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By Alameda County Environmental Health at 2:30 pm, Dec 02, 2013

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

STRATUS
ENVIRONMENTAL, INC.

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

November 22, 2013
Project No. 2185-0640-01

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

Re: **Soil and Groundwater Investigation Work Plan Addendum**
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 *Soil and Groundwater Investigation Work Plan Addendum (Addendum)* in response to Alameda County Environmental Health Department (ACEHD) email correspondence dated October 31, 2013. In the correspondence, ACEHD requested the submittal of an addendum to the *Soil and Groundwater Investigation Work Plan* dated September 27, 2013, to address the following: define the horizontal extent of petroleum hydrocarbon impact to soil and groundwater, include additional soil sample selection criteria, and perform additional laboratory analysis for soil and groundwater samples. All work will be conducted in accordance with the *Soil and Groundwater Investigation Work Plan*, with the exception of the changes discussed below.

PROJECT APPROACH/RATIONALE

The items requested by ACEHD, and the activities Stratus intends to implement to address these items, are outlined below:

1. Define Horizontal Extent of Soil and Groundwater Contamination.

In order to adequately assess the horizontal extent of petroleum hydrocarbon impact to soil and groundwater, Stratus proposes the advancement of three additional soil borings (SB-2, SB-3, and SB-4) to the west, south, and southeast, respectively, of the former underground storage tank (UST) excavation area (Figure 2). Soil boring locations were selected to minimize the possibility of damaging any utilities in the immediate vicinity of the UST excavation area, while addressing the need to adequately assess the horizontal and vertical extent of petroleum hydrocarbon impact to soil and groundwater. Water, sewer, and gas utilities, as well as overhead power lines, are located in very close proximity to the former UST location.

Soil Boring ID	Rationale for location selection
SB-1	Provide vertical delineation of petroleum hydrocarbon impact within the former UST excavation (as proposed in Stratus' *Soil and Groundwater Investigation Work Plan*).
SB-2	Delineate the northwestern extent of petroleum hydrocarbon impact in soil and groundwater. The soil boring is located in the sidewalk approximately 15 feet west-northwest of both the former UST location and confirmation soil boring 9325-EX-W-16 (soil sample with highest concentration of total petroleum hydrocarbons as diesel [TPHd]).
SB-3	Provide delineation of petroleum hydrocarbon impact in soil and groundwater south of the former UST location.
SB-4	Provide delineation of petroleum hydrocarbon impact in soil and groundwater to the southeast of the former UST.

Soil boring advancement directly north of the former UST location is not feasible with conventional drilling methods due to the close proximity to the apartment building and overhead fire escape ladders.

2. Laboratory Analysis for Soil and Groundwater Samples

In the previously submitted *Soil and Groundwater Investigation Work Plan*, Stratus proposed analyzing all soil and groundwater samples for TPHd using USEPA Method 8015B, and for benzene, toluene, ethylbenzene, and xylenes (collectively BTEX) using USEPA Method 8260C. Additionally, Stratus will analyze all samples for methyl tert butyl ether (MTBE) and naphthalene using USEPA Method 8260B in accordance with the State Water Resources Control Board's Low Threat Closure Policy (LTCP) general criteria.

Due to the apparent age and unknown historical usage, it is unclear if the UST was used solely for the storage of diesel fuel (as was identified during UST removal) or for the storage of other hydrocarbon products. It is likely the UST may have contained heating oil to service the furnace of the apartment building. In order to assess if an unauthorized release may have included heating oil, Stratus proposes additionally analyzing soil and groundwater samples for TPH as Heating Oil.

3. Soil Sample Selection Protocols

Stratus initially proposed to submit two soil samples from each boring for chemical analysis; a sample from the terminus of the boring and the soil sample with the highest observable petroleum hydrocarbon impact. Stratus still intends to submit a sample from the terminus of the boring, which will be used to more accurately assess the vertical extent of hydrocarbon impacted soil. The terminus of the boring will be 5 feet below the first encountered groundwater or a minimum of 10 feet below the observable impact to soil. A photoionization detector (PID) will

be used to determine which additional samples will be submitted for analysis. Select sections of the soil core will be removed and placed in resealable plastic bags to allow the accumulation of volatile organic compounds (VOC's) within the airspace of the plastic bags. The airspace within each bag will be screened for concentrations of VOC's in parts per million (ppm) using the PID, and results will be recorded. Field observations (lithology changes, discolorations, etc.) will also help in determining which additional samples will be submitted for analysis.

Additionally, Stratus will submit a sample from each boring location within the 0 to 5 foot interval, to assess the risk posed to residents through direct contact to soil and/or outdoor air exposure, and from the 5 to 10 foot interval of the boring to assess risk through vapor intrusion. These samples will determine if petroleum hydrocarbon constituents are above maximum concentrations at these depths, as set forth in the LTCP's Media Specific Criteria for Direct Contact and Outdoor Air Exposure. A minimum of four soil samples per boring will be submitted for chemical analysis.

SCHEDULE

Following approval of this *Addendum* by ACEHD personnel, Stratus will first obtain an encroachment permit from the City of Oakland for the advancement of four soil borings within the city right-of-way. Soil boring permits from the ACEHD will also be obtained. A licensed C-57 contractor will then be scheduled and the proposed work will be implemented.

LIMITATIONS

This *Addendum* 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 *Addendum* is solely for the use and information of our client unless otherwise noted.

If you have questions concerning this project, please contact Mr. Trevor Hartwell at (530) 313-9966.

Sincerely,

STRATUS ENVIRONMENTAL, INC.

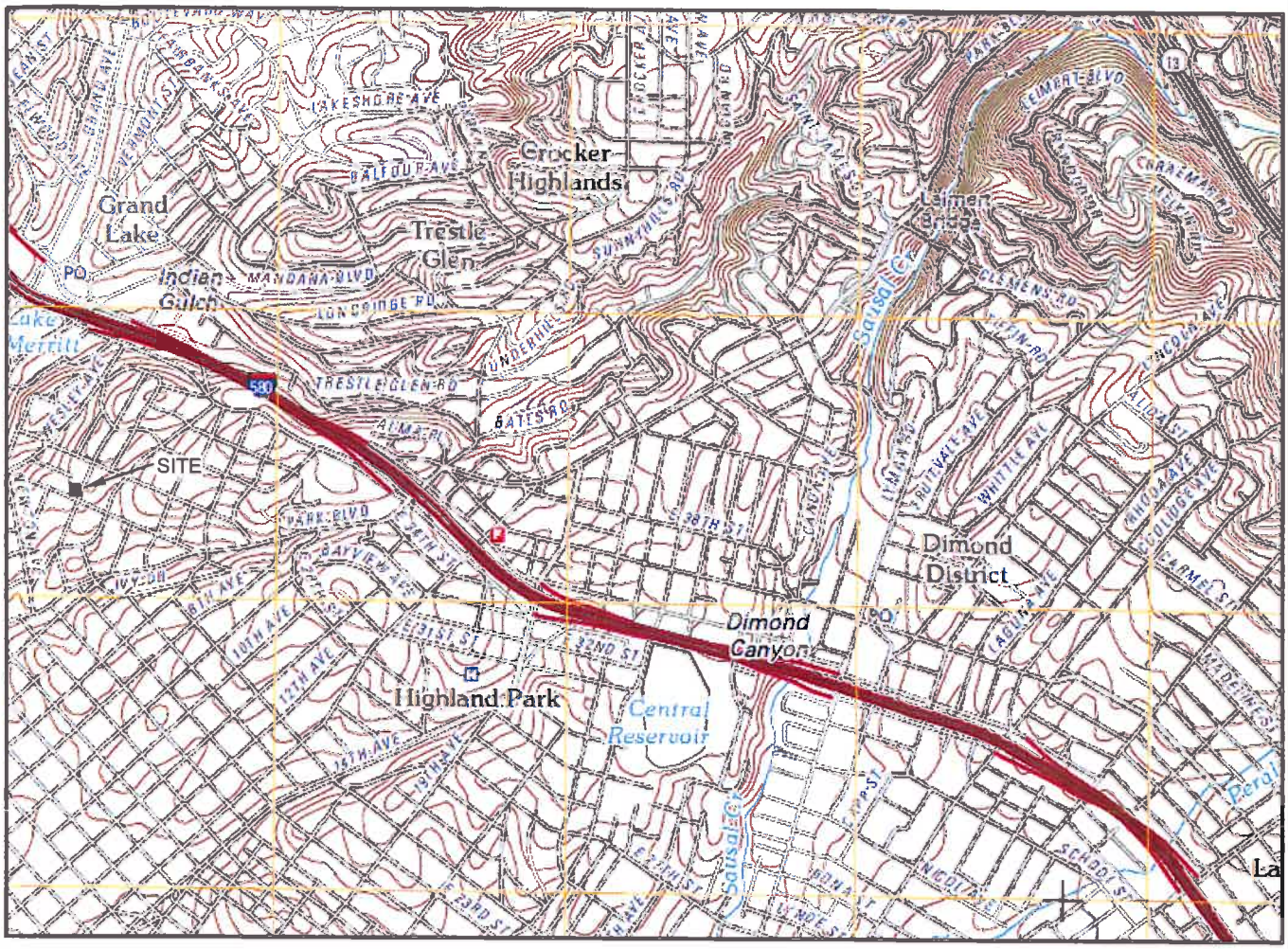
Carl Schulze
Staff Geologist

Trevor M. Hartwell, P.G.
Project Manager

PROFESSIONAL GEOLOGIST
TREVOR M. HARTWELL
No. 8774
STATE OF CALIFORNIA

Attachments: Figure 1 Site Location Map
Figure 2 Site Plan

cc: Mr. Jeffrey Jung



GENERAL NOTES:
BASE MAP FROM U.S.G.S.
OAKLAND EAST, CA.
7.5 MINUTE TOPOGRAPHIC
PHOTOREVISED 2012

N

0 2000 FT

SCALE 1:24,000

QUADRANGLE LOCATION

STRATUS ENVIRONMENTAL, INC.

CASA AMIGA APARTMENTS
640 BROOKLYN AVENUE
OAKLAND, CALIFORNIA

SITE LOCATION MAP

FIGURE
1

PROJECT NO.
2185-0640-01

N

LEGEND

- 9325 C-10 SOIL SAMPLE LOCATION
- SB-1 PROPOSED SOIL BORING LOCATION

- OHE — OVERHEAD ELECTRICAL LINE
- ELECTRICAL LINE
- WATER LINE
- SANITARY SEWER LINE
- GAS LINE

BUILDING

CASA AMIGA APARTMENTS

BUILDING

BUILDING

BUILDING

BUILDING

HADDON ROAD

SIDEWALK

OHE

SB-2

FORMER UST

SB-1

9325-EX-W-16

9325-EX-E-16

9325 C-10

SB-3

SB-4

POWER POLE

OHE

OHE

SIDEWALK

BROOKLYN AVENUE

BUILDING

BUILDING

BUILDING

BUILDING

HADDON ROAD

STRATUS ENVIRONMENTAL, INC.

0 30 FT

APPROXIMATE SCALE

CASA AMIGA APARTMENTS
640 BROOKLYN AVENUE
OAKLAND, CALIFORNIA

SITE PLAN

FIGURE
2

PROJECT NO.
2185-0640-01