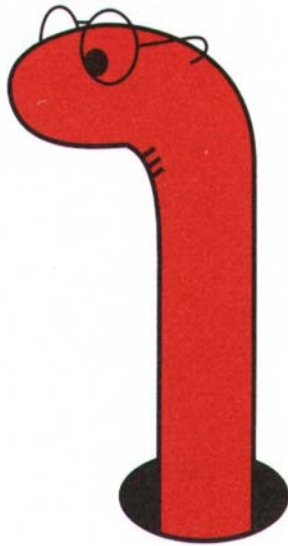


Electronic Report



WORMS EYE

**52 Bank Parade
Burnley
BB11 1TS
Phone
01282 414649 / 458410
Fax 01282 721916**

Our Ref: Nell Lane/M21 7UH/2019
Date: 19 February 2020

David Whiteley
Whiteley Eaves Ltd.
Hollinwood Business Centre
Albert Road
Oldham
OL8 3QL

Email: david@whiteleyeaves.co.uk

PROPOSED APARTMENTS
NELL LANE/BROOKSTONE CLOSE, MANCHESTER, M21 7UH
LANDFILL and GROUND GAS REPORT

INTRODUCTION

A residential development is proposed. Following a PRA (12/2/19) and intrusive report (6/1/20) this report considered findings of the now completed gas monitoring.

SITE DESCRIPTION

The site, a roughly 'T' shaped plot, about 42 by 46 metres, is located to the northeast of Nell Lane in Manchester and at OS Grid Reference 382811, 392862. The site comprises a grassed plot of land, with a small tarmac road coming in at the northeast, leading to two parking spaces in the northwest.

PROPOSED DEVELOPMENT

It is proposed to build a block of twelve apartments. There will be communal landscaped areas at the southeast and northwest sides of the apartment block. The northeast of the site will be a car park.

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PRELIMINARY RISK ASSESSMENT

Worms Eye carried out a PRA dated (12/2/19) the salient points regarding gas were:

Landfill Gas/Ground Gas

The site is within 250 metres of a historical landfill site and several areas of filled ground, including a nearby cemetery. These are potential sources of landfill and ground gases, which could migrate to and present a risk to the development.

Bearing in mind the age of the filled areas and distance from the site, it is considered that there is likely to be a low risk to the development. A gas testing programme is required.

End of PRA Re-Cap

GROUND CONDITIONS

A series of seven boreholes were carried out.

The following approximates to a section looking northeast.

Findings	BH1/PrA (m)	BH2/PrB (m)	BH5 (m)	BH3/PrC (m)	BH6 (m)	BH7 (m)	BH4/PrD (m)
Topsoil/Made Ground	0.0 – 5.4	0.0 – 1.2	0.0 – 1.2	0.0 – 1.1	0.0 – 0.8	0.0 – 1.2	0.0 – 0.9
Sand and Gravel	-	1.2 – 4.0+	1.2 – 5.0+ (band of clay 3.6 – 4.0)	1.1 – 4.4	0.8 – 5.0+	1.2 – 3.7	0.9 – 4.6
Clay	5.4 – 6.0+	-	-	4.4 – 5.0+		3.7 – 4.0+	4.6 – 5.0+
Probe strength) (very high)	7.0 – 8.3+	6.0 – 7.2+	-	6.8 – 7.7+	-	-	6.6 – 7.8+
Water	2.6	2.6	3.3	3.2	3.4	3.1	3.3

GAS TESTING

Gas Monitors

Boreholes 1, 2, 3 and 4 were converted to gas monitors as follow:

	BH1 (m)	BH2 (m)	BH3 (m)	BH4 (m)
Plain pipe	0.0 – 1.0	0.0 – 1.0	0.0 – 1.0	0.0 – 1.0
Base of slotted pipe	3.6	3.1	3.1	3.2
Response zone	1.0 – 3.6	1.0 – 3.1	1.0 – 3.1	1.0 – 3.2

Gas Test Results

Twenty-four gas tests, carried out on six occasions over three months, show worst-case values:

Gas	Site Value	Limit of detection
Methane %	0.0	0.1
Oxygen %	9.7	0.1
Carbon dioxide %	7.6	0.1
Flow rate l/hr	0.0	0.1

Assessing Risks - CIRIA

The method recommended in CIRIA Report **C665 (2007)** "Assessing risks posed by hazardous ground gases to building, Table 8.7", is used to classify the site. These range from a Characteristic Situation 1 (negligible gas) through to 6 (very high gas).

The gas screening values (GSV) are calculated from the worst-case values as follows:

	Site Value	Characteristic Situation 1		Characteristic Situation 2	
		Threshold	Pass/Fail	Threshold	Pass/Fail
Outflow (l/hr)	<0.1	-	-	70	P
Methane - Total (%)	<0.1	1	P	-	P
Methane GSV (l/hr)	<0.001	0.07	P	0.7	P
CO ₂ -Total (%)	7.6	5	F	-	P
CO ₂ GSV (l/hr)	<0.0076	0.07	P	0.7	P

Gas screening value = gas concentration (%) multiplied by outflow (l/hr)

These conditions classify the site Situation 2, based on maximum carbon dioxide levels.

DISCUSSION

Landfill Gas/Ground Gas

The tests show slightly raised carbon dioxide (7.6% highest), with no gas outflow and no methane.

Over the course of two months the results consistently showed slightly raised carbon dioxide levels, in three monitoring wells. It is considered that these suggest a low risk to the development and the site is classed as a gas situation 2, based on maximum carbon dioxide levels.

Precautions are required to prevent the passage of carbon dioxide into the building.

CONCEPTUAL MODEL

Source	Receptors	Pathway	Complete Pollutant Linkage
Asbestos (THB-0.2m and BH2 – 0.2m)	Construction workers	Inhalation	Yes
	End-users	Inhalation	Yes
	Off-site	Migration off-site	Possible
Inorganic contaminants (low)	Construction workers	Short-term direct contact, inhalation of dust, ingestion	No
	Householders	Direct contact, ingestion, ingestion and inhalation of dust	No
	Groundwater	Leaching towards	No
	River/stream	Leaching towards	No
Sulphate (low)	Building fabric	Concrete directly in contact with soil	No
Hydrocarbons (slightly raised DbA, generally low)	Construction workers	Short-term direct contact, inhalation of dust, ingestion	No
	Householders	Direct contact, ingestion, ingestion and inhalation of dust	No
	Service pipes	Seeping into drinking water pipes	No
	Groundwater	Migrating towards	No
	River/stream	Migrating towards	No
Hydrocarbon vapours (low)	Construction workers	Short-term inhalation	No
	Householders	Inhalation of vapours indoors and outdoors	No
Landfill gas (raised carbon dioxide)	End-users - in buildings	Seeping into buildings, explosion, asphyxiation	Yes
Radon	End-users - in buildings	Seeping into buildings	No

BREAKING PATHWAYS

Watching Brief

A watching brief for unexpected contamination is required. If suspected contamination (e.g. asbestos, oils etc) is seen, in areas where it is not expected, excavations should cease in that area and the consultant be notified.

The suspected contamination will need to be inspected, and will likely require testing. If these results show a risk not covered by this remediation strategy, the strategy will need to be updated accordingly and issued to the Local Authority for their comments.

Construction Workers

Normal precautions for an urban renewal type project are required. These would include the use of gloves and the provision of washing facilities to avoid ingestion of contaminants.

Asbestos

Asbestos fibres in THB and BH2 pose a risk to workers, and potentially neighbouring properties. Appropriate precautions will be required which may include, but not necessarily be limited to:

- Appropriate face masks and PPE.
- Sheeting the northeast and northwest boundary.
- Damping down excavations.
- Minimising time excavations are exposed.
- Not stockpiling excavated soils.

Risk assessment and method statements will be required, the use of a specialist may be beneficial.

Garden/Landscaped Areas

Contamination by asbestos was found to be present in made ground from THB and BH2. This is predominantly and an area of car park where there will be no risk to householders, and it is considered only the very narrow strip along the northeast of the building requires remedial works.

Bearing in mind the proximity of the buildings, and enabling works, shallow soils in this area are likely to be removed from site. The following is suggested:

- Excavate trial holes at the junction of the northwest communal landscape and car park, and test 3 shallow samples for asbestos.
- Review extent of remedial works.
- Ensure enabling works excavate made ground to 0.6 metres deep from landscape strip at the northwest, along the northeast side of the building.
- Backfill excavation with imported soils as follows, bottom up:
 - 0.45 metres sub-soil.
 - 0.15 metre topsoil.

Ground Gases

Gas monitoring shows slightly raised carbon dioxide levels and the following measures are considered suitable for the level of risk:

- Ventilation of confined spaces within building.
- A well-constructed ground slab/suspended floor with sub-floor venting.
- A low-permeability gas membrane (see membranes below).
- Minimum penetration of ground slab by services.
- Also gas precautions should continue across the cavity.

The following membrane (or equivalent) is suggested:

- Visqueen gas barrier (blue with foil layer - resists methane, carbon dioxide and radon)

Each membrane should be used with the appropriate matching cavity tray (or cavity membrane), DPC and service duct 'top hat'. Joints to be lapped and sealed.

Validation of gas membrane will require:

- Independent inspection of the membrane.
- Details of who carried out installation.
- Details of who carried out verification and inspection regime.
- Details of non-conformances and how they were rectified (if any).
- A signed statement confirming that the gas protection measures were installed as agreed, the membrane was free from tears and punctures, lapped and sealed as agreed at joints around services. This to be included in the Verification Report.

Imported Soils

All soils (e.g. topsoil, bulk fill hardcore) and similar materials imported on-site to be proved to be uncontaminated. Imported material will require testing as follows:

- Greenfield soils – minimum of 3 tests or 1 test per 100m³ (whichever is greater). Testing to include arsenic, cadmium, chromium (total), chromium VI, copper, mercury, nickel, lead, selenium, zinc, PAH (16 USEPA speciation), asbestos, TPHs (speciated), boron, cyanide, thiocyanate, sulphide, sulphur, sulphate, pH, Som.
- Brownfield/screened/manufactured soils – minimum of 3 tests or 1 test per 50m³ (whichever is greater). Testing to include arsenic, cadmium, chromium (total), chromium VI, copper, mercury, nickel, lead, selenium, zinc, PAH (16 USEPA speciation) asbestos, TPHs (speciated), boron, cyanide, thiocyanate, sulphide, sulphur, sulphate, pH, SOM.

Soil Screen Values

Tests carried out on the imported material, either by the supplier or the consultant, to be screened against residential values, based on 1% SOM. If these are exceeded, site specific value may be derived, subject to them being appropriate.

Validation

A validation report will be required on completion, this will require but not necessarily be limited to:

- Photographs of excavations and details of watching brief.
- Tickets from waste removal contractor and receiving landfill.
- Contamination test results for tests on imported soils.
- Photographs to confirm thickness of imported soil types.
- Document (receipt, delivery notes) to show soil types and sources.
- Independent inspection of gas membrane and report.
- Documented site inspection, including photographs.

This report is usually a collaboration between the contractor, who will collect the above documentation and Worms Eye, who can assist in preparing the Validation Report.

DISPOSAL OF EXCAVATED SOIL

Test results have been compared with hazardous waste thresholds and a Hazwaste report is enclosed, suggesting excavated soil from BH1 would be hazardous waste based on TPH levels.

Excavated soils from that area, and areas with asbestos fibres could be removed straight from site for disposal, which would save the need for segregating/stockpiling excavated soils.

The analysis should be submitted to the receiving site for confirmation of its status.

CONCLUSION

Landfill Gas/Ground Gas

Test results consistently showed slightly raised carbon dioxide levels, suggesting a low risk to the development and the site is classed as a gas situation 2.

Precautions are required to prevent the passage of carbon dioxide into the building.

Yours faithfully

on behalf of Worms Eye Ltd

David Lord
BSc (Hons)
FGS, MIEEnvSc, AIEEMA

PROPOSED APARTMENTS
NELL LANE/BROOKSTONE CLOSE, MANCHESTER, M21 7UH
List of Appendices – Ground Gas Report

List of Acronyms

Existing site plan - showing borehole, trial hole and probe locations

Proposed site plan - showing borehole, trial hole and probe locations

Proposed Site Plan

Borehole Logs

Gas Test Results

Proposed Plan – Showing Supplementary Test Locations/Remedial Works

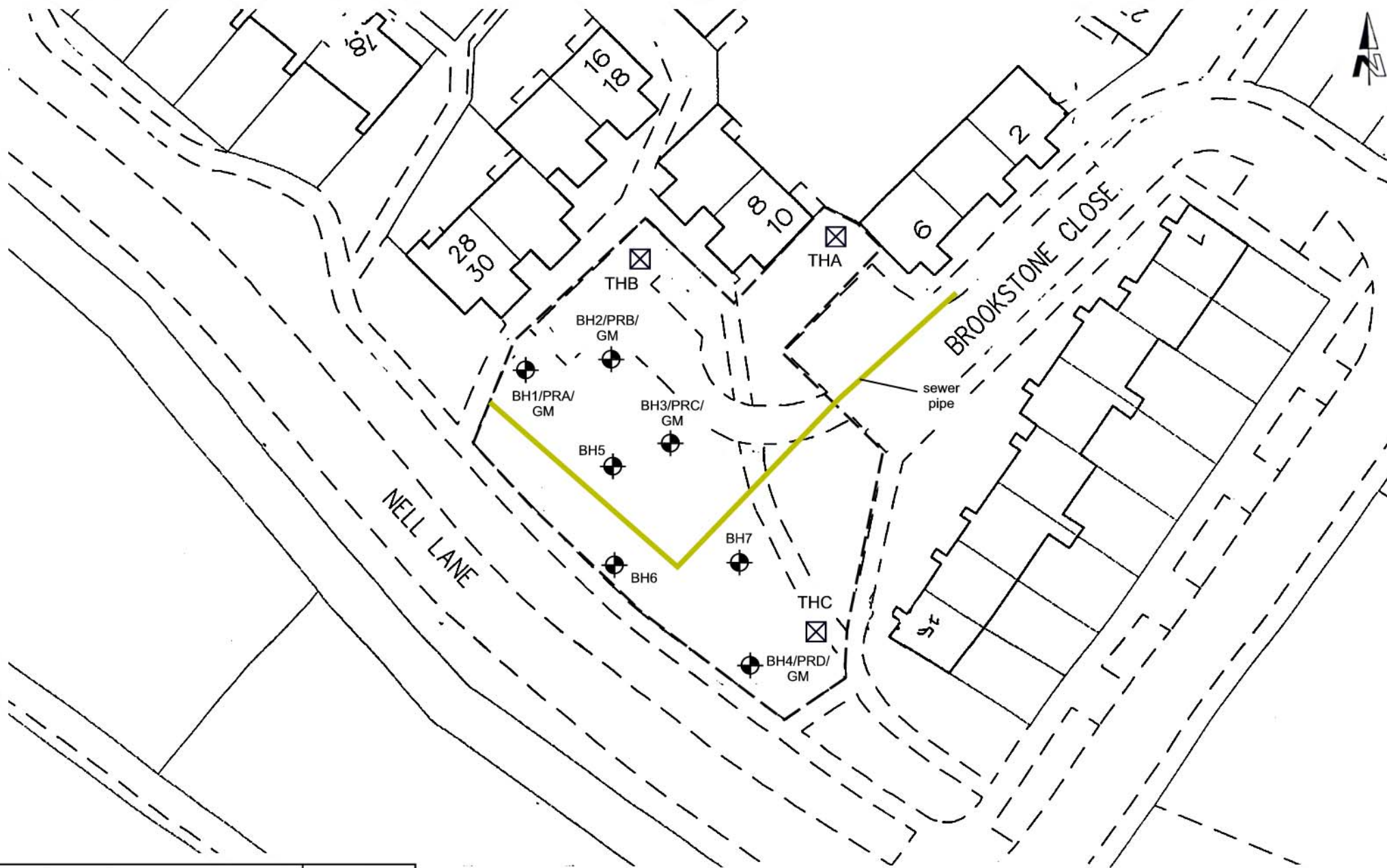
CONTAMINATION TEST UNITS

Conversion factor	Name	Symbol	Numerical Value	Alternative description	Commonly used for:
	per cent	%	1 in 100 (10 ²)		total sulphur, hazardous waste
% x10	parts per thousand	‰	1 in 1000 (10 ³)	g/l (grams per litre)	water soluble sulphate test
‰ x 1,000	parts per million	ppm	1 in 1,000,000 (10 ⁶)	mg/kg (milligrams per kilogram)	most soil tests
				mg/l (milligrams per litre)	water tests
ppm x 1,000	parts per billion	ppb	1 in 1,000,000,000 (10 ⁹)	µg/kg (micrograms per kilogram)	PAH soil tests
				µg/l (micrograms per litre)	water/leachate tests
ppb x 1,000	parts per trillion	ppt	1 in 1,000,000,000,000 (10 ¹²)	ng/kg (nanograms per kilogram)	PAH soil tests
				ng/l (nanograms per litre)	water/leachate tests

ABBREVIATIONS

<u>Chemical</u>	BAP	Benzo(a)pyrene
	BTEX	Benzene, toluene, ethylbenzene, xylene
	DAHA	Dibenzo(ah)anthracene
	MTBE	Methyl tertiaryt-butyl ether (additive to petrol)
	EPH	Extractable petroleum hydrocarbons (formerly diesel range organics – DRO)
	NFD	No fibres detected (asbestos test)
	PAH	Polycyclic aromatic hydrocarbons
	PCB	Polychlorinated biphenyls
	PCE	Perchloroethylene or tetrachloroethylene
	PID	Photo ionisation detector (screen for VOC)
	PRO/GRO	Petrol range organics/gasoline range organics
	SVOC	Semi-volatile organic compounds
	TCE	Trichloroethylene
	TPH	Total petroleum hydrocarbons
	VOC	Volatile organic compounds
<u>Other</u>	AGS	Association of Geotechnical Specialists
	BGS	British Geological Survey
	BRE	Building Research Establishment
	CBR	California Bearing Ratio
	CIEH	Chartered Institute of Environmental Health
	CIRIA	Construction Industry Research and Information Association
	CLEA	Contaminated Land Exposure Assessment (Environment Agency/DEFRA)
	CLR 8	Contaminated Land Research Report 8 (Environment Agency/DEFRA)
	DWQ	Drinking water quality
	EA	Environment Agency
	EQS	Environmental quality standards (for rivers etc.)
	ICRCL	Inter-departmental Commission for the Reclamation of Contaminated Land
	LQM	Land Quality Management Ltd (Land and Environmental Consultancy).
	NHBC	National House Builders Council
	SGV	Soil Guideline Values
	SPT	Standard penetration test

1. This report should be considered in relation to the objectives agreed between Worms Eye and the Client, outlined in the introduction.
2. For the work, reliance has been placed on publicly available data, obtained from the sources identified in the report. The information is not exhaustive and further information may be available from other sources. When using the information it has been assumed it is correct, and no attempt has been made to verify the information.
3. This report has been produced in accordance with current UK policy and guidelines, for land and groundwater contamination, enforced by the Local Authority and the Environment Agency.
4. During the site walkover, reasonable effort was made to obtain an overview of the site. However, no attempt was made to enter areas that are unsafe, a risk to health and safety, locked, barricaded, overgrown, or areas not made accessible.
5. Access, the presence of services and activities on the site, limited locations where sampling could be carried out and the techniques that could be used.
6. Assessments are based on available information at the time of writing and are ultimately for the decision of the regulatory authorities.
7. The conclusions and recommendations provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.
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9. New information, revised practices, or changes in legislation, may necessitate the re-interpretation of the report, in whole or in part.



Nell Lane, Manchester M21 7UH
Site Investigation Plan 1: 500

● Borehole ⊠ Trialhole

WORMS EYE Ltd
52, Bank Parade
Burnley BB11 1TS
Tel: 01282 414 649



Schedule of Accommodation

Description	Area	Total
2B3P (Apartment)	61m ²	12

Car parking : 14No.



scale 1:500 0 25m

Rev:	Date:	By:	Remarks:

Client: Southway Housing	Project: Southway Infill Sites
-----------------------------	-----------------------------------

Scale: 1:500@A3 Date: Dec 18	Description: Proposed Site Plan: Nell Lane
Drawn: HR Checked:	Project/Drawing No. 18-021/SK14

Rev.

Borehole
 Trialhole



LANDSCAPE KEY

-  Tarmac
-  Tarmac Red Chippings
-  Public Grass
-  Private Grass
-  Medium Height Shrubs
-  New Tree
-  Existing Tree Retained
-  Existing Tree Removed
-  Bin Location
-  Buff Paving (450x450 Paving)

BOUNDARY TREATMENT KEY

-  2100mm High Concrete Post & Panel Fence (inc. 300mm Trellis)
-  1800mm High black metal railings
-  1800mm High Concrete Post & Panel Fence
-  1500mm High Concrete Post & Panel Fence
-  1500mm High black metal railings
-  450mm High Brick Wall with 450mm High Black Metal Railings
-  900mm High Black Metal Railings

SCHEDULE OF ACCOMMODATION

Type	Area	Total
Housetype G- 2B3P	61m ²	12

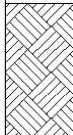
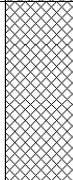
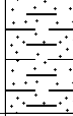
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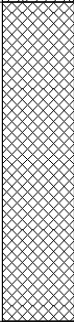
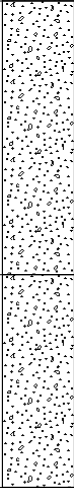
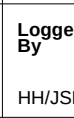
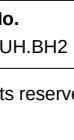
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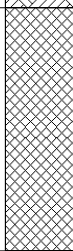
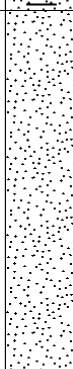
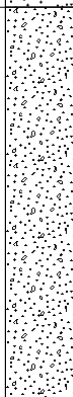
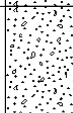
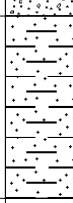
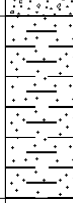
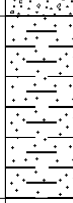
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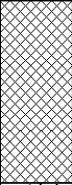
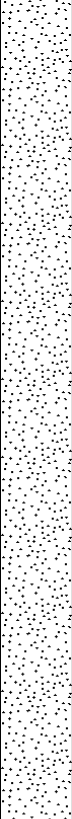
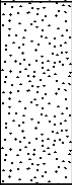


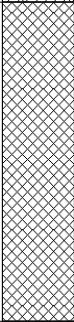
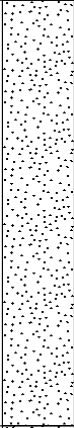
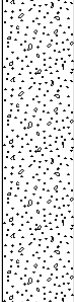
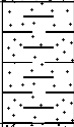
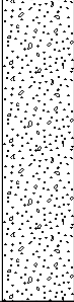
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B	08.08.19	CG			Triangle Architects, Raven House, 113 Fairfield Street, Manchester, M12 6EL Tel: 0161 272 3500 studio@trianglearchitects.co.uk www.trianglearchitects.co.uk www.twitter.com/TriangleArch	Drawn: HR	Project/Drawing No.	Rev.
						Checked:	18-021/ 1.02	B

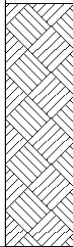
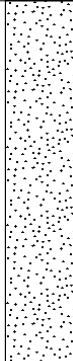
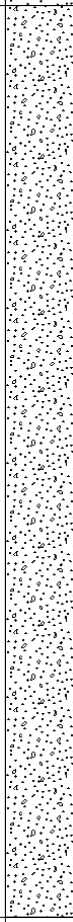
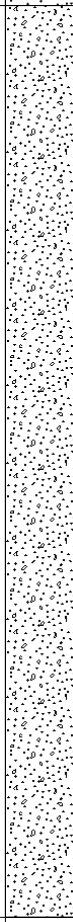
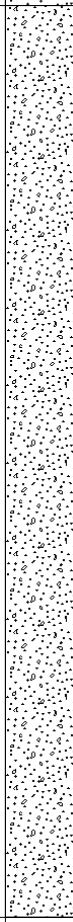
WORMS EYE GEOTECHNICAL		Cannon House, 52 Bank Parade Burnley, Lancashire, BB11 1TS				Site Nell Lane, Manchester		Borehole Number BH1	
Excavation Method Drive-in Window Sampler		Dimensions		Ground Level (mOD)		Client		Job Number M217UH	
		Location Northwest corner		Dates 14/11/2019- 18/11/2019		Engineer HH		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
			Water strike(1) at 2.60m.			Brown TOPSOIL with sand, gravel and brick			▽1
					(0.70)	Brown clayey sand, gravel and brick (MADE GROUND)			
					0.70				
					(1.30)				
					2.00	Dark brown sand, gravel, cinders, brick and wood pieces (MADE GROUND)			
					(1.00)				
					3.00	Dark brown sand, gravel, cinders and brick (MADE GROUND)			
					(2.40)				
					5.40	Firm brown (medium strength) sandy CLAY			
					(0.60)				
6.00	Complete at 6.00m								
Remarks Borehole wet at 2.6m, see Probe A. Gas monitor fitted to 3.6m								Scale (approx) 1:40	Logged By HH/JSH
								Figure No. M217UH.BH1	

WORMS EYE GEOTECHNICAL		Cannon House, 52 Bank Parade Burnley, Lancashire, BB11 1TS				Site Nell Lane, Manchester		Borehole Number BH2	
Excavation Method Drive-in Window Sampler		Dimensions		Ground Level (mOD)		Client		Job Number M217UH	
		Location Towards centre, north		Dates 14/11/2019- 18/11/2019		Engineer HH		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
					(0.15) 0.15	Brown TOPSOIL			
					(1.05)	Brown sand, gravel and brick (MADE GROUND)			
					1.20	Brown (medium strength) SAND and GRAVEL			
					(1.20)	Brown (low strength) SAND and GRAVEL			▽1
			Water strike(1) at 2.60m.		2.40	Brown (medium strength) SAND and GRAVEL			
					(0.90)	Brown (medium strength) SAND and GRAVEL			
					3.30	Brown (medium strength) SAND and GRAVEL			
					(0.70)	Complete at 4.00m			
					4.00				
Remarks Borehole wet at 2.6m, see Probe B. Gas monitor fitted to 3.1m							Scale (approx)		Logged By
							1:25		HH/JSH
							Figure No. M217UH.BH2		

WORMS EYE GEOTECHNICAL		Cannon House, 52 Bank Parade Burnley, Lancashire, BB11 1TS				Site Nell Lane, Manchester		Borehole Number BH3	
Excavation Method Drive-in Window Sampler		Dimensions		Ground Level (mOD)		Client		Job Number M217UH	
		Location Centre of site		Dates 14/11/2019- 18/11/2019		Engineer HH		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
			Water strike(1) at 3.20m.			Brown TOPSOIL			▽1
					(0.30)				
					0.30	Brown sand, gravel and brick (MADE GROUND)			
					(0.80)				
					1.10	Brown (medium strength) clayey SAND			
					(0.40)				
					1.50	Brown (medium strength) SAND with occasional gravel			
					(1.20)				
					2.70	Brown (low strength) SAND and GRAVEL			
					(1.30)				
					4.00	Brown (medium strength) SAND and GRAVEL			
					(0.40)				
					4.40	Firm brown (medium strength) sandy CLAY			
					(0.60)				
			PEN 70kN/m2		(0.60)				
			Complete at 5.0m		5.00				
Remarks Borehole wet at 3.2m, see Probe C. Gas monitor fitted to 3.1m							Scale (approx)	Logged By	
							1:25	HH/JSH	
							Figure No. M217UH.BH3		

WORMS EYE GEOTECHNICAL				Cannon House, 52 Bank Parade Burnley, Lancashire, BB11 1TS		Site Nell Lane, Manchester		Borehole Number BH4	
Excavation Method Drive-in Window Sampler		Dimensions		Ground Level (mOD)		Client		Job Number M217UH	
		Location South corner		Dates 14/11/2019- 18/11/2019		Engineer HH		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
						Brown TOPSOIL			
						Dark brown sand, soil, brick and concrete rubble (MADE GROUND)			
						Brown (medium strength) SAND			
			Water strike(1) at 3.30m.						
						Brown (low strength) SAND			
						Brown (medium strength) SAND and GRAVEL			
						Firm brown (medium strength) sandy CLAY			
			PEN 65kN/m2 Complete at 5.0m						
Remarks Borehole wet at 3.3m, see Probe D. Gas monitor fitted to 3.2m								Scale (approx)	Logged By
								1:25	HH/JSH
								Figure No. M217UH.BH4	

WORMS EYE GEOTECHNICAL		Cannon House, 52 Bank Parade Burnley, Lancashire, BB11 1TS				Site Nell Lane, Manchester		Borehole Number BH5	
Excavation Method Drive-in Window Sampler		Dimensions		Ground Level (mOD)		Client		Job Number M217UH	
		Location Towards centre		Dates 14/11/2019- 18/11/2019		Engineer HH		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
					(0.15) 0.15	Brown TOPSOIL			
						Dark brown sand, brick and gravel (MADE GROUND)			
					(1.05) 1.20	Brown SAND			
					(1.40) 2.60	Brown SAND and GRAVEL			
			Water strike(1) at 3.30m.		(1.00) 3.60	Firm brown (medium strength) sandy CLAY			
			PEN 60kN/m2		(0.40) 4.00	Brown SAND and GRAVEL			
					(1.00) 5.00				
Remarks Borehole wet at 3.3m							Scale (approx)		Logged By
							1:25		HH/JSH
							Figure No. M217UH.BH5		

WORMS EYE GEOTECHNICAL		Cannon House, 52 Bank Parade Burnley, Lancashire, BB11 1TS				Site Nell Lane, Manchester		Borehole Number BH6	
Excavation Method Drive-in Window Sampler		Dimensions		Ground Level (mOD)		Client		Job Number M217UH	
		Location Centre west		Dates 14/11/2019- 18/11/2019		Engineer HH		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
						Brown TOPSOIL with sand, brick and gravel			
					(0.80)				
					0.80	Brown SAND and occasional gravel			
					(1.20)				
					2.00	Brown SAND and GRAVEL			
									
			Water strike(1) at 3.40m.		(3.00)				V ₁
			Complete at 5.0m		5.00				
Remarks Borehole wet at 3.4m								Scale (approx)	Logged By
								1:25	HH/JSH
								Figure No. M217UH.BH6	

WORMS EYE GEOTECHNICAL

Cannon House, 52 Bank Parade
Burnley, Lancashire, BB11 1TS

Site
Nell Lane, Manchester

**Borehole
Number**
BH7

Excavation Method
Drive-in Window Sampler

Dimensions

Ground Level (mOD)

Client

Job Number
M217UH

Location

Towards centre, south

Dates

14/11/2019-
18/11/2019

Engineer

HH

Sheet

1/1

Depth
(m)

Sample / Tests

Water
Depth
(m)

Field Records

Level
(mOD)

Depth
(m)
(Thickness)

Description

Legend

Water

Brown TOPSOIL with brick and concrete rubble (membrane at 0.8m)

(0.80)

0.80

(0.40)

1.20

(1.20)

2.40

(1.30)

3.70

(0.00)

4.00

Complete at 4.00m

Remarks
Borehole wet at 3.1m

Scale (approx)

1:25

Logged
By

HH/JSH

Figure No.

M217UH.BH7

GROUND GAS TESTING RESULTS
NELL LANE, MANCHESTER, M21 7UH

Date	Barometric Pressure (mb)	Temp. °C	Weather	BH	Methane CH ₄ (%)	Oxygen O ₂ (%)	Carbon Dioxide CO ₂ (%)	Steady State CO ₂ (%)	Outflow from BH (l/hr)	PID (ppm)	Depth to water (m)	Comments
					0	20.9	0	0	0			Fresh air
					1.0 *		5.0 *		70 ❖			Threshold values
20.11.19	1009	5	Cloudy	BH1	0.0	17.3	0.3	0.3	0.0		2.35	
				BH2	0.0	15.6	1.2	1.2	0.0		Dry at 1.65	
				BH3	0.0	11.9	4.2	4.2	0.0		Dry at 2.0	
				BH4	0.0	12.3	5.2	5.2	0.0		2.65	
28.11.19	997	8	Rain	BH1	0.0	9.8	6.1	6.1	0.0		1.47	
				BH2	0.0	11.5	2.0	2.0	0.0		Dry at 1.65	
				BH3	0.0	11.3	4.7	4.7	0.0		Dry at 2.02.65	
				BH4	0.0	15.4	3.5	3.5	0.0		2.65	
20.12.19	972	9	Cloudy	BH1	0.0	9.7	6.2	6.2	0.0		2.3	
				BH2	0.0	13.4	3.9	3.9	0.0		Dry at 1.65	
				BH3	0.0	12.4	6.4	6.4	0.0		Dry at 2.0	
				BH4	0.0	13.3	7.6	7.6	0.0		2.6	
23.12.19	1001	9	Overcast/rain	BH1	0.0	14.9	3.6	3.6	0.0		2.36	
				BH2	0.0	12.2	1.5	1.5	0.0		Dry at 1.65	
				BH3	0.0	15.2	3.9	3.9	0.0		Dry at 2.0	
				BH4	0.0	15.5	1.4	1.4	0.0		Dry at 2.7	
9.1.20	1003	7	Overcast	BH1	0.0	11.7	5.7	5.7	0.0		Wet at 2.6	
				BH2	0.0	12.6	3.8	3.8	0.0		Dry at 1.65	
				BH3	0.0	12.7	5.6	5.6	0.0		Dry at 2.00	
				BH4	0.0	10.7	5.1	5.1	0.0		Dry at 2.7	
7.2.20	1012	5	Cloudy	BH1	0.0	16.2	0.9	0.9	0.0		Wet at 2.6	
				BH2	0.0	18.0	0.0	0.0	0.0		Dry at 1.65	
				BH3	0.0	15.6	1.2	1.2	0.0		Dry at 2.00	
				BH4	0.0	17.3	0.2	0.2	0.0		Dry at 2.7	

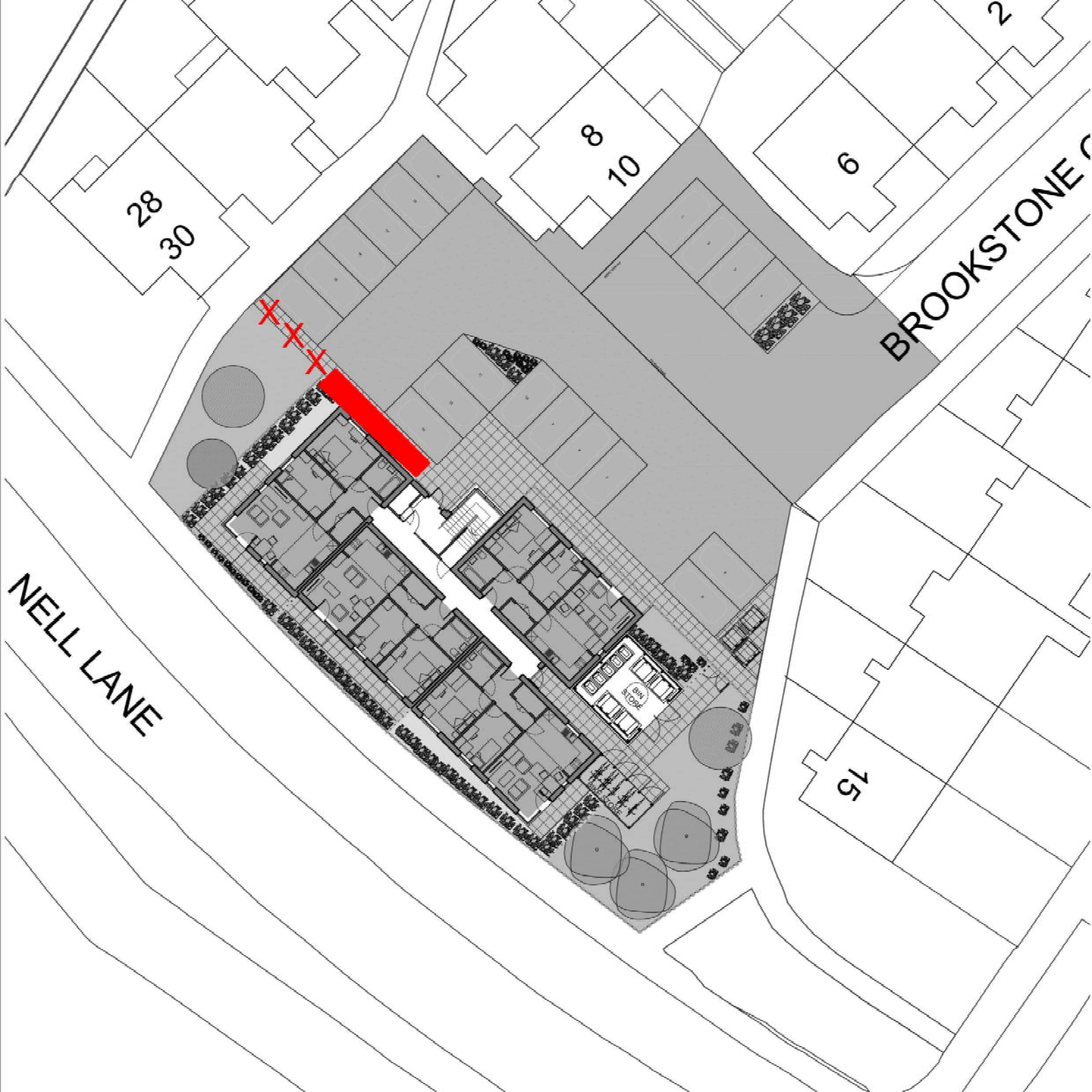
GROUND GAS TESTING RESULTS
NELL LANE, MANCHESTER, M21 7UH

Testing machines: GMI Landsurveyor 2 (P405890), Geotechnical Instruments GA45 (G6211/05)

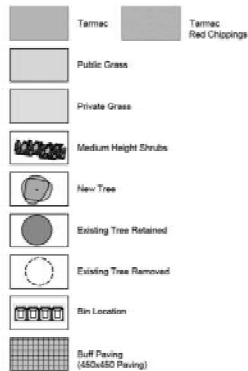
Outflow - 0 taken as < 0.1litres/hour flow of gas from borehole

* NHBC green limit, CIRIA situation 1 limit

❖ CIRIA situation 2 limit



LANDSCAPE KEY



BOUNDARY TREATMENT KEY



SCHEDULE OF ACCOMMODATION

Type	Area	Total
Housetype G- 2B3P	61m ²	12

Car parking : 19No.
(Existing parking 9 spaces. Increase of 10 spaces)

DRAFT

Plan Showing Supplementary Tests/Remedial Works

Excavate made ground to 0.6 metres and remove from site

Supplementary asbestos tests



scale 1:250 0 10m

Rev.	Date:	By:	Remarks:
A	23.07.19	CG	Proposal updated to reflect comments received on 16.07.19 at design freeze meeting
B	08.08.19	CG	Boundary amended to CIS comments

Client:	Southway Housing
Project:	Southway Infill Sites

Scale:	1:250@A3
Date:	JUN 19
Drawn:	HR
Checked:	

Description:	Proposed Site Plan Nell Lane
Project/Drawing No.	18-021/ 1.02
Rev.	B



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