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September 9, 2014

Ms. Karel Detterman, P.G.
Hazardous Materials Specialist
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

Subject: Work Plan for Soil Gas Sampling, 3093 Broadway, Oakland, California
Site Cleanup Program Case No. RO0000199

Dear Ms. Detterman,

Please find attached, for your review and comment, a *Work Plan for Soil Gas Sampling* at the Former Connell Oldsmobile site, located at 3093 Broadway in Oakland, California. The work plan has been prepared by Langan Treadwell Rollo.

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

OWNER:

GEORGE HILL AND KAY HILL, TRUSTEES OF THE HILL FAMILY TRUST UNDER TRUST INSTRUMENT DATED APRIL 28, 1993

By: _____
Name: George Hill

By: _____
Name: Kay Hill

HAWTHORNE-BROADWAY, LLC,
A California limited liability company

By: _____
Name: Gordon Linden
Title: Managing Member

[_____], 2014

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By: _____
Name: Gordon Linden
Title: Manager

4 September 2014

Ms. Karel Detterman, P.G.
Hazardous Materials Specialist
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

Re: Work Plan for Soil Gas Sampling
3093 Broadway
Oakland, California
ACEH Case No.: RO0000199
Langan Project No.: 730637001

Dear Ms. Detterman,

On behalf of 3093 Broadway Holdings, L.L.C. ("Broadway Holdings"), Langan Treadwell Rollo (Langan) has prepared this *Work Plan for Soil Gas Sampling* at the Former Connell Oldsmobile Site (the "Site"), located at 3093 Broadway in Oakland, California (Figure 1). Broadway Holdings is in the process of developing a mixed-use project at Site, and has contracted with the property owner to conduct environmental work at the Site. During the 2 July 2014 meeting between the Alameda County Department of Environmental Health ("ACEH"), Broadway Holdings, and Langan, an assessment of soil vapor concentrations was agreed as a step to progress the cleanup case towards closure.

BACKGROUND INFORMATION

The site is located in a mixed-use area, near commercial, medical, and residential properties. The approximately 149,750 square-foot site is bounded by Hawthorne Street to the north, Broadway to the east, Webster Street to the west, and a surface parking lot to the south. The site is currently occupied by an abandoned, two-story concrete structure that was formerly a car dealership and a connected one-story garage fronting on Hawthorne Street. There is a second small garage in the middle of the site. Currently, the site is occupied by stored automobiles.

Three underground storage tanks (USTs) that previously contained gasoline, diesel, and waste oil were removed from the upper (northwest) portion of the site in December 1989. Soil and groundwater assessments have been ongoing since 1990. The chemicals of concern in groundwater at the site include benzene, toluene, ethylbenzene, and xylenes (BTEX), 1,2-dichloroethane, and naphthalene. Previous investigations concluded that methyl tertiary butyl ether (MTBE) is not present at the Site.

We understand the existing buildings will be demolished, with the exception of a portion of the building located in the northeast corner of the site. A multi-story mixed use building has been proposed, and would occupy nearly the entire property. The ground floor will consist of parking and retail space. The upper levels will include residential units. Site excavation for the development is planned to reduce existing grade by approximately 3 to 18 feet; the ground floor will be roughly level with Broadway. The conceptual development plans is shown in Attachment 1.

SITE GEOLOGY AND HYDROGEOLOGY

The Site elevation ranges from approximately 52 to 68 feet above mean sea level (Attachment 1). The Site slopes downward to the southeast, from Webster Street to Broadway. The Site is underlain by unconsolidated sediments ranging from silty clays to sandy gravels. Based on geotechnical drilling conducted by Langan at the Site, unconsolidated sediments extend to at least 50 feet bgs. The site surficial geology is mapped as the Temescal Formation, which consists of quaternary age alluvial fan deposits comprised of interbedded layers of silt, sand, clay, and gravel (Radbrush, 1957)[1]. Alluvial fan deposits are characterized by laterally discontinuous and heterogeneous layers of irregular thickness. The depth to groundwater (Langan, 2014)[2] beneath the Site ranges from approximately 16 to 27 feet. Groundwater flows toward the east (Pangea, 2013)[3].

SOIL GAS SAMPLING

To assess current soil vapor concentrations within the footprint of the future building, we will collect and analyze ten soil gas samples from 8 locations from beneath the future building footprint. The objective of soil gas sampling is to assess the potential for future vapor intrusion concerns, after redevelopment of the Site. The sampling program was designed following the California Department of Toxic Substances Control (DTSC) Vapor Intrusion Guidance (DTSC, 2011)[4]. The soil gas sampling locations, rationale, and sample collection methods are described below. The soil gas samples will be collected in general accordance with DTSC-approved methods (DTSC, 2012)[5].

Soil Gas Sample Locations and Rationale

Eight samples will be collected from approximately 5 feet beneath the future building ground floor, and two deeper soil gas samples will be collected in the areas of highest residual benzene concentrations in groundwater (Figure 2). Because of the planned 3 to 18 feet deep excavations and the desire to collect samples from post-excavation depths, actual sampling depths will range from 7 to 21 feet below the current grade. This sampling program includes

1 Radbrush, Dorothy. 1957, Areal and Engineering Geology of the Oakland West Quadrangle, California.
2 Langan Treadwell Rollo, 2014. Results of May 2014 Groundwater Monitoring, Case # RO0000199, Former Connell Oldsmobile Site, 3093 Broadway, Oakland.
3 Pangea Environmental Services, Inc., 2013. Groundwater Monitoring and Remediation Report First Half 2013, Connell Automobile Dealership, 3093 Broadway, Oakland, California.
4 DTSC, 2011, Guidance for The Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance), October.
5 DTSC, 2012, Advisory – Active Soil Gas Investigation, April.

one location inside the former service bay portion of the existing building near Hawthorne Avenue; two in the upper parking lot, west of the site building; and five in the parking lot south of the former show room and service bay. The deeper soil gas samples will be collected approximately five to ten feet above current water table. If feasible, the deeper samples will be collected from wells MW-1 and MW-6; alternatively the deeper samples will be collected from temporary probes. The sample depths are presented in Table 1.

The proposed sampling array will provide soil gas data for the following locations: (1) over the areas of with the highest benzene concentrations in groundwater; (2) upgradient, downgradient, and cross-gradient of the benzene plume in groundwater; and (3) within each 150-foot grid shown on Figure 2. Within each grid the sample locations were biased toward areas of known subsurface contamination and toward locations with limited existing soil, groundwater or soil gas data. In addition, two deeper samples will be collected to assess soil vapor concentrations in the two areas with the highest remaining benzene concentrations in groundwater.

The data will be used to assess the potential presence of volatile organic compounds in soil gas, and further investigate the petroleum impacts from the former USTs. The soil gas sampling locations follow a nonaligned grid pattern with a 150-foot square grid because this frequency is likely sufficient to identify potential vapor intrusion concerns resulting from a historical UST.

Permits and Coordination

As required, a drilling permit will be obtained from Alameda County Public Works Agency, Water Resources Department, in advance of drilling. A site-specific health and safety plan will be prepared and followed by Langan and its subcontractors to protect site workers and the public. Work will be performed in accordance with the access agreement between Broadway Holdings and the property owner.

Semi-Permanent Soil Gas Well Installation

We will advance eight soil borings to the depths presented in Table 1 and install semi-permanent soil gas wells. To install the temporary soil gas well, 1/8-inch diameter disposable nyla-flow tubing will be threaded onto the top of a 1.5-inch long, 3/8-inch diameter nylon soil gas screen implant. The assembly will then be placed into the boring. The soil gas screen implant will be surrounded by approximately 1-foot of sand filter pack. A three to six-inch layer of dry bentonite chips will be placed above the sand filter pack. Hydrated bentonite chips will be placed above the dry bentonite to create a seal around the tubing to prevent ambient air intrusion into the soil gas sample. The Teflon tubing attached to the soil gas probe will extend at least 2 feet above the surface and will be fitted with a sealable sample valve or port at the end.

Temporary Soil Gas Probe Installation

The completed soil gas sample collection depth will be selected in the field by vacuum testing the incremental advancement of 1-inch or 1.25-inch diameter steel rods equipped with a retractable, disposable tip. The vacuum test will be first conducted at the proposed sampling

depth by advancing the steel rods to the desired depth, pulling up slightly to open the disposable tip, and applying a vacuum to the system with a syringe at a sealed connection with the top of the rods. Per DTSC protocol, if the vacuum test indicates that a sustainable sampling rate of 100 to 200 milliliters per minute (mL/min) can be maintained at less than 100 inches-water vacuum, then the gas well will be installed at that depth. If the vacuum exceeds 100-inches-water, we will advance the steel rod incrementally to approximately 1.5 feet below proposed sample depth, and finally to approximately 3 feet below proposed sample depth repeating the vacuum test at each depth. If the vacuum is less than 100 inches-water vacuum, then the soil gas well will be installed at that depth. If the vacuum testing exceeds 100 inches-water at each of the three test depths, the soil gas sampling location will be abandoned.

Connection to Existing Monitoring Wells

Connections will be assembled to wells MW-1 and MW-6 to collect deeper soil gas samples. These wells have approximately 5 to 10 feet of screen above the water table. The wells will be purged of three casing volumes using an applied vacuum sufficiently low to avoid upwelling of the water table and covering of the screen available for sampling.

Sampling Train Assembly

The sampling train will be assembled using the following steps:

1. The initial vacuum of the SUMMA canister (or equivalent) will be recorded prior to sampling. Initial canister vacuums that are less than 30 inches of mercury (Hg), as certified by the laboratory, are a potential indication of leakage, which could affect the accuracy of analytical results. If the initial vacuum reading is less than 28 inches Hg, the canister will not be used. In addition, the canister will be inspected for damage and a canister that has visible damage will not be used.
2. Following the initial inspection, a dedicated flow controller and vacuum gauge will be attached to each SUMMA canister and sealed with a compression fitting cap (e.g., Swagelock or equivalent).
3. The sample port and sampling manifold will be connected using ¼-inch outside diameter (OD) teflon tubing and stainless steel compression fitting nut and ferrules. The sampling manifold consists of compression fittings with three valves and one pressure gauge to attach the probe tubing to the SUMMA canister.
4. A syringe will also be connected to the sampling manifold using ¼-inch OD Teflon tubing and stainless steel compression fitting nut and ferrules.
5. The assembled SUMMA canister, flow controller, and pressure gauge shall be connected to the sampling manifold using stainless steel compression fitting nut and ferrules.

Shut-in Test

Prior to soil gas purging and sample collection, a shut-in test will be performed to check for leaks in the aboveground sampling train assembly:

1. The valve that connects the soil gas probe to the sampling manifold will be closed and the valve that connects to the SUMMA canister will be closed.

2. The syringe will then be pulled to empty air from the manifold.

3. A leak-free system will be evident by observing no loss of vacuum within the sampling manifold system. Noted leaks will be repaired prior to sample collection by checking and tightening the compression fittings on the manifold. The manifold will then be re-checked to make sure it passes the physical leak check before proceeding

Leak Check

Helium will be used as a leak-check tracer gas around the nyla-flow tubing during sampling as a quality control/quality assurance measure to confirm the sample integrity. The leak check will be conducted using the following steps:

1. The helium shroud is placed over the soil gas probe at ground surface, along with the entire sampling train (sampling manifold, pump, and sampling canister).
2. A minimum helium atmosphere of 10 percent will be induced within the shroud. The atmosphere within the shroud will be monitored using the Dielectric MGD 2002 instrument (or equivalent), inserted through a small aperture in the shroud. Following the three-volume purge, a small aliquot of soil gas will be collected into the syringe for helium screening.
3. If helium is detected in the aliquot of purged soil gas at a concentration less than 5 percent of the atmosphere induced under the shroud during the purge (e.g., if the helium concentration under the shroud is 10 percent, the purged soil gas should contain less than 0.5 percent helium), the sample flow train integrity will be considered adequate and within an acceptable range (DTSC, 2012).
4. The leak check test is performed during purging and sample collection at each soil gas sampling location.

Sample Collection Methodology

After waiting at least two-hours following the probe installation, samples will be collected after withdrawing three purge volumes, according to DTSC guidelines. Soil gas samples will be collected in 1-liter Summa canisters, following protocols:

1. Before collecting the sample, confirm that the sampling system valves are set as follows: 1) the syringe valve is confirmed to be closed, 2) the soil gas probe valve is open, and 3) the SUMMA canister valve is open.

2. Helium will be reintroduced into the shroud and be allowed to stabilize until at least a 10 percent helium concentration has been reached.

3. Upon reaching a stable helium concentration, the SUMMA canister inlet valve will be slowly opened (counter-clockwise) one full turn to begin sample collection at approximately 200 mL/min. During the sample collection, the helium concentration will

be monitored using a Dielectric MGD 2002 helium detector and the approximate average concentration will be recorded on the sample field data sheet.

4. The start time and initial vacuum reading from the vacuum gauge will be recorded on the sample label, COC records, and on the field log, along with the SUMMA canister and flow controller identifications.

5. The valve will remain open until the final vacuum reading on the vacuum gauge on the SUMMA canister is between 2 to 4 inches Hg. It is important to leave 2 to 4 inches of vacuum remaining in the SUMMA canister so the receiving analytical laboratory can verify that the sample was not compromised during shipment.

6. The valve on the SUMMA canister will be closed clockwise until it is finger- tight.

7. Turn off the helium and close the valve at the soil gas probe tubing.

8. The stop time and final vacuum reading will be recorded on the sample label, COC record, and on the field log. The sampling information on the COC records will be completed and checked against the sample labels and field log.

9. The SUMMA canister will be removed from the sampling manifold and placed in the laboratory-supplied cardboard boxes.

Soil gas sampling equipment will be decontaminated between sampling locations. Soil gas samples will be submitted under chain of custody protocol to a State of California-certified analytical laboratory.

Quality Assurance and Quality Control (QA/QC)

One duplicate soil gas sample will be collected and analyzed, and an ambient air sample will be collected for each day of soil gas sampling.

Temporary Soil Gas Well Decommissioning

After soil gas sampling is completed, the temporary soil gas wells will be destroyed by using a split spoon sampler to remove the filter pack, and will be subsequently grouted from the borehole bottom to ground surface using neat cement. Soil and drilling waste will be stored at the site in sealed and labeled 55-gallon drums or bins pending analytical profiling and offsite disposal.

LABORATORY ANALYSES

Soil gas, ambient air, and duplicate samples will be analyzed by CalScience Analytical Laboratory as follows:

- VOCs including naphthalene using EPA Method TO-15.

- Oxygen and carbon dioxide.

- Leak detection compound helium by American Society for Testing and Materials (ASTM) Method D-1946.

DATA EVALUATION AND REPORTING

Soil vapor results for benzene, ethylbenzene and naphthalene will be compared to the State Water Resources Control Board Low Threat Closure Policy (LTCP) soil gas criteria[6]. If other compounds are detected, the concentrations will be compared to the San Francisco Regional Water Quality Control Board Environmental Screening Levels (ESLs)[7] or the updated soil gas screening numbers from the California Office of Environmental Health Hazard Assessment (CHHSLs)[8]. A cover letter, a technical memorandum describing the sampling activities, tabulated analytical results, a scaled figure showing sampling locations, and a copy of the analytical laboratory report will be submitted to the ACEH. The results from the investigation will be incorporated into a Conceptual Site Model (CSM) which will include conclusions and recommendations.

SCHEDULE

Sampling is scheduled for late September 2014, and the technical memorandum will be submitted to the ACEH within four weeks of completion of the field work. The CSM will be submitted to the ACEH during the Fourth Quarter of 2014.

If you have any questions, please do not hesitate to call us at 415-955-5200.

Sincerely yours,
Langan Treadwell Rollo

Christina L. Rain
Senior Staff Engineer

Robert W. Schultz, CHG
Senior Project Manager

cc: Mr. Tony Cardoza and Mr. Stephen Siri, 3093 Broadway Holdings, L.L.C.
555 California Street, 10th Floor
San Francisco, CA 94104

Enclosures: Table 1 – Proposed Sampling Schedule
Figure 1 – Site Location Map
Figure 2 – Site Plan and Proposed Soil Gas Sampling Locations
Attachment 1 – Development Plans

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6 State Water Resources Control Board, 2012, Low Threat Underground Storage Tank Case Closure Policy, Adopted pursuant Resolution No. 2012-0016, May.

7 San Francisco Bay Regional Water Quality Control Board, 2013, Environmental Screening Levels, 2013.

8 California Office of Environmental Health Hazard Assessment, 2010. Table 3 - Soil-Gas-Screening Numbers for Volatile Chemicals below Buildings Constructed Without Engineered Fill below Sub-slab Gravel, September 23.

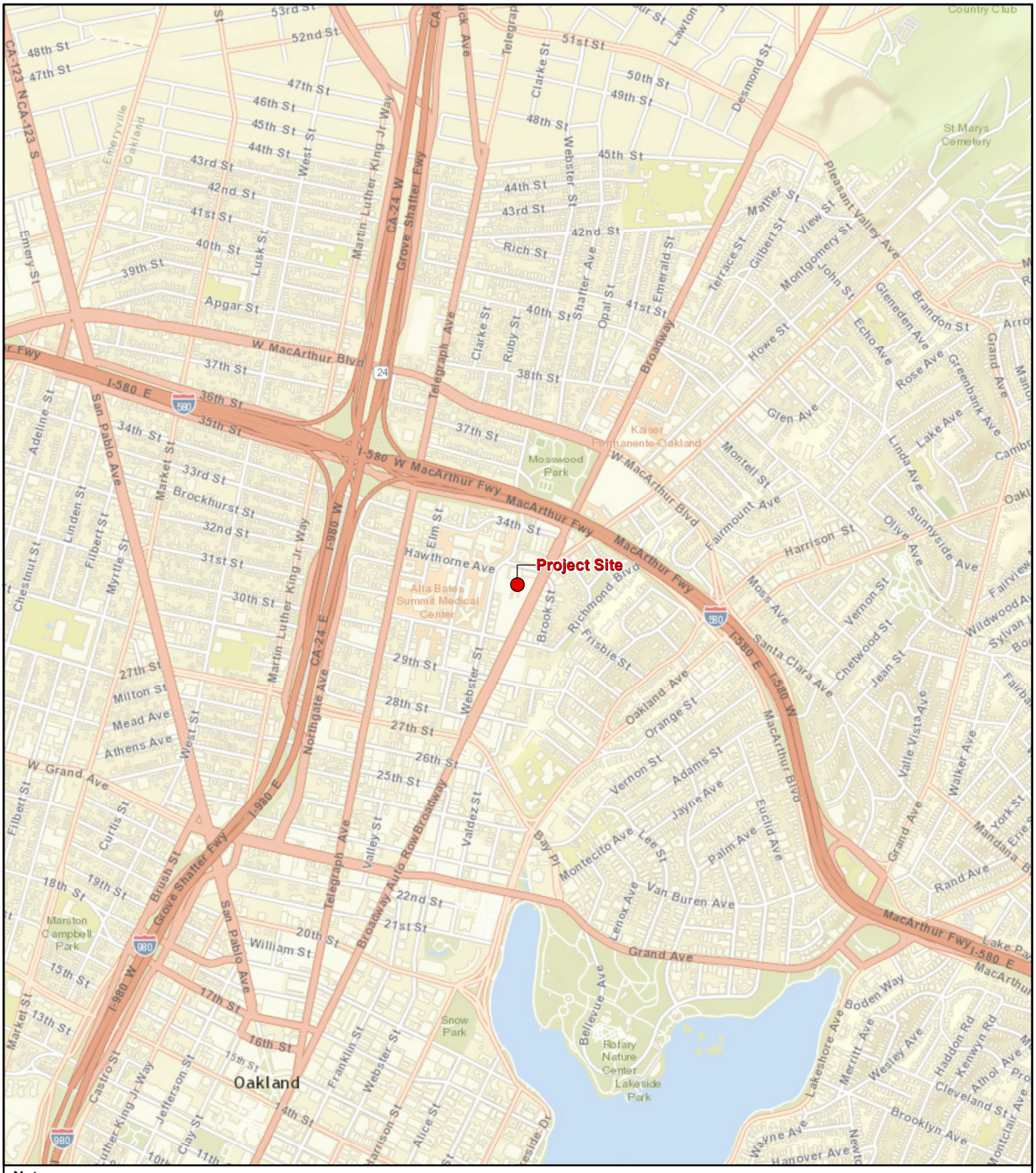
TABLE

Table 1
Soil Gas Analysis Plan
3093 Broadway
Oakland, California

Sampling Location	Ground Elevation	Future Grade Elevation	Sample Depth	VOCs using TO-15	Helium	Oxygen	Carbon Dioxide
	feet a-msl	feet a-msl	feet bgs	µg/m^3	%v	%v	%v
SV-1	67	51	21	X	X	X	X
SV-2	62	51	16	X	X	X	X
SV-3	57	51	11	X	X	X	X
SV-4	54	51	8	X	X	X	X
SV-5	64	51	18	X	X	X	X
SV-6	61	51	15	X	X	X	X
SV-7	54	51	8	X	X	X	X
SV-8	56	51	10	X	X	X	X
MW-1	62	51	16	X	X	X	X
MW-6	53	51	7	X	X	X	X
Duplicate	--	--	--	X	X	X	X
Ambient Air	--	--	--	X			

Notes:
VOCs = volatile organic compounds, including naphthalene and fuel oxygenates
a-msl = above mean sea level
bgs = below ground surface
%v = percent volume
µg/m^3 = micrograms per cubic meter

FIGURES



Notes:

1. World street basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online. Credits: Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN.
2. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

0 1,000 2,000 4,000
Feet

N

3093 BROADWAY
Oakland, California

SITE LOCATION MAP

LANGAN TREADWELL ROLLO

Date 8/18/2014 | Project 731637001 | Figure 1

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EXPLANATION

- SV-1 — Proposed soil gas sampling location
- MW-1 — Monitoring well location
- Site boundary
- Fence
- Building footprint
- 1,000 — Benzene Isoconcentration in water (µg/L), May 2014 (approximate)

N

0 100 Feet

Approximate scale

3093 BROADWAY
Oakland, California

SITE PLAN AND PROPOSED SOIL GAS SAMPLING LOCATIONS

LANGAN TREADWELL ROLLO

Date 08/25/14 | Project No. 731637001 | Figure 2

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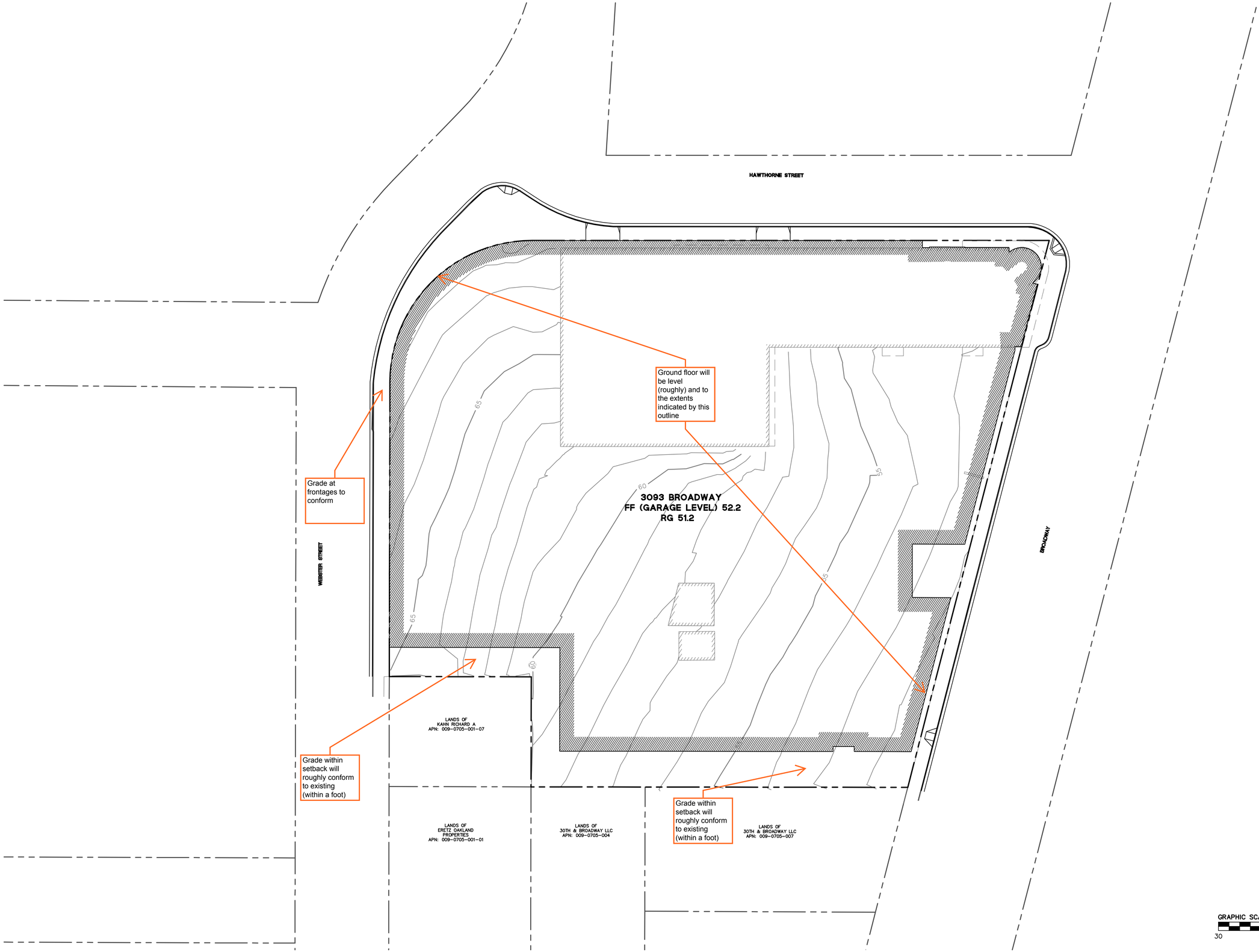
ATTACHMENT 1
DEVELOPMENT PLANS



GRAPHIC SCALE
30 0 30 60

N

C2.0 CONCEPTUAL GRADING PLAN

3093 BROADWAY
OAKLAND, CALIFORNIA

19 AUGUST 2014
PROJECT NO : 20140091

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