SITE HEALTH AND SAFETY PLAN

A. GENERAL INFORMATION

Site Name: E.C. Buehrer, Inc.

Aegis Project Number: 90-007

Street Address: 1061 Eastshore Highway
Albany, CA

Plan Prepared by: Gail Small Date: 7/15/91

Approved by: Larry Braybrooks Date: 7/20/91

Revised by: Date:

Revision Approved by: Date:

Objectives:

Phase I -

Phase II -

Phase III - Remediation of soil contamionation by excavation

Proposed Date of Investigation: August 19, 1991

B. SITE/WASTE CHARACTERISTICS

Waste/Contaminant Type(s):___Liquid XX Soil___Solid___Sludge Gas

Characteristic(s):___ Corrosive_____Ignitable_____Radioactive
XX Volatile _____Toxic _____Reactive
____ Unknown _____Other (Name):

Contaminant Source (type and location):

Various - USTs containing waste oil and unleaded gasoline, off-site sources of diesel and oil are suspect.

Surrounding Features (residences, power lines, terrain, surface water bodies, etc.):

Industrial area; a storm sewer system runs north-south along the length of the site east of the main building; a natural gas line runs north-south along the east edge of the property boundary;a city sanitary sewer main runs north-south the length of the site immediately east of the storm sewer system.

Status (active,inactive,unknown): active

History (worker or non-worker injury; complaints from public; previous agency action):

On February 18, 1988, a 300-gallon steel, single wall, underground waste-oil tank and a 1000-gallon steel, single wall, underground gasoline storage tank were excavated and removed from the site. The tanks were removed by Willis Brothers Excavating, Pacheco, California. Reportedly, in December 1987, the 300-gallon waste-oil tank failed a precision tank test. The failed test, in part, prompted the decision to remove the waste-oil tank. According to file documents, the 1000-gallon gasoline storage tank had not been in use for the previous 2 to 3 years so the site operators decided to remove it along with the waste-oil tank. A 1000-gallon single wall underground gasoline tank is still in use at the site (Figure 2).

C. HAZARD EVALUATION

Have all contaminants been identified that may be present on site?
Yes XX No_____

List all chemicals below that have been identified or are suspected on site and their maximum concentrations in soil/water. Information on hazardous properties are listed in the appendix. For chemicals not shown in the appendix, enter the hazardous property information in the spaces provided.

Chemical Name	Maximum Concentration: ppm In Soil	In Water
Benzene	0.012	0.0075
Toluene	0.120	0.0018
Ethylbenzene	0.0052	0.0006
Xylenes	0.018	0.001
Chromium	69.0	NA
Lead	38.0	NA
Zinc	520	NA
TPH (diesel)	900.0	0.480
TPH (gasoline)	130.0	150.0
TPH (motor oil)	280.0	700.0
TPH (mineral spirits)	<10.0	0.150
TOTAL OIL & GREASE	2,400	<5.0
NON-POLAR OIL & GREASE	730	<5.0
1,1 Dichloroethane	0.0056	0.00049
Tetrachloroethene	0.0046	ND
Trichloroethene	0.004	ND
Chloroethane	ND	0.0009
Aroclor 1254 (PCB)	300	NA
Aroclor 1260 (PCB)	0.066	NA

(ppm) = parts per million
NA = Not Analyzed

Free product present? _____ Yes XX No

Type of product present: _____ Leaded XX Unleaded XX Diesel

D. SITE SAFETY WORK PLAN

PERSONNEL

Team Member	Title	Responsibility
Larry Braybrooks	Project Geologist	Site Coordinator
Larry Braybrooks	Project Geologist	Site Safety Officer

SITE PERIMETER ESTABLISHED

Map/Sketch Attached?	Yes XX	No___
Site Secured?	Yes XX	No___
Perimeter Identified?	Yes XX	No___
Contamination zones identified? line defined?	Yes___	No XX
Free Product?	Yes___	No XX
Dissolved Product?	Yes XX	No___

INVESTIGATION-DERIVED MATERIAL DISPOSAL:

Soil and water from investigative activities will be stockpiled and stored on site until analyses are available to document the concentrations of contaminants. Soil stockpiled on site will be contained within plastic sheeting. Material removed from the site will be disposed of in accordance with existing regulation and guidelines.

D1. PERSONAL SAFETY

SITE ENTRY PROCEDURES:

PERSONNEL PROTECTION:

Level of protection: A_____ B_____ C_____ D_XX__

Modifications:

1. All personnel must wear hard hat, safety shoes, safety glasses and/or face shield.
2. Neoprene gloves and tyvek/saranax suit should be worn if contact with contaminated water or soil is likely.
3. Hearing protection must be worn if noise levels prevent normal conversation at a distance of three feet. No smoking, eating, or drinking is allowed on site.
4. Respiratory protection is dependent on conditions listed in next section.
5. No personnel are to enter or approach any excavation area where there is a danger of wall collapse or confined space entry.

Surveillance Equipment and Materials:

Instrumentation	Action Level	Action
photoionization detector (hNu)	5 units or 5 times background (breathing zone)	use halfmask respirator with organic cartridges
	1000 ppm	eliminate all ignition sources, leave site until levels are reduced
oxygen meter	<19. 5% oxygen	do not enter area or confined space until levels are reduced.
explosimeter	>10% LEL	eliminate all ignition sources
	>20% LEL	reduce levels immediatly or leave site.

First Aid Equipment: Standard first aid kit, portable eye wash.

First Aid Procedures:
Ingestion: DO NOT induce vomiting, summon medical help.
Inhalation: Move victim to fresh air, seek medical attention if needed.
Dermal Exposure: Remove contaminated clothing, flush with water.

DECONTAMINATION PROCEDURE:
Personnel: Flush exposed skin with soap and water.

WORK LIMITATIONS:(time of day, weather, heat/cold stress):
In high ambient temperatures, follow heat-stress precautions: Provide plenty of cool water and electrolytes (e.g., Gatorade), remove protective clothing during breaks; check resting pulse and increase number of breaks if pulse does not return to normal during work break.

In cold ambient temperatures (<0°F.), follow hypothermia precautions. Work may only progress during daylight hours or under conditions of adequate lighting.

ELECTRICAL HAZARDS:

Will be located by U.S.A. before drilling.

Maintain at least 10 feet clearance from overhead power lines. If unavoidably close to overhead or buried power lines, turn power off and lockout circuit breaker. Avoid standing in water when operating electrical equipment.

CONFINED SPACES:

Monitor organic vapors and oxygen before entering. If the following values are exceeded, do not enter.

1. Oxygen < 20.0%.

2. Total hydrocarbons > 5 ppm above background, if all air contaminants have not been identified.

3. Concentrations of specific air contaminants exceeding action levels in Section D, if all air contaminants have been identified.

If entering a confined space, monitor oxygen and organic vapors continuously.

AGENCIES CONTACTED IN UNDERGROUND UTILITY SEARCH:

Underground Service Alert

E. EMERGENCY INFORMATION

LOCAL TELEPHONE NUMBERS (provide area codes):

Ambulance	911
Hospital Emergency Room	(415) 540-1303 Alta Bates Hospital - 3001 Colby St. Berkeley, CA.
Poison Control Center	1-800-523-2222
Fire Department	911 or 644-6161
Airport	(415) 577-4000 Oakland International
Explosives Unit	911

SITE RESOURCES:

Water supply available on site:	Yes XX	No ____
Telephone available on site:	Yes XX	No ____
Bathrooms available on site:	Yes XX	No ____
Other resources available on site:	Yes____	No XX

If yes, identify:

If you answered "no" to any of the above questions, identify the closest available facility, and provide directions.

EMERGENCY CONTACTS	PHONE NO.
1. Project Manager: Larry Braybrooks	(916) 782-2110
2. Health and Safety Officer: Douglas Sheeks	(916) 782-2110
4. Site Contact: Clayton Johnson or Neil Hamre	(415) 527-1161
5. Regulatory Contact: Alameda County	(415) 271-4320

F. EMERGENCY ROUTES

(Give name address, telephone number, directions, distance and time estimate, and map.)

HOSPITAL: Alta Bates

From Eastshore highway, go left (east) on Gilman, take Gilman to San Pablo (8 blocks). Turn right on San Pablo (south), follow to Ashby. Turn left on Ashby (east) and follow to Colby St. Colby St. is between Telegraph Ave. and College Ave. Hospital is at 3001 Colby St. Distance is approximately 5.5 miles. Travel time is approximately 10 minutes.

G. HAZARD EVALUATION

PARAMETER	TLV (ppm)	OT (ppm)	IDLH (ppm)	VOLATILITY	SKIN HAZARD	EXPLOSIVITY
Benzene	0.1	4	2,000	H	L	H
Ethylbenzene	100	NS	2,000	M	L	H
Toluene	100	2	2,000	M	L	H
Xylene	100	<1	10,000	H	M	H
Gasoline	300	NS	NS	H	L	H

KEY:

TLV = Threshold Limit Value (Worker - 8 Hours)
OT = Odor Threshold
DLH = Immediately Dangerous to Life and Health
NS = None Specified
NR = Not Reported
H = High
M = Medium
L = Low
U = Unknown

APPENDIX A: HAZARDOUS PROPERTY INFORMATION
Explanations and footnotes

Water solubility is expressed in different terms in different references. Many references use the term "insoluble" for materials that will not readily mix with water, such as gasoline. However, most of these materials are water soluble at the part per millon or part per billion level. Gasoline for example, is insoluble in the gross sense, and will be found as a discreet layer on top of the ground water. But certain gasoline constituents, such as benzene, toluene, and xylene will also be found in solution in the ground water at the part per millon or part per billion level.

A. Water solubility expressed as 0.2g means 0.2 grams per 100 grams water at 20°C.

B. Solubility of metals depends on the compound in which they are present.

C. Several chlorinated hydrocarbons exhibit no flash point in conventional sense, but will burn in presence of high energy ignition source or will form explosive mixtures at temperatures above 200°F.

D. Practically non-flammable under standard conditions.

E. Expressed as mm Hg under standard conditions

F. Explosive concentrations of airborne dust can occur in confined areas.

G. Values for Threshold Limit Value - Time Weighted Average (TLV-TWA) are OSHA Permissible Exposure Limits (PEL) except where noted in H. and I.

H. TLV - TWA adopted by the American Conference of Government Industrial Hygienists (ACGIH) which is lower than the OSHA PEL.

I. TLV - TWA recommended by the National Institute for Occupational Safety and Health (NIOSH). A TLV or PEL has not been adopted by the ACGIH or OSHA.

J. A. - Corrosive
   B. - Flammable
   C. - Toxic
   D. - Volatile
   E. - Reactive
   F. - Radioactive
   G. - Carcinogen
   H. - Infectious

K. Dermal Toxicity data is summarized in the following three categories:

Skin penetration

A - negligible penetration (solid-polar)
B - slight penetration (solid-nonpolar)
C - moderate penetration(liquid-nonpolar)
D - high penetration (gas/liquid-nonpolar)

Systemic Potency

E - slight hazard - LD_{50} = 500-15,000 mg/kg
lethal dose for 70 kg man = 1 pint-1 quart
F - moderate hazard - LD_{50} = 50-500 mg/kg
lethal dose for 70 kg man = 1 ounce-1 pint
G - extreme hazard - LD_{50} = 10-50 mg/kg
lethal dose for 70 kg man = drops to 20 ml

Local Potency

H - slight - reddening of skin
I - moderate - irritation/inflammation of skin
J - extreme - tissue destruction/necrosis

1. Acute Exposure Symptoms

A - abdominal pain
B - central nervous system depression
C - comatose
D - convulsions
E - confusion
F - dizziness
G - diarrhea
H - drowsiness
I - eye irritation
J - fever
K - headache
L - nausea
M - respiratory system irritation
N - skin irritation
O - tremors
P - unconsciousness
Q - vomiting
R - weakness

HAZARDOUS PROPERTY INFORMATION - FUELS

Material	Water[A] Solubility	Specific Gravity	Vapor Density	Flash Point °F	Vapor[E] Pressure	LEL UEL	LD_{50} mg/kg	TLV-TWA[C]	IDLH Level	Odor Threshold or Warning Concentration	Hazard[D] Property	Dermal[K] Toxicity	Accute[L] Exposure Symptoms
Diesel Fuel	insoluble	0.81-0.90	---	130	---	0.6-1.3 6.0-7.5		none established	NE	0.008 ppm	BCD	CI	BCEFHIKL MNP
Gasoline	insoluble	0.72-0.76	3-4	-45	variable	1.4% 7.6%		300 ppm	NE	< 1 ppm	BCDG	CI	BCEFHIKL MNP
Kerosene	insoluble	0.83-1.0	---	100-165	5	0.7% 5.0%		none established	NE	0.008 ppm	BCD	CI	BCEFHIKL MNP

HAZARDOUS PROPERTY INFORMATION - VOLATILE ORGANIC PRIORITY POLLUTANTS

Material	Water[A] Solubility	Specific Gravity	Vapor Density	Flash Point °F	Vapor[C] Pressure	LEL UEL	LD_{50} mg/kg	TLV-TWA[C]	IDLH Level	Odor Threshold or Warning Concentration	Hazard[D] Property	Dermal[E] Toxicity	Accute[L] Exposure Symptoms
Acrolein	22%	0.8410	1.9	-15	214 mm	2.8% 31.0%	46	0.1 ppm	5 ppm	0.1-16.6 (0.21-0.5)	BCED	BJ	ABDFGHIK LMNOPQR
Acrylonitrile	7.1%	0.8060	1.8	30	83 mm	3.0% 17.0%	82	2.0 ppm	4,000 ppm	19-100	BCEGD	DIG	FGIKLMNQ R
Benzene	820 ppm	0.8765	2.8	12	75 mm	0.339% 7.1%	3800	10.0 ppm	2,000 ppm	4.68	BCGD	CIG	BCDFHIKL MNOQR
Bromomethane	0.1 g	1.732	3.3	none	1.88 atm	13.5% 14.5%		5.0 ppm	2,000 ppm	no odor	CD		BCDEIJKL MNOQR
Bromodichloromethane	insoluble	1.980	--	none	n/a	non-flam.	916	none established	none specified		CGD		BIMN
Bromoform	0.01 g	2.887	--	none	5 mm	non-flam.	1147	0.5 ppm	n/a	530	CED		BCDKMN
Carbon Tetrachloride	0.08%	1.5967	5.3	none	91 mm	non-flam.	2800	5.0 ppm	300 ppm	21.4-200	CD	JGH	ABCFGHKN Q
Chlorobenzene	0.01 g	1.1058	3.9	84	8.8 mm	1.3% 9.6%	2910	75.0 ppm	2,400 ppm	0.21-60	BCD	CIF	BCFIKLMN OPQR
Chloroethane	0.6 g	0.8978	2.2	-58	1.36 atm	3.8% 15.4%		1000.0 ppm	20,000 ppm		BCD		BFHIKMNP
2-Chloroethylvinyl Ether	insoluble	1.0475	3.7	80	30 mm	--	250	none established	none specified		BCD		HIM
Chloroform	0.8 g	1.4832	4.12	none	160 mm	non-flam.	800	10.0 ppm	1,000 ppm	50-307 fatigue (>4096)	CD		BCEGIKLM N
Chloromethane	0.74%	0.9159	1.8	32	50 atm	7.6% 19.0%		50.0 ppm	10,000 ppm	10-100 no odor (500-1000)	BCD	DHF	ABCDEFGI JKLOQR
Dibromochloromethane	insoluble	2.451	--	--	--	--	848	none established	none specified		BCD		BFHIMNPQ

HAZARDOUS PROPERTY INFORMATION - VOLATILE ORGANIC PRIORITY POLLUTANTS (CONTINUED)

Material	Water[A] Solubility	Specific Gravity	Vapor Density	Flash Point °F	Vapor[E] Pressure	LEL UEL	LD_{50} mg/kg	TLV-TWA[C]	IDLH Level	Odor Threshold or Warning Concentration	Hazard[J] Property	Dermal[K] Toxicity	Accute[L] Exposure Symptoms
1,1-Dichloroethane (DCA)	0.1 g	1.1757	8.4	22	182 mm	6.0% 16.0%	725	100.0 ppm	4,000 ppm	5 ppm	BCD		ABHIMNO
1,2-Dichloroethane	0.8%	1.2554	3.4	55	87 mm	6.2% 16.0%	670	10.0 ppm[H]	1,000 ppm	6 ppm	BCDG		BCFGLMNQ
1,1-Dichloroethylene (DCE)	2250 mg/l @ 77°F	--	3.4	3	591 mm	7.3% 16.0%	200	5.0 ppm[H]	none specified		BCD		BIMN
Trans-1,2-Dichloroethylene	slightly soluble	1.2565	--	36	400 mm	9.7% 12.8%		none established	none specified	.0043 mg/l	BCD		ABFILOQ
1,2 Dichloropropane	0.26%	1.1583	3.9	60	40 mm	3.4% 14.5%	1900	75.0 ppm	2,000 ppm	50	BCD		ABGHIKMN Q
Cis-1,3-Dichloropropane	insoluble	1.2	3.8	83	28 mm	5.0% 14.5%	250	1.0 ppm[H]	none specified		BCD		ABGHIKLM NP
Trans-1,3-Dichloropropane	insoluble	1.2	3.8	83	28 mm	5.0% 14.5%		1.0 ppm[H]	none specified		BCD		ABGHIKLM NP
Ethylbenzene	0.015 g	0.867	3.7	59	7.1 mm	1.0% 6.7%	3500	100.0 ppm	2,000 ppm	0.25-200 (200)	BCD	CIF	ABFHIKLM NPQR
Methylene Chloride	slightly soluble	1.335	2.9	none	350 mm	12.0%[C] unavailable	167	100.0 ppm[H]	5,000 ppm	25-320 (5000)	CED	CIF	BCIKLMNP R
1,1,2,2-Tetrachloroethane	0.19%	1.5953	5.8	none	5 mm	non-flam.		1.0 ppm[H]	150 ppm	3-5	CD		ABCFHIKL MNOQ
Tetrachloroethylene	0.15 g/ml	1.6227	5.8	none	15.8 mm	non-flam.	8850	50.0 ppm[H]	500 ppm	4.68-50 (160-690)	CD		ACFHIKLM NP
1,1,1-Trichloroethane (TCA)	0.07 g	1.3390	4.6	none	100 mm	8.0%[C] 10.5%	10300	350.0 ppm	1,000 ppm	20-400 (500-1000)	BCED		ABEFHIKL NOP
1,1,2-Trichloroethane	0.45	1.4397	4.6	none	19 mm	6.0%[C] 15.5%	1140	10.0 ppm	500 ppm	0	C		BEFGHIKL MNOPQ

HAZARDOUS PROPERTY INFORMATION - VOLATILE ORGANIC PRIORITY POLLUTANTS (CONTINUED)

Material	Water[A] Solubility	Specific Gravity	Vapor Density	Flash Point °F	Vapor[C] Pressure	LEL UEL	LD_{50} mg/kg	TLV-TWA[G]	IDLH Level	Odor Threshold or Warning Concentration	Hazard[J] Property	Dermal[K] Toxicity	Accute[L] Exposure Symptoms
Trichloroethylene (TCE)	0.1%	1.4642	4.5	90	58 mm	12.5% 90.0%	4920	50.0 ppm[M]	1,000 ppm	21.4-400	BC		BFKLNOPQ
Trichlorofluoromethane	0.11 g	1.494	--	none	0.91 atm	non-flam.		1000.0 ppm	10,000 ppm	135-209	CD		BFHKLQ
Toluene	0.05 g	0.866	3.2	40	22 mm	1.3% 7.1%	5000	100.0 ppm	2,000 ppm	0.17-40 fatigue (300-400)	BC	BHE	BEFHIKLM NOPQ
Vinyl Chloride	negligible	0.9100	2.24	-108	3.31 atm	3.6% 33.0%	500	1.0 ppm	none specified	260	BCEG	DJG	ABFHIKLN R

HAZARDOUS PROPERTY INFORMATION - HEAVY METALS

Material	Water[A] Solubility	Specific Gravity	Vapor Density	Flash Point °F	Vapor[C] Pressure	LEL UEL	LD_{50} mg/kg	TLV-TWA[E]	IDLH Level	Odor Threshold or Warning Concentration	Hazard[J] Property	Dermal[K] Toxicity	Accute[L] Exposure Symptoms
Arsenic	B	5.727	n/a	none	n/a	F		10.0 ug/m^3	none specified		CEG	CJG	ACDGJLMO QR
Beryllium	B	1.85	n/a	none	n/a	F		2.0 ug/m^3	none specified		C		IJMNR
Cadmium	B	8.642	n/a	none	n/a	F	225	0.5 mg/m^3	40/mg^3		C		ABGIKLMN QR
Chromium	B	7.20	n/a	none	n/a	F F		0.5 mg/m^{3H}	500/mg^3				FMNQ
Copper	B	8.92	n/a	none	n/a	F		0.1 mg/m^3	none specified		C		FGIJLMOQ R
Lead	B	11.3437	n/a	none	n/a	F		50.0 ug/m^3	none specified		C		ACDFGOQR
Mercury	B	13.5939	7.0	none	0.0012 mm	F		50.0 ug/m^{3H}	28 mg/m^3		C		AGLMNQ
Nickel	B	8.9	n/a	none	n/a	F		1.0 mg/m^3	none specified		C		DGJLMNQ
Silver	B	10.5	n/a	none	n/a	F		0.01 mg/m^3	none specified		C		IN
Thallium	B	11.85	n/a	none	n/a	F		0.1 mg/m^3	20 mg/m^3		C	BG	ADGLNOQ
Zinc	B	7.14	n/a	none	n/a	F		none established	none specified		C		DF

HAZARDOUS PROPERTY INFORMATION - MISCELLANEOUS

Material	Water[A] Solubility	Specific Gravity	Vapor Density	Flash Point °F	Vapor[E] Pressure	LEL UEL	LD_{50} mg/kg	TLV-TWA[C]	IDLH Level	Odor Threshold or Warning Concentration	Hazard[J] Property	Dermal[K] Toxicity	Accute[L] Exposure Symptoms
Acetone	soluble	0.8	2.0	-4	400 mm	2.5% 12.8%	9750	750 ppm	10,000 ppm	100	BCD	DI	N
Asbestos	insoluble	2.5	n/a	none	n/a	non-flam.		0.2-2 fibers/cc	none specified		CG		MN
Chromic Acid	soluble	1.67-2.82	n/a	none	n/a	non-flam.		none established	none specified		ACEG		GIN
Cyanides	58-72%		n/a	none	n/a	non-flam.		5 mg/m^3	50 mg/m^3		CE		FKLNPQ
PCB (Generic)	slightly soluble	--	n/a	none	n/a	non-flam.		1.0 ug/m^3	none specified		CG		CHLPQ
Phenol	8.4%	1.0576	3.2	175	0.36 mm	1.8% 8.6%	414	5 ppm	100 ppm	0.047-5 (48)	C		ABCDGIKM NOQ
Xylene	0.00003%	0.8642	3.7	84	9.0 mm	1.1% 7.0%	5000	100 ppm	10,000 ppm	0.5-200 (200)	BCD		ABFHIKLM NPQ

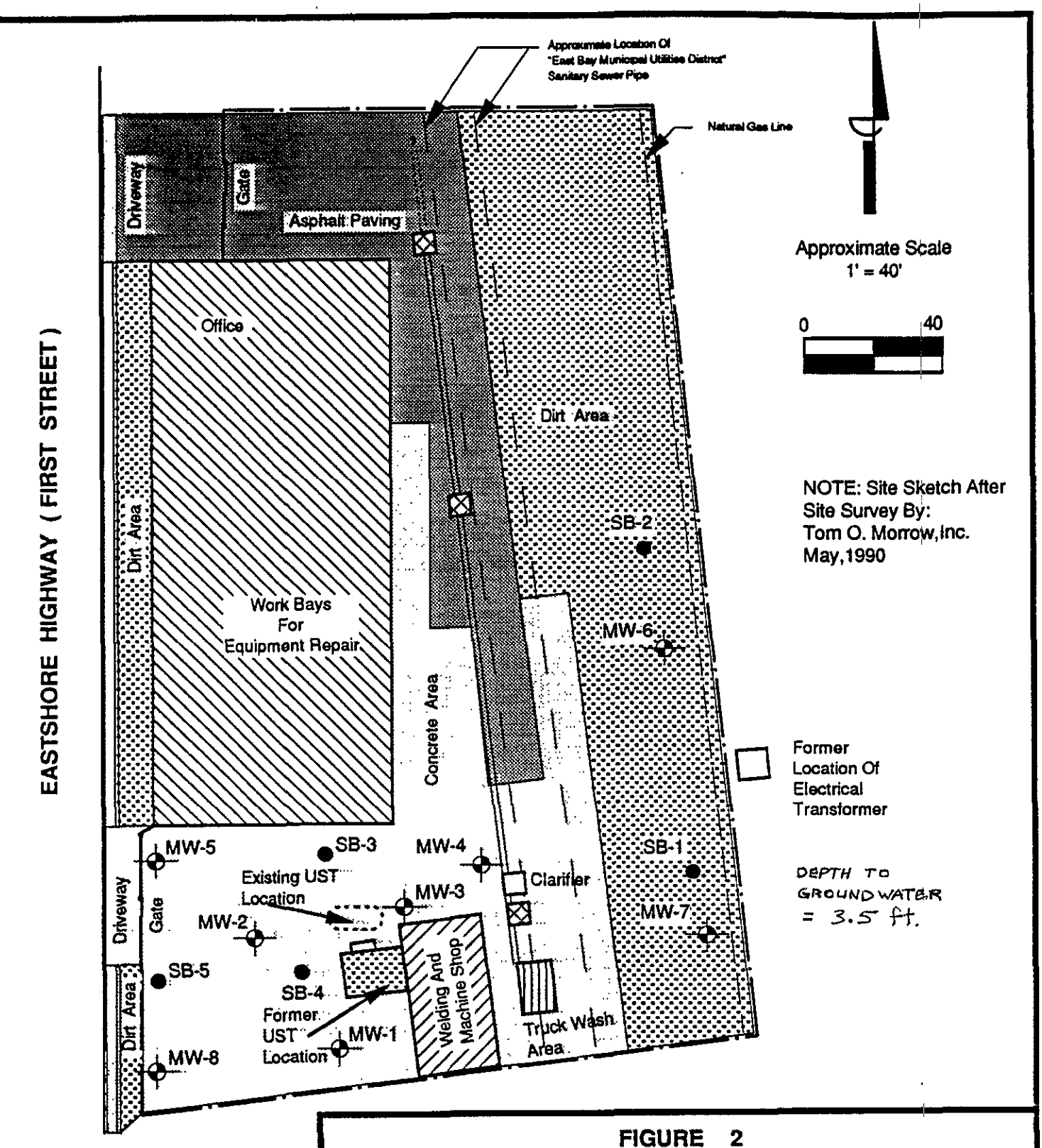

FIGURE 2
SITE MAP
E. C. Buehrer Associates, Inc.
1061 Eastshore Highway
Albany, Ca.

AEGIS Job Number 90 -007

DRAWN BY: Ed Bernard **DATE: April 8,1991**
REVIEWED BY: L Braybrooks **DATE: April 14,1991**