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By Alameda County Environmental Health 9:31 am, Mar 08, 2017

March 6, 2017

Ms. Dilan Roe
Site Cleanup Program Manager
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94501-6577

Subject: **Indoor Air Sampling Work Plan**
Former Crown Chevrolet North Parcel
7544 Dublin Boulevard
Dublin, California
Site Cleanup Program Case No. RO0003014

Dear Ms. Roe:

Enclosed please find a document entitled "*Indoor Air Sampling Work Plan*" for the Former Crown Chevrolet North Parcel site at 7544 Dublin Boulevard, in Dublin, California (Site Cleanup Program Case No. RO0003014, GeoTracker Global ID T10000001616). This Work Plan was prepared by Amec Foster Wheeler Environment & Infrastructure, Inc., on behalf of BWD Dublin LLC. The Work Plan describes activities to be performed to confirm that the vapor mitigation measures at the Former Crown Chevrolet North Parcel property are functioning as designed.

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 knowledge.

Please contact me at (408) 680-4938 or Avery Whitmarsh of Amec Foster Wheeler at (510) 663-4154 if you have any questions regarding this Work Plan.

Sincerely yours,

Pete Beritzhoff
BWD Dublin LLC

Attachment: Indoor Air Sampling Work Plan

cc: Colleen Winey, Zone 7 Water Agency (electronic copy only)
Gregory Shreeve, City of Dublin (electronic copy only)

March 6, 2017

8617170810

Ms. Dilan Roe
Site Cleanup Program Manager
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94501-6577

Subject: **Indoor Air Sampling Work Plan**
Former Crown Chevrolet North Parcel
7544 Dublin Boulevard
Dublin, California
Site Cleanup Program Case No. RO0003014

Dear Ms. Roe:

On behalf of Dublin Apartment Properties, LLC, Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), is submitting this *Indoor Air Sampling Work Plan* ("Work Plan") to the Alameda County Department of Environmental Health (ACDEH) for review and approval. This Work Plan describes indoor air sampling to be performed to confirm that the vapor mitigation measures at the Former Crown Chevrolet North Parcel property at 7544 Dublin Boulevard in Dublin, California ("the Site," Figure 1) are functioning as designed, as requested in the letter from ACDEH dated August 5, 2013.[1]

BACKGROUND

The Site was developed in 1968 as Crown Chevrolet, a car dealership with auto body shops, on land that appears to have been previously used for agricultural purposes. Operations as a car dealership and auto body shop continued from 1968 through 2013. Investigations performed from 2009 through 2014 indicated the presence of volatile organic compounds (VOCs) in soil, groundwater, and soil vapor. More detailed site history and the results of previous investigations can be found in the *Soil, Groundwater, and Soil Vapor Investigation Report*[2] and the *Vapor Mitigation and Permeable Reactive Barrier Basis of Design Report* (BoD Report).[3]

The property was sold in the fall of 2014, and the Site buildings were demolished in December 2014 in preparation for redevelopment. The 2015 BoD Report includes designs for a permeable reactive barrier (PRB) to treat VOC-impacted groundwater as it enters the Site from the west,

[1] ACDEH, 2013. Fuel Leak Case No. RO0003014 and GeoTracker Global ID T0000000616, Crown Chevrolet Cadillac Isuzu, 7544 Dublin Boulevard and 6707 Golden Gate Drive, Dublin, CA, 94568. August 5.

[2] AMEC Environment & Infrastructure, Inc., 2012. Soil, Groundwater, and Soil Vapor Investigation Report, Crown Chevrolet Cadillac Isuzu, 7544 Dublin Boulevard and 6707 Golden Gate Drive, Dublin, California, October 19.

[3] Amec Foster Wheeler Environment & Infrastructure, Inc., 2015. Vapor Mitigation and Permeable Reactive Barrier Basis of Design Report, Former Crown Chevrolet North Parcel, 7544 Dublin Boulevard, Dublin, California, June 11.

Amec Foster Wheeler Environment & Infrastructure, Inc.
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Oakland, California 94612
USA
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and a vapor mitigation system (VMS) to mitigate potential risks to future building occupants from VOC-impacted soil vapor. The PRB was installed in 2015.[4] Construction of the VMS, which includes a vapor barrier and sub-slab depressurization system beneath mixed use commercial and residential buildings at the Site, was performed in 2016 during building construction.

Although the vapor barrier and sub-slab depressurization system have been installed, the venting system is not yet operational. The system is planned to begin operation in the spring of 2017, following receipt of a permit to operate from the Bay Area Air Quality Management District.

INVESTIGATION OBJECTIVE

This objective of this indoor air investigation is to confirm that the vapor mitigation measures at the Site are functioning as designed.

APPROACH

The proposed work includes two rounds of indoor air sampling prior to building occupancy on the ground floors of the buildings where the VMS is installed (Figure 2). The VMS is present beneath all or portions of Buildings A, C, and D, which consist of four floors of residential apartments (including apartments on the ground floor), and beneath Buildings E and F, which consist of ground-floor retail units, with four floors of residential apartments above.

Because the build-out of the retail units in Buildings E and F is not anticipated to be complete until late spring of 2017, the indoor air sampling will be performed in a phased manner, as follows:

- The first round of sampling within the ground-floor residential units (in Buildings A, C, and D) will be performed following approval of this Work Plan.
- The first round of sampling within the ground-floor retail units (in Buildings E and F) will be performed later in spring 2017 when the build-out is substantially complete (i.e., doors and windows are present).
- The second round of sampling at all locations will be performed prior to occupancy; at that time samples will be collected simultaneously from the ground-floor residential and retail units.

The chemicals of potential concern (COPCs) for this indoor air evaluation were outlined in the BoD Report and include the following VOCs:

- Tetrachloroethene,
- Trichloroethene,

[4] Amec Foster Wheeler Environment & Infrastructure, Inc., 2016. Dublin Apartments Permeable Reactive Barrier Construction Completion Certification, Former Crown Chevrolet North Parcel, 7544 Dublin Boulevard, Dublin, California, January 28.

- cis-1,2-Dichloroethene,
- trans-1,2-Dichloroethene,
- 1,1-Dichloroethene,
- Vinyl chloride,
- Benzene,
- Chlorobenzene,
- 1,2-Dichlorobenzene, and
- 1,4-Dichlorobenzene.

FIELD AND LABORATORY METHODS

The field activities, including a building survey and the indoor and outdoor air sampling, and laboratory analysis are described in the following sections.

Chemical Use and Building Survey

Before sampling, Amec Foster Wheeler will perform the following activities:

- A preliminary building survey will be conducted to confirm the sample locations and identify potential sources of VOCs that could cause false positive detections of Site COPCs. The results of the survey will be documented on a Building Survey Form (a template is provided in Attachment A). The first building survey for the ground-floor residential buildings (Buildings A, C, and D) was completed on February 23, 2017, as described below.
- Amec Foster Wheeler will coordinate with Site construction management to remove, if possible, chemicals present within the building that could interfere with the interpretation of the indoor air sampling results. If it is not possible to remove sources of chemicals in the immediate vicinity of the proposed sampling locations, alternative representative locations may be selected.

ACDEH will be notified of any proposed sample location changes based on the building survey before the proposed field work begins.

A building survey of the ground-floor-residential buildings (Buildings A, C, and D) was conducted on February 23, 2017. A ppbRAE, a low-level photoionization detector (PID), was used during the walkthrough to identify potential sources of VOCs; no significant sources were found during the walkthrough. One reading of 70 parts per billion by volume was noted near a newly installed tile backsplash in one unit; no other PID readings greater than 0 were recorded. The results of the building survey and PID screening are documented on the form included in Attachment B and on Figure B-1.

Indoor and Outdoor Air Sampling

The indoor and outdoor air sampling will take place over a total of three sampling events, as described below:

- During the first sampling event, indoor air samples will be collected from nine locations within residential apartment units on the ground floor of the residential buildings. Two outdoor/ambient air samples will also be collected. This event is anticipated to occur in March 2017, pending approval of this Work Plan.
- During the second sampling event, indoor air samples will be collected from four locations within the retail spaces on the ground floor. Two outdoor/ambient air samples will also be collected. This event is anticipated to occur later in spring 2017, when doors and windows have been installed.
- During the third sampling event, indoor air samples will be collected again from each of the 13 indoor air sample locations outlined above, as well as from two outdoor/ambient sample locations.

The proposed indoor air sampling locations are shown in Figure 2. The indoor air samples will be collected from within living and working spaces within the buildings. Some samples will be collected from rooms with typical vapor intrusion pathways, such as bathrooms and kitchens, and some will be taken from other areas representative of the living and working spaces.

As noted above, two outdoor air samples will be collected during each sampling event. If feasible, one of the outdoor air sampling canisters will be placed on the roof in the vicinity of a heating, ventilation, and air conditioning (HVAC) fresh-air intake for the buildings to be sampled. The specific outdoor air sample locations will be determined in the field on the day of sampling. An additional outdoor air sample will be collected from a location upwind of the Site at ground level, if an appropriate location can be determined.

The indoor and outdoor air samples will be collected under conditions that would be representative of future occupant exposure conditions. The following sampling strategy is proposed:

- The indoor air samples will be collected over a 24-hour period.[5]
- The indoor air samples will be collected from the breathing zone (at a height of approximately 3 to 5 feet).
- Sampling will be conducted the buildings' HVAC systems off and with doors and windows closed. This will provide a "worst-case" scenario for potential vapor intrusion.

[5] Samples from commercial spaces would typically be collected over a period of 8 or 10 hours to be representative of the potential exposure timeframe of a building worker. However, because residential units are present above the retail units, all samples will be collected over a period of 24 hours.

The indoor and outdoor air samples will be collected in individually certified 6-liter Summa™ canisters equipped with flow controllers that allow the air to enter the Summa at a constant rate over a period of 24 hours.

Specific procedures for collecting indoor and outdoor air samples are provided in Attachment C. Sample collection information will be recorded on an air sampling log (Attachment D).

Laboratory Methods

All sampling equipment and analysis will be provided by a National Environmental Laboratory Accreditation Program–certified analytical laboratory. Following sampling, the canisters will be shipped to the analytical laboratory under chain-of-custody procedures. The indoor and outdoor air samples will be analyzed for Site COPCs using U.S. Environmental Protection Agency Method TO-15 with selective ion monitoring.

A blind field duplicate will be collected during the first and third sampling events and analyzed for the same COPCs as the primary samples.

Validation of the laboratory data will be performed using Level II procedures, outlined in the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Data Review.*[6]

DATA EVALUATION AND REPORTING

The indoor air sampling results will be evaluated as described in the BoD Report. The evaluation will include comparison of the indoor air sample results to the outdoor air results and to residential indoor air Environmental Screening Levels (ESLs) published by the California Regional Water Quality Control Board, San Francisco Bay Region.[7]

Following the first indoor air sampling event, a report will be prepared for submission to ACDEH that documents the indoor air sampling performed, including the field and laboratory methods and the results. The report will include a copy of the laboratory analytical report and an evaluation of the results. Following the additional sampling events, an addendum to the report will be submitted to ACDEH that includes the results of the additional samples collected, and provides recommendations regarding occupancy of the buildings.

SCHEDULE

Following ACDEH concurrence with this Work Plan, Amec Foster Wheeler will begin implementation of this Work Plan on behalf of Dublin Apartments, LLC. The first sampling event is anticipated to be performed within two weeks of ACDEH concurrence. Amec Foster Wheeler will submit the findings report to the ACDEH within 10 weeks of the initial indoor air sampling

[6] U.S. Environmental Protection Agency (USEPA), 2016. USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, USEPA 540-R-2016-002.

[7] San Francisco Regional Water Quality Control Board, 2016. Environmental Screening Levels (ESLs), Tier 1 ESLs (Rev. 3), February.

event. The remaining sampling events and report addendum will be scheduled once the construction completion schedule is known. Amec Foster Wheeler will notify ACDEH when each sampling event is scheduled.

If you have questions regarding this Work Plan, please contact the undersigned at (510) 663-4100.

Sincerely,
Amec Foster Wheeler Environment & Infrastructure, Inc.

Avery Whitmarsh, PG
Senior Associate Geologist

AW/sc
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Attachments: Figure 1 Site Location Map
Figure 2 Site Plan and Proposed Indoor Air Sampling Locations

Attachment A Building Survey Form
Attachment B Completed Building Survey Form – Feb. 23, 2017
Attachment C Sampling Collection Procedures
Attachment D Sampling Forms

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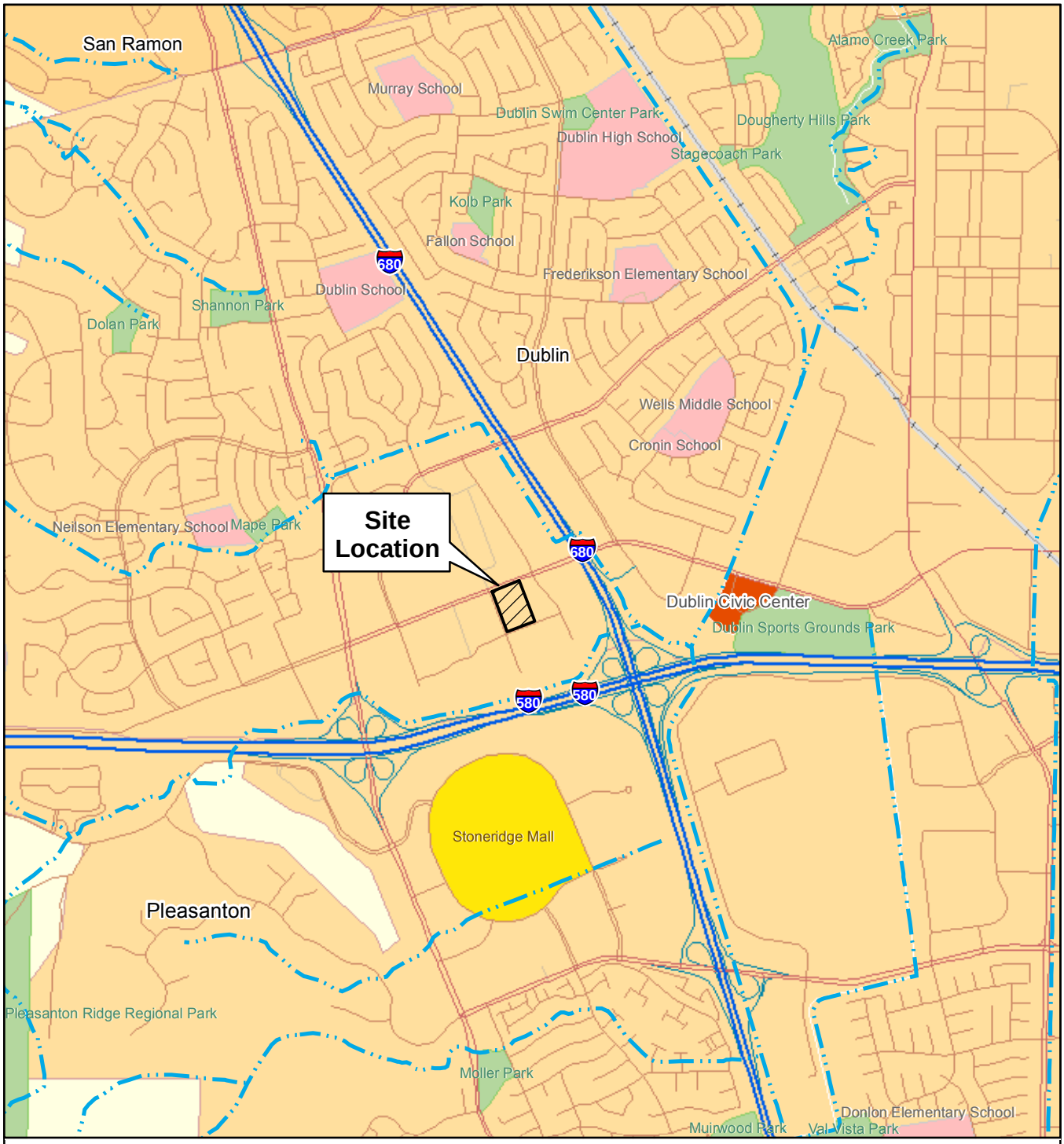
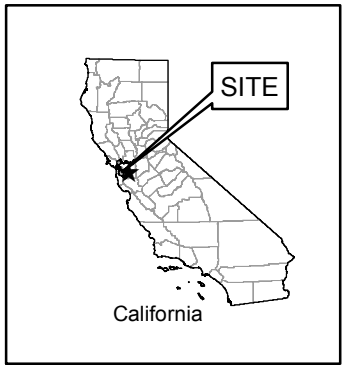
FIGURES



Street map from ESRI, 2007.



0 2,000 4,000 Feet

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SITE LOCATION MAP
Former Crown Chevrolet North Parcel
7544 Dublin Boulevard
Dublin, California

amec foster wheeler

Date: 03/02/2017 | Project No. 8617170810

Figure 1

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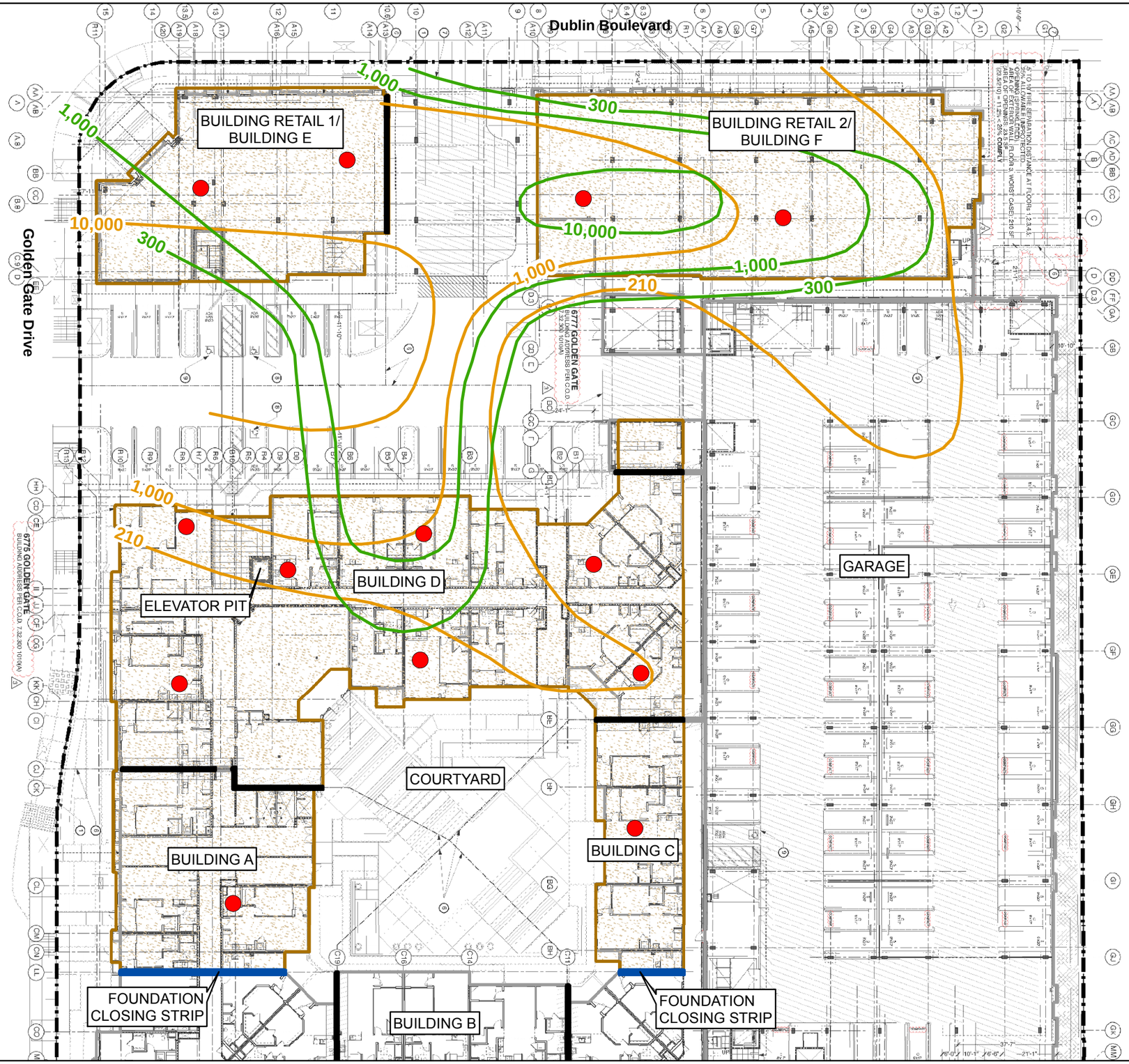

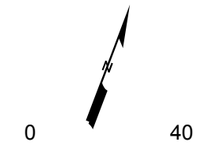

Explanation

- Proposed indoor air sampling location
- 210 — Approximate line of equal PCE concentration in micrograms per cubic meter (µg/m³)
- 1,000 — Approximate line of equal TCE concentration in µg/m³
- Soil vapor mitigation membrane extents
- Building boundary (fire wall)
- Approximate property line

Abbreviations:
PCE = tetrachloroethene
TCE = trichloroethene

Note:
1. Locations of structures and foundation layouts provided by Carlon, Barbee, & Gibson, Inc., and BDE Architecture in January 2015. Building site plan and interior details provided by BDE Architecture, dated 09/23/2015.

SITE PLAN AND
PROPOSED SAMPLING LOCATIONS
Former Crown Chevrolet North Parcel
7544 Dublin Boulevard
Dublin, California

amec foster wheeler

Date: 03/02/2017 | Project No. 8617170810

Figure 2

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ATTACHMENT A

Building Survey Form

BUILDING SURVEY FORM*

Preparer's Name: _____ Date/Time Prepared: _____
Affiliation: _____ Phone Number: _____

Occupant Information

Occupant Name: _____ Interviewed: ☐ Yes ☐ No
Mailing Address: _____
City: _____ State: _____ Zip Code: _____
Phone: _____ Email: _____

Owner/Landlord Information (Check if same as occupant ☐)

Occupant Name: _____ Interviewed: ☐ Yes ☐ No
Mailing Address: _____
City: _____ State: _____ Zip Code: _____
Phone: _____ Email: _____

Building Type (Check appropriate boxes)

☐ Residential ☐ Residential Duplex ☐ Apartment Building ☐ Mobile Home ☐ Commercial (office)
☐ Commercial (warehouse) ☐ Industrial ☐ Strip Mall ☐ Split Level ☐ Church ☐ School

Building Characteristics

Approximate Building Age (years): _____ Number of Stories: _____
Approximate Building Area (square feet): _____ Number of Elevators: _____

Foundation Type (Check appropriate boxes)

☐ Slab-on-Grade ☐ Crawl Space ☐ Basement

Basement Characteristics (Check appropriate boxes)

☐ Dirt Floor ☐ Sealed ☐ Wet Surfaces ☐ Sump Pump ☐ Concrete Cracks ☐ Floor Drains

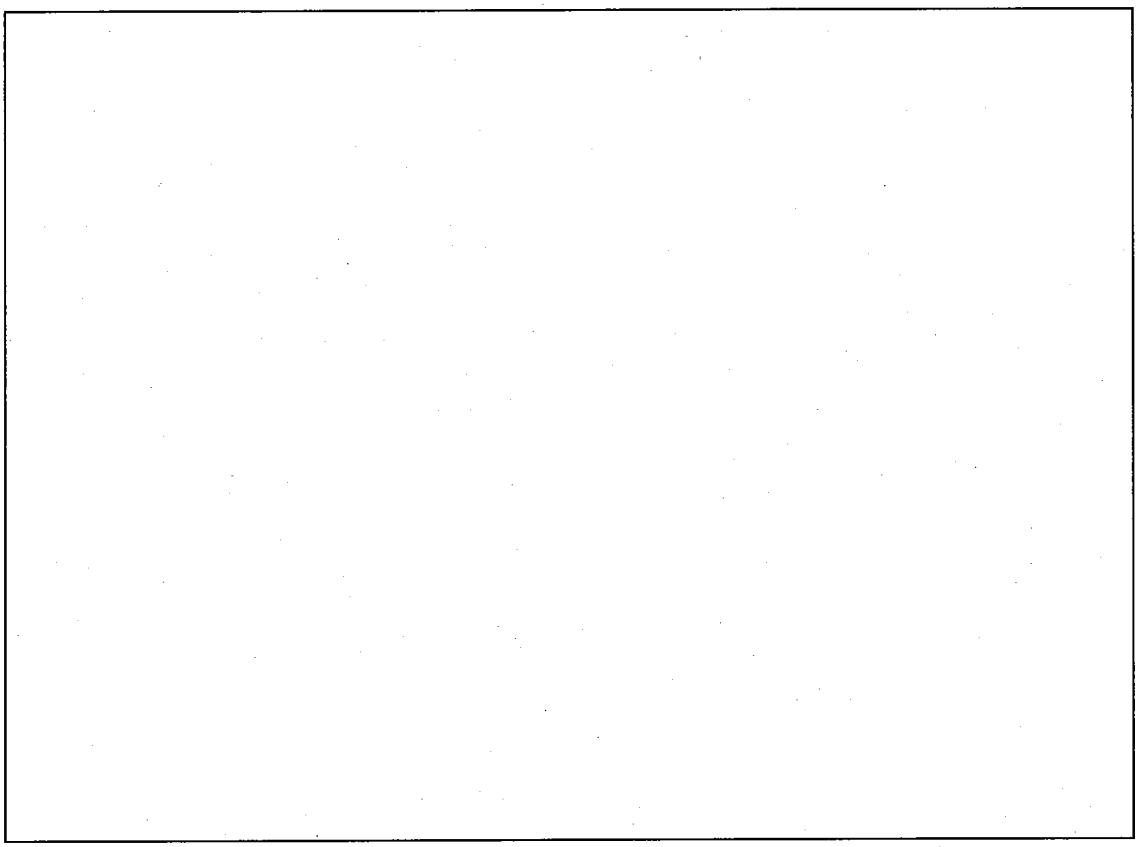
Factors Influencing Indoor Air Quality

Is there an attached garage?	☐ Yes ☐ No	
Is there smoking in the building?	☐ Yes ☐ No	
Is there new carpet or furniture?	☐ Yes ☐ No	Describe: _____
Have clothes or drapes been recently dry cleaned?	☐ Yes ☐ No	Describe: _____
Has painting or staining been done with the last six months?	☐ Yes ☐ No	Describe: _____
Has the building been recently remodeled?	☐ Yes ☐ No	Describe: _____
Has the building ever had a fire?	☐ Yes ☐ No	
Is there a hobby or craft area in the building?	☐ Yes ☐ No	Describe: _____
Is gun cleaner stored in the building?	☐ Yes ☐ No	
Is there a fuel oil tank on the property?	☐ Yes ☐ No	
Is there a septic tank on the property?	☐ Yes ☐ No	
Has the building been fumigated or sprayed for pests recently?	☐ Yes ☐ No	Describe: _____
Do any building occupants use solvents at work?	☐ Yes ☐ No	Describe: _____

* Developed based guidelines set forth in the Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (DTSC, 2011).

Sampling Locations

Draw the general floor plan of the building and denote locations of sample collection. Indicate locations of doors, windows, indoor air contaminant sources and field instrument readings.



Primary Type of Energy Used (Check appropriate boxes)

☐ Natural Gas ☐ Fuel Oil ☐ Propane ☐ Electricity ☐ Wood ☐ Kerosene

Meteorological Conditions

Describe the general weather conditions during the indoor air sampling event.

_____

General Comments

Provide any other information that may be of importance in understanding the indoor air quality of this building.

_____
_____
_____
_____
_____

ATTACHMENT B

Completed Building Survey Form – Feb. 23, 2017

BUILDING SURVEY FORM*

Preparer's Name: Priscilla Soto Date/Time Prepared: 2/23/17
Affiliation: Amec Foster Wheeler Phone Number: 510 663 4100

Occupant Information

Occupant Name: N/A (not currently occupied) Interviewed: ☐ Yes ☒ No
Mailing Address: 7544 Dublin Blvd
City: Dublin State: CA Zip Code: 94568
Phone: N/A Email: N/A

Owner/Landlord Information (Check if same as occupant ☐)

Occupant Name: _____ Interviewed: ☐ Yes ☐ No
Mailing Address: _____
City: _____ State: _____ Zip Code: _____
Phone: _____ Email: _____

Building Type (Check appropriate boxes)

☐ Residential ☐ Residential Duplex ☒ Apartment Building ☐ Mobile Home ☐ Commercial (office)
☐ Commercial (warehouse) ☐ Industrial ☐ Strip Mall ☐ Split Level ☐ Church ☐ School

Building Characteristics

Approximate Building Age (years): < 1 year Number of Stories: 4
Approximate Building Area (square feet): 72,000 Number of Elevators: 1

Foundation Type (Check appropriate boxes)

☒ Slab-on-Grade ☐ Crawl Space ☐ Basement

Basement Characteristics (Check appropriate boxes) N/A

☐ Dirt Floor ☐ Sealed ☐ Wet Surfaces ☐ Sump Pump ☐ Concrete Cracks ☐ Floor Drains

Factors Influencing Indoor Air Quality

Is there an attached garage?	☒ Yes ☐ No		
Is there smoking in the building?	☐ Yes ☒ No		
Is there new carpet or furniture?	☒ Yes ☐ No	Describe:	New counters, cabinets etc
Have clothes or drapes been recently dry cleaned?	☐ Yes ☒ No	Describe:	
Has painting or staining been done with the last six months?	☒ Yes ☐ No	Describe:	all units recently painted
Has the building been recently remodeled?	☒ Yes ☐ No	Describe:	Newly built
Has the building ever had a fire?	☐ Yes ☒ No		
Is there a hobby or craft area in the building?	☐ Yes ☒ No	Describe:	
Is gun cleaner stored in the building?	☐ Yes ☒ No		
Is there a fuel oil tank on the property?	☐ Yes ☒ No		
Is there a septic tank on the property?	☐ Yes ☒ No		
Has the building been fumigated or sprayed for pests recently?	☐ Yes ☒ No	Describe:	
Do any building occupants use solvents at work?	☐ Yes ☒ No	Describe:	Not currently occupied

* Developed based guidelines set forth in the Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (DTSC, 2011).

Sampling Locations

Draw the general floor plan of the building and denote locations of sample collection. Indicate locations of doors, windows, indoor air contaminant sources and field instrument readings.

SEE Site Plan with Proposed Sample locations & Unit figure with PID Readings

Primary Type of Energy Used (Check appropriate boxes)

☐ Natural Gas ☐ Fuel Oil ☐ Propane ☐ Electricity ☐ Wood ☐ Kerosene

Meteorological Conditions

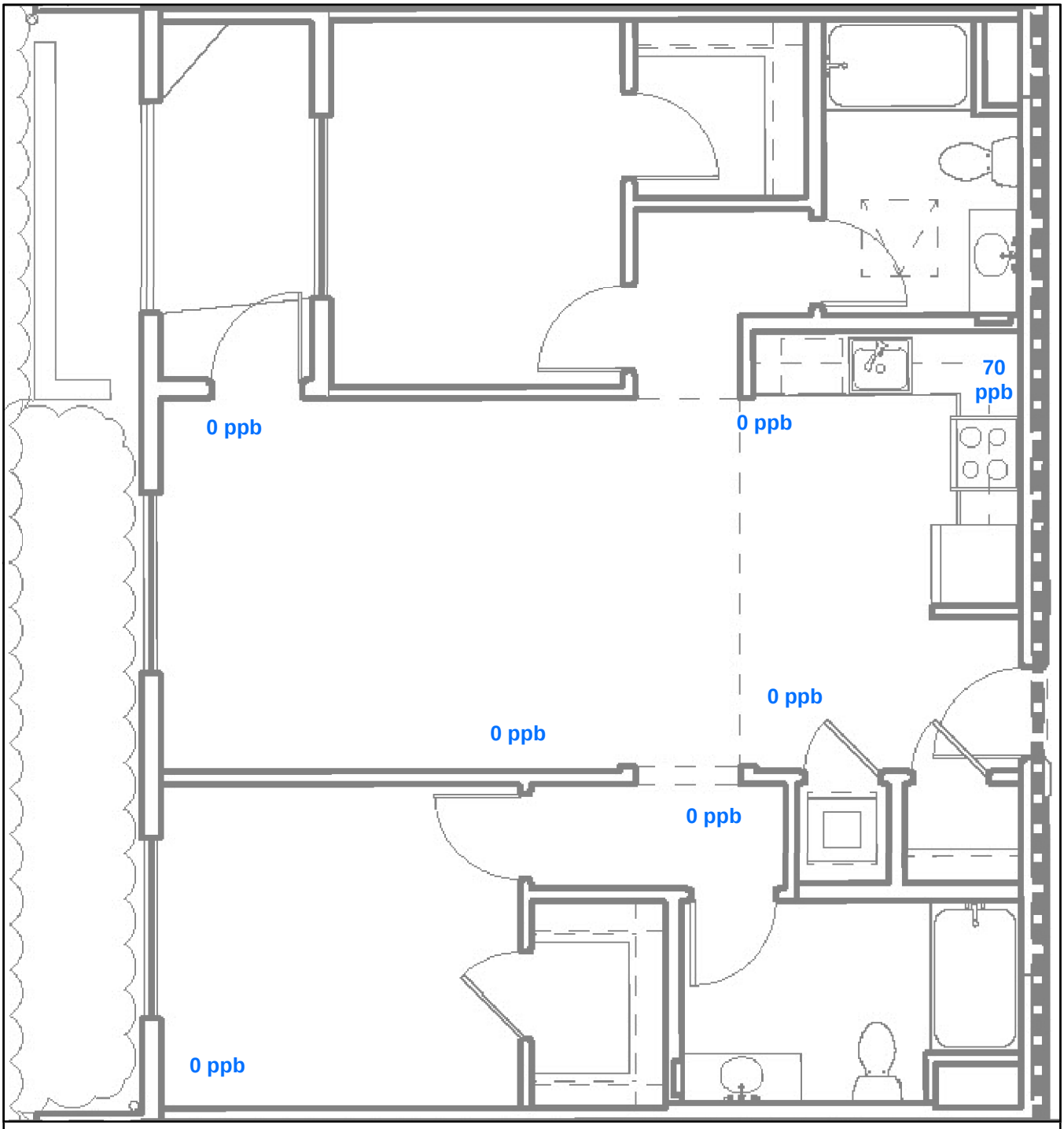
Describe the general weather conditions during the indoor air sampling event.

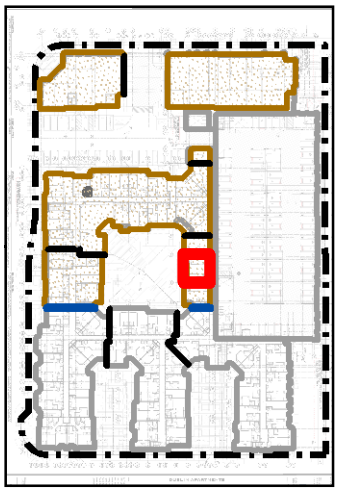
General Comments

Provide any other information that may be of importance in understanding the indoor air quality of this building.

- Building construction is ongoing, began in 2016

* Developed based guidelines set forth in the Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (DTSC, 2011).





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APPROXIMATE SCALE IN FEET

Explanation

70 ppb Measurements taken with a photoionization detector on February 23, 2017

ppb = parts per billion

RESIDENTIAL UNIT PID READINGS - FEBRUARY 23, 2017
Former Crown Chevrolet North Parcel
7544 Dublin Boulevard
Dublin, California

amec foster wheeler

Date: 03/02/2017 | Project No. 8617170810

Figure
B-1

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ATTACHMENT C

Sampling Collection Procedures

ATTACHMENT C

INDOOR AND OUTDOOR AIR SAMPLE COLLECTION PROCEDURES

Former Crown Chevrolet North Parcel
7544 Dublin Boulevard
Dublin, California

1.0 INTRODUCTION

This appendix presents procedures for collection of indoor air and outdoor air samples as part of the Indoor Air (IA) Evaluation at the Former Crown Chevrolet North Parcel located at 7544 Dublin Boulevard, Dublin, California. The indoor and outdoor air samples will be collected using procedures outlined in the *Advisory—Active Soil Vapor Investigations* (DTSC, 2015).

2.0 PROCEDURES

Specific procedures to follow for the sampling program are described below and include activities before, during, and after the samples are collected.

2.1 SUMMA CANISTER VACUUM GUIDELINES

The following Summa™ canister vacuum guidelines will be implemented to ensure that the collected samples yield valid data for the VI evaluation:

- If the initial vacuum gauge reads less than –28.5 inches of mercury (in. Hg), the canister may be leaking and will be replaced before sample collection.
- If the canister is not under vacuum at the conclusion of sample collection, the sample will be considered a grab sample (i.e., not an integrated sample).
- If the final vacuum gauge reads greater than –20 in. Hg, the sample will be rejected.

2.2 PRIOR TO SAMPLE COLLECTION

The following procedures will be implemented before sample collection:

- Check that the valve on the canister is closed, then remove the Swagelok® nut cap from each 6-liter Summa canister using a 9/16-inch wrench, or equivalent. Attach the designated laboratory-supplied flow controller to the canister; and then fit the Swagelok nut cap to the top of the flow controller. The valve adjustment on the flow controller should not be touched. Finger-tighten the flow controller fitting to the Summa canister first, and then tighten gently (1/16 turn) with a 9/16-inch wrench, or equivalent. It is essential that all connections between the canister and the flow controller be tight enough so that the pieces cannot be rotated by hand. Replace the Swagelok nut cap onto the inlet of the flow controller.
- To test the vacuum in the canister and to confirm that there are no leaks in the fittings, perform a “shut-in” test by briefly opening and then closing the valve on

each canister, creating a vacuum within the flow controller. If the canister vacuum reads less than –28.5 inches of mercury (in. Hg) when the valve is opened, then do not use the canister. Monitor the vacuum on the gauge on the flow controller for several minutes to confirm that the vacuum is stable. If the vacuum is not stable, retighten the fittings and perform the test again.

- Set up the blind field duplicate indoor air sample(s). Primary and duplicate samples will be collocated and collected simultaneously into two Summa canisters.
- Remove the Swagelok nut from the inlet of each flow controller.
- Place the Summa canister in its designated location within and/or outside of the building. Place indoor air sample canisters on boxes and/or other features so that the sampling port is located at a height of approximately 3–5 feet above floor level (i.e., breathing zone of a worker). Place outdoor air samples at ground level, on the rooftop, or adjacent to the building HVAC intake.

2.3 SAMPLE COLLECTION

The following procedures will be implemented during the collection of indoor and outdoor air samples:

- When ready, open the Summa canister valve(s). Turn the knob counterclockwise until there is no resistance (approx. 1¼ turns), then turn clockwise slightly until resistance is felt. Record the initial pressure and start time on the Air Sampling Log.
- Approximately 30 minutes to 1 hour after the start of sample collection, check the canister to ensure that it is operating properly.
- After the sample has been collected for the designated sampling period, close the canister valve by rotating the knob clockwise until it will no longer turn by hand. Record the final pressure and stop time on the Air Sampling Log. The final canister pressure should be between –2 in. Hg and –7 in. Hg in order to meet project analytical reporting limits.
- Remove the flow controller and replace the Swagelok nut on the canister.

2.4 QUALITY CONTROL SAMPLES

The following procedures will be implemented during the collection of indoor air samples:

- Field quality control (QC) samples will consist of blind field duplicate samples that will be collected simultaneously with the primary samples and labeled with a false identifier and time.
- The blind field duplicate samples will be collected at a minimum of 5 percent of the total number of samples collected.
- The analytical laboratory will prepare and analyze duplicate samples at a minimum of one per analytical batch.
- Both types of QC samples (field and laboratory duplicates) will be analyzed for the same suite of compounds as investigation samples.

2.5 SAMPLE DOCUMENTATION AND SHIPMENT

The following sample documentation and shipment procedures will be implemented to document and track samples collected during the sampling program:

- Document the date, time, location, serial numbers of the Summa canister and flow controller. Document the Summa canister pressure on the Air Sampling Log once sampling begins and again when it is completed. Record the stop time on the Air Sampling Log and add notes to the Air Sampling Log regarding conditions that could potentially affect the sample. The Air Sampling Log is provided as Attachment C.
- Fill out the provided sample label using ink. Attach the completed sample label to the Summa canister and record the sample on a chain-of-custody form.
- Deviations from the work plan that occur during sampling will be recorded in the sample collection documentation, along with notes that indicate whether, and in what manner, the deviation may affect results.
- Store the Summa canister in a cardboard box before transfer to the analytical laboratory following Amec Foster Wheeler chain-of-custody procedures. Canisters will be stored at ambient temperature, avoiding temperature extremes and direct sunlight.

3.0 REFERENCES

Department of Toxic Substances Control (DTSC), 2011. Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance). October.

Department of Toxic Substances Control (DTSC), Los Angeles Regional Water Quality Control Board, and San Francisco Regional Water Quality Control Board, 2015. Advisory: Active Soil Gas Investigations. July.

amec foster wheeler

ATTACHMENT D

Sampling Forms

AIR SAMPLING LOG

Project Name: _____ **Project Number:** _____

Start Date: _____ **Building IDs:** _____

FIRST DAY OF SAMPLING

Sampler Name:		**Weather:**	
Temperature:		**Barometric Pressure:**	
Notes:			

SECOND DAY OF SAMPLING

Sampler Name:		**Weather:**	
Temperature:		**Barometric Pressure:**	
Notes:			

Sample ID	Sample Type	Building ID	Summa Canister ID	Flow Controller ID	Sampling Start			Sampling End		
					Start Canister Vacuum	Start Time	Start Date	End Canister Vacuum	End Time	End Date

Sample ID	Sample Type	Building ID	Summa Canister ID	Flow Controller ID	Sampling Start			Sampling End		
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