Kenmore Industrial Park Site SIT 2.4

KLEINFELDER
Bright People. Right Solutions.

November 23, 2009
Kleinfelder Project No: 104944

Ms. Maura O'Brien
Washington State Department of Ecology
3910 160th Avenue Southeast
Bellevue, Washington 98008

Subject: Dry-Season Monitoring 2009
Kenmore Industrial Park

Dear Maura:

This letter report documents monitoring well replacement, well development, and dry-season groundwater monitoring at the Kenmore Industrial Park.

Before the collection of groundwater samples, the selected monitoring wells were redeveloped by using a Hydropulse tool. The well redevelopment procedure consisted of impulse generation within the well using the Hydropuls® tool. The tool emits short, relatively high pressure bursts of nitrogen that vibrate and loosen fine sediment, biofoul and mineral encrustations impacting the well screen. Following use of the Hydropuls, each well was purged with an electric submersible whaler pump to remove sediment. Approximately 30 to 40 gallons of water were purged from each well.

Monitoring well AW-10 was replaced with a new well, labeled AW-10R, on August 14, 2009 (see attached boring log). New well AW-10R was installed approximately 15 feet west of the previous well using a hollow-stem auger drilling rig operated by Cascade Drilling, Inc. This replacement well was necessary because of damage to the previously existing well. The existing well was abandoned by over-drilling and backfilling the boring with bentonite chips. The new well was developed using the Hydropulse tool as described above. Replacement well AW-10R has not been surveyed.

Groundwater monitoring was conducted on September 9 and 10, 2009. Samples were collected from five monitoring wells; AW-6, AW-9, AW-10R, AW-11 and AW-12. A duplicate sample was collected at well AW-6. The groundwater

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samples were collected by Kleinfelder and analyzed by OnSite Environmental, Inc. of Redmond, Washington. Field procedures used low-flow sampling techniques following the guidelines outlined in the *Groundwater Monitoring Work Plan, Kenmore Industrial Park, July 21, 2009*. Field parameters measured at the time of sampling included temperature, pH, conductivity, and dissolved oxygen. Laboratory analyses included semivolatile organics, dissolved arsenic, dissolved barium, dissolved lead and total petroleum products (TPH) diesel range and oil range.

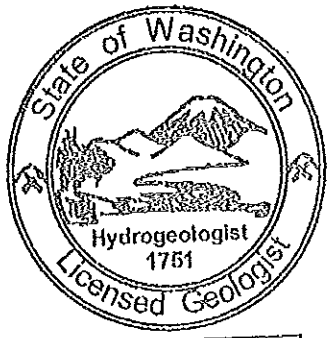
The analytical results for this sampling event are presented on Tables 1 through 3. None of the analytical results exceeded the cleanup standards in the Cleanup Action Plan. Test results were input into the Ecology Environmental Information Management (EIM) database. Copies of field sampling data sheets and the laboratory reports are attached. The next groundwater sampling event is scheduled for January 2010.

If you have any questions regarding the sampling program or test results please do not hesitate to call me at (425) 636-7900.

Sincerely,

KLEINFELDER WEST, INC.

Kevin Lakey, PE, RG
Environmental Services Manager



Attachments: Table 1: Field Parameters
Table 2: Groundwater Monitoring Results
Table 3: Groundwater Monitoring Results
Laboratory Reports
Field Sampling Data Sheets
Site Vicinity Figure
Site Plan
AW-10A Well Completion Log

cc: Gary Sergeant, Pioneer Towing
Paul Beveridge, Beveridge Law

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Table 1
Kenmore Industrial Park, Groundwater Monitoring Results
Field Parameters

Well	Sample No.	Sample Date	Water Level Elevation	Purged Volume (gal.)	pH	Conductivity (µS)	Dissolved Oxygen (mg/L)	Temperature (°C)
AW-9 Background	KIP-0909-01	9/9/2009	21.66	1.1	5.99	165	1.31	19.6
AW-6	KIP-0909-05R	9/9/2009	17.50	1.0	6.53	1252	1.52	15.6
AW-10	KIP-0909-02	9/9/2009	19.37	0.9	6.73	1059	1.05	12.6
AW-11	KIP-0909-04	9/9/2009	17.83	0.7	6.54	1314	1.17	14.8
AW-12	KIP-0909-03	9/9/2009	17.71	2.5	6.51	1042	0.51	14.0

Notes:
DUPL = duplicate sample

Table 2
Kenmore Industrial Park, Groundwater Monitoring Results
Dissolved Metals and Total petroleum Products (TPH)
All concentrations are presented in milligrams per liter (mg/l)

			TPH		Dissolved Metals		
Well	Sample No.	Sample Date	Diesel Range	Oil Range	As	Ba	Pb
AW-9 Background	KIP-0909-01	9/9/2009	<0.25	<0.40	<0.003	<0.25	<0.001
AW-6	KIP-0909-5R	9/10/2009	<0.27	<0.43	<0.003	0.86	<0.001
AW-6 DUPL	KIP-0909-06	9/10/2009	<0.25	<0.40	<0.003	0.89	<0.001
AW-10	KIP-0909-02	9/9/2009	<0.25	<0.40	<0.003	0.25	<0.001
AW-11	KIP-0909-04	9/9/2009	<0.25	<0.40	<0.003	0.87	<0.001
AW-12	KIP-0909-03	9/9/2009	<0.25	<0.40	<0.003	0.24	<0.001
		Site Cleanup Levels	**0.5**	**0.5**	**0.005**	**1.0**	**0.014**

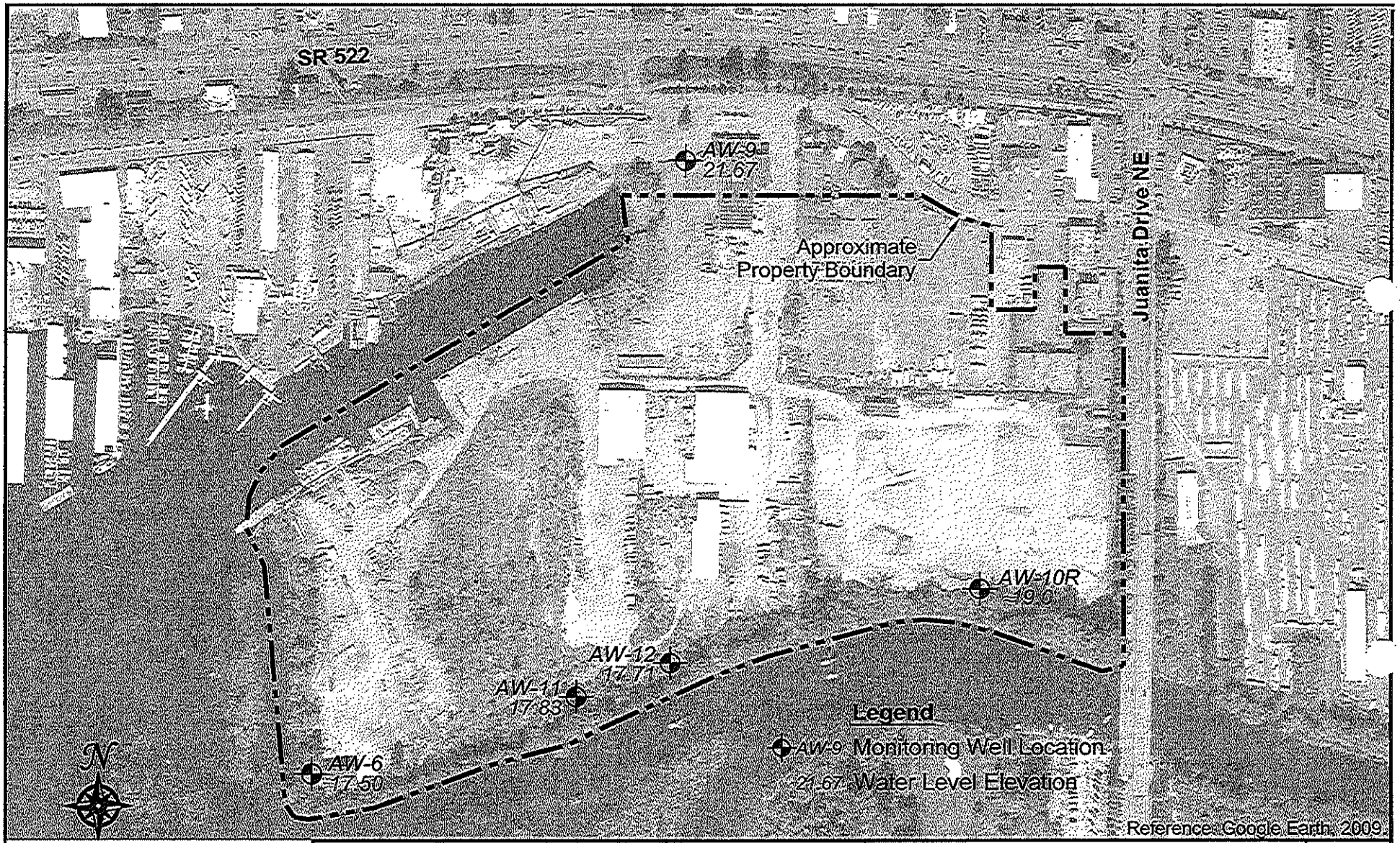
Notes:
DUPL = duplicate sample

Table 3
Kenmore Industrial Park, Groundwater Monitoring Results
Polynuclear Aromatic Hydrocarbons
All concentrations are presented in micrograms per liter (µg/l)

			Polynuclear Aromatic Hydrocarbons																				
Well	Sample No.	Sample Date	NAPH	2-MN	1-MN	ACEN	ACE	FLUOR	PHEN	ANTH	FLUORA	PYR	B(a)A	CHRY	B(b)F	B(k)F	B(a)P	I(1,2,3-cd)P	DB(ah)A	B(ghi)P	Total PAH	Total cPAH	TEF-Corrected Total cPAH
AW-6	KIP-0909-5R	9/10/2009	0.20	0.10	0.19	<0.098	2.10	0.73	<0.098	<0.098	0.13	0.13	0.053	0.054	0.060	0.019	0.038	0.018	<0.0098	0.020	3.352	0.262	0.05
AW-6 DUPL	KIP-0909-6	9/10/2009	0.19	0.11	0.20	<0.098	2.20	1.00	<0.098	<0.098	<0.098	<0.098	0.023	0.019	0.025	<0.0098	0.021	0.013	<0.0098	0.015	3.316	0.116	0.03
AW-11	KIP-0909-4	9/9/2009	<0.095	<0.095	<0.095	<0.095	1.30	0.64	<0.095	0.097	0.15	0.11	0.033	0.031	0.036	0.012	0.028	0.016	<0.0095	0.018	2.471	0.174	0.04
		MTCA Method A Unrestricted Use Groundwater Cleanup Levels		160		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.1*

Notes:
DUPL = duplicate sample
PAH = polynuclear aromatic hydrocarbons
PAHs analyzed by EPA Method 8270
ACE = acenaphthene
ACEN = acenaphthylene
ANTH = Anthracene
B(a)A = Benzo(a)Anthracene
B(a)P = Benzo(a)Pyrene
B(b)F = Benzo(b)Fluoranthene
B(g,h,i)P = Benzo(g,h,i)Perylene
B(k)F = Benzo(k)Fluoranthene
CHRY = Chrysene
DB(a,h)A = Dibenz(a,h)Anthracene
FLUOR = Fluorene
FLUORA = Fluoranthene
I(1,2,3-cd)P = Indeno(1,2,3-cd)Pyrene
NAPH = Naphthalene
1-MN = 1-Methylnaphthylene
2-MN = 2-Methylnaphthylene
PHEN = Phenanthrene
PYR = Pyrene
TEF = toxicity equivalency factor for Benzo(a)Pyrene

ATTACHED IMAGES: Images: Kenmore.jpg Images: Vicinity.jpg
ATTACHED XREFS:
SEATTLE, WA CAD FILE: G:\104944\ LAYOUT: Site Plan PLOTTED: 18 Nov 2009, 10:14am, jstewart



0 600
Scale in Feet

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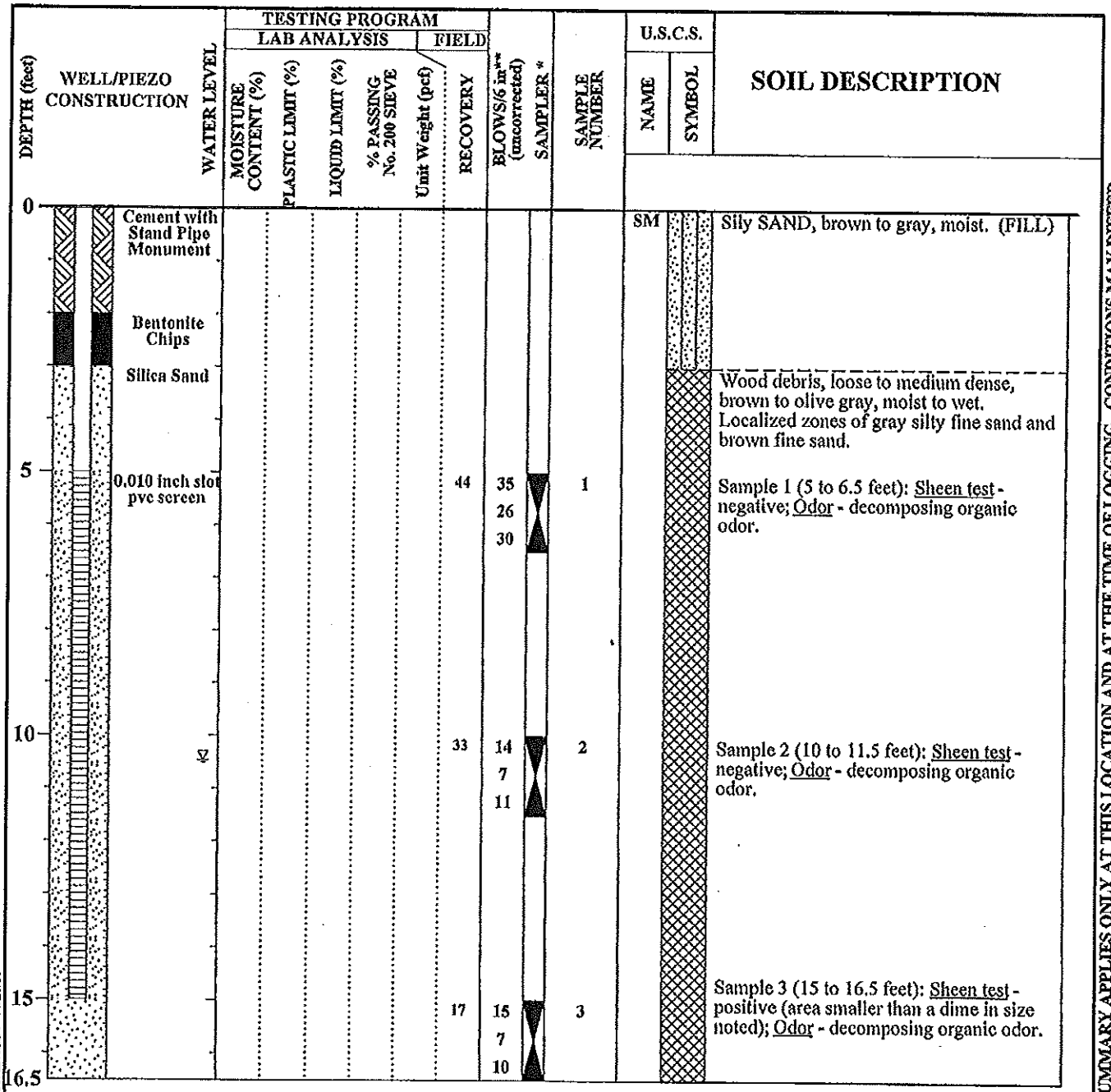
PROJECT NO.	104944
DRAWN:	November 2009
DRAWN BY:	J.S.
CHECKED BY:	K.L.
FILE NAME:	104944-Figures.dwg

Site Plan

Kenmore Industrial Park
Kenmore, Washington

FIGURE
2



NOTES: Blow counts are based on 140 lb. hammer driving a California Sampler (aka Dames and Moore).

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

BY: C. Allen APPROV: KGL

DATE DRILLED: 8/14/2009
LOGGED BY: C. Allen
REVIEWED BY: KGL

SURFACE ELEVATION (feet):
TOTAL DEPTH (feet): 16.5
DIAMETER OF BORING (in) 8 inch O.D.

DRILLING METHOD: HSA
DRILLING COMPANY: Cascade
CASING SIZE:

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
SOILS AND MATERIALS TESTING
PROJECT NUMBER: 104944

Kenmore Industrial Park
NE 175th Street, Kenmore, WA
BORING LOG
AW-10A

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