Work Plan for Ground-Water Investigations, Former Ransome Property Yerba Buena Project Site Emeryville, California

April 15, 1992
LF 1649.07

Prepared for:

Catellus Development Corporation
201 Mission Street, Suite 250
San Francisco, California 94105

LEVINE·FRICKE

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

April 15, 1992 LF 1649.07

Mr. Dennis Byrne
Alameda County Health Care Services Agency
80 Swan Way, Room 200
Oakland, California 94621

Subject: Work Plan for Ground-Water Investigations
Former Ransome Property
Yerba Buena Project Site
Emeryville, California

Dear Dennis:

Enclosed for your review is the Work Plan for ground-water investigations at the former Ransome property, located in the western portion of Area B of the Yerba Buena Project Site. The investigation will include the installation, development, and sampling of five shallow ground-water monitoring wells to assess the quality of shallow ground water beneath the former Ransome property. Additionally, a monitoring well (W-3), installed by Aqua Resources, Inc. (ARI) on behalf of Ransome, will be located abandoned in accordance with regulatory guidelines. (ARI wells W-1 and W-2 were abandoned during soil removal activities.)

If you have questions, please contact either of the undersigned.

Sincerely,

Cynthia Barclay
Project Geologist

Amanda Spencer
Senior Hydrogeologist

Enclosure

cc: Pat Cashman, Catellus, w/enclosure
Don Marini, Catellus, w/enclosure
Ric Notini, Catellus, w/enclosure
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**WORK PLAN FOR GROUND-WATER INVESTIGATIONS
FORMER RANSOME PROPERTY, YERBA BUENA PROJECT SITE
EMERYVILLE, CALIFORNIA**

1.0 INTRODUCTION

In response to a request from Catellus Development Corporation, Levine•Fricke, Inc. ("Levine•Fricke") prepared this Work Plan to perform further ground-water investigations at the Yerba Buena Project Site ("the Site"; Figure 1) located in Emeryville, California. The proposed work will include the installation, development, and sampling of five shallow ground-water monitoring wells to assess the quality of shallow ground water beneath the former Ransome Company property ("the Property"). Additionally, a monitoring well installed by Aqua Resources, Inc. (ARI) in November 1990 (well W-3) will be located and abandoned in accordance with regulatory guidelines.

The layout of the Site is presented in Figure 2. As illustrated in Figure 2, the Site was divided into Areas A, B, and C to aid in organizating the sampling and analysis program conducted at the Site. The Property is located in the northwestern portion of Area B of the Site.

2.0 BACKGROUND AND PREVIOUS INVESTIGATIONS

The Ransome Construction Company ("Ransome"), a construction firm, operated a former asphalt batch plant at the Property for more than 50 years. An initial investigation of the Property was included in a Phase I investigation of the Site performed by Levine•Fricke (Levine•Fricke, 1990). The Property yard contained seven structures, including an office, a machine/maintenance shop, four sheds, a steam-cleaning shed, and a lavatory. Four underground fuel storage tanks, one waste oil tank that was partially underground, and an aboveground liquid asphalt oil tank were located on the Property at the time of the Phase I investigation. The underground tanks were removed in December 1989, and petroleum hydrocarbon staining of the underlying soil was observed. Oil stains on soil and site surfaces were observed throughout the Site, especially in the machine shop, in the vicinity of the oil storage shed, near the waste oil tank, and near the liquid asphalt oil tank during the Phase I investigation.

Further environmental investigations of the Property were conducted by Ransome and an environmental consultant (Aqua Resources, Inc. [ARI]) working on behalf of Ransome (ARI, 1990). The investigations conducted at the Property by Levine·Fricke and ARI indicated the presence of petroleum compounds and associated constituents in the soil.

Three ground-water monitoring wells were installed by ARI in November 1990. The reported depth to ground water was approximately 8.5 to 11 feet below ground surface and the shallow ground-water flow direction was reportedly to the southwest. Results of ground-water samples collected from two of the wells indicated the presence of total petroleum hydrocarbons (TPH) as gasoline at concentrations up to 460 parts per billion (ppb), benzene at concentrations up to 270 ppb, and toluene, ethylbenzene, and xylenes each at concentrations up to 260 ppb. Concentrations for oil and TPH as diesel ranged from 400 ppb to 1,700 ppb and from 82 ppb to 1,900 ppb, respectively (Figure 3).

Based on soil and ground-water results that indicated petroleum compounds were present at concentrations above levels of regulatory concern, ARI initiated soil removal activities at the Property, including the excavation and stockpiling of TPH-affected soil on site. ARI's work also included transporting diesel- and oil-affected soils for off-site treatment and disposal, and on-site aeration of gasoline-affected soils for possible reuse as backfill in excavations.

Ransome requested that ARI stop work in September 1991. Levine·Fricke, on behalf of Catellus, continued the on-site soil removal activities. Approximately 25,000 cubic yards of TPH-affected soil are currently stockpiled on the Property. The extent of the excavations at the Property are shown on Figure 3. Completed excavations have been backfilled with either imported clean fill or excavated soil that was successfully aerated to levels below the backfill criteria established by the Alameda County Health Care Services Agency (ACHA).

3.0 OBJECTIVES AND SCOPE OF WORK

The objective of the proposed ground-water investigation is to assess the possible impact of petroleum-affected soil at the Property on shallow ground water. The following tasks are proposed to meet this objective:

Task 1: Installation, Development, and Sampling of Five Monitoring Wells
Task 2: Location and Abandonment of Monitoring Well W-3
Task 3: Data Evaluation and Report Preparation
Task 4: Project Management and Meetings

These tasks are described in detail below.

Task 1: Installation, Development, and Sampling of Five Monitoring Wells

Monitoring Well Installation and Construction

Five shallow monitoring wells (estimated 20 to 25 feet deep) will be installed at the Property to assess ground-water quality beneath the Property. The proposed monitoring well locations are illustrated on Figure 3. One monitoring well (LF-25) is proposed to be installed in an area where high concentrations of petroleum compounds were detected in soils. One well (LF-26) is proposed for installation downgradient from the location of the former underground storage tanks (Area J). Three downgradient wells (LF-24, LF-27, and LF-28) are proposed for installation to assess the possible lateral extent of petroleum-affected ground water at the Property (Figure 3).

Before wells are installed, well permits will be obtained from the City of Emeryville. All drilling will be performed under the direct supervision of a California Registered Geologist. All drilling equipment, sampling equipment, and well casings will be steam cleaned before use at each drilling location.

Boreholes will be drilled by a licensed well drilling contractor using a truck-mounted drilling rig equipped with hollow-stem augers. Soil samples will be collected for lithologic description using a 5-foot-long continuous core sampling barrel or California split-spoon sampler. Lithology will be described according to the Unified Soil Classification System. A field organic vapor meter (OVM) will be used to screen soil samples for organic vapors. Lithologic descriptions and results from the field screening will be recorded in the field on well log forms. Sampling equipment will be washed with laboratory grade soap and water between sampling intervals.

The wells will be constructed of flush-threaded 2-inch-diameter polyvinyl chloride (PVC) casing with 0.020-inch factory-slotted screen. It is estimated that the screened

interval will be approximately 10 to 15 feet long and will extend across the top of the ground-water surface. The actual length and depth of the screened interval will be determined by a Levine•Fricke geologist and will be based upon the depth to ground water and the types, depths, and thicknesses of sediments encountered.

After the well casing has been placed in the completed borehole, the well annulus will be backfilled with clean sand to a height of approximately 2 feet above the screened interval. Approximately 1 to 2 feet of bentonite seal will be placed on top of the sand to isolate the sand from the material above and to prevent the entrance of grout into the sand pack. A cement-bentonite grout will be placed above the bentonite seal and will extend up to the ground surface to seal the remainder of the borehole interval from surface infiltration. A locking well cover will then be placed over the top of the casing to protect the integrity of the well.

Water Elevations and Flow Direction

A state-licensed surveyor will survey the top of the well casing of each well to the nearest 0.01 foot to allow accurate measurement of ground-water levels and evaluate ground-water flow direction at the Property.

Before wells are developed, depth-to-ground-water measurements will be collected from all new and existing on-site monitoring wells in Area B of the Site, and from well LF-16 located just west of Hollis Street, to obtain ground-water flow direction data.

Monitoring Well Development

After the ground-water monitoring wells have been installed and the grout seal has set (approximately 48 hours), a Levine•Fricke hydrogeologist will develop the wells by bailing, overpumping, and/or jetting to remove sediment around the well and to enhance hydraulic communication with the surrounding formation. Observations concerning specific conductance, pH, temperature, quantity, and clarity of purged water will be recorded during development. The wells will be developed until relatively sediment-free water is produced and the parameters listed above have stabilized.

Sampling and Analysis

Ground-water samples will be collected following well development using a clean Teflon bailer. Ground-water samples

will be poured from the Teflon bailer into laboratory supplied 40-milliliter volatile organic analysis (VOA) vials and 1-liter amber bottles. Samples will be labeled appropriately and placed into an ice chilled cooler for transportation to a state-certified laboratory under strict chain-of-custody procedures.

A ground-water sample also will be collected from well LF-16 located west of the Property, across Hollis Street (Figure 2), to assess the possible presence of petroleum compounds in ground water at that location. The well will be purged and sampled using procedures described above.

Laboratory Analysis

Ground-water samples will be analyzed for TPH as gasoline (EPA Method 8015/5030), diesel (EPA Method 8015/3510), and oil (EPA Method 5520). Samples also will also be submitted to the laboratory for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Method 8020.

Task 2: Location and Abandonment of Monitoring Well W-3

During recent grading at the Property, soil was deposited in the vicinity of monitoring well W-3 (the well installed by ARI during previous investigations), burying the well and concealing its location. Levine·Fricke will attempt to locate well W-3 and visually assess damage to the well, as follows.

A backhoe will be used to move the soils from the previously identified approximate location of well W-3 (Figure 3). After the soils have been moved, Levine·Fricke personnel will attempt to locate the well through visual inspection of the area. If the well cannot be located based on visual observations, a professional locator service may be hired to assist in locating the well using geophysical methods.

It is assumed that well W-3 was damaged during the on-site use of heavy grading equipment and that it will need to be abandoned. Therefore, after the well is located, it will be properly abandoned, in accordance with regulatory guidelines, as described below.

Well destruction will be completed using hollow-stem auger drilling equipment. Well destruction will involve drilling out the well materials (PVC casing, sand pack, bentonite, and cement grout) by placing 8-inch-diameter hollow-stem augers around the well. As drilling proceeds, fragments of well

materials will be conveyed to the surface by the rotation of the augers. Drilling will terminate when the total depth of the well is reached. Remaining well materials will be removed from the boring when the augers are withdrawn.

Destruction of the well will be completed by sealing the evacuated boring by pumping a cement-bentonite slurry through a tremie pipe from the bottom of the boring to the ground surface.

Task 3: Data Evaluation and Report Preparation

Levine•Fricke will prepare a report summarizing methods, procedures, and results of the proposed investigation. The report will contain a description of drilling and sampling locations and depths, sampling procedures, laboratory methods, laboratory results, and well destruction methods; an interpretation of findings; and recommendations for additional work, if warranted.

SCHEDULE

The Scope of Work outlined in this Work Plan will be initiated upon receipt of a authorization to proceed from Catellus Development Corporation. We anticipate that field work can begin within two weeks following authorization to proceed, and that field work can be completed within approximately three weeks. We anticipate that a written report presenting investigation results can be prepared within four to five weeks following completion of the field work.

REFERENCES

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

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

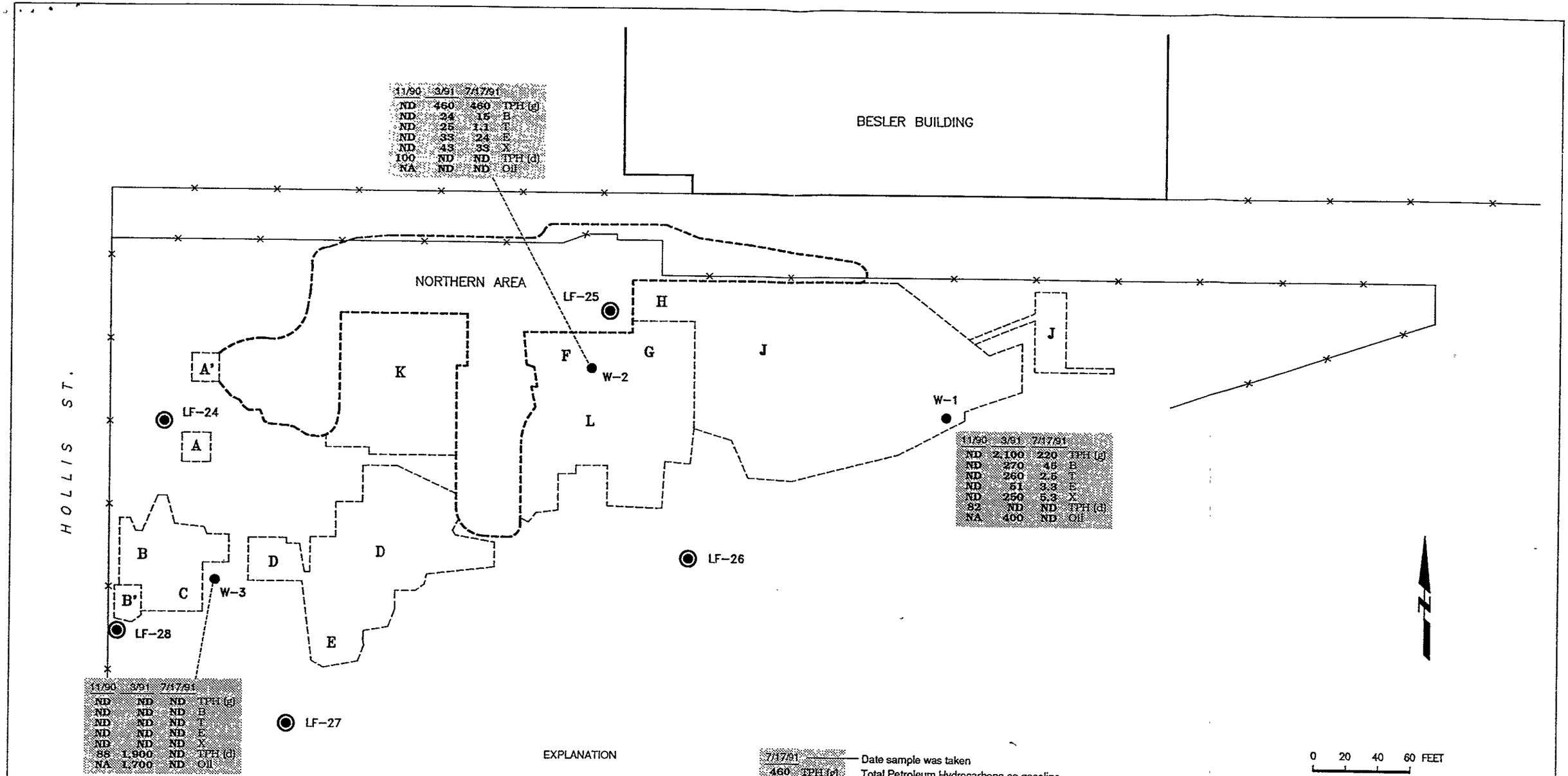

Figure 3 :
HISTORICAL GROUND-WATER QUALITY DATA (ppb)
AND PROPOSED MONITORING WELL LOCATIONS
FORMER RANSOME COMPANY PROPERTY

Project No. 1649.07

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ENGINEERS HYDROGEOLOGISTS & APPLIED SCIENTISTS

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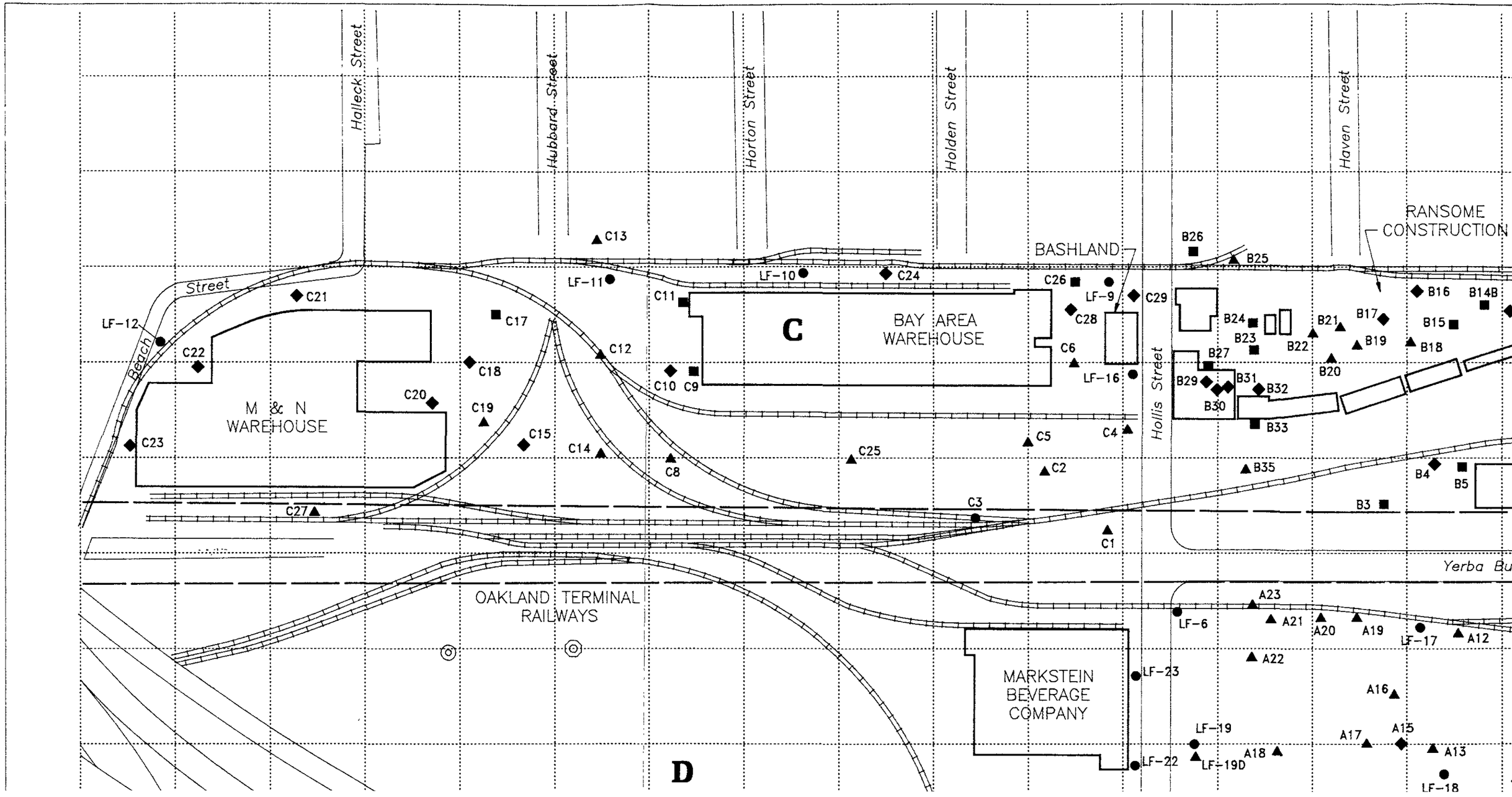
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Hubbard Street
Horton Street
Holden Street
Haven Street
RANSOME CONSTRUCTION
BASHLAND
Beach Street
Hollis Street
Yerba Bu
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BAY AREA WAREHOUSE
M & N WAREHOUSE
OAKLAND TERMINAL RAILWAYS
MARKSTEIN BEVERAGE COMPANY
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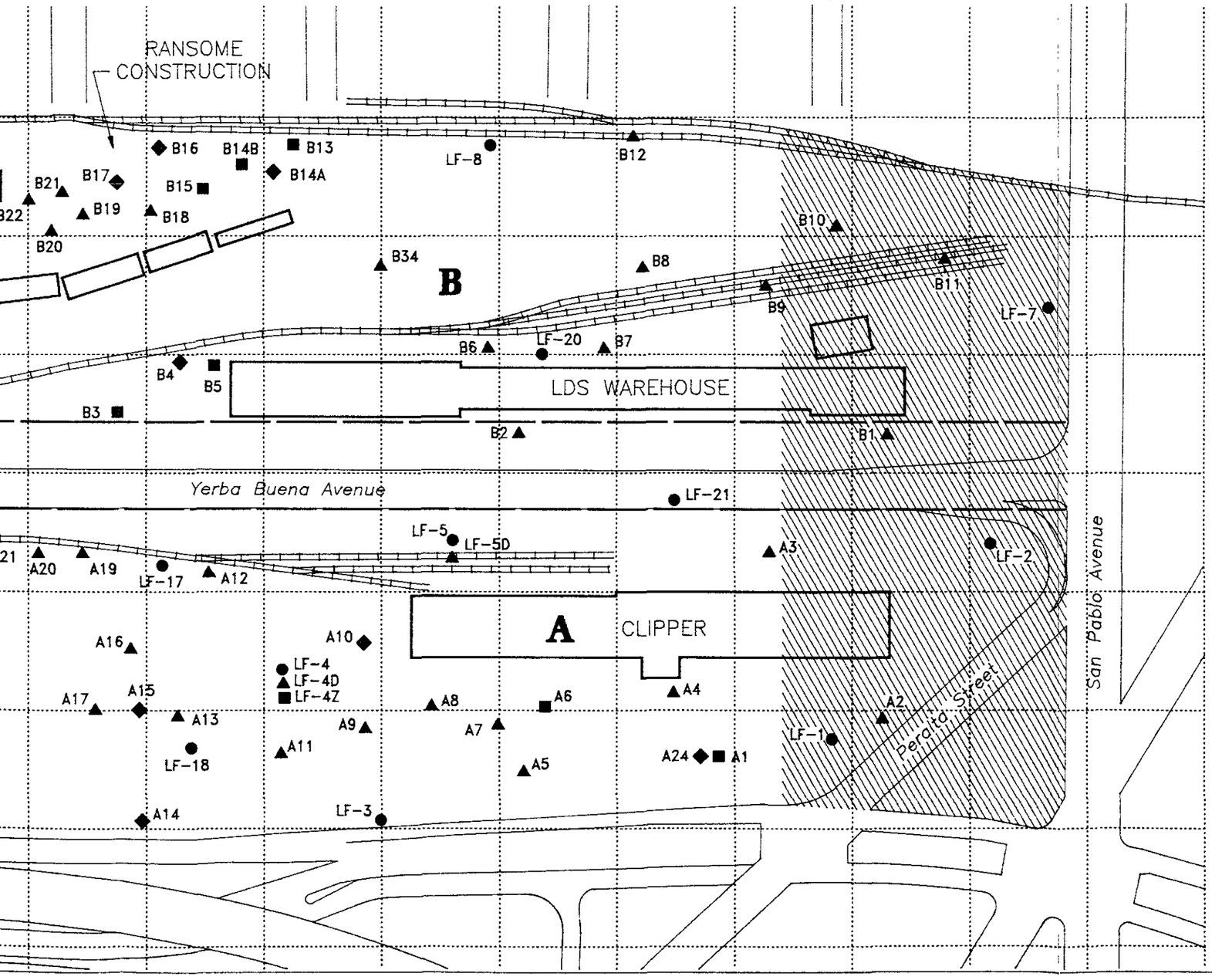

EXPLANATION

- SHALLOW (LESS THAN 5 FEET) 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 SAMPLE LOCATION
- SUBJECT AREA

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

Project No. 1649

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