

ENVIRONMENTAL  
DIVISION  
00 JUL 10 11:25

**ADDENDUM NUMBER 1  
TO THE FINAL  
RISK MANAGEMENT PLAN FOR  
THE 64<sup>TH</sup> STREET PROPERTIES  
EMERYVILLE, CALIFORNIA**

10 July 2000  
(EKI 990016.03)

# Erler & Kalinowski, Inc.

Consulting Engineers and Scientists

1730 So. Amphlett Blvd., Suite 320  
San Mateo, California 94402  
(650) 578-1172  
Fax (650) 578-9131

10 July 2000

Dr. Ravi Arulanantham  
Regional Water Quality Control Board  
San Francisco Bay Region  
1501 Clay Street  
Suite 1400  
Oakland, California 94612

Ms. Susan L. Hugo  
Alameda County Department of Environmental Health  
1131 Harbor Bay Parkway  
2<sup>nd</sup> Floor  
Alameda, California 94502

Subject: Addendum Number 1 to the Final Risk Management Plan  
64<sup>th</sup> Street Properties, Emeryville, California  
(EKI 990016.03)

Dear Dr. Arulanantham and Ms. Hugo:

On behalf of Simeon Commercial Properties ("Simeon"), Erler & Kalinowski, Inc. ("EKI") is pleased to submit the *Addendum Number 1 to the Final Risk Management Plan for the 64<sup>th</sup> Street Properties, Emeryville, California*, dated 10 July 2000 ("RMP Addendum"), for your approval. The RMP Addendum was prepared for the properties on the north side of 64<sup>th</sup> Street, between Bay and Hollis Streets ("Site"). The RMP Addendum (a) presents results of hydrogen sulfide monitoring performed during construction activities, (b) discusses potential exposure of future workers on the Site to hydrogen sulfide, and (c) discusses appropriate risk management protocols for hydrogen sulfide at the Site.

Letter to Dr. Arulanantham (RWQCB) and Ms. Hugo (ACDEH)

10 July 2000

Page 2 of 2

**Erler &  
Kalinowski, Inc.**

Thank you for your continuing assistance on this project. Please call us with any questions or comments.

Very truly yours,

ERLER & KALINOWSKI, INC.



Michelle Kriegman King, Ph.D.  
Project Manager



Derby Davidson, P.E.  
Project Engineer

enclosure

cc: Pierson Forbes (Simeon Commercial Properties)  
Meg Rosegay (Pillsbury, Madison & Sutro)

**TABLE OF CONTENTS**

	<u>Page</u>
1. INTRODUCTION .....	1
2. HYDROGEN SULFIDE DETECTED DURING REDEVELOPMENT .....	1
3. POTENTIAL EXPOSURE TO FUTURE SITE OCCUPANTS .....	2
4. POST-CONSTRUCTION RISK MANAGEMENT.....	3
5. REFERENCES .....	4

## **1. INTRODUCTION**

On behalf of Simeon Commercial Properties ("Simeon"), Erler & Kalinowski, Inc. ("EKI") has prepared this Addendum No. 1 to the *Final Risk Management Plan for the 64<sup>th</sup> Street Properties, Emeryville, California*, dated 30 August 1999 ("RMP"). The RMP provides a decision framework to manage residual chemicals of concern ("COCs") in soil and groundwater on the 64<sup>th</sup> Street properties in a manner consistent with planned land use and protective of human health and the environment. The RMP was approved by the California Regional Water Quality Control Board, San Francisco Bay Region ("RWQCB") and the Alameda County Department of Environmental Health ("ACDEH") in a letter dated 15 October 1999.

The 64<sup>th</sup> Street properties ("the Site") are bounded to the north by the Ryerson Steel facility, to the west by railroad tracks, to the south by 64<sup>th</sup> Street, and to the east by Hollis Street (Figure 1). Simeon is currently redeveloping the Site for commercial/office uses. The redevelopment involves (a) partial demolition and renovation of the existing Site building, (b) construction of a new office building, and (c) construction of a new parking structure.

During excavation for footings for the new office building, hydrogen sulfide odors were noted. Worker health and safety issues regarding hydrogen sulfide were addressed by South Bay Construction ("SBC"), the construction contractor, by monitoring for hydrogen sulfide and requiring appropriate personal protective equipment.

Based on the results of previous investigations, hydrogen sulfide was not expected to be present on the Site. Consequently, the RMP did not include hydrogen sulfide as a COC. This Addendum (a) presents results of hydrogen sulfide monitoring performed during construction activities, (b) discusses potential exposure of future workers on the Site to hydrogen sulfide, and (c) discusses appropriate risk management protocols for hydrogen sulfide. Once approved by the RWQCB and the ACDEH, this Addendum will become part of the RMP.

## **2. HYDROGEN SULFIDE DETECTED IN AIR DURING REDEVELOPMENT**

After a rotten-egg odor was noted when performing footing excavations for the new office building in November 1999, measurements of hydrogen sulfide in the breathing zone were made during these excavation activities. Measurements of hydrogen sulfide concentrations were performed by EKI and/or Enviro Group Inc., SBC's industrial hygiene consultant, using direct-reading instruments. Measurements were only performed while excavating for footings for the new office building. Hydrogen sulfide odors were not noted while excavating footings for the new parking structure. Some hydrogen sulfide odors were also noted while trenching in the central portion and the southeastern corner of the renovated building. Work was halted and later resumed while measuring for hydrogen sulfide; however, the odor was no longer present, and no hydrogen sulfide was detected after the resumption of work.

OSHA 10 ppm TWA  
15 ppm (STEL)

The maximum breathing zone concentrations of hydrogen sulfide measured at each foundation excavation for the new office building are shown on Figure 2. The highest concentrations were detected at footing excavations A1 (9 parts per million by volume ("ppmv")), D4-5 (10 ppmv), D7 (10 ppmv), and D11 (7 ppmv).

The origin of the hydrogen sulfide detected on the Site is not known. It is likely the result of natural degradation of both petroleum from the former refinery and organic material within the bay muds underlying the Site.

The concentrations shown on Figure 2 are peak concentrations; sustained concentrations were lower. Hydrogen sulfide concentrations declined within 30 minutes once excavation activities ceased. Hydrogen sulfide was not detected on the Site unless soil excavation was being or had been recently performed.

### 3. POTENTIAL EXPOSURE TO FUTURE SITE OCCUPANTS

Future site occupants will be industrial or commercial office workers and building maintenance personnel. Potential exposure of future Site occupants to hydrogen sulfide volatilizing from Site soil is not considered significant for the following reasons:

- Hydrogen sulfide concentrations observed during construction were at or below the permissible exposure limit ("PEL") established by the California Occupational Safety and Health Administration ("Cal-OSHA").
- Observed elevated concentrations were transient, while the PEL is based on an 8-hour exposure.
- Hydrogen sulfide was not observed unless soil was being or had recently been disturbed, which is likely to be rare after construction is complete.
- Hydrogen sulfide has a low odor threshold and was not noted previously at the Site, indicating that significant airborne concentrations of hydrogen sulfide are not present in the absence of excavation activities.
- The soil under the new office building will be lime-treated, which will further reduce the potential for hydrogen sulfide volatilization by raising the pH.
- Under the new office building, a waterproofing membrane will be placed between the building slab and the subgrade, which will likely inhibit migration of volatiles through the slab.

These reasons are discussed further below.

Future site occupants will be industrial or commercial office workers and building maintenance personnel. Published toxicity data, such as chronic reference doses, are not available for hydrogen sulfide. Thus, EKI compared the hydrogen sulfide concentrations measured while performing building footing excavations with occupational exposure limits. The PEL, an 8-hour time-weighted average, set by Cal-OSHA for hydrogen sulfide is 10 ppmv (8 CCR 5155). Cal-OSHA has set the short-term exposure limit ("STEL"), a 15-minute time-weighted average, for hydrogen sulfide at 15 ppmv (8 CCR 5155).

The maximum hydrogen sulfide concentration detected at the site is 10 ppmv, which is equal to the PEL. However, that concentration and other maximum concentrations shown on Figure 2 were not sustained. In general, hydrogen sulfide concentrations decreased to non-detectable levels within 30 minutes of the cessation of excavation activities. Thus, it is extremely unlikely that future site occupants will be exposed to hydrogen sulfide concentrations on the order of the PEL.

Further, hydrogen sulfide odors were noted, and elevated hydrogen sulfide concentrations were measured, only during excavation activities. Thus, exposure to hydrogen sulfide is very unlikely unless native soil is disturbed.

The mean odor threshold concentration of hydrogen sulfide is 0.008 ppmv (Cal-EPA, 2000), which is several orders of magnitude below the PEL. If a significant amount of hydrogen sulfide was volatilizing from the soil into the breathing zone, it would very likely have been noticed by previous Site occupants. However, prior to the November 1999 excavations, hydrogen sulfide odors had not been noted on the Site; in particular, hydrogen sulfide odors were not noted inside the existing building, a portion of which was originally located over excavations where high hydrogen sulfide concentrations were measured.

In addition, as part of the foundation construction, the top 12 inches of native soil underneath the new office building will be lime-treated. One effect of lime treatment is elevated soil pH, which lowers the tendency of the soil to release hydrogen sulfide because hydrogen sulfide is present in the gas phase primarily at lower pH (i.e., pH less than 7). Thus, soil under the new office building will be even less likely to emit hydrogen sulfide than it is now. Further, a composite waterproofing membrane will be placed between the building slab and the subgrade under the new office building. This membrane will also likely inhibit migration of volatiles, such as hydrogen sulfide, through the slabs of the new office building.

Therefore, accounting for the conditions under which hydrogen sulfide has been detected at the Site and the mitigative measures put in place as part of the new construction, significant exposure of future Site occupants to hydrogen sulfide is not likely to occur.

#### 4. POST-CONSTRUCTION RISK MANAGEMENT

As discussed above, exposure to hydrogen sulfide from Site soil is very unlikely unless native soil is disturbed during activities such as excavation. Section 5.3 of the RMP requires preparation of a health and safety plan ("H&SP") for future Site subsurface

excavation activities in which the cap is removed. The RMP requires that the H&SPs include a description of health and safety training requirements for personnel on the Site, the level of personal protective equipment to be used, and any other applicable precautions to be undertaken. Because hydrogen sulfide is now an identified COC at the Site, health and safety concerns related to hydrogen sulfide during Site excavations will be addressed in the relevant H&SPs.

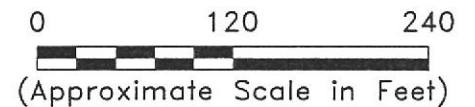
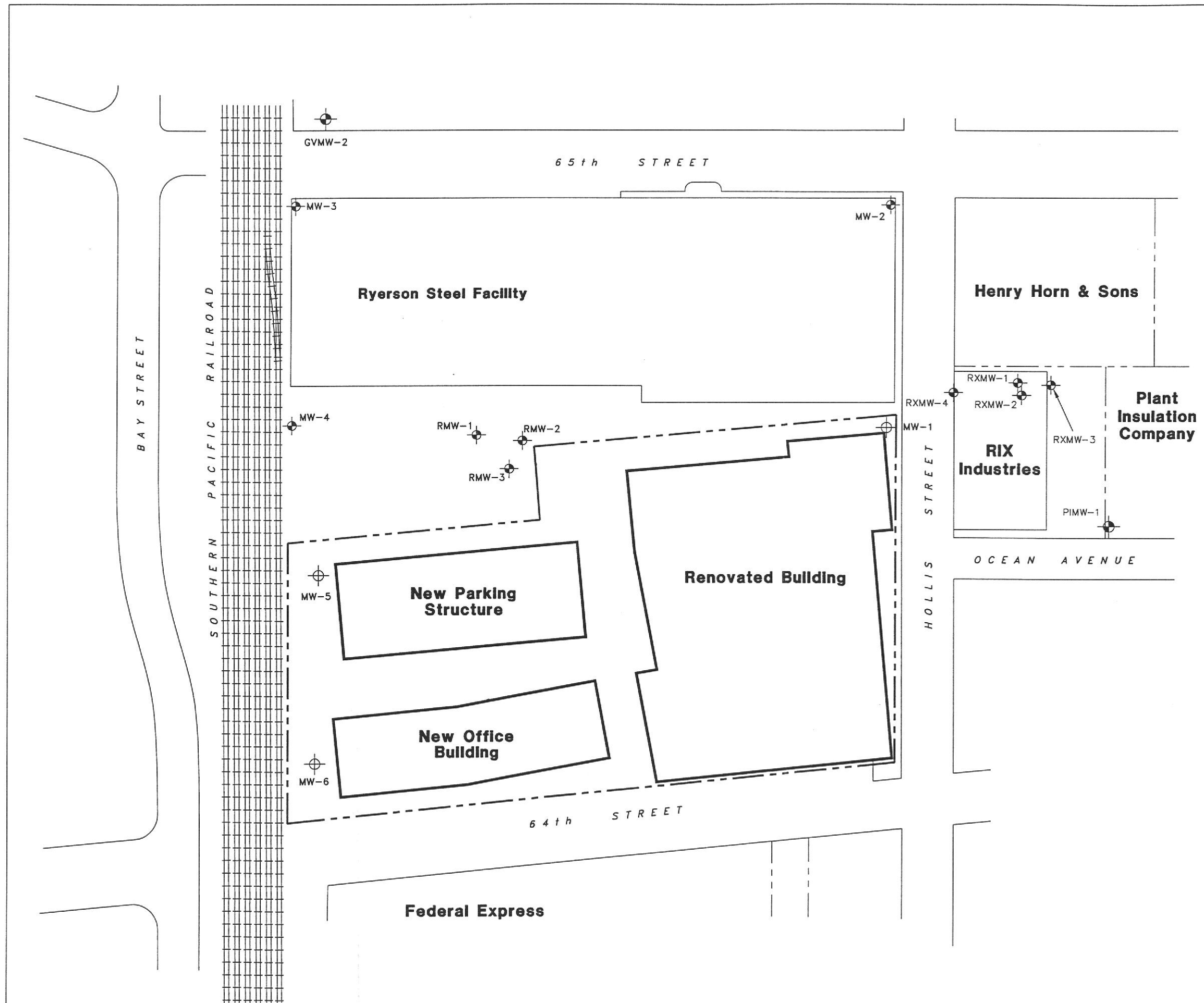
A deed restriction for the Site was recorded in the Alameda County Recorder's office on 6 October 1999. Among other things, the deed restriction requires the property owner to comply with the RMP. Once approved by the RWQCB and the ACDEH, this Addendum will become part of the RMP, and Simeon will record this Addendum in the Alameda County Recorder's office. In this way, the amended RMP will inform future land owners about the possible presence of hydrogen sulfide at the Site and the required appropriate risk management measures if hydrogen sulfide is encountered.

## **5. REFERENCES**

8 CCR 5155. California Code of Regulations, Title 8, Section 5155.

Cal-EPA, 2000. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, *Technical Support Document for the Determination of Noncancer Chronic Reference Exposure Levels*, Batch 1B, April 2000.





**LEGEND**

- Railroad Tracks
- Approximate Property Boundary
- Site Boundary
- Building Outline
- Existing Monitoring Well
- Monitoring Well Destroyed Prior to Redevelopment

**Notes:**

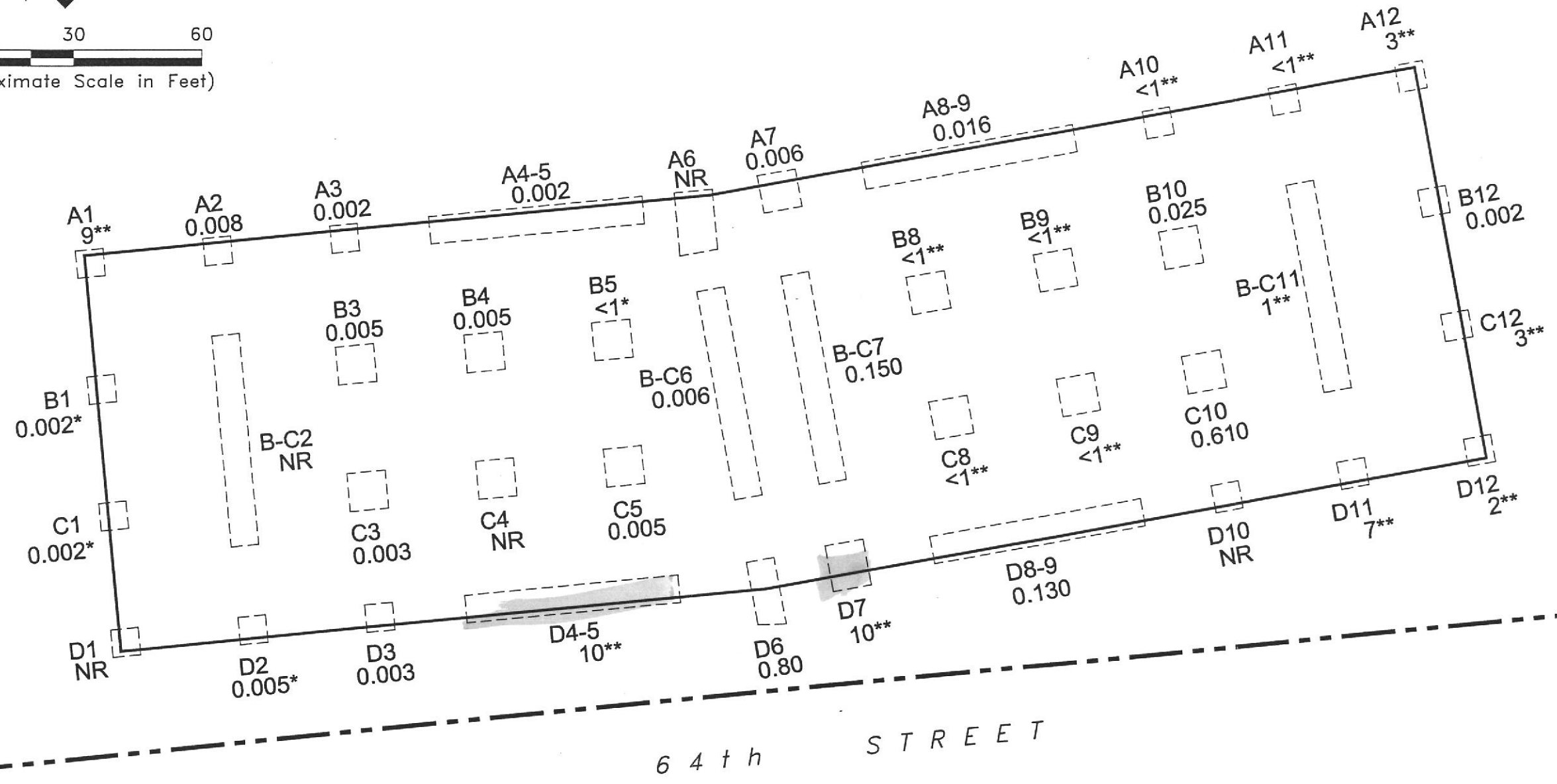
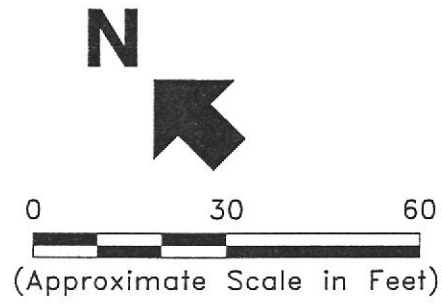
1. All locations are approximate.

**Erler & Kalinowski, Inc.**

Site Plan

64th Street Properties  
 Emeryville, CA  
 June 2000  
 EKI 990016.03  
 Figure 1

SOUTHERN PACIFIC RAILROAD



- Legend:**
- New Office Building Outline
  - Site Boundary
  - Foundation Excavation Designation
  - Breathing Zone Hydrogen Sulfide Concentration (PPMV)
  - No Reading Recorded

- Notes:**
1. Unless otherwise noted, concentrations were measured by EKI.
  2. "\*\*" = EKI reading taken 1/2-2 hours after excavation.
  3. "\*\*\*" = Concentration measured by Enviro Group. Enviro Group instrument measured concentrations greater than or equal to 1 PPMV.
  4. Hydrogen sulfide concentration measurements were taken during foundation excavation for the new office building only.

## Erler & Kalinowski, Inc.

Maximum Breathing Zone Hydrogen Sulfide Concentrations Measured During Construction  
64th Street Properties  
Emeryville, CA  
June 2000  
EKI 990016.03  
Figure 2