earth metrics incorporated

March 11, 1988

Mr. Lowell Miller
Alameda County
Hazardous Materials Unit
470 27th Street, Room 322
Oakland, CA 94612

Subject: Marketplace and Nielsen Contamination Characterizations
(Earth Metrics file reference 9569.A1)

Dear Lowell:

This letter provides for you the boring logs and summary of the testing and hazard status of the Marketplace and Nielsen sites in Emeryville. These sites have been extensively tested previously in 1981 under the direction of DOHS by Woodward Clyde Consultants. Earth Metrics' added work included:

- Eight (8) additional borings and soils testing on the Nielsen site.
- Fourteen (14) additional borings and soils testing on the Marketplace site.
- Resampling and testing of the diesel tank pit on the Nielsen site.
- Resampling of three (3) groundwater monitoring wells (No. 4, 5, and 12) on the Marketplace site on one (1) well (#W-4) on the Nielsen site.
- Testing of composite soil and groundwater samples from the excavated foundation of a demolished building on the Marketplace site. This excavated area is due west of what DOHS labelled in 1981 as Tank Groups B, C, and D. This most recent sampling was performed on March 7, 1988.

Boring logs for all twenty two (22) of the recent soils borings are presented in Appendix A. The remainder of this letter report summarizes contamination conditions encountered in the soil and groundwater.

SOIL CONTAMINATION

The following summarizes our impression of existing soils conditions.

- Metals concentrations in soil exceed the California TTLC, for specified metals, in the immediate vicinity of Boring #EM8. The historic source of this contamination is suspected to be paint pigments. Other metals contamination is not evident on either site.

- Soils in the northeast corner of the Marketplace site and contiguous southeast corner of the Nielsen site contain oil and grease in excess of the California action criterion for diesel fuel of 1,000 ppm (refer to Figure 1). The origin of the oil and grease is suspected to be the historic asphalt refinery in operation as early as 1880.

- Other localized soils contamination by petroleum fuels is evident from the previous WCC testing and is a subject of mitigation in the final tank closure.

Figure 1 illustrates a worst case estimate of the 1,000 ppm oil and grease contour or isopleth. The oil and grease is from asphalt and/or tar as stated above. It is a simplified figure showing the potential extent of oil and grease (or, asphalt) based upon the twenty two (22) most recent soils borings. Asphalt may be spread over the northeast corner of the Marketplace site and contiguous southeast corner of the Nielsen site as illustrated in Figure 1. Or, asphalt may have settled in isolated pockets (e.g., sand lenses) as illustrated in Figure 2.

Figure 2 illustrates visual observations of the soil borings, and expresses these as thicknesses of the observed asphalt material. The asphalt viscosity varied: liquid in Well No. 5; saturated soil in borings E3, E4, and EM1; and semi-solid in numerous other borings. The asphalt generally was liquid in the thick deposit near Well No. 5.

Halogenated organics in soil and in one liquid sample (from Well No. 5) were tested using EPA Methods 9020 and 9022. Soil saturated with asphalt contained up to 0.13 ppm iodinated organics and less than 0.5 ppm chlorinated organics. The black liquid sample contained 433 ppm total halogenated organics (TOX). The black liquid was tested specifically for PCBs and found not to contain detectable PCB (less than 2 ppm). We believe that the latter test should be repeated using EPA Method 9022 (Neutron Activation). Well No. 5 was resampled and is being retested independently by the Alameda County Hazardous Materials Unit.

GROUNDWATER CONTAMINATION

The following summarizes our impression of existing groundwater contamination.

- Water samples collected from Wells No. 4 and 12 contained metals concentrations above Safe Drinking Water Standards. The subject groundwater is shallow and brackish, and is not a drinking water source.

- Levels of halogenated organics in groundwater were 0.097 and 0.089 mg/l, respectively, in Wells No. 4 and 12.

- Metals concentrations in soil and groundwater seem to be uncorrelated with the presence or absence of asphalt.

- Well No. 5 is not indicative of groundwater quality prevailing generally on the site. Well No. 5 was drilled in a pocket of historic spilled or dumped asphalt.

CLOSURE ACTIONS

For the Marketplace site, the following alternative actions are possible.

1. Encapsulate, in place, existing soils and asphalt pockets with parking lot pavement or 18 inches of clean imported loam in landscaped areas.

2a. Excavate the northeast corner of the Marketplace site and haul soil having an oil and grease concentration greater than 1,000 ppm to a Class II or III disposal site. The volume of soil having greater than 1,000 ppm oil and grease could be up to 10,000 cubic yards. The cost of this action at $33 per cubic yard could be $330,000 or more.

2b. Containerize liquid asphalt collected in Well No. 5 and dispose of appropriately. Cost is unknown.

3. Focus excavation and disposal in the northeast corner of the site on a 40 foot radius around Boring EM1. The volume of soil having greater than 6,000 ppm oil and grease is 1,000 cubic yards. The cost of this action at $33 per cubic yard is approximately $33,000 dollars.

4. Other focused excavation and disposal could be accomplished, with costs ranging from $33,000 to $330,000.

5. Perform biodegradation of the oil and grease in conjunction with Action #1 (above), to reduce oil and grease concentrations to 1,000 ppm. The cost of this treatment is $60 per cubic yard, or $60,000 for 1,000 cubic yards. Treatment would require approximately 60 days, if conducted during warm weather.

For the Nielsen site, final tank closure will be performed pursuant to the Alameda County guidelines currently in effect.

If you have any questions about the boring logs or summary, please call me.

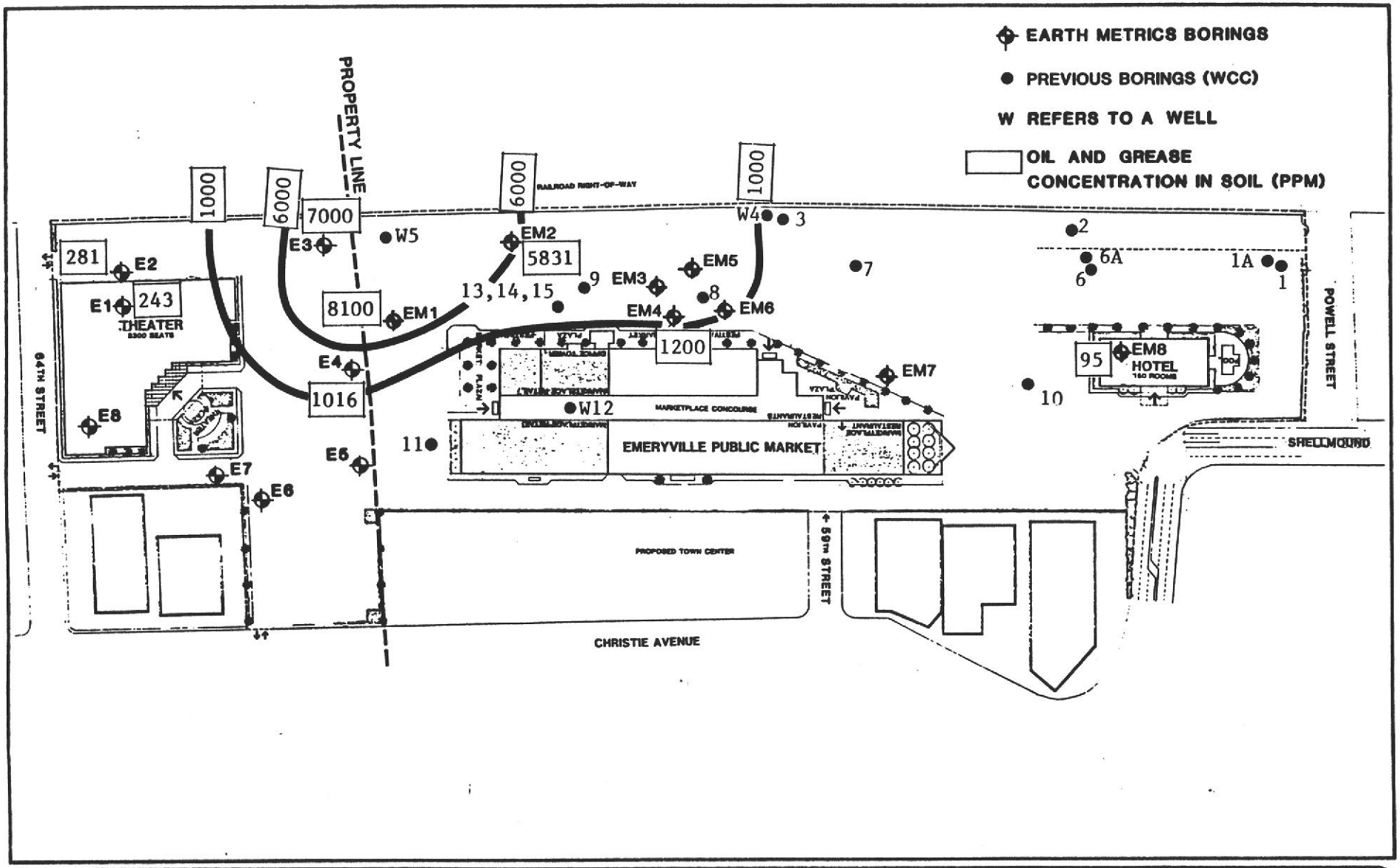
Sincerely,

Marc Papineau
Department Manager
Physical Sciences

MP/hhs

cc: Mr. Walter Kaczmarek

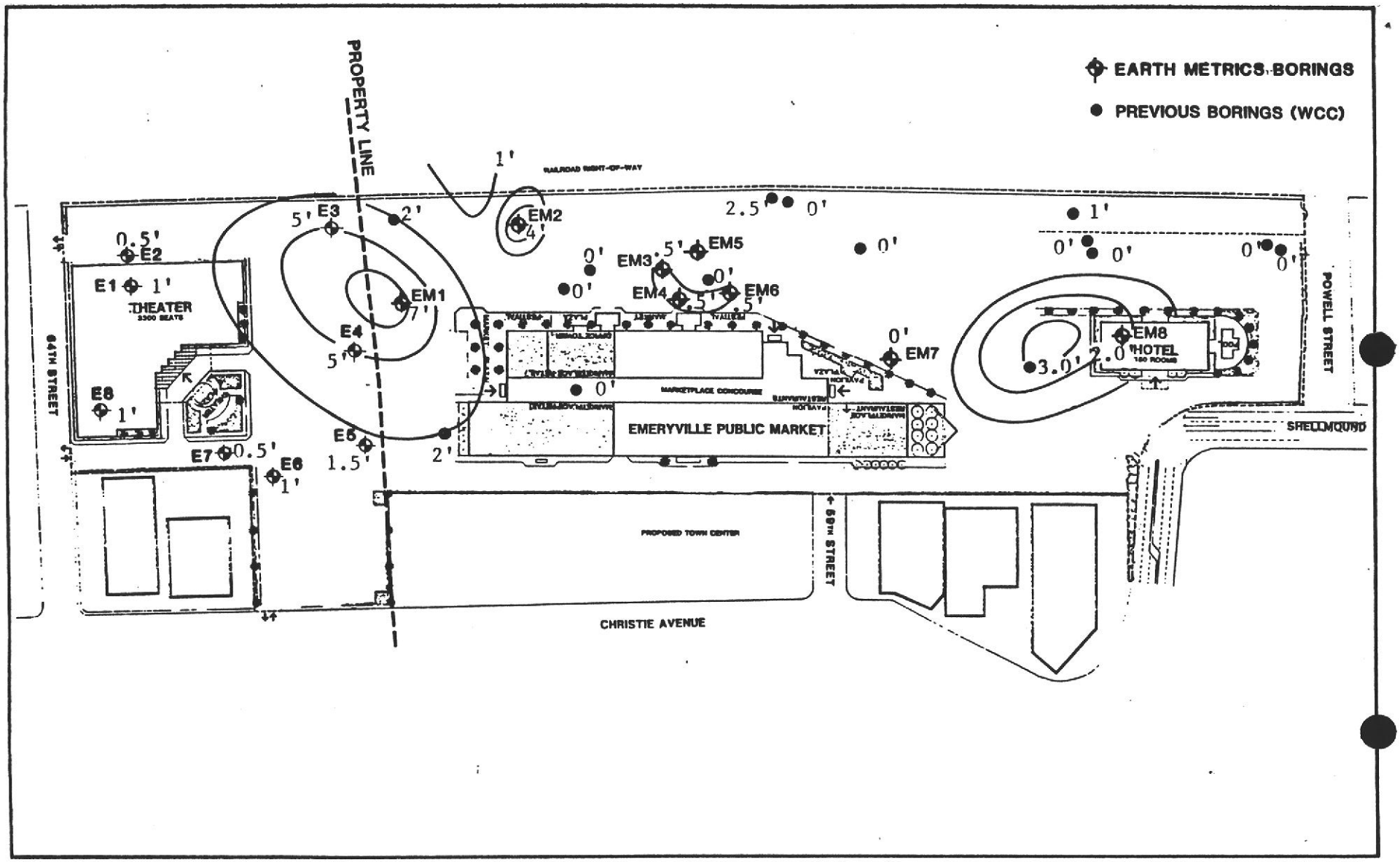
Attachments



earth metrics

SCALE
1" = 160'

FIGURE 1. TOTAL OIL AND GREASE CONCENTRATION ISOPLETHS (PPM).



earth metrics

SCALE
1" = 160'

FIGURE 2. ISOPACH CONTOURS OF THE ASPHALTIC SUBSTANCE
(THICKNESS IN FEET)

BORING LOCATION, ELEVATION AND DATE DRILLED	DRILLING METHOD	BORING NUMBER
SEE SITE PLAN	TRUCK MOUNTED CONTINUOUS FLIGHT AUGER	E-1
	SAMPLING METHOD: 2 INCH CALIFORNIA MODIFIED	SHEET 1 OF 8

SAMPLER TYPE	NUMBER OF BLOWS / FT	DRY DENSITY PCF	MOISTURE CONTENT % DRY WT.	SAMPLE NUMBER	DEPTH IN FEET	SOIL GRAPH	U.S.C.S.	
					0			Base rock
					1			Yellow sandy fill with gravel
					2			Dark silty gravelly clay with brick, tarry material and odor.
					3			Tarry Bay Mud - greenish with gravel Fair odor to strong odor
					4			
					5			
					6			Continued presence of petroleum accumulations
					7			
					8			Total Depth at 8' - 2"
					9			Water at time of drilling 8'-0"
					10			
					11			
					12			
					13			
					14			
					15			
					16			
					17			
					18			
					19			
					20			

▮ SAMPLE TAKEN

● SAMPLE ANALYZED FOR TOTAL OIL AND GREASE

LOG OF BORING

earth metrics inc

ENVIRONMENTAL CONSULTANT

EASTSHORE (FORMER NIELSEN FREIGHT LINES SITE)

DATE : 02/23/88

JOB NO : 9570.A1

PLATE 1

BORING LOCATION, ELEVATION AND DATE DRILLED	DRILLING METHOD	BORING NUMEER
SEE SITE PLAN	TRUCK MOUNTED CONTINUOUS FLIGHT AUGER	E-2
	SAMPLING METHOD	SHEET 2 OF 8
	2 INCH CALIFORNIA MODIFIED	

SAMPLER TYPE	NUMBER OF BLOWS / FT	DRY DENSITY PCF	MOISTURE CONTENT % DRY WT.	SAMPLE NUMBER	DEPTH IN FEET	SOIL GRAPH	U.S.C.S.
					0		
					1		
					2		
					3		
					4		
					5		
					6		
					7		
					8		
					9		
					10		
					11		
					12		
					13		
					14		
					15		
					16		
					17		
					18		
					19		
					20		

Dark silty clay with gravel (base) slight odor

Lighter silty gravel (3-4 inches in diameter)

Greenish - brown clay with slight odor

Tarry substance with fair odor

Greenish - brown clay with slight odor

Darker clay - no odor

Very contaminated bay mud

Slight to fair odor

less contamination

Light green brown bay mud

Total Depth at 10'-0"

Water at time of drilling 10'-0"

▮ SAMPLE TAKEN

● SAMPLE ANALYZED FOR TOTAL OIL AND GREASE

LOG OF BORING

earth metrics inc

ENVIRONMENTAL CONSULTANT

EASTSHORE (FORMER NIELSEN FREIGHT LINES SITE)

DATE : 02/23/88 | JOB NO : 9570.A1

PLATE 2

BORING LOCATION, ELEVATION AND DATE DRILLED	DRILLING METHOD	BORING NUMBER
SEE SITE PLAN	TRUCK MOUNTED CONTINUOUS FLIGHT AUGER	E-3
	SAMPLING METHOD: 2 INCH CALIFORNIA MODIFIED	SHEET 3 OF 8

SAMPLER TYPE	NUMBER OF BLOWS / FT	DRY DENSITY PCF	MOISTURE CONTENT % DRY WT.	SAMPLE NUMBER	DEPTH IN FEET	SOIL GRAPH	U.S.C.S.
					0		
					1		
					2		
					3		
					4		
					5		
					6		
					7		
					8		
					9		
					10		
					11		
					12		
					13		
					14		
					15		
					16		
					17		
					18		
					19		
					20		

Asphalt

Fill sand with slight odor

Fill sand with clay and slight odor
Increasing gravel

40% Tarry Substance - dripping oil
Becoming very fibrous (wood)
very strong odors

Very saturated with oil
Green bay mud - not contaminated

Total Depth at 10'-0"

▮ SAMPLE TAKEN

● SAMPLE ANALYZED FOR TOTAL OIL AND GREASE

LOG OF BORING

earth metrics inc

ENVIRONMENTAL CONSULTANT

EASTSHORE (FORMER NIELSEN FREIGHT LINES SITE)

DATE : 02/23/88 | JOB NO : 9570.A1

PLATE 3

BORING LOCATION, ELEVATION AND DATE DRILLED	DRILLING METHOD	BORING NUMBER
SEE SITE PLAN	TRUCK MOUNTED CONTINUOUS FLIGHT AUGER	E-4
	SAMPLING METHOD 2 Inch California Modified	SHEET 4 OF 8

SAMPLER TYPE	NUMBER OF BLOWS / FT	DRY DENSITY PCF	MOISTURE CONTENT % DRY WT.	SAMPLE NUMBER	DEPTH IN FEET	SOIL GRAPH	U.S.C.S.
					0		
					1		
					2		
					3		
					4		
					5		
					6		
					7		
					8		
					9		
					10		
					11		
					12		
					13		
					14		
					15		
					16		
					17		
					18		
					19		
					20		

Asphalt

Gravelly Fill Sand

Top of Tarry substance - approximately 5% in soil mass

40% tar in brown clay

Red brick material and tarry sludge

Clay fill

Total Depth at 8'-6"

Water at time of drilling 7'-0"

▮ SAMPLE TAKEN

● SAMPLE ANALYZED FOR TOTAL OIL AND GREASE

LOG OF BORING

earth metrics inc

ENVIRONMENTAL CONSULTANT

EASTSHORE (FORMER NIELSEN FREIGHT LINES SITE)

DATE : 02/23/88 | JOB NO : 9570.A1

PLATE 4

BORING LOCATION, ELEVATION AND DATE DRILLED	DRILLING METHOD	BORING NUMEER
SEE SITE PLAN	TRUCK MOUNTED CONTINUOUS FLIGHT EUGER	E-5
	SAMPLING METHOD	SHEET 5 OF 8
	2 INCH CALIFORNIA MODIFIED	

SAMPLER TYPE	NUMBER OF BLOWS / FT	DRY DENSITY PCF	MOISTURE CONTENT % DRY WT.	SAMPLE NUMBER	DEPTH IN FEET	SOIL GRAPH	U.S.C.S.
					0		
					1		
					2		
					3		
					4		
					5		
					6		
					7		
					8		
					9		
					10		
					11		
					12		
					13		
					14		
					15		
					16		
					17		
					18		
					19		
					20		

Asphalt

Silty and clayey sand fill

Discolored clay with approximate 75% Tarry subs.

Top of Bay Mud
No odor or contamination. A little wood

Total Depth at 6'-6"

▮ SAMPLE TAKEN

● SAMPLE ANALYZED FOR TOTAL OIL AND GREASE

LOG OF BORING

earth metrics inc

ENVIRONMENTAL CONSULTANT

EASTSHORE (FORMER NIELSEN FREIGHT LINES SITE)

DATE : 02/23/88

JOB NO : 9570.A1

PLATE 5

BORING LOCATION, ELEVATION AND DATE DRILLED	DRILLING METHOD	BORING NUMEER
SEE SITE PLAN	TRUCK MOUNTED CONTINUOUS FLIGHT AUGER	E-6
	SAMPLING METHOD: 2 Inch California Modified	SHEET 6 OF 8

SAMPLER TYPE	NUMBER OF BLOWS / FT	DRY DENSITY PCF	MOISTURE CONTENT % DRY WT.	SAMPLE NUMBER	DEPTH IN FEET	SOIL GRAPH	U.S.C.S.
					0		
					1		
					2		
					3		
					4		
					5		
					6		
					7		
					8		
					9		
					10		
					11		
					12		
					13		
					14		
					15		
					16		
					17		
					18		
					19		
					20		

0 Asphalt

1 Dark contaminated clay with odor

2 Dark grey bay mud

6 Total Depth at 6'-6"

SAMPLE TAKEN

LOG OF BORING

earth metrics inc

ENVIRONMENTAL CONSULTANT

EASTSHORE (FORMER NIELSEN FREIGHT LINES SITE)

DATE : 02/23/88 | JOB NO : 9570.A1

PLATE 8

BORING LOCATION, ELEVATION AND E DRILLED	DRILLING METHOD	BORING NUMEER
SEE SITE PLAN	TRUCK MOUNTED CONTINUOUS FLIGHT AUGER	E-7
	SAMPLING METHOD: 2 Inch California Modified	SHEET 7 OF 8

SAMPLER TYPE	NUMBER OF BLOWS / FT	DRY DENSITY PCF	MOISTURE CONTENT % DRY WT	SAMPLE NUMBER	DEPTH IN FEET	SOIL GRAPH	U.S.C.S.	
					0			Asphalt
					1			Fill with gravel
					2			Black Tarry Clay with odor and wood
					3			
					4			no odor
					5			no odor no odor
					6			Dark grey silty clay Total Depth at 6'-6"
					7			
					8			
					9			
					10			
					11			
					12			
					13			
					14			
					15			
					16			
					17			
					18			
					19			
					20			

■ SAMPLE TAKEN

LOG OF BORING

earth metrics inc

ENVIRONMENTAL CONSULTANT

EASTSHORE (FORMER NIELSEN FREIGHT LINES SITE)

DATE : 02/23/88 | JOB NO : 9570.A1

PLATE 7

BORING LOCATION, ELEVATION AND DATE DRILLED	DRILLING METHOD	BORING NUMEER
SEE SITE PLAN	TRUCK MOUNTED CONTINUOUS FLIGHT AUGER	E-8
	SAMPLING METHOD	SHEET 8 OF 8
	2 inch California Modified	

SAMPLER TYPE	NUMBER OF BLOWS / FT	DRY DENSITY PCF	MOISTURE CONTENT % DRY WT	SAMPLE NUMBER	DEPTH IN FEET	SOIL GRAPH	U.S.C.S.
					0		
					1		
					2		
					3		
					4		
					5		
					6		
					7		
					8		
					9		
					10		
					11		
					12		
					13		
					14		
					15		
					16		
					17		
					18		
					19		
					20		

Asphalt

Sandy fill with a lot of gravel

no odor

Dark grey and mottled silty clay

no odor

Total Depth at 7'-0"

▮ SAMPLE TAKEN

● SAMPLE ANALYZED FOR TOTAL OIL AND GREASE

LOG OF BORING

earth metrics inc

ENVIRONMENTAL CONSULTANT

EASTSHORE (FORMER NIELSEN FREIGHT LINES SITE)

DATE : 02/23/88

JOB NO : 9570.A1

PLATE 6

BORING LOCATION, ELEVATION AND DATE DRILLED	DRILLING METHOD	BORING NUMBER
SEE SITE PLAN	TRUCK MOUNTED CONTINUOUS FLIGHT AUGER	EM8A
	SAMPLING METHOD: 2 inch California Modified	SHEET 1 OF 6

SAMPLER TYPE	NUMBER OF BLOWS / FT	DRY DENSITY PCF	MOISTURE CONTENT % DRY WT.	SAMPLE NUMBER	DEPTH IN FEET	SOIL GRAPH	U.S.C.S.
					0		
					1		
					2		
					3		
					4		
					5		
					6		
					7		
					8		
					9		
					10		
					11		
					12		
					13		
					14		
					15		
					16		
					17		
					18		
					19		
					20		

Asphalt

Reddish brown silty clay

Rocks - base material

Reddish brown silty sand with pebbles

Green gravelly sand

Brownish gravelly sand - saturated

Odor, blackened silty clay

Blackened (dark brown) silty clay

TD @ 8.5

■ Analyzed for CAM TTLC Metals

LOG OF BORING

earth metrics inc

ENVIRONMENTAL CONSULTANT

MARKETPLACE

DATE : 12/14/87

JOB NO : 9569.A1

PLATE 1

BORING LOCATION, ELEVATION AND DATE DRILLED	DRILLING METHOD	BORING NUMEER
SEE SITE PLAN	TRUCK MOUNTED CONTINUOUS FLIGHT AUGER	EM8B
	SAMPLING METHOD: 2 inch California Modified	SHEET 2 OF 6

SAMPLER TYPE	NUMBER OF BLOWS / FT	DRY DENSITY PCF	MOISTURE CONTENT % DRY WT.	SAMPLE NUMBER	DEPTH IN FEET	SOIL GRAPH	U.S.C.S.
					0		
					1		
					2		
					3		
					4		
					5		
					6		
					7		
					8		
					9		
					10		
					11		
					12		
					13		
					14		
					15		
					16		
					17		
					18		
					19		
					20		

0 Asphalt

1–2 Brown silty sand, no odor with increasing pebbles

3–4 Blackened gravelly sand, slight to fair odor

4–5 Bay mud

TD 5'-0"

■ Analyzed for CAM TTLC Metals

LOG OF BORING

earth metrics inc

ENVIRONMENTAL CONSULTANT

MARKETPLACE

DATE : 12/14/87

JOB NO : 9569.A1

PLATE 2

BORING LOCATION, ELEVATION AND DATE DRILLED	DRILLING METHOD	BORING NUMEER
SEE SITE PLAN	TRUCK MOUNTED CONTINUOUS FLIGHT AUGER	EM8C
	SAMPLING METHOD	SHEET 3 OF 6
	2 inch California Modified	

SAMPLER TYPE	NUMBER OF BLOWS / FT	DRY DENSITY PCF	MOISTURE CONTENT % DRY WT.	SAMPLE NUMBER	DEPTH IN FEET	SOIL GRAPH	U.S.C.S.
					0		
					1		
					2		
					3		
					4		
					5		
					6		
					7		
					8		
					9		
					10		
					11		
					12		
					13		
					14		
					15		
					16		
					17		
					18		
					19		
					20		

Asphalt

Rock base

Brown discolored sandy clay with pebbles - odor

Wood fibers little bit more clay

Brown, discolored sandy clay with asphaltic liquid;

Saturated grey/black sandy clay with string fibers

Bay mud at 4'-0"

TD @ 5'-0"

■ Analyzed for CAM TTLC Metals

LOG OF BORING

earth metrics inc

ENVIRONMENTAL CONSULTANT

MARKETPLACE

DATE : 12/14/87

JOB NO : 9569.A1

PLATE 3

BORING LOCATION, ELEVATION AND DATE DRILLED	DRILLING METHOD	BORING NUMBER
SEE SITE PLAN	TRUCK MOUNTED CONTINUOUS FLIGHT AUGER	EM8D
	SAMPLING METHOD: 2 inch California Modified	SHEET 4 OF 6

SAMPLER TYPE	NUMBER OF BLOWS / FT	DRY DENSITY PCF	MOISTURE CONTENT % DRY WT.	SAMPLE NUMBER	DEPTH IN FEET	SOIL GRAPH	U.S.C.S.	
					0			Asphalt
					1			Rock base
								Strong odor, brown, discolored silty clay
					2			Green sand - glauconitic sand Unconsolidated, loose and friable, sandy clay
					3			Clayey sand
					4			Fibrous clayey sand with odor
					5			Course sand with odor
					6			TD 5'-0"
					7			
					8			
					9			
					10			
					11			
					12			
					13			
					14			
					15			
					16			
					17			
					18			
					19			
					20			

■ Analyzed for CAM TTLC Metals

LOG OF BORING

earth metrics inc

ENVIRONMENTAL CONSULTANT

MARKETPLACE

DATE : 12/14/87 | JOB NO : 9569.A1

PLATE 4

BORING LOCATION, ELEVATION AND DATE DRILLED	DRILLING METHOD	BORING NUMEER
SEE SITE PLAN	TRUCK MOUNTED CONTINUOUS FLIGHT AUGER	EM8E
	SAMPLING METHOD: 2 inch California Modified	SHEET 5 OF 6

SAMPLER TYPE	NUMBER OF BLOWS / FT	DRY DENSITY PCF	MOISTURE CONTENT % DRY WT.	SAMPLE NUMBER	DEPTH IN FEET	SOIL GRAPH	U.S.C.S.
					0		
					1		
					2		
					3		
					4		
					5		
					6		
					7		
					8		
					9		
					10		
					11		
					12		
					13		
					14		
					15		
					16		
					17		
					18		
					19		
					20		

Asphalt
Base rock - brown silty clay

Green sand slight odor

Brown fibrous clay (discolored) odor

Green sand with odor

TD @ 4 1/2'-0"

■ Analyzed for CAM TTLC Metals

LOG OF BORING

earth metrics inc
ENVIRONMENTAL CONSULTANT

MARKETPLACE

DATE : 12/14/87

JOB NO : 9569.A1

PLATE 5

BORING LOCATION, ELEVATION AND DATE DRILLED

SEE SITE PLAN

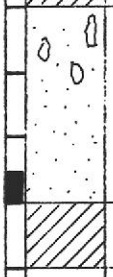
DRILLING METHOD
TRUCK MOUNTED CONTINUOUS FLIGHT AUGER

BORING NUMEER
EM8F

SAMPLING METHOD
2 inch California Modified

SHEET 6 OF 6

SAMPLER TYPE	NUMBER OF BLOWS / FT	DRY DENSITY PCF	MOISTURE CONTENT % DRY WT.	SAMPLE NUMBER	DEPTH IN FEET	SOIL GRAPH	U.S.C.S.
					0		
					1		
					2		
					3		
					4		
					5		
					6		
					7		
					8		
					9		
					10		
					11		
					12		
					13		
					14		
					15		
					16		
					17		
					18		
					19		
					20		



Asphalt
Base - silty clay

Red-brown gravelly sand

Green sand

Wood fibers in clayey material

Darkened clay
Wood chunks with odor and green sand

■ Analyzed for CAM TTLC Metals

LOG OF BORING

earth metrics inc
ENVIRONMENTAL CONSULTANT

MARKETPLACE

DATE : 12/14/87

JOB NO : 9569.A1

PLATE 6