

Table 1A - MITIGATION REQUIREMENTS FOR METHANE ZONE

Site Design Level	Level I	Level II	Level III	Level IV	Level V
Design Methane Concentration (ppmv)	0 - 100	101 - 1,000	1,001 - 5,000	5,001 - 12,500	> 12,500
Design Methane Pressure (see note 1) (inches of water column)	≤ 2"	> 2"	≤ 2"	> 2"	≤ 2"
De-watering System	X	X	X	X	X
Perforated Horizontal Pipes	X	X	X	X	X
Gravel Blanket Thickness Under Impervious Membrane	2"	2"	2"	2"	4"
Gravel Thickness Surrounding Perforated Horizontal Pipes	2"	2"	3"	3"	4"
Vent Risers	X	X	X	X	X
Impervious Membrane	X	X	X	X	X
Mechanical Extraction System (see note 2)					X
Gas Detection System (see note 3)	X	X	X	X	X
Mechanical Ventilation (see notes 3, 4, 5)	X	X	X	X	X
Alarm System	X	X	X	X	X
Control Panel	X	X	X	X	X
Trench Dam	X	X	X	X	X
Conduit or Cable Seal Fitting	X	X	X	X	X
Additional Vent Risers (see note 3)					X

Table 1B - MITIGATION REQUIREMENTS FOR METHANE BUFFER ZONE

Site Design Level	Level I	Level II	Level III	Level IV	Level V
Design Methane Concentration (ppmv)	0 - 100	101 - 1,000	1,001 - 5,000	5,001 - 12,500	> 12,500
Design Methane Pressure (see note 1) (inches of water column)	≤ 2"	> 2"	≤ 2"	> 2"	≤ 2"
De-watering System	X	X	X	X	X
Perforated Horizontal Pipes	X	X	X	X	X
Gravel Blanket Thickness Under Impervious Membrane	2"	3"	3"	2"	4"
Gravel Thickness Surrounding Perforated Horizontal Pipes	2"	3"	3"	2"	4"
Vent Risers	X	X	X	X	X
Impervious Membrane	X	X	X	X	X
Mechanical Extraction System (see note 2)				X	X
Gas Detection System (see note 3)	X	X	X	X	X
Mechanical Ventilation (see notes 3, 4, 5)	X	X	X	X	X
Alarm System	X	X	X	X	X
Control Panel	X	X	X	X	X
Trench Dam	X	X	X	X	X
Conduit or Cable Seal Fitting	X	X	X	X	X
Additional Vent Risers (see note 3)					X

Table 3 - SPECIFICATIONS FOR GRAVEL

SIEVE SIZE	PERCENTAGE PASSING SIEVE	
	3/4" Gravel	3/8" Gravel
1-1/2" (37.5 mm)	100	-
1" (25.0 mm)	90-100	-
3/4" (19.0 mm)	55-95	100
3/8" (9.5 mm)	8-20	85-100
No. 4 (4.75 mm)	0-5	0-30
No. 8 (2.36 mm)	0-5	0-10
No. 200 (75um)	0-2	0-2
ASTM C 131 TEST GRADING	B	C

SIEVE SIZE	PERCENTAGE PASSING SIEVE
3/8" (9.5 mm)	100
No. 4 (4.75 mm)	90-100
No. 8 (2.36 mm)	75-90
No. 16 (1.18 mm)	55-75
No. 30 (600 um)	30-50
No. 50 (300 um)	10-25
No. 100 (150 um)	2-10
No. 200 (75 um)	0-5

Table 4 - SPECIFICATIONS FOR SAND

Table 5 - ACTIVATION THRESHOLDS FOR ACTIVE SYSTEM

SYSTEM COMPONENT	SYSTEM COMPONENT TRIGGERED BY DETECTORS AND GAS SENSORS		
	Detector in the Lowest Occupied Space	Gas Sensor in Vent Risers	
System Name	System Component	More Than 10% LEL	More Than 25% LEL
Below Impervious Membrane System	Warning Annunciator		
	Mechanical Extraction Fan		X
	Mechanical Ventilation	X	X
Lowest Occupied Space System	Alarm (audible and visible)	X	
	Warning Annunciator	X	X

NOTES FOR TABLES 1A AND 1B:

- *"X" indicates a required mitigation component
- De-watering is not required when the maximum historical High Ground Water Table Elevation, or projected post-construction ground water level, is more than 12 inches below the bottom of the Perforated Horizontal Pipes.
 - The Mechanical Extraction System shall be capable of providing an equivalent of a complete change of air 20 minutes of the total volume of the Gravel Blanket.
 - The mechanical ventilation system shall be capable of providing an equivalent of one complete change of the lowest occupied space every 15 minutes.
 - Vent openings to comply with Item IV.B.4 on sheet 1 may be used in lieu of mechanical ventilation.
 - The total quantity of the installed Vent Risers shall be increased to twice the rate for the Passive System.

Table 2 - SPACING OF PERFORATED HORIZONTAL PIPES AND NUMBER OF VENT RISERS

MIN VENT RISER PIPE DIAMETER (inches)	MAX. SUB-SLAB PERFORATED HORIZONTAL PIPE SPACING (feet)	MAX. SUB-SLAB COMBINATION PIPE FOR DEWATERING AND VENT SPACING (feet)	NUMBER OF VENT RISER PER BUILDING FOOTPRINT AREA (square feet)
1 1/2	12.5	Not allowed	1/1,250 (min of 2 risers)
2	25	Not allowed	1/2,500 (min of 2 risers)
2 1/2	50	Not allowed	1/5,000 (min of 3 risers)
3	75	Not allowed	1/7,500 (min of 4 risers)
4	100	50	1/10,000 (min of 4 risers)

- NOTE:
- Riser length shall be a maximum of 100' measured along solid pipe (including bends).
 - Vent Risers max spacing shall be 100' measured between vent risers.
 - When the application of the spacing and location requirement of this table results in the requirement of a fractional number of Vent Risers, any fraction shall be construed as one Vent Riser.
 - Horizontal pipes shall always be equal or larger in diameter than the vertical risers.
 - Building Footprint shall be defined as the area in square feet contained within the exterior walls at or below the grade level.
 - Vent Risers shall be located as per the above table for buildings with footprint areas covering up to 100,000 square feet.
 - Vent Risers in buildings with footprint area covering over 100,000 square feet may use the minimum standards in the above table or an alternate method justified by engineering calculations approved by the LADBS.
 - Number of required vent risers shall be determined by the selected riser pipe diameter and the rate of vent riser per building footprint area.

Table 6 - DETECTOR SPACING

ROOM FLOOR AREA OR CONCEALED SPACE AREA (square feet)	NUMBER OF DETECTORS *	
	WITH HEATING, VENTILATION AND AIR CONDITIONING	WITHOUT HEATING, VENTILATION AND AIR CONDITIONING
10,000 and More	Minimum of 3 Detectors plus one for every 20,000 and fraction thereof in excess of 10,000	Minimum of 6 Detectors plus one for every 2,500 and fraction thereof
More Than 5,000 and Less Than 10,000	3 Detectors	Minimum of 2 Detectors plus one for every 2,500 and fraction thereof
More Than 1,000 and Up to 5,000	2 Detectors	Minimum of 1 Detector plus one for every 2,500 and fraction thereof
0 and Up to 1,000	1 Detector	1 Detector

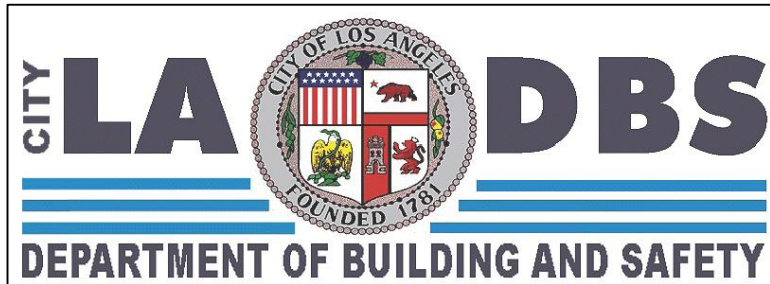
NOTE:

* In addition to the required number of Detectors in this table, there shall be at least one Detector in each elevator shaft and enclosed stairway.

STANDARD PLAN:
METHANE HAZARD MITIGATION
Not to be used for Playa Vista Phase I Projects

SITE ADDRESS:

LEGAL DESCRIPTION:
OWNER:



Rev.: 02/10/10
Date: 10/13/06
Scale: Not to Scale
Drawn:
Job:
Sheet: