations.	The landfill gas results of these barholes are included in the RI/FS.
4	In order to provide additional landfill gas information, existing gas probes, monitoring wells, and piezometers were occasionally monitored for landfill gas. These include S Piez TS, N Piez TS, KMW-4, KMW-5, KMW-6, KMW-7, and KMW-8.	The landfill gas results of these locations are included in the RI/FS.
5	In order to gain more soil vapor quality information, six samples were collected instead of the three as noted in the RI/FS Work Plan.	The VOC results for all the locations are included in the RI/FS.
6	In order to provide additional groundwater quality information in the northeast vicinity of the Landfill, Monitoring Wells MW-30, MW-31, MW-32, and MW-33 were installed.	The plan for installing these wells was developed in conjunction with Ecology and the monitoring results from these wells have been incorporated into the RI/FS.
7	The soil boring at location SS-02 in the West Ditch did not encounter native soil due to refusal.	None.
8	The composite sample for DU3 (the SPPD parcel) was composed of 60 sample locations instead of the 30 identified in the RI/FS Work Plan due to the large size of this parcel.	The results of this sample have been incorporated into the RI/FS.
9	In order to determine the concentrations of metals (arsenic, cadmium, lead, mercury, and chromium) CDM collected and analyzed a composite sample from the SRDS.	The results of this sample have been incorporated into the RI/FS.
Field Work and Sampling Parameter Deviations[2]		
1	A new monitoring well, MW-29, was installed in the southwest area of the Landfill between monitoring Wells MW-2 and MW-4.	
2	Groundwater was not analyzed for polychlorinated biphenyls (PCBs).	
3	Groundwater was analyzed for petroleum hydrocarbons.	
4	Groundwater was analyzed for pH, oxidation-reduction potential, and ferrous iron.	
5	Ferrous iron in groundwater was tested for in the field.	
6	Groundwater samples were analyzed for dissolved organic carbon (filtered).	
7	Groundwater samples were analyzed for dissolved arsenic.	
8	West Ditch soil samples were analyzed for grain size.	
9	West Ditch soil samples were analyzed for HVOCs.	
10	Culvert solids samples were analyzed for grain size, but not for TOC.	
11	Analytical Resources, Inc. was used for the majority of laboratory analyses in place of OnSite Environmental, Inc.	
12	Aspect Consulting Standard Operating Procedures (SOPs) were used in place of the SOPs in the Work Plan, which were specifically related to Farallon Consulting.	
Laboratory Method and Reporting Limit Deviations[3]		
1	Metals will be analyzed by USEPA Method 200.8.	
2	The following reporting limits were used for the following constituents in the RI/FS:·Acrolein: 5 µg/L,·1,2,3-Trichloropropane: 0.5 µg/L,·methylene chloride: 0.5 µg/L,·iron: 5 mg/kg,·methoxcylor: 0.017 mg/kg,·toxaphene: 0.17 mg/kg.	
3	Higher PQLs than listed in the Work Plan were used for the following: n-nitrosodimethylamine, pyridine, 2,4-dichlorophenol, 4-chloroaniline , 4-chloro-3-methylphenol, hexachlorocyclopentadiene, 2,4,6-trichlorophenol, 2,4,5-trichlorophenol, 2-nitroaniline, 2,6-dinitrotoluene, 3-nitroaniline, 4-nitrophenol, 4-nitroaniline, 4,6-dinitro-2-methylphenol, n-nitrosodiphenylamine, 2,3,5,6-tetrachlorophenol, and 2,3,5,6-tetrachlorophenol.	
4	ICP-MS was used to analyze for metals instead of GFA.	
5	The insecticides dichlorvos and naled were reported as one value.	
6	USEPA Method Plumb 1981 was used to analyze for TOC instead of USEPA Method 9060.	
7	Dichloroanilines, dinitrobenzenes, and bis-2-ethylhexyladipate were not analyzed for.	

Notes:

1 Conducted in addition to the field work identified in the RI/FS Work Plan.
2 Due to discrepancies within the RI/FS Work Plan text, Sampling and Analysis Plan, and associated tables. All deviations were discussed and confirmed with Ecology.
3 Due to laboratory instrumentation and capabilities. All deviations were discussed and confirmed with Ecology.

Abbreviations:

Ecology	Washington State Department of Ecology
GFA	Gas fusion analysis
HVOC	Halogenated volatile organic compound
ICP-MS	Inductively coupled plasma mass spectrometry
KIP	Kenyon Industrial Park
Landfill	South Park Landfill
µg/L	Micrograms per liter
mg/kg	Milligrams per kilogram
PCB	Polychlorinated biphenyl
PQL	Practical Quantitation Limit
RI/FS	Remedial Investigation/Feasibility Study
SOP	Standard operating procedure
SPPD	South Park Property Development, LLC
SRDS	South Recycling and Disposal Station
TOC	Total organic carbon
USEPA	U.S. Environmental Protection Agency
VOC	Volatile organic compound