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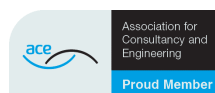
Remedial Strategy Report

For: Great Places Housing Group Limited

great
places
HOUSING GROUP

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1.0 INTRODUCTION

This Remedial Strategy Report has been prepared at the request of Great Places Housing Group Limited. Instructions to proceed with this report were received in March 2026. This report primarily follows the findings and recommendations of the IGE Consulting Phase 2 Geo-Environmental Investigation Report (Ref. 3931-02, Rev C, March 2026).

This report pertains to a c. 0.33 Ha site located to the north of Drake Street, Rochdale, c. 0.5km south of Rochdale Town centre, at the approximate postcode OL16 1PJ. The National Ordnance Survey Grid Reference for the centre of the site is 389439E, 412859N.

The site currently comprises an overgrown plot of vacant land, with evidence of fly tipping across the site. The site is currently disused, however there is evidence of historical development across the site including mounds of bricks, demolition rubble underfoot and hardstanding in the western site section. The site is bound by Broadfield Stile to the east and Drake Street to the south, with residential properties beyond and Broadfield Park to the north. Garages are present at the western site boundary with residential properties and the A58 beyond. Access to the site is off Broadfield Stile along the eastern boundary. An aerial photo of the site is included below:



Figure 1: Aerial image of the site dated May 2019.

1.1 Scope

This Remedial Strategy Report has been undertaken to determine the remedial requirements of the site based upon the site investigation works. It is the client's intention to develop the site into a low-rise residential development comprising 26 No. dwellings consisting of 4 No. terraced dwellings and an apartment block with associated private gardens, soft landscaping and car parking.

A proposed development plan is contained in Appendix 2 with an extract below:



Figure 2: Extract of the proposed development plan (dated December 2025)

1.2 Brief

This report has been undertaken following the findings and recommendations of the IGE Consulting *Phase 2 Geo-Environmental Investigation*. Based on the ground investigation findings, this report will outline the remedial strategy with regard to human health, controlled waters and ground gas risk on site.

The limitations of the report are contained in Appendix 1.

1.3 Summary of Phase 2 Geo-Environmental Investigation Findings

IGE have undertaken an intrusive investigation of the site in August 2024, comprising 10 No. dynamic sample boreholes to depths of 5.45m bgl (138.06m – 139.30m AOD).

1.3.1 Ground Conditions:

The typical ground conditions encountered across the site are as follows:

- **Made Ground** comprising greyish brown, gravelly to very gravelly, slightly clayey to clayey, fine to coarse SAND to a depth of between 0.70m and 1.60m bgl (144.05 to 142.06m AOD), underlain by:
- **Glaciofluvial Deposits** comprising medium dense to dense, light brown and orangish brown, slightly gravelly to gravelly, slightly clayey, fine to coarse SAND with very thin to thick bands of soft to firm, brown mottled orange slightly gravelly, silty CLAY and soft, brown, slightly gravelly, slightly sandy SILT to a depth of at least 5.45m bgl (139.30m to 138.06m AOD)

1.3.2 Chemical Testing

13 No. samples from across site were submitted for environmental analysis. The following exceedances were recorded within the Made Ground:

Polycyclic aromatic hydrocarbons (PAH)				
Determinand	Location	Depth	Result (mg/kg)	GAC (mg/kg)
Naphthalene	DS06	1.00	2.40	2.30
Phenanthrene	DS05	0.50	100	95
Benzo(a)anthracene	DS01	0.20	16	7.20
	DS05	0.50	79	
	DS07	0.30	42	
Chrysene	DS01	0.20	16	15
	DS05	0.50	85	
	DS07	0.30	41	
Benzo(b)fluoranthene	DS01	0.20	21	2.6
	DS05	0.50	90	
	DS06	1.00	4.9	
	DS07	0.30	44	

	DS07	0.70	7.1	
Benzo(a)pyrene	DS01	0.20	18	2.20
	DS05	0.50	72	
	DS05	0.80	2.3	
	DS06	1.00	4.6	
	DS07	0.30	39	
	DS07	0.70	6.1	
Indeno(1,2,3-cd)pyrene	DS05	0.50	30	27
Dibenz(a,h)anthracene	DS01	0.20	1.7	0.24
	DS05	0.50	8.4	
	DS05	0.80	0.26	
	DS06	1.00	0.57	
	DS07	0.30	5.7	
	DS07	0.70	0.66	

Metals and metalloids				
Determinand	Location	Depth	Result (mg/kg)	GAC (mg/kg)
Lead	DS01	0.20	680	200
	DS03	0.60	1100	
	DS05	0.50	600	
	DS06	1.00	2100	
	DS07	0.30	330	
	DS10	0.15	210	

1.3.3 Asbestos

Asbestos in the form of chrysotile loose fibres at trace concentrations (<0.001%) was recorded in the Made Ground in DS07 at 0.30m bgl. Consequently, the Made Ground on site is considered unsuitable for reuse within 600mm bgl of the proposed rear gardens and 450mm of the proposed soft landscaping.

Based on the findings of the chemical laboratory the chemical laboratory test results, a risk assessment has been using the *JIWG Decision Support Tool for the Categorisation of Work Activities Involving Asbestos in Soil or Construction & Demolition Materials in accordance with CAR 2012* (FINAL Version 2.1, March

2017). The below risk assessment for the made ground has been undertaken based on the worst-case scenario; identified <0.001% chrysotile loose fibres.

Stage 1 Hazard Factors		Score
Select ACM type (run model for each type to generate 'Worst Case' output)	Free dispersed fibres/fibre bundles	2
Extent of degradation of ACMs at outset of work	Disaggregated (dominated by loose fibrous material; extreme degradation in ACM and/or free asbestos fibres/fibre bundles)	4
Friability and degree of bonding by matrix (ACM matrix, not ground materials)	Friable ACM or ACM with fibres not linked in any matrix (free dispersed fibres/fibre bundles)	4
Distribution of Visible Asbestos Across Affected Area	No visible ACMs/fibre bundles	0
Amount of asbestos fibre in selected ACM/fibre type as % of host material	Trace quantities - <0.0001 to 0.001 %wt/wt	0
Sub-total		0
Note: the asbestos licensing regime is unaffected by the type of asbestos fibre present in ACMs		
Hazard ranking		Negligible

Stage 2 Exposure Factors		Score
Anticipated airborne fibre concentration - Control Limit or SALI?	<0.001 fibres/ml	0
Anticipated duration of exposure to asbestos	> 2 hours in a 7 day period and Up to 10 hours in a day (e.g. full time occupational exposure)	4
Activity type and effect on deterioration of ACMs during work	Not low intensity, significant deterioration expected	4
Best description of primary host material matrix (soil/made ground)	Made Ground - Recycled Aggregate, Track Ballast	4
Respirable fibre index for ACM - RIVM report 711701034 (2003)	High	4
Sub-total		16
Exposure ranking		High
Combined hazard and exposure ranking		16 Low

Stage 3 Risk Assessment Outputs	
Probable Licensing Status	CAR do not apply
RPE*	None
Dust Suppression**	None
Hygiene/Decontamination***	None
*Where RPE has to be worn continuously for long periods (e.g. more than 1-hour), then powered RPE may be necessary. **Reduction in control measures possible if natural mitigation factors are present (e.g. raining, wet ground) ***Guide only; suitability of selected personal hygiene measures may be reviewed on a site/contamination-specific basis	

A copy of this JIWG asbestos risk assessment is contained in Appendix 3. The risk assessments were undertaken separately, however, resulted in the same conclusion. The JIWG risk assessment, concludes that the widespread and reservoir made ground and the stockpile material is suitable for re-use in the proposed development outside of private gardens are areas of soft landscaping (i.e. beneath hardstanding or beneath a cover system).

According to the above risk assessment, **control of asbestos regulations (CAR) do not apply to the re-use of the Made Ground** and no dust suppression or decontamination is required. However, care should be taken during earthworks as possible asbestos containing material (ACM) may be present within the Made Ground.

As a result of the ground investigation works, remedial measures are required for all private gardens and areas of soft landscaping to break contaminative linkages.

The risk of volatile / VOCs is regarded as negligible due to the lack of evidence for the potential sources of VOCs on site, consequently contaminative pathways for vapours are not considered.

1.3.4 Ground Gas Monitoring

3 No. ground gas monitoring wells were also installed and subsequently 6 No. ground gas monitoring visits undertaken. The results have been summarised below:

Gas Monitoring Well	Steady O ₂ Concentration (%)	Peak CO ₂ Concentration (%)	Peak CH ₄ Concentration (%)	Peak H ₂ S Concentration (ppm)	Atmospheric Pressure (mbar)	Steady Gas Flow (l/hr)
DS01	2.9 – 18.9	0.3 – 11.3	<0.1	<1.0	974 - 1010	<0.1
DS04	15.1 – 20.0	<0.1 – 4.5	<0.1	<1.0	973 - 1010	<0.1
DS05	16.0 – 18.6	3.2 – 4.5	<0.1	<1.0	972 - 1010	<0.1

Ground gas monitoring was undertaken utilising a GFM 4300 gas analyser. The blue cells indicate a flooded response zone.

It should be noted that the response zone of DS01 was mostly to completely flooded during all ground gas monitoring visits therefore the data is deemed unreliable and are not included in the following assessment.

Based on the conceptual site model and the ground gas monitoring results, the site falls in-line with Characteristic Situation 1. Therefore, no ground gas protection measures are deemed necessary.

1.3.5 Radon

A site-specific radon map is included in the Groundsure Enviro + Geo Insight report within the IGE *Phase 1 Geo-Environmental Report* (Ref: 3931-01, dated September 2024) which finds that the site lies within an area where less than 1% of homes are above the Action Level and consequently, no radon protection measures are required.

1.3.6 Floor Slabs

Based on existing site levels, it is envisaged that in line with NHBC Guidance, suspended floor slabs will be required due to the presence of greater than 600mm of Made Ground. It is the client's intention to utilise beam and block suspended floor slabs which is in-line with the guidance.

1.3.7 Foundations

Based on existing site levels, the shallow Glaciofluvial Deposits are considered a suitable founding stratum for the proposed low-rise development.

Plots 1 – 4

For the low-rise houses (plots 1 – 4) mass fill trench foundations are deemed suitable at depths of between 1.40m and 1.80m bgl. Assuming a traditional mass fill trench foundation of 600mm width lain at least 200mm into the suitable founding strata, a minimum allowable net bearing pressure of 125kN/m² (125kN load) with differential settlement less than 25mm should be readily achievable, achieving the required direct load of 60kN/m and live load of 40kN/m as specified by the structural engineers.

Apartment Block

For the apartment block mass fill trench foundations are deemed suitable at depth of 2.00m bgl. Very loose deposits (N-value of 1) have been recorded between 0.70m and 2.00m bgl in DS08 therefore it is considered prudent to extend the foundations to 2.00m bgl into medium dense deposits.

Assuming a traditional mass fill trench foundation of 600mm width lain at least 200mm into the suitable founding strata, a minimum allowable net bearing pressure of 125kN/m² (125kN load) with differential settlement less than 25mm should be readily achievable, achieving the required direct load of 110kN/m and live load of 50kN/m as specified by the structural engineers.

Due to the presence of loose deposits as well as thin bands of soft clay and silt, it is recommended that all foundations (plots and apartment block) are reinforced.

Alternatively, the use of piled foundations or ground improvement via vibratory stone columns are also deemed suitable. Based on the required theoretical trench depths, it is the clients preferred option to utilise vibratory stone columns for the apartment block and the plots 1 – 4 which is deemed a suitable approach based on consultation with a specialist contractor. The specialist contractors have stated that VSC treatment will provide the necessary uniformity to achieve the minimum bearing capacity of up to 150kN/m².

It is recommended that any localised 'soft spot' areas encountered during excavation works should be removed and foundations extended down to suitable formation strata. To minimise issues with potential differential settlement of the foundation structure, it is recommended that foundations are not constructed upon more than one stratum type, as delineated within the exploratory hole logs. Where silt or clay bands are encountered, the foundation should be extended to beneath the band.

Heave precaution and foundation deepening will not be required given the primarily granular nature of the shallow deposits on site. It is recommended that a detailed foundation zoning plan is undertaken once finalised proposed levels and loadings are confirmed.

1.3.8 Remedial Measures

The following remedial measures are based on the findings of the aforementioned Phase 2 Geo-Environmental Investigation and have been split into enabling works (i.e. remedial works undertaken during initial earthworks and site preparation) and build phase aspects.

2.0 ENABLING WORKS

2.1 Enabling Works

Enabling works will be required prior to development to physically prepare the site for the development, the proposed levels and earthworks strategy is unknown at this stage, however, enabling works will likely include the following:

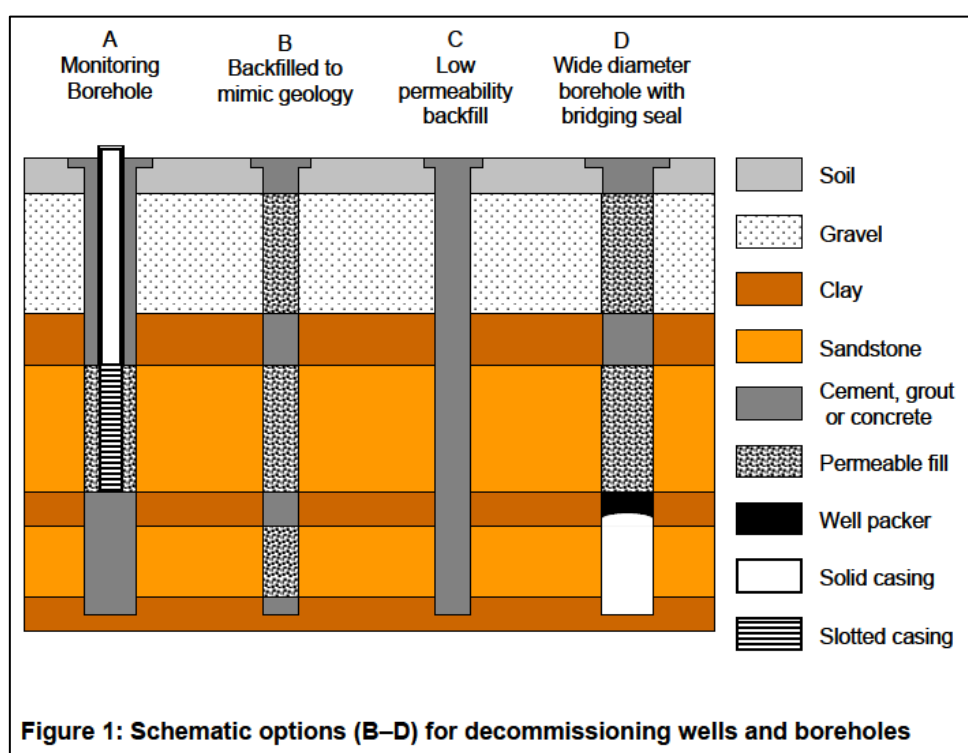
- Clearance of any fly tipping and stockpiling of surface materials;
- Stripping of vegetation;
- Decommissioning of existing ground gas and groundwater monitoring wells (further detailed in Section 2.2 below)
- Removal of significant organic material / deleterious materials (trees / branches) within the made ground
- Site turnover including removal of any remaining subterranean obstructions, as well as excavation, segregation, screening and sorting of material type (i.e. Made Ground and natural soils) as deemed necessary;
 - to at least 2m below any proposed foundation and within a 2.0m plot envelope
 - to 500mm below bedding level of any drainage feature and 1000mm finished garden and external levels.
- Geotechnical testing of any placed material to be undertaken inclusive of proving compaction / air voids.
- Backfilling of service runs with clean stone or proven (with chemical testing) inert fill materials

2.1.1 Earthworks Design

Any earthworks undertaken will need to be undertaken in a control fashion in line with NHBC Chapter 4.6 and Series 600. It is recommended that a separate detailed earthworks design is undertaken once finalised levels are known.

2.2 Decommissioning of Boreholes

It is imperative that all boreholes drilled into the site are located and appropriately grouted to negate any possible preferential ground gas pathways. Utilising guidance provided in the Environment Agency's '*Good practice for decommissioning redundant boreholes and wells*' (October 2012), it is prudent to secure redundant borehole to ensure that no groundwater pollution can occur. The Environment Agency (EA) offer advice on the methods of sealing wells to ensure that the preferential pathway is removed. The following diagram taken from the EA guidance shows a monitoring well (A) and 3 No. options for decommissioning (B, C and D):



It is considered prudent to utilise Option C – low permeability backfill, shown in the diagram above, to adequately seal the borehole. The guidance recommends that ‘the backfill materials must be clean, inert and non-polluting’, e.g. bentonite. It is recommended to remove the standpipe and seal with bentonite to ground level. This will be sufficient to prevent contaminant transport.

2.3 Definition of Waste: Code of Practice

Due to the recommended handling and re-use of excavated site-won materials, it is possible to avoid complex waste legislation by utilising the Definition of Waste: Code of Practice (2011, DoW:CoP). This allows assessment of whether or not

excavated materials are waste, and when excavated and treated waste can be classified as 'no longer waste'.

It is recommended that in line with DoW:CoP, a robust, site-specific material management plan (MMP) may need to be emplaced and adhered to and verified in an appropriate verification report. This must be reviewed by a 'Qualified Person' who must provide a Declaration to the EA prior to works within the MMP being commenced.

2.4 **Materials Management**

2.4.1 Export of Materials

Any soils to be removed from site must be classified in accordance with WM3 under the definition of waste and chemically tested to determine their destination, i.e. reuse or landfill. Waste ticket records must also be retained as proof of the export of materials from site.

2.4.2 Stockpile Management

During the course of the development there will be areas of stockpiled soils intended for use within the soft landscaping area. These will have been subjected to off-site testing and approved for use on site.

It is imperative that the stockpiles are well managed to avoid inadvertent mixing or depositing of surplus or deleterious materials that would compromise the continued use. We would recommend that the site management reviews the proposed positions for placement of stockpiles and places either fencing or warning signs to ensure compliance.

2.4.3 General Fill Testing Criteria

The following targets for 'general fill' are proposed to address any material imported onto the site to achieve proposed levels. Proposed levels are currently unknown, however, if import of general fill is required the below strategy should be followed.

The below testing excludes any geotechnical testing. Geotechnical testing should be undertaken in line with a separate detailed earthworks specification.

The following validity samples must be taken during the enabling works phase :

Soil	Testing Frequency	Testing Suite	Acceptability Criteria
Site-won aggregate	1 per 1000m ³ of crush	A	Asbestos <0.01%. Where Placed within -1.0m of finished level, <0.001%
Imported aggregate	1 per 500m ³	A	Asbestos <0.01%. Where Placed within -1.0m of finished level, <0.001%
Imported General Fill	1 per 1000m ³	As below Acceptability Criteria for General Fill plus TOC (fines) ⁶	Above Acceptability Criteria for General Fill TOC <2% if gas risk is CS1 or TOC <4% if gas risk is CS2 ⁶ – see below.
Sides and base of excavated and removed hotspots (if applicable)	1 sample every 10m ² from sides and base of excavation, min 1 every face	As below Acceptability Criteria for General Fill plus contaminants of concern based on hotspot removed	Above Acceptability Criteria for General Fill
Stockpiles post processing (to determine whether they can be re-placed or the need for removal)	1 per 50m ³	As below Acceptability Criteria for General Fill plus contaminants of concern based on hotspot removed	Above Acceptability Criteria for General Fill
Validation of completed 'cells'	1 sample per 25m x 25m grid cell	As below Acceptability Criteria for General Fill	Above Acceptability Criteria for General Fill

- 1) 'General Fill' is material used primarily to raise levels, specifically not within areas of private gardens, public open space, or soft landscaping, e.g. 6F2.
- 2) Imported aggregate should also contain <1% deleterious anthropogenic materials (by eye).
- 3) TOC (fines) method given in RB17.

Testing Suites:

- A. Asbestos ID, Asbestos quantification.
- B. pH, total and free cyanide, soluble sulfate, organic matter.
- C. Arsenic, Beryllium, Boron, Cadmium, Chromium (III and VI) Copper, Lead, Inorganic Mercury, Nickel, Selenium, Vanadium, Zinc.
- D. Speciated PAHs: Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(ghi)perylene.
- E. Total (non-speciated) PAHs.
- F. Speciated Total Petroleum Hydrocarbons (TPH): Aliphatic >EC5 - EC6, >EC6 - EC8, >EC8 - EC10, >EC10 - EC12, >EC12 - EC16, >EC16 - EC21, >EC21 - EC35, and > EC35 - EC44, and Aromatic >EC5 - EC7, >EC7 - EC8, >EC8 - EC10, >EC10 - EC12, >EC12 - EC16, >EC16 - EC21, >EC21 - EC35, > EC35 - EC44.
- G. Total Petroleum Hydrocarbons (TPH): TPH EC6 – EC40.
- H. BTEX: Benzene, Toluene, Ethylbenzene, p- & m-xylene, o-xylene. Methyl tertiary butyl ether (MTBE).

The following validation criteria are proposed which will act as conservative screening guidelines for soil testing. These are based, where applicable, on residential without plant uptake soil acceptance criteria.

Determinant (mg/kg unless stated)	Acceptability Criteria for General Fill (mg/kg unless stated)
Asbestos (%)	<0.001% ⁽¹⁾
pH	>5 - <10 pH
Total Cyanide	60 ⁽²⁾
Free Cyanide	60 ⁽²⁾
Acenaphthene	3000
Acenaphthylene	2900
Anthracene	31000
Benzo(a)anthracene	11.00
Benzo(a)pyrene	3.20
Benzo(b)fluoranthene	3.90
Benzo(ghi)perylene	360
Benzo(k)fluoranthene	110
Chrysene	30
Dibenz(a,h)anthracene	0.31
Fluoranthene	1500
Fluorene	2800
Indeno(1,2,3-cd)pyrene	45
Naphthalene	2.30
Phenanthrene	1300
Pyrene	3700
TPH-CWG - Aliphatic >EC5 - EC6	42
TPH-CWG - Aliphatic >EC6 - EC8	100
TPH-CWG - Aliphatic >EC8 - EC10	27
TPH-CWG - Aliphatic >EC10 - EC12	130
TPH-CWG - Aliphatic >EC12 - EC16	1100
TPH-CWG - Aliphatic >EC16 - EC21	-
TPH-CWG - Aliphatic >EC21 - EC35	65000
TPH-CWG - Aliphatic >EC35 - EC44	65000
TPH-CWG - Aromatic >EC5 - EC7	370
TPH-CWG - Aromatic >EC7 - EC8	860
TPH-CWG - Aromatic >EC8 - EC10	47
TPH-CWG - Aromatic >EC10 - EC12	250
TPH-CWG - Aromatic >EC12 - EC16	1800
TPH-CWG - Aromatic >EC16 - EC21	1900
TPH-CWG - Aromatic >EC21 - EC35	1900
TPH-CWG - Aromatic >EC35 - EC44	1900
Arsenic	40
Barium	1300
Beryllium	1.70
Boron (water soluble)	11000
Cadmium	85
Chromium	910
Copper	7100
Lead	310
Mercury	56
Nickel	180
Selenium	430
Vanadium	1200
Zinc	40000

⁽¹⁾ Although no asbestos will be present within the imported general fill in-line with the MMP which will specify import of naturally derived materials only, as asbestos is present in the wider environment an allowance has made for trace levels of asbestos. This has been determined based on the negligible risk and no additional mitigation measures required when re-using soil with trace levels of asbestos outside of private gardens and POS, in-line with CAR SOIL

⁽²⁾ In-house methodology used for acceptance criteria for cyanide.

If any 6F5 recycled material is imported for use in construction which will need to demonstrate compliance with the Waste Framework Directive and comply with the following:

- The aggregate will be produced under a WRAP/Factory Production Control as required by the European standards;
- It will conform to the requirements of the appropriate specification for the use for which it is destined (considered likely to be 6F5 produced in accordance with Table 6/1 of the Specification for Highways Works);
- It will not require further processing, including size reduction, prior to final use;
- It must contain less than 1% of cohesive materials, metals, wood, plastic, rubber and gypsum plaster, in line with the limits set within the aggregate's standards;
- It must contain asbestos at < 0.001%.

Following completion of the above enabling works, a verification report will need to be produced to demonstrate compliance with the MMP, earthwork specification and above general fill acceptability criteria.

3.0 REMEDIAL STRATEGY FOR HUMAN HEALTH

The proposed development is to include private gardens and areas of soft landscaping (POS_{resi}). The IGE Consulting Phase 2 Geo-Environmental Investigation report recommended a cover system in these areas to break any pathways between the existing site soils and the end user.

3.1 Installation of a Clean Cover System

The following plan details the proposed private rear gardens (blue) and POS soft landscaping (Public Open Space / POS_{resi}) (green). The below remedial recommendations will refer to the landscaping designations detailed in the below extract.



Figure 3: Extract of the Proposed Site Plan showing private gardens in blue and POS in green.

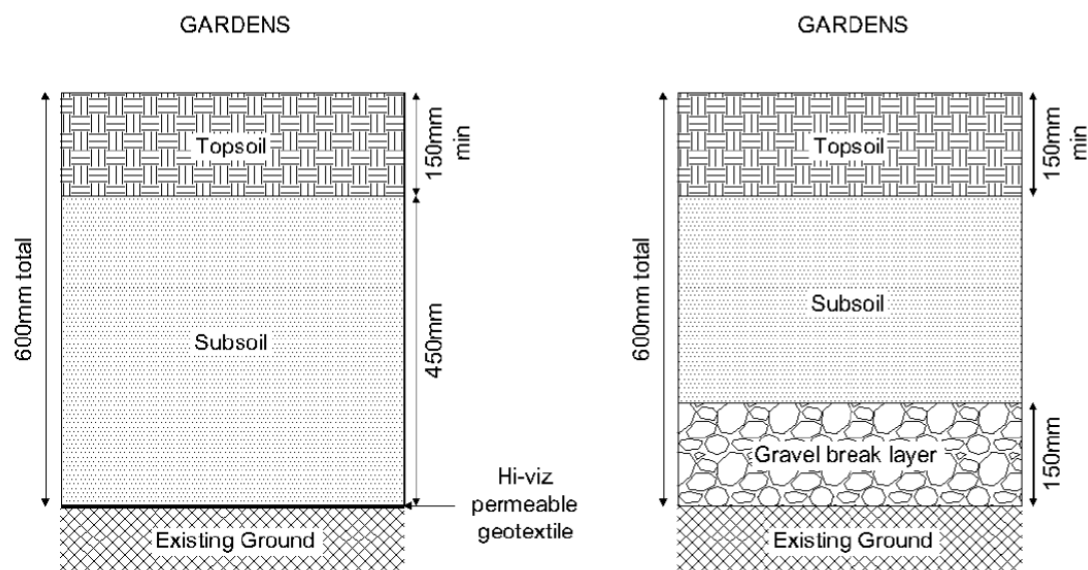
Made Ground is present below finalised garden levels at depths greater than 600mm (300mm in areas of soft landscaping) on site; the Made Ground containing

asbestos was recorded at 0.30m bgl. The cover system for the private rear is to be 600mm thick:

- A minimum of 150mm up to a maximum of 300mm suitable topsoil, underlain by:
- Suitable subsoil, to a total thickness of 600mm, underlain by:
- A hi viz permeable geotextile or a hard-to-dig gravel break layer.

Currently the proposed plan does not include any front gardens, however, if the proposed plan changes it is the client's preference to also install 600mm cover systems within the front gardens.

This is shown diagrammatically below:

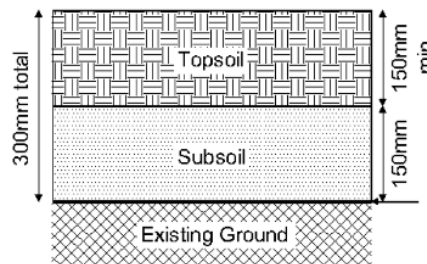


The Client's build methodology will comprise 150mm topsoil underlain by 450mm subsoil.

The cover system for the POS_{resi} is to be 300mm thick and consist of:

- A minimum of 150mm up to a maximum of 300mm suitable topsoil, underlain by:
- Suitable subsoil, if required, to a total thickness of 300mm.

This is shown diagrammatically below:



Soils for use in the above recommended cover system must be validated as detailed below to ensure their suitability for use.

3.2 Validation of Clean Cover System

The installation of the clean cover system must be verified. Once the clean cover system has been installed, validation requirements include:

- Details of the source of the cover material;
- Visual inspection to determine the absence of deleterious anthropogenic constituents;
- Waste transfer notes to provide evidence of source (of imported soils);
- Confirmation of cover depth by physical measurement with photographs at the following frequency:
 - Four pits within the POS_{resi} ('amenity space'); and
 - One pit per two plots across all private front and rear gardens.

No topsoil is present on site therefore all topsoil will need to be imported. Based on the initial chemical test results, the underlying natural subsoils are deemed suitable for re-use subject to further testing in-line with the below. Based on the site history, any site won subsoil will be classed as brownfield soil.

Imported topsoil and subsoil is required to be tested at source prior to import to confirm suitability. Detailed information will also be required regarding the source of any imported topsoil and subsoil (i.e. site history, whether the site is greenfield or brownfield). At source testing will be provided by the supplier or haulage broker or will be based on an appropriate ground investigation report (if the material is a byproduct of an existing ground investigation) and the testing will be re-assessed against the below acceptability criteria by IGE to determine suitability prior to import. If no testing is available testing will be undertaken in-line with the below criteria

All topsoil and subsoil, whether site-won or imported is required to be tested at the following frequency:

Source	Material End Use	Sampling Frequency ¹	Testing Suites ³ (see below)
Greenfield Source:	Topsoil	1 per 200m ³	A, B, C, D, F
	Subsoil	1 per 200m ³	A, B, C, D, F
Brownfield Source:	Topsoil	1 per 50m ³	A, B, C, D, F, H
	Subsoil	1 per 100m ³	A, B, C, D, F
	General Fill ²	1 per 1000m ³	A, B, C, E, G

- 4) Minimum 3 samples regardless of volume.
- 5) 'General Fill' is material used primarily to raise levels, specifically not within areas of private gardens, public open space, or soft landscaping, e.g. 6F2.
- 6) In addition to the standard suites given, the laboratory testing suite should include any additional contaminants of concern based on the source of the samples.

Testing Suites:

- I. Asbestos ID, Asbestos quantification.
- J. pH, total and free cyanide, soluble sulfate, organic matter.
- K. Arsenic, Beryllium, Boron, Cadmium, Chromium (III and VI) Copper, Lead, Inorganic Mercury, Nickel, Selenium, Vanadium, Zinc.
- L. Speciated PAHs: Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(ghi)perylene.
- M. Total (non-speciated) PAHs.
- N. Speciated Total Petroleum Hydrocarbons (TPH): Aliphatic >EC5 - EC6, >EC6 - EC8, >EC8 - EC10, >EC10 - EC12, >EC12 - EC16, >EC16 - EC21, >EC21 - EC35, and > EC35 - EC44, and Aromatic >EC5 - EC7, >EC7 - EC8, >EC8 - EC10, >EC10 - EC12, >EC12 - EC16, >EC16 - EC21, >EC21 - EC35, > EC35 - EC44.
- O. Total Petroleum Hydrocarbons (TPH): TPH EC6 – EC40.
- P. BTEX: Benzene, Toluene, Ethylbenzene, p- & m-xylene, o-xylene. Methyl tertiary butyl ether (MTBE).

Once tested, the results are to be compared against the following Acceptability Criteria:

Suite	Determinant (mg/kg unless stated)	Acceptability Criteria for:	
		Private Gardens	Public Open Space (residential)
A	Asbestos (%)	ND	ND
B	pH	>6 - <8 ⁽³⁾	>6 - <8 ⁽³⁾
	Total Cyanide	0.5 ⁽³⁾	0.5 ⁽³⁾
	Free Cyanide	0.5 ⁽³⁾	0.5 ⁽³⁾
	Soluble Sulfate (mg/l)	500 ⁽³⁾	500 ⁽³⁾
C	Arsenic	37	79
	Beryllium	1.7	2.2
	Boron	290	21000
	Cadmium	11	120
	Chromium (III)	910	1500
	Chromium (VI)	6	7.7
	Copper	2400	12000
	Lead	200 ⁽¹⁾	630 ⁽¹⁾
	Inorganic Mercury	40	120
	Nickel	130	230
	Selenium	250	1100
	Vanadium	410	2000
	Zinc	3700	81000

D	Naphthalene	2.3	4900
	Acenaphthylene	170	15000
	Acenaphthene	210	15000
	Fluorene	170	9900
	Phenanthrene	95	3100
	Anthracene	2400	74000
	Fluoranthene	280	3100
	Pyrene	620	7400
	Benzo(a)anthracene	7.2	29
	Chrysene	15	57
	Benzo(b)fluoranthene	2.6	7.1
	Benzo(k)fluoranthene	77	190
	Benzo(a)pyrene	2.2	5.7
	Indeno(1,2,3-cd)pyrene	27	82
	Dibenz(a,h)anthracene	0.24	0.57
	Benzo(ghi)perylene	320	640
E	Total PAHs		
F	TPH-CWG - Aliphatic >EC5 - EC6	42	570000
	TPH-CWG - Aliphatic >EC6 - EC8	100	600000
	TPH-CWG - Aliphatic >EC8 - EC10	27	13000
	TPH-CWG - Aliphatic >EC10 - EC12	130	13000
	TPH-CWG - Aliphatic >EC12 - EC16	1100	13000
	TPH-CWG - Aliphatic >EC16 - EC21	65000	250000
	TPH-CWG - Aliphatic >EC21 - EC35		
	TPH-CWG - Aliphatic > EC35 - EC44	65000	250000
	TPH-CWG - Aromatic >EC5 - EC7	70	56000
	TPH-CWG - Aromatic >EC7 - EC8	130	56000
	TPH-CWG - Aromatic >EC8 - EC10	34	5000
	TPH-CWG - Aromatic >EC10 - EC12	74	5000
	TPH-CWG - Aromatic >EC12 - EC16	140	5100
	TPH-CWG - Aromatic >EC16 - EC21	260	3800
	TPH-CWG - Aromatic >EC21 - EC35	1100	3800
	TPH-CWG - Aromatic > EC35 - EC44	1100	3800
G	TPH > EC6 - EC40		
H	Benzene	0.087	72
	Toluene	130	56000
	Ethylbenzene	47	24000
	p & m-xylene	56	41000
	o-xylene	60	41000
	MTBE (Methyl Tertiary Butyl Ether)	LOD ⁽³⁾	LOD ⁽³⁾

LQM/CIEH S4ULs for Human Health Risk Assessment (3rd edition, 2015) used unless stated:

- 1) Category 4 Screening Levels (March 2014)
- 2) CL:AIRE Soil GAC for Human Health Assessment (January 2010)
- 3) In-house screening criteria used as no GAC methodology currently exists
- 4) Hazardous waste thresholds. This limit only applies to imported material, not to in-situ soil.

Assumed 1% SOM (most conservative) for those values dependent upon SOM.

ND = Not Detected

LOD = Limit of Detection

*Exceeds vapour saturation limit

**Exceeds solubility saturation limit

The above acceptability criteria for PAHs for imported topsoil and subsoil are based on the published LQM/CIEH S4ULs (2015) for each individual PAH and not based on the Category 4 Screening Level using BaP as a surrogate marker. This is as the source of the imported material is unknown therefore using the surrogate marker approach may not be suitable as the distribution of PAHs in the imported material may not be similar to those in the Culp et al. (1998)¹ study. Once chemical testing had been undertaken on imported soil and the distribution of PAHs compared to the distribution in the Culp et al. (1998) study, it may be suitable to use the surrogate marker approach / C4SL.

Once complete, the information gathered should be compiled into a Validation Report for the site, detailing the completion of the remedial and verification measures.

Clean Cover System Verification Report

The verification report shall include, as a minimum, the following:

¹ Culp et al. (1998), A comparison of the tumors induced by coal tar and benzo[a]pyrene in a 2-year bioassay, Carcinogenesis, vol.19, no.1, pp.117-124.

- Site Name / location, developer name, development use
- Plot No / description of landscaped area (incl. plan of inspection areas) and National Grid Reference
- Inspection visit date
- Description of remediation (as per agreed Remediation Strategy including depths / thickness checks, topographical readings)
- Material tracking information (including way tickets etc.)
- Name of groundwork's remediation contractor
- Name of supervising environmental consultant
- Site Specific chemical analysis results
- Verification Photographs (inc. remarks)
- Pass/fail and if material fails, how will this be managed i.e. removed, treated
- Detail any further remedial works and/or inspection
- 'Signed off'

4.0 OTHER REMEDIAL REQUIREMENTS

4.1 Discovery Strategy

In the event of unexpected contamination being discovered, the Discovery Strategy must be followed – this is contained in Appendix 4.

4.2 Design Variation

Following any variation in a finalised proposed development layout and / or detailed design including earthworks design it is recommended that the above conclusions are re-appraised to determine their suitability.

APPENDIX 1

LIMITATIONS OF INVESTIGATION WORK AND REPORT

LIMITATIONS OF REPORT

This consultancy report was compiled and carried out by IGE Consulting Limited ('IGE') for the client, as defined in the main report (the 'client'), on the basis of a defined programme and scope of works and the terms of a contract between IGE and the client. IGE undertook this with all reasonable skill and care, taking into account the limits of the scope of works required by the client, the prevailing site conditions, the time scale involved and the resources, including financial and manpower resources, agreed between IGE and the client. IGE cannot accept responsibility to any parties whatsoever, following the issue of this report, for any matters arising which may be considered outwith the agreed scope of works.

Unless otherwise agreed this report has been prepared exclusively for the use and reliance of the client in accordance with generally accepted consulting practices. This report may not be relied upon, or transferred to, by any other party without the written agreement of its author. If a third party relies on this report, it does so wholly at its own and sole risk and IGE disclaims any liability to such parties.

It is IGE's understanding that this report is to be used for the purpose described in the 'Brief' section of this report. That purpose was a significant factor in determining the scope and the services to be provided. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of, or reliance upon the report in those circumstances by the client without IGE's review and advice shall be at the client's sole and own risk.

The information contained in this report is protected by disclosure under Part 3 of the Environmental Information Regulations 2004 pursuant to the provisions of Regulation 12(5) without the consent in writing of a Director of IGE.

This report is a function of the date it was written and should be read in light of any subsequent changes in legislation, statutory requirements and industry practices. Ground conditions can also change over time and further investigations or assessment should be made if there is any significant delay in acting on the findings of this report. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of IGE. In the absence of such written advice of IGE, reliance on the report in the future shall be at the client's own and sole risk. Should IGE be requested to review the report in the future, IGE shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between IGE and the client.

The observations and conclusions described in this report are based solely upon the scope of works agreed between the client and IGE. IGE has not performed any observations, investigations, studies or testing not specifically set out or mentioned within this report. IGE is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the agreed scope of works. For the avoidance of doubt, this report is strictly limited to the nature of contamination contained within the ground and groundwater at the site. The report does not cover environmental aspects such as air or noise pollution and ground vibrations and the like. In addition, ecological matters relating to wildlife, flora and fauna have not been investigated as part of this report. In particular, the site has not been inspected for the presence or otherwise of invasive species (e.g. Japanese Knotweed). It is recommended that the client appoints a specialist in this subject to carry out a detailed inspection / survey of the site if its presence is suspected. Where mention has been made to the suspected presence asbestos or asbestos-containing materials this is for indicative purposes only and does not constitute or replace full and proper surveys.

Throughout the report the term 'geotechnical' is used to describe aspects relating to the physical nature of the site (such as foundation requirements) and the term 'geo-environmental' is used to describe aspects relating to ground-related environmental issues (such as potential contamination). However, it should be appreciated that this is an integrated investigation and these two main aspects are inter-related. The geo-environmental sections are written in broad agreement with BS 10175:2026

LIMITATIONS OF INVESTIGATION WORK

Desk Study References

This report is based upon IGE's observations of existing physical conditions at the site gained from a walkover survey of the site together with IGE's interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. Reliance has been placed on this publicly available data obtained from the sources identified in the main report. When using the information, it has been assumed that it is correct. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst IGE have no reason to doubt the accuracy and that it has been provided in full from those it was requested from, the items relied on have not been verified. No responsibility can be accepted for errors within third party items presented in this report. IGE did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services. IGE is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to IGE and including the doing of any independent investigation of the information provided to IGE except when otherwise provided in the terms of the contract between the client and IGE.

Historical Mapping

Historical Ordnance Survey maps do not provide a comprehensive description of a site history. They provide details of the site from a date prior to the publication of the map (i.e. a snapshot in time). The period between map editions can be substantial (i.e. several decades). Not all map series are available for every date range in many areas of the UK and therefore there will be gaps in this mapped record for some sites. Potentially contaminative land uses could have been present and removed during such periods and may therefore not form a part of this particular record. In addition, there will be potentially contaminative land uses which are not identified on the map records such as small scale storage / use of hazardous materials, illegal / unlicensed waste disposal activities etc. Different map series identify different features utilising different symbols which can result in features that remain on-site being removed from maps. Some features are also not mapped for security reasons (e.g. airfields and other military installations). These areas are mostly shown as blank areas on historical maps.

Site Walkover

During the site walkover reasonable effort has been made to obtain an overview of the site conditions. However, during the site walkover no attempt has been made to enter areas of the site that are unsafe or present a risk to health and safety, are locked, barricaded, overgrown, or the location of the area has not been made known or accessible.

Flooding

Flooding in this report is defined as flooding caused by the sea, ditches, rivers, streams, ponds, lakes, reservoirs and the like. It does not extend to flooding caused by surcharged piped drainage systems and investigations into flooding of this nature are excluded from this report.

Extent of Contamination Studies

Site sensitivity assessments have been made based on available information at the time of writing and are ultimately for the decision of the regulatory authorities.

The conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the reporting in full. The conclusions resulting from this study are not necessarily indicative of future conditions or operating practices at or adjacent to the site.

Intrusive Investigation

Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions can also be variable and as investigation excavations only allow examination of the ground at discrete locations, the potential exists for ground conditions to be encountered which are different to those considered in this report. The explored extent of the site area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters, based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

The groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The normal speed of investigation usually does not permit the recording of an equilibrium water level for any one water strike. Moreover, groundwater levels are subject to seasonal variation or changes in local drainage conditions and higher groundwater levels may occur at other times of the year than were recorded during this investigation.

Exploratory Holes

Where exploratory holes have been carried out as part of this investigation, the spacing has been determined to provide a reasonable indication of the general ground conditions across the site, but the number has ultimately been limited by commercial constraints. The findings of the exploratory holes relate specifically to the exploratory hole locations and are no absolute guarantee of the ground conditions between such locations. Due allowance should be made for the possibility of variation in conditions between exploratory hole locations.

Extent of Contamination Testing

The extent of contaminated land testing carried out on samples obtained from the site has been determined in accordance with the latest legal guidance issued by the government to provide, with reasonable certainty, the probable general levels of contamination present on site that could pose a significant hazard to human health or waters. The extent of site investigation works including chemical testing has also been limited by reasonable commercial constraints. Although extensive testing of samples has been carried out, the volume of samples taken for testing are a minute fraction of the total volume of soils and groundwater present on site. Therefore, there is a residual risk that undetected pockets of contamination may be present on site, situated between testing locations.

When investigating or developing potentially contaminated land it is important to recognise that sub-surface conditions may vary spatially and temporally. The absence of certain ground, ground gas, contamination or groundwater conditions at the positions tested is not a guarantee that such conditions do not exist anywhere across the site. Site sensitivity assessments have been made based on available information at the time of writing and are ultimately for the decision of the regulatory authorities. The conclusions resulting from this study are not necessarily indicative of future conditions or operating practices at or adjacent to the site.

Extent of Geo-Environmental Studies

This report is strictly limited to the nature of contamination contained within the ground and groundwater at the site. The report does not cover environmental aspects such as air or noise pollution and ground vibrations and the like. In addition, ecological matters relating to wildlife, flora and fauna have not been investigated as part of this report. In particular, the site has not been inspected for the presence or otherwise of invasive species e.g. Japanese Knotweed. It is recommended that the Client appoints a specialist in this subject to carry out a detailed inspection / survey of the site if its presence is suspected. Where mention has been made to the identification asbestos or asbestos-containing materials this is for indicative purposes only and does not constitute or replace a full and proper survey. If an Unexploded Ordnance (UXO) report has been obtained within the report, it has been so on the basis of Health and Safety concerns and no assessment has been made other than transcribing the

recommendations of the sub-contractor contained within the report. In terms of a potential contaminative source, unless ordnance has been manufactured / stored on site, UXOs will only be determined as a contaminative source following a positive identification on site.

PLANNING CONTEXT

Planning Policy Wales (PPW) sets out the national land-use planning framework for Wales, emphasising the central role of the planning system in delivering **sustainable development** and improving environmental, social and economic well-being. PPW forms part of the Welsh Government's national planning policy and is supplemented by Technical Advice Notes and related guidance.

PPW highlights that **sustainable management of natural resources** and **placemaking** are key principles guiding planning decisions. This includes ensuring that development protects Wales' natural assets, minimises pollution, and supports a resilient, low-carbon environment. Audit Wales emphasises that sustainability is central to Welsh planning policy, particularly in relation to reducing environmental impacts and making best use of land.

Previously Developed Land and Effective Use of Land

PPW recognises the importance of making efficient use of land and encourages the redevelopment of **previously developed (brownfield) land**, where this is suitable for the intended use. This aligns with wider Welsh policy objectives to regenerate degraded or underused land and contribute positively to sustainable place-making. Audit Wales notes that making best use of brownfield land is a key aspect of sustainable development in Wales.

In this context, PPW supports opportunities to address issues such as **despoiled, degraded or contaminated land** through appropriate remediation and redevelopment where necessary to ensure sites are suitable for future use.

Natural Environment and Pollution Considerations

PPW requires that new development must not cause, or be exposed to, **unacceptable risks from pollution**—including soil, air, water, and noise pollution—or from **land instability**. While PPW does not reproduce the NPPF's wording, it similarly emphasises that planning authorities must consider the environmental risks arising from ground conditions and ensure proposals protect human health, biodiversity, controlled waters, and the wider environment. Natural Resources Wales (NRW) identifies land contamination as a potentially significant risk to human health, ecosystems, property and water quality, requiring proper assessment and management during planning.

Contaminated Land, Suitability for Use and Regulatory Requirements

In Wales, responsibilities relating to contaminated land arise through both the planning system and **Part 2A of the Environmental Protection Act 1990**, implemented via the Contaminated Land (Wales) Regulations. The Welsh Land Contamination Working Group notes that local authorities must identify and assess potentially contaminated land, ensuring it is appropriately remediated to protect public health and the environment.

Guidance such as *Development of Land Affected by Contamination: A Guide for Developers* (WLGA & Environment Agency Wales) provides good-practice expectations for risk assessment, remediation and verification to ensure land is suitable for its proposed use. This guidance outlines the need for competent professionals to undertake site investigations and prepare the technical information required to support planning decisions.

Competency and Site Investigation Requirements

Planning submissions must be supported by **adequate site investigation information** prepared by competent and appropriately qualified professionals. Welsh guidance emphasises that developers are responsible for identifying the presence, scale and significance of contamination and undertaking necessary remediation so that the land is suitable for the proposed end use. This report has been prepared and authorised by personnel who are competent in accordance with recognised Welsh land contamination guidance and good practice.

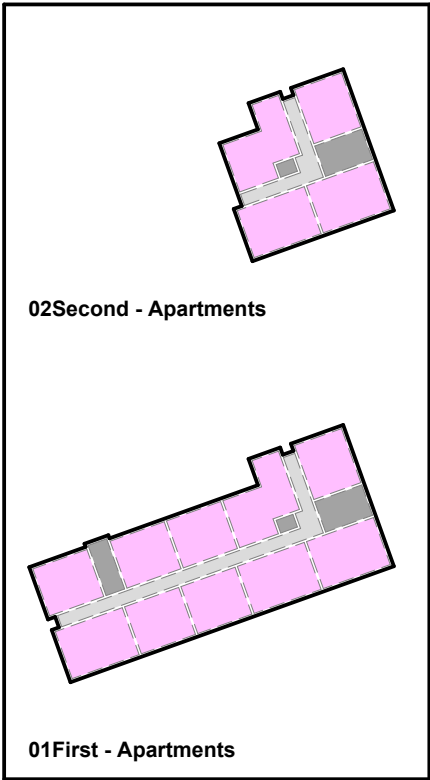
APPENDIX 2

FIGURES AND DRAWINGS



Notes: This drawing is the copyright Paddock Johnson Partnership Limited and may not be used without their prior written consent. Written dimensions to be taken in preference to scaled dimensions. Due to the inaccuracies of scanning, scanned images should not be scaled.

+ REV: DATE: DESCRIPTION: BY:



Apartment Areas	
Type	Area
Apartments	1,235 m²
Circulation	190 m²
Core	130 m²
Services	112 m²

Accommodation Schedule	
Type	No.
1B2P 50m2	12
2B3P 60m2	7
2B3P-C 66m2	3
4B7P 137m2	4
TOTAL	26

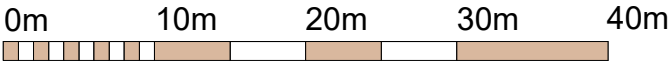
Legend_Feasibility_SOA

This drawing has been prepared at feasibility level for information only to assist consultants in their preparation of drawings and costings.

All information is produced at an indicative level, PJA do not take responsibility for quantities taken from this drawing.

GIA refers to gross internal room area- excluding party and external walls
GEA refers to gross external footprint of each level, including external and party walls.

Overall site areas are taken from OS plan information and are subject to change upon receipt of topographical survey data.



VISUAL SCALE 1:500 @ A3

00Ground

CLIENT:

Great Places Housing Group

PROJECT:

New Residential Development
Drake Street, Rochdale, OL16 1PJ

DRAWING TITLE:

Feasibility Layout - Option 6

DRAWING NUMBER:

19146-PJA-00-ZZ-DR-A-1002

SCALE: DATE:
As 15.07.24
indicated@A3

STATUS: BY: CHECKED:

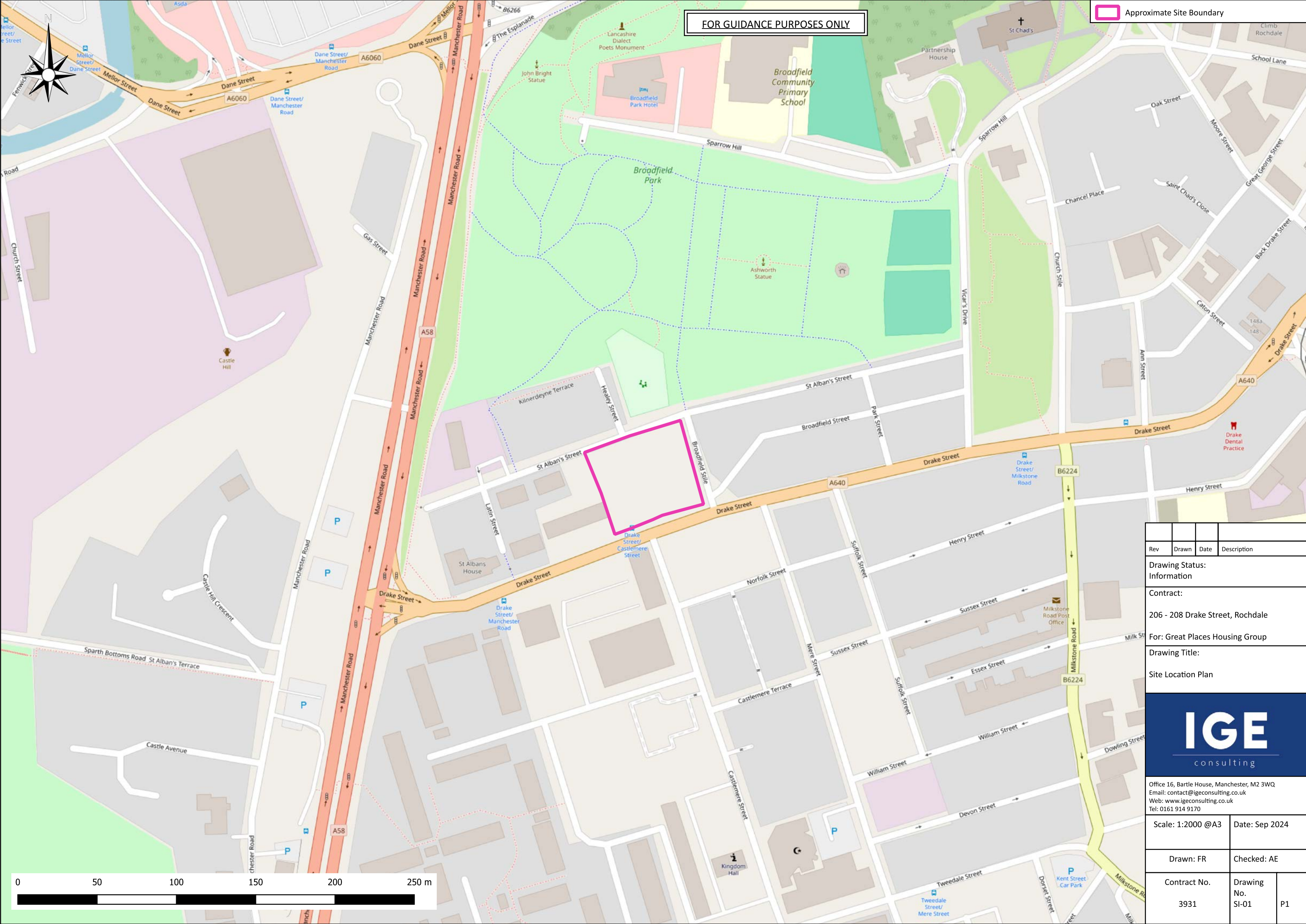
OM MK

FEASIBILITY

\\pjpgc01\Cubefiles\Generated Docs\1897\Drawings\PJA-00-ZZ-M3-A-9000\19146-PJA-00-ZZ-M3-A-9000.rvt

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Paddock Johnson Partnership
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FOR GUIDANCE PURPOSES ONLY

Approximate Site Boundary

Rev	Drawn	Date	Description
Drawing Status: Information			
Contract: 206 - 208 Drake Street, Rochdale			
For: Great Places Housing Group			
Drawing Title: Site Location Plan			
IGE consulting			
Office 16, Bartle House, Manchester, M2 3WQ Email: contact@igeconsulting.co.uk Web: www.igeconsulting.co.uk Tel: 0161 914 9170			
Scale: 1:2000 @ A3		Date: Sep 2024	
Drawn: FR		Checked: AE	
Contract No. 3931		Drawing No. SI-01	P1



APPENDIX 3

CLAIRE JIWG ASBESTOS IN SOIL DECISION MATRIX TOOL



Joint Industry Working Group
Asbestos in Soil and Construction & Demolition Materials

Project Reference	3931
Site Name	Drake Street
Client	Great Places Housing Group
Run by	AJ
Date	18-Nov-25
Scenario details	Re-use of Made Ground outside of private gardens and areas of soft landscaping

Decision Support Tool for CAR2012 Work Categories

Stage 1

Hazard Factors

Score

Select ACM type (run model for each type to generate 'Worst Case' output)
Extent of degradation of ACMs at outset of work
Friability and degree of bonding by matrix (ACM matrix, not ground materials)
Distribution of Visible Asbestos Across Affected Area
Amount of asbestos fibre in selected ACM/fibre type as % of host material

Free dispersed fibres/fibre bundles	2
Disaggregated (dominated by loose fibrous material; extreme degradation in ACM and/or free asbestos fibres/fibre bundles)	4
Friable ACM or ACM with fibres not linked in any matrix (free dispersed fibres/fibre bundles)	4
No visible ACMs/fibre bundles	0
Trace quantities - <0.0001 to 0.001 %wt/wt	0

Sub-total

0

Note: the asbestos licensing regime is unaffected by the type of asbestos fibre present in ACMs

Hazard ranking

Negligible

No warranty, expressed or implied, or reliance, is provided in relation to the use of this tool.

It is contingent on users to satisfy themselves that the output from the tool is relevant and appropriate to the assessment being made.



Joint Industry Working Group

Asbestos in Soil and Construction & Demolition Materials

Stage 2

Exposure Factors

Score

Anticipated airborne fibre concentration - Control Limit or SALI?

<0.001 fibres/ml

0

Anticipated duration of exposure to asbestos

> 2 hours in a 7 day period and Up to 10 hours in a day (e.g. full time occupational exposure)

4

Activity type and effect on deterioration of ACMs during work

Not low intensity, significant deterioration expected

4

Best description of primary host material matrix (soil/made ground)

Made Ground - Recycled Aggregate, Track Ballast

4

Respirable fibre index for ACM - RIVM report 711701034 (2003)

High

4

Sub-total

16

Exposure ranking

High

Combined hazard and exposure ranking

16

Low



Stage 3

Risk Assessment Outputs

Probable Licensing Status	CAR do not apply
RPE*	None
Dust Suppression**	None
Hygiene/Decontamination***	None

*Where RPE has to be worn continuously for long periods (e.g. more than 1-hour), then powered RPE may be necessary.

**Reduction in control measures possible if natural mitigation factors are present (e.g. raining, wet ground)

***Guide only; suitability of selected personal hygiene measures may be reviewed on a site/contamination-specific basis

APPENDIX 4

DISCOVERY STRATEGY



DISCOVERY STRATEGY

1st Floor
15 Oxford Court
Manchester
M2 3WQ

Tel: 0161 914 9171
Email: contact@igeconsulting.co.uk
Web: www.igeconsulting.co.uk

What to Look Out For

Potentially contaminative material can be identified as follows:

- Appears oily / has an iridescent sheen
- Hydrocarbon odour e.g., oily or petroleum odour
- Solvent odour e.g., sharp or sweet odour
- Waste materials e.g., metals, plastic etc.
- Asbestos e.g., fibrous sheeting / roofing / board / lagging etc.
- 'Landfill' odour e.g., rotten / putrefying / leachate odour

Or any other material that looks man-made or does not match its surroundings – if in doubt, check.

Procedure for Discovery of Unexpected Contamination

If any of the above material is discovered, the following procedure must be carried out:

- a) Stop works in the area of the contamination discovery.
- b) Inform the Site Manager.
- c) Record the visual and olfactory evidence of contamination.
- d) Suitably qualified geo-environmental engineer to investigate the contamination; take samples, photographs and in-situ tests and discover the extents of the contamination, and to identify potential contaminants and specify chemical testing, if necessary.
- e) Either dig out the contaminated material and stockpile, on an impermeable membrane if necessary, or leave in-situ whilst awaiting chemical test results, if needed – whichever presents the least risk.



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- f) Suitably qualified geo-environmental engineer to re-visit the site's risk assessment, taking into account the newly discovered contamination and recommend remediation, if necessary, or other next steps.
- g) If the risk assessment and remediation strategy is changed as a result, the Local Authority and/or the Environment Agency should be informed and/or consulted.
- h) Lastly, undertake remediation of the affected area if this has been deemed appropriate.

Procedure for Discovery of an Unexpected Tank

Former industrial sites may contain unrecorded underground storage tanks (USTs).

Follow the below steps if a UST is found:

- a) Stop works in the area of the UST discovery.
- b) Inform the Site Manager.
- c) Suitably qualified geo-environmental engineer to investigate the tank, including measuring the size, contents, condition, and visual and olfactory evidence of contamination. Geo-environmental engineer to record the location of the tank on a site plan, take photographs, and sample the contents to send for chemical testing to determine the contents.
- d) Suitably qualified contractor to empty the tank and dispose of contents at a suitably licensed disposal facility.
- e) Suitably qualified contractor to undertake integrity testing in line with the 'Blue Book' method (APEA / EI '*Design, Construction, Modification, Maintenance and Decommissioning of Petrol Filling Stations*' 4th ed. (April 2018)), to determine whether the tank is intact or has been compromised.
- f) Suitably qualified geo-environmental engineer to undertake a risk assessment based on the contents of the tank and the results of the integrity testing, to determine whether to decommission the tank and leave in-situ or to remove the tank.
- g) Suitably qualified contractor to clean and 'inert' the tank, and provide a gas safe certificate, in line with the 'Blue Book' method.

- h) Suitably qualified contractor to either decommission the tank in-situ in line with the 'Blue Book' method or remove the tank and dispose of at an appropriate facility.
- i) If excavated and removed, suitably qualified geo-environmental engineer to investigate the base and the sides of the resultant excavations and if any contamination is found, undertake the Procedure for Discovery of Unexpected Contamination above.

IGE

consulting

IGE Consulting Ltd: 1st Floor, 15 Oxford Court, Manchester, M2 3WQ

Email: contact@igeconsulting.co.uk