2nd February 2018

Our ref: GE16421 – LRv1JK180202

David McCormack
Anthony Green & Spencer

By Email Only

Dear David,

RE: MIDLAND CRESCENT, FINCHLEY ROAD, LONDON - ADDENDUM GROUND GAS ASSESSMENT

Further to our recent ground investigation works and subsequent Ground Investigation Report (ref: GE16421 – GIRv2JK180123), the ground gas monitoring has now been completed.

The desk study identified the presence of historic land uses and potentially deep Made Ground on site which were considered to present a low risk to end users of the proposed development from ground gases and vapours. As such, two standpipes (WS02 and WS07) were installed on site and ground gas monitoring was undertaken to assess the potential risk posed to end users of the proposed development. An existing standpipe (BHX) on site was also monitored.

These standpipes were monitored on six occasions between December 2017 and February 2018 at both low and falling atmospheric pressures.

Recommendations on acceptable gas levels recorded in the ground beneath or adjacent to buildings are given in a variety of publications. For the purpose of this assessment, the results have been evaluated in terms of British Standard BS8485 entitled '*Code of practice for the characterisation and remediation from ground gas in affected developments*' (2015) and NHBC report 10627-R01(04) entitled '*Guidance on evaluation of development proposals where methane and carbon dioxide are present*' (2007).

Table 1

Characteristic Gas Situation by Site Characteristic Hazardous Gas Flow Rate

Characteristic Gas Situation (CS)	Characteristic Hazardous Gas Flow (HGF) (CO_2 or CH_4) (l/hr)	Hazard Potential	NHBC Traffic Light	Additional Factors
1	<0.07l/hr	Very Low	Green	Typically methane <1% v/v and/or carbon dioxide <5% v/v. Otherwise consider increase to CS2.
2	<0.7l/hr	Low	Amber 1	Borehole air flow rate not to exceed 70l/h, methane not to exceed 5%v/v. Otherwise consider increase to CS3/Amber 2.
3	<3.5l/hr	Moderate	Amber 2	
4	<15l/hr	Moderate to High	Red	Quantitative risk assessment required to evaluate scope of protective measures.
5	<70l/hr	High		
6	>70l/hr	Very High		

During the monitoring methane was not recorded. Carbon dioxide was recorded at concentrations ranging between 0.0% v/v and 1.1% v/v whilst oxygen was present in the range of 18.3% v/v and 20.8% v/v. Volatile organic compounds (VOC) were not recorded above the detection limit of the monitoring device. A maximum positive borehole flow of 0.2l/hr was recorded during the monitoring visits. Atmospheric pressures were recorded as ranging between 985mb and 1008mb.

Based on the site visits, the Hazardous Gas Flow (HGF) for methane and carbon dioxide were both 0.00l/hr. In addition, no VOC vapour concentrations were recorded during the site visits. As such, the site's classification is representative of CS1/NHBC Traffic Light Green, for which no ground gas protection measures are considered necessary.

With reference to the Envirocheck data report the site is indicated to be situated in an area where radon protection measures are not necessary in the construction of new dwellings or extensions.

In addition, groundwater was not encountered within the standpipes during the return monitoring visits.

However, changes in groundwater levels do occur for a number of reasons including seasonal effects and variations in drainage. Such fluctuations may only be recorded by the measurement of the groundwater level within a standpipe or piezometer.

We trust we have interpreted your instructions correctly. Should you have any queries please do not hesitate to contact us.

Yours sincerely
For and on Behalf of Geo-Environmental Services Ltd

JASON KANELLIS BSc (Hons) MSc FGS MIEnvSc
Senior Consulting Engineer
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Encs - Ground Gas Assessment
- Standpipe Location Plan

Project: Midland Crescent, London
Ref: GE16421
Client: Anthony Green & Spencer

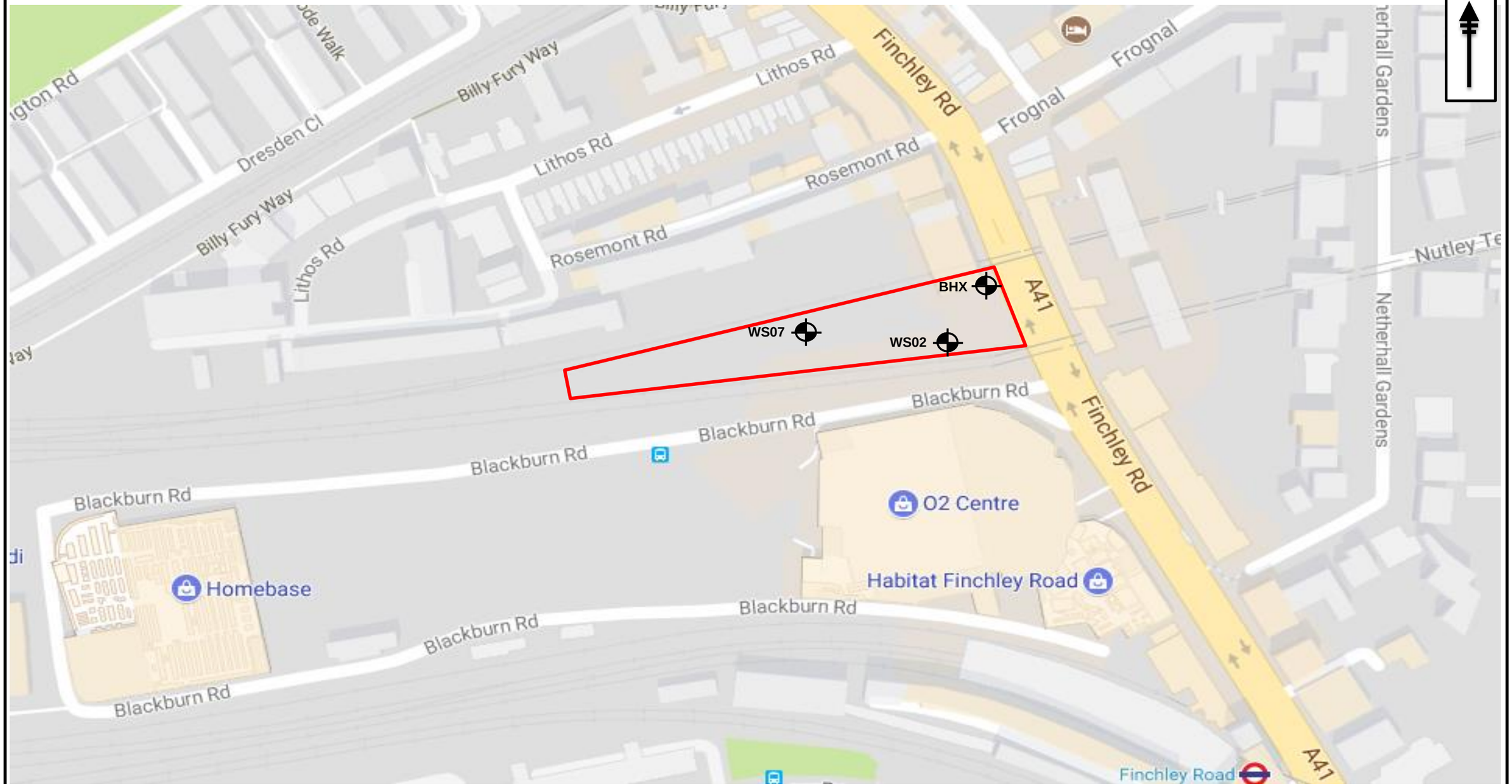
Geo-Environmental

Location	Date	Time (sec)	CH_4 (%)	CO_2 (%)	O_2 (%)	Flow (l/hr)	VOC (ppm)	Pressure (mb)	GWL (m bgl)	GSV/Qhgs		Characteristic Situation		CS1 Limiting Value Check			NHBC			
												BS8485 & C665		Flow	CH_4	CO_2	CH_4		CO_2	
										CH_4	CO_2	CH_4	CO_2				GSV	Conc.	GSV	Conc.
BHX	13-12-17	10	0.0	0.1	20.1	0.0	0.0	993	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	13-12-17	20	0.0	0.1	20.1	0.0	0.00	993	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	13-12-17	30	0.0	0.1	20.1	0.0	0.00	993	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	13-12-17	60	0.0	0.1	20.1	0.0	0.00	993	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	13-12-17	120	0.0	0.1	20.1	0.0	0.00	993	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS02	13-12-17	10	0.0	0.1	20.3	0.0	0.0	993	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS02	13-12-17	20	0.0	0.2	20.1	0.0	0.00	993	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS02	13-12-17	30	0.0	0.3	20.0	0.0	0.00	993	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS02	13-12-17	60	0.0	0.3	20.0	0.0	0.00	993	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS02	13-12-17	120	0.0	0.3	19.9	0.0	0.00	993	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS07	13-12-17	10	0.0	0.7	20.1	0.0	0.0	993	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS07	13-12-17	20	0.0	1.0	19.7	0.0	0.00	993	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS07	13-12-17	30	0.0	1.0	19.6	0.0	0.00	993	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS07	13-12-17	60	0.0	1.1	19.5	0.0	0.00	993	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS07	13-12-17	120	0.0	1.1	19.5	0.0	0.00	993	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	04-01-18	10	0.0	0.0	20.4	0.0	0.0	985	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	04-01-18	20	0.0	0.0	20.4	0.0	0.00	985	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	04-01-18	30	0.0	0.0	20.3	0.0	0.00	985	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	04-01-18	60	0.0	0.0	20.3	0.0	0.00	985	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	04-01-18	120	0.0	0.0	20.3	0.0	0.00	985	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS02	04-01-18	10	0.0	0.2	20.1	0.0	0.0	985	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS02	04-01-18	20	0.0	0.2	19.9	0.0	0.00	985	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS02	04-01-18	30	0.0	0.2	19.8	0.0	0.00	985	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS02	04-01-18	60	0.0	0.3	19.7	0.0	0.00	985	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS02	04-01-18	120	0.0	0.2	19.7	0.0	0.00	985	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS07	04-01-18	10	0.0	0.7	20.0	0.0	0.0	985	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS07	04-01-18	20	0.0	0.8	19.5	0.0	0.00	985	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS07	04-01-18	30	0.0	0.9	19.5	0.0	0.00	985	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS07	04-01-18	60	0.0	0.9	19.5	0.0	0.00	985	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS07	04-01-18	120	0.0	0.9	19.5	0.0	0.00	985	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	10-01-18	10	0.0	0.0	20.0	0.0	0.0	1000	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	10-01-18	20	0.0	0.0	20.0	0.0	0.00	1000	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	10-01-18	30	0.0	0.0	20.0	0.0	0.00	1000	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	10-01-18	60	0.0	0.0	20.0	0.0	0.00	1000	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	10-01-18	120	0.0	0.0	20.0	0.0	0.00	1000	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS02	10-01-18	10	0.0	0.0	20.0	0.0	0.0	1000	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS02	10-01-18	20	0.0	0.1	19.4	0.0	0.00	1000	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS02	10-01-18	30	0.0	0.1	19.5	0.0	0.00	1000	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS02	10-01-18	60	0.0	0.1	19.2	0.0	0.00	1000	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS02	10-01-18	120	0.0	0.1	19.2	0.0	0.00	1000	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS07	10-01-18	10	0.0	0.6	19.4	0.0	0.0	1000	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS07	10-01-18	20	0.0	0.7	18.8	0.0	0.00	1000	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS07	10-01-18	30	0.0	0.7	18.8	0.0	0.00	1000	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS07	10-01-18	60	0.0	0.7	18.8	0.0	0.00	1000	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS07	10-01-18	120	0.0	0.7	18.8	0.0	0.00	1000	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	16-01-18	10	0.0	0.0	20.1	0.0	0.0	990	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	16-01-18	20	0.0	0.0	20.1	0.0	0.00	990	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	16-01-18	30	0.0	0.0	20.1	0.0	0.00	990	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN

Project: Midland Crescent, London
Ref: GE16421
Client: Anthony Green & Spencer

Geo-Environmental

Location	Date	Time (sec)	CH_4 (%)	CO_2 (%)	O_2 (%)	Flow (l/hr)	VOC (ppm)	Pressure (mb)	GWL (m bgl)	GSV/Qhgs		Characteristic Situation		CS1 Limiting Value Check			NHBC			
										CH_4	CO_2	BS8485 & C665		Flow	CH_4	CO_2	CH_4		CO_2	
												CH_4	CO_2				GSV	Conc.	GSV	Conc.
BHX	16-01-18	60	0.0	0.0	20.1	0.0	0.00	990	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	16-01-18	120	0.0	0.0	20.1	0.0	0.00	990	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	16-01-18	10	0.0	0.0	19.5	0.0	0.0	991	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	16-01-18	20	0.0	0.1	19.2	0.0	0.00	991	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	16-01-18	30	0.0	0.1	19.2	0.0	0.00	991	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	16-01-18	60	0.0	0.1	19.1	0.0	0.00	991	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	16-01-18	120	0.0	0.1	19.1	0.0	0.00	991	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS7	16-01-18	10	0.0	0.5	19.4	0.0	0.0	991	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS7	16-01-18	20	0.0	0.6	18.8	0.0	0.00	991	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS7	16-01-18	30	0.0	0.6	18.6	0.0	0.00	991	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS7	16-01-18	60	0.0	0.6	18.6	0.0	0.00	991	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS7	16-01-18	120	0.0	0.6	18.6	0.0	0.00	991	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	29-01-18	10	0.0	0.1	20.3	0.0	0.0	1002	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	29-01-18	20	0.0	0.1	20.3	0.0	0.00	1002	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	29-01-18	30	0.0	0.1	20.3	0.0	0.00	1002	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	29-01-18	60	0.0	0.1	20.3	0.0	0.00	1002	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	29-01-18	120	0.0	0.1	20.3	0.0	0.00	1002	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	29-01-18	10	0.0	0.2	19.7	0.2	0.0	1002	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	29-01-18	20	0.0	0.2	19.8	0.2	0.00	1002	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	29-01-18	30	0.0	0.2	19.8	0.2	0.00	1002	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	29-01-18	60	0.0	0.2	19.8	0.2	0.00	1002	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	29-01-18	120	0.0	0.2	19.8	0.2	0.00	1002	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS7	29-01-18	10	0.0	0.7	20.8	0.2	0.0	1002	DRY	0.000	0.001	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS7	29-01-18	20	0.0	0.8	19.6	0.2	0.00	1002	DRY	0.000	0.002	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS7	29-01-18	30	0.0	0.8	19.4	0.2	0.00	1002	DRY	0.000	0.002	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS7	29-01-18	60	0.0	0.9	19.3	0.2	0.00	1002	DRY	0.000	0.002	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS7	29-01-18	120	0.0	0.8	19.3	0.2	0.00	1002	DRY	0.000	0.002	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	02-02-18	10	0.0	0.2	20.3	0.1	0.0	1008	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	02-02-18	20	0.0	0.1	20.7	0.1	0.00	1008	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	02-02-18	30	0.0	0.1	20.7	0.1	0.00	1008	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	02-02-18	60	0.0	0.1	20.7	0.1	0.00	1008	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BHX	02-02-18	120	0.0	0.1	20.8	0.1	0.00	1008	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	02-02-18	10	0.0	0.2	20.7	0.1	0.0	1008	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	02-02-18	20	0.0	0.3	20.2	0.1	0.00	1008	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	02-02-18	30	0.0	0.3	20.0	0.1	0.00	1008	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	02-02-18	60	0.0	0.3	19.9	0.1	0.00	1008	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	02-02-18	120	0.0	0.4	19.9	0.1	0.00	1008	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS7	02-02-18	10	0.0	0.4	19.9	0.0	0.0	1008	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS7	02-02-18	20	0.0	0.8	19.8	0.0	0.00	1008	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS7	02-02-18	30	0.0	0.9	18.6	0.0	0.00	1008	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS7	02-02-18	60	0.0	0.9	18.3	0.0	0.00	1008	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS7	02-02-18	120	0.0	0.9	18.3	0.0	0.00	1008	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
Max values			0.0	1.1	20.8	0.2	0.0	1008.0		0.000	0.002	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
Min Vaules			0.0	0.0	18.3	0.0	0.0	985.0		0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BH Flow LoD check			0.0	1.1	20.8	0.1	0.0	1008.0		0.000	0.001	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN



Project:	Midland Crescent			**Title:**	Standpipe Location Plan		**Revision:**	v1
Address:	Finchley Road, London, NW3 6LT			**Date:**	04-12-17			
Grid Ref:	526180, 184890.	**Scale:**	Not to scale	**Drawn:**	JK	**Figure:** 1		
Client:	Stadium Capital Holdings Ltd			**Ref:**	GE16421			

Geo-Environmental