ICE
Innovative & Creative Environmental Solutions

August 7, 2002 ICES 2262

AUG 14 2002

Ms. Eva Chu
Hazardous Materials Specialist
Alameda County Health Agency
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502

Subject: Risk Evaluation Update
Marina Cove Subdivision
Alameda, California

Dear Eva:

I have reviewed and approved the risk evaluation update (REU) for the Marina Cove Subdivision in Alameda, California ("the Site").

The REU was performed by SOMA Corporation (SOMA) of Emeryville, California and documented in their report dated August 5, 2002. SOMA has methodically characterized the exposure setting, identified exposure pathways, and quantified exposures for the Site as a residential subdivision.

If you have any questions or comments concerning the REU, please do hesitate to contact Derek Wong or me.

Sincerely,

REGISTERED PROFESSIONAL ENGINEER
PENG K. LEONG
C039707
CIVIL
STATE OF CALIFORNIA

Peng Leong
Principal Engineer

cc: Mr. Joe Sordi, KB Homes

Tel(510)652-3222
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P. O. Box 98288
Emeryville CA
94662-0288

CO-869

RISK MANAGEMENT PLAN

MARINA COVE SUBDIVISION
ALAMEDA, CALIFORNIA

1801 Hibbard

AUGUST 28, 2002

ICES 2262

Prepared for:

Mr. Joe Sordi
KB Homes
6700 Koll Center Parkway, Suite 200
Pleasanton, California 94566

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August 28, 2002 ICES 2262

Ms. Eva Chu
Hazardous Materials Specialist
Alameda County Health Agency
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502

Subject: Risk Management Plan
Marina Cove Subdivision
Alameda, California

Dear Eva:

Enclosed is the Risk Management Plan (RMP) for the Marina Cove Subdivision in Alameda, California ("the Site").

The RMP presents baseline health and safety requirements for establishing and maintaining a safe working environment during the course of future construction activities within the immediate vicinity of monitoring well MW-3B. Well MW-3B was formerly located at the southwestern portion of the Site and has been abandoned.

If you have any questions of comments concerning this RMP, please do hesitate to contact Derek Wong or me.

Sincerely,

Peng Leong
Principal Engineer

Enclosure

cc: Mr. Joe Sordi, KB Homes

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RISK MANAGEMENT PLAN

MARINA COVE SUBDIVISION
ALAMEDA, CALIFORNIA

AUGUST 28, 2002

ICES 2262

Prepared for:

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August 28, 2002 ICES 2262

RISK MANAGEMENT PLAN

MARINA COVE SUBDIVISION
ALAMEDA, CALIFORNIA

1.0 INTRODUCTION

At the request of KB Homes ("the Client"), Innovative and Creative Environmental Solutions (ICES) has prepared a Risk Management Plan (RMP) for future construction activities at the Marina Cove Subdivision in Alameda, California ("the Site; Figure 1).

The RMP presents baseline health and safety requirements for establishing and maintaining a safe working environment during the course of future construction activities within the immediate vicinity of monitoring well (well) MW-3B. Well MW-3B was formerly located at the southwestern portion of the Site and has been abandoned (Figure 2).

2.0 SITE DESCRIPTION

The Site is located on the north side of Buena Vista Avenue, east of Grand Street. The Site consists of a residential development occupying an area of approximately 10 acres.

There were formerly four underground storage tanks (USTs): three 1,000-gallon gasoline USTs and one 10,000-gallon diesel UST at the southwestern portion of the Site. Figure 2 depicts the former UST locations. Additionally, seven monitoring wells (MW-3B, MW-4B, MW-5, MW-6, MW-10, MW-11, and MW-12) were formerly located at the southwestern portion of the Site and in the vicinity of the USTs.

3.0 RISK EVALUATION

SOMA Corporation (SOMA) performed a risk evaluation update for soil and groundwater at the Site in August 2002. The chemicals detected in soil and evaluated in the risk assessment included the gasoline constituents: benzene, ethylbenzene, and total xylenes. Highest

concentrations of all three constituents were detected in soil boring B-9. Benzene, ethylbenzene, and xylenes were detected at the highest concentrations in the groundwater of well MW-3B. Additionally, the chlorinated solvents 1,1-dichloroethene, trichloroethene, and tetrachloroethene were also detected at the highest concentrations in the groundwater of well MW-3B. Table 1 presents the concentrations of chemicals detected in boring B-9 and well MW-3B.

The purpose of the risk evaluation developed by SOMA was to assess the potential exposure and risks from the residual chemicals assuming development of the Site as a residential subdivision. Potentially exposed populations under the future landuse setting evaluated in the risk assessment were construction workers during property development and single-family residents.

Based on the risk evaluation, SOMA concluded that risk mitigation measures appear to be warranted solely for the construction worker in the vicinity of well MW-3B in the event groundwater is encountered during Site development. A detailed description of SOMA's risk evaluation is presented in the SOMA report entitled "Risk Evaluation Update, Marina Cove Subdivision (former Weyerhaeuser Site), 1801 Hibbard Street, Alameda, California" dated August 5, 2001.

4.0 RISK MANAGEMENT

In the event future construction activities should occur within the former well MW-3B location, all contractor/subcontractor personnel working within the area must read and understand the specifications of the health and safety plan presented in Appendix A.

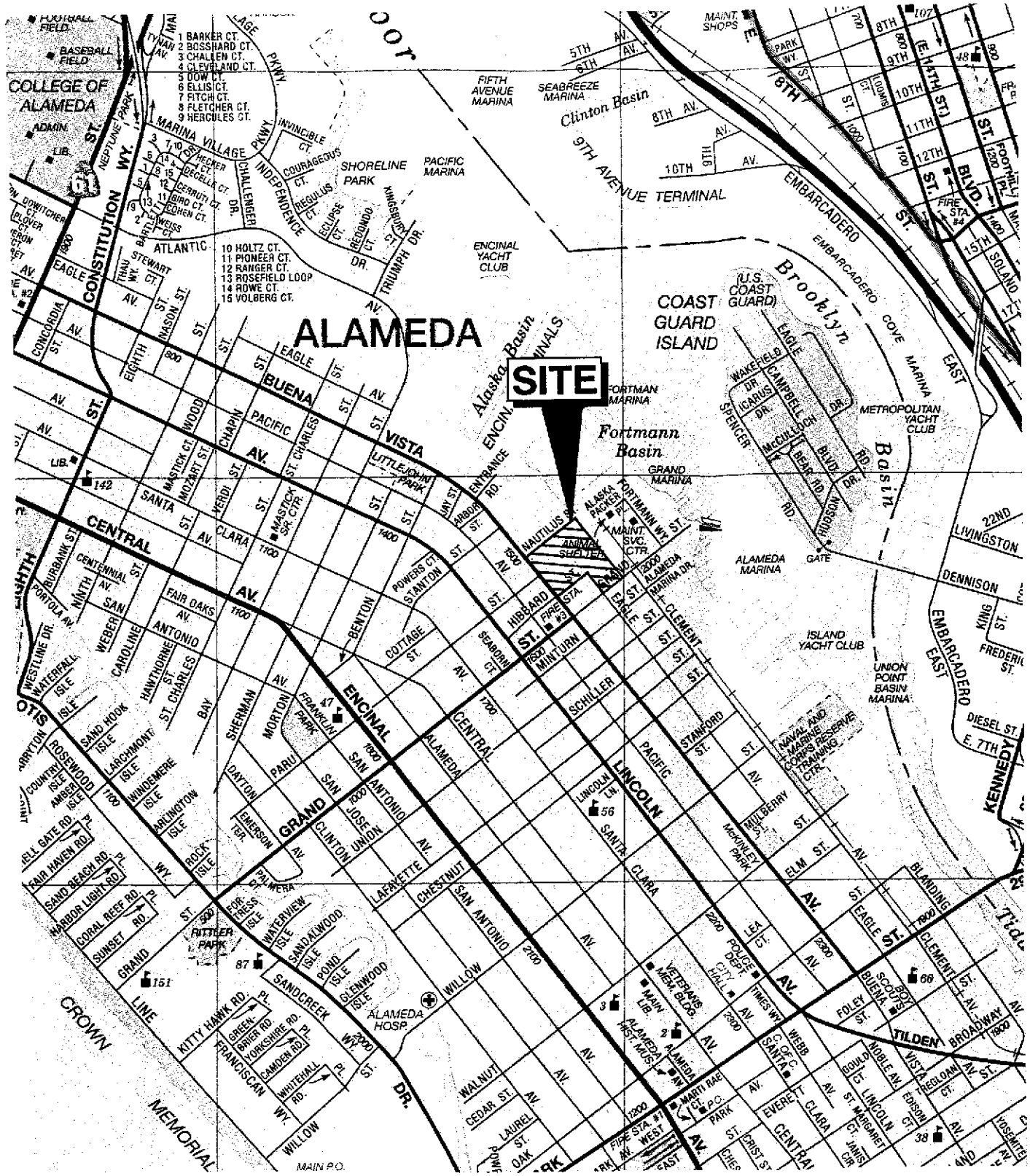
Additionally, soil and groundwater encountered during future construction activities within well MW-3B should be characterized for petroleum constituents following the sampling procedures presented in Appendix B. Site mitigation activities to remove and dispose the affected soil and/or groundwater should be implemented in the event soil and/or groundwater sample results indicate that the petroleum hydrocarbon constituents exceed the acceptable levels adopted by the Alameda County Health Agency for residential developments.

TABLE 1

SOIL AND GROUNDWATER DATA
Marina Cove Subdivision
Alameda, California

Chemical	B-9 (mg/kg)	MW-3B (ug/l)
Benzene	0.005	99
Ethylbenzene	0.071	51.9
m&p Xylenes	0.009	13.9
1,1-Dichloroethene	NA	37.4
Trichloroethene	NA	5
Tetrachloroethene	NA	5

NA Not Analyzed



MAP SOURCE : CSAA

Scale: 1" : ± 1100'	August 2002

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SITE LOCATION

Marina Cove Subdivision, Alameda, California

Figure 1

Project 2262

40 20

11
PLAN 6
ELEV B
CLR B2

10
PLAN 5
ELEV A
CLR A1

9
PLAN 6
ELEV B
CLR B2

DIESEL
FORMER UST
EXCAVATION

MW 38
(DESTROYED)

FORMER GASOLINE
UST CLUSTER

12
PLAN 6

13
PLAN 5
ELEV C

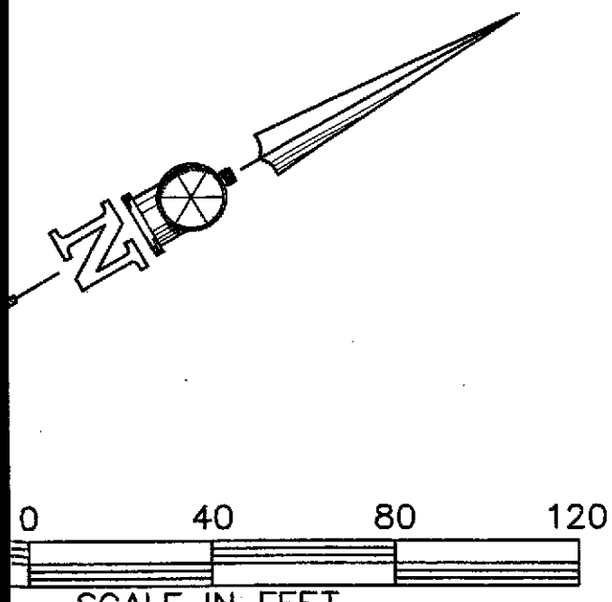
14
PLAN 3

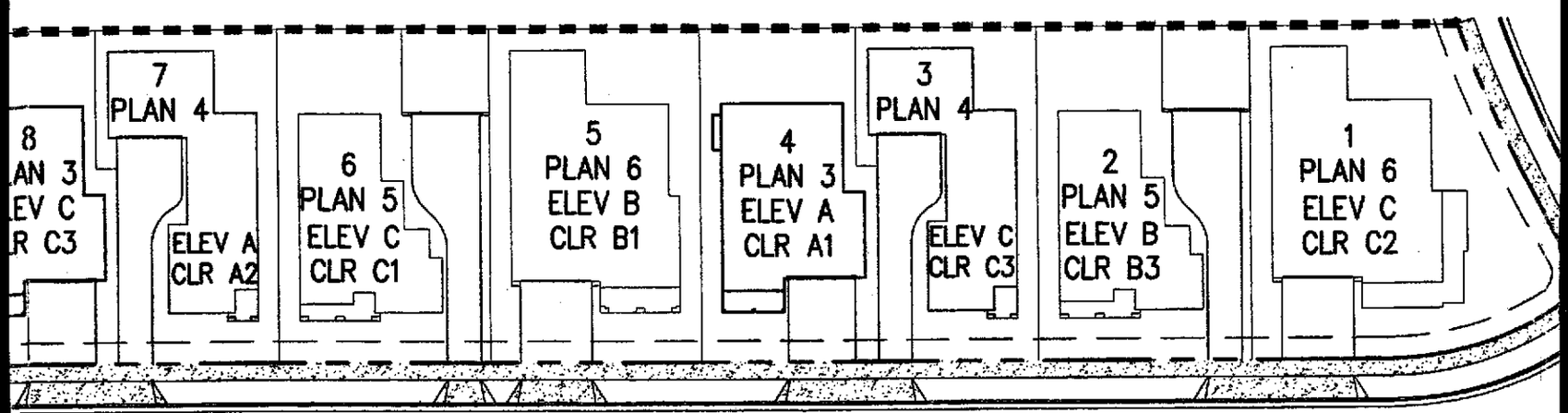
BUENA VISTA

MARINA
SUBDIVIS
ALAMEDA, C

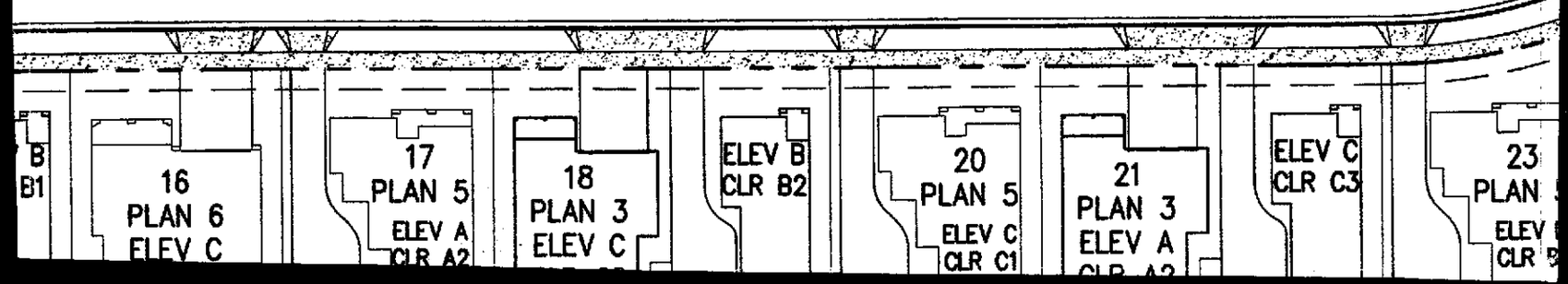
ALAMEDA

MARCH





OHLONE STREET



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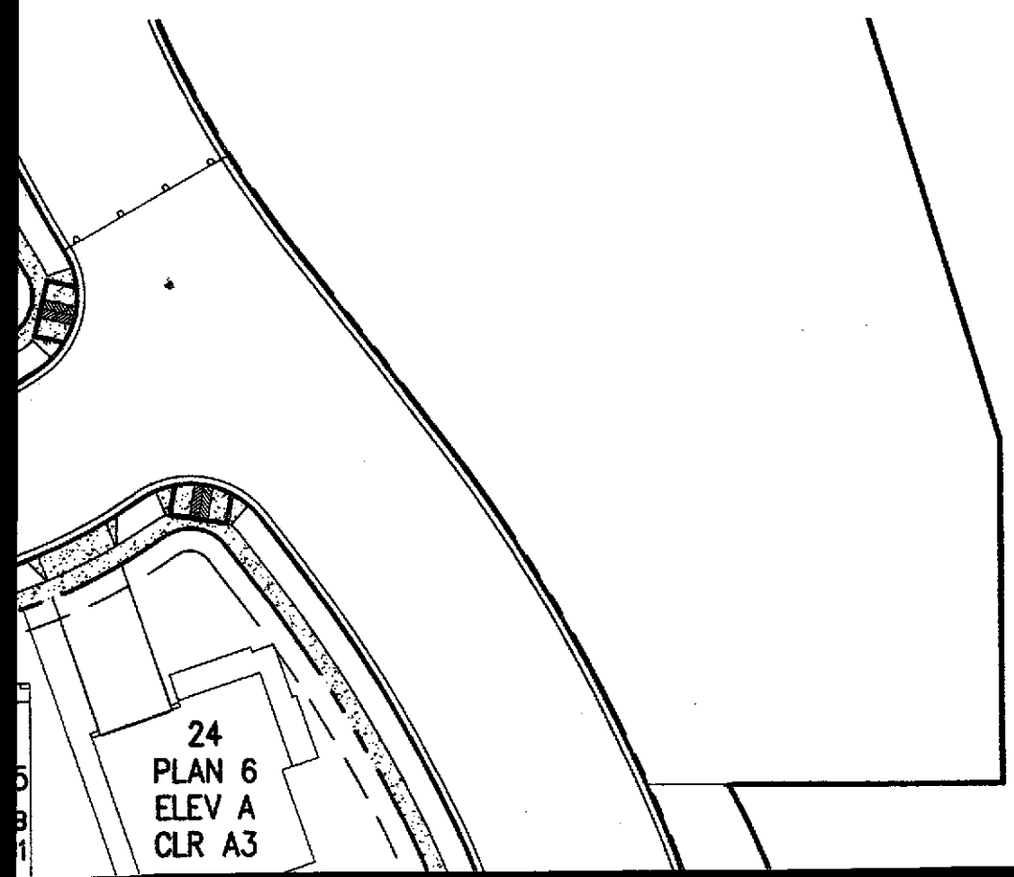
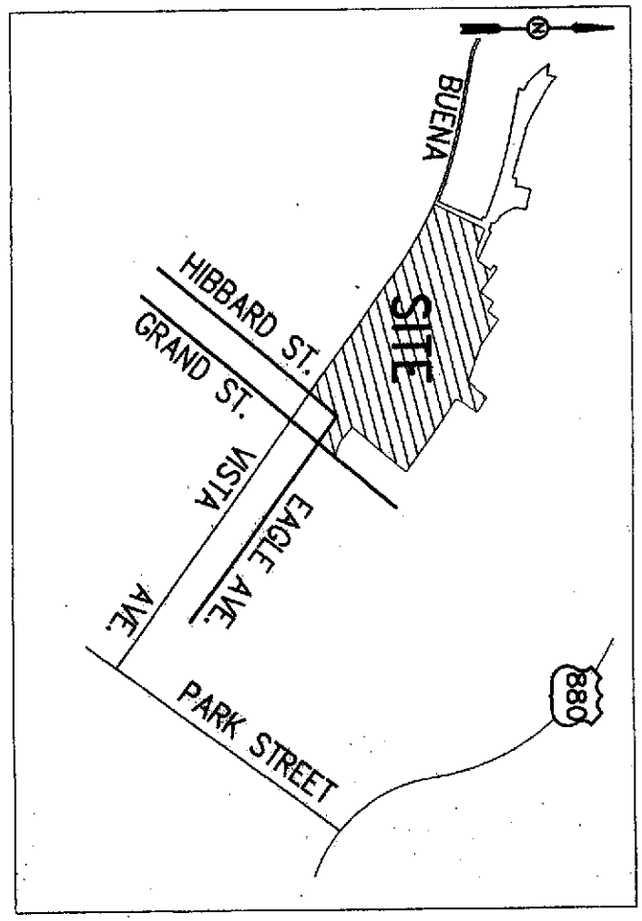
CALIFORNIA

2001



VICINITY MAP

NOT TO SCALE



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BY	DATE	REVISIONS

AVENUE (EXISTING)

ELEV C
CLR C3

CLR A3

15
PLAN 4

40
PLAN 6
ELEV B
CLR B1

39
PLAN 4

ELEV C
CLR C1

38
PLAN 3
ELEV B
CLR B2

37
PLAN 4

ELEV A
CLR A3

41
PLAN 4

ELEV C
CLR C3

COSTANOAN CT

ELEV A
CLR A2

42
PLAN 4

45
PLAN 4

43
PLAN 5
ELEV B
CLR B1

76
PLAN 6
ELEV C
CLR C1

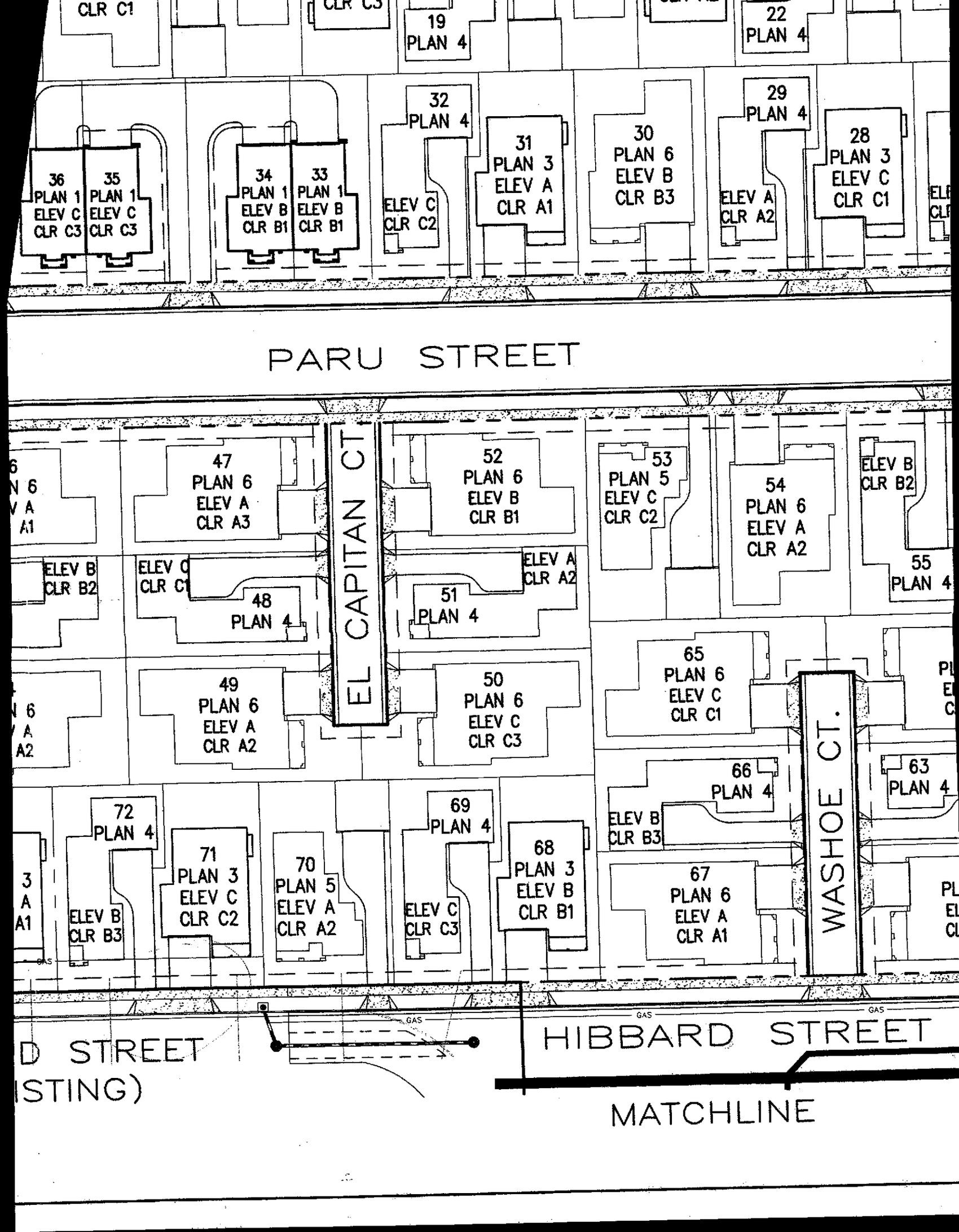
75
PLAN 5
ELEV B
CLR B2

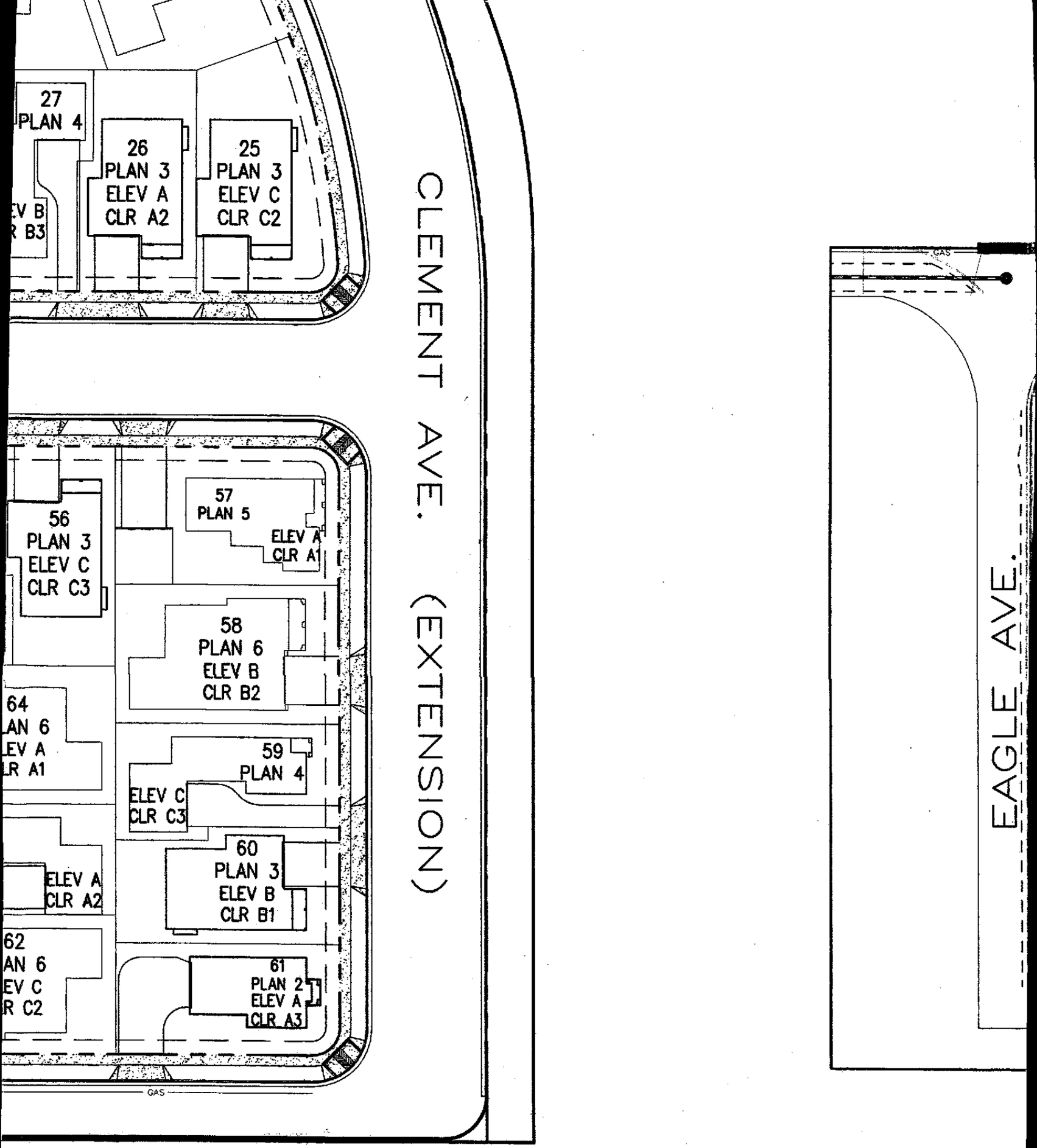
GAS

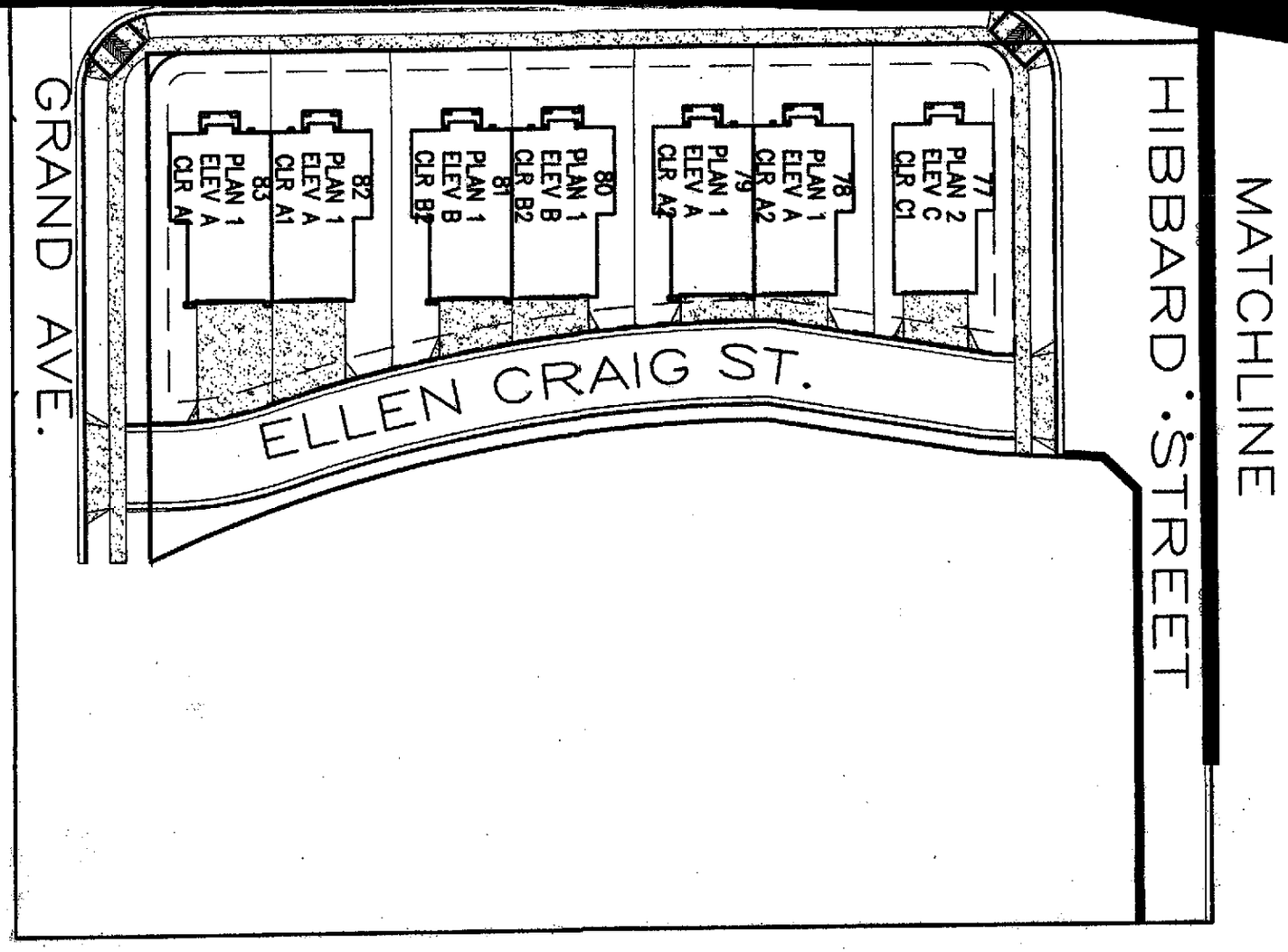
74
PLAN 4

ELEV C
CLR C3

HIBBAR
(EX


CLR C1
CLR C3
19
PLAN 4
22
PLAN 4
36
PLAN 1
ELEV C
CLR C3
35
PLAN 1
ELEV C
CLR C3
34
PLAN 1
ELEV B
CLR B1
33
PLAN 1
ELEV B
CLR B1
32
PLAN 4
ELEV C
CLR C2
31
PLAN 3
ELEV A
CLR A1
30
PLAN 6
ELEV B
CLR B3
29
PLAN 4
ELEV A
CLR A2
28
PLAN 3
ELEV C
CLR C1
PARU STREET
47
PLAN 6
ELEV A
CLR A3
EL CAPITAN CT
52
PLAN 6
ELEV B
CLR B1
53
PLAN 5
ELEV C
CLR C2
54
PLAN 6
ELEV A
CLR A2
ELEV B
CLR B2
55
PLAN 4
ELEV B
CLR B2
ELEV C
CLR C1
48
PLAN 4
51
PLAN 4
ELEV A
CLR A2
49
PLAN 6
ELEV A
CLR A2
50
PLAN 6
ELEV C
CLR C3
65
PLAN 6
ELEV C
CLR C1
WASHOE CT.
66
PLAN 4
ELEV B
CLR B3
63
PLAN 4
72
PLAN 4
ELEV B
CLR B3
71
PLAN 3
ELEV C
CLR C2
70
PLAN 5
ELEV A
CLR A2
69
PLAN 4
ELEV C
CLR C3
68
PLAN 3
ELEV B
CLR B1
67
PLAN 6
ELEV A
CLR A1
GAS
GAS
GAS
D STREET
ISTING)
HIBBARD STREET
MATCHLINE


27
PLAN 4
26
PLAN 3
ELEV A
CLR A2
25
PLAN 3
ELEV C
CLR C2
CLEMENT AVE. (EXTENSION)
56
PLAN 3
ELEV C
CLR C3
57
PLAN 5
ELEV A
CLR A1
58
PLAN 6
ELEV B
CLR B2
59
PLAN 4
ELEV C
CLR C3
60
PLAN 3
ELEV B
CLR B1
61
PLAN 2
ELEV A
CLR A3
GAS
EAGLE AVE.



SHEET 1 OF 1

JOB NO. 01018

SUBDIVISION 7170 KB HOME MARINA COVE

PLAN TYPE AND ELEVATION

ALAMEDA ALAMEDA COUNTY CALIFORNIA

APPENDIX A

HEALTH AND SAFETY PLAN

HEALTH AND SAFETY PLAN

CONSTRUCTION ACTIVITIES

MARINA COVE SUBDIVISION
ALAMEDA, CALIFORNIA

AUGUST 28, 2002

ICES 2262

Prepared for:

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FIGURE 1 : SITE LOCATION AND HOSPITAL ROUTE

OSHA NOTICE

August 28, 2002 ICES 2262

HEALTH AND SAFETY PLAN

Construction Activities
Marina Cove Subdivision
Alameda, California

1.0 INTRODUCTION

This Health and Safety Plan ("HSP") addresses the hazards associated with the future construction activities within the immediate vicinity of monitoring well (well) MW-3B at the Marina Cove Subdivision in Alameda, California ("the Site"; Figure 1). Well MW-3B was formerly located at the southwestern portion of the Site and has been abandoned. The HSP presents baseline health and safety requirements for establishing and maintaining a safe working environment during the course of future work.

At a minimum, all contractor/subcontractor personnel working on site must:

- have read and understood the specifications of this HSP
- have completed all training requirements in 29 Code of Federal Regulations (CFR) 1910.120
- provide their own health and safety equipment as indicated in this HSP, and comply with the minimum requirements established by this HSP. If the contractor/subcontractor has prepared his/her own HSP, it must minimally meet requirements contained herein and all applicable Federal, State, and local health and safety requirements.

This HSP shall be read and approved by the KB Homes (KBH) Health and Safety Director, the KBH Project Manager, and a KBH Quality Assurance Reviewer.

A copy of this HSP shall be kept on site, easily accessible to all employees and government inspectors, and another in KBH files.

This HSP was prepared using the following documents:

- 29 CFR 1910 -- Occupational Safety and Health Standards, 1990
- 29 CFR 1926 -- Safety and Health Regulations for Construction
- 29 CFR 1910.1000 -- OSHA Air Contaminants - Permissible Exposure Limits, 1990
- Title 8, California Code of Regulations, Occupation Health and Safety Standards.
- American Conference of Governmental Industrial Hygienists (ACGIH). Threshold Limit Values and Biological Exposure Indices for 1990 - 1991. Cincinnati, Ohio, ACGIH.
- California Department of Health Services (DHS), Toxic Substances Control Division (TSCD), Technical and Support Unit, Region 3, Los Angeles, California, August 1988. Site Safety Plan Guidance Document.
- National Institute for Occupational Safety and Health (NIOSH); Occupational Safety and Health Administration (OSHA); U.S. Coast Guard (USCG); U.S. Environmental Protection Agency (EPA), October 1985. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities. Washington D.C.: U.S. Government Printing Office.
- NIOSH/OSHA, 1981. Occupational Health Guidelines for Chemical Hazards.
- Sax, N. Irving, 1984, Dangerous Properties of Materials, 6th edition, Van Nostrand Reinhold Company, Inc., New York, New York.
- U.S. EPA, Office of Emergency and Remedial Response, Hazardous Response Support Division, November 1984. Standard Operating Safety Guides.

2.0 SITE CHARACTERISTICS

Site Name: Marina Cove Subdivision
Alameda, California

The Site is located on the north side of Buena Vista Avenue, east of Grand Street. The Site consists of a residential development occupying an area of approximately 10 acres.

There were formerly four underground storage tanks (USTs): three 1,000-gallon gasoline USTs and one 10,000-gallon diesel UST at the southwestern portion of the Site. Additionally, seven monitoring wells were formerly located at the southwestern portion of the Site, in the vicinity of the USTs.

3.0 KEY PERSONNEL AND RESPONSIBILITIES

3.1 Site Safety Personnel

Name	Responsibilities
Joe Sordi	Project Manager Health and Safety Director
Henryk Tay	Site Safety Officer

3.2 KBH Personnel and Responsibilities

The responsibilities of the KBH personnel listed in Section 3.1 are outlined below.

3.2.1 KBH Project Manager

The KBH Project Manager, Joe Sordi, has the ultimate responsibility for the health and safety of KBH personnel on site. As part of his duties, Mr. Sordi shall be responsible for:

- ensuring that on-site KBH personnel receive the proper training, and are informed of potential hazards anticipated at the Site and procedures and precautions to be implemented on the job
- ensuring that contractors and subcontractors are informed of the expected hazards and appropriate protective measures at the Site. (Subcontractors should also be given a copy of KBH's HSP for review.)

- ensuring that resources are available to provide a safe and healthy work environment for KBH personnel.

3.2.2 KBH Health and Safety Director

The KBH Health and Safety Director, Joe Sordi, shall be responsible for:

- monitoring the health and safety impacts of this project for on-site KBH personnel
- assessing the potential health and safety hazards at the Site
- recommending appropriate safeguards and procedures
- modifying the HSP, when necessary
- approving changes in safeguards used or operating procedures employed at the Site.

The KBH Health and Safety Director shall have the authority to:

- require that additional safety precautions or procedures be implemented
- order an evacuation of the Site, or portion of the Site, or shut down any operation, if he believes a health or safety hazard exists
- deny unauthorized personnel access to the Site
- require that any worker obtain immediate medical attention
- approve or disallow any proposed modifications to safety precautions or working procedures.

3.2.3 KBH Site Safety Officer

The KBH Site Safety Officer (SSO), Henryk Tay, has fulfilled the 40-hour health and safety training requirements pursuant to 29 CFR 1910.120.

The SSO, or a trained designated alternate, will be present at the Site during work activities. The SSO shall be notified of and approve activities in which persons may be reasonably expected to be exposed to contaminated soils and/or groundwater.

The SSO shall be responsible for:

- ensuring that on-site KBH personnel comply with the requirements of the HSP
- limiting access to the Site
- reporting unusual or potentially hazardous conditions to the KBH Health and Safety Director and the KBH Project Manager
- reporting injuries, exposures, or illnesses to the KBH Health and Safety Director and the KBH Project Manager
- communicating proposed changes in work scope or procedures to the KBH Health and Safety Director for approval
- recommending to the KBH Health and Safety Director and the KBH Project Manager additional safety procedures or precautions that might be implemented.

The SSO shall have the authority to:

- order an evacuation of the Site, or portion(s) of the Site, or shut down any operation if he believes a health or safety hazard exists
- deny site access to unauthorized personnel
- require that any worker, including the contractor's or subcontractor's personnel, obtain immediate medical attention.

4.0 HAZARD ANALYSIS

Potential chemical, physical and general safety hazards during future construction activities at the Site include the following:

- Chemical hazards
  - respiratory (exposure to volatile organic compounds [VOCs])
  - dermal (contact with petroleum products)
- Physical hazards
  - noise
  - electric shock
  - heavy equipment

- auto traffic
- fire and explosion

Work procedures to protect workers from chemical and physical hazards are discussed in Section 5.0.

4.1 Chemical Hazards

The primary chemical hazard is exposure to chemical compounds from the petroleum-affected soil and groundwater. Of particular concern is the potential for workers to be exposed to aromatic petroleum compounds within the former well MW-3B. These petroleum hydrocarbons include gasoline, benzene, toluene, ethylbenzene, xylenes, and diesel.

4.1.1 Chemical Description of Gasoline

Gasoline is produced from the light distillates during petroleum fractionation, with its major components including paraffins, olefins, naphthenes, aromatics, and recently ethanol. Gasoline also contains various functional additives as required for different uses, such as antiknock fluids, antioxidants, metal deactivators, corrosion inhibitors, anti-icing agents, preingition preventors, upper-cylinder lubricants, dyes, and decolorizers. Lead additives in particular were widely used in gasoline until the introduction of vehicle catalytic converters.

Mild cases of gasoline ingestion can cause inebriation, vomiting, vertigo, drowsiness, confusion, and fever. Aspiration into the lungs and secondary pneumonia may occur unless prevented. Gasoline can cause hyperemia of the conjunctiva and other eye disturbances. Inhalation of gasoline during bulk handling operations produced no physiological effects. Gasoline is a skin irritant and a possible allergen. Repeated or chronic dermal contact can result in drying of the skin, lesions, and other dermatologic conditions.

The TWA of the PEL for gasoline is 300 ppm and the STEL is 500 ppm.

4.1.2 Chemical Description of Benzene

Benzene is a clear colorless liquid.

Exposure to high concentrations (3,000 ppm) may result in acute poisoning, characterized by the narcotic action of benzene on the central nervous system. Chronic poisoning occurs most commonly through inhalation and dermal adsorption. Benzene is also a human carcinogen. Unleaded regular gasoline commercially

available in the United States typically contains less than about 2 percent benzene.

The PEL for a TWA 8-hour period is 1 ppm in air (OSHA Standard 29 CFR 1910.1000).

4.1.3 Chemical Description of Toluene

Toluene is a colorless liquid with a benzol-like odor.

Inhalation of high vapor concentrations may cause impairment of coordination and reaction time, headaches, nausea, eye irritation, loss of appetite, a bad taste in the mouth, and weariness.

The PEL for a TWA over an 8-hour period is 100 ppm in air (OSHA Standard 29 CFR 1910.1000).

4.1.4 Chemical Description of Ethylbenzene

Ethylbenzene is a clear, colorless liquid.

Exposure to high concentrations of vapor (approximately 1,000 ppm) may result in irritation to the skin and mucous membranes, dizziness, irritation of the nose and throat and a sense of constriction of the chest.

The PEL for a TWA over an 8-hour period is 100 ppm in air (OSHA Standard 29 CFR 1910.1000).

4.1.5 Chemical Description of Xylenes

Xylene is a clear, colorless liquid.

Exposure to high concentrations of vapor may result in eye and skin irritation. Eye irritation may occur at concentrations of about 200 ppm.

The PEL for a TWA over an 8-hour period is 100 ppm in air (OSHA Standard 29 CFR 1910.1000).

4.1.6 Chemical Description of Diesel

Diesel fuel is a gas oil fraction available in various grades as required by different engines. Composition of diesel varies in ratios of predominantly aliphatic, olefinic, cycloparaffinic, and aromatic hydrocarbons, and additives.

Ingestion of diesel can lead to systemic effects such as

gastrointestinal irritation, vomiting, diarrhea, and in severe cases drowsiness and central nervous system depression, progressing to coma and death. Aspiration of diesel fuel can cause hemorrhaging and pulmonary edema, progressing to pneumonitis and renal involvement.

4.2 Physical Hazards

The potential physical hazards at the Site during future construction activities stem from heavy machinery use and the hazardous nature of grading and trenching work. The potential physical hazards are listed under Section 4.0.

5.0 WORK REQUIREMENTS

5.1 Respiratory Protection

Field operations will be initiated in Level D. The primary route of potential exposure for chemicals is inhalation. Inhalation hazards due to volatilization will be monitored using a photoionization detector (PID) to measure concentrations of VOCs in the breathing zone. If ambient air concentrations of VOCs in the breathing zone reach 25 ppm or greater, a temporary stop work will take place and the area will be ventilated and monitored until low to non-detectable concentrations of VOCs are detected in the breathing zone. If persistently low concentrations of VOCs of less than 5 ppm are detected, then half-facepiece air-purifying respirators will be worn by all personnel in the exclusion zone.

Respirators must be kept available during future grading and trenching activities. Respirators will be equipped with NIOSH-approved high efficiency particulate/organic vapor combination cartridges (such as North 7600).

5.2 Dermal Protection

Unless adequate precautions are taken, chemicals may contact the skin or clothing. Potential physical contact with chemicals of concern are possible under the following circumstances:

- Grading
- Trenching

5.2.1 Personal Protective Equipment

KBH and contractor/subcontractor personnel will wear the following protective clothing on site:

- hard hats
- steel-toed/steel-shank boots
- inner and outer disposable PVC gloves
- safety glasses
- uncoated Tyvek coveralls (if the potential for splashing exists)

5.3 Action Levels

5.3.1 Action Levels for a Temporary Stop Work

The SSO shall impose a temporary stop work and contact the KBH Health and Safety Director immediately if the following conditions are observed, or if there is a question about site conditions:

- uncontrolled dust generation
- indications of heat stress
- changes in the general health profile of on-site personnel
- detection of VOC concentrations exceeding 25 ppm in the breathing zone.

5.3.2 Action Level for Upgrade to Level C Protection

The action level to upgrade to Level C protection is the detection of ambient air concentrations of VOCs in the breathing zone at 25 ppm or greater.

5.4 Protection Against Physical Hazards

5.4.1 Noise

Noise results primarily from heavy equipment and other machinery. Workers will wear ear plugs when operating heavy machinery to avoid noise that may exceed the 85 decibel Threshold Limit Value (TLV) established by the American Conference of Governmental Industrial Hygienists. However, based on previous field experience, expected noise level should not exceed 85 decibels.

5.4.2 Electric Shock

All electrical equipment to be used during field activities will be suitably grounded and insulated.

5.4.3 Heavy Equipment

Hazards related to grading and trenching equipment will necessitate securing the work area. All relevant requirements pursuant to 29 CFR 1926.602 and Subpart W, Rollover Protective Structures; Overhead Protection, shall be observed during the course of grading and trenching activities.

All field personnel not directly involved in the excavation work will be kept at safe distances from areas where heavy equipment are in use. Unauthorized visitors will not be permitted near areas where heavy equipment are in use regardless of whether the area has been designated as an exclusion zone.

5.4.4 General Safety

All KBH and contractor/subcontractor personnel will wear approved head protection while working around heavy equipment in the site area. Fire hydrants, electrical and underground lines and pipes will be identified before drilling operations begin. Two 10-pound fire extinguishers will be kept on site near the exclusion zone.

5.5 Entry Procedures

At a minimum, all visitors entering the exclusion zone must wear the protective clothing and equipment worn by KBH and contractor/subcontractor personnel. Permission to enter the work area must be obtained from at least one of the personnel named in Section 3.1. Each visitor's name and purpose of visit will be recorded in the field notes.

6.0 WORK ZONE AND DECONTAMINATION PROCEDURES

A site must be controlled to reduce the possibility of exposure to any contaminants present and to limit their transport from the site by personnel or equipment.

6.1 Control

A control system is required to ensure that personnel and equipment working on hazardous waste sites are subjected to appropriate health and safety surveillance and site access

control.

The possibility of exposure or translocation of contaminants can be reduced or eliminated in a number of ways, including:

- setting security or physical barriers at control points to regulate access to and/or exclude unnecessary personnel from the general area
- minimizing the number of personnel and equipment on site consistent with effective operations
- establishing work zones within the site
- conducting operations in a manner which will reduce the exposure of personnel and equipment
- minimizing the airborne dispersion of contaminants (utilizing dust control procedures)
- implementing appropriate decontamination procedures for both equipment and personnel.

6.2 Field Operations Work Areas

Work areas (zones) will be established based on anticipated contamination. Within these zones, prescribed operations will occur utilizing appropriate Personal Protective Equipment (PPE). Movement between areas will be controlled at checkpoints. The planned zones are:

- Exclusion (contaminated)
- Contamination Reduction
- Support (noncontaminated).

6.2.1 Exclusion Zone

The Exclusion Zone is the innermost area of the three concentric rings and is considered contaminated, dirty, or "hot." Within this area, the prescribed protection must be worn by any personnel upon entering. An entry checkpoint will be established at the periphery of the exclusion zone to control the flow of personnel and equipment between contiguous zones, and to guarantee that the procedures established to enter and exit the zones are followed.

The Exclusion Zone boundary will be established initially on the

presence of the contaminant(s) within the area. Subsequent to initial operations, the boundary may be readjusted based on observations and/or measurement. The boundary will be physically secured and posted.

6.2.2 Contamination Reduction Zone

Between the Exclusion and the Support Zone is the Contamination Reduction Zone. The purpose of this zone is to provide an area to prevent or reduce the transfer of contaminants which may have been picked up by personnel or equipment returning from the Exclusion Zone. All decontamination activities occur in this area. The boundary between the Support Zone and the Contamination Reduction Zone is the contamination control line. This boundary separates the potentially contaminated area from the clean area. Entry into the Contamination Reduction Zone from the clean area will be through an access control point. Personnel entering at this station will be wearing the prescribed PPE for working in the Contamination Reduction Zone. Exiting the Contamination Reduction Zone to the Clean Area requires the removal of any suspected or known contaminated PPE, and compliance with the established decontamination procedures.

6.2.3 Support Zone

The Support Zone is the outermost of the three rings and is considered decontaminated, or Clean Area. It contains the Command Post (CP) for field operations and other elements necessary to support site activities. Normal street or Level D work clothes are the appropriate apparel to be worn in this area.

6.3 Zone Dimensions

Considerable judgement is needed to ensure safe working distances for each zone, balanced against practical work considerations. Physical and topographical barriers may constrain ideal locations. Field/laboratory measurements combined with meteorological conditions and air dispersion calculations will assist in establishing the control zone distances. When not working in areas that require the use of chemical-resistant clothing, work zone procedures may still need to limit the movement of personnel and retain adequate site control.

6.4 Decontamination Procedures

As part of the system to prevent or reduce the physical transfer of contaminants by people and/or equipment from the site, procedures will be instituted for decontaminating anything leaving the Exclusion Zone and Contamination Reduction Zone.

These procedures include the decontamination of personnel, protective equipment, monitoring equipment, clean-up equipment, etc. Unless otherwise demonstrated, everything leaving the Exclusion Zone should be considered contaminated. In general, decontamination at the site consists of rinsing equipment with detergent/water solution. Reusable decontaminated PPE will be stored for air drying.

Decontamination is addressed in two ways: the physical arrangement and control of contamination zones, and the effective use of decontamination procedures.

The decontamination process uses cleaning solutions, followed by rinse solutions. Used solution, brushes, sponges, and containers must be properly disposed of.

Decontamination Solution

Description	Usage
3 cups Alconox 1 cup sodium carbonate 5-8 gallons water	Light contamination
Commercial Detergent - Full strength or diluted	Organic contaminants

As with all alkaline cleaners, continuous or repeated contact with the skin should be avoided. If an employee's skin becomes contaminated, he/she will move to the decontamination area and remove contaminated clothing, and wash with a mild soap/detergent and water to remove any contaminant from the skin. He/she will then see a physician for possible medical treatment.

A rinse solution will be used to remove the contamination solution and neutralize any excess decontamination solution.

All personnel will follow these decontamination procedures:

1. When returning from the Exclusion Zone, remove heavy soil, as necessary, from boots, gloves, and clothing by using a towel or hose before entering the Contamination Reduction Zone.

2. At the decontamination area, step into decontamination tub(s) and brush boots and gloves clean.

3. Remove disposable suit and discard in proper container.

4. Step into rinse tub(s), then remove boots.

5. Remove outer gloves and dispose of properly.

6. Remove respirator and hard hat.

7. Remove inner gloves and dispose of properly.

Decontamination procedures may be modified, if necessary, with the approval of the Site Safety Officer.

6.4.1 Personal Decontamination During Medical Emergencies

In the event of personal injury, first-aid personnel must decide if the victim's injuries are potentially the type that would be aggravated by movement. If there is any doubt, or if the victim is unconscious and cannot respond, no attempt should be made to move the victim to the decontamination area. Only off-site paramedics may move such victims. If the paramedics approve, the victim's PPE will be cut off in the Decontamination Reduction Zone. If the decision is made not to remove the victim's protective clothing, he/she will be wrapped in a tarp or similar object to protect the ambulance and crew during transportation. If the victim is contaminated with materials that threaten to cause additional injury or immediate health hazards, the PPE will be carefully removed and the victim washed appropriately.

7.0 EMERGENCY PROCEDURES

7.1 General Injury

- Step 1: Use first-aid kit on site, if appropriate.
- Step 2: Use off-site help and/or assistance if appropriate.
- Step 3: Notify SSO, Project Manager and Health and Safety Director.

7.2 Specific Treatments

- Eye Exposure: flush eye with eye wash, call ambulance.
- Skin Exposure: wash immediately with soap and water; call ambulance, if necessary.
- Fire (localized): use fire extinguisher and activate alarm system, if necessary.

- Fire (uncontrolled): call Fire Department.
- Chemical Spill: call Fire Department and National Response Center for Toxic Chemical and Oil Spills.
- Explosion: call Fire Department if potential for additional explosions or fire danger exists.
- Inhalation: move affected person(s) to fresh air and cover source of vapors, if appropriate.
- Swallowing: call ambulance.

7.3 Emergency Phone Numbers

Medical/General Service Numbers

Police Department	911
Fire Department	911
Ambulance	911

Hospital

Alameda Hospital (510) 522-3700
2070 Clinton Avenue
Alameda, California

From the Site, proceed east on Buena Vista Avenue and turn right on Willow Street. Proceed south on Willow Street and turn right on Clinton Avenue. Alameda Hospital is located at 2070 Clinton Avenue on the left side of the road (Figure 1).

Hazardous Materials Response/Reporting

National Emergency Response Center	(800) 424-8802
California State Office of Emergency Services	(800) 852-7550
Regional Water Quality Control Board	(510) 622-2300

7.4 Accident Reporting Procedures

In the event of an emergency, contact the following:

KBH : (925) 750-1700

Joe Sordi (Health and Safety Director)	Cell	(510) 376-0037
Joe Sordi (Project Manager)	Cell	(510) 376-0037
Henryk Tay (Site Safety Officer)	Cell	(510) 719-3534

If an exposure or injury occurs, work shall be temporarily halted

until the SSO, in consultation with the Health and Safety Director, decides it is safe to continue work.

8.0 DOCUMENTATION

The SSO will record field observations of health and safety procedures by workers conducting the planned activities outlined in Section 3.0, including deviations from the recommended health and safety procedures.

9.0 MEDICAL MONITORING

Appropriate medical monitoring will be required of KBH personnel to:

- Meet requirements of 29 CFR 1910.120 (f).
- Meet requirements for respirator use.
- Meet other legal requirements.

A signed physician's statement qualifying the individual for the work to be performed will be required as part of the medical monitoring program.

10.0 TRAINING PROGRAM

1. The KBH SSO shall have fulfilled all appropriate training requirements indicated by 29 CFR 1910.120 (e), including the 40-hour training requirement and required refresher courses.

2. A tailgate session to discuss this HSP will be held before field activities begin. All KBH personnel and contractor/subcontractor employees shall receive, at a minimum, the following information:

- the names of personnel and alternates responsible for site safety and health
- safety, health, and other hazards at the Site
- instruction in the use of personal protective equipment
- action levels
- employee work practices to minimize risks from on-site hazards

- instruction in the safe use of engineering controls and equipment on site
- site control measures
- emergency plans
- Proposition 65 warnings.

11.0 PROPOSITION 65

Under California's Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65), individuals who may be exposed in the work place to chemicals that may cause cancer or birth defects must be warned of such hazards pursuant to California Health and Safety Code (HSC) Section 25249.6. At this Site, the chemicals that may cause cancer or reproductive abnormalities, and their respective warnings, are listed below.

11.1 Carcinogens and Reproductive Toxicants

Chemicals known to the State of California to cause cancer, as listed in Title 22, California Code of Regulations (CCR) Section 12000(b), which may be present at the Site include benzene. Chemicals known to the State of California as reproductive toxicants, as listed in Title 22, CCR Section 12000(b), which may be present at the Site include lead.

11.2 Warnings

Pursuant to HSC Section 25249.6 and CCR Sections 12601(c)(3)(A) and 12601(c)(3)(B), the following warnings must be made:

"This area contains chemicals known to the State of California to cause cancer."

12.0 SIGNATURES

12.1 KBH Personnel

This HSP for construction activities to be conducted within former well MW-3B at the Marina Cove Subdivision in Alameda, California, is approved by the following KBH personnel:

_____ _____

Joe Sordi
Project Manager/
Health and Safety Director

Date

_____ _____

Henryk Tay
Site Safety Officer

Date

12.2 Contractor and Subcontractor Personnel

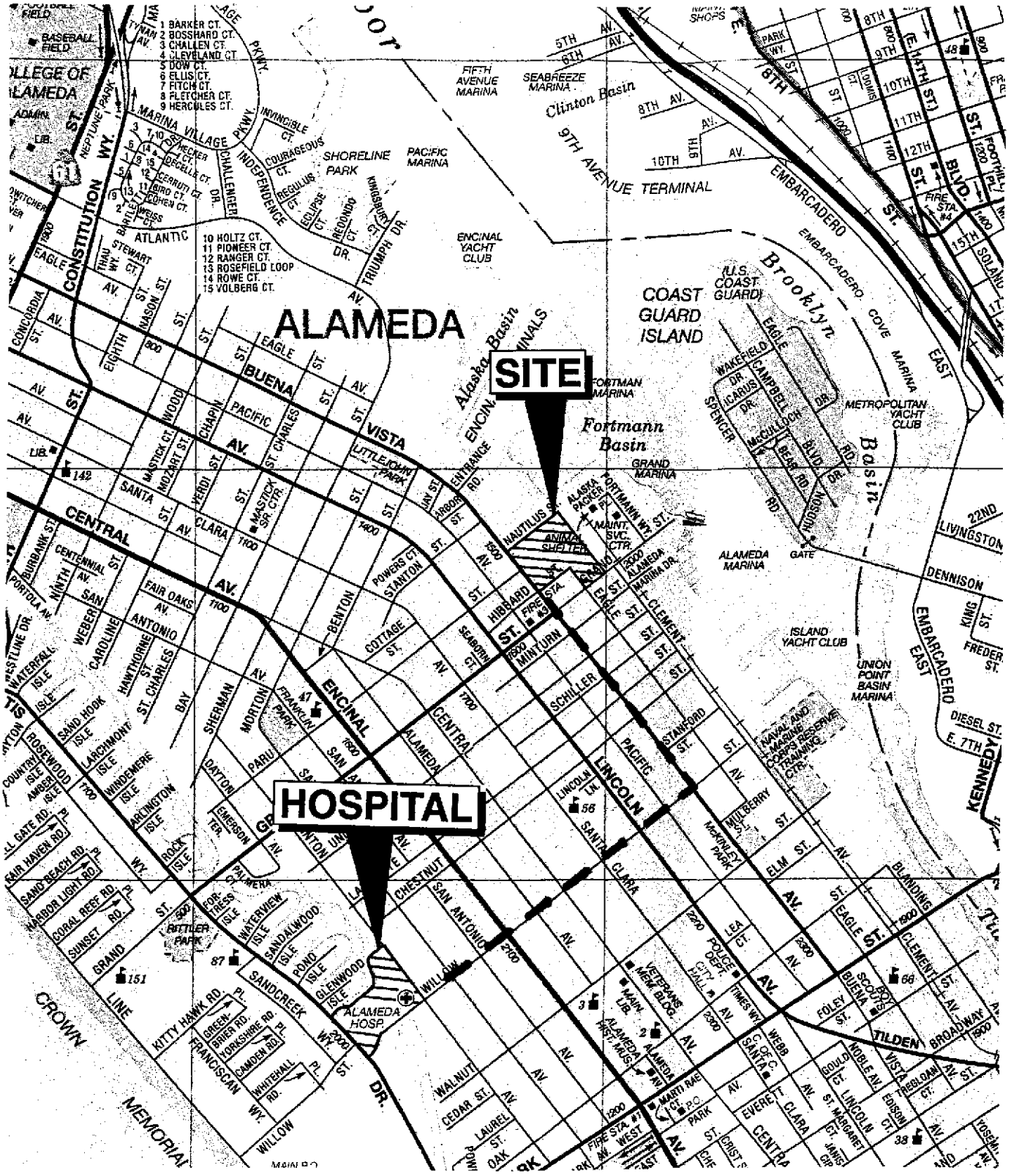
Contractor and Subcontractor Agreement:

1. Contractor certifies that the following personnel noted below to be employed on construction activities within the former well MW-3B at the Marina Cove Subdivision in Alameda, California, have met the requirements of the OSHA Hazardous Waste Operations and Emergency Response Standard 29 CFR 1910.120 and other applicable OSHA Standards.

2. Contractor certifies that in addition to meeting the OSHA requirements, it has received a copy of this HSP, and will ensure that its employees are informed and will comply with both OSHA requirements and the guidelines in this HSP.

3. Contractor further certifies that it has read, understands and will comply with all provisions of this HSP, and it will take full responsibility for the health and safety of its employees.

Contractor	Signature	Date



Scale: 1" : ± 1100'	August 2002	SITE LOCATION AND HOSPITAL ROUTE Marina Cove Subdivision, Alameda, California	Figure 1
ICE Innovative & Creative Environmental Solutions			Project 2262

JOB SAFETY & HEALTH PROTECTION

The Occupational Safety and Health Act of 1970 provides job safety and health protection for workers by promoting safe and healthful working conditions throughout the Nation. Requirements of the Act include the following:

Employers

All employers must furnish to employees employment and a place of employment free from recognized hazards that are causing or are likely to cause death or serious harm to employees. Employers must comply with occupational safety and health standards issued under the Act.

Employees

Employees must comply with all occupational safety and health standards, rules, regulations and orders issued under the Act that apply to their own actions and conduct on the job.

The Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor has the primary responsibility for administering the Act. OSHA issues occupational safety and health standards, and its Compliance Safety and Health Officers conduct jobsite inspections to help ensure compliance with the Act.

Inspection

The Act requires that a representative of the employer and a representative authorized by the employees be given an opportunity to accompany the OSHA inspector for the purpose of aiding the inspection.

Where there is no authorized employee representative, the OSHA Compliance Officer must consult with a reasonable number of employees concerning safety and health conditions in the workplace.

Complaint

Employees or their representatives have the right to file a complaint with the nearest OSHA office requesting an inspection if they believe unsafe or unhealthful conditions exist in their workplace. OSHA will withhold, on request, names of employees complaining.

The Act provides that employees may not be discharged or discriminated against in any way for filing safety and health complaints or for otherwise exercising their rights under the Act.

Employees who believe they have been discriminated against may file a complaint with their nearest OSHA office within 30 days of the alleged discrimination.

Citation

If upon inspection OSHA believes an employer has violated the Act, a citation alleging such violations will be issued to the employer. Each citation will specify a time period within which the alleged violation must be corrected.

The OSHA citation must be prominently displayed at or near the place of alleged violation for three days, or until it is corrected, whichever is later, to warn employees of dangers that may exist there.

Proposed Penalty

The Act provides for mandatory penalties against employers of up to $1,000 for each serious violation and for optional penalties of up to $1,000 for each nonserious violation. Penalties of up to $1,000 per day may be proposed for failure to correct violations within the proposed time period. Also, any employer who willfully or repeatedly violates the Act may be assessed penalties of up to $10,000 for each such violation.

Criminal penalties are also provided for in the Act. Any willful violation resulting in death of an employee, upon conviction, is punishable by a fine of not more than $10,000, or by imprisonment for not more than six months, or by both. Conviction of an employer after a first conviction doubles these maximum penalties.

Voluntary Activity

While providing penalties for violations, the Act also encourages efforts by labor and management, before an OSHA inspection, to reduce workplace hazards voluntarily and to develop and improve safety and health programs in all workplaces and industries. OSHA's Voluntary Protection Programs recognize outstanding efforts of this nature.

Such voluntary action should initially focus on the identification and elimination of hazards that could cause death, injury, or illness to employees and supervisors. There are many public and private organizations that can provide information and assistance in this effort, if requested. Also, your local OSHA office can provide considerable help and advice on solving safety and health problems or can refer you to other sources for help such as training.

Consultation

Free consultative assistance, without citation or penalty, is available to employers, on request, through OSHA supported programs in most State departments of labor or health.

More Information

Additional information and copies of the Act, specific OSHA safety and health standards, and other applicable regulations may be obtained from your employer or from the nearest OSHA Regional Office in the following locations:

Atlanta, Georgia
Boston, Massachusetts
Chicago, Illinois
Dallas, Texas
Denver, Colorado
Kansas City, Missouri
New York, New York
Philadelphia, Pennsylvania
San Francisco, California
Seattle, Washington

Telephone numbers for these offices, and additional area office locations, are listed in the telephone directory under the United States Department of Labor in the United States Government listing.

Washington, D.C.
1985
OSHA 2203

William E. Brock, Secretary of Labor

U.S. Department of Labor
Occupational Safety and Health Administration

Under provisions of Title 29, Code of Federal Regulations, Part 1903.2(a)(1) employers must post this notice (or a facsimile) in a conspicuous place where notices to employees are customarily posted.

APPENDIX B

SAMPLING PROCEDURES

SAMPLING PROCEDURES

MARINA COVE SUBDIVISION
ALAMEDA, CALIFORNIA

Soil and groundwater sampling will be conducted to provide data to evaluate the extent of chemicals in the soil and groundwater at the Site. Soil and groundwater samples will be used for chemical analysis. The methodology used for this sampling purpose is discussed in the following sections.

Soil Sampling

Soil may be collected for chemical analysis by directly driving a sampler containing vinyl acetate tubing or precleaned brass or stainless steel tubes into the soil to assess surface/subsurface level conditions. The samples must completely fill the tubes to minimize headspace and consequent loss of volatile contaminants, if present. These tubes shall be lined with aluminum foil or Teflon, capped with air-tight plastic lids, and taped around the caps to prevent possible moisture and chemical loss. Disturbed soil samples will be collected in 250-ml jars with taped, airtight lids. Each jar will be completely filled with soil to minimize headspace and consequent loss of volatile contaminants, if present.

After being sealed and labeled, the soil samples will be maintained at a temperature of 4°C or lower using blue ice during delivery to the laboratory and prior to analysis by the laboratory. Samples will be analyzed at the laboratory within specific holding times.

Groundwater Sampling

Groundwater samples will be collected manually (hand-bailed) using a Teflon bailer. The samples will be transferred into 40-ml VOA vials with Teflon septa and 1-liter amber-colored glass bottles. The samples will be stored in a chilled cooler containing crushed ice to maintain the sample at 4°C for delivery to the laboratory. A field blank sample and duplicate will also be collected for quality control purposes. Strict chain-of-custody (COC) protocols will be followed in all phases of sample handling.

All equipment used during this investigation which might come into contact with contaminated material will be thoroughly cleaned before and after each use. This will be accomplished by washing with Alconox (a laboratory-grade detergent) and/or cleaning with high-pressure hot water (steam cleaning).

After being sealed and labeled, groundwater samples will be maintained at a temperature of 4°C by using crushed ice during delivery to the laboratory and prior to analysis by the laboratory. Samples will be analyzed at the laboratory within specific holding times.

Documentation

- The following information will be entered on the sample collection data form at the time of sampling:

  - project name and number
  - sampler's name
  - time and date of sampling
  - sampling location
  - sampling method
  - sample number
  - sample condition (disturbed/undisturbed)
  - laboratory analyses requested

Each sample will be packaged and transported appropriately, as described in the following protocol.

- Collect samples in appropriately-sized and prepared containers

- Properly seal and package sample containers.

- Fill out field sample log and COC and analyses request forms.

- Separate and place samples into coolers according to laboratory destination. Samples will be packaged so that the potential for shipping damage is minimized.

- Chill samples to approximately 4°C. Blue ice or regular crushed ice used in the coolers will be sealed in a plastic bag other than the one in which it was purchased.

- Seal a copy of the COC form inside a zip-lock bag. Use strapping tape to hold the packet on the inside of the cooler.

- Seal cooler with several strips of strapping tape.

DECONTAMINATION PROCEDURES

Equipment Decontamination

All equipment used for collecting samples during this investigation which might come into contact with contaminated material will be properly decontaminated before and after each use, and before initial use at the Site. This will be accomplished through steam-cleaning and/or washing with Alconox (a laboratory-grade detergent) and rinsing with deionized, distilled, or fresh water. Decontamination procedures will allow for disposal of cleaning fluids in the manner described below.

Disposal Procedures

The cleaning fluids will be collected and placed into appropriate containers to be analyzed and disposed by a licensed recycling facility. The non-hazardous waste, such as cardboard boxes, scrap paper, etc., will be disposed at a Class III landfill.

Sample Custody

In order to check and link each reported datum with its associated sample, sample custody and documentation procedures were established. Three separate, interlinking documentation and custody procedures--for field, office, and laboratory--can be described. The COC forms, which are central to these procedures, are attached to all samples and their associated data throughout the tracking process.

FIELD CUSTODY PROCEDURES

Field documentation will include sample labels, daily field activities logbook, and COC and analyses request forms. These documents will be filled out in indelible ink. Any corrections to the document will be made by drawing a line through the error and entering the correct value without obliterating the original entry. Persons correcting the original document will be expected to initial any changes made. The documents are as follows:

Sample Labels

Labels will be used to identify samples. The label is made of a waterproof material with a water-resistant adhesive. The sample label, to be filled out using waterproof ink, will contain at least the following information: sampler's name, sample number, date, time, location, and preservative used.

Field Log of Daily Activities

A field log will be used to record daily field activities. The project manager is responsible for making sure that a copy of the field log is sent to the project file as soon as each sampling round is completed. Field log entries will include the following:

- field worker's name;
- date and time data are entered;
- location of activity;
- personnel present on-site;
- sampling and measurement methods;
- total number of samples collected;
- sample numbers;
- sample distribution (laboratory);
- field observations, comments;
- sample preservation methods used, if any.

Chain-of-Custody (and Analysis Request) Form

The COC form is filled out for groups of samples collected at a given location on a given day. The COC will be filled out in duplicate form, and will accompany, every shipment of samples to the respective analytical laboratories.

One copy will accompany the samples to the analytical laboratory. The second copy is kept in the ICES QA/QC file. The COC makes provision for documenting sample integrity and the identity of any persons involved in sample transfer. Other information entered on the COC includes:

- project name and number;
- project location;
- sample number;
- sampler's/recorder's signature;
- date and time of collection;
- collection location;
- sample type;

- number of sample containers for each sample;
- analyses requested;
- results of laboratory's inspection of the condition of each sample and the presence of headspace, upon receipt by the laboratory;
- inclusive dates of possession;
- name of person receiving the sample;
- laboratory sample number;
- date of sample receipt; and
- address of analytical laboratory.