HUNTER
ENVIRONMENTAL SERVICES, INC.

Northern California Office
597 Center Avenue, Suite 350
Martinez, California 94553
415-372-3637 • 800-321-3637
FAX 415-372-3790

2/14/89

February 10, 1989

Project No. 02-258-003

Mr. Thomas Peacock
County of Alameda
Dept. of Environmental Health
80 Swan Way, Suite 200
Oakland, California 94621

SUBJECT: Broadway Volkswagen, 2740 Broadway, Oakland, California

Dear Mr. Peacock:

This letter report is to inform you of the results of monitoring well installation and soil and ground water sampling at Broadway Volkswagen, 2740 Broadway, Oakland, California (Figure 1-Site Map). Three monitoring wells were installed on January 20 and 21, 1989, according to plans submitted to and approved by the County of Alameda, Department of Environmental Health.

Drilling, Sampling, and Well Completion Procedures

Three soil borings were drilled with a truck-mounted hollow stem auger drilling rig (Mobile Drill Model B-61). The outside diameter of the auger flights was approximately 8.5 inches.

A relatively undisturbed soil sample was collected from each boring. The samples were obtained with a Modified California Sampler, consisting of an outer sample barrel lined with two 6-inch long rings. The sampler was lowered through the hollow-stem auger, driven 12 inches, and retrieved.

The soil in the lower 6-inch ring of the Modified California Sampler was used for laboratory analyses. Immediately after the sampler rings were retrieved, the lower ring was sealed with aluminum foil, covered with plastic end caps, and secured with duct tape. The sample was then labeled and placed in an ice chest for cold transport to a chemical laboratory under chain of custody. The soil in the upper 6-inch ring was used for lithologic description and olfactory examination. Soil cuttings from the auger were also examined for lithology. Borehole logs describing soil materials, sample depths, and well construction, are attached.

The sampler and rings were cleaned prior to each assembly. The equipment was washed with a tri-sodium phosphate solution, rinsed with tap water, and allowed to air dry. The auger flights were steam cleaned prior to their arrival at the site.

The monitoring wells were constructed of 2-inch ID, schedule 40, PVC threaded blank and slotted pipe. Each monitoring well extends to a depth of 20 feet with 0.020 inch slotted pipe from 20 to 5 foot depth with a slip-on cap at the base, and blank pipe from a depth of 5 feet to the surface.

The annulus between the borehole and the well pipe was filled with Lone Star No. 3 sand from 20 to 4 foot depth. One foot of bentonite pellets was added and the remainder of the annulus filled with concrete mixed with approximately 5 per cent bentonite powder to the ground surface.

At the surface, the blank pipe was capped with a slip-on cap and the entire ground-water monitoring well is protected and enclosed by a locking cast-iron box and cover, which is cemented in place.

After well completion, the wells were purged of at least four well volumes and sampled with a PVC bailer. Ground water samples were placed immediately into 40 ml. volatile organic bottles, labeled, placed in coolers, and transported under chain of custody to the laboratory.

Analytical Methods

Soil samples were analyzed for oil and grease or Total Petroleum Hydrocarbons (TPH), using EPA Methods 503E and 8015 respectively. Ground-water samples were analyzed for oil and grease and Benzene, Toluene, Ethyl Benzene, and Xylene, using EPA Methods 503E and 8020 respectively. All samples were analyzed by Superior Analytical Laboratories of San Francisco, DOHS Certification No. 220.

Findings

Monitoring wells MW-1 and MW-2 were placed as close as possible and downgradient from former underground tank sites 1 and 2 respectively. Figure 2-Site Detail, shows well locations. Monitoring well MW-3 was located in as much of an upgradient position as possible on site.

Native earth materials at this site were silty and sandy brown clays. Discontinuous interbedded sands were found in only one of the three monitoring wells (MW-3). Borehole logs, describing the lithology at each site, are enclosed.

One soil sample was taken at a depth of 5 to 7 feet in each borehole in order to sample the soil zone above the ground-water table.

Ground water was measured at 7.5 feet in MW-1 and 11.1 feet and 11.7 feet in MW-2 and MW-3 respectively, immediately after drilling on January 21, 1989. The wells were surveyed and water levels re-measured on February 6, 1989. At this later date, the water level in MW-1 had dropped to a depth of 9.0 feet, MW-2 and MW-3 water levels rose 0.07 feet and 0.67 feet respectively. Water level information is tabulated on Table 1 - Ground-Water Levels.

Analytical Findings

Laboratory analyses are tabulated on Table 2 - Analytical Results - Soil and Water. Soil samples from MW-1 were analyzed for oil and grease and Total Petroleum Hydrocarbons (TPH) and were shown to be non-detectable. Soil samples from MW-2 and MW-3 were analyzed for oil and grease and were shown to have non-detectable and 35 ppm concentrations respectively.

Ground-water samples were analyzed for TPH and BTEX. MW-1 had non-detectable concentrations of TPH and the following concentrations of BTEX: Benzene - 53 ppb, Toluene - 13 ppb, Ethyl Benzene - 1.4 ppb, and Xylenes - 8.2 ppb. Ground-water samples of MW-2 were non-detectable for both TPH and BTEX constituents. Ground-water samples from MW-3, the upgradient well, had TPH concentrations at 32 ppm in the gasoline range and BTEX at the following concentrations: Benzene 9,600 ppb, Toluene 8,200 ppb, Ethyl Benzene 1,800 ppb, and Xylenes at 6,200 ppb.

Conclusions and Recommendations

The following conclusions are made from the findings of this subsurface investigation:

- Soil from the boreholes downgradient from the two former tank sites (MW-1 and MW-2) have non-detectable concentrations of petroleum constituents. Soil from the upgradient borehole (MW-3) had a detectable level of oil and grease at a concentration of 35 ppm.

- Ground water in the background monitoring well (MW-3) showed high concentrations of BTEX and TPH at a concentration of 32 ppm in the gasoline range. MW-1 had detectable levels of BTEX and non-detectable TPH MW-2 had non-detectable levels of both TPH and BTEX in the ground water.

- Hunter/Gregg interprets these findings as a suspect plume of petroleum constituents in the ground water from an off-site source. Soil at the tank sites had non-detectable to very low concentrations. The upgradient well has the highest petroleum constituent concentrations in ground water of all three wells.

- Regional ground water gradient is to the south-southeast, along a topographic low towards Lake Merritt. Although MW-1 had a high initial water level, it has decreased with time. The tight clays at the MW-1 location have created a slightly perched zone or have caused the water levels to be very slow in stabilizing. We recommend that water levels be confirmed after a 2-week period (mid to late February).

Please contact us with any further questions or comments at (415) 372-3637.

Very truly yours,

Susan S. Wickham

Susan S. Wickham, RG 3851
Project Hydrogeologist

SSW/vmf

cc: Mike Yang - Verelco
Terry Hamilton - Semco

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LOG OF BORING NO. MW-1

PAGE 1 of 1

PROJECT NO: 02-258-003
DATE: 1/20/89
CLIENT: Semco/Broadway VW
REF. ELEV.
SITE LOCATION: Broadway & 27th St., Oakland, Ca.
METHOD: Hollow-Stem Auger
BORING LOCATION:
HOLE DIA: 8.25"
DRILLER: ASE
LOGGED BY: J. BRYSON
SUPERVISOR: S. WICKHAM R.G. #3851 Susan Wickham

DEPTH (FT)	GRAPHIC LOG	BLOW/FT	VAPOR (PPM)	SAMPLE TYPE AND DEPTH	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	WELL CONSTRUCTION
0						4" Concrete at surface	
2					CL	CLAY, silty, brown, slightly moist, no odor	
4							
6		14		Ring @ 7'	CL	As above, sandy	
8							
10						Odor detected at approx. 10'	
12					CL	As above	
14							
16							
18					CL	As above	
20						Total depth 20'	
22						Groundwater measured at 7.5 feet	
24						0.02" slotted 2" PVC 20-5', blank 2"PVC 5-0'/#3 sand 20-4', 0.5 bentonite 4-3', concrete (5% bentonite) 3-0.5', Allen key well box	

SUPERIOR ANALYTICAL LABORATORY, INC.
1385 FAIRFAX ST., STE D • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 50572
CLIENT: Hunter/Gregg
CLIENT ID: Broadway VW

DATE RECEIVED: 1/23/89
DATE REPORTED: 1/31/89
JOB NO.: N/A

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 8015

Sample Identification	Concentration (mg/kg, mg/L) Gasoline Range	Diesel Range
MW-1 - 7'	ND < 10	ND < 10
MW-1-W	ND < 1	ND < 1
MW-2-W	ND < 1	ND < 1
MW-3-W	32.	ND < 1

mg/kg, mg/L = part per million (ppm)
Minimum Detection Limit for Gasoline and Diesel:10 mg/kg, 1 mg/L.
QA/QC Summary:
Daily standards run at 200 mg/L; RPD Gasoline=<1, Diesel=4.
MS/MSD: Average Gasoline Recovery =89%; Duplicate RPD =20.

Les Partridge, Ph.D.
Laboratory Manager

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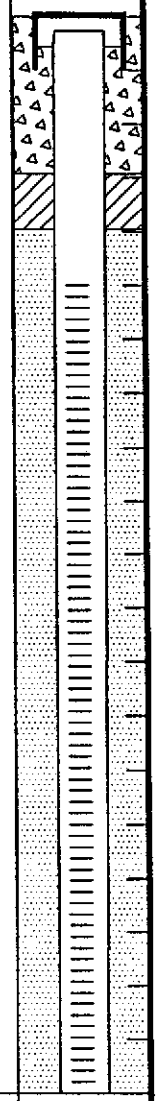
LOG OF BORING NO. MW-2 PAGE 1 of 1

PROJECT NO: 02-258-003 DATE: 1/19/89
CLIENT: Semco/Broadway VW REF. ELEV.
SITE LOCATION: Broadway & 27th St., Oakland, Ca. METHOD: Hollow-Stem Auger
BORING LOCATION: HOLE DIA: 8.25"
DRILLER: ASE
LOGGED BY: J. BRYSON
SUPERVISOR: S. WICKHAM R.G. #3851 Susan Wickham

DEPTH (FT)	GRAPHIC LOG	BLOW/FT	VAPOR (PPM)	SAMPLE TYPE AND DEPTH	UNIFIED SOIL CLASSIFICATION	DESCRIPTION
0						4" Concrete at surface
2					CL	CLAY, dark brown, silty, soft, slightly moist, no odor
4		12		Ring @ 5'	CL	As above, with some medium sand
6						
8						
10					CL	As above, light greenish-brown
12						
14					CL	As above, light brown
16						
18						
20					CL	As above
22						Total depth 20'
						Groundwater measured at 11.1 feet
24						0.02" slotted 2" PVC 20-5', blank 2"PVC 5-0'/#3 sand 20-4', 0.5 bentonite 4-3', concrete (5% bentonite) 3-0.5', Allen key well box

WELL CONSTRUCTION



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LOG OF BORING NO. MW-3 PAGE 1 of 1

PROJECT NO: 02-258-003 DATE: 1/19/89
CLIENT: Semco/Broadway VW REF. ELEV.
SITE LOCATION: Broadway & 27th St., Oakland, Ca. METHOD: Hollow-Stem Auger
BORING LOCATION: HOLE DIA: 8.25"
DRILLER: ASE
LOGGED BY: J. BRYSON
SUPERVISOR: S. WICKHAM R.G. #3851 Susan Wickham

DEPTH (FT)	GRAPHIC LOG	BLOW/FT	VAPOR (PPM)	SAMPLE TYPE AND DEPTH	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	WELL CONSTRUCTION
0						4" Concrete at surface	
					CL	CLAY, light brown, firm, slightly moist, no odor	
2							
4					SP	SAND, light brown, medium dense, slightly moist, no odor	
6		23		Ring @ 7'	SP	As above, some gravel	
8							
10							
12							
14					CL	CLAY, silty, light brown, firm, moist, no odor	
16							
18					CL	CLAY, sandy, light brown, firm, wet, no odor	
20						Total depth 20'	
						Groundwater measured at 11.7 feet	
22						0.02" slotted 2" PVC 20-5', blank 2"PVC 5-0'/#3 sand 20-4', 0.5 bentonite 4-3', concrete (5% bentonite) 3-0.5', Allen key well box	
24							

TABLE 1 - GROUND WATER LEVELS/BROADWAY VOLKSWAGEN

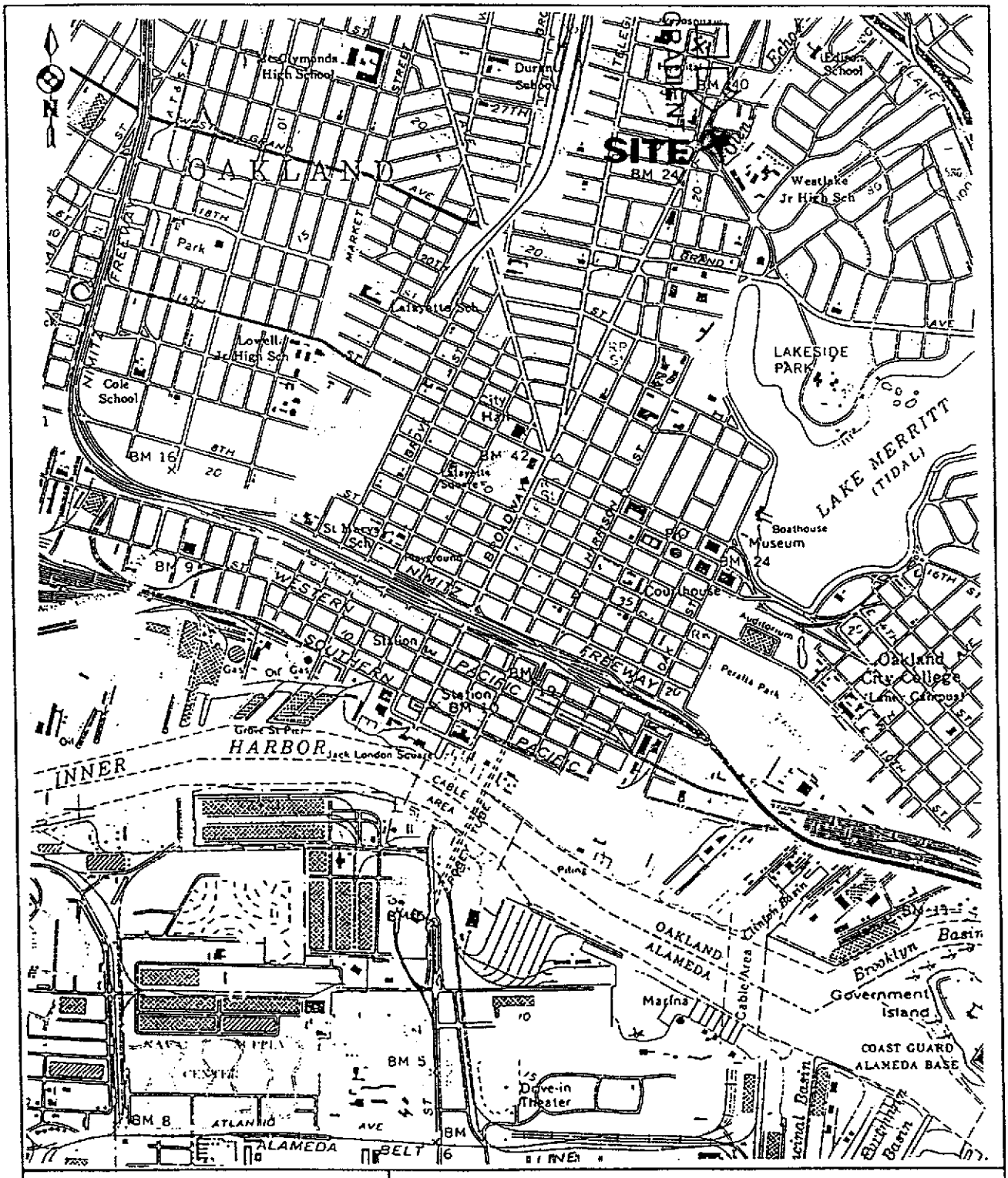
Well No.	Date Surveyed	Relative Elev. of Well Reference Point* (Feet)	Relative Ground Water Elevation (Feet)	Depth of Water Below Ground Surface (Feet)
MW-1	1/21/89	97.9	90.4	7.5
MW-1	2/06/89	97.9	88.9	19.0
MW-2	1/21/89	97.2	86.1	11.1
MW-2	2/06/89	97.2	86.2	11.0
MW-3	1/21/89	98.7	87.0	11.7
MW-3	2/06/89	98.7	87.7	11.0

*Reference point is notched at top of riser

TABLE 2 - ANALYTICAL RESULTS - SOIL AND WATER
BROADWAY VOLKSWAGEN, 1/21/89

Borehole #	Oil & Grease ppm (Method 503E)	TPH ppm (Method 8015)	BTEX (Method 8020)			
			Benzene ppb	Toluene ppb	Ethyl Benzene ppb	Xylenes ppb
Soil						
MW - 1 @ 7'	ND < 20	ND < 10	-	-	-	-
MW - 2 @ 5'	ND < 20	-	-	-	-	-
MW - 3 @ 7'	35.	-	-	-	-	-
Water						
MW - 1 - W	-	ND < 1	53.	13.	1.4	8.2
MW - 2 - W	-	ND < 1	ND < 0.3	ND < 0.3	ND < 0.3	ND < 0.3
MW - 3 - W	-	32.(gasoline)	9600.	8200.	1800.	6200.

Note: ND = Non-detectable at detection limit listed
TPH = Total Petroleum Hydrocarbons
ppm = Parts per million or milligrams per kilogram (mg/kg)
ppb = Parts per billion or micrograms per kilogram (ug/kg)



A HUNTER ENVIRONMENTAL SERVICES, INC. COMPANY

GREGG & ASSOCIATES, INC.
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FIGURE 1
SITE LOCATION MAP
11 / 88 02 - 258 - 003 SEMCO

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CERTIFICATE OF ANALYSIS

LABORATORY NO.: 50572
CLIENT: Hunter/Gregg
JOB NO.: Broadway VW

DATE SAMPLED: 1/20/89
DATE ANALYZED: 1/30/89
DATE REPORTED: 1/31/89

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

	Concentration (ug/L)			
Sample Identification	Benzene	Toluene	Ethyl Benzene	Xylenes
MW-1-W	53.	13.	1.4	8.2
MW-2-W	ND<0.3	ND<0.3	ND<0.3	ND<0.3
MW-3-W	9600.	8200.	1800.	6200.

ug/L = part per billion (ppb)

QA/QC Summary: Matrix Spike, Matrix Spike Duplicate:
Average Recovery: 104%, RPD: <11

Les Partridge, Ph.D.
Laboratory Manager

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CERTIFICATE OF ANALYSIS

LABORATORY NO.: 50572
CLIENT: Hunter/Gregg
CLIENT ID: Broadway VW

DATE RECEIVED: 1/23/89
DATE REPORTED: 1/31/89
JOB NO.: N/A

ANALYSIS FOR OIL & GREASE
by STANDARD METHODS Method 503 E

Sample Identification	Concentration (mg/kg)
MW-1 - 7'	ND < 20
MW-2 - 5'	ND < 20
MW-3 - 7'	35.

mg/kg = part per million (ppm)

QA/QC Summary: Duplicate RPD: 6

Les Partridge, Ph.D.
Laboratory Manager

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A Hunter Company
597 Center Avenue, Suite 350, Martinez, CA 94553 / (415) 372-3637

CHAIN OF CUSTODY RECORD

DATE 1/23/89 PAGE 1 OF 1

NAME Hunter/Gregg, Inc.
ADDRESS 597 Center Ave.
Suite 350
Martinez, CA. 94553
PROJECT SEMCO/Broadway VW

SAMPLER'S NAME (print) James P. Bryson
(signature) James P. Bryson

sample #	date	time	location	PARAMETERS 1 EPA METHOD 8020	2 EPA METHOD 503 E	3 EPA METHOD 8015	4	5	6	7	8	9	10	OTHER 0	0	0	0	0	0	TOTALS	OBSERVATION/COMMENTS
MW-1-7'	1/20/89	8:30			X	X														1	SOIL
MW-2-5'	1/19/89	10:30			X															1	↓
MW-3-7'	1/19/89	2:15			X															1	
MW-1-W	1/20/89	1:45		X	X															2	WATER
MW-2-W	↓	1:30		X	X															2	↓
MW-3-W	↓	11:45		X	X															2	

PARAMETER KEY:
1-CAM METALS (18)
2-PR. POLLUTANT METALS (13
3-GENERAL MINERALS
4-OIL & GREASE
5-PETROLEUM HYDROCARBONS
6-BASE/NEU/ACIDS (ORGANICS
7-PESTICIDES
8-VOLATILE ORGANICS (601/602)
9-VOLATILE ORGANICS (624)
10-TOC 0-

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
1. James P. Bryson	1.	1/23	
2. Hunter/Express I	2. L Partridge Supvr	1/23	13:00
3.	3.		
4.	4.		
DISPATCHED BY:(signature) / date / time	RECEIVED FOR LAB BY:(sig)	date	time

TOTAL NUMBER OF CONTAINERS THIS SHEET: 9

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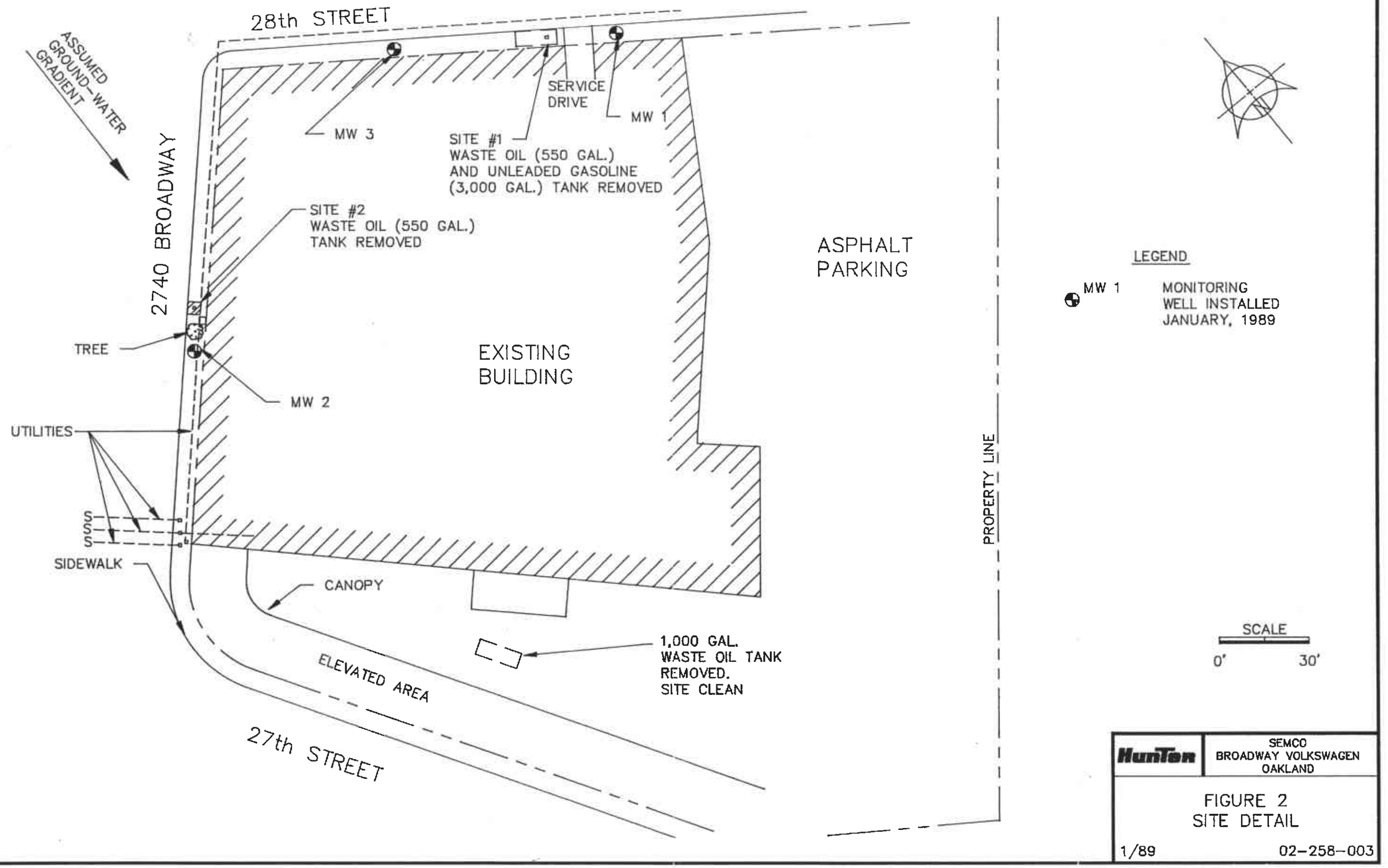

HunTon

SEMCO
BROADWAY VOLKSWAGEN
OAKLAND

FIGURE 2
SITE DETAIL

1/89 02-258-003