

Appendix F
2. Methane Report

July 21, 2017
Job # J3448

To: **Amazon Properties, LLC**
9440 S. Santa Monica Blvd., Suite 700
Beverly Hills, CA - 90210

Attn: Mr. Michael Soroudi



621 Via Alondra
Suite 610
Camarillo, California 93012

TEL: 805.987.5356
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methanespecialists.com

Subj: **Site Methane Investigation Report for:**

8-story mixed use project, with 3 subterranean parking levels
676 S. Mateo Street,
Los Angeles, CA – 90021

Methane Specialists is pleased to submit this report with the results of our subsurface methane investigation for the project mentioned above. The purpose of the investigation was to measure subsurface soil gas concentrations and pressures of methane at the subject site to determine site-specific methane mitigation requirements prescribed by the City of Los Angeles Department of Building and Safety (Division 71 of the Los Angeles Building Code). This investigation was conducted in accordance with our proposal dated July 19, 2017.

Project Information

The Project Site is on an approximately 44,800 square-foot parcel (1.03 acre), in the City of Los Angeles. The Project proposes the construction of a new “**8-story mixed use project**” to be built with “**3 subterranean parking levels.**” Refusal was *met* in boring down to a minimum of approximately 37 feet, below surface grade, (bsg), at *deep* probesets DP-1, DP-2, and DP-3. *Actual* ground water was not *met* while drilling down to below a depth of at least 37 feet, bsg, at all three deep probe locations. A geotechnical report provided that the groundwater level was not met down to a depth of 50 feet below surface level. Therefore, the *historical* groundwater level is taken to be approximately greater than 50 feet, bsg. This would be approximately greater than 20 feet, below where an impermeable membrane *could* be required to be installed under the lowest parking level.

The site is within an area which the City of Los Angeles designates as a *Methane Buffer Zone* (Source: *ZIMAS Parcel Profile Report (enclosed)*).

City of Los Angeles Methane Requirements

Requirements for control of methane intrusion in the City of Los Angeles are specified in Division 71 of Article 1, Chapter IX of the Los Angeles Municipal Code (“Division 71”). Since the project is within the *Methane Buffer Zone*, the Los Angeles Department of Building and Safety (LADBS) has the authority to withhold permits for construction unless detailed plans for adequate protection against methane intrusion are submitted, if testing leads to methane mitigation being required.

The level of methane protection required depends upon the “design methane concentration,” which is defined in Division 71 as “the highest concentration of methane gas found during site testing.” Site testing is required to determine the design concentration, unless the developer accepts the most stringent methane mitigation requirements (“Level V”). If site testing is performed (e.g., to document that a lower level of mitigation is justified), then it must follow a protocol published by the Department of Building and Safety, “Site Testing Standards for Methane” (P/BC 2002-101, November 30, 2004).

P/BC 2002-101 prescribes a three-step process for methane evaluation:

- (1) Scheduling site testing either before or 30 days after any site grading;
- (2) Conducting shallow soil gas tests (not less than 4 feet, bsg); and
- (3) Installing and using multiple-depth gas probe sets where the highest concentrations of soil gases are expected to be found

For the first step, site testing was scheduled for July 20, and 21, 2017. Methane Specialists also notified Underground Service Alert of Southern California to mark the site for underground utilities, and the utilities were subsequently marked and cleared.

For the second step, P/BC 2002-101 requires one shallow sampling location for every 10,000 square feet, or portion thereof, of site area, with a minimum of two shallow soil gas probe locations. Since the parcel area is approximately 44,800 square feet, five (5) *shallow* sampling locations were required.

The third step in the City’s methane evaluation process is to collect a minimum of two samples at multiple depths, and at least one multiple-depth probeset per every 20,000 square feet, or portion thereof. Thus, the minimum of three (3) multiple-depth *deep* gas probe sets were also required.

Shallow Soil Gas Probe Testing

City Guidelines require that one shallow-depth probe be installed for every 10,000 square feet of site area where the highest concentration of soil gas is most likely to be found, with a minimum of two shallow gas probes, regardless of the total area of the site. Since the total square footage of the parcel is approximately 44,800 square feet, Methane Specialists installed the required minimum of five (5) shallow methane probes at a depth of 4 feet bsg (see Probe Location Map).

The five shallow gas probes (SP-1 through SP-5) were drilled and installed, starting on July 20, 2017. Methane Specialists used a direct-push drill rig to hydraulically drive a 1.50-inch rod into the ground to a depth of approximately 4 feet, bsg. A ¼" polyethylene probe was then inserted into the boreholes. Approximately six inches of sand was placed in the boreholes, above and below the probe, to provide a sampling area. Bentonite was then added to the top of each of the boreholes. A hydrated bentonite plug was then placed above the bentonite, in each borehole, to form a seal. Methane Specialists recorded all the readings.

Shallow probe site testing was conducted on July 20, and 21, 2017.

Multiple-Depth Gas Probe Set Testing

City Guidelines also require that one multiple-depth deep probe set be installed for every 20,000 square feet of site area where the highest concentration of soil gas is most likely to be found, with a minimum of two multiple-depth deep gas probe sets, regardless of the total area of the site. Since the total area of the site is approximately 44,800 square feet, Methane Specialists drilled and installed the required three (3) multiple-depth *deep* probesets (DP-1, DP-2 and DP-3), also starting on July 20, 2017.

The multiple-depth deep probes were also installed using direct-push drilling equipment in the same manner as were the shallow gas probes. The three deep probes were each installed as triple-well clusters, down to at least greater than 37 feet, bsg, where refusal was met. The *ground water level was not encountered* down to a depth greater than approximately 37 feet, bsg. In all cases, at each probe depth, approximately twelve inches of sand was placed in the borehole around each of the probes. Each sand layer, of each probe, was separated by a layer of bentonite, between the sampling elevations. A hydrated, bentonite, plug was then placed onto the top of each borehole to form a seal.

Multiple-depth probe site testing was similarly conducted on July 20, and 21, 2017.

Sampling and Analysis

For field data sampling and analysis, Methane Specialists measured these probes for methane with a RKI Eagle portable, gas-sampling meter. The lower limit for *reporting* methane levels with the RKI Eagle is 500 ppmv (parts per million by volume).

The RKI Eagle was calibrated against standard calibrant samples by trained Methane Specialists staff members.

The probe pressures were all measured with a Dwyer Magnehelic Differential Pressure Gauge with a minimum scale division of 0.1 inch of water (H₂O).

Results of Shallow Gas Probe and Multiple-Depth Gas Probe Analysis

The attached Form 1 shows the results of the analysis of both the shallow, *and* the multiple, depth deep probe sets.

Recommendations

In summary, for this project located in the *Methane Buffer Zone*, several measurable levels of methane were detected while testing at this site. However, Table 1B, for the *Methane Buffer Zone (enclosed)*, this project falls under Design Level *III*, with less than 2 inches of water-column gas-pressure. Therefore, as per said Methane Code Table 1B, this project *requires no methane mitigation system*.

Disclaimer

All discussion in this report is based on information provided by the client, as well as data and conditions, as they existed at the time and date of testing at the site. Should any detail, or condition, change from that original information, then, re-consideration of the conclusions in this report could become justified. Methane Specialists cannot be held accountable for the consequences of relevant information which was not previously provided. Nor can Methane Specialists be held accountable for the consequences of changes in the project scope, or of project site conditions.

This report has been prepared for the sole use of the client, exclusively, for the completion of the subject project, alone. No other application, or interpretation, of this report is to be granted, or implied, or otherwise made, without first obtaining direct, written permission, exclusively from Methane Specialists.

Respectfully,
Methane Specialists



Kirby N. Arriola, P.E. (C-31416)

INDEX OF ENCLOSURES

PARCEL PROFILE REPORT

METHANE PROBE LOCATION MAP

TYPICAL METHANE PROBE SET DETAIL

FORM 1, PART 2 – TEST DATA

TABLE 1 –MITIGATION REQUIREMENTS

FORM 1, PART 1 – CERTIFIED RESULTS



City of Los Angeles Department of City Planning

6/26/2017

PARCEL PROFILE REPORT

PROPERTY ADDRESSES

676 S MATEO ST

ZIP CODES

90021

RECENT ACTIVITY

None

CASE NUMBERS

CPC-2017-432-CPU
 CPC-2016-3689-GPA-ZC-HD-MCUP-DB-SPR
 CPC-2014-5000-CA-GPA
 CPC-2014-2415-GPA-CA
 CPC-2008-3417-GPA
 CPC-2008-3125-CA
 CPC-2007-3036-RIO
 CPC-2001-4642-CRA
 CPC-1997-423
 CPC-1995-352-CPU
 CPC-1986-607-GPC
 ORD-183145
 ORD-183144
 ORD-164855-SA2190
 VTT-74550
 ENV-2017-433-EIR
 ENV-2016-3691-EAF
 ENV-2014-4000-MND
 ENV-2014-2416-MND
 ENV-2013-3392-CE
 ENV-2008-3611-ND
 ENV-2007-3037-ND
 ENV-1995-328-MND
 OB-14004

Address/Legal Information

PIN Number 124-5A217 173
 Lot/Parcel Area (Calculated) 5,607.3 (sq ft)
 Thomas Brothers Grid PAGE 634 - GRID H6
 Assessor Parcel No. (APN) 5164020021
 Tract WINGERTER TRACT
 Map Reference M R 15-52
 Block None
 Lot 167
 Arb (Lot Cut Reference) None
 Map Sheet 124-5A217

Jurisdictional Information

Community Plan Area Central City North
 Area Planning Commission Central
 Neighborhood Council Historic Cultural
 Council District CD 14 - Jose Huizar
 Census Tract # 2060.31
 LADBS District Office Los Angeles Metro

Planning and Zoning Information

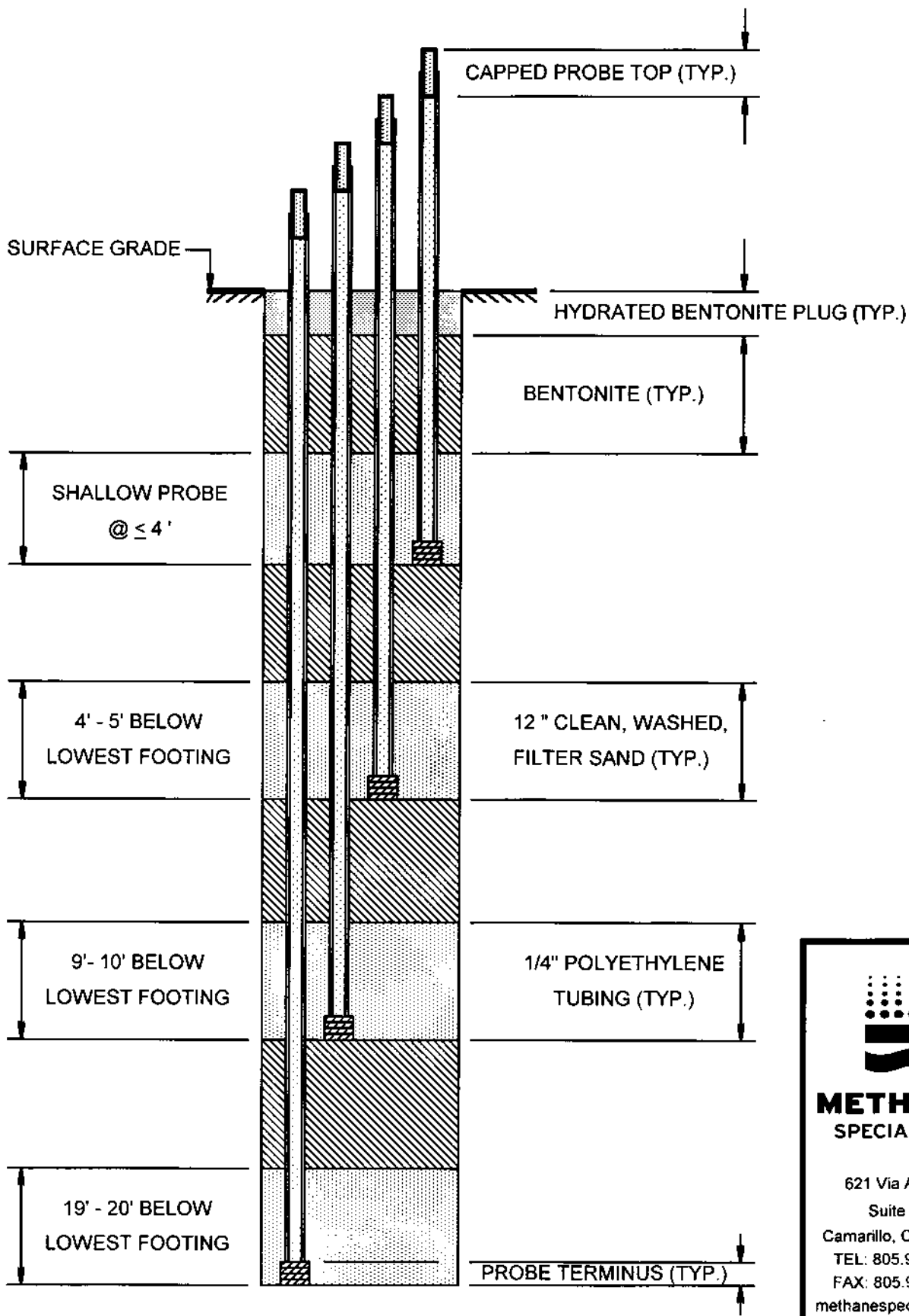
Special Notes None
 Zoning M3-1-RIO
 Zoning Information (ZI) ZI-2129 EAST LOS ANGELES STATE ENTERPRISE ZONE
 ZI-2358 River Improvement Overlay District
 ZI-2317 Central Industrial Redevelopment Project
 ZI-2452 Transit Priority Area in the City of Los Angeles
 Heavy Manufacturing

General Plan Land Use

General Plan Footnote(s) Yes
 Hillside Area (Zoning Code) No
 Specific Plan Area None
 Special Land Use / Zoning None
 Design Review Board No
 Historic Preservation Review No
 Historic Preservation Overlay Zone None
 Other Historic Designations None
 Other Historic Survey Information None
 Mills Act Contract None
 CDO: Community Design Overlay None
 CPIO: Community Plan Imp. Overlay None
 District None
 Subarea None
 CUGU: Clean Up-Green Up None
 NSO: Neighborhood Stabilization Overlay No
 POD: Pedestrian Oriented Districts None
 SN: Sign District No
 Streetscape No
 Adaptive Reuse Incentive Area None
 Ellis Act Property No

Rent Stabilization Ordinance (RSO)	No
CRA - Community Redevelopment Agency	Central Industrial Redevelopment Project
Central City Parking	Yes
Downtown Parking	No
Building Line	None
500 Ft School Zone	No
500 Ft Park Zone	No
Assessor Information	
Assessor Parcel No. (APN)	5164020021
APN Area (Co. Public Works)*	1.028 (ac)
Use Code	3100 - Industrial - Light Manufacturing - One Story
Assessed Land Val.	\$14,278,980
Assessed Improvement Val.	\$1,020
Last Owner Change	05/17/2016
Last Sale Amount	\$14,000,140
Tax Rate Area	15117
Deed Ref No. (City Clerk)	972158
	9-926
	562084
	511791
	325745
	2-300
	1704612
	1688064
	154460
	1404816
	1356159
Building 1	
Year Built	1978
Building Class	C55B
Number of Units	0
Number of Bedrooms	0
Number of Bathrooms	0
Building Square Footage	26,880.0 (sq ft)
Building 2	No data for building 2
Building 3	No data for building 3
Building 4	No data for building 4
Building 5	No data for building 5
Additional Information	
Airport Hazard	None
Coastal Zone	None
Farmland	Area Not Mapped
Very High Fire Hazard Severity Zone	No
Fire District No. 1	No
Flood Zone	None
Watercourse	No
Hazardous Waste / Border Zone Properties	No
Methane Hazard Site	Methane Buffer Zone
High Wind Velocity Areas	No
Special Grading Area (BOE Basic Grid Map A-13372)	No
Oil Wells	None
Seismic Hazards	
Active Fault Near-Source Zone	
Nearest Fault (Distance in km)	1.31816856

Nearest Fault (Name)	Puente Hills Blind Thrust
Region	Los Angeles Blind Thrusts
Fault Type	B
Slip Rate (mm/year)	0.70000000
Slip Geometry	Reverse
Slip Type	Moderately / Poorly Constrained
Down Dip Width (km)	19.00000000
Rupture Top	5.00000000
Rupture Bottom	13.00000000
Dip Angle (degrees)	25.00000000
Maximum Magnitude	7.10000000
Alquist-Priolo Fault Zone	No
Landslide	No
Liquefaction	No
Preliminary Fault Rupture Study Area	No
Tsunami Inundation Zone	No
Economic Development Areas	
Business Improvement District	None
Promise Zone	None
Renewal Community	No
Revitalization Zone	Central City
State Enterprise Zone	EAST LOS ANGELES STATE ENTERPRISE ZONE
Targeted Neighborhood Initiative	None
Public Safety	
Police Information	
Bureau	Central
Division / Station	Central
Reporting District	159
Fire Information	
Bureau	Central
Bataillon	1
District / Fire Station	17
Red Flag Restricted Parking	No



**METHANE
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TEMPORARY MULTI-STAGE GAS MONITORING PROBES FOR METHANE

FORM 1 (CONTINUED) - CERTIFICATE OF COMPLIANCE FOR METHANE TEST DATA

P/BC 2002-101

Part 2: Test Data - Shallow Soil Gas Test and Gas Probe Test

Site Address: 676 S. Mateo street, Los Angeles, CA - 90021

Job # 3448

Description of Gas Analysis Instrument(s):

Instrument Name and Model: RKI Eagle

Instrument Accuracy: 500 ppm/v.

City of Los Angeles Testing License #: 10202

Page 1 of 1

Date	Time	Probe Set #	Stabilized CH4 Concentration (ppm/v)	Pressure (inches of water-column)	Probe Depth (feet)	Descriptions / Comments: <i>no perched water was met</i> <i>- Refusal was met as shown below</i> <i>- Groundwater was not met at any probe depth</i>
7/20/2017	9:40	SP-1	< 500	< 0.1	4	
"	9:35	DP-1	500	< 0.1	5	
"	9:30	DP-1	< 500	< 0.1	10	
"	9:25	DP-1	< 500	< 0.1	37	<=Refusal met at greater than 37' bsg
"	10:35	SP-2	< 500	< 0.1	4	
"	10:30	DP-2	1,000	< 0.1	5	
"	10:25	DP-2	< 500	< 0.1	10	
"	11:20	DP-2	2,000	< 0.1	40	<=Maximum Stabilized CH4 Reading
"	11:25	SP-3	< 500	< 0.1	4	
"	11:20	DP-3	500	< 0.1	5	
"	11:15	DP-3	500	< 0.1	10	
"	11:10	DP-3	1,500	< 0.1	38	<=Refusal met at greater than 38' bsg
"	12:15	SP-4	500	< 0.1	4	
"	12:25	SP-5	< 500	< 0.1	4	
7/21/2017	7:15	SP-1	< 500	< 0.1	4	
"	7:10	DP-1	< 500	< 0.1	5	
"	7:05	DP-1	< 500	< 0.1	10	
"	7:00	DP-1	< 500	< 0.1	37	
"	7:35	SP-2	< 500	< 0.1	4	
"	7:30	DP-2	< 500	< 0.1	5	
"	7:25	DP-2	< 500	< 0.1	10	
"	7:20	DP-2	1,500	< 0.1	40	
"	7:55	SP-3	< 500	< 0.1	4	
"	7:50	DP-3	< 500	< 0.1	5	
"	7:45	DP-3	1,000	< 0.1	10	
"	7:40	DP-3	500	< 0.1	38	
"	8:00	SP-4	500	< 0.1	4	
"	8:05	SP-5	< 500	< 0.1	4	

INSTRUMENTATION CALIBRATION RECORD:

WATER ENCOUNTERED ? (Y) (N) DEPTH: (see above)

DATE: 7/20/2017 TIME: 8:30 A.M INIT: R.C. REFUSAL ? (Y) (N) DEPTH: ≥ 37 ft., bsg

DATE: 7/21/2017 TIME: 6:30 A.M INIT: D.B. COMMENTS: "< 500 ppmv" <=> "Non-Detect" <=> "ND"

DATE: _____ TIME: _____ INIT: _____ TESTER: Ramon Camacho & Dave Bell

TABLE 1B - MITIGATION REQUIREMENTS FOR METHANE BUFFER ZONE

SITE DESIGN LEVEL		LEVEL I	LEVEL II	LEVEL III	LEVEL IV	LEVEL V	
DESIGN METHANE CONCENTRATION (ppm/v)		0 - 100	101 - 1,000	1,001 - 5,000	5,001 - 12,500	>12,500	
DESIGN METHANE PRESSURE (inches of water column)		≤2"	>2"	>2"	≤2"	>2"	ALL PRESSURES
PASSIVE SYSTEM	DE-WATERING SYSTEM *		X*	X*	X*	X*	X*
	SUB-SLAB VENT SYSTEM	PERFORATED HORIZONTAL PIPES	X	X	X	X	X
		GRAVEL BLANKET UNDER MEMBRANE	2"	3"	3"	2"	4"
		GRAVEL THICKNESS SURROUNDING PIPES	2"	3"	3"	2"	4"
		VENT RISERS +	X+	X+	X+	X+	X+
	IMPERVIOUS MEMBRANE		X	X	X	X	X
ACTIVE SYSTEM	SUB-SLAB VENT SYSTEM					X+	X+
	LOWEST OCCUPIED SPACE SYSTEM	GAS DETECTION SYSTEM		X	X	X	X
		MECHANICAL VENTILATION SYSTEM	X	X	X	X	X
		ALARM SYSTEM	X	X	X	X	X
	CONTROL PANEL		X	X	X	X	X
MISC. SYSTEM	TRENCH DAM		X	X	X	X	X
	CONDUIT OR CABLE SEAL FITTINGS		X	X	X	X	X
	ADDITIONAL VENT RISERS +						X+

X => Required, as per the Methane Code of the City of Los Angeles.

* => De-Watering not required when the maximum historical high groundwater table elevation, or projected post-construction groundwater level, is more than twelve inches below the bottom of the perforated horizontal pipes.

+ => Vent risers maximum spacing shall be less than, or equal to, 100 Linear Feet, measured between vent risers.

FORM 1 - CERTIFICATE OF COMPLIANCE FOR METHANE TEST DATA

P/BC 2002-101


Part 1: Certification Sheet

Site Address: 676 S. Mateo street, Los Angeles, CA - 90021

Job No. 3448

Legal Description: Tract: WINGERTER TRACT Lot(s): 165-8 & 182-5 Block: (un-numbered)

Building Use: new '8-story mixed use project' to be built 'over 3 subterranean parking levels'

Name of Architect, Engineer, or Geologist: <u>Kirby N. Arriola, P.E.</u>	Architect's, Engineer's or Geologist's Stamp 
Mailing Address: <u>Methane Specialists</u> <u>621 Via Alondra, # 610</u> <u>Camarillo, CA - 93012</u>	
Telephone: <u>(805) 987-5356</u>	
Name of Testing Laboratory: <u>Methane Specialists</u>	
City Test Lab License #: <u>10202</u>	
Telephone: <u>(805) 987-5356</u>	

I hereby certify that I have tested the above site for the purposes of methane mitigation and that all procedures were conducted by a City of Los Angeles licensed testing agency in conformity with the requirements of the LADBS Information Bulletin P/BC 2002-101. Where the inspection and testing of all or part of the work above is delegated, full responsibility shall be assumed by the architect, engineer or geologist whose signature is affixed hereon.

Signed: *Kirby N. Arriola* Date: 21 Jul 2017

Required Data:

- * Project is in the (~~Methane Zone~~) or (Methane Buffer Zone).
- * Depth of Groundwater observed during testing: > 20' below the Impervious Membrane (at > 50' below surface)
- * Depth of Historical High Ground Water Table Elevation*: > 20' below the Impervious Membrane (at ~ 50' bsg)
- * Design Methane Concentration**: 2,000 parts per million in volume (ppm/v). (i.e.: 4% LEL)
- * Design Methane Pressure Value***: < 0.1 inches of water column.
- * Site Design Level: (Level I, Level II, Level III, Level IV, Level V) with < 2.0 inches of water column

Dewatering:

- * Dewatering (is) (~~is not~~) required for methane mitigation per Section 91.7104.3.7. (subject to Final Geotech Report)
- * Pump discharge rate not provided cubic feet per minute per reference geology or soil report:

dated _____

Additional Investigation:

- * Additional Investigation (was) (~~was not~~) conducted. (by Methane Specialists)

Latest Grading on Site:

- * Date of last grading on site (was) (~~was not~~) more than 30 days before Site Testing.

Notes:

- * Historical High Ground Water Table Elevation shall mean the highest recorded elevation of ground water based on historical records and field investigations as determined by the engineer for the methane mitigation system.
- ** Design Methane Concentration shall mean the highest recorded measured methane concentration from either Shallow Soil Gas Test or any Probe Set on the site.
- *** Design Methane Pressure shall mean the highest total pressure measured for any Gas Probe Set on the site.