Containment Plan for Total Petroleum Hydrocarbon-Affected Soils Yerba Buena Project Site Emeryville and Oakland, California

March 10, 1992
1649.06

Prepared for:

Catellus Development Corporation
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LEVINE·FRICKE

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ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

March 10, 1992

LF 1649.06

Mr. Lester Feldman
California Regional Water Quality
Control Board
2101 Webster Street, Suite 500
Oakland, California 94612

Subject: Containment Plan for Total Petroleum Hydrocarbon-Affected Soils, Yerba Buena Project Site
Emeryville and Oakland, California

Dear Mr. Feldman:

Per your request in our meeting on February 13, 1992, enclosed please find the "Containment Plan for Total Petroleum Hydrocarbon-Affected Soils for the Yerba Buena Project Site" prepared by Levine•Fricke on behalf of Catellus Development Corporation. The report presents the proposed development plan for the Site and discusses the coordination of the containment program for petroleum-affected soils (on-site) containment) and the development plan.

If you have any questions, please do not hesitate to call me or Cindy Barclay.

Sincerely,

Amanda Spencer
Senior Hydrogeologist

cc: Dennis Byrne, Alameda County Health Agency
Ric Notini, Catellus
Pat Cashman, Catellus
Don Marini, Catellus

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TOTAL PETROLEUM HYDROCARBON-AFFECTED SOILS
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1.0 INTRODUCTION

This report has been prepared on behalf of Catellus Development Corporation ("Catellus") and presents the containment program for soils affected with total petroleum hydrocarbons (TPH) at the Yerba Buena Project Site (the "Site") located in Emeryville and Oakland, California (Figure 1). In accordance with the February 11, 1991 "Site Remedial Plan," prepared by Levine·Fricke and approved by the Alameda County Health Care Services Agency (ACHA), TPH-affected soils will be contained on site. This report also presents the proposed development plan for the Site and discusses the coordination of the containment program for petroleum-affected soils (on-site containment) and the development plan.

Site development plans and corresponding geotechnical specifications require that soils be excavated from certain portions of the Site and recompacted to improve foundation conditions before development and to mitigate potential future differential settling of buildings at the Site. In other portions of the Site, soils need to be cut from one area and relocated to lie beneath future asphalt-covered parking areas or proposed on-site building pads to achieve specified final site development elevations and/or grading requirements. Some of these soils may contain TPH as diesel and/or oil.

This report is organized into a background summary of previous investigations at the Site followed by sections discussing grading activities for various portions of the Site and the containment program for TPH-affected soils encountered during grading. TPH-affected soils will be excavated and recompacted in place, excavated and relocated on the Site, or contained in place. All TPH-affected soil encountered at the Site will be contained beneath building pads or low permeability asphalt paving to mitigate possible leaching of TPH-affected soils. Finally, a discussion of ground-water remedial activities to monitor the possible presence of TPH in ground water is presented.

2.0 BACKGROUND

Environmental investigations at the Site were initiated in September 1989 by Levine·Fricke on behalf of Catellus and have continued over the last three years (Levine·Fricke 1990a, 1991a, 1991b, and 1991c). The Site was divided into three areas (Areas A, B, and C; Figure 2) to aid in the organization of the sampling and analysis program conducted at the Site. Figure 3 presents results of TPH analysis characterized as oil or diesel for soil samples collected in or near Area A of the Site. As indicated on Figure 3, TPH appears to be widespread in the shallow soil of the western and central portions of Area A. Concentrations of TPH in the western portion of Area A ranged from below laboratory detection limits to 6,800 parts per million (ppm) in soil samples collected from depths of less than 4.5 feet below the ground surface (bgs). The TPH appear to be contained primarily in a 3- to 5-foot thick layer of gravel fill (Figure 3). TPH was detected at slightly higher concentrations, ranging from below laboratory detection limits to 17,000 ppm, in soil samples collected in the central portion of Area A from depths between approximately 3 and 7 feet bgs.

In addition to environmental investigations, a geotechnical investigation was completed in 1990 for a portion of Area A of the Site to evaluate whether soil conditions in this area are suitable for the proposed development. A report of the results of this investigation was prepared (Levine·Fricke 1991d) and included recommendations for preparing Area A soils so that a suitable building pad could be constructed and appropriate foundation conditions obtained.

Area B of the Site includes the former Ransome Company property (Figure 2). An initial investigation of this property was included in Levine·Fricke's Phase I Investigation of the Site (Levine·Fricke 1991a). Further environmental investigations of this property were conducted by Ransome and environmental consultants (Aqua Resources, Inc. [ARI]) working on behalf of Ransome (ARI 1990). The investigations conducted at the former Ransome Company property indicated the presence of petroleum compounds and associated constituents in the soil. ARI initiated excavating and stockpiling TPH-affected soil at the property. Ransome requested that ARI stop work in September 1991, and Levine·Fricke, on behalf of Catellus, continued the excavation and on-site stockpiling of TPH-affected soil.

3.0 PROPOSED AREAS OF ON-SITE CONTAINMENT OF TPH-AFFECTED SOILS

The following sections briefly describe the site development plan for the Site, some of the geotechnical requirements for on-site soils for building construction, and proposed areas for containment of TPH-affected soil encountered at the Site.

3.1 Western Portion of Area A (Gravelly Soils)

Soils in the western portion of Area A consist of approximately 3 to 5 feet of gravel fill underlain by expansive silty clay. Proposed development for this area consists of constructing a 102,500-square-foot building (Home Depot) and adjacent parking lot at Macarthur Boulevard and Hollis Street (Figure 4). This portion of the Site previously was used as a truck yard and records of placement and compaction for the fill are not available. To provide more uniform support for the proposed building foundations and floor slab and to mitigate the effects of expansive soils, the fill must be reworked. In preparing the building pad, the existing site grades will be lowered, with most of the existing gravel fill removed and replaced; up to 5 to 7 feet of underlying silty clay will be removed from the eastern portions of the Home Depot pad area.

As discussed previously and presented on Figure 3, TPH has been detected in the gravel fill at concentrations ranging from below laboratory detection limits to 6,800 ppm. TPH concentrations do not appear to extend much below the gravel fill in this area. Based on TPH analysis results for soil samples collected from the gravel fill, an order of magnitude estimate of the average TPH concentration of these soils subsequent to soil excavation and reworking is anticipated to be approximately 700 ppm.

For geotechnical purposes, only about 2.5 feet of gravelly soil is required beneath the building to provide adequate bearing properties. Gravelly soils generally were not encountered in the eastern portion of Area A. Therefore, it has been proposed that after replacing an approximately 2.5-foot thick layer of gravel fill in the area of the proposed Home Depot pad (approximately 16,000 cubic yards), the remainder of the gravel fill (approximately 16,000 cubic yards) be placed beneath the proposed adjacent building pad to the east (the proposed Sportmart, Bizmart, and Drug Emporium; Figure 4).

Figure 5 presents a geologic cross section of the area and illustrates the depth to which silty clay soils beneath the gravel fill will need to be cut from the Site and allow for the replacement of 2.5 feet of gravel fill. As presented in Figure 5 and based on historical ground-water elevation measurements for the Site, at the point of the deepest cut, there will still be over 5 feet of silty clay soil between potentially TPH-affected gravel fill and ground water. Because the Site will be capped by buildings or asphalt paving, surface-water infiltration will be significantly reduced. Additionally, the TPH detected at the Site does not appear to be very mobile (Levine•Fricke 1991a). However, in the unlikely event that the TPH leaches from the soils, the expected low permeability of the silty clay beneath the reworked gravel will minimize the likelihood that TPH would reach ground water. Additionally, as discussed later in this report, ground water will be monitored for the possible presence of TPH.

3.2 Central Portion of Area A (Clayey Soils)

Soils in the central portion of Area A consist primarily of a black silty clay. Several retail stores are to be constructed in this portion of the Site (Figure 4). The majority of TPH-affected soil in this area will remain in place and will be covered or capped with asphalt/and or concrete. However, development plans and corresponding grading activities for a portion of this area call for approximately 2,000 cubic yards of potentially TPH-affected soil to be excavated to achieve desired elevations for construction. Areas of potentially TPH-affected soils to be excavated and moved are shaded in Figure 4. It is proposed that these soils be placed beneath the parking lot to be located north of this area (Figure 4). Placing TPH-affected soils beneath a paved parking lot or beneath buildings minimizes the risk of future impact to shallow ground water and limits potential exposure to the affected soil.

3.3 Ransome Property

Approximately 25,000 cubic yards of TPH-affected soil are currently stockpiled at the former Ransome property. These soils contain low (generally less than 2,000 ppm; Table 1) concentrations of TPH as diesel and/or oil. However, approximately 8,000 cubic yards of this stockpiled soil contains gasoline and benzene, toluene, ethylbenzene, and xylene (BTEX). It is proposed that the gasoline- and BTEX-affected soils be aerated on site until concentrations of benzene in soils are below laboratory detection limits, the

total concentration of ethylbenzene, toluene, and xylene is less than 1 ppm, and gasoline concentrations are below 10 ppm. Once aeration of the 8,000 cubic yards of gasoline- and BTEX affected soil is complete, it is proposed that stockpiled oil- and diesel-affected soil and the aerated soils be placed beneath the proposed parking lot illustrated on Figure 4. As discussed previously, placing TPH-affected soils in areas to be covered with asphalt and/or concrete minimizes possible exposure to the affected soils and mitigates future impact to shallow ground water by reducing surface infiltration through the soil.

4.0 GROUND-WATER REMEDIAL ACTIVITIES

To monitor for the potential future affects of TPH-affected soils on ground water beneath the Site, ground-water samples collected from selected wells during upcoming monitoring activities will be analyzed for TPH as oil and diesel on a semiannual basis. In accordance with the December 6, 1991 "Sampling and Analysis Plan for Quarterly Ground-Water Monitoring," prepared by Levine·Fricke and approved by the ACHA, ground-water samples collected from monitoring wells LF-3, LF-4, LF-5, and LF-19 (Figure 4) are to submitted for TPH analysis (using EPA Method 8015) during the first (January to March) and third (July to August) quarters of ground-water monitoring. Additionally, a ground-water collection trench has been installed along the western property boundary (downgradient) of Area A (Figure 4) to capture and contain ground water in Area A affected by volatile organic compounds. Although considered unlikely, if TPH-affected soil contained at the Site affected shallow ground water in the future, it is likely that this ground water would be captured and contained by the extraction trench.

5.0 SUMMARY

In conjunction with grading activities proposed for the Yerba Buena Project Site, a containment program for TPH-affected soils has been developed to contain affected soil on site beneath building pads or low-permeability asphalt paving. TPH-affected soils will be excavated and recompacted in place, excavated and relocated on the Site, or contained in-place according to proposed development plans for various portions of the Site. To minimize possible future exposure to the affected soils and to mitigate possible future impacts of

TPH-affected soils on shallow ground water, areas of the Site where affected soils will be located will be covered with low permeability asphalt paving or buildings. Additionally, ground water beneath the Site will be monitored periodically for the presence of TPH to confirm no impacts are occurring.

REFERENCES

Aqua Resources, Inc. (ARI). 1990. Remedial investigation and closure plan for former corporation yard site. December 20.

Levine•Fricke, Inc. 1990a. Phase I and phase II environmental investigation, Yerba Buena Project Site, Emeryville and Oakland, California. August 15 (REVISED October 26, 1990).

———. 1990c. Conceptual remedial plan, Yerba Buena Project Site, Emeryville and Oakland, California. November 8.

———. 1991a. Phase III environmental investigation, Yerba Buena Project Site, Emeryville and Oakland, California. February 6.

———. 1991b. Site remedial plan, Yerba Buena Project Site, Emeryville and Oakland, California. February 11.

———. 1991c. Additional ground-water investigation, Yerba Buena Project Site, Emeryville and Oakland, California. September 6.

———. 1991d. Geotechnical study, proposed Home Depot, East Baybridge Project, Catellus Development Corporation, Emeryville, California. October 23.

———. 1991e. Sampling and analysis plan for quarterly ground-water monitoring in Area A and the south-central portion of Area B of the Yerba Buena Project Site, Emeryville and Oakland, California. December 6.

TABLE 1
PHASE II SAMPLING RESULTS
YERBA BUENA (RANSOME SITE)
EMERYVILLE, CALIFORNIA
(all data in parts per million [ppm])

Sample ID	Date Sampled	Lab Analysis Return Date	Diesel	Oil	Gasoline
SP1-1	15-Oct-91	17-Oct-91	<10	180	<10
SP2-1	15-Oct-91	17-Oct-91	<10	80	<10
SP3-1	15-Oct-91	17-Oct-91	<10	570	<10
SP3-2	23-Oct-91	28-Oct-91	17	320	<10
SP3-3	23-Oct-91	28-Oct-91	13	690	<10
SP4-1	15-Oct-91	17-Oct-91	<10	560	<10
SP4-2	17-Oct-91	21-Oct-91	<10	590	<10
SP4-3	17-Oct-91	21-Oct-91	<10	1,100	<10
SP4-4	23-Oct-91	28-Oct-91	<10	255	<10
SP4-5	23-Oct-91	28-Oct-91	11	160	<10
SP4-6	23-Oct-91	28-Oct-91	10	260	<10
SP4-7	23-Oct-91	28-Oct-91	<10	170	<10
SP4-8	23-Oct-91	28-Oct-91	<10	210	<10
SP4-9	23-Oct-91	28-Oct-91	<10	175	<10
SP4-10	23-Oct-91	28-Oct-91	<10	220	<10
SP4-11	23-Oct-91	28-Oct-91	<10	130	<10
SP4-12	23-Oct-91	28-Oct-91	<10	180	<10
SP4-13	23-Oct-91	28-Oct-91	<10	320	<10
SP4-14	23-Oct-91	29-Oct-91	<10	<50	<10
SP4-15	23-Oct-91	29-Oct-91	<10	55	<10
SP4-16	23-Oct-91	29-Oct-91	10	70	<10
SP4-17	23-Oct-91	29-Oct-91	16	<50	<10
SP4-18	23-Oct-91	29-Oct-91	<10	<50	<10
SP4-19	23-Oct-91	29-Oct-91	<10	50	<10
SP4-20	23-Oct-91	31-Oct-91	<10	<50	<10
SP4-21	23-Oct-91	31-Oct-91	<10	71	<10
SP4-22	23-Oct-91	31-Oct-91	<10	<50	<10
SP4-23	23-Oct-91	31-Oct-91	<10	<50	<10
SP4-24	23-Oct-91	31-Oct-91	<10	<50	<10
SP4-25	23-Oct-91	31-Oct-91	<10	<50	<10
SP4-26	23-Oct-91	31-Oct-91	<10	<50	<10
SP4-27	23-Oct-91	31-Oct-91	<10	<50	<10
SP4-28	23-Oct-91	31-Oct-91	<10	<50	<10
SP4-29	23-Oct-91	31-Oct-91	<10	<50	<10
SP4-30	23-Oct-91	31-Oct-91	<10	<50	<10
SP4-31	23-Oct-91	31-Oct-91	<10	<50	<10
SP4-32	23-Oct-91	31-Oct-91	<10	<50	<10
SP4-33	23-Oct-91	31-Oct-91	<10	<50	<10

TABLE 1
PHASE II SAMPLING RESULTS
YERBA BUENA (RANSOME SITE)
EMERYVILLE, CALIFORNIA
(all data in parts per million [ppm])

Sample ID	Date Sampled	Lab Analysis Return Date	Diesel	Oil	Gasoline
SP4-34	23-Oct-91	31-Oct-91	<10	<50	<10
SP4-35	23-Oct-91	31-Oct-91	<10	<50	<10
SP4-36	23-Oct-91	30-Oct-91	<10	<50	<10
SP4-37	23-Oct-91	30-Oct-91	<10	73	<10
SP4-38	23-Oct-91	30-Oct-91	10	60	<10
SP4-39	23-Oct-91	30-Oct-91	<10	70	<10
SP4-40	23-Oct-91	30-Oct-91	<10	<50	<10
SP4-41	23-Oct-91	30-Oct-91	<10	<50	<10
SP4-42	23-Oct-91	30-Oct-91	<10	<50	<10
SP4-43	23-Oct-91	30-Oct-91	10	80	<10
SP4-44	23-Oct-91	30-Oct-91	10.5	60	<10
SP4-45	23-Oct-91	30-Oct-91	<10	70	<10
SP4-46	23-Oct-91	30-Oct-91	<10	<50	<10
SP4-47	23-Oct-91	30-Oct-91	<10	<50	<10
SP4-48	23-Oct-91	30-Oct-91	10	60	<10
SP4-49	23-Oct-91	30-Oct-91	<10	<50	<10
SP4-50	23-Oct-91	30-Oct-91	<10	60	<10
SP5-1	15-Oct-91	17-Oct-91	<10	51	<10
SP6-1	15-Oct-91	17-Oct-91	<10	110	<10
SP7-1	15-Oct-91	17-Oct-91	<10	100	<10
SP8-1	15-Oct-91	17-Oct-91	<10	130	<10
SP8-2	15-Oct-91	17-Oct-91	<10	80	<10
SP9-1	15-Oct-91	17-Oct-91	<10	480	<10
SP9-2	15-Oct-91	17-Oct-91	<10	360	<10
SP9-1	23-Oct-91	28-Oct-91	<10	80	<10
SP9-2	23-Oct-91	28-Oct-91	<10	10	<10
SP9-3	23-Oct-91	28-Oct-91	<10	270	<10
SP9-4	23-Oct-91	28-Oct-91	<10	110	<10
SP9-5	23-Oct-91	28-Oct-91	<10	200	<10
SP9-6	23-Oct-91	28-Oct-91	<10	<50	<10
SP9-7	23-Oct-91	28-Oct-91	<10	<50	<10
SP9-8	23-Oct-91	28-Oct-91	<10	230	<10
SP9-9	23-Oct-91	28-Oct-91	<10	140	<10
SP9-10	23-Oct-91	28-Oct-91	<10	130	<10
SP9-11	23-Oct-91	28-Oct-91	<10	215	<10
SP9-12	23-Oct-91	28-Oct-91	<10	260	<10

TABLE 1
PHASE II SAMPLING RESULTS
YERBA BUENA (RANSOME SITE)
EMERYVILLE, CALIFORNIA
(all data in parts per million [ppm])

Sample ID	Date Sampled	Lab Analysis Return Date	Diesel	Oil	Gasoline
SP9-13	23-Oct-91	28-Oct-91	<10	85	<10
SP9-14	23-Oct-91	28-Oct-91	<10	160	<10
SP9-15	23-Oct-91	28-Oct-91	<10	110	<10
SP9-16	23-Oct-91	28-Oct-91	<10	80	<10
SP9-17	23-Oct-91	28-Oct-91	<10	225	<10
SP9-18	23-Oct-91	28-Oct-91	<10	125	<10
SP9-19	23-Oct-91	28-Oct-91	<10	60	<10
SP9-20	23-Oct-91	28-Oct-91	<10	<50	<10
SP9-21	23-Oct-91	28-Oct-91	<10	66	<10
SP9-22	23-Oct-91	28-Oct-91	<10	276	<10
SP9-23	23-Oct-91	28-Oct-91	<10	<50	<10
SP9-24	23-Oct-91	28-Oct-91	<10	88	<10
SP10-1	15-Oct-91	17-Oct-91	<10	<50	18
SP10-2	15-Oct-91	17-Oct-91	<10	<50	<10
SP10-3	15-Oct-91	17-Oct-91	<10	<50	<10
SP10-4	15-Oct-91	17-Oct-91	<10	<50	<10
SP10-5	15-Oct-91	17-Oct-91	<10	<50	<10
SP10-6	07-Nov-91	15-Nov-91	<10	NA	1.1
SP10-7	07-Nov-91	15-Nov-91	<10	NA	<1.0
SP10-8	07-Nov-91	15-Nov-91	<10	NA	6.5
SP10-9	07-Nov-91	15-Nov-91	<10	NA	<1.0
SP11-1	16-Oct-91	18-Oct-91	40	170	<10
SP12-1	16-Oct-91	18-Oct-91	430	2,500	<10
SP12-2	24-Oct-91	11-Nov-91	72	113	<10
SP12-3	24-Oct-91	11-Nov-91	53	134	<10
SP12-4	24-Oct-91	11-Nov-91	43.5	231	<10
SP12-5	24-Oct-91	11-Nov-91	22.9	89	<10
SP12-6	24-Oct-91	11-Nov-91	2000	1,430	<10
SP12-7	24-Oct-91	11-Nov-91	36.9	96.6	<10
SP13-1	16-Oct-91	18-Oct-91	19	880	<10
SP13-2	25-Oct-91	14-Oct-91	<10	<50	<10
SP13-3	25-Oct-91	14-Oct-91	<10	<50	<10
SP13-4	25-Oct-91	14-Oct-91	<10	93	<10
SP13-5	25-Oct-91	14-Oct-91	13	113	<10
SP13-6	25-Oct-91	14-Oct-91	<10	77	<10
SP13-7	25-Oct-91	14-Oct-91	13.5	134	<10
SP13-8	25-Oct-91	14-Oct-91	<10	70	<10
SP13-9	25-Oct-91	14-Oct-91	<10	<50	<10

TABLE 1
PHASE II SAMPLING RESULTS
YERBA BUENA (RANSOME SITE)
EMERYVILLE, CALIFORNIA
(all data in parts per million [ppm])

Sample ID	Date Sampled	Lab Analysis Return Date	Diesel	Oil	Gasoline
SP13-10	25-Oct-91	14-Oct-91	<10	<50	<10
SP13-11	25-Oct-91	14-Oct-91	<10	<50	<10
SP13-12	25-Oct-91	14-Oct-91	13.7	104	<10
SP13-13	25-Oct-91	14-Oct-91	<10	56	<10
SP13-14	25-Oct-91	14-Oct-91	26	185	<10
SP13-15	25-Oct-91	14-Oct-91	22.8	237	<10
SP13-16	25-Oct-91	14-Oct-91	<10	<50	<10
SP14-1	16-Oct-91	18-Oct-91	<10	90	<10
SP15-1	16-Oct-91	18-Oct-91	<10	<50	<10
SP15-2	16-Oct-91	18-Oct-91	<10	<50	<10
SP16-1D,2D,3Dcomp	16-Oct-91	18-Oct-91	<10	<50	<10
SP16-4D,5D,6Dcomp	16-Oct-91	18-Oct-91	17	100	17
SP16-7D,8D,9Dcomp	16-Oct-91	18-Oct-91	<10	<50	<10
SP16-9D	18-Oct-91	21-Oct-91	60	150	390
SP16-10D	18-Oct-91	21-Oct-91		<50	<10
SP16-11	25-Oct-91	11-Nov-91	<10	<50	<10
SP16-12	25-Oct-91	11-Nov-91	<10	<50	<10
SP16-13	25-Oct-91	11-Nov-91	<10	<50	<10
SP16-14	25-Oct-91	11-Nov-91	<10	<50	<10
SP16-15	25-Oct-91	11-Nov-91	<10	<50	<10
SP16-16	25-Oct-91	11-Nov-91	40	537	<10
SP16-17	25-Oct-91	11-Nov-91	<10	73	<10
SP16-18	25-Oct-91	11-Nov-91	<10	<50	<10
SP16-19	25-Oct-91	11-Nov-91	<10	65	<10
SP16-20	25-Oct-91	11-Nov-91	<10	<50	<10
SP16-21	25-Oct-91	11-Nov-91	<10	119	<10
SP16-22	25-Oct-91	11-Nov-91	<10	<50	<10
SP16-23	25-Oct-91	11-Nov-91	<10	116	<10
SP16-24	25-Oct-91	11-Nov-91	<10	54	<10
SP16-25	25-Oct-91	11-Nov-91	<10	<50	<10
SP16-26	25-Oct-91	11-Nov-91	<10	<50	<10
SP16-27	25-Oct-91	12-Nov-91	<10	<50	<10
SP16-28	25-Oct-91	12-Nov-91	<10	<50	<10
SP16-29	25-Oct-91	12-Nov-91	<10	245	<10
SP16-30	25-Oct-91	12-Nov-91	<10	68	<10
SP16-31	25-Oct-91	12-Nov-91	<10	71	<10
SP16-32	25-Oct-91	12-Nov-91	<10	<50	<10
SP16-33	25-Oct-91	12-Nov-91	<10	<50	<10
SP16-34	25-Oct-91	12-Nov-91	11.8	190	<10

TABLE 1
PHASE II SAMPLING RESULTS
YERBA BUENA (RANSOME SITE)
EMERYVILLE, CALIFORNIA
(all data in parts per million [ppm])

Sample ID	Date Sampled	Lab Analysis Return Date	Diesel	Oil	Gasoline
SP16-35	25-Oct-91	12-Nov-91	<10	<50	<10
SP16-36	25-Oct-91	12-Nov-91	<10	<50	<10
SP16-37	25-Oct-91	12-Nov-91	<10	<50	<10
SP16-38	25-Oct-91	12-Nov-91	<10	<50	<10
SP16-39	25-Oct-91	12-Nov-91	<10	102	<10
SP16-40	25-Oct-91	12-Nov-91	<10	<50	<10
SP16-41	25-Oct-91	12-Nov-91	<10	<50	<10
SP16-42	25-Oct-91	12-Nov-91	<10	<50	<10
SP16-43	25-Oct-91	14-Nov-91	<10	51	<10
SP16-44	25-Oct-91	14-Nov-91	<10	<10	<10
SP16-45	25-Oct-91	14-Nov-91	<10	<10	<10
SP16-46	25-Oct-91	14-Nov-91	<10	<10	<10
SP16-47	25-Oct-91	14-Nov-91	<10	<10	<10
SP16-48	25-Oct-91	14-Nov-91	<10	<10	<10
SP16-49	25-Oct-91	14-Nov-91	<10	<10	<10
SP16-50	25-Oct-91	14-Nov-91	<10	<10	45
SP17-1	15-Oct-91	17-Oct-91	<10	130	<10
SP18-1	18-Oct-91	21-Oct-91	100	1,260	<10
SP18-2	24-Oct-91	11-Nov-91	37.2	239	<10
SP19-1	16-Oct-91	18-Oct-91	<10	<50	<10
SP19-2	16-Oct-91	18-Oct-91	<10	<50	<10
SP19-3	16-Oct-91	18-Oct-91	<10	<50	<10
SP19-4	16-Oct-91	18-Oct-91	<10	<50	<10
SP19-5	07-Nov-91	15-Nov-91	NA	NA	2.0
SP19-6	07-Nov-91	15-Nov-91	NA	NA	<1.0
SP20-1D,3D comp	16-Oct-91	18-Oct-91	<10	110	
SP20-2D	18-Oct-91	21-Oct-91	<10	1,230	<10
SP20-4D,5D comp	16-Oct-91	18-Oct-91	<10	300	<10
SP20-6D	18-Oct-91	21-Oct-91	12	560	<10
SP20-7D	18-Oct-91	21-Oct-91	<10	810	<10
SP20-8D	18-Oct-91	21-Oct-91	<10	300	15
SP20-9D	18-Oct-91	21-Oct-91	<10	51	<10
SP20-10	24-Oct-91	01-Nov-91	<10	<50	<10
SP20-11	24-Oct-91	01-Nov-91	<10	<50	<10
SP20-12	24-Oct-91	01-Nov-91	<10	<50	<10
SP20-13	24-Oct-91	01-Nov-91	<10	<50	<10
SP20-14	24-Oct-91	01-Nov-91	<10	<50	<10
SP20-15	24-Oct-91	01-Nov-91	<10	<50	<10

TABLE 1
PHASE II SAMPLING RESULTS
YERBA BUENA (RANSOME SITE)
EMERYVILLE, CALIFORNIA
(all data in parts per million [ppm])

Sample ID	Date Sampled	Lab Analysis Return Date	Diesel	Oil	Gasoline
SP20-16	24-Oct-91	01-Nov-91	<10	<50	<10
SP20-17	24-Oct-91	01-Nov-91	<10	<50	<10
SP20-18	24-Oct-91	01-Nov-91	<10	<50	<10
SP20-19	24-Oct-91	01-Nov-91	<10	<50	<10
SP20-20	24-Oct-91	01-Nov-91	<10	<50	<10
SP20-21	24-Oct-91	01-Nov-91	<10	<50	<10
SP20-22	24-Oct-91	01-Nov-91	<10	<50	<10
SP20-23	24-Oct-91	01-Nov-91	<10	<50	<10
SP20-24	24-Oct-91	01-Nov-91	<10	<50	<10
SP20-25	24-Oct-91	01-Nov-91	<10	<50	<10
SP20-26	24-Oct-91	04-Nov-91	<10	<50	<10
SP20-27	24-Oct-91	04-Nov-91	<10	<50	<10
SP20-28	24-Oct-91	04-Nov-91	<10	<50	<10
SP20-29	24-Oct-91	04-Nov-91	<10	<50	<10
SP20-30	24-Oct-91	04-Nov-91	<10	<50	<10
SP20-31	24-Oct-91	04-Nov-91	<10	<50	<10
SP20-32	24-Oct-91	04-Nov-91	<10	<50	<10
SP20-33	24-Oct-91	04-Nov-91	<10	<50	<10
SP20-34	24-Oct-91	04-Nov-91	<10	<50	<10
SP20-35	24-Oct-91	04-Nov-91	<10	<50	<10
SP20-36	24-Oct-91	04-Nov-91	<10	<50	<10
SP20-37	24-Oct-91	04-Nov-91	<10	<50	<10
SP20-38	24-Oct-91	04-Nov-91	<10	<50	<10
SP20-39	24-Oct-91	04-Nov-91	<10	<50	<10
SP20-40	24-Oct-91	04-Nov-91	<10	<50	<10
SP20-41	24-Oct-91	04-Nov-91	<10	<50	<10
SP20-42	24-Oct-91	05-Nov-91	<10	<50	<10
SP20-43	24-Oct-91	05-Nov-91	<10	<50	<10
SP20-44	24-Oct-91	05-Nov-91	<10	<50	<10
SP20-45	24-Oct-91	05-Nov-91	<10	<50	<10
SP20-46	24-Oct-91	05-Nov-91	<10	<50	<10
SP20-47	24-Oct-91	05-Nov-91	<10	<50	<10
SP20-48	24-Oct-91	05-Nov-91	<10	<50	<10
SP20-49	24-Oct-91	05-Nov-91	<10	<50	<10
SP20-50	24-Oct-91	05-Nov-91	<10	<50	<10
SP20-51	24-Oct-91	05-Nov-91	<10	<50	<10
SP20-52	24-Oct-91	05-Nov-91	<10	<50	<10
SP20-53	24-Oct-91	05-Nov-91	<10	<50	<10
SP20-54	24-Oct-91	05-Nov-91	<10	<50	<10
SP20-55	24-Oct-91	05-Nov-91	<10	<50	<10
SP20-56	24-Oct-91	05-Nov-91	<10	<50	<10
SP20-57	24-Oct-91	05-Nov-91	<10	<50	<10

TABLE 1
PHASE II SAMPLING RESULTS
YERBA BUENA (RANSOME SITE)
EMERYVILLE, CALIFORNIA
(all data in parts per million [ppm])

Sample ID	Date Sampled	Lab Analysis Return Date	Diesel	Oil	Gasoline
SP20-58	24-Oct-91	06-Nov-91	13	305	<10
SP20-59	24-Oct-91	06-Nov-91	16	280	<10
SP20-60	24-Oct-91	06-Nov-91	<10	<50	<10
SP20-61	24-Oct-91	06-Nov-91	<10	86	<10
SP20-62	24-Oct-91	06-Nov-91	<10	<50	<10
SP20-63	24-Oct-91	06-Nov-91	<10	91	<10
SP20-64	24-Oct-91	06-Nov-91	<10	<50	<10
SP20-65	24-Oct-91	06-Nov-91	<10	<50	<10
SP20-66	24-Oct-91	06-Nov-91	10	83	<10
SP20-67	24-Oct-91	06-Nov-91	<10	300	<10
SP20-68	24-Oct-91	06-Nov-91	10	57	<10
SP20-69	24-Oct-91	06-Nov-91	<10	150	<10
SP20-70	24-Oct-91	06-Nov-91	<10	90	<10
SP20-71	24-Oct-91	06-Nov-91	<10	<50	<10
SP20-72	24-Oct-91	06-Nov-91	<10	110	<10
SP20-73	24-Oct-91	06-Nov-91	10	83	<10
SP20-74	24-Oct-91	07-Nov-91	<10	115	<10
SP20-75	24-Oct-91	07-Nov-91	<10	50	<10
SP20-76	24-Oct-91	07-Nov-91	<10	84	<10
SP20-77	24-Oct-91	07-Nov-91	<10	<50	<10
SP20-78	24-Oct-91	07-Nov-91	<10	67	<10
SP20-79	24-Oct-91	07-Nov-91	<10	50	<10
SP20-80	24-Oct-91	07-Nov-91	<10	130	<10
SP20-81	24-Oct-91	07-Nov-91	<10	<50	<10
SP20-82	24-Oct-91	07-Nov-91	19	<50	<10
SP20-83	24-Oct-91	07-Nov-91	<10	70	<10
SP20-84	24-Oct-91	07-Nov-91	16	210	<10
SP20-85	24-Oct-91	07-Nov-91	16	120	<10
SP20-86	24-Oct-91	07-Nov-91	<10	100	<10
SP20-87	24-Oct-91	07-Nov-91	<10	56	<10
SP20-88	24-Oct-91	07-Nov-91	<10	225	<10
SP20-89	24-Oct-91	07-Nov-91	<10	90	<10
SP20-90	24-Oct-91	08-Nov-91	<10	94	<10
SP20-91	24-Oct-91	08-Nov-91	15	<50	<10
SP20-92	24-Oct-91	08-Nov-91	15.6	<50	<10
SP20-93	24-Oct-91	08-Nov-91	<10	<50	<10
SP20-94	24-Oct-91	08-Nov-91	12	<50	<10
SP20-95	24-Oct-91	08-Nov-91	15.9	229	<10
SP20-96	24-Oct-91	08-Nov-91	19	93	<10
SP20-97	24-Oct-91	08-Nov-91	11	90	<10
SP20-98	24-Oct-91	08-Nov-91	<10	140	<10
SP20-99	24-Oct-91	08-Nov-91	<10	71	<10

TABLE 1
PHASE II SAMPLING RESULTS
YERBA BUENA (RANSOME SITE)
EMERYVILLE, CALIFORNIA
(all data in parts per million [ppm])

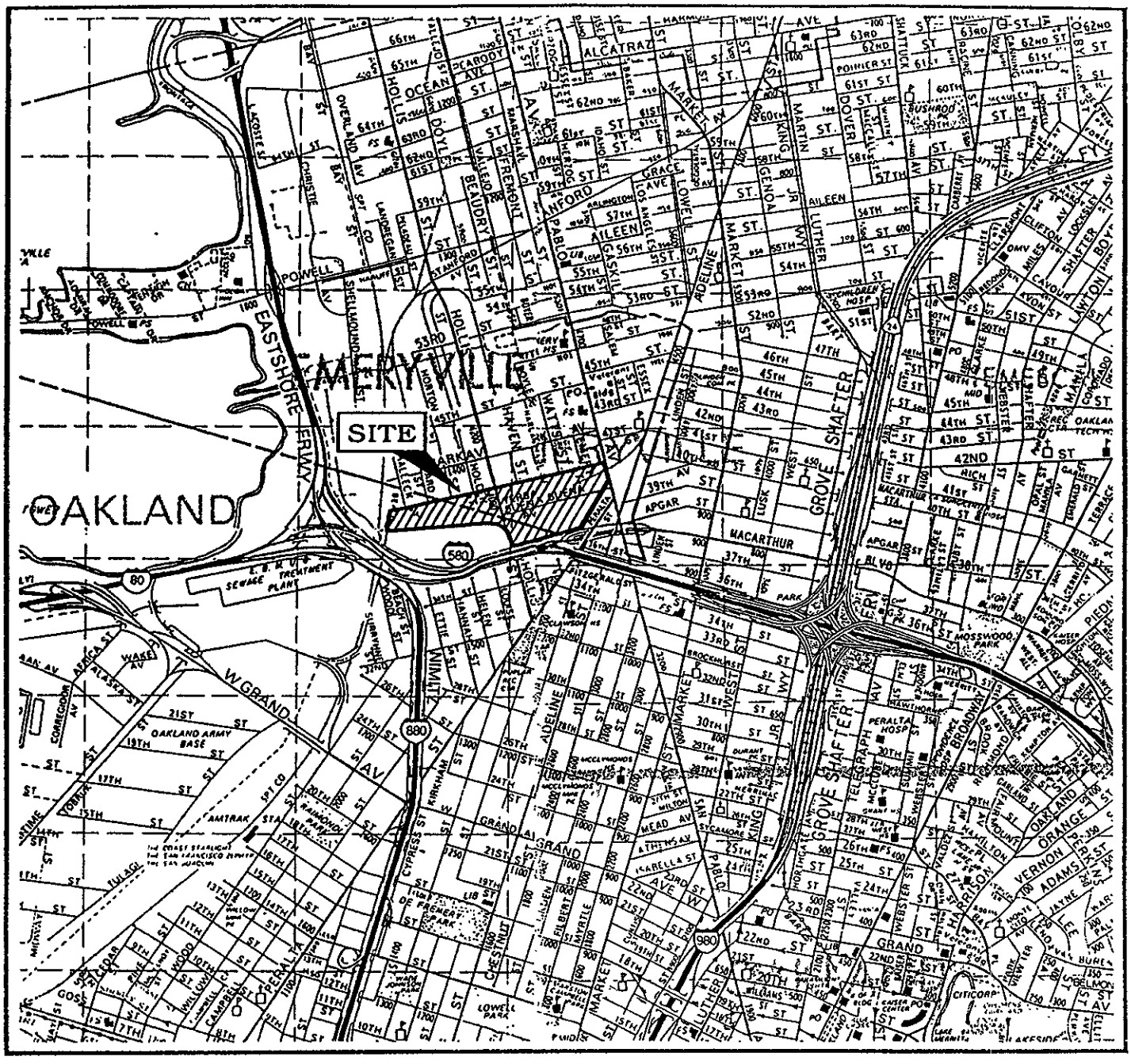
Sample ID	Date Sampled	Lab Analysis Return Date	Diesel	Oil	Gasoline
SP20-100	24-Oct-91	08-Nov-91	<10	60	<10
SP20-101	24-Oct-91	08-Nov-91	<10	<50	<10
SP20-102	24-Oct-91	08-Nov-91	11	86	<10
SP20-103	24-Oct-91	08-Nov-91	<10	51	<10
SP20-104	24-Oct-91	08-Nov-91	<10	<50	<10
SP20-105	24-Oct-91	08-Nov-91	<10	<50	<10
SP20-106	24-Oct-91	12-Nov-91	<10	56	<10
SP20-107	24-Oct-91	12-Nov-91	<10	<50	<10
SP20-108	24-Oct-91	12-Nov-91	13	84	<10
SP20-109	24-Oct-91	12-Nov-91	<10	<50	<10
SO20-110	24-Oct-91	12-Nov-91	<10	90	<10
SO20-111	24-Oct-91	12-Nov-91	<10	<50	<10
SO20-112	24-Oct-91	12-Nov-91	<10	<50	<10
SP20-113	24-Oct-91	12-Nov-91	<10	<50	<10
SO20-114	24-Oct-91	12-Nov-91	13.6	68	<10
SO20-115	24-Oct-91	12-Nov-91	<10	<50	<10
SP20-116	24-Oct-91	12-Nov-91	<10	<50	<10
SP20-117	24-Oct-91	12-Nov-91	12.7	174	<10
SP20-118	24-Oct-91	12-Nov-91	<10	<50	<10
SO29-119	24-Oct-91	12-Nov-91	10	131	<10
SP20-120	24-Oct-91	12-Nov-91	<10	<50	<10
SP20-121	24-Oct-91	12-Nov-91	<10	<50	<10
SP20-122	24-Oct-91	11-Nov-91	<10	<50	<10
SP20-123	24-Oct-91	11-Nov-91	<10	61	<10
SP20-124	24-Oct-91	11-Nov-91	<10	<50	<10
SP20-125	24-Oct-91	11-Nov-91	<10	<50	<10
SP20-126	24-Oct-91	11-Nov-91	12	145	<10
SP20-127	24-Oct-91	11-Nov-91	<10	<50	<10
SP20-128	24-Oct-91	11-Nov-91	<10	<50	<10
SP20-129	24-Oct-91	11-Nov-91	<10	<50	<10
SP20-130	24-Oct-91	11-Nov-91	<10	<50	<10
SP20-131	24-Oct-91	11-Nov-91	<10	<50	<10
SP20-132	24-Oct-91	11-Nov-91	<10	<50	<10
SP20-133	24-Oct-91	11-Nov-91	65	<50	<10
SP20-134	24-Oct-91	11-Nov-91	<10	<50	<10
SP20-135	24-Oct-91	11-Nov-91	<10	<50	<10
SP21-1	16-Oct-91	18-Oct-91	<10	<50	<10
SP22-1	16-Oct-91	18-Oct-91	17	280	<10
SP22-2	16-Oct-91	18-Oct-91	<10	110	<10
SP22-3	25-Oct-91	14-Nov-91	<10	<50	<10

TABLE 1
PHASE II SAMPLING RESULTS
YERBA BUENA (RANSOME SITE)
EMERYVILLE, CALIFORNIA
(all data in parts per million [ppm])

Sample ID	Date Sampled	Lab Analysis Return Date	Diesel	Oil	Gasoline
SP22-4	25-Oct-91	14-Nov-91	14	112	<10
SP22-5	25-Oct-91	14-Nov-91	<10	<50	<10

NOTE: O/G = Total Oil and Grease
TPH = Total Petroleum Hydrocarbons

Analysis performed using EPA Method 8015.



MAP SOURCE:
Alameda & Contra Costa Counties;
Thomas Bros. map, 1990 Edition

Figure 1 : SITE LOCATION MAP
YERBA BUENA PROJECT SITE

Project No. 1649

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1649\ALS-SITE91-1YL

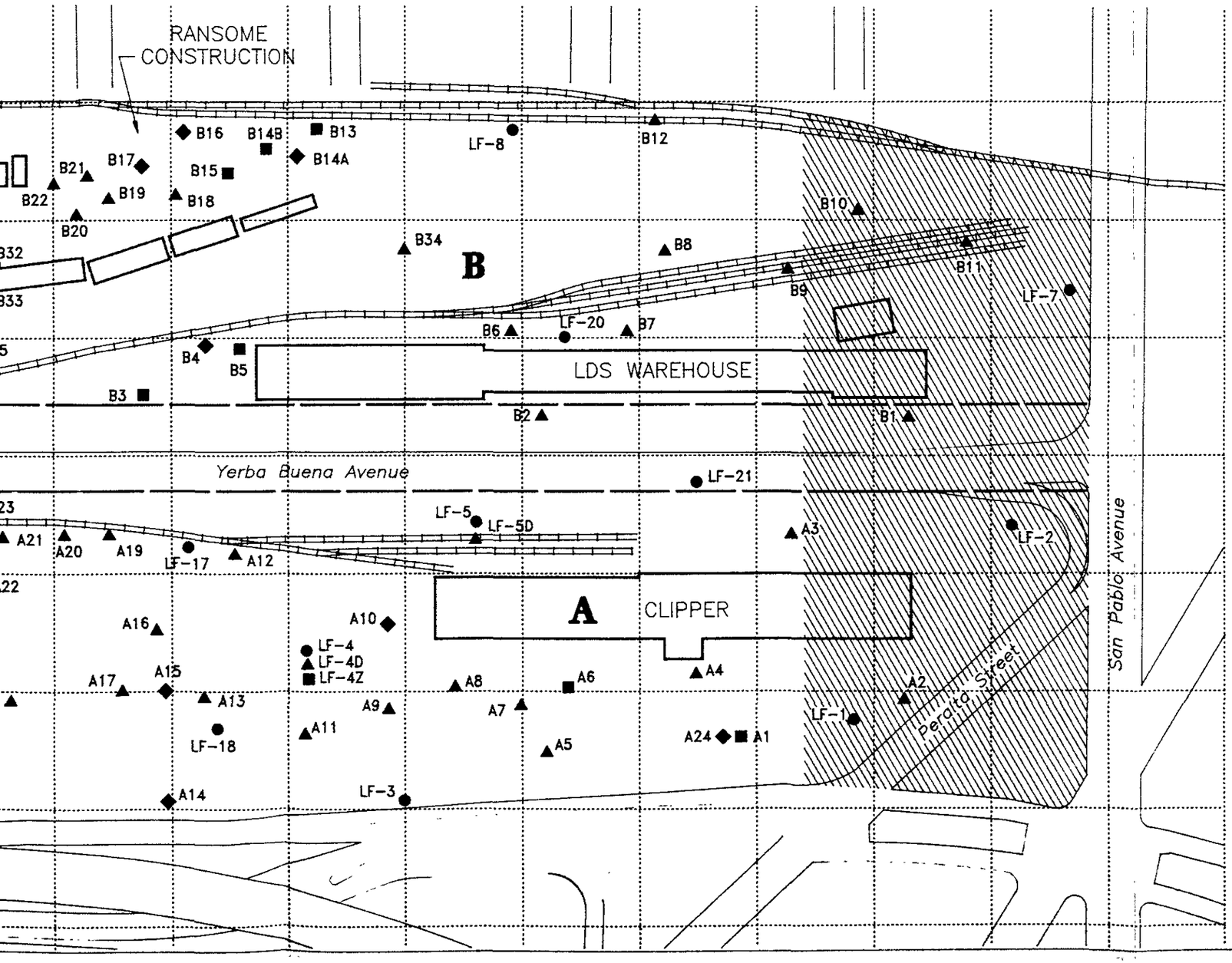

Figure 2 :

SITE PLAN SHOWING
CURRENT TENANTS OR FORMER TENANTS AND
PHASE I SAMPLING LOCATIONS
YERBA BUENA PROJECT SITE

Project No. 1649

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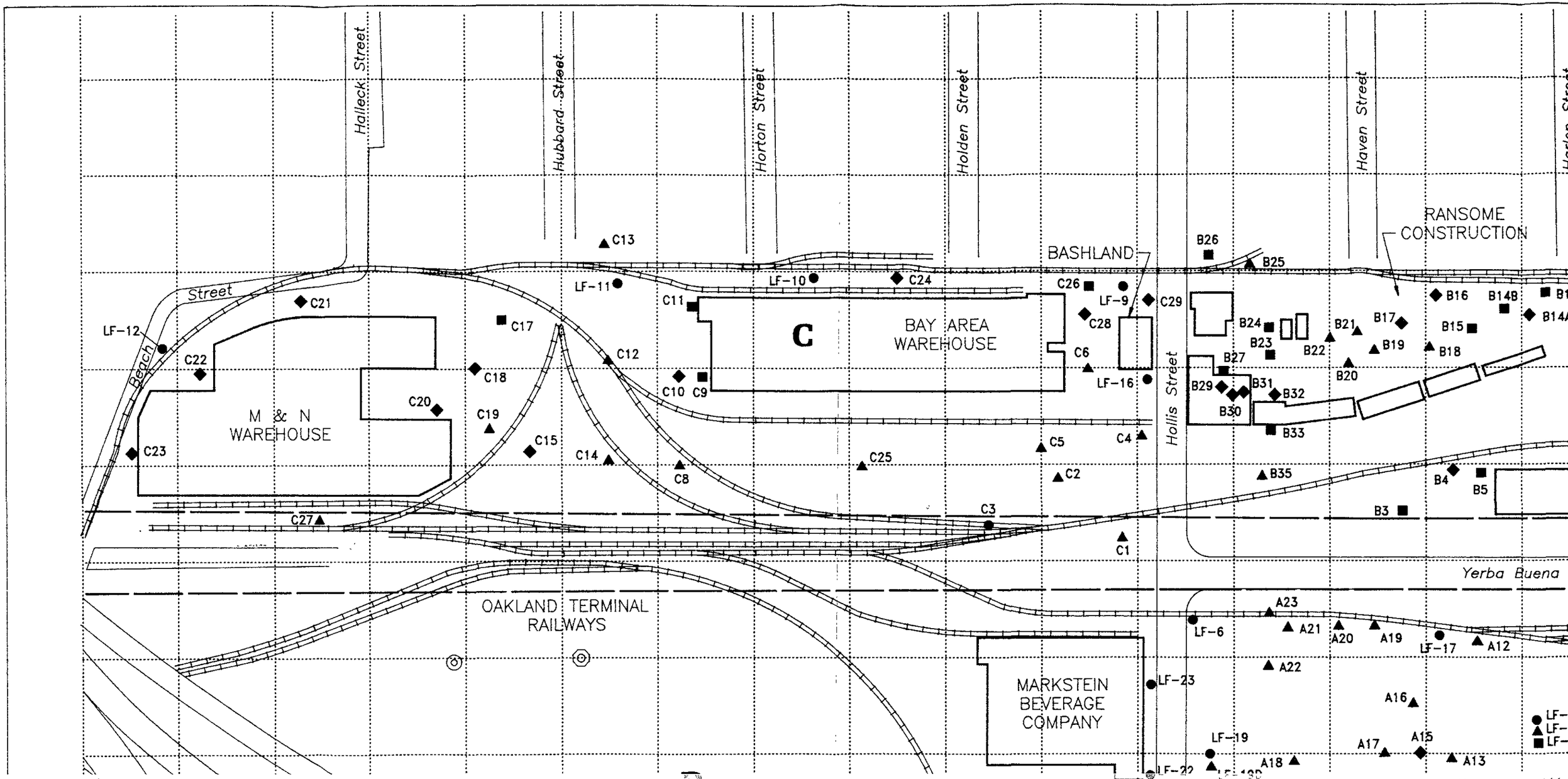
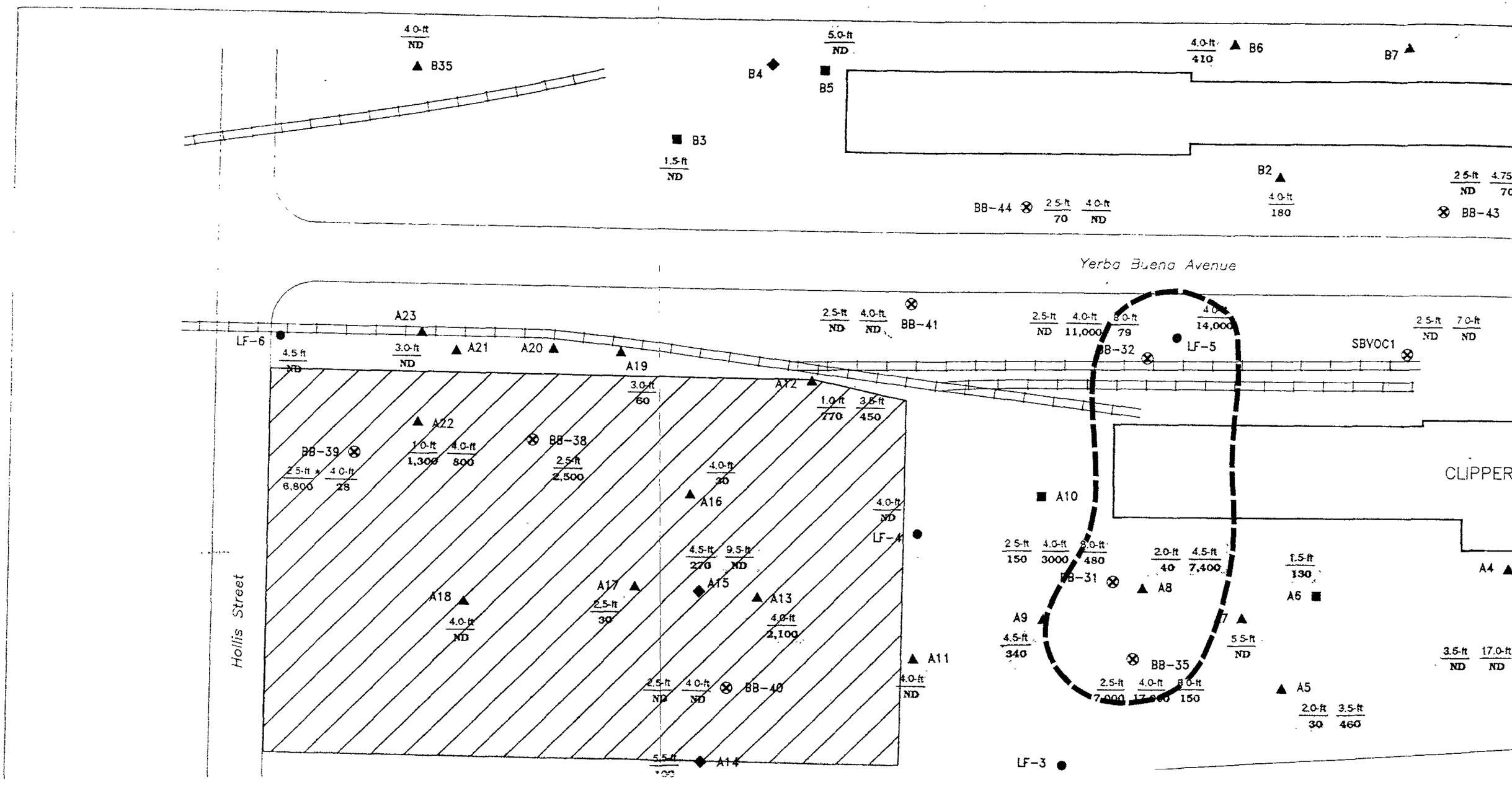
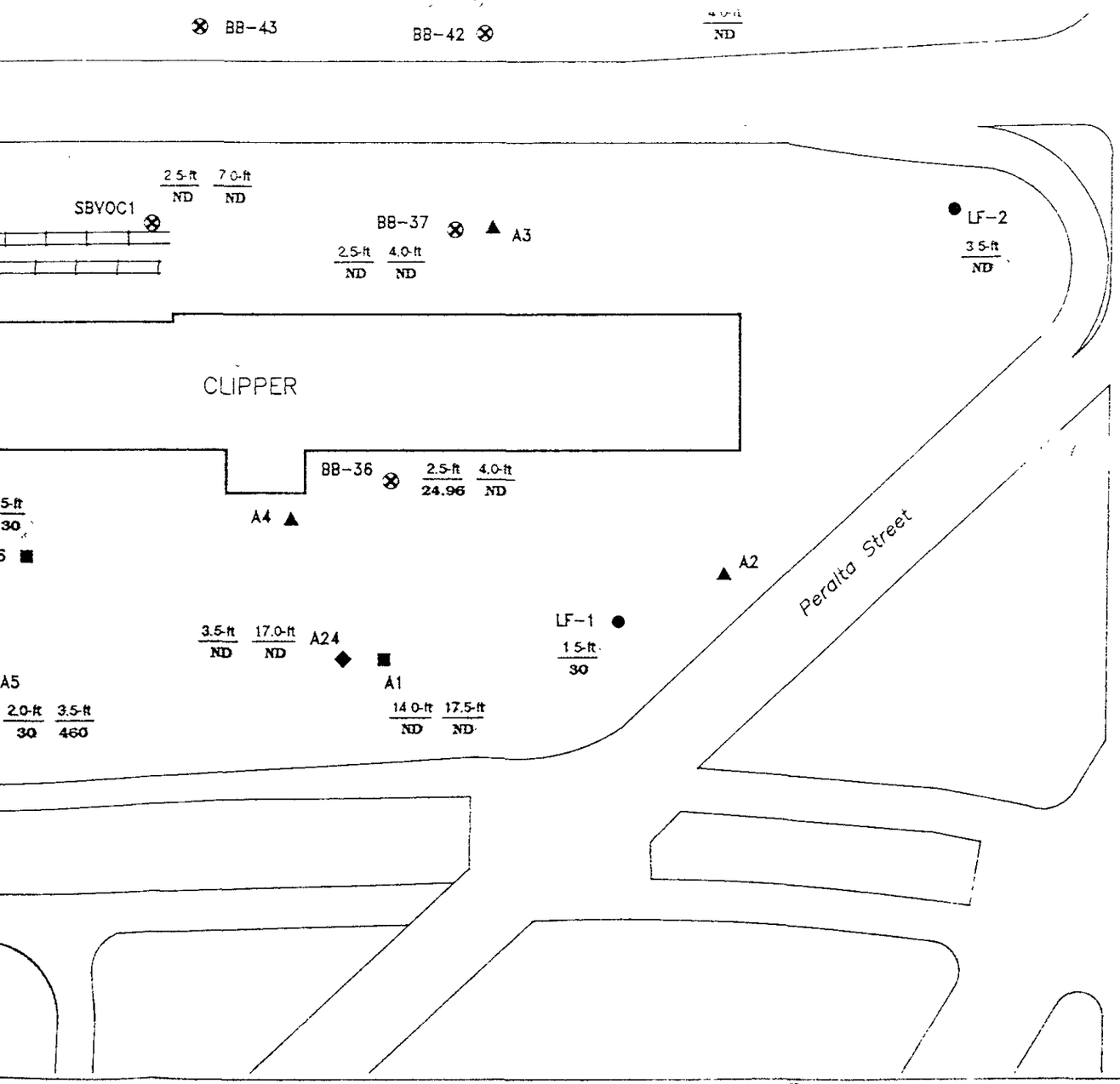

Halleck Street
Hubbard Street
Horton Street
Holden Street
Haven Street
RANSOME CONSTRUCTION
BASHLAND
Beach Street
BAY AREA WAREHOUSE
C
M & N WAREHOUSE
OAKLAND TERMINAL RAILWAYS
MARKSTEIN BEVERAGE COMPANY
Hollis Street
Yerba Buena
C1
C2
C3
C4
C5
C6
C8
C9
C10
C11
C12
C13
C14
C15
C17
C18
C19
C20
C21
C22
C23
C24
C25
C26
C27
C28
C29
LF-6
LF-9
LF-10
LF-11
LF-12
LF-16
LF-17
LF-19
LF-22
LF-23
A12
A13
A15
A16
A17
A18
A19
A20
A21
A22
A23
B3
B4
B5
B15
B16
B17
B18
B19
B20
B21
B22
B23
B24
B25
B26
B27
B29
B30
B31
B32
B33
B35
D


Yerba Buena Avenue
Hollis Street
CLIPPER
4.0-ft ND
B35
B4
5.0-ft ND
B5
B6
4.0-ft 410
B7
B3
1.5-ft ND
B2
4.0-ft 180
BB-44
2.5-ft 70
4.0-ft ND
BB-43
2.5-ft ND
BB-41
2.5-ft ND
4.0-ft 11,000
8.0-ft 79
4.0-ft 14,000
BB-32
LF-5
SBVOC1
2.5-ft ND
7.0-ft ND
A23
LF-6
4.5-ft ND
3.0-ft ND
A21
A20
A19
A22
3.0-ft 60
AX2
1.0-ft 770
3.5-ft 450
BB-39
2.5-ft 6,800
4.0-ft 28
1.0-ft 1,300
4.0-ft 800
BB-38
2.5-ft 2,500
4.0-ft 30
A16
A10
4.0-ft ND
LF-4
2.5-ft 150
4.0-ft 3000
8.0-ft 480
2.0-ft 40
4.5-ft 7,400
1.5-ft 130
A4
BB-31
A8
A6
A9
4.5-ft 340
5.5-ft ND
A7
BB-35
3.5-ft ND
17.0-ft ND
A5
2.0-ft 30
3.5-ft 460
LF-3
A18
4.0-ft ND
A17
2.5-ft 30
4.5-ft 270
9.5-ft ND
A15
A13
4.0-ft 2,100
A11
4.0-ft ND
2.5-ft ND
4.0-ft ND
BB-40
5.5-ft
A14



EXPLANATION

- MONITORING WELL LOCATION
- PHASE I INVESTIGATION SHALLOW SOIL SAMPLING LOCATION (LESS THAN 5 FEET)
- PHASE I INVESTIGATION DEEPER SOIL SAMPLING LOCATION (6 TO 18 FEET)
- PHASE I INVESTIGATION DEEPER SOIL SAMPLING LOCATION (13 TO 18 FEET) AND GRAB GROUND-WATER SAMPLING LOCATION

BB-39 — NOVEMBER 1990 SOIL SAMPLE LOCATION FOR PETROLEUM HYDROCARBON ANALYSIS

4.0-FT — DEPTH OF SAMPLE

3900
2500
1700
500 — CONCENTRATION DETECTED IN SOIL SAMPLES (mg/kg)

ND — NOT DETECTED

• — 1300 ppm TPH AS DIESEL WAS ALSO DETECTED AT THIS LOCATION

APPROXIMATE EXTENT OF PETROLEUM-AFFECTED SOILS

PETROLEUM-AFFECTED GRAVELLY SOILS

0 40 80 120 160 FEET

Figure 3 :

TOTAL PETROLEUM HYDROCARBONS (CHARACTERIZED AS OIL) DETECTED IN SOIL SAMPLES IN AREA A

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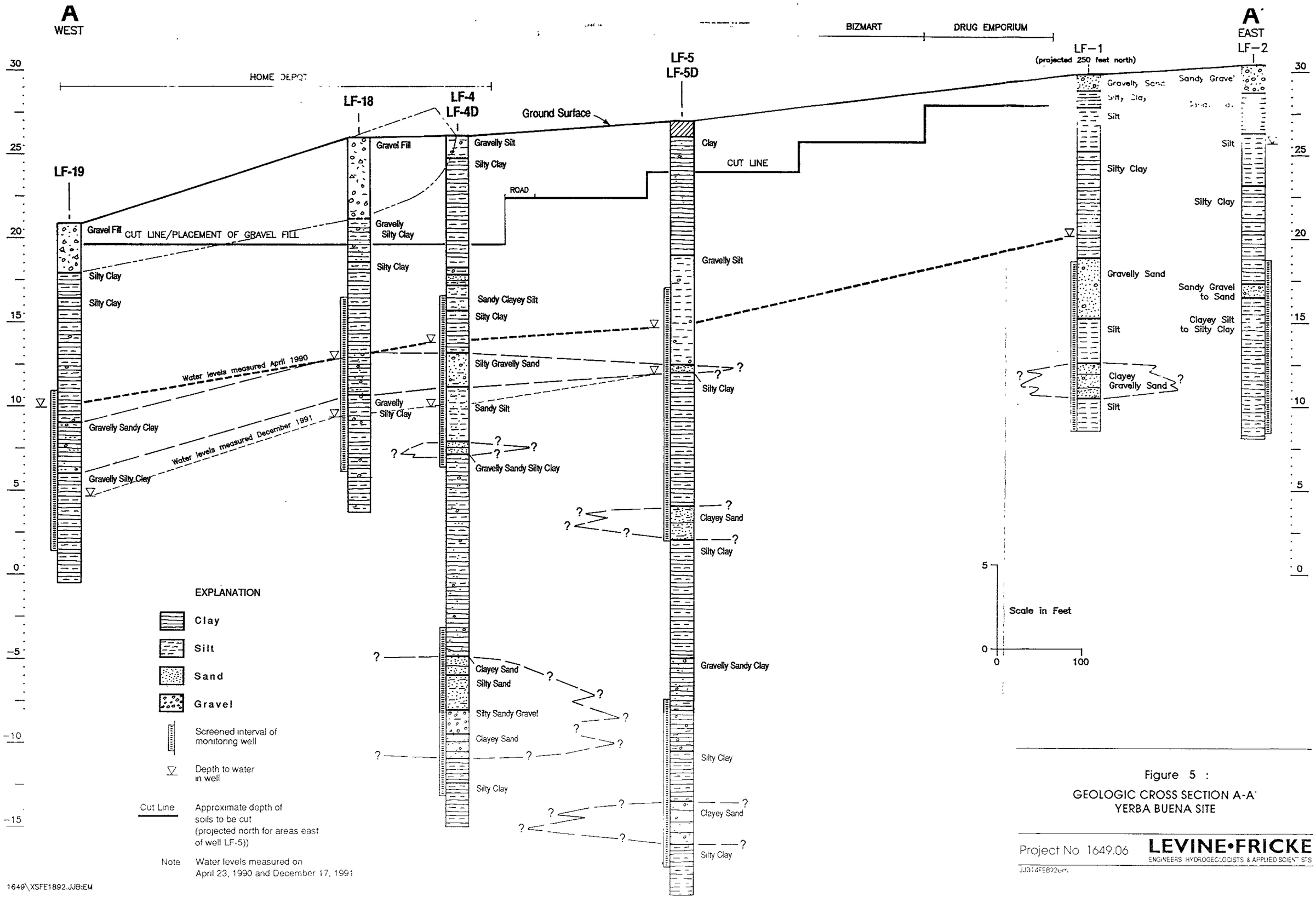

1649\XSFE1892.JJB:EM

Figure 5 :

GEOLOGIC CROSS SECTION A-A'
YERBA BUENA SITE

Project No 1649.06

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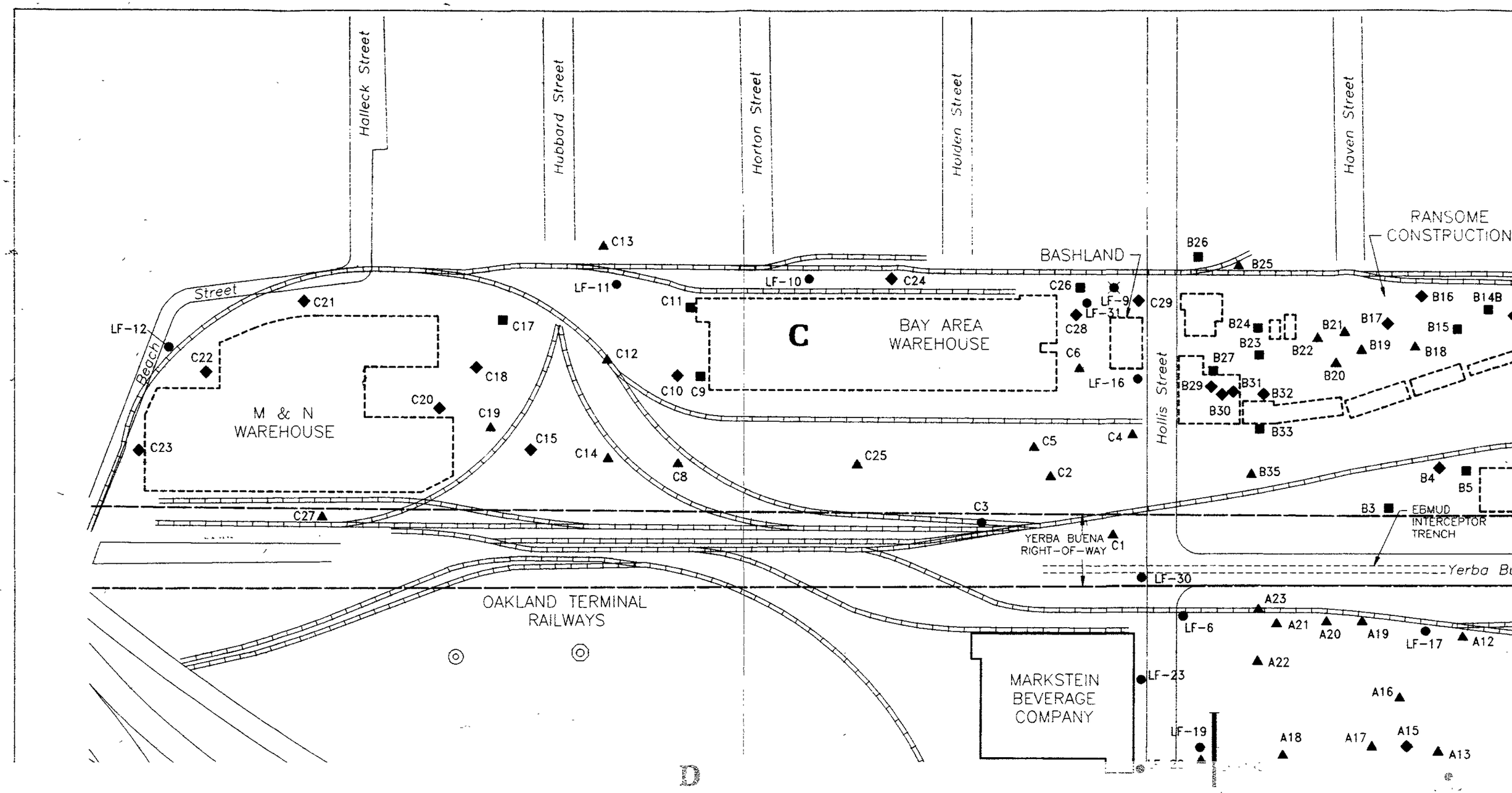
JJ314FEB92cm


Halleck Street
Hubbard Street
Horton Street
Holden Street
Haven Street
Hollis Street
Beach Street
RANSOME CONSTRUCTION
BASHLAND
BAY AREA WAREHOUSE
C
M & N WAREHOUSE
OAKLAND TERMINAL RAILWAYS
MARKSTEIN BEVERAGE COMPANY
YERBA BUENA RIGHT-OF-WAY
EBMUD INTERCEPTOR TRENCH
Yerba Bu
LF-12
LF-11
LF-10
LF-9
LF-31
LF-16
LF-30
LF-6
LF-17
LF-23
LF-19
C1
C2
C3
C4
C5
C6
C8
C9
C10
C11
C12
C13
C14
C15
C17
C18
C19
C20
C21
C22
C23
C24
C25
C26
C27
C28
C29
B3
B4
B5
B15
B16
B14B
B17
B18
B19
B20
B21
B22
B23
B24
B25
B26
B27
B29
B30
B31
B32
B33
B35
A12
A13
A15
A16
A17
A18
A19
A20
A21
A22
A23
D

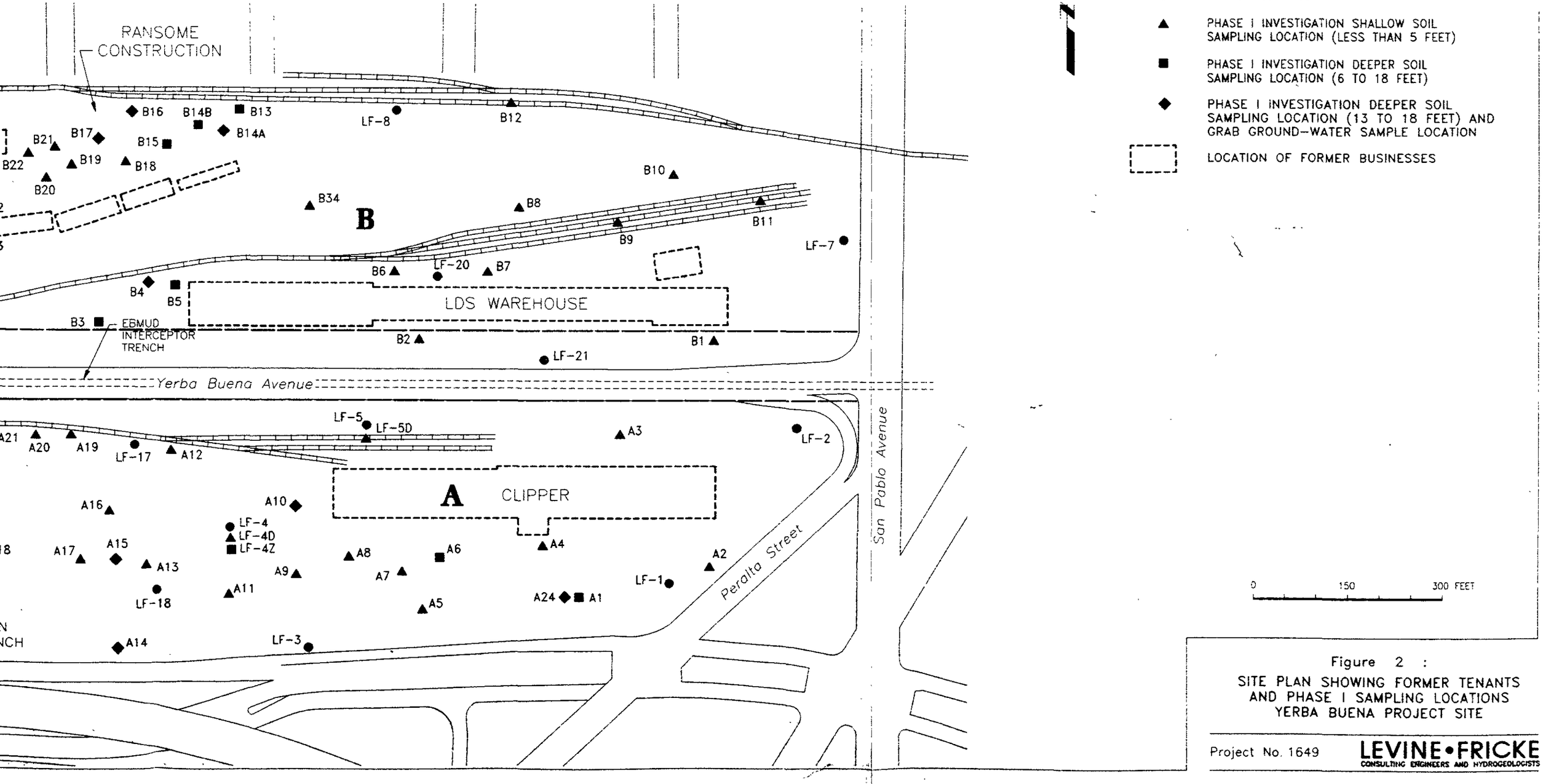


Figure 2 :
SITE PLAN SHOWING FORMER TENANTS AND PHASE I SAMPLING LOCATIONS
YERBA BUENA PROJECT SITE

Project No. 1649

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