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By Alameda County Environmental Health at 2:56 pm, Mar 12, 2015

Ms. Karel Detterman  
Alameda County Environmental Health Department  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502

Re: 640 Brooklyn Avenue, Oakland, California 94606  
ACEHD Case No. RO0003114, GeoTracker ID T10000004795

Dear Ms. Detterman:

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document are true and correct to the best of my knowledge.

Sincerely,



Mr. Jeffrey Jung



3330 Cameron Park Drive, Ste 550  
Cameron Park, California 95682  
(530) 676-6004 ~ Fax: (530) 676-6005

March 11, 2015  
Project No. 2185-0640-01

Ms. Karel Detterman  
Alameda County Environmental Health Department  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502

Subject: **Well Study and Sensitive Receptor Study Report**  
Casa Amiga Apartments  
640 Brooklyn Avenue  
Oakland, California 94606

Dear Ms. Detterman:

On behalf of Mr. Jeffrey Jung, Stratus Environmental, Inc. (Stratus) has prepared this *Well Study and Sensitive Receptor Study Report*, detailing the evaluation of the area surrounding the Casa Amiga Apartments (the site) located at 640 Brooklyn Avenue, Oakland, California, for groundwater flow data and the locations of sensitive receptors. In correspondence dated January 13, 2015, Alameda County Environmental Health Department (ACEHD) requested this report, based on the results of Stratus's *Soil and Groundwater Investigation Report*, dated March 18, 2014. In the ACEHD letter, further groundwater data was requested to show that any possible residual hydrocarbon impact would not flow from the site to sensitive receptors. Stratus conducted the data evaluation as requested, and the results are presented in this report.

## **SITE DESCRIPTION**

The subject site is located at 640 Brooklyn Avenue in Oakland, California. The site is currently used as a residential apartment complex in a residential neighborhood. The subject site is at an elevation of approximately 95 feet above mean sea level (amsl). Lake Merritt is located 1,150 feet west of the property at an elevation of approximately 4 feet amsl. Groundwater flow in the area appears to be moving west to southwest toward the lake. A nearby site location map is attached as Figure 1.

## **CURRENT SITE INVESTIGATION ACTIVITIES**

Stratus conducted the following activities during the site investigation:

- Conducted a survey of nearby groundwater investigation sites to evaluate groundwater flow data near the site.

- Surveyed well completion data for the surrounding area in order to identify water sources.
- Conducted an internet search for beneficial water resources and sensitive populations.

Details of these activities are presented below.

### **Nearby Groundwater Investigation Sites**

Using California State Water Resources Control Board's GeoTracker and the ACEHD databases of groundwater environmental investigations, Stratus identified nine current and former sites near the subject site. Of the nine sites, only four had enough data to determine the groundwater flow direction. Groundwater flow does not appear to follow a universal direction, but all of the flow directions measured generally follow the downhill topography towards Lake Merritt to the west of the sites. Depth to groundwater was measured at six of the nine sites, and shallow groundwater is common, generally measured between 0 and 12 feet below ground surface. The locations of the identified groundwater investigation sites and the measured groundwater flow directions are shown on Figure 1; groundwater data related to the various sites is included as Table 1.

### **Sensitive Receptor Survey**

On January 13, 2015, Stratus contacted the California Department of Water Resources and Alameda County Public Works Authority to obtain well completion reports, permit information, and any other data for any wells within 1,500 feet of the site. No irrigation, water supply, industrial, dewatering, or cathodic protection wells were found in the search radius. Beneficial water resources in the area of the site include Lake Merritt, located approximately 1,150 feet to the west and 90 feet below the site, the Oakland Central Reservoir, located approximately 6,300 feet east and 130 feet above the site, and the San Francisco Bay/Brooklyn Basin, located 6,300 feet southwest and 95 feet below the site. Additionally, an internet search was conducted to identify any facilities with vulnerable populations, such as hospitals, day care centers, elder care facilities, etc. The search identified several such facilities: Highland Hospital, located 5,000 feet east of the site, Lakeshore Convalescent Home, located 1,700 feet southwest of the site, Heavenly Touch Day Care, located 750 feet northwest of the site, and Small Frye Day Care, located 1,700 feet east of the site.

### **CONCLUSIONS**

As indicated on Figure 1, the site is topographically located on a ridge between drainages. Groundwater was not encountered in the soil below the site during site assessment activities. Based on conditions encountered at the site, it does not appear that there is a

water table above the soil and bedrock interface. Water infiltrating at the site location is likely moving through fracture flow in the bedrock (encountered at approximately 20 feet below ground surface). The nearby sites listed on Table 1 are all found in or near drainages, which would affect the groundwater flow measured, and there are no other nearby sites in the drainages adjacent to the site.

The locations of potential sensitive receptors found in this survey, including the lack of groundwater supply wells and the lack of vulnerable populations located near the site, combined with the lack of evidence of widespread groundwater impact from the site release, appears to indicate that the risk to potential sensitive receptors is minimal. Therefore, Stratus recommends treating this report as a Request for Closure Report, resulting in no further action at the site.

## LIMITATIONS

This report was prepared in general accordance with accepted standards of care that existed at the time this work was performed. No other warranty, expressed or implied, is made. Conclusions and recommendations are based on field observations and data obtained from this work and previous investigations. It should be recognized that definition and evaluation of geologic conditions is a difficult and somewhat inexact science. Judgments leading to conclusions and recommendations are generally made with an incomplete knowledge of the subsurface conditions present. More extensive studies may be performed to reduce uncertainties. This report is solely for the use and information of our client unless otherwise noted.

If you have any questions or comments concerning this document, please contact Trevor Hartwell at (530) 313-9966.

Sincerely,

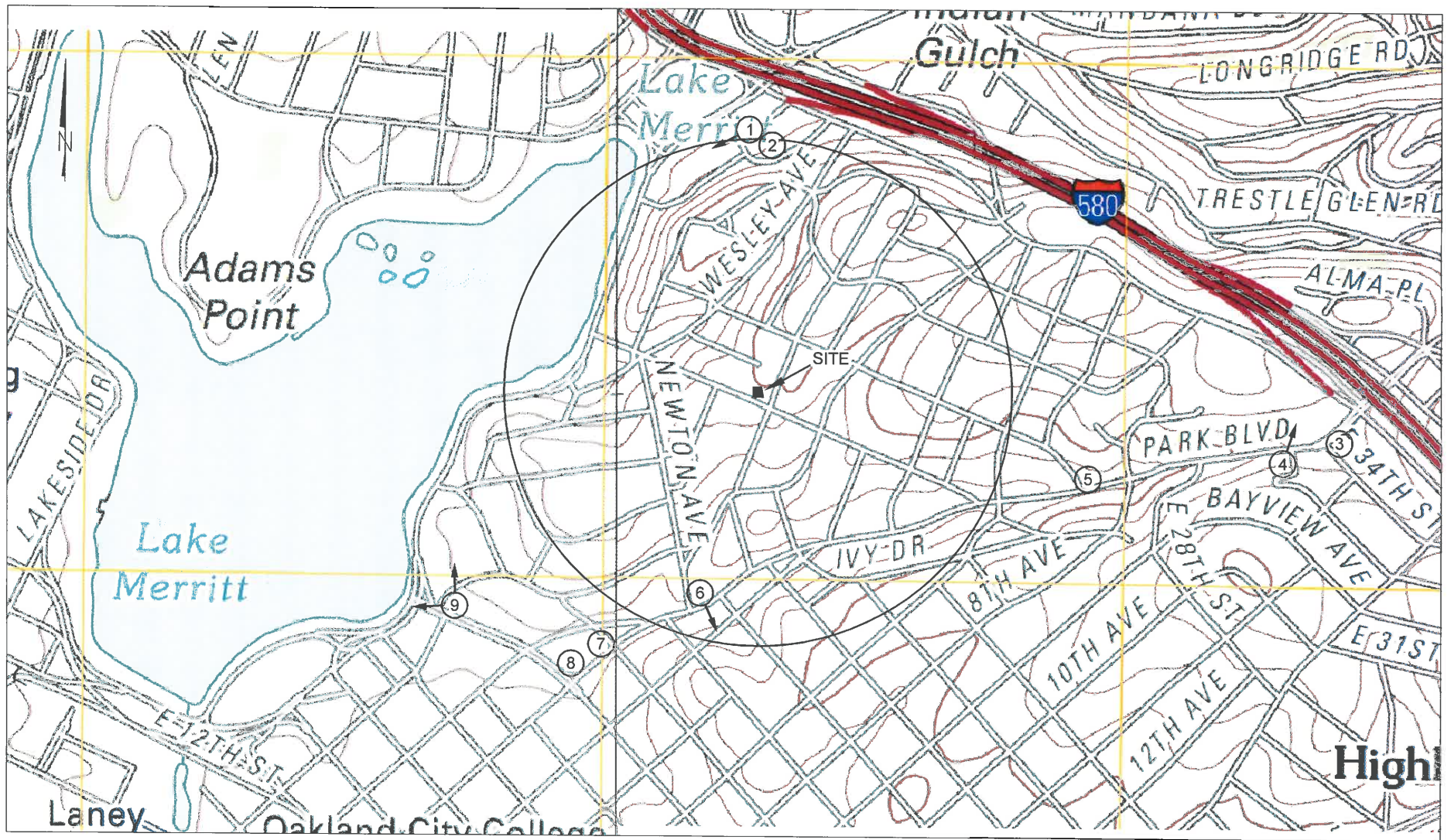
*STRATUS ENVIRONMENTAL, INC.*

Allan Dudding  
Project Geologist

Trevor M. Hartwell, P.G.  
Project Manager



Attachments: Table 1      Nearby Site List  
                  Figure 1      Nearby Site Location Map



① ALAMEDA COUNTY ENVIRONMENTAL HEALTH SITES  
 → RECORDED GROUNDWATER GRADIENT, DIRECTION BASED ON AVAILABLE DATA.



CASA AMIGA APARTMENTS  
 640 BROOKLYN AVENUE  
 OAKLAND, CALIFORNIA

NEARBY SITE LOCATION MAP

FIGURE  
 1  
 PROJECT NO.  
 2185-0640-01

TABLE 1

NEARBY SITE LIST

Casa Amiga Apartments

640 Brooklyn Avenue, Oakland, California

Location No.	ACEHD RO No.	Location Address	Location Name	Approximate Site Elevation (amsl)	GW Gradient	Depth to Water (ft) bgs)	Location Description
1	RO0000284	3026 Lakeshore Ave	Chevron #9-0121	10	WSW	4-10	LUST gas station
2	RO0000777	637 Beacon Street	City of Oakland	20	--	--	heating oil tank, removed 2/17/89
3	RO0002498	3418 Park Blvd	Oil Changers/Gas Station	130	--	4-8	LUST gas station
4	RO0002526	3310 Park Blvd	Arco 2107	140	NNW	2-12	LUST gas station
5	RO0000669	2833 Park Blvd.	Buchman property	70	--	--	UST site, closed 1993
6	RO0000380	2101 Park Blvd.	Fmr. Shell Station	20	SSE	3-8	LUST gas station
7	RO0000912	1901 Park Blvd.	Yuen's Exxon	10	--	--	UST site, closed 1997
8	RO0002895	1814 Park Blvd.	Wash Time Laundromat	10	--	5-6	PCE/TCE site
9	RO0000999	200 E. 18th Street	Unocal #0064	10	N&W	0-5	LUST gas station

Notes:  
bgs = below ground surface  
amsl = above mean sea level