

Report Title:	Fletcher Fold Road, Bury, BL9 9FY
Report Reference:	23-B-13947
Revision:	None
Client:	Tyson Construction
Issue Date:	15th January 2025
Authorised By:	D.J. Middleton

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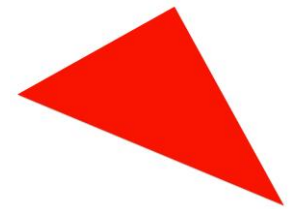
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1.0 INTRODUCTION

This Report has been prepared at the request of Tyson Construction Ltd following a review of Hamson Barron Smith's Report dated February 2024, reference 23-12-115972/GIR Rev A and the completion of ground gas monitoring.

The site is in the Goshen district of Bury, approximately 2.5km due south of Bury town centre. The site is located at NGR 380649, 408678. The site elevation is c75mAOD with a gentle slope to the south. The site has an irregular footprint shape and an overall area of 9,000m² (0.9ha). The site is brownfield land, previously containing a now demolished school.

2.0 PROPOSED DEVELOPMENT

Current plans made available show the proposed development to be residential, comprising 4 bungalows and an apartment building comprising 39 units.

3.0 PLANNING STATUS

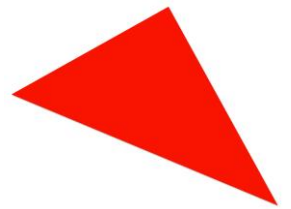
Planning Permission for the development has been granted by Bury Council (Ref 70805 dated 17th December 2024). The Permission contains 26 Planning Conditions. This Report is intended to facilitate discharge of Condition 14 – submission of a Remediation Statement.

4.0 PHASE 1 / 2 SITE INVESTIGATIONS

The site has been subject to several recent site investigations as follows:

1. Phase 1 geo-environmental desk study dated November 2018 by E3P reference 12-827-R1.
2. Phase 2 geo-environmental investigation dated February 2019 (& updated in November 2019) reference 12-827-R2.
3. Coal Mining Risk Assessment dated December 2023 by HBS reference 23-12-115972/DSR1.
4. Coal Mining site investigation works dated January 2021 by LCL.

Section 4 of the most recent report undertaken by HBS dated February 2024 reference 23-12-115972/GIR/RevA summarises the earlier reports. This Remediation Statement is based upon the findings and conclusions of the HBS Report.



5.0 REVIEW OF CONTAMINATION RESULTS

Samples for contamination testing were obtained from 22 window sample boreholes and 2 hand dug trial pits. Testing was undertaken as indicated in Section 6.3 of the HBS report as below:

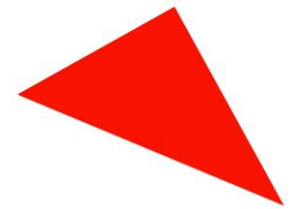
6.3 Chemical Testing

Twenty-two samples of soils were retained from the exploratory holes and were scheduled for chemical laboratory testing. The soil samples were analysed for a combination of the following (NOTE: not all samples were scheduled for all of the determinants):

Arsenic	Selenium
Boron (water soluble)	Zinc
Cadmium	pH
Chromium (total and VI)	Total Organic Carbon
Copper	Phenols
Lead	PAH (USEPA 16)
Mercury	TPH (CWG)
Nickel	Asbestos screen

In addition, following receipt of the total soils testing four samples were also submitted for leachate testing to establish the potential for any determinant to become mobile.

The chemical analysis was undertaken by MCERTS and UKAS accredited laboratory i2 Analytical Ltd. Certificates of analysis are included Appendix F.



The report contained a detailed Contamination Risk Assessment (Section 9). Chemical testing on the samples indicated slightly elevated levels of Arsenic and also of PAH fractions (Section 9, Tables 5 and 6). This is also included in Appendix 3 of this report.

However, the report concluded (Section 11) that site remediation was not required because the elevated Arsenic sample was taken from beneath the apartment footprint and the elevated PAH samples (following further analysis and consideration) were not considered to be at a level that would pose a future risk to health.

6.0 GROUND GAS MONITORING

A detailed Ground Gas Monitoring Report has been prepared by Carley Daines & Partners dated January 2025 reference 23-B-13947. This is based on the conversion of 3 window sample holes to ground gas standpipes. Monitoring was undertaken between July and September 2024.

The monitoring programme identified the following ground gas profile:

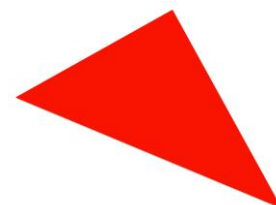
Methane – range 0 – 0.5% combined with a peak flow rate of 2.8l/h giving a GSV of 0.014.

Carbon Dioxide – range 0 – 21.7% combined with a flow rate of 2.8l/h giving a GSV of 0.61.

Using the NHBC “Traffic Light” method of assessment, the report recommended conservative gas protection measures to an “Amber 2” profile particularly in view of the maximum recorded carbon dioxide level. The gas monitoring results are included in Appendix 4 of this report.

7.0 VALIDATION

Validation will be required on completion and a final Validation Report will be prepared by Carley Daines & Partners Limited or other appropriately qualified consultant, confirming that the remedial works have been completed. However, it is recommended that gas membrane validation should be undertaken by a specialist consultant.

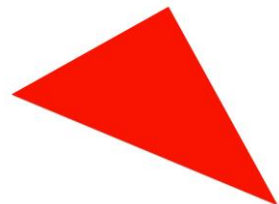


Specifically, the validation report should also confirm the following:

- A testing regime on any imported material should be carried out, including testing one sample per 50m³ of imposed material (from a brownfield source) and one sample per 200m³ of imported material (from a greenfield source). A minimum of 3 such samples will be carried out for materials from differing types and from different sources.

A summary of actions is listed in the table hereunder:

Summary of Action	
Action	Person Responsible
Site Management procedures to protect site neighbours, environment and amenity during works, including a) Health & Safety plans and procedures 1. Asbestos Management Plan (if required) 2. Dust, noise & odour suppression/controls, including monitoring protocols 3. Control of surface water runoff 4. Site Waste Management Plan (SWMP)	Main Contractor
Assessment of ground conditions if unanticipated or obviously very high levels of contamination are uncovered, plus appropriate additional testing of such material. (if required)	Main Contractor CD&P Ltd NHBC Building Control
Method Statement indicating the procedure for removal of potentially contaminated material, and placement of clean cover throughout all areas of soft landscaping within the development (if required).	Main Contractor
Provide suitable protection to site utilities in accordance with the requirements of the service provider	Main Contractor/Engineering consultant
Verification of gas protection measures	Specialist consultant
Laboratory testing to confirm the suitability of any imported material post placement	Main Contractor
Completion of post-site works Final Validation Report	CD&P Ltd



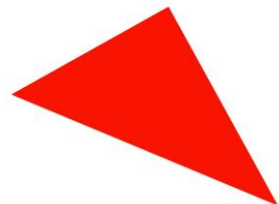
8.0 SUMMARY OF REQUIREMENTS

- No requirement for site remediation
- Gas protection to “Amber 2” level
- Validation on completion

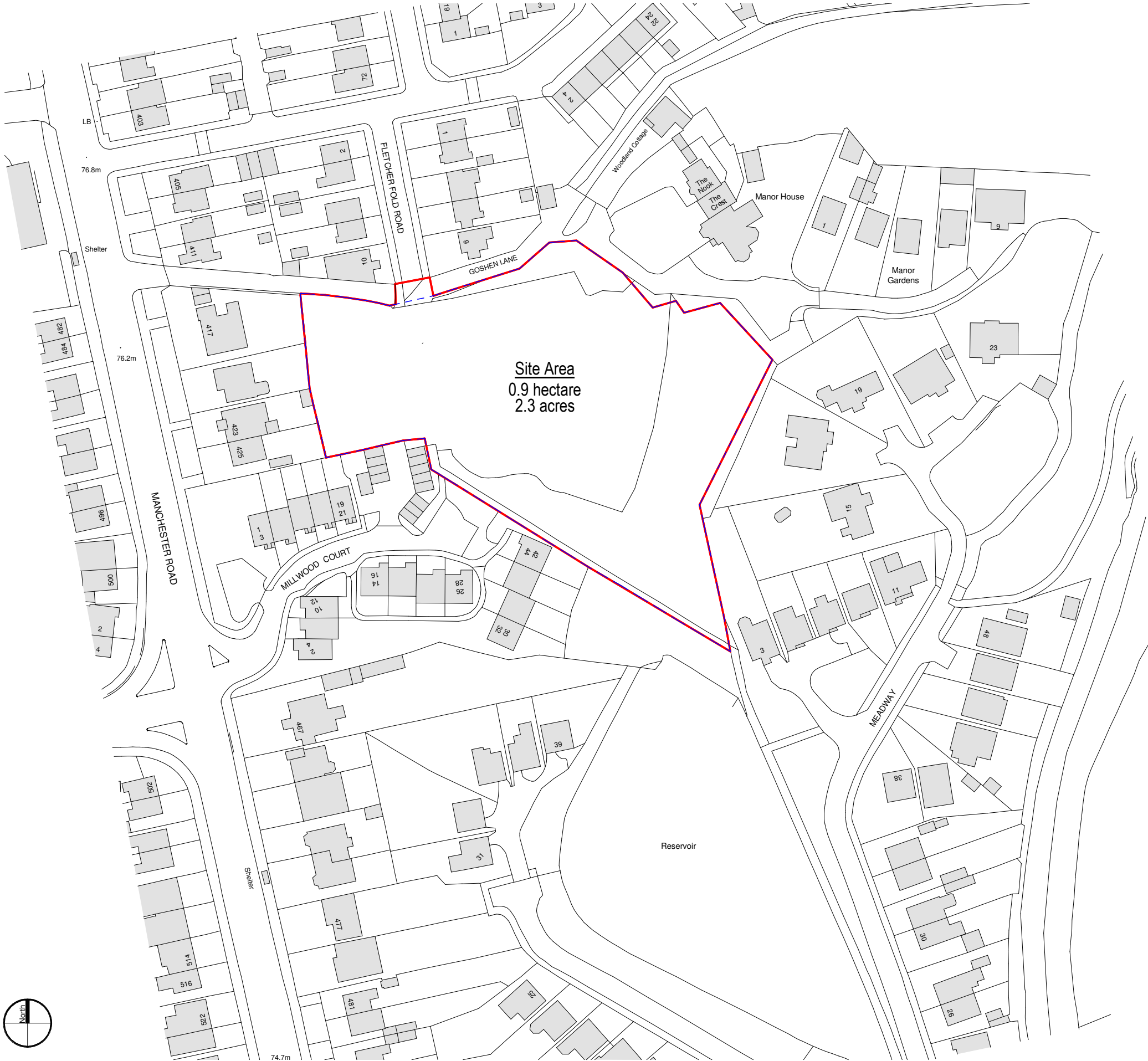
SIGNED

A handwritten signature in blue ink, appearing to read 'D Middleton', with a horizontal line underneath.

DAVID MIDDLETON
CARLEY DAINES AND PARTNERS LIMITED



APPENDIX 1
SITE LOCATION PLAN



SITE LOCATION PLAN
1 : 1250

Notes

The Contractor is to check all dimensions and conditions on site before commencing. Do not scale from this drawing.
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Scale Bars TO BE USED ONLY AS GUIDANCE

1:100	mm	1000	3000	5000
1:200	mm	5000	8000	
1:500	M	5	15	25
1:1250	M	10	30	50 70

NOTES

— Site boundary

- - - Site ownership boundary

For the topographical information refer to drawing S23-0937 produced by Survey OperationsJPL Surveys

For the Arboricultural information refer to X10188.01.001 for the tree survey data and D10188.01.001 for the tree constraints plan both produced by The Environmental Partnership

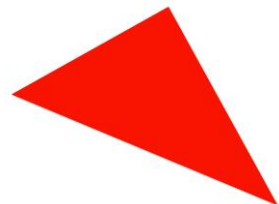
P02	Revised site boundary to site ownership boundary and unadopted highway	BAP	08/02/24
P01	Issued for Pre-App planning advice	EM	19/01/24
Rev	Description	By	Date

Client	ARCON HOUSING ASSOCIATION (BOLTON AT HOME)		
Job	FLETCHER FOLD ROAD, BURY		
Drawing	PLANNING - SITE LOCATION PLAN		
BSRef	6071_1100	Rev	P02
BSRef	6071-POZ-00-ZZ-DR-A-1100		
Date	19/01/24	Scale	1 : 1250 @ A3
3D CoOrd	EM	2D CoOrd	EM
Project Status	Planning	Tender	Construction
	Design	Contract	As Built

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APPENDIX 2
PROPOSED SITE LAYOUT



SITE LAYOUT PLAN
1 : 500

NOTES

ACCOMMODATION SUMMARY

TYPE	COUNT
Two bedroom bungalow	4
One bedroom apartment	39
Total	43

All accommodation is designed to meet the Nationally Described Space Standards and Part M4 Category 2: accessible and adaptable

PARKING PROVISION

Table 2 of Bury Councils SPD 11 requires 1.5 parking spaces in an accessible area, which this is, for a 2 bed dwelling. For sheltered housing the requirement is for 1 space per 3 units.

We have indicated 2 spaces per dwelling for the bungalows which are for sale. For the apartments we have indicated 20 spaces for the 39 dwellings to allow for visitor parking.

REFUSE STORAGE PROVISION

Bungalows
4 x 240 litre wheeled bins (general waste, pulvable recycling, mixed recycling and garden waste) to be stored within the garden

Apartments
Storage space for bins will be provided in the kitchens of the apartments. An external refuse store is provided close to the main entrance into which residents will deposit their waste. Those unable to do so will be assisted as part of their care package.

TYPE	REQUIRED*	PROVISION
General waste	4,290 ltr	4 x 1100 ltr
Pulpable recycling	2,145 ltr	2 x 1100 ltr
Mixed recycling	2145 ltr	2 x 1100 ltr
Food waste	390 ltr	2 x 240 ltr

* based on the GD04 Waste Storage and Collection Guidance for New Developments by Manchester City Council. Required provision to be checked and confirmed as part of pre-application discussions.

Notes

The Contractor is to check all dimensions and conditions on site before commencing. Do not scale from this drawing.
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Scale Bars

TO BE USED ONLY AS GUIDANCE

1:100 mm 1000 3000 5000

1:200 mm 5000 8000

1:500 M 5 15 25

1:1250 M 10 30 50 70

KEY

- Proposed Tree
- Existing category A tree*
- Existing category B tree*
- Existing category C tree*
- Root protection zones*

* For further information about the existing trees please refer to the Tree Survey by TEP

P06	Six 2 bed apartments changed to 1 bed following housing need feedback. 2 Beds increased to NDSS area. Site adjusted accordingly.	EM	14/03/24
P05	Path alongside building in southern corner reinstated.	EM	29/02/24
P04	Building moved 5m to the right to allow the proposed drainage to sit outside of the tree root protection zones. Car parking adjusted accordingly.	EM	27/02/24
P03	Revised site boundary to site ownership boundary	BAP	08/02/24
P02	Changes to car park and turning head following pre-app Highways feedback	EM	30/01/24
P01	Issued for Pre-App planning advice	EM	19/01/24
Rev	Description	By	Date

Client: **ARCON HOUSING ASSOCIATION (BOLTON AT HOME)**

Job: **FLETCHER FOLD ROAD, BURY**

PLANNING - SITE LAYOUT PLAN

6071_1200 Rev P06

6071-POZ-XX-ZZ-DR-A-1200

Date 19/01/24 Scale 1 : 500 @ A2

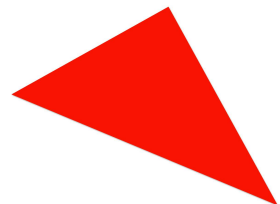
EM	2D CoOrd	EM	Approved	JW
Planning	Tender	Construction		
Design	Contract	As Built		

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APPENDIX 3

CONTAMINATION TEST RESULTS & RISK ASSESSMENT

9 Contamination Risk Assessment

The primary legislative mechanism for contaminated land management in the UK is Part 2A of the Environmental Protection Act, 1990 (EPA). Part 2A was introduced into the EPA under Section 57 of the Environment Act 1995 to help deal with the substantial legacy of land contamination. Local authorities are the principal regulator for inspection of land under Part 2A. In England, Part 2A is described fully in DEFRA Circular 01/2006, which also contains the statutory guidance (DEFRA, 2006). Part 2A defines contaminated land as:

‘...any land which appears to the Local Authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that

- a. significant harm is being caused or there is a significant possibility of such harm being caused; or*
- b. Pollution of controlled waters is being, or is likely to be, caused.’*

In applying the definition of Contaminated Land, Part 2A states that ‘the Local Authority must:

- Identify a ‘Pollution Linkage’. That is, a linkage between a contaminant and a receptor, by means of a pathway(s).
- Determine if the contaminant is causing significant harm to that receptor, or there is a significant possibility of such harm being caused by that contaminant to that receptor.

If any one element of the pollutant linkage is not present then the land should not be identified as ‘contaminated land’.

Part 2A is designed to ‘enable the identification and remediation of land on which contamination is causing unacceptable risks to human health or the wider environment. It does not necessarily include all land where contamination is present, even though such contamination may be relevant in the context of other regimes’. It is not directed to assessing risks in relation to a future use of the land that would require a specific grant of planning permission.

The control of development and land use in the future is the responsibility of the planning system. A fundamental principle of sustainable development is that the condition of land, its use and its development should be protected from potential hazards. The National Planning Policy Framework (NPPF) states that *‘to prevent unacceptable risks from pollution and land instability, planning policies and decisions should ensure that new development is appropriate for its location.’*

Planning policies and decisions should also ensure that the site is suitable for its new use taking account of ground conditions and land instability, including from natural hazards or former activities such as mining, pollution arising from previous uses and any proposals for mitigation including land remediation or impacts on the natural environment arising from that remediation.

NPPF also states that after any required remediation, the land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990.

9.1 Introduction to Human Health Risk Assessment

A generic quantitative risk assessment (GQRA) has been undertaken using the geochemical results for the soil samples retained from the site. The approach to human health risk assessment adopted in this report is consistent with the Environment Agency’s Land Contamination Risk Management (LCRM) guidance and other relevant guidance (including SR3, BS10175:2011:A2-2017 and NPPF).

The laboratory soil data has been compared to relevant and applicable critical concentrations as outlined in the guidance. These criteria can be either Generic Assessment Criteria (GAC) or Site Specific Assessment Criteria (SSAC). For the purpose of this generic quantitative risk assessment, GAC will be used. The GACs been derived from

- LQM/CIEH 'Suitable 4 Use Levels' (S4ULs) where available, or
- DEFRA C4SL Health Criteria Values (March 2014),

The proposed development includes four semi-detached bungalows with private gardens and a two-storey apartment block with associated communal green space.

Therefore, there are two end use scenarios appropriate for the site,

- Scenario 1 (Bungalows): - '**residential with no plant uptake**' end use
- Scenario 2 (Apartment Buildings) - '**residential with plant uptake**' end use

9.2 Soil Assessment

To ascertain a preliminary assessment of the contaminative nature of the near surface materials across the site, twenty two soil samples were retained during the site investigation works and submitted for laboratory analysis for a range of determinants. The calculated Soil Organic Matter (SOM) ranges from 0.35% to 5.69%. Given the large range, where the assessment criteria are reliant on Soil Organic Matter assessment criteria derived for 1% have conservatively been used.

The chemical analysis was undertaken at i2 Analytical Ltd laboratories. The results are included in Appendix F.

9.2.1 Asbestos

All twenty two samples were screen for Asbestos Containing Material (ACM); none was detected.

9.2.2 Metals

Nineteen soil samples were analysed for a metals suite. The results of the chemical analysis for heavy metal concentrations within the soil samples are summarised in Table 5.

Table 5 Summary of Heavy Metals

Determinant	GAC		Concentration Range		No. samples tested	No. samples exceed GAC	
	1	2	Min	Max		1	2
Arsenic	37	79	2.4	39	19	1	0
Boron (w/s)	290	21,000	<0.2	1.3	19	0	0
Cadmium	11	120	<0.2	<0.2	19	0	0
Chromium (total)	910	1,500	12	38	19	0	0
Chromium (VI)	6	7.7	<1.8	<1.8	19	0	0
Copper	2400	12,000	13	65	19	0	0
Lead	200*	630*	11	140	19	0	0
Mercury	11	16	<0.3	1.2	19	0	0

Determinant	GAC		Concentration Range		No. samples tested	No. samples exceed GAC	
	1	2	Min	Max		1	2
Nickel	130	230	14	34	19	0	0
Selenium	250	1100	<1.0	<1.0	19	0	0
Zinc	3700	81000	30	98	19	0	0

Results in mg/kg unless stated otherwise

GACs are LQM GAC unless stated otherwise

*DEFRA C4SL

9.2.3 Polyaromatic Hydrocarbons

Fifteen soil samples were analysed for PAH analysis. The results of the chemical analysis for Polyaromatic Hydrocarbons (PAH US-EPA16) are summarised in Table 6.

Table 6 Summary of Polyaromatic Hydrocarbons

Determinant	GAC		Concentration Range		No. samples tested	No. samples exceed GAC	
	1	2	Min	Max		1	2
Acenaphthene	210	15000	< 0.05	1.30	15	0	0
Acenaphthylene	170	15000	< 0.05	0.11	15	0	0
Anthracene	2400	74000	< 0.05	2.30	15	0	0
Benz(a)anthracene	7.2	29	< 0.05	4.70	15	0	0
Benzo(a)pyrene	2.2	5.7	< 0.05	4.10	15	1	0
Benzo(b)fluoranthene	2.6	7.1	< 0.05	5.10	15	1	0
Benzo(ghi)perylene	320	640	< 0.05	2.60	15	0	0
Benzo(k)fluoranthene	77	190	< 0.05	2.10	15	0	0
Chrysene	15	57	< 0.05	5.10	15	0	0
Dibenz(a,h)anthracene	0.24	0.57	< 0.05	0.67	15	2	1
Fluoranthene	280	3100	< 0.05	12.0	15	0	0
Fluorene	170	9900	< 0.05	1.00	15	0	0
Indeno(1,2,3-cd)pyrene	27	82	< 0.05	2.40	15	0	0
Naphthalene	2.3	4900	< 0.05	0.46	15	0	0
Phenanthrene	95	3100	< 0.05	8.90	15	0	0
Pyrene	620	7400	< 0.05	9.90	15	0	0

Results in mg/kg unless stated otherwise

GACs are LQM S4UL for SOM of 1% unless stated otherwise

9.2.4 Petroleum Hydrocarbons and BTEX

Fifteen soil samples were analysed for total petroleum hydrocarbons (TPH CGW) in an aromatic/aliphatic split and BTEX (benzene, toluene, ethylbenze and xylene), the results of which are summarised in Table 7.

Table 7 Summary of Petroleum Hydrocarbons

Determinant	GAC	Concentration Range		No. samples tested	No. samples exceed GAC
		Min	Max		
EC>5-6 Aliphatic	42	<0.02	<0.02	15	0
EC>6-8 Aliphatic	100	<0.02	<0.02	15	0
EC>8-10 Aliphatic	27	<0.05	<0.05	15	0
EC>10-12 Aliphatic	130	<1.0	2.1	15	0
EC>12-16 Aliphatic	110	<2.0	5.9	15	0
EC>16-35 Aliphatic	65,000	<10	350	15	0
EC>35-44 Aliphatic	65,000	<8.4	470	15	0
EC>5-7 Aromatic	70	<0.01	<0.01	15	0
EC>7-8 Aromatic	130	<0.01	<0.01	15	0
EC>8-10 Aromatic	34	<0.05	<0.05	15	0
EC>10-12 Aromatic	74	<1.0	<1.0	15	0
EC>12-16 Aromatic	140	<2.0	4.5	15	0
EC>16-21 Aromatic	260	<10	39	15	0
EC>21-35 Aromatic	1,100	<10	880	15	0
EC>35-44 Aromatic	1,100	<8.4	960	16	0
Benzene	0.087	<0.05	<0.05	15	0
Toluene	130	<0.05	<0.05	15	0
Ethylbenzene	47	<0.05	<0.05	15	0
m&p-Xylene	56	<0.05	<0.05	15	0
o-Xylene	60	<0.05	<0.05	15	0
MTBE	49**	<0.05	<0.05	15	0

Results in mg/kg unless stated otherwise

GACs are LQM S4UL for SOM of 1% unless stated otherwise

** C:laire 2010

9.3 Human Health Summary

Slightly elevated arsenic was recorded in one Made Ground soil sample. Further assessment is given in Section 9.3.1.

Slightly elevated PAH determinants, Benzo(a)pyrene, Benzo(b)fluoranthene and Dibenzo(a,h)anthracene, were recorded in two soil samples tested at levels which are considered to present a potential risk to Human Health. Further assessment of the PAH concentrations are given in Section 9.3.2.

No other elevated concentrations of contaminants were recorded at levels which are considered to present a risk to Human Health of current or future site users for the proposed end use, or construction workers.

9.3.1 Arsenic

Nineteen soil samples were selected for arsenic testing – 12no samples of the cohesive Made Ground, 5no of the granular Made Ground and 2no samples from the topsoil/subsoil stockpile.

No elevated concentrations were recorded in the material from the stockpile or the cohesive Made Ground. This material is therefore considered suitable for reuse in the proposed development.

One of the five samples of the granular Made Ground recorded a concentration of 39mg/kg. This concentration is slightly above the GAC for residential properties with private gardens (37mg/kg), but below the GAC for shared residential gardens (79mg/kg).

The proposed development is the construction of new bungalows, apartments, car parking. The bungalows will have private gardens and the apartments will have a shared communal garden / green space.

The future hardstanding (will act as barrier, minimising the risk of future users being exposed to the arsenic. Therefore, no remedial works are required where hardstanding is present.

In addition, the risk to future users therefore is only present where private gardens which could have vegetables grown are present. No risk has been identified for communal gardens / public open space.

The elevated sample was from WS3 which is located within the footprint of the apartment block. The arsenic concentration is not a risk for future site users in this area of the site. Therefore, no remedial works are required for the for communal gardens / public open space around the apartment block.

Three soils samples were tested from the area where the bungalows and private gardens are proposed. No elevated arsenic was identified. No remediation is therefore required for the area where private gardens are proposed.

During the development, it is envisaged that site clearance and earthworks will be required to be undertaken. Workers involved in such activities would be at increased risk of exposure. It is envisaged that risks to workers involved in the development of the site can be satisfactorily managed by the implementation of an appropriate health and safety regime in accordance with guidance set out by the Health and Safety Executive.

9.3.2 PAH

Benzo(a)pyrene (BaP), Benzo(b)fluoranthene (BbF) and Dibenzo(a,h)anthracene (DahA) elevated concentrations were recorded in up to two samples.

The laboratory soil data has been compared to relevant and applicable critical concentrations as outlined in the guidance. These criteria can be either Generic Assessment Criteria (GAC) or Site Specific Assessment Criteria (SSAC). For the purpose of this detailed quantitative risk assessment the following hierarchy will be used

- Category 4 Screening Levels (C4SLs)
- LQM/CIEH 'Suitable 4 Use Levels' (S4ULs).

The C4SLs utilise B(a)P as a surrogate marker to assess the risks posed by the PAH. However, this can only be undertaken if the PAH profile falls within known limits. For B(a)P to be used as a surrogate marker it must follow the profile described by the Public Health England document "*Contaminated land information sheet: risk assessment approaches for polycyclic aromatic hydrocarbons (PAHs)*" published in 2017.

Based on this assumption, HBS undertook an assessment of the data for the site with regards to using B(a)P as a surrogate marker for carcinogenic PAH as detailed in HPA guidelines. The primary toxicological study related to Culp et.al, which was based on coal tar mixtures (>80,000mg/kg of total PAHs) fed in food to mice over a two-year carcinogenicity study.

The results from the Made Ground are shown in Figure 6.

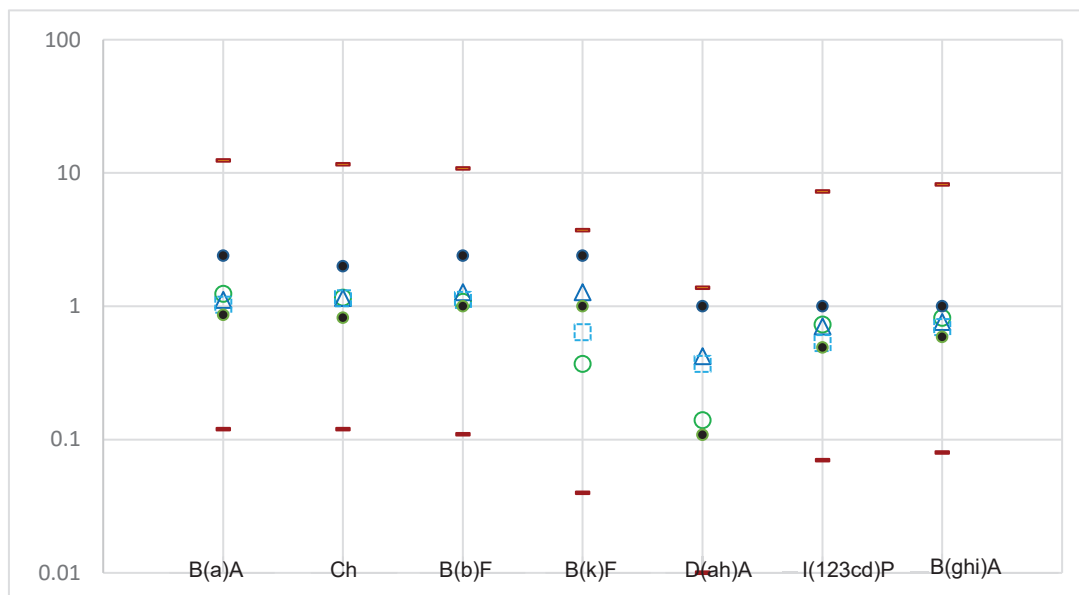


Figure 6 The ratio of PAH to B(a)P in soil for Made Ground.

All the data points that could be used to calculate ratios fall inside the upper or lower limits. Based on this distribution of data it is considered that B(a)P can be used as a surrogate marker for carcinogenic PAHs and the C4SL criteria is suitable for all of the above datasets.

The site is being proposed for the construction of bungalows with private gardens and an apartment building with communal gardens / public open space. Therefore, two scenarios are appropriate and two C4SL for Benzo(a)pyrene.

- Scenario 1 – Bungalows – Residential with uptake - C4SL of 5mg/kg
- Scenario 2 – Apartments – Residential without uptake - C4SL of 10mg/kg

The assessment confirmed that none of the samples were above the Scenario 1 GAC. Therefore, the material is considered suitable for reuse in the proposed development with respect to PAH and no remedial works will be required.

9.4 Controlled Waters

A typical GQRA for controlled waters comprises:

- Comparison of detected concentrations in soil leachate with GAC to assess the potential risk posed to the groundwater receptor. The GAC selected for groundwater are the UK Drinking Water Quality Standards (DWS); and
- Comparison of detected concentrations in soil leachate with GAC to assess the potential risk posed to the surface water receptors. The GAC selected for surface water are the Environmental Quality Standards (EQS). HBS considers that one pathway to surface water receptors is migration within groundwater. Therefore, if the contaminant is below the GAC in groundwater, it is unlikely to be above the GAC at the surface water receptor into which the groundwater may discharge, unless other factors are operating.

For groundwater, if no DWS are available, then EQS have been used as GAC. For surface water, if no EQS are available, then DWS have been used as GAC. World Health Organisation (WHO) guidelines have been used as GAC if neither DWS nor EQS are available.

9.4.1 Leachate Analysis

As the works identified Made Ground at the site, leachate testing of four sample of soil was undertaken for a suite of metals, speciated PAH and speciated TPH.

Comparison of the leachate chemical test data with the selected generic screening criteria was undertaken and only one exceedance was recorded.

Leachate analysis has indicated that the in-situ soils are unlikely to act as a diffuse source of groundwater contamination.

Comparison of the leachate chemical test data with the selected generic screening criteria was undertaken and exceedances are summarised in Table 8 below.

Table 8 Summary of Compounds of Concern Exceeding GAC in Leachate

Determinant	GAC	Source	Concentration
Lead	10	DWS	14 mg/l in WS7 at 0.1m bgl

The majority of the determinants, in the eluate generated from the soil sample subjected to leachate testing, were recorded below the limit of detection and the appropriate GAC with the exception of lead.

Leachate analysis has indicated that soils present have the potential to generate leachate containing concentrations of lead determinants in excess of the UK DWS.

The DWS are designed to be protective of potable water, however the strata underlying the site is considered to be non-productive and there are no source protection zones within 500m and no potable groundwater abstractions within 2km of the site.

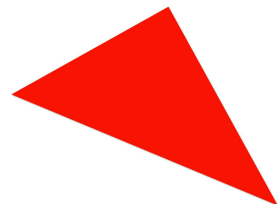
It should also be recognised that leachate testing is an aggressive process, consequently the results are likely to provide a conservative estimate of the source potential of the soils present.

Consequently, based on the information available the ground conditions present at the site are unlikely to pose a significant risk to controlled waters.

9.5 Water Pipelines

The current guidance on selection of materials for water supply pipes to be laid in contaminated land is contained in UKWIR Report 10/WM/03/02 (re-issued 2010) which sets out in Table 3.1 of that document threshold values for a selection of organic contaminants that may have a detrimental effect on pipes and fittings. However, the document is for guidance and is not mandatory and has not been adopted universally by all water suppliers.

The site is brownfield and there is a presumption in the guidance that barrier pipe will be required. The investigation and assessment has indicated slightly elevated concentrations of TPH and PAH contaminants within the Made Ground which may have the potential to attack plastics and as such standard pipework may not be suitable for the site. Confirmation should be sought from the water supply company at the earliest opportunity as to their specific requirements.



APPENDIX 4

GAS MONITORING RESULTS



GAS MONITORING RESULTS

13947 - Fletcher Fold Road, Bury

July to September 2024

Date	Water Level (BGL)	BH	CH4%	CO2%	O2%	Pressure	Flow l/h	Weather / Temp
12/07/24		2	0.0	11.7	11.2	1011	0.9	14deg Overcast
26/07/24		2	0.0	14.2	9.3	1002	0.5	16deg Overcast
09/08/24		2	0.0	15.6	10.2	1006	0.6	17deg Rain
23/08/24		2	0.0	16.8	13.2	995	0.6	16deg Windy
06/09/24		2	0.0	16.5	11.1	1020	0.7	11deg Sunny
23/09/24		2	0.0	15.5	10.3	997	0.6	13deg Showers

Date	Water Level (BGL)	BH	CH4%	CO2%	O2%	Pressure	Flow l/h	Weather / Temp
12/07/24		3	0.2	0.0	2.8	1011	0.3	14deg Overcast
26/07/24		3	0.5	0.0	0.9	1002	0.1	16deg Overcast
09/08/24		3	0.2	0.0	0.8	1006	0.2	17deg Rain
23/08/24		3	0.2	0.0	8.5	996	0.6	16deg Windy
06/09/24		3	0.1	0.0	0.5	1020	0.1	11deg Sunny
23/09/24		3	0.2	0.0	0.3	998	2.8	13deg Showers

Date	Water Level (BGL)	BH	CH4%	CO2%	O2%	Pressure	Flow l/h	Weather / Temp
12/07/24		6	0.0	17.1	5.4	1012	0.5	14deg Overcast
26/07/24		6	0.0	7.6	15.0	1003	0.5	16deg Overcast
09/08/24		6	0.0	7.0	15.1	1007	0.5	17deg Rain
23/08/24		6	0.0	3.7	17.1	996	0.5	16deg Windy
06/09/24		6	0.0	21.7	7.6	1020	0.6	11deg Sunny
23/09/24		6	0.0	10.2	14.6	998	0.6	13deg Showers

Summary of gas monitoring					
Methane			Carbon dioxide		
Typical maximum concentration (%v/v)	Flow (l/h)	Gas screening value	Typical maximum concentration (%v/v)	Flow (l/h)	Gas screening value
0.5	2.8	0.014	21.7	2.8	0.61