

ENVIRON

March 24, 1999

Via Courier

Ms. Susan Hugo
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6700

**Re: Overview of Human Health Risk Assessment
Proposed Emeryville Village Center
Emeryville, California
(ENVIRON Project No. 03-7277A)**

Dear Ms. Hugo:

Please find the enclosed documents concerning ENVIRON's technical approach and conclusions of the human health risk assessment for the proposed Emeryville Village Center. Included in this package are an outline of the assumptions and methodologies used in this risk assessment, supporting tables and figures, and the results of this evaluation. Also included with these documents are the results from the soil, ground water, and soil gas sampling conducted on February 26, 1999 at the former Standard Brands and Emeryville Fire Station locations. We look forward to meeting with you to discuss this information in more detail at 2:00 P.M. on Monday, March 29, 1999, assuming that Ravi Arulanantham of the San Francisco Regional Water Quality Control Board will be able to attend the meeting as scheduled.

Please do not hesitate to contact us if you have any questions or comments. Thank you for your attention in this matter.

Sincerely,



Sara Dubowsky, M.H.S.
Associate

SDD:sr

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Enclosures

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Technical Overview: Human Health Risk Assessment for the Proposed Emeryville Village Center

Part I – Overview of Technical Approach and Conclusions

1.0 Overview of Risk Assessment:

- Purpose: To Determine Possible Risk to Future Residents at the Proposed Emeryville Village Center from Exposures to Residual Chemicals in Soil and Ground Water
- Previous Risk Assessments: Concluded *De Minimis* Risks to Future Commercial and Construction Worker Populations (Assuming a Risk Management Plan is Prepared and Deed Restrictions Are Recorded)
- Current Risk Assessment:
 - Exposures Evaluated: Inhalation of Volatile Constituents Migrating from the Soil and Ground Water into Indoor Air
 - Calculated Risk-Based Site-Specific Target Levels (SSTLs) for Each Volatile Chemical Detected On-Site
 - Compared Maximum Concentrations Detected to SSTLs to Determine the Need for Risk Management

2.0 Development Plans

- Future Use: 112 Townhouses Constructed Over 2-Car Garages, Communal Landscaped Areas, Four Retail Buildings, and Parking Areas
- Site RMP Will Be Transferred With Deed, Restricting Future Property Uses (i.e., No Single Family Homes With Private Yards)

3.0 Conclusions of Risk Assessment

- Assuming Exposure to the Maximum Detected Concentrations in Soil and Ground Water:
 - Cumulative Cancer Risks Are Under 1×10^{-5}
 - Cumulative Noncancer Hazard Index Are Under 1.0
- No Additional Remediation or Risk Management Measures Are Needed to Proceed with the Planned Development

Part II – Health Risk Evaluation for Residential Use

1.0 Site Description and Background

1.1 Site Location and Layout

- Junction of San Pablo Avenue, Emery Street, Park Avenue, & 45th Street (Emeryville, CA)
- Proposed Layout – 112 Townhouses (No Private Lawn Areas) Constructed Over Private 2-Car Garages, Communal Landscaped Areas, 4 Commercial Buildings, and Parking Areas (*Figures 1A, 1B, 1C, & 1D*)
- Former Occupants - Standard Brands Paints, New Century Beverage Company, Emeryville Fire Station, Mason's Lodge, Ho, Shin, Kentucky Fried Chicken (formerly ARCO) (*Figure 2*)

1.2 Hydrogeologic Conditions

- Ground Water Flow Generally Westerly to Southwesterly
- Depth to Ground Water Historically Between 4 and 18 feet
- Subsurface Soil Typically Silty Sand to Silty Clay

1.3 Past Property Uses (*Table 1*)

1.3.1 Standard Brands

- Retail Paint Store
- Formerly Oliver Rubber and Tire Company (1947 – 1985)
 - Chemical Usage and Oil and Fuel Depot

1.3.2 New Century Beverage Company

- Bottling Plant
- Warehouse with Truck Maintenance Area
- Hazardous Chemical Storage Area

1.3.3 Emeryville Fire Station

- Former Fueling Station and Associated Piping
- Nearby "Sump" (i.e., Storm Drain)

1.3.3.1 Need for Additional Sampling

- Characterize Total Petroleum Hydrocarbons (TPH) and MTBE Downgradient of Former Underground Storage Tank (UST)

- Identify Any Contamination In "Sump" Area

1.3.4 Kentucky Fried Chicken

- Former ARCO Station

2.0 Chemical Selection

- Included All Detected Volatiles in Soil or Ground Water (*Table 2*)
- Examined Maximum Detected Concentrations Across Entire Site
- Only Most Recent Data for Total Petroleum Hydrocarbons (TPH) for Standard Brands (All Data for TPH from Other Locations)

3.0 Potentially Exposed Populations and Pathways (*Figure 3*)

- On-Site Residents: Adult and Child
- Complete Exposure Pathways: Inhalation of Volatiles from Soil and Ground Water
- Incomplete Exposure Pathways: Direct Contact (e.g., Dermal Contact, Ingestion) With Soil and Ground Water
 - Land Use Restrictions Recorded in Deed

4.0 Fate and Transport Modeling

- USEPA (1996) VLEACH Model
- Need for Further Characterization of TPH as Mineral Spirits Due to Uncertainty in Weathering and Mixture Composition

5.0 Toxicity Criteria

- Cal/EPA and USEPA Standard Toxicity Criteria for Most Volatiles
- TPH Criteria Working Group (TPHCWG) Method for Evaluating TPH Toxicity

6.0 Site Specific Target Concentrations (SSTLs)

- Acceptable Cancer Risk = 1×10^{-5}
- Acceptable Noncancer Hazard Index = 1

7.0 Comparison of Soil and Ground Water SSTLs to Maximum Concentrations (*Tables 3 & 4*)

- All Maximum Concentrations are Below SSTLs

Part III – Results of Additional Characterization

1.0 Emeryville Fire Station

1.1 Sampling and Analysis Plan (*Figure 4*)

- Four Soil Samples (5 feet bgs) Around Former “Sump” Area
- Two Ground Water Samples Downgradient of Former UST and “Sump” Area
- Analyzed Samples for TPH as Gasoline, Diesel, and Motor Oil, BTEX, and MTBE

1.2 Analytical Results (*Tables 5 & 6*)

- Only One Low-Level Detect of Diesel in Soil
- Detects of Gasoline, Diesel, Benzene, Ethylbenzene, and Toluene in Ground Water Immediately Downgradient of Former UST
- No Detects in Ground Water Further Downgradient of the UST Nor Downgradient of the “Sump” Area
- All Detects Below SSTLs
- No MTBE Detected in Soil or Ground Water

1.3 Implications

- Source Has Been Removed
- Ground Water Contamination is Limited in Extent and Concentration
- No MTBE at the Site

2.0 Standard Brands – TPH as Mineral Spirits

2.1 Need for Additional Characterization

- Residential Land Use – Additional Conservatism Needed
- Past Assessment Used Naphthalene in Evaluating Risks
- Mineral Spirits Better Represented by Mixture Approach Recommended by TPHCWG
- Characterize the Volatility of Mixture and Influence of Weathering

2.2 Sampling and Analysis Plan (*Figure 4*)

- Collected Samples at 4 feet and 8 feet Depths at Three Locations
- Locations of Highest Soil and Ground Water Levels Targeted

- Analyzed for TPH as Mineral Spirits, n-Hexane, and BTEX

2.3 Analytical Results (*Table 7*)

- All Compounds Detected in Soil Gas
- Highest Levels Under the Building
- Maximum Concentrations Located Under Southern Edge of Building (Area of Maximums in Soil and Ground Water)

2.4 Fate and Transport Modeling

- Conservatively Assumed Free Product Remains on Ground Water Table
- Accounted For Additional Mass in Soil Column Prior to Achieving Steady-State (Assumed Uniform Concentrations at the Maximum Detected Level)
- Predicted Fluxes into Indoor Residential Air and Performed a Box Model to Calculate Indoor Air Concentrations

2.5 Comparison of Soil Gas SSTLs to Maximum Concentrations (*Table 8*)

- Maximum Concentrations Predicted for Indoor Residential Air are Less than the Indoor Air SSTLs

Part IV- Recommendations

1.0 Emeryville Fire Station

- No Further Action Required

2.0 TPH as Mineral Spirits

- No Additional Soil Gas Sampling Due to Conservative Fate and Transport Modeling Approach, and the Conclusion that the Levels are *De Minimis*

3.0 Recommendation for Site Closure

3.1 Given Exposures to Maximum Detected Concentration:

- Cumulative Risks Under 1×10^{-5}
- Cumulative Hazard Indexes Under 1

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TABLE 1
Historical Overview of Site Investigations at the Proposed Emeryville Village Center
Proposed Emeryville Village Center
Emeryville, California

Property	Investigator	Investigation Date	Description	Ground Water	Soil	Soil Gas
Standard Brands	ENVIRON	11/4/93	Preliminary Phase II investigation.	x	x	
	Enviropro	6/94	Site investigation.	x	x	
	ENVIRON	5/95	Site investigation.	x	x	
	McLaren/Hart	5/22/97 - 6/11/97	Site investigation.	x	x	
	FAST-TEK	7/10/97 - 8/1/97	Removal of four USTs from former Oil and Fuel Depot, soil excavation, and confirmation soil sampling.	x	x	
	McLaren/Hart	5/22/97	Quarterly ground water monitoring.	x		
	FAST-TEK	9/27/97	Quarterly ground water monitoring.	x		
	FAST-TEK	12/5/97	Quarterly ground water monitoring.	x		
	FAST-TEK	2/13/98	Quarterly ground water monitoring.	x		
	ENVIRON	2/26/99	Soil gas sampling for TPH mineral spirits.			x
Emeryville Fire Station	SECOR	07/26/94	Removal of UST and associated piping.		x	
	SECOR	08/16/94	Overexcavation of former UST area and confirmation soil sampling.		x	
	SECOR	02/21/95	Ground water monitoring well installed down gradient of former UST area.		x	
	SECOR	02/21/95	Quarterly ground water monitoring.	x		
	SECOR	05/24/95	Quarterly ground water monitoring.	x		
	SECOR	09/11/95	Quarterly ground water monitoring.	x		
	SECOR	12/11/95	Quarterly ground water monitoring.	x		
	ENVIRON	02/26/99	Investigate former "sump" area and presence of MTBE.	x	x	
New Century Beverage Company		3/87	Removal of UST #2 and confirmation soil sampling.		x	
	Weiss	3/1/94 - 6/1/94	Subsurface investigation of the Site.	x	x	
	Weiss	03/29/94	Quarterly ground water monitoring.	x		
	Weiss	05/20/94	Quarterly ground water monitoring.	x		
	Weiss	06/01/94	Quarterly ground water monitoring.	x		

TABLE 1
Historical Overview of Site Investigations at the Proposed Emeryville Village Center
Proposed Emeryville Village Center
Emeryville, California

Property	Investigator	Investigation Date	Description	Ground Water	Soil	Soil Gas
New Century Beverage Company	Weiss	07/19/94	Removal of UST #1, two fuel dispensers, and piping and confirmation soil sampling.		x	
	Weiss	10/10/94 - 10/22/94	Subsurface investigation of the UST areas. Included installation of three monitoring wells.	x	x	
	Weiss	10/20/94	Quarterly ground water monitoring.	x		
	Weiss	02/28/95	Quarterly ground water monitoring.	x		
	Weiss	06/27/95	Quarterly ground water monitoring.	x		
	Weiss	09/21/95	Quarterly ground water monitoring.	x		
	Weiss	10/24/95	Completion of excavation surrounding the former USTs and confirmatory soil sampling.		x	
	Weiss	11/30/95	Soil sampling by former UST #2.		x	
	Weiss	12/20/95	Quarterly ground water monitoring.	x		
	Weiss	03/27/96	Quarterly ground water monitoring.	x		
	Weiss	5/7/96-7/29/96	Subslab soil sampling.		x	
	Weiss	05/22/96	Quarterly ground water monitoring.	x		
	Weiss	06/25/96	Quarterly ground water monitoring.	x		
	Weiss	7/29/96	Soil sampling by former UST #2.		x	
	Weiss	12/6/96	Well abandonment and water sampling.	x		
Kentucky Fried Chicken	ENVIRON	2/17/994	Site investigation.	x	x	
	Harnish	7/10/96	Ground water monitoring.	x		

TABLE 2
Volatile Chemicals Included for Analysis
Proposed Emeryville Village Center
Emeryville, California

<i>Total Petroleum Hydrocarbons (TPH)</i>
Gasoline
Diesel
Kerosene
Motor Oil
Mineral Spirits
<i>Polycyclic Aromatic Hydrocarbons (PAHs)</i>
Acenaphthene
Fluoranthene
Flourene
2-Methylnaphthalene
Naphthalene
<i>Volatile Organic Compounds (VOCs)</i>
Benzene
Ethylbenzene
Toluene
Xylenes
Clorobenzene
Chloroform
Chloromethane
1,2 Dichlorobenzene
1,1 Dichloroethane
1,1 Dichloroethene
cis-1,2-Dichloroethene
trans-1,2-Dichloroethene
n-Hexane
Methylene Chloride
Tetrachloroethene
1,1,1 Trichloroethane
Trichloroethene
Vinyl Chloride

TABLE 3
Site-Specific Target Levels (SSTLs) - Soil (mg/kg)
Proposed Emeryville Village Center
Emeryville, California

Chemical	Estimated SSTLs (mg/kg)			Lowest	Site Data (mg/kg) Onsite Maximum	Comparison to Site Data	
	Carcinogens	Noncarcinogens				Carcinogen Risk Ratio	Noncarcinogen HI Ratio
	Age Adjusted	Adult	Child				
Benzene	2.43E+00	3.43E+01	4.19E+00	2.43E+00	4.20E-01	1.73E-06	1.00E-01
1,1-Dichloroethane	3.98E+01	2.01E+03	2.15E+02	3.98E+01	1.30E-02	3.27E-09	6.04E-05
trans-1,2-Dichloroethene	NC	4.01E+02	4.22E+01	4.22E+01	7.10E-02	NC	1.68E-03
Ethylbenzene	NC	7.73E+03	1.59E+03	1.59E+03	5.40E+00	NC	3.39E-03
Methylene chloride	6.45E+01	1.72E+04	1.83E+03	6.45E+01	6.70E-02	1.04E-08	3.66E-05
2-Methylnaphthalene	NC	6.92E+02	2.86E+02	2.86E+02	7.10E-01	NC	2.48E-03
Naphthalene	NC	6.92E+02	2.86E+02	2.86E+02	3.40E+00	NC	1.19E-02
Tetrachloroethene	1.13E+01	2.01E+02	2.34E+01	1.13E+01	3.20E-01	2.84E-07	1.37E-02
Toluene	NC	2.52E+03	4.35E+02	4.35E+02	9.80E-01	NC	2.25E-03
TPH(diesel)	NC	1.47E+05	5.68E+04	5.68E+04	2.50E+03	NC	4.40E-02
TPH(gasoline)	NC	6.11E+04	5.73E+03	5.73E+03	5.90E+02	NC	1.03E-01
TPH(motor oil)	NC	9.14E+05	3.75E+05	3.75E+05	4.50E+03	NC	1.20E-02
1,1,1-Trichloroethane	NC	5.82E+03	6.02E+02	6.02E+02	3.60E-02	NC	5.98E-05
Trichloroethene	2.70E+01	1.52E+02	2.22E+01	2.22E+01	1.20E-01	4.44E-08	5.41E-03
Xylenes (mixed)	NC	5.84E+04	1.26E+04	1.26E+04	3.50E+01	NC	2.79E-03
Cumulative						2.07E-06	3.03E-01

Notes:
 NC = Not a carcinogen.

TABLE 4
Site-Specific Target Levels (SSTLs) - Ground Water (mg/L)
Proposed Emeryville Village Center
Emeryville, California

Chemical	Estimated SSTLs (mg/L)				Site Data (mg/L)		Comparison to Site Data	
	Carcinogens	Noncarcinogens		Lowest	Maximum	Carcinogen Risk Ratio	Noncarcinogen HI Ratio	
	Age Adjusted	Adult	Child					
Acenaphthene	NC	1.58E+05	6.75E+04	6.75E+04	4.00E-03	NC	5.92E-08	
Benzene	1.17E+00	1.08E+01	4.64E+00	1.17E+00	3.40E-01	2.90E-06	7.33E-02	
Chlorobenzene	NC	6.56E+01	2.81E+01	2.81E+01	1.80E-02	NC	6.40E-04	
Chloroform	7.93E+00	8.18E+01	3.51E+01	7.93E+00	3.40E-03	4.29E-09	9.69E-05	
Chloromethane	9.44E+00	2.77E+02	1.19E+02	9.44E+00	1.00E-03	1.06E-09	8.43E-06	
1,2-Dichlorobenzene	NC	9.54E+02	4.09E+02	4.09E+02	5.00E-03	NC	1.22E-05	
1,1-Dichloroethene	1.40E-01	1.19E+01	5.12E+00	1.40E-01	2.60E-03	1.86E-07	5.08E-04	
cis-1,2-Dichloroethene	NC	1.04E+02	4.46E+01	4.46E+01	1.60E-01	NC	3.59E-03	
trans-1,2-Dichloroethene	NC	9.40E+01	4.03E+01	4.03E+01	5.30E-02	NC	1.32E-03	
Ethylbenzene	NC	1.51E+03	6.47E+02	6.47E+02	7.70E-01	NC	1.19E-03	
Fluoranthene	NC	4.26E+06	1.82E+06	1.82E+06	7.00E-03	NC	3.84E-09	
Fluorene	NC	5.59E+05	2.40E+05	2.40E+05	1.20E-02	NC	5.01E-08	
Naphthalene	NC	1.18E+02	5.04E+01	5.04E+01	1.30E+00	NC	2.58E-02	
Tetrachloroethene	2.07E+00	2.35E+01	1.01E+01	2.07E+00	3.00E-03	1.45E-08	2.97E-04	
Toluene	NC	6.16E+02	2.64E+02	2.64E+02	4.10E-02	NC	1.55E-04	
TPH(diesel)	NC	1.14E+04	4.90E+03	4.90E+03	2.20E+02	NC	4.49E-02	
TPH(gasoline)	NC	1.91E+03	8.18E+02	8.18E+02	2.00E+01	NC	2.44E-02	
TPH(motor oil)	NC	1.34E+04	5.72E+03	5.72E+03	3.20E+02	NC	5.59E-02	
Trichloroethene	7.06E+00	2.82E+01	1.21E+01	7.06E+00	1.40E-01	1.98E-07	1.16E-02	
Vinyl chloride	7.41E-02	NA	NA	7.41E-02	1.40E-02	1.89E-06	NA	
Xylenes (mixed)	NC	1.19E+04	5.09E+03	5.09E+03	1.90E+00	NC	3.73E-04	
Cumulative						5.19E-06	2.44E-01	

Notes:

NA = Not available.

NC = Not a carcinogen.

TABLE 5
Soil Results and SSTLs (mg/kg) at Former Fire Station
Proposed Emeryville Village Center
Emeryville, California

Depth	ENV1 5	ENV2 5.5	ENV3 4.5	ENV4 5.5	SSTL
Benzene	ND	ND	ND	ND	-
Toluene	ND	ND	ND	ND	-
Ethylbenzene	ND	ND	ND	ND	-
Xylenes	ND	ND	ND	ND	-
Gasoline	ND	ND	ND	ND	-
Diesel	ND	ND	ND	4.1	5.68E+04
Motor Oil	ND	ND	ND	ND	-
MTBE	ND	ND	ND	ND	-

TABLE 6
Ground Water Results and SSTLs ($\mu\text{g/L}$) at Former Fire Station
Proposed Emeryville Village Center
Emeryville, California

Compound	ENV2	ENV5	Blank	SSTL
Benzene	ND	6.7	ND	1.17E+03
Toluene	ND	ND	ND	-
Ethylbenzene	ND	2.3	ND	6.47E+05
Xylenes	ND	1.2	ND	5.09E+06
Gasoline	ND	100	ND	8.18E+05
Diesel	ND	1100	ND	4.90E+06
Motor Oil	ND	ND	ND	-
MTBE	ND	ND	ND	-

TABLE 7
Soil Gas Results (mg/m³)
Proposed Emeryville Village Center
Emeryville, California

Compound	VP1		VP2		VP3		Blank
	4 ft	8 ft	4 ft	8 ft	4 ft	8 ft	
Hexane	ND	0.304	0.076	ND	-	ND	ND
Benzene	ND	ND	0.273	ND	-	ND	ND
Toluene	0.151	0.12	1.264	0.122	-	ND	0.049
Ethylbenzene	0.129	0.075	81.536	3.565	-	0.63	0.083
m,p-Xylene	0.28	0.224	118.463	6.425	-	ND	ND
o-Xylene	0.179	0.106	88.782	3.076	-	ND	ND
TPH-mineral spirits	2.682	2.495	3146.247	411.112	-	94.726	2.41

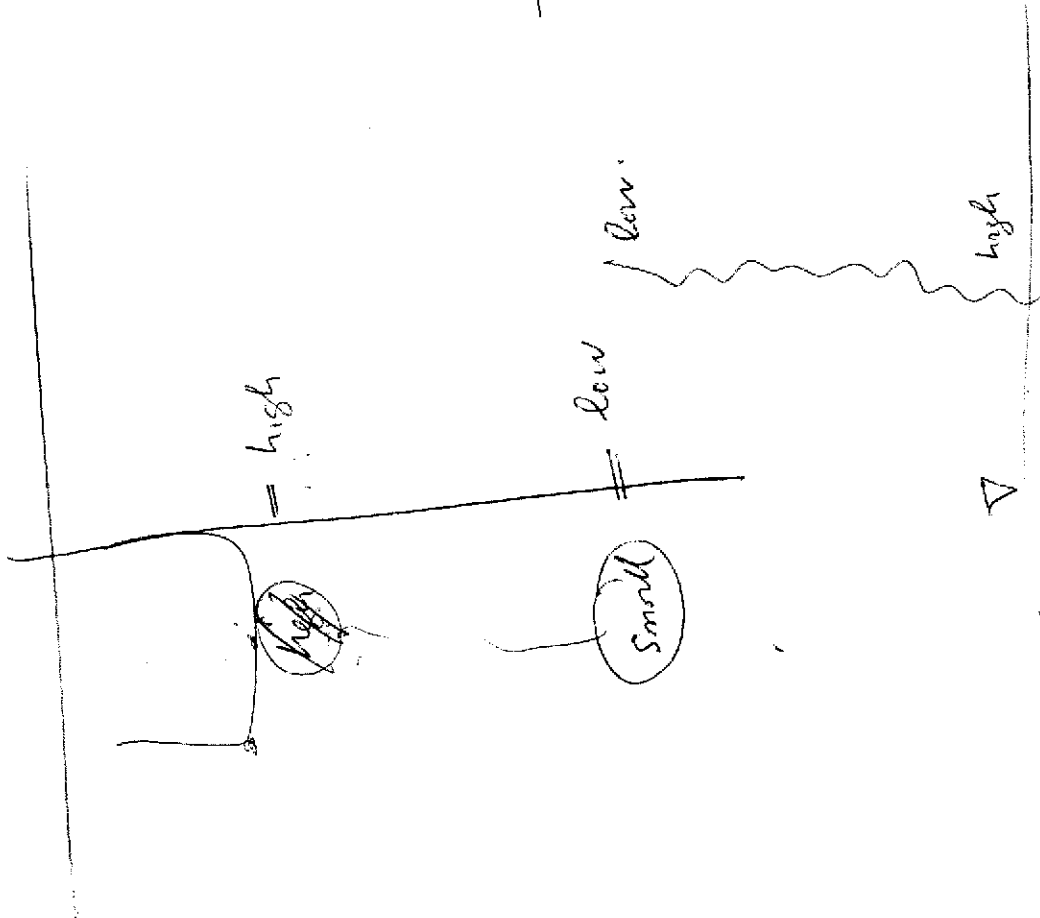


TABLE 8
Site-Specific Target Levels (SSTLs) - Indoor Air (mg/m³)
Proposed Emeryville Village Center
Emeryville, California

Chemical	Estimated SSTLs (mg/m ³)				Site Data (mg/kg)	Comparison to Site Data	
	Carcinogens	Noncarcinogens		Lowest	Onsite Maximum, Indoor Air	Carcinogen Risk Ratio	Noncarcinogen HI Ratio
	Age Adjusted	Adult	Child				
Hexane	NC	2.09E-01	8.94E-02	8.94E-02	3.86E-06	NC	4.31E-05
TPH(mineral spirits)	NC	9.13E-01	3.91E-01	3.91E-01	4.08E-02	NC	1.04E-01
Cumulative						NC	1.04E-01

Notes:

NC = Not a carcinogen.

DIAP

DAN DIAPU ARCHITECTS & PLANNERS

SAN FRANCISCO BAY AREA

ARCHITECTURE
PLANNING
LANDSCAPE DESIGN
INTERIOR DESIGN
HISTORIC PRESERVATION
CONSTRUCTION MANAGEMENT

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(415) 398-5700 FAX: (415) 398-5701

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CASTLE GROUP

PROJECT NAME:
EMERY VILLAGE CENTER

LOCATION:
EMERYVILLE
CALIFORNIA

PROJECT PHASE:
PRELIMINARY DESIGN

JOB NO.: 9808-1

SHEET TITLE:

CONCEPTUAL
SITE PLAN

SCALE: 1"=30'-0"
DATE: 01-20-1999
REVISIONS:



SHEET NO.:

FIGURE
1A



-  ROOF
-  STUCCO FINISH
-  STUCCO TRIM / HOLDING
-  STORE FRONT / WINDOW SYSTEMS
-  ORNAMENTAL DECORATIVE BASE
-  DECORATIVE METAL CANOPY
-  METAL TRELLIS
-  DECORATIVE METAL PANELS
-  LIGHT FIXTURE
-  METAL DOWNSPOUT



RETAIL A- EAST ELEVATION

DIAP
 DAY JENSEN ARCHITECTS & PLANNERS
 SAN FRANCISCO BAY AREA
 ARCHITECTURE
 PLANNING
 URBAN DESIGN
 INTERIOR DESIGN
 HISTORIC REHABILITATION
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CASTLE GROUP

PROJECT NAME:
EMERY VILLAGE CENTER

LOCATION:
 EMERYVILLE CALIFORNIA

PROJECT PHASE:
 PRELIMINARY DESIGN

JOB NO.: 9808-1

SHEET TITLE:
CONCEPTUAL RETAIL ELEVATIONS

SCALE: 1/8"=1'-0"
 DATE: 01-20-1999
 REVISIONS:



SEE NO. 1

FIGURE 1B



RETAIL B- EAST ELEVATION



RETAIL B- NORTH ELEVATION

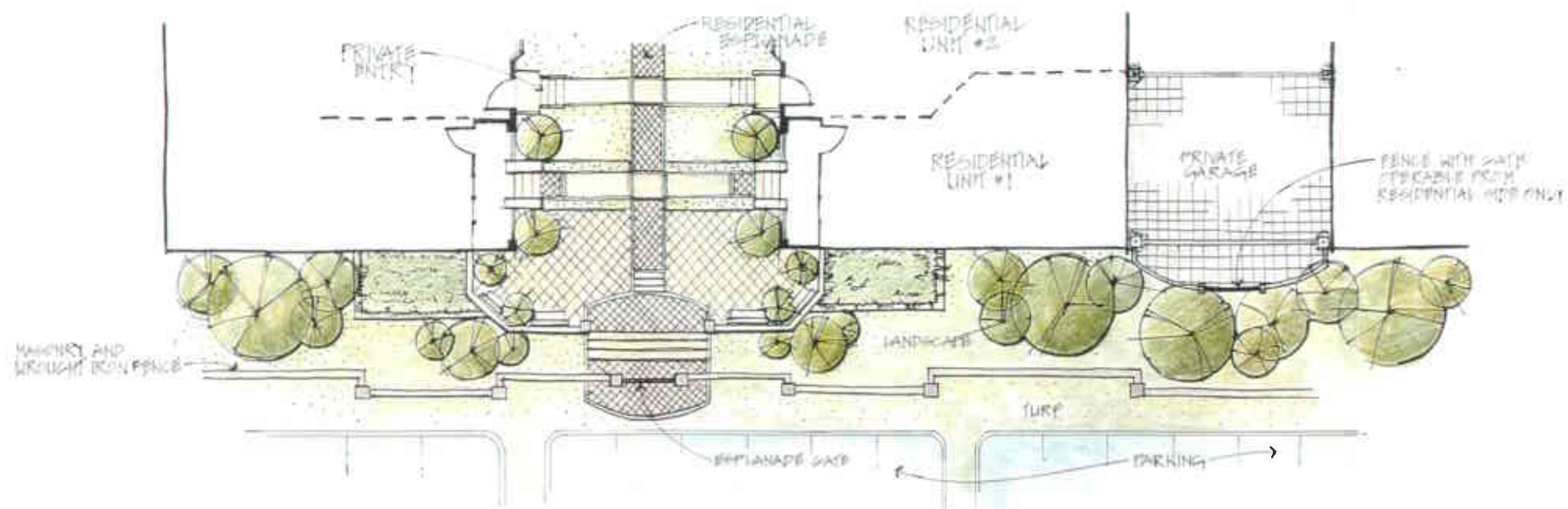


RETAIL D- EAST ELEVATION

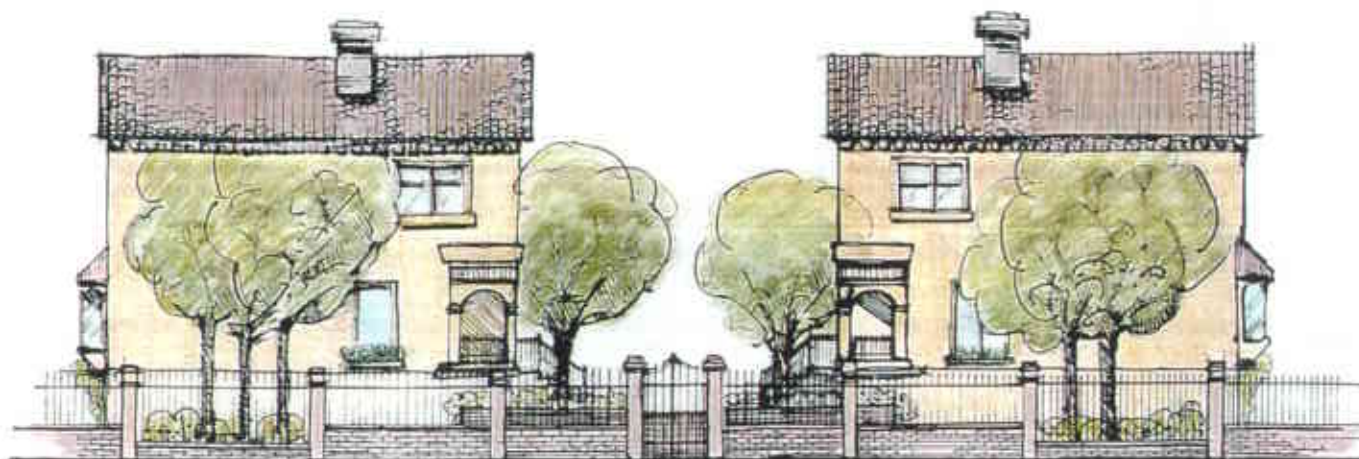
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TOWNHOME BUILDING ELEVATION



SITE DETAIL: PLAN



SITE DETAIL: ELEVATION



SITE DETAIL: SECTION

PROJECT NAME:
EMERY VILLAGE CENTER

LOCATION:
EMERYVILLE
CALIFORNIA

PROJECT PHASE:
PRELIMINARY DESIGN

JOB NO.: 9808-1

SHEET TITLE:

RESIDENTIAL
TOWNHOMES
ELEVATION AND
SITE DETAILS

SCALE: 1/8"=1'-0"
DATE: 01-21-1999
REVISIONS:



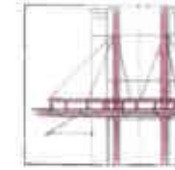
SHEET NO.:

FIGURE
1C

MATERIAL BOARD



ROOF



DECORATIVE METAL CANOPY



STUCCO FINISH



DECORATIVE METAL PANELS



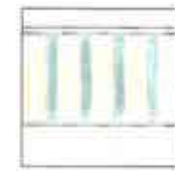
STUCCO TRIM / MOLDING



METAL TRELLIS



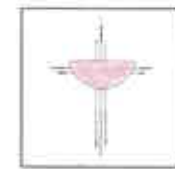
CMU DECORATIVE BASE



METAL AWNING



WOOD TRIM



LIGHT FIXTURE



WROUGHT IRON FENCE



STORE FRONT / WINDOW SYSTEMS

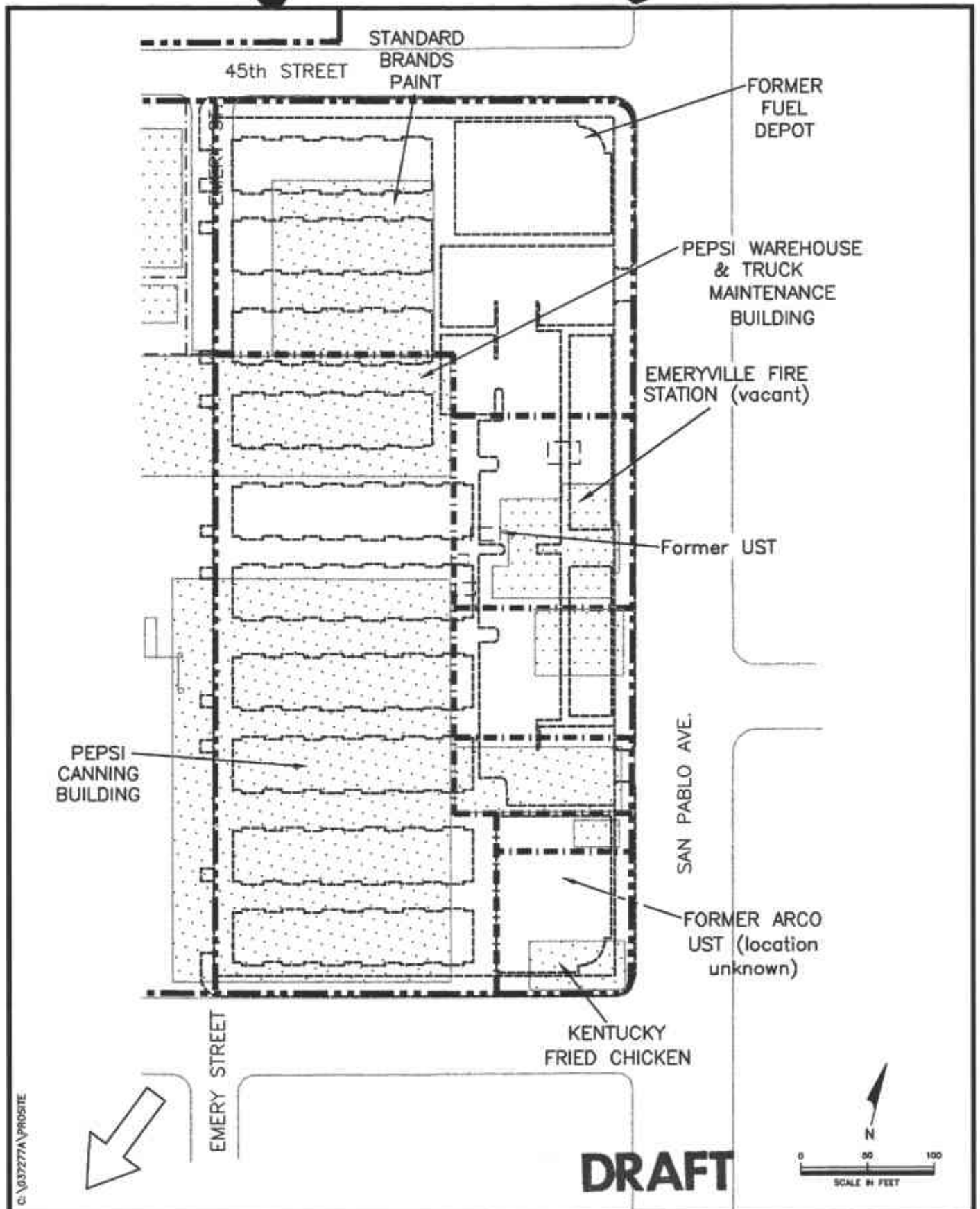


EMERY VILLAGE CENTER
EMERYVILLE, CA

JOB NO. : 8808-1 DATE : JAN. 20 1999
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FIGURE
1D



© 103277A \PROSITE

ENVIRON

6001 Shellmound St., Suite 700, Emeryville, CA 94608

Historical and Proposed Site Layout
 Proposed Emeryville Village Center
 Emeryville, California

Figure
2

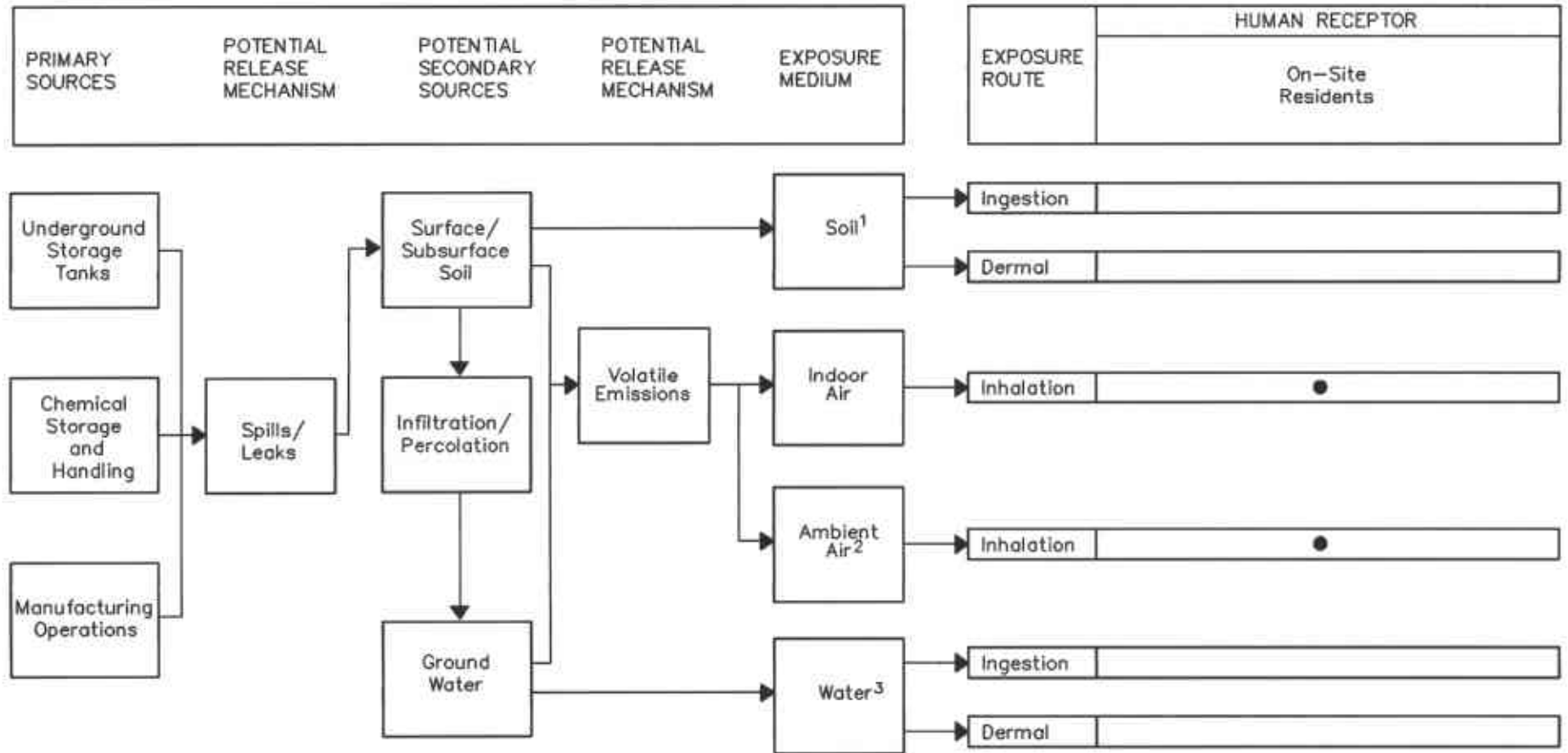
Drafter: RS

Date: 3/23/99

Contract Number: 03-7277A

Approved:

Revised:



● Potentially complete exposure pathway for further consideration.

Note:

1. No direct contact with soil is anticipated as the redevelopment plan is established for urban townhomes without private lawn areas. In addition, deed restrictions will prevent future contact.
2. While exposure to outdoor air is a complete pathway, indoor levels are expected to be higher than outdoor levels, such that indoor exposures will be protective of outdoor exposures.
3. Dermal contact with or ingestion of ground water is not anticipated as property deed restrictions will be in place to prevent direct contact.

03-7277A DIAGRAMS

ENVIRON

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Conceptual Site Model Diagram for the Proposed Emeryville Village Center
Emeryville Redevelopment Agency
Emeryville, California

Figure

3

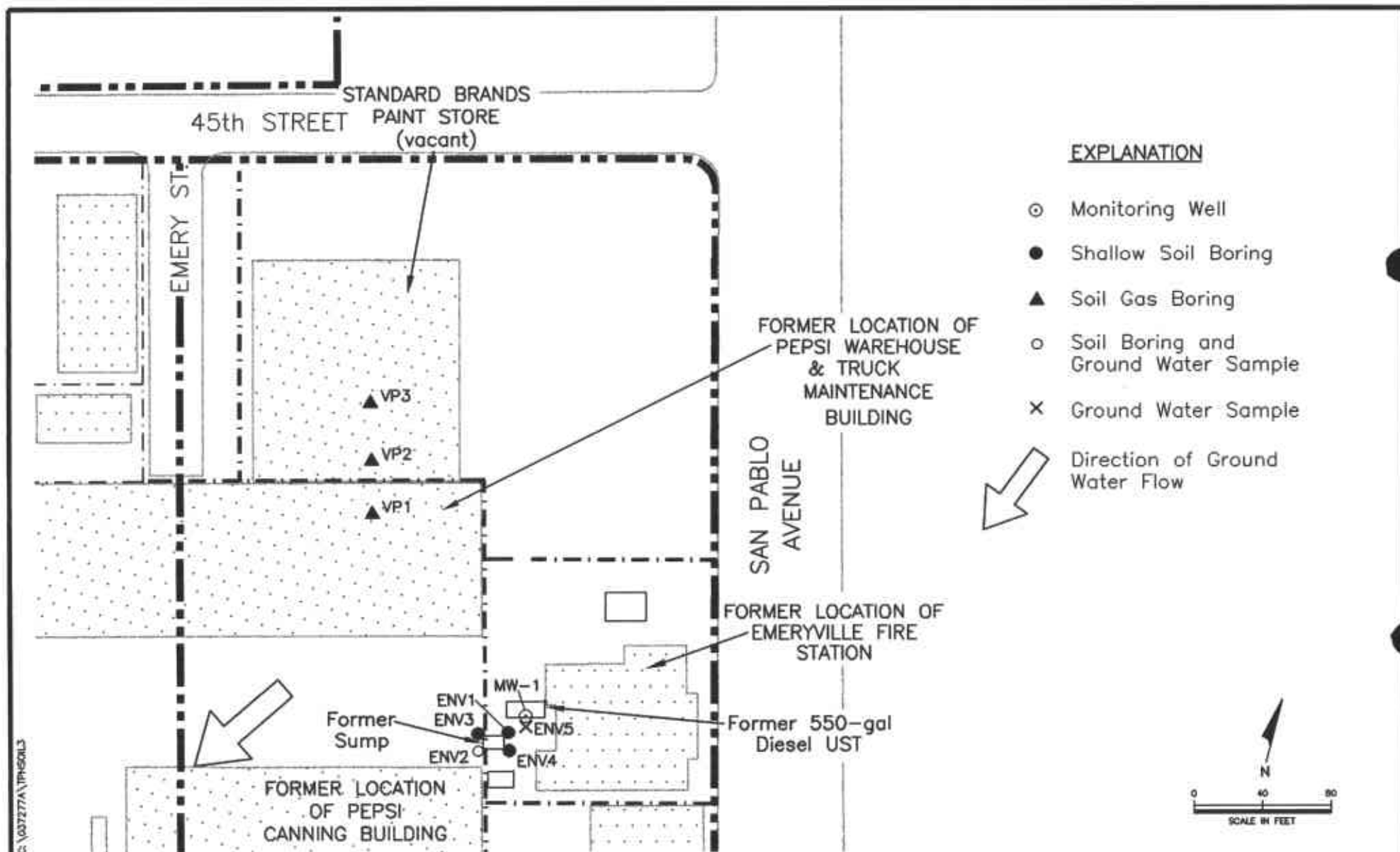
Drafter: RS

Date: 2/23/99

Contract Number: 03-7277A

Approved:

Revised:



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ENVIRON

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ENVIRON Sampling Locations
Proposed Emeryville Village Center
Emeryville, California

Figure

4

Drafter: RS

Date: 3/23/99

Contract Number: 03-7277A

Approved:

Revised: