Dowker Street, Milnsbridge, Huddersfield

Remedial Strategy Report

For: Westshield Ltd

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1.0 INTRODUCTION

This Remedial Strategy Report has been prepared at the request of Westshield Ltd. Instructions to proceed with this report were received in October 2026.

This report follows the findings and recommendations of the following reports:

- **Faber Maunsell** *Geo-Environmental Assessment and Walkover Survey* (Dated: July 2006, Ref: 07/62/93016/W1); and
- **ARP Geotechnical Ltd** *Phase 2 Geo-Environmental Report* (Dated: June 2023, Ref: WSD/01r1).

This report pertains to a c. 0.63 Ha site located to the west of Dowker Street, Milnsbridge, Huddersfield c. 2.8km west of Huddersfield town centre, at the approximate postcode HD3 4JB. The National Ordnance Survey Grid Reference for the centre of the site is 411620E, 416070N.

The site is a former engineering works that was demolished sometime between 2011 and 2015. The site currently comprises concrete slabs, areas of crushed aggregate and 2 No. aggregate stockpiles. Access to the site is off Dowker Street along the eastern boundary. A culvert is present in the western site section running north to south.

An aerial photo of the site is included below and a Site Location Plan is contained in Appendix 2.



Figure 1: Aerial image of the site dated April 2025. The approximate site boundary is highlighted in pink.

1.1 Scope and Planning Context

This *Remedial Strategy Report* has been undertaken to determine the remedial requirements for the site based upon the existing site investigation works. It is the client's intention to develop the site into a residential development comprising 33 No. dwellings with associated car parking and landscaping.

A proposed development plan is contained in Appendix 2 with an extract below as Figure 2. The culvert and the associated easement are shown on the below plan.



Figure 2: Extract of the Proposed Site Plan (4016-S2-105-2, September 2025)

Planning permission has been granted on application 2025/92728 for the *erection of 33 dwellings with associated car parking and landscaping.* The latest Consultation Response from Kirklees Council Environmental Health regarding the outstanding planning conditions relating to contaminated land (15 & 16), dated 23rd July 2026, included the following outstanding comments:

- *At the time of the Phase 2 investigation in 2023, the northern end of the site was under dense vegetation cover (large bushes and small trees), with only a small clearing in the northeastern corner. Much of the northern end of the site was impenetrable due to the density of the vegetation. Given the site condition,*

the contamination encountered to date and the limited access in the north of the site, we request a post-clearance intrusive investigation to confirm the site condition and to inform a revised remediation strategy.

- *Section 7.10 of the report states that further consideration of the presence of chrysotile is required.*
- *Whilst we acknowledge the statistical analysis undertaken, we require further examination and explanation of the organic and inorganic contaminants found in areas TP3, 4 and 12, we consider these to be potential hotspots.*
- *We require clarification regarding changes to site levels and require further commentary on asbestos risk and the depth of clean cover proposed.*
- *Until such time that Condition 15 (Phase 2 Report) has been discharged, we are unable to consider information to support Condition 16 (Remediation Strategy).*

The full Consultation Response is included in Appendix 3.

1.2 Brief

This report has been undertaken following the findings and recommendations of the ARP Geotechnical Ltd *Phase 2 Geo-Environmental Report* (Dated: June 2023, Ref: WSD/01r1). Based on the ground investigation findings, this report will outline the remedial strategy with regard to human health, controlled waters and ground gas on site. The limitations of the report are contained in Appendix 1.

2.0 SUMMARY OF SITE HISTORY AND PREVIOUS WORK

2.1 Site History

The site was occupied by 'Britannia Mills' and residential buildings by 1896. By 1961, the site was annotated as a 'works' with a telephone exchange in the south east. The site was later used by Taylor Valves Ltd.

2.2 Ground Investigation Summary

ARP undertook 2 No. ground investigations as part of the Phase 2 report. The initial investigation was undertaken in May 2015 and comprised 12 No. machine excavated trial pits to depths of between 1.60m and 3.80m bgl. ARP undertook a supplementary investigation in May 2023 comprising 4 No. window sample boreholes to depths of between 2.20m and 3.10m bgl and a single hand pit due to dense vegetation in the northern site section at the time of the investigation. An extract of the ARP exploratory hole location plan is included below.

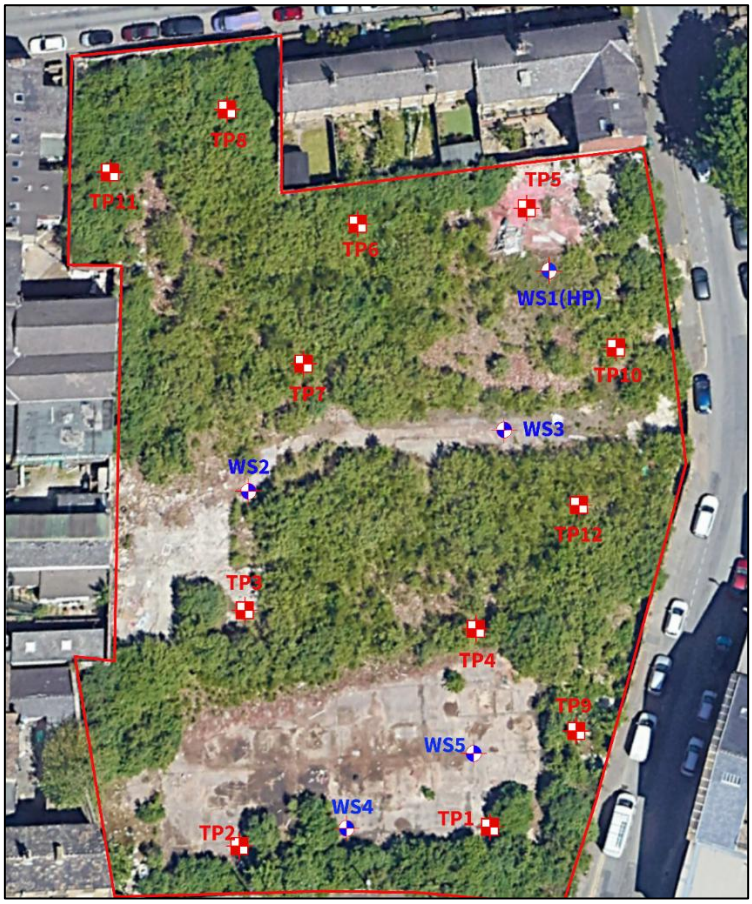


Figure 3: Extract of the ARP Exploratory Hole Location Plan.

2.3 Ground Conditions

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

- **(In Places) Made Ground** comprising reinforced CONCRETE to a depth of between 0.15m and 0.40m bgl, underlain by:
- **Made Ground** comprising greyish brown, sandy, gravelly, angular COBBLES of red brick, concrete and sandstone or dark grey, fine to coarse SAND and angular to subangular, fine to coarse GRAVEL of ceramic, clinker, concrete and red brick to a depth of between 0.30m and 2.80m bgl, underlain by:
- **(In Places) Alluvium** comprising soft to firm, sandy CLAY to a depth of between 1.00m and 3.20m bgl, underlain by:
- **Alluvium** comprising grey and reddish brown, clayey, fine to coarse SAND and angular to subangular, fine to coarse GRAVEL of sandstone with a moderate cobble content to a depth of between 2.40m and 3.70m bgl, underlain by:
- **Huddersfield White Rock** comprising reddish brown SANDSTONE to a depth of at least 3.80m bgl at termination.

Existing levels on site slope from 94.60m AOD in the north to 91.60m AOD in the south.

2.3.1 Notable Exceptions and Obstructions

The following exceptions to the above ground conditions, including obstructions encountered, are noted below:

- A concrete slab was encountered at a depth of 3.35m bgl in TP01, indicating the presence of an infilled basement in this area.
- Bedrock was not encountered in the northern site section.
- Reworked alluvium deposits were encountered in TP11 in close proximity to the culvert in the western site section, likely associated with its construction.
- Aside from TP01, buried concrete slabs were also encountered in 4 No. additional locations at depths between 0.15m and 1.60m bgl.

2.4 Contamination Findings

A combined total of 16 No. soil samples were submitted for chemical analysis across both investigations, comprising 14 No. Made Ground samples and 2 No. samples of suspected reworked natural deposits. The samples were tested for metals and metalloids, polyaromatic hydrocarbons (PAHs), total TPH and the presence of asbestos. Human health GAC exceedances for a *residential with home grown produce* scenario were recorded in 10 No. Made Ground samples, pertaining to PAHs, lead, arsenic, copper and asbestos. These exceedances are summarised in the below table extracted from the ARP Phase 2 report:

Location	Depth (m)	B(a)P	Napthalene	Arsenic	Copper	Lead	Asbestos
TP1	0.5-1.0	1.9	0.3	11	350	130	NAD
TP2	0.5	0.6	0.1	12	36	72	NAD
TP3	0.6-1.0	0.1	0.1	91	160	90	NAD
TP4	0.5-1.0	15	13	21	110	320	NAD
TP6	0.3-0.5	0.3	1.4	16	190	140	Chrysotile
TP7	0.3-0.5	0.4	0.1	15	410	230	NAD
TP8	0.5-1.0	0.1	0.2	13	370	180	Chrysotile
TP9	0.3-0.6	2.3	0.1	12	74	110	NAD
TP10	0.3-0.5	0.1	0.4	5.4	74	100	Chrysotile
TP12	0.6-1.0	15	6.2	88	8200	990	Chrysotile
WS1(HP)	0.2-0.25	0.1	0.1	6.3	37	150	NAD
WS3	0.5-0.6	4.5	0.52	16	45	340	NAD
WS4	0.5-0.7	7.6	0.77	16	54	130	NAD
WS5	0.5-0.6	7.3	0.85	16	57	140	NAD
Screening Values		**5**	**5.6**	**37**	**2400**	**200**	**NAD**
95% UCL		**6.5**	**3.4**	**37**	**215***	**203***	-
Exceedance							
Acceptable							
*Following removal of outlier							
Values are in mg/kg unless indicated otherwise							

Asbestos quantification was not undertaken on the samples that recorded positive asbestos identifications. Due to the human health GAC exceedances recorded, the Made Ground is not suitable for re use within areas of soft landscaping on site such as private gardens or areas of POS. Consequently, remedial measures will be required in these areas pertaining to the installation of a cover system in line with YALPAG guidance, as outlined in Section 4.1.

2.5 Ground Gas

The ARP phase 2 report stated that no landfills are present within 250m of site and there are no shallow coal seams or workings affecting the site. Consequently, they concluded that no ground gas protection measures are required on site.

ARP stated that no radon protection measures are required on site. However, radon maps and guidance have been updated since their report was issued. Therefore, a Radon Report from the BGS has been obtained to confirm the designation. The report confirms that the site lies within an area where less than 1% of homes are above the action level and therefore no protection measures are required. The report is included in Appendix 4.

3.0 PREPARATORY AND ENABLING WORKS

3.1 Proposed Site Levels

A cut and fill calculation has been undertaken for the site by RJM Engineering which states that the total cut on site will be c. 4,200m^3 and the total fill will be c. 120m^3, leading to a surplus of c. 4,080m^3. The RJM Engineering cut and fill drawing is included in Appendix 2.

The cut and fill drawing has been produced based on the original ground level (topographical surface) compared to the external levels noted on the Finished Levels and Retaining Walls drawing (DSH-AJP-XX-00-DR-C-1400-PO7, February 2026), containing in Appendix 2. The following design assumptions are noted on the drawing:

- Plots (piled) – FFL minus 700mm with a 2m skirt offset to top of crush cap;
- Roads – road profile minus 500mm to top of crush cap;
- Footpaths – road profile mins 500mm to top of crush cap;
- Front drives – graded from plot to road minus 300mm;
- Parking – external levels minus 500mm;
- Gardens – external levels minus 600mm;
- POS – external/ existing levels minus 600mm;
- No allowance for sub floor voids; and
- Bulking factor not considered.

The drawing includes 2 No. stockpiles present on site, estimated to be c. 360m^3 (southern) and 500m^3 (northern) in volume, shown in yellow on Figure 4 below.

Areas of fill are minimal across site, with the greatest fill in the north western corner of site at a maximum thickness of c. 1.00m. Aside from the stockpiles which are shown as areas of significant cut, the greatest cut on site is c. 2.50m in the eastern site section.

The ARP exploratory holes have been overlain onto the RJM Engineering cut and fill drawing with the depth to the base of Made Ground annotated below each hole in green, as shown in Figure 4 below. The plan highlights that as 4,000m^3 of material is to be cut, a significant proportion of the Made Ground with human health GAC exceedances will be removed from site.

For example, in the north eastern site section around TP05 and TP06 all Made Ground deposits will be removed. This would constitute source removal and therefore negate the requirement for a cover system in this area. Prior to removal from site, additional chemical testing and waste classification testing should be undertaken on the surface Made Ground.

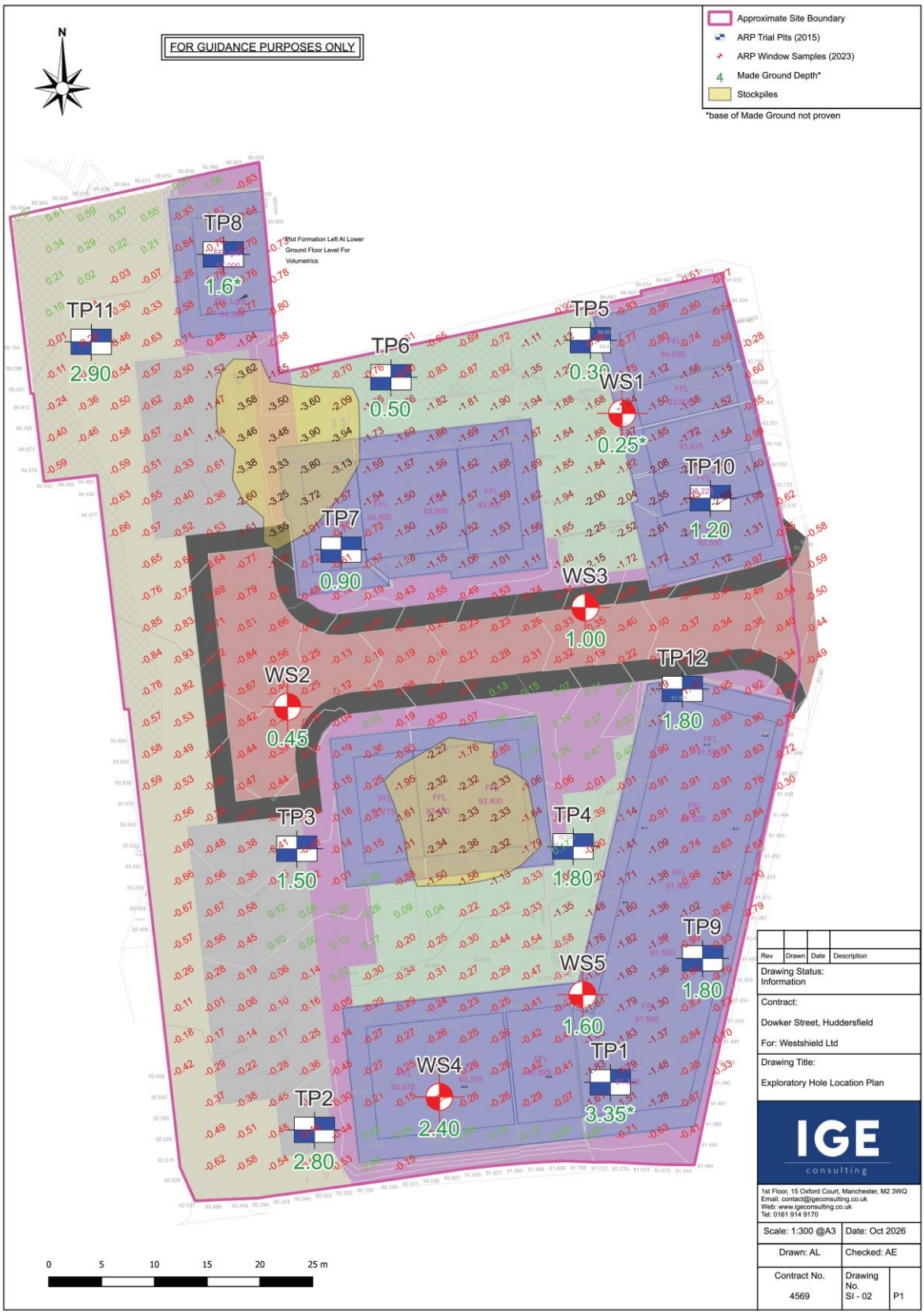


Figure 4 – Extract of SI-02 Exploratory Hole Location Plan showing the hole locations with the depth to the base of Made Ground shown in green text below, overlain the RJM Engineering isopachytes cut and fill drawing for the site (WS-DSH-002, February 2026).

3.2 Planned Further Works (Late 2026)

Further ground investigation works comprising machine excavated trial pits are to be undertaken on site in late 2026 (November and December) to obtain greater clarification of the human health risks on site. These have been split into pre-enabling works actions and works to be undertaken during enabling works below.

3.2.1 Pre-Enabling Works

Asbestos was detected within samples of Made Ground during the ARP ground investigation works but quantification was not undertaken. Consequently, additional Made Ground samples should be obtained and sent for asbestos identification and quantification if identified. This includes the stockpiles on site and any material to be removed from site. A testing rate of 1 sample per 500m^3 of material is deemed applicable (e.g. 8 No. samples of cut material). The asbestos quantification testing should be used to produce a risk assessment 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). Waste classification testing should be undertaken on the Made Ground to be cut and removed from site prior to disposal.

3.2.2 During Enabling Works

Following enabling works primarily comprising site turnover as detailed in Section 3.3 below and the removal of material to be cut from site (following the testing undertaken as per Section 3.2.1), further chemical testing should be undertaken in areas of concern following the ARP investigation works, including the northern site section where accessibility was previously limited and the central site section where elevated concentration of contaminants were recorded (TP03, TP04 and TP12). As discussed in Section 3.1, all Made Ground will be removed in the north eastern site section (TP05 and TP06) as part of the enabling works which would therefore negate further testing, but any material that remains should be tested (e.g. around TP08 in the north western site section), subject to permitted access given the culvert easement in place. The chemical testing undertaken in the central site section should comprise the contaminants of concern following the ARP investigation, namely asbestos, arsenic, lead, copper and PAHs.

3.3 Enabling Works

Enabling works will be required prior to development to physically prepare the site for the development, this will include the following:

- Undertake a site wide turnover (outside of the culvert easement) down to natural deposits to remove any obstructions or oversize material. Including breaking out of concrete slabs and foundations;
- Regrading of site to detailed development levels;
- Although not a legal requirement, it is recommended that the placement of the site won material used to achieve proposed levels is undertaken in-line with a CL:AIRE DoW:CoP Material Management Plan (MMP) as discussed in Section 3.4 and placed to an earthworks specification; and
- Backfilling of service runs with clean stone or proven (with chemical testing) inert fill materials.

3.4 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’.

In line with DoW:CoP, a robust, site-specific material management plan (MMP) inclusive of a tracing system will need to be undertaken 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. A detailed DoW:CoP MMP cannot be undertaken until the remedial strategy has been approved but this should include details of the source (including source testing) of all materials imported into site. The site should be zoned using a grid and given a zone number (A1, B2 etc). Utilising this system, a record should be kept of all material imported onto site and its intended destination and use. All imported material should be recorded in a tracking document and the following information noted:

- Material Origin

- Intended Destination (grid square)
- Material description / classification
- Date imported
- Quantity imported (no. of loads and volume)
- Temporary storage location (if applicable). Each stockpile on site should be numbered and its location recorded.
- Testing results (chemical and geotechnical, report number noted). Testing should meet the below Acceptability Criteria outlined in Section 3.5.

This will ensure that all material on site is fully traceable, chemically validated and suitable for its intended use.

3.4.1 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.

3.4.2 Stockpile Management

During the course of the development there will be areas of stockpiled soils intended for use within areas of soft landscaping. These will have been subjected to 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.

3.5 General Fill Chemical Testing Criteria

Although unlikely to be required due to the net cut requirement on site, the following targets for ‘General Fill’ are proposed to address any material imported onto site to achieve proposed levels. General Fill is material used primarily to raise levels, specifically not within areas of private gardens, public open space, or soft landscaping

i.e. below -600mm finished levels. No additional testing of site won general fill will be required, outside of the further works detailed in Section 3.2. The following validatory 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	Asbestos ID (and quantification if identified)	Asbestos <0.01%. Where placed within -1.0m of finished level, <0.001%
Imported aggregate (if applicable)	1 per 500m^3	Asbestos ID (and quantification if identified)	Asbestos <0.01%. Where placed within -1.0m of finished level, <0.001%
Imported General Fill (if applicable)	1 per 1000m^3	As below Acceptability Criteria for General Fill	General Fill
Sides and base of excavated and removed hotspots (if applicable – possibly required around TP03, TP04 and TP12)	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	General Fill
Stockpiles post processing (to determine whether they can be re-placed or the need for removal, if applicable)	1 per 50m^3	As below Acceptability Criteria for General Fill plus contaminants of concern based on hotspot removed	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).

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

Suite	Determinand (mg/kg unless stated)	Acceptability Criteria for General Fill
A	Asbestos (%)	<0.01% (<0.001% where placed within -1.0m of finished level)
B	pH	>5 - <10[3]
	Total Cyanide	0.5[3]
	Free Cyanide	0.5[3]
	Soluble Sulfate (mg/l)	500[3]
C	Arsenic	640
	Beryllium	12
	Boron	240000
	Cadmium	190
	Chromium (III)	8600
	Chromium (VI)	33
	Copper	68000
	Lead	2330[1]
	Inorganic Mercury	1100
	Nickel	980
	Selenium	12000
	Vanadium	9000
	Zinc	730000
E	Total PAHs	200[4]
G	TPH > EC6 - EC40	1000[4]

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) 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 general fill will also be subject to geotechnical testing including grading on a 1 in 1000m^3 rate.

Although unlikely to be required, if recycled aggregate material is imported for use in construction it 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%.

3.6 Earthworks Specification

A detailed Earthworks Specification should be undertaken in conjunction with the production of a DoWCoP Materials Management Plan. All earthworks materials should comply with Clause 601 of the Specification for Highway Works and shall fall into the Classes of Material determined by testing and defined in Table 6/1 of Manual of Contract Documents for Highway Works (MCDHW): Volume 1: Specification for Highway Works (SHW) and NHBC Chapter 4.6 (2024).

3.7 Enabling Works Verification Report

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.

4.0 CONSTRUCTION PHASE REMEDIAL MEASURES

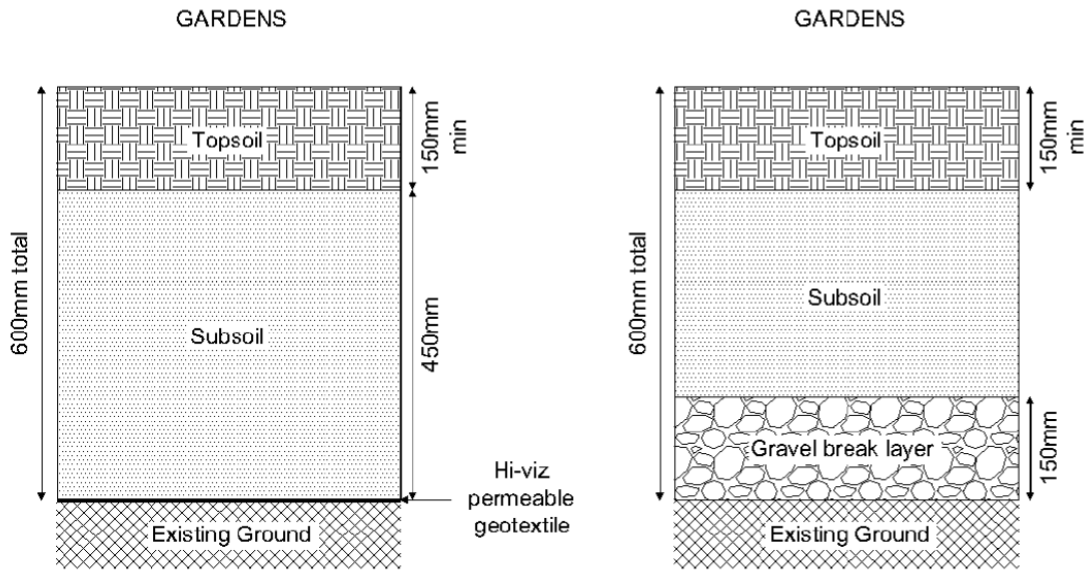
The proposed development is to include private gardens and areas of soft landscaping. Due to numerous human health GAC exceedances recorded within samples of Made Ground on site, a cover system is recommended in these areas to break any pathways between the existing site soils and the end user.

4.1 Installation of a Clean Cover System

The cover system for the private rear gardens is to be 600mm thick and consistent with the recommendation of the YALPAG Verification of Cover Systems guidance document, contained in Appendix 5, consisting of:

- 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.

This is shown diagrammatically below:

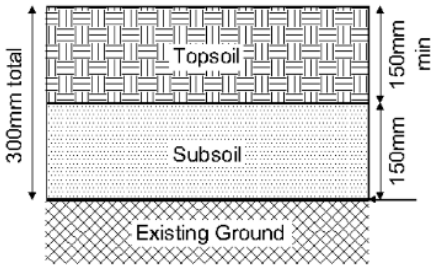


The cover system for areas of soft landscaping (such as private front gardens or areas of POS) is to be 300mm thick and consist of:

- A minimum of 150mm up to a maximum of 300mm suitable topsoil, underlain by

- Suitable subsoil, if required, to a total thickness of 300mm, underlain by
- A hi viz permeable geotextile or a hard-to-dig gravel break layer.

This is shown diagrammatically below:



Where Made Ground is shallower than 600mm in garden areas or shallower than 300mm in soft landscaped areas, excavating to the required depth for a cover system in these areas would constitute source removal. Therefore, where this is the case, the following procedure is proposed:

- Excavate to the base of the Made Ground (less than 600mm in gardens and less than 300mm in soft landscaping areas). A clean cover system is not necessary.
- Add suitable subsoil and topsoil to create a garden / soft landscaping to the client's specification.
- Validate in line with the below strategy.

Guidance for the correct installation of cover systems is contained in Appendix 6.

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

4.1.1 Validation of Clean Cover System

The installation of the clean cover system must be verified in accordance with YALPAG '*Verification Requirements for Cover Systems; Technical Guidance for Developers, Landowners and Consultants*' (version: 4.1, dated: June 2021). A copy of this is contained in Appendix 5.

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:
    - Three pits within areas of soft landscaping (fronts gardens and POS).
    - One pit per three plots across all private rear gardens.

The use of pre-placed 'pipes' for clean cover thickness validation is not considered acceptable.

No topsoil was encountered on site, therefore, topsoil will need to be imported. Chemical testing of the on-site subsoil should be undertaken to confirm its suitability for re use. Imported topsoil and subsoil is required to be tested at source prior to import to confirm suitability.

All topsoil and subsoil, whether site-won or imported is required to be tested at the following frequency, in line with YALPAG '*Verification Requirements for Cover Systems; Technical Guidance for Developers, Landowners and Consultants*' (version: 4.1, dated: June 2021) contained in Appendix 5:

Type	Number of Samples	Testing Schedule	Assessment Criteria
Virgin Quarried Material	1 or 2 depending on the type of stone utilised, to confirm the inert nature of the material.	Standard metals/metalloids (should include as a minimum As, Cd, Cr, CrVI, Cu, Hg, Ni, Pb, Se, Zn)	S4UL and C4SL GACs for a 'residential without plant uptake' end use
Crushed Hardcore, Stone, Brick (excluding asphalt)	Minimum 1 per 500m^3	Standard metals/metalloids (as above), PAH (16 USEPA speciation), asbestos, total TPH. Any additional analysis dependant on the history of the donor site (e.g. phenol, total cyanide, BTEX, MTBE	
Greenfield/ Manufactured Soils	Minimum 3 Dependent on source and receptor, between 1 per 50m^3 and 1 per 250m^3	Standard metals/metalloids (as above), PAH (16 USEPA speciation), asbestos, pH and soil organic matter (SOM) (or calculated from total organic carbon (TOC)).	
Brownfield/ Screened Soils (including on-site Topsoil)	Minimum 6 Dependent on source and receptor, between 1 per 50m^3 and 1 per 100m^3	Standard metals / metalloids (as above), PAH (16 USEPA speciation), TPH (CWG banded), asbestos, pH and SOM (or calculated from TOC). Any additional analysis dependant on the history of the donor site (e.g. phenol, total cyanide, BTEX, MTBE	

As outlined within the YALPAG guidance, 'Imported soils should be as specified in BS 3882:2015 for topsoil and BS 8601:2013 for subsoil as "suitable for their intended

purpose". Therefore, BS 3882 testing of the topsoil should be undertaken at a frequency of 1 per 1,000m^3 of each material type and source.

British Standard BS8601:2013 for subsoil Figure 1 details the "Textural classification (limiting percentages of sand, silt and clay sized particles for the mineral texture class) and the area of textures that are acceptable within BS 8601:2013". Sand as a subsoil does not appear to fall within these subsoil parameters, therefore, the use of 'quarried sand' as a subsoil (if proposed) would not be deemed acceptable as it does not meet the requirements of BS8601:2013 and the YALPAG guidance.

Once tested, the results are to be compared against the Acceptability Criteria contained in Appendix 6.

4.1.2 Validation Report

Once complete, the information gathered as recommended in Section 4.1.1 should be compiled into a Validation Report for the site in line with the above referenced YALPAG guidance, detailing the completion of the remedial and verification measures.

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

- 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'

5.0 OTHER REMEDIAL REQUIREMENTS

5.1 Discovery Strategy

In the event of unexpected contamination being discovered, the Discovery Strategy must be followed – this is contained in Appendix 7.

5.2 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 REPORT AND INVESTIGATION WORKS

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 be 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

The National Planning Policy Framework (NPPF, 2026) states that the purpose of the planning system is to contribute to the achievement of sustainable development. In order to do this the planning system has three overarching objectives, one of which directly relates to the potential for pollution and contaminated land:

- ***'environmental objective**' – to support efforts to mitigate and adapt to climate change, including moving to a low carbon economy; and to protect and enhance our natural, built and historic environment, including making effective use of land, improving biodiversity, using natural resources prudently, and minimising waste and pollution.*

In accordance with this environmental objective, **Section L2**: ***'Making effective use of land'*** details that substantial weight should be given to the benefits where a development proposal would achieve:

- *remediating despoiled, degraded, derelict, contaminated or unstable land*
- *'making better use of vacant and underutilised land and buildings' and*
- *'making effective use of previously developed land and buildings through temporary uses'.*

In accordance with this environmental objective, **Section N1** states that development plans should safeguard and enhance the natural environment, and reflect the wider benefits from natural capital and ecosystem services. This includes recommendations to:

- *Steer the location of development, including through site allocations, in ways which utilise land of least environmental value'*

Whilst **Section N2: *Improving the natural environment'*** states that development proposals should

- *'Consider the environmental qualities of land proposed for development, including habitats, landscape character and the natural beauty of the countryside, and identify opportunities for those qualities to be conserved or enhanced (including through requirements for biodiversity net gain where these apply'.*

Section P1: *'Planning for clean and safe places'* states that land should be allocated for development where:

- *'Opportunities can be taken to improve local environmental conditions, such as by remediating despoiled, degraded, derelict, contaminated and unstable land'.*
- *'Ground conditions will not inhibit or pose a risk to the nature of the development proposed (such as due to land instability); and occupiers and users will not be put at risk from, or be adversely affected by, unacceptable levels of pollution'.*
- *Development proposals will not cause unacceptable levels of pollution, either alone or in combination with other pollution sources, taking into account communities which may be particularly vulnerable to its effects, such as children and older people, as well as habitats and species which may be vulnerable to pollution'.*

Further commentary on ground conditions is provided in **Section P2:*'Ground Conditions'***, *which* states that:

- *'Sites proposed for development should be suitable for their proposed use taking into account:*
    - *'ground conditions, including any risks arising from land instability or contamination (whether due to natural hazards or current and former activities such as mining or fuel storage)'; and*
    - *'The extent to which any such risks can be mitigated, and the potential impacts on the natural environment arising from remediation'.*
- *'Where land is remediated it should, as a minimum, not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990'.*
- *'Adequate site assessment information, prepared by a competent person, should be available to inform these considerations'.*
- *'Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner'.*

This report has been prepared and authorised by staff that are competent as defined in the NPPF.

APPENDIX 2

FIGURES AND DRAWINGS

FOR GUIDANCE PURPOSES ONLY

Approximate Site Boundary

*base of Made Ground not proven

N

Street
Brook
21
Meg Lane
Lowergate
Lower
Lower Gate Meg Lane
Huddersfield Line
Bankhouse Road
Market Street
E Stott Coaches
114
112
110
100
Dowker Street
Hope Street
Milnsbridge Village Hall
Armitage Road
P
Market Street Savile Street
Milnsbridge Models
135
ProVu Communications
3
Lipscomb Street
Armchairs Direct
56
52
50
Milnsbridge Libs Crown Green Bowls Club
George Street
Scar Lane Milnsbridge Aldi
Aldi
44
42
River Colne
Morley Lane
Yates Lane
B6111
Bridge Croft
Yates Lane Morley

0 20 40 60 80 100 m

Rev	Drawn	Date	Description

Drawing Status:
Information

Contract:

Dowker Street, Huddersfield

For: Westshield Ltd

Drawing Title:

Site Location Plan

IGE consulting

1st Floor, 15 Oxford Court, Manchester, M2 3WQ
Email: contact@igeconsulting.co.uk
Web: www.igeconsulting.co.uk
Tel: 0161 914 9170

Scale: 1:1000 @A3	Date: Oct 2026	
Drawn: JH	Checked: AE	
Contract No. 4569	Drawing No. SI - 01	P1



Proposed Site Plan

1 : 200

Area Schedule

Type	Description	Area
BTP - Adopted Footpath	Light Grey	339 m²
BTP - Adopted Road	Dark Grey	455 m²
BTP - Car Parking	Salmon	502 m²
BTP - Front Garden	Dark Green	101 m²
BTP - Plot Hardstanding	Light Grey	541 m²
BTP - POS Zone	Dark Green	1312 m²
BTP - Private Garden	Light Green	466 m²
BTP - Unadopted Drive	Brown	264 m²
Total: 77		3981 m²

Fence Schedule

Type	Fence Height	Length
Fence - TSW 1800mm Trellis	1.800	149.8
Fence - TSW 2100mm	2.100	33.9
Metal Railings - 1100mm	1.100	28.9
Total: 24		212.5

Boundary Wall Schedule

Type	Length in m
2100mm high boundary wall	87.1
Flag on Edge	13.9
Gravl Board	70.0
Masonry Retaining Wall	144.5
Total: 74	315.4

Key

- 2400 x 4800mm parking space
- Pavement
- Block Paved Parking Space
- Private Garden
- Front Garden
- POS
- Road - Tarmac
- Easement - Culvert
- Easement - Sewer

Schedule of Accommodation

1no 1B1P Flats @ 44m²
12no 1B2P Flats @ 50m²
2no 1B2P Flats @ 52m²
6no 2B3P Flats @ 61m²
05no 2B3P House (Semi-Detached) @ 70m²
01no 2B4P House (Semi-Detached) @ 79m²
04no 3B4P House (Semi-Detached) @ 84m²
02no 3B5P House (Semi-Detached) @ 92m²
33no Total

1B1P Cottage Flat - 100% parking spaces
1B2P Cottage Flat - 100% parking spaces
2B3P Cottage Flat - 100% parking spaces
2B3P House - 100% parking spaces
2B4P House - 100% parking spaces
3B4P House - 200% parking spaces
3B5P House - 200% parking spaces

Caveats
- Overlooking distances subject to LPA Approval
- Density and parking mix subject to LPA Approval

Layout subject to confirmation of red line boundary, all statutory approvals including highways, planning and building regulations, relevant surveys and reports such as topographical, ecology, trees, ground investigation and flood risk.

This drawing is copyright Bernard Taylor Partnership Ltd and must not be copied or disclosed by or to any unauthorised persons without the prior written consent of Bernard Taylor Partnership Ltd

Do not scale from this drawing. Do not take measurements from the CAD base. Any discrepancies are to be reported to the architect for clarification.

All dimensions are to be checked on site prior to construction, manufacture of any components and ordering of materials and equipment.

All materials and workmanship to be in accordance with the current British Standards and codes of practice.

2 0 2 4 6 8 10
SCALE 1 : 200 m

N

Rev	Date	Int	Description
2	05.02.26	VR	Drawing revised reducing the area of Plot 01-03
1	11.11.25	ED	Drawing revised following comments from LPA

btp ARCHITECTS
RIBA Chartered Practice

CLIENT:
Westshield / FCHO

PROJECT:
Dowker Street, Milnsbridge

DESCRIPTION:
Proposed Site Plan

PURPOSE OF ISSUE:
Planning

DRAWN BY:	CHECKED	DATE:	SCALE @ A1:
AP	ED	04/09/25	1 : 200

JOB NO:	STATUS CODE:	DRAWING NO:	REV
4016	S2	105	2

FILE IDENTIFIER:
DS-BTP-00-SP-DR-A-4016_105.2

Elizabeth House 486 Didsbury Road Heaton Mersey Stockport SK4 3BS
0161 443 1221 info@bernardtaylor.co.uk www.btparchitects.co.uk

N

FOR GUIDANCE PURPOSES ONLY

- Approximate Site Boundary
- ARP Trial Pits (2015)
- ARP Window Samples (2023)
- 4 Made Ground Depth*
- Stockpiles

*base of Made Ground not proven

Plot Formation Left At Lower Ground Floor Level For Volumetrics

TP8 1.6* FFL grd 97.000
TP11 2.90
TP6 0.50
TP5 0.30
WS1 0.25*
TP10 1.20
TP7 0.90
WS3 1.00
TP12 1.80
WS2 0.45
TP3 1.50
TP4 1.80
WS5 1.60
TP9 1.80
TP1 3.35*
WS4 2.40
TP2 2.80

0 5 10 15 20 25 m

Rev	Drawn	Date	Description

Drawing Status: Information

Contract:

Dowker Street, Huddersfield

For: Westshield Ltd

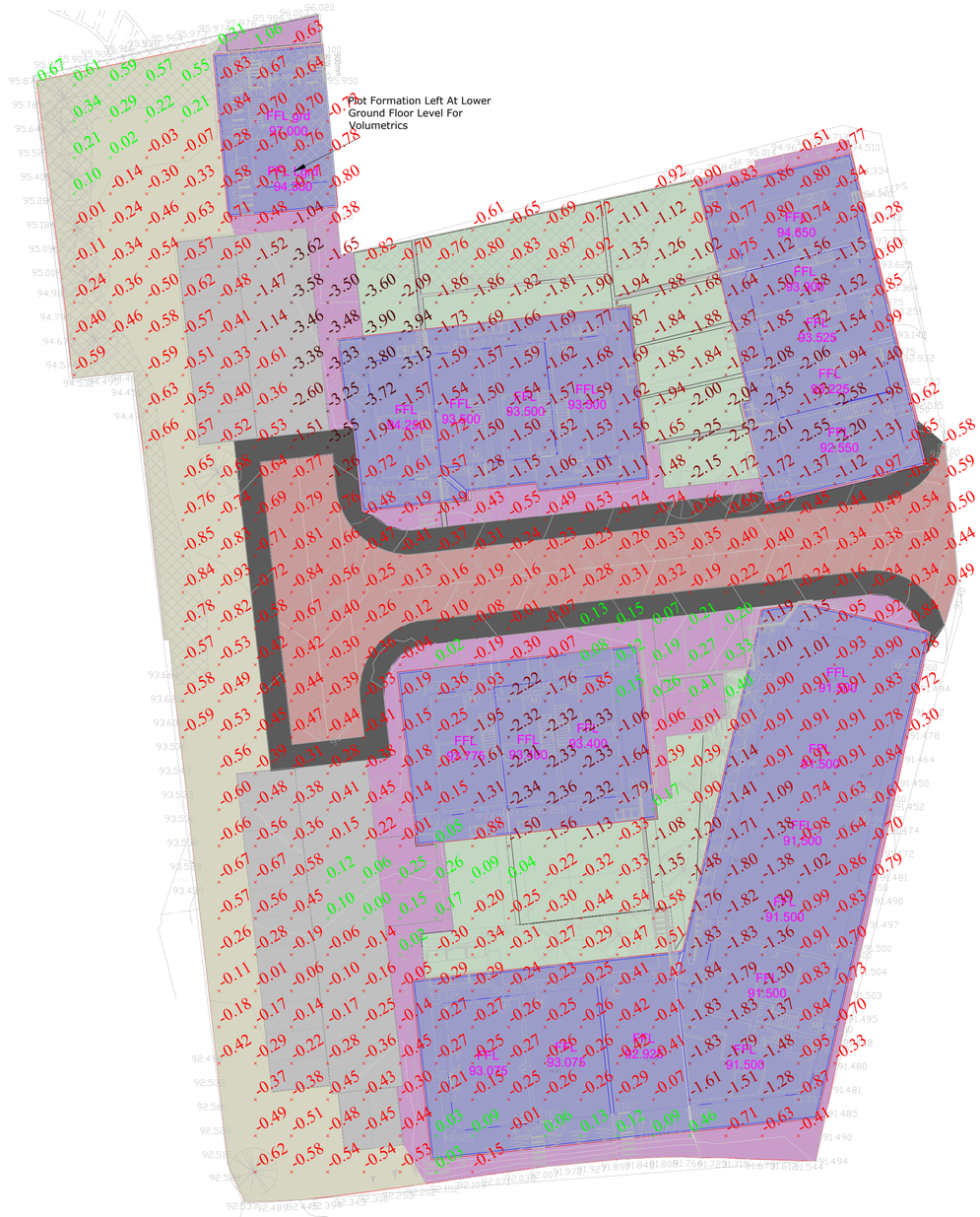
Drawing Title:

Exploratory Hole Location Plan

IGE consulting

1st Floor, 15 Oxford Court, Manchester, M2 3WQ
Email: contact@igeconsulting.co.uk
Web: www.igeconsulting.co.uk
Tel: 0161 914 9170

Scale: 1:300 @A3	Date: Oct 2026	
Drawn: AL	Checked: AE	
Contract No. 4569	Drawing No. SI - 02	P1



Volumetrics Between OGL & AJP DSH-AJP-XX-00-DR-C-1400-P07 FINISHED LEVELS AND RETAINING WALLS Design Formation Levels									
Groups		Volumes			Areas			Avge Depths	
Name	Depth	Cut/Material	Fill/Void	Balance	Cut/Material	Fill/Void	Null	Cut/Material	Fill/Void
Footpaths	0.5000	164.4634	0.0000	164.4634	301.8576	0.0034	0.0030	0.545	0.001
Gardens	0.6000	726.6978	2.5503	724.1474	635.3620	21.1161	0.0001	1.144	0.121
Grade	0.3000	220.4212	61.3069	159.1143	288.1030	206.8319	0.0023	0.765	0.296
Parking	0.5000	363.9010	1.7971	362.1039	469.6933	28.6379	0.0000	0.775	0.063
Plots - Piled	0.7000	2205.0414	7.9447	2197.0967	1936.5028	75.6187	0.0006	1.139	0.105
POS	0.6000	328.2027	47.6503	280.5524	641.7997	132.6074	0.0001	0.511	0.359
Roads	0.5000	203.1380	0.0000	203.1380	453.7805	0.0000	0.0000	0.448	0.000
Active Groups		4211.8655	121.2494	4090.6161	4727.0988	464.8153	0.0062	0.891	0.261

Site Areas		
Group	Plan Area	Slope Area
Footpaths	301.8640	315.2658
Gardens	656.4810	715.0292
Grade	495.8193	555.6098
Parking	498.3312	498.6107
Plots - Piled	2012.3024	2092.0464
POS	776.7121	789.1711
Roads	453.7805	454.3485
Total	5195.2905	5420.0815

Please Note:-

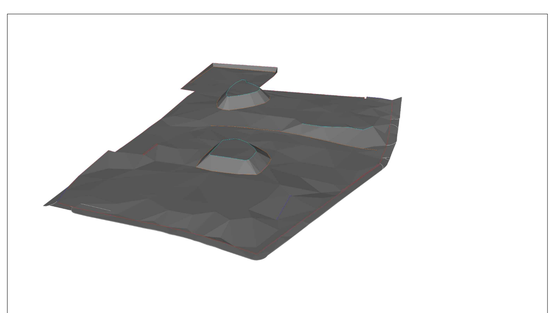
- Volumetrics are prior to the winning of subsoils, of which c.700m³ is required for rear gardens and POS based on 600mm cover system (with 150mm topsoil imported). If these can be recovered, this will reduce the excess by 700m³.

- Analysis includes the 2no. existing crush stockpiles. The survey shows there is 360m³ in the southern stockpile, but no levels for the northern stockpile. Based on aerial imagery, it is assumed the stockpile is approximately 3m high, resulting in an assumed volume of 500m³.

- It is anticipated that during remediation of the site, there will be a surplus of hard material generated (given the 2no. mounds covers the requirement to cap piled plots and roads) and aerial imagery). This excess hard material can be used to offset the import of aggregates during the build phase.

- For Plots 1-3, volumetrics have been calculated based on the lower ground floor level. Additional fill will be required depending on the detail to construct the upper level, and thus will reduce the excess.

- The POS area to the western boundaries have been graded from the supplied design levels to match existing, with the northern part matching the higher external boundary levels. It may be possible to create landscape bunds in this area to reduce the excess on site, albeit by a small quantity relative to the current excess.



Topographic Survey Model - Showing 2no. Crush Stockpiles
Northern Stockpile Volume Assumed Due To Lack Of Survey

Drawing Used:

- OGL - SEP S26204-T June 2025
- External Levels - AJP DSH-AJP-XX-00-DR-C-1400-P07 FINISHED LEVELS AND RETAINING WALLS

Model Parameters:

- Plots - Piled - cap — FFL-700mm with 2m offset to top of crush
- Roads - — Road profile -500mm to top of crush cap
- Footpaths - — Road profile -500mm to top of crush cap
- Front Drives - — Graded from plot to road -300mm
- Parking - — External levels -500mm
- Gardens - — External levels -600mm
- POS - — External / existing levels -600mm

Assumptions:

- No allowance made for sub floor voids within existing structures unless explicitly stated on OGL survey / Tender information.
- No allowance for material bulking/shrinkage during earthworks.
- No allowance made for temporary works on retaining structures.
- Volumetrics do not make allowances for civil engineering arisings by others.

Isopachytes:

-x.xx = Cut From OGL To Design Formation Levels
x.xx = Fill From OGL To Design Formation Levels

REV	DESCRIPTION	BY	DATE

RJM Engineering
Land Surveying
Site Engineering
Volumetrics
Surface Modelling
Email: rjmengineering@hotmail.co.uk
Tel: 07789870987

CLIENT: Westshield

JOB TITLE: Dowker Street, Huddersfield

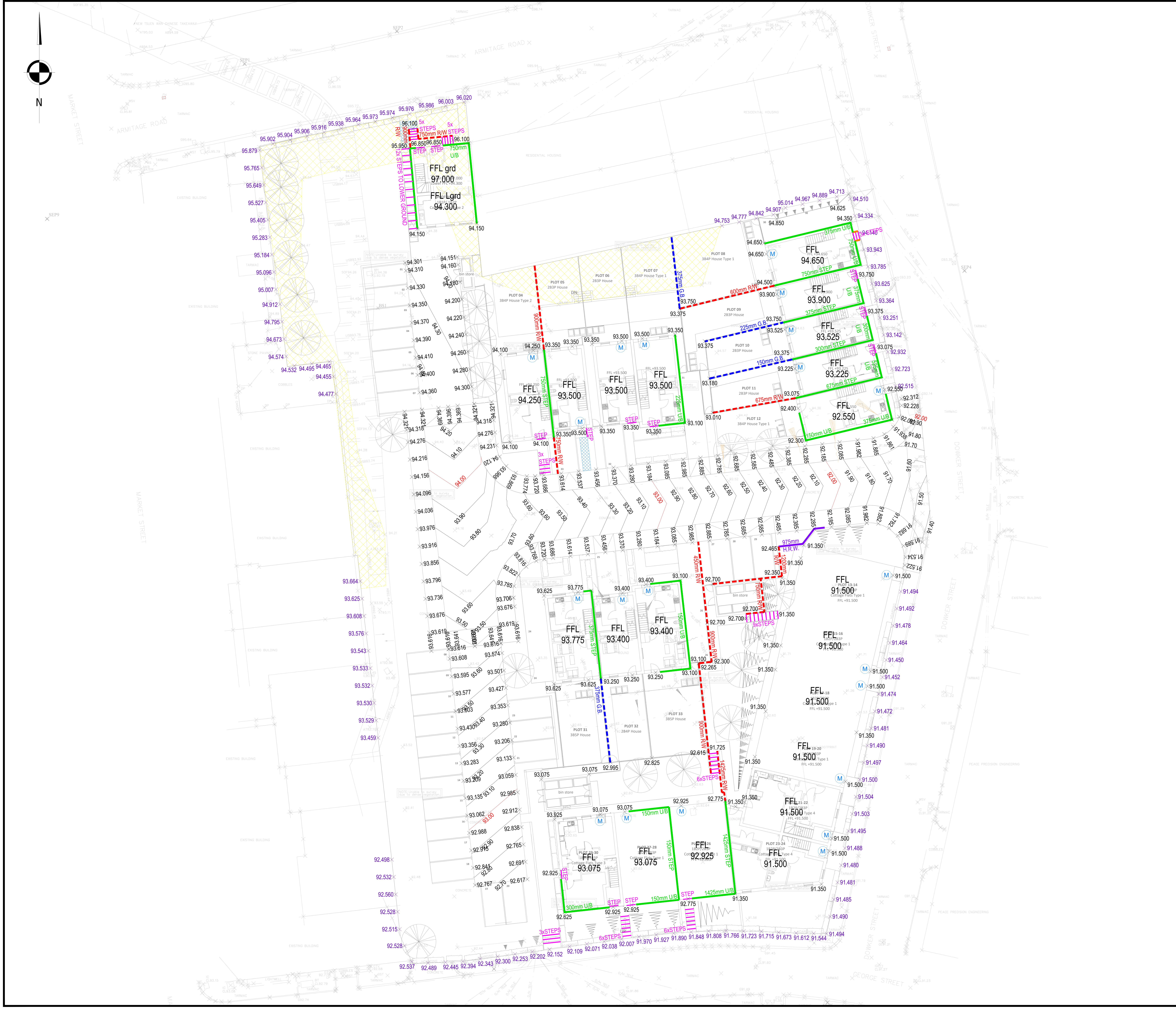
DRAWING TITLE: Isopachytes

STATUS: Information

DRAWN BY	SIGNATURE	DATE
RJM		15-02-2026

APPROVED	SIGNATURE	DATE
RJM		15-02-2026

SCALE	DRG No.
1:250@A1	WS-DSH-002



GENERAL NOTES

1. SETTING OUT SHALL BE UNDERTAKEN USING ONLY THE INFORMATION GIVEN. DISTANCES SHOULD NOT BE SCALED FROM THIS DRAWING.
2. ALL SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SEWERS FOR ADOPTION 6TH EDITION AND UNITED UTILITIES DETAILS & GUIDELINES.
3. THE MINIMUM GRAVITY PIPE DIAMETER UNDER ADOPTABLE HIGHWAYS SHALL BE 150mm
4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL INFORMATION GIVEN WITH REGARDS TO EXISTING SERVICES AND DRAINAGE CONNECTIONS ETC. PRIOR TO COMMENCING THE WORKS. THE RATES SHALL INCLUDE FOR HAND DIG AROUND SERVICES WHERE NECESSARY. THE CONTRACTOR SHALL ADHERE TO THE CDM REGULATIONS AT ALL TIMES
5. THE OUTSIDES OF ALL SEWERS SHALL BE A MINIMUM OF 1.0m FROM KERB LINES AND THE OUTSIDE OF MANHOLES SHALL BE A MINIMUM OF 0.5m FROM KERB LINES
6. EXISTING FLOWS IN WATERCOURSES, SEWERS AND LAND DRAINS SHALL BE MAINTAINED AT ALL TIMES
7. ONLY TRAINED PERSONNEL SHALL BE PERMITTED TO ENTER CONFINED SPACES
8. ALL METERIALS TO BEAR THE RELEVANT B.S. KITEMARK AND COMPLY FULLY WITH THE SPECIFICATIONS. ALL CONCRETE & CONCRETE PRODUCTS MUST USE SULPHATE RESISTANT CEMENT (UNLESS THE SITE INVESTIGATION REPORT PROVES THAT SULPHATE ATTACK FROM SOILS AND GROUNDWATER WILL NOT OCCUR TO WITHSTAND A CLASS
9. ALL OPENING NOTICES ETC. AS REQUIRED UNDER HIGHWAYS ACTS ETC. ARE TO BE OBTAINED PRIOR TO COMMENCEMENT OF WORKS. ALL WORKS ARE TO BE INSPECTED BY L.A., NHBC OR THE NETWORK OPERATOR AS APPLICABLE.
10. WHERE "ULTRA RIB" UPVC PIPES (OR SIMILAR APPROVED) ARE USED IN ADOPTABLE DRAINAGE THEY SHALL STILL BE HANDLED AND LAID IN ACCORDANCE WITH THE SPECIFICATION AND GUIDANCE ISSUED BY THE HIGH PERFORMANCE PIPE ASSOCIATION.
11. A CLASS S BED AND SURROUND MUST BE USED FOR SUCH PIPES. TRENCH BACKFILL IN HIGHWAYS TO WITHIN 1M OF HIGHWAY SHALL, AS DIRECTED BY THE HIGHWAY AUTHORITY BE A SUITABLE GRANULAR MATERIAL ALL IN ACCORDANCE WITH SEWERS FOR ADOPTION CL. 4.3.4.
12. SLAB LEVELS SHALL NOT BE VARIED WITHOUT REFERENCE TO THE ENGINEER FOR GUIDANCE
13. DOMESTIC DRAINAGE SHALL BE TO BUILDING REGULATIONS APPROVED DOCUMENT H. 110mm U.P.V.C. PIPES LAID TO THE FOLLOWING MINIMUM FALLS UNLESS OTHERWISE SHOWN.

	FOUL	S.W.
HEAD RUN	1 IN 40	1 IN 60
ELSEWHERE	1 IN 80	1 IN 100

14. ALL GULLY CONNECTIONS TO BE 150mm VITRIFIED CLAY UNLESS NOTED OTHERWISE
15. MINIMUM COVER TO DRAINAGE SOFFIT LEVEL;

	LANDSCAPING	TRAFFICKED AREAS	HIGHWAYS
	0.600m	0.900m	1.200m

- CLASS 'S' BEDDING AND SURROUND TO BE USED WHERE MINIMUM COVER IS ACHIEVED.
- WHERE MINIMUM COVER IS NOT ACHIEVED CLASS 'Z' BEDDING AND SURROUND (CONCRETE ENCASEMENT) IS TO BE USED.

KEY

M	PART M LEVEL ACCESS COMPLIANT
	RELOCATED PATH TO PROVIDE FLUSH ACCESS
STEP	EXTERNAL STEPS FOR ACCESS (STANDARD: 150mm RISE/300mm GOING)
150mm U/B	PROPOSED UNDER BUILD
450mm F.O.E.	PROPOSED FLAG ON EDGE
450mm G.B.	PROPOSED GRAVEL BOARD
750mm R/W	PROPOSED MASONRY RETAINING WALL
750mm H.R.W.	PROPOSED HIGHWAY RETAINING WALL
1:20	APPROXIMATE MAXIMUM GRADIENT IN GARDEN/DRIVEWAY
	GROUND TO BE BATTERED TO MAXIMUM GRADIENT OF 1:3
	TOPO INFORMATION MISSING *ADDITIONAL TOPO REQUIRED POST DEMOLITION/VEGITATION CLEARANCE*

REV	DATE	DESCRIPTION	BY	CHK	APP
P08	18.02.2026	LEVELS UPDATED TO PLOTS 1-3	LS	KOB	KOB
P07	05.09.2025	LEVELS UPDATED TO SUIT LATEST ARCHITECTS LAYOUT	LS	KOB	KOB
P06	10.02.2025	LEVELS UPDATED FOLLOWING EXISTING CULVERT SURVEY	LS	KOB	KOB
P05	20.06.2024	DRAWING AMENDED AFTER FFL CHANGES TO PLOTS 20-25 TO 91.650 FROM 91.500	JJ	KOB	KOB
P04	09.04.2023	FINISHED LEVELS AND RETAINING WALL AMENDED TO REPLAN	JJ	KOB	KOB
P03	23.08.2023	PLOT 12 FFL RAISED TO REMOVE R/W; PART M UPDATED TO PLOTS 31-34	LS	KOB	KOB
P02	16.08.2023	UPDATED TO SUIT LATEST ARCHITECTS LAYOUT	LS	KOB	KOB
P01	14.07.2023	PRELIMINARY ISSUE	LS	KOB	KOB

DRAWING STATUS: **PRELIMINARY**

CLIENT: WESTSHIELD

ARCHITECT: BERNARD TAYLOR PARTNERSHIPS

PROJECT: DOWKER STREET
MILNESBRIDGE
HUDDERSFIELD

TITLE: FINISHED LEVELS AND RETAINING WALLS

STATUS:	PROJECT No.	PROJECT - ORIGINATOR - VOL/SYS - LEVEL - TYPE - ROLE - DRAWING No.	REV:
S2	223-043	DSH - AJP - XX - 00 - DR - C - 1400	P08

SCALE @ A1:	DESIGNED:	DRAWN:	CHECKED:	APPROVED:	DATE:
1:200	LS	LS	KOB	KOB	JULY 2023

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APPENDIX 3

CONSULTATION RESPONSE

Consultation Response from: KC Environmental Health (Pollution & Noise Control)		
2026/91775 – Land at Dowker Street, Milnsbridge, Huddersfield. HD3 4JU.		
Discharge of details reserved by conditions 4 (C(E)MP), 5 (CEMP: Biodiversity), 6 (road survey), 7 (retaining walls), 9 (surface water features in the Highway), 10 (culvert condition survey of Longwood Brook), 11 (Drainage Strategy), 12 (Flood routeing), 13 (temp drainage), 14 (Phase 1 Report), 15 (Phase 2 Report), 16 (Remediation), 18 (Estate road specification), 19 (access specification), 20 (footpath connection specification), 21 (Boundary Treatment), 23 (Acoustic report), 24 (facing materials), 25 (roofing materials), 29 (Landscape strategy)on previous permission 2025/92728 for erection of 33 dwellings with associated car parking and landscaping		
Date Responded: 23/07/2026	**Responding Officer: KB**	**Responding Ref: WK/202621382**

This response relates to conditions concerning environmental health only (Conditions 14, 15,16 and 23)

Contaminated Land

Condition 14 (Phase 1 Report) that was discharged on 18th February 2026 (Our Ref: WK202604260).

This response relates to Condition 15 (Phase 2 Report) and 16 (Remediation Strategy) only.

Condition 15 (Phase 2 Report) and 16 (Remediation Strategy)
The following documents have been submitted to support this consultation.

- Stage 2 Geo Environmental Report authored by ARP, dated 29th June 2023 (ref: WSD/01r1)
- Appendix G: - A Contamination Remediation Statement authored by ARP, dated 29th June 2023 (ref: WSD/01rem1)

These documents were reviewed as part of the original application 2025/92728 (Our Ref WK202538155 dated 19th December 2025). No new information has been received. Our comments are unchanged.

The Stage 2 report explains the site is the former site of Britannia Mills and residential buildings, with several mills, a dye works, and a gas works located within 200 metres of the site. A factory was present on site until it burned down in 2011. Two site investigations by ARP assessed several potential pollutant linkages: the initial investigation in 2015 involved 12 trial pits (TP1 TP12) excavated to depths between 1.6 metres and 3.8 metres below ground level, while a supplementary investigation in 2023 included four boreholes (WS2-WS5) and one hand pit (WS1), creating an approximate 25-metre grid pattern across the site. Overall, chemical analysis has been completed on 8 samples.

The ground conditions revealed varying depths of made ground over alluvium and sandstone bedrock. Chemical analysis, compared to human health screening criteria, identified organic and inorganic risks from made ground contamination. Chrysotile asbestos fibre was detected in several demolition rubble samples, and ash and clinker were identified in the made ground.

The report concludes that remediation is necessary, with a statement provided in Appendix 8 of the main document.

The proposed remediation strategy includes a minimum of 0.6 metre of uncontaminated topsoil and subsoil. Additionally, a 0.1-metre-thick hard break layer of coarse crushed stone or robust geotextile/geogrid is recommended beneath the clean cover soils. A protective barrier is proposed in the culvert area.

After placing the cover soils in residential garden areas and public open spaces, it will be necessary to confirm the required 0.6 metre of uncontaminated soil by excavating trial pits to this depth across these areas, at a rate of one pit per two plots and a maximum spacing of 25 meters in public open spaces. Laboratory testing of imported and site-won topsoil and subsoil will be required, with the testing schedule and necessary sample numbers specified in Section 5 of the report, in line with YALPAG guidance.

Comments
We have read the submitted reports and do not accept them based upon the following:

- At the time of the Phase 2 investigation in 2023, the northern end of the site was under dense vegetation cover (large bushes and small trees), with only a small clearing in the northeastern corner. Much of the northern end of the site was impenetrable due to the density of the vegetation. Given the site condition, the contamination encountered to date and the limited access in the north of the site, we request a post-clearance intrusive investigation to confirm the site condition and to inform a revised remediation strategy.
- Section 7.10 of the report states that further consideration of the presence of chrysotile is required.
- Whilst we acknowledge the statistical analysis undertaken, we require further examination and explanation of the organic and inorganic contaminants found in areas TP3, 4 and 12, we consider these to be potential hotspots.
- We require clarification regarding changes to site levels and require further commentary on asbestos risk and the depth of clean cover proposed.
- Until such time that Condition 15 (Phase 2 Report) has been discharged, we are unable to consider information to support Condition 16 (Remediation Strategy)

<u>Noise – Condition 23 Noise Assessment and Mitigation Measures</u>
A Noise Impact Assessment by Braiden Acoustics Ltd dated 28 July 2023 Ref 11140 was submitted as part of the initial application and was accepted as part of our consultation response dated 19th December 2025 (Our Ref: WK202538155) with the following mitigation *“The boundary treatment to the gardens should be close boarded timber fencing with a surface density of at least 10 kgm-2”.*

The evidence does not confirm that the mitigation has been carried out in full and such works shall be thereafter retained.

Recommendations

Until such a time that further information has been received by Environmental Health regarding a revised site investigation and remediation strategy, we are unable to discharge Conditions 15 (Phase 2 Investigation) and 16 (Remediation Strategy) and both conditions must remain.

Condition 23 requires evidence that the noise mitigation recommended in the Noise Impact Assessment by Braiden Acoustics Ltd has been implemented at the site. This condition must remain.

APPENDIX 4

BGS RADON REPORT

GeoReports

British Geological Survey

James Harley
IGE Consulting
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Manchester
M2 3WQ

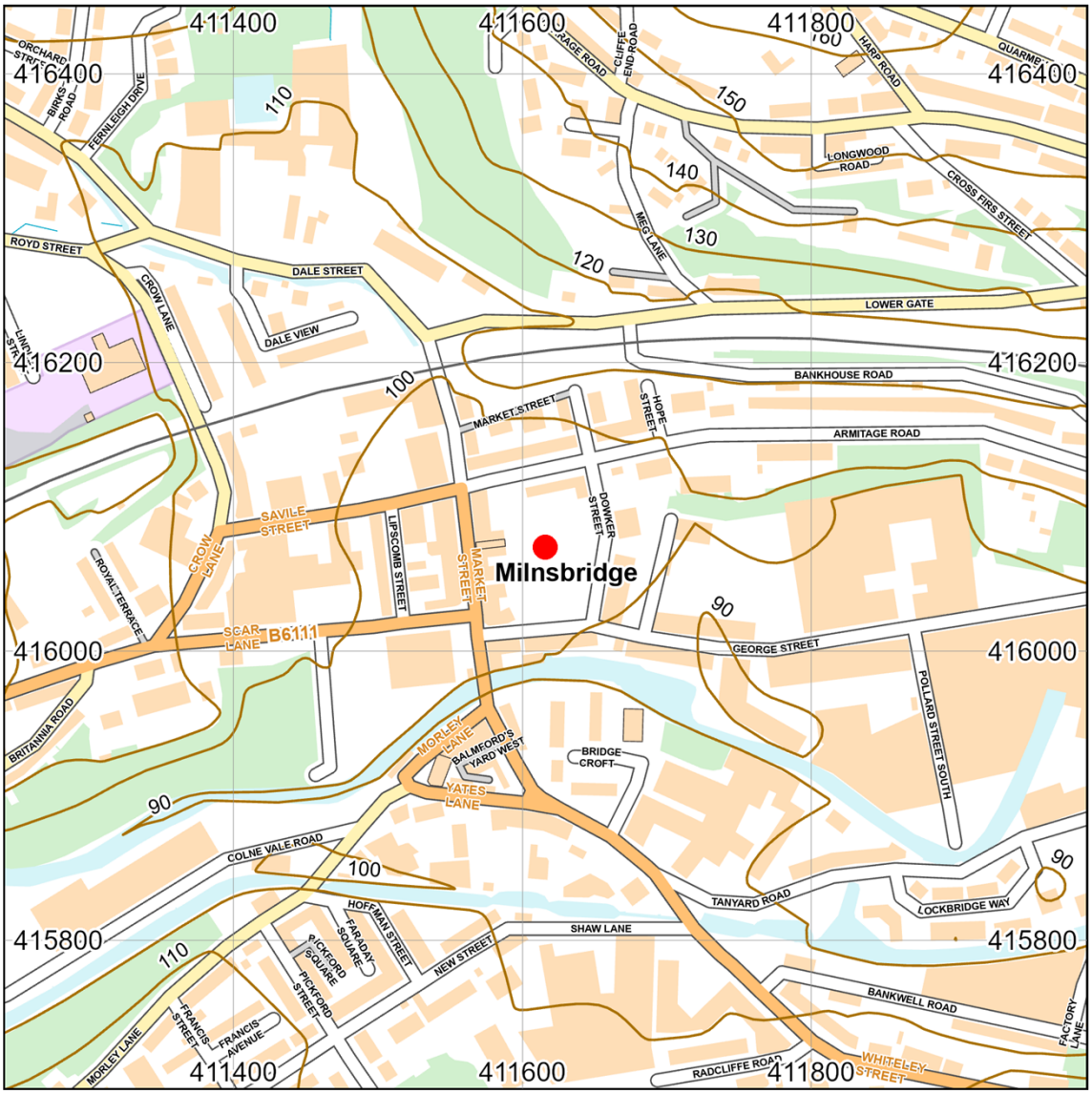
Radon Report

Advisory report on the requirement for radon protective measures in new buildings, conversions and extensions to existing buildings. The report also indicates whether a site is located within a radon Affected Area

Report Id: *BGS_350959/71201*

Client reference: 4569

Search location



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Search location indicated in red

Point centred at: 411616,416072

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Radon Report: UK

When extensions are made to existing buildings in high radon areas, or new buildings are constructed in these areas, the Building Regulations for England, Wales, Scotland and Northern Ireland require that protective measures are taken against radon entering the building.

This report provides information on whether radon protective measures are required. Depending on the probability of buildings having high radon levels, the Regulations may require either:

1. No protective measures
2. Basic protective measures
3. Full protective measures

This is an advisory report on the requirement for radon protective measures in new buildings, conversions and extensions. The report also indicates whether a site is located within a radon Affected Area

Requirement for radon protective measures

The determination below follows advice in *BR211 Radon: Guidance on protective measures for new buildings (2023 edition), which also provides guidance on what to do if the* result *indicates that protective measures are required.*

Is the property in an area where radon protective measures are required for new buildings or extensions to existing ones as described in publication BR211 (2023 edition) Radon: Guidance on protective measures for new buildings?

NO RADON PROTECTIVE MEASURES ARE REQUIRED FOR THE REPORT AREA.

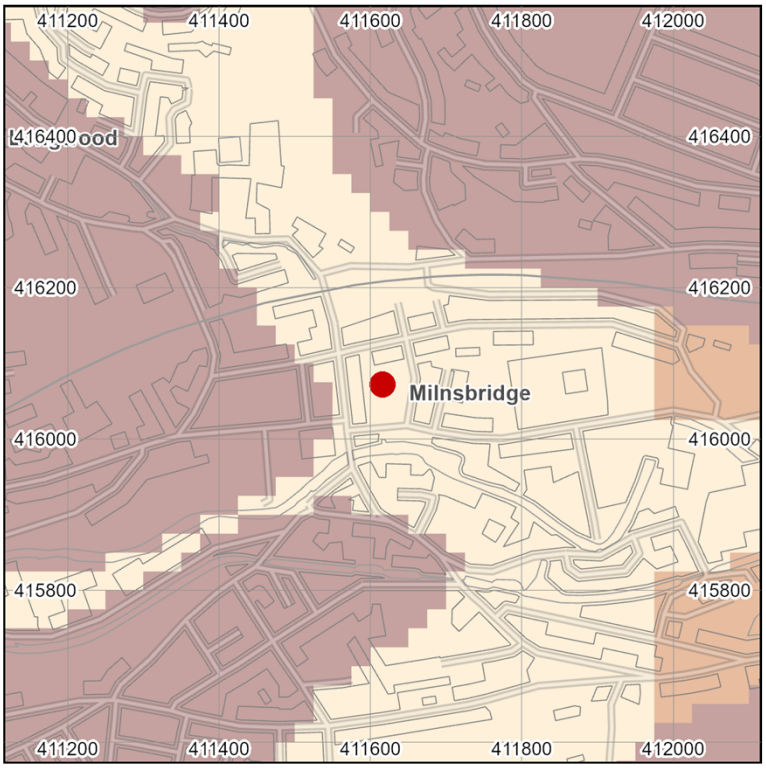
More details of the protective measures required are available in *BR211 Radon: Guidance on protective measures for new buildings (2023 Edition)*.

Whether or not the radon level in a building is above or below the radon Action Level can only be established by having the building tested. The UKHSA provides a radon testing service which can be accessed at www.ukradon.org or by telephone (01235 822622).

If you require further information or guidance, you should contact your local authority building control officer or approved inspector.

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Radon Affected Area



	% Homes estimated to be at or above the action level
	0-1%
	1-3%
	3-5%
	5-10%
	10-30%
	30-100%

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Scale: 1:10 000 (1cm = 100 m)
Search area indicated in red

Is the property in a radon Affected Area as defined by the UK Health Security Agency (UKHSA) and if so what percentage of homes are estimated to be at or above the Action Level? NO

Additional Information

THE PROPERTY IS IN AN AREA WHERE LESS THAN 1% OF HOMES ARE ESTIMATED TO BE AT OR ABOVE THE ACTION LEVEL. THE PROPERTY IS NOT IN A RADON AFFECTED AREA.

The UKHSA recommends a radon 'Action Level' of 200 Becquerels per cubic metre of air (Bq m^{-3}) for the annual average of the radon gas concentration in a home. Where 1% or more of homes are estimated to be at or above the Action Level the area should be regarded as a radon Affected Area.

This report informs you whether the property is in a radon Affected Area and the percentage of homes that are estimated to be at or above the radon Action Level at this location. Being in an Affected Area does not necessarily mean there is a high radon level within the property; the only way to determine the radon level is to carry out a radon measurement.

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The UKHSA advises that radon gas should be measured in all properties within radon Affected Areas and that homes with radon levels at or above the Action Level (200 Bq m^{-3}) should be remediated. Householders with levels between the Target Level (100 Bq m^{-3}) and Action Level should seriously consider reducing their radon level, especially if they are at greater risk, such as if they are current or ex smokers. Whether or not a home is in fact above or below the Action Level or Target Level can only be established by having the building tested. The UKHSA provides a validated radon testing service which can be accessed at www.ukradon.org.

The information in this report provides an answer to one of the standard legal enquiries on house purchase in England and Wales, known as Law Society CON29 Enquiries of the Local Authority (2016); 3.14 Radon Gas: Do records indicate that the property is in a “Radon Affected Area” as identified by the UKHSA. The data can also be used to advise house buyers and sellers in Scotland and Northern Ireland.

If you are buying a new build property in a Radon Affected Area, you should ask the builder whether radon protective measures were incorporated in the construction of the property.

If you are buying a currently occupied property in a radon Affected Area, you should ask the present owner whether radon levels have been measured in the property. If they have, ask whether the results were at or above the radon Action Level and if so, whether remedial measures were installed, radon levels were re-tested, and if the results of re-testing confirmed the effectiveness of the measures.

Further information on radon is available from the UKHSA at www.ukradon.org.

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What is radon?

Radon is a naturally occurring radioactive gas, which is produced by the radioactive decay of radium which, in turn, is derived from the radioactive decay of uranium. Uranium is found in small quantities in all soils and rocks, although the amount varies from place to place. Radon released from rocks and soils is quickly diluted in the atmosphere. Concentrations in the open air are normally very low and do not present a hazard. Radon that enters enclosed spaces such as some buildings (particularly basements), caves, mines, and tunnels may reach high concentrations in some circumstances. The construction method and degree of ventilation will influence radon levels in individual buildings. A person's exposure to radon will also vary according to how particular buildings and spaces are used.

Inhalation of the radioactive decay products of radon gas increases the chance of developing lung cancer. If individuals are exposed to high concentrations for significant periods of time, there may be cause for concern. In order to limit the risk to individuals, the Government has adopted an Action Level for radon in homes of 200 becquerels per cubic metre (Bq m^{-3}). The Government advises householders that, where the radon level is at or above the Action Level, measures should be taken to reduce the concentration.

Radon in workplaces

The Ionising Radiation Regulations 2017 require employers to take action when radon is present above a defined level in the workplace. Advice may be obtained from your local Health and Safety Executive Area Office or the Environmental Health Department of your local authority. The BRE publishes a guide (BR293)**: Radon in the workplace.** BRE publications may be obtained from the BRE Bookshop, Tel: 01923 664262, email: bookshop@bre.co.uk website: www.brebookshop.com

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- The topography shown on any map extracts is based on the latest OS mapping and is not necessarily the same as that used in the original compilation of the BGS geological map, and to which the geological linework available at that time was fitted.
- Note that for some sites, the latest available records may be historical in nature, and while every effort is made to place the analysis in a modern geological context, it is possible in some cases that the detailed geology at a site may differ from that described.

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Ordnance Survey

Report issued by
BGS Enquiry Service

APPENDIX 5

YALPAG ‘VERIFICATION REQUIREMENTS FOR COVER SYSTEMS; TECHNICAL GUIDANCE FOR DEVELOPERS, LANDOWNERS AND CONSULTANTS’
(VERSION: 4.1, DATED: JUNE 2021)











VERIFICATION REQUIREMENTS FOR COVER SYSTEMS

Technical Guidance for Developers, Landowners and Consultants

Yorkshire and Lincolnshire Pollution Advisory Group

Version 4.1 – June 2021

The purpose of this guidance is to promote consistency and good practice for development on land affected by contamination. The Local Authorities in Yorkshire, Lincolnshire, the North East of England, East Anglia, Greater Manchester and St Helens who have adopted this guidance are shown below:



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The Process of Verification *1*

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Appendix 2 – Checklist for Verification Reports *10*

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Disclaimer

This guidance is intended to serve as an informative and helpful source of advice. YALPAG will review this guidance every three years, but readers must note that legislation, guidance and practical methods are inevitably subject to change and therefore should be aware of current UK policy and best practice. This note should be read in conjunction with prevailing legislation and guidance, as amended, whether mentioned here or not. Where legislation and documents are summarised this is for general advice and convenience, and must not be relied upon as a comprehensive or authoritative interpretation. Ultimately it is the responsibility of the person/company involved in the development or assessment of land to apply up-to-date working practices to determine the contamination status of a site and the remediation and verification requirements.

Acknowledgments

YALPAG would like to thank North Lincolnshire Council, Leeds City Council, City of Bradford Metropolitan District Council, Barnsley Metropolitan Borough Council, Rotherham Metropolitan Borough Council, Wakefield Council, and Tameside Metropolitan Borough Council, for producing this guidance.

YALPAG would also like to acknowledge Liverpool City Council's Contaminated Land Team, Coopers Consulting Engineers for allowing us to use their guidance document and photographs and WSP Environmental Ltd for also donating photographs.

Consultation

39 Local Authorities and 6 Environmental Consultants were consulted over a four week period in 2010 during the production of the initial guidance. At that time, consultation comments were considered by the review panel and a number of revisions were made to the guidance to reflect these comments.

49 Local Authorities and 25 Environmental Consultants were consulted in 2021, during the production of this version [4.1] of the guidance. Consultation comments were considered by the review panel and a number of revisions were made to the guidance to reflect these comments.

Introduction

This guidance has been produced to help developers ensure that they can demonstrate that material brought onto a development site for gardens or areas of soft landscaping are suitable for use and do not present harm to people, the environment and/or property. It is intended to improve the quality of reports submitted to Local Authorities on this matter and to give contractors/consultants a point of reference to obtain approval for such work from their client. This guidance does not cover the geotechnical suitability of soils or materials, chemical suitability that does not affect human health e.g. sulphates, or importing soils contaminated with invasive (or injurious) plants.

The verification of cover systems should be an integral part of the remediation project and agreed between developers and regulators at an early stage in the project.

UK guidelines for remediation verification are set out within Land Contamination Risk Management[1] (LCRM) and the document on Verification of Remediation of Land Contamination[2]. This guidance note should be considered as supplementary advice in conjunction with these documents.

This guidance relates to the remediation of land contamination by using cover systems; however, the verification of the quality of imported material is equally important in other situations, such as raising levels for flood prevention or general landscaping works. This guidance could also be used in such instances.

The Process of Verification

Implementation plans for remedial works should always be site specific. Where a cover system and potentially, excavation, is the main remedial method or a component of an overall site remediation, specific goals will need to be set that are linked directly to the risk management strategy for the site in question.

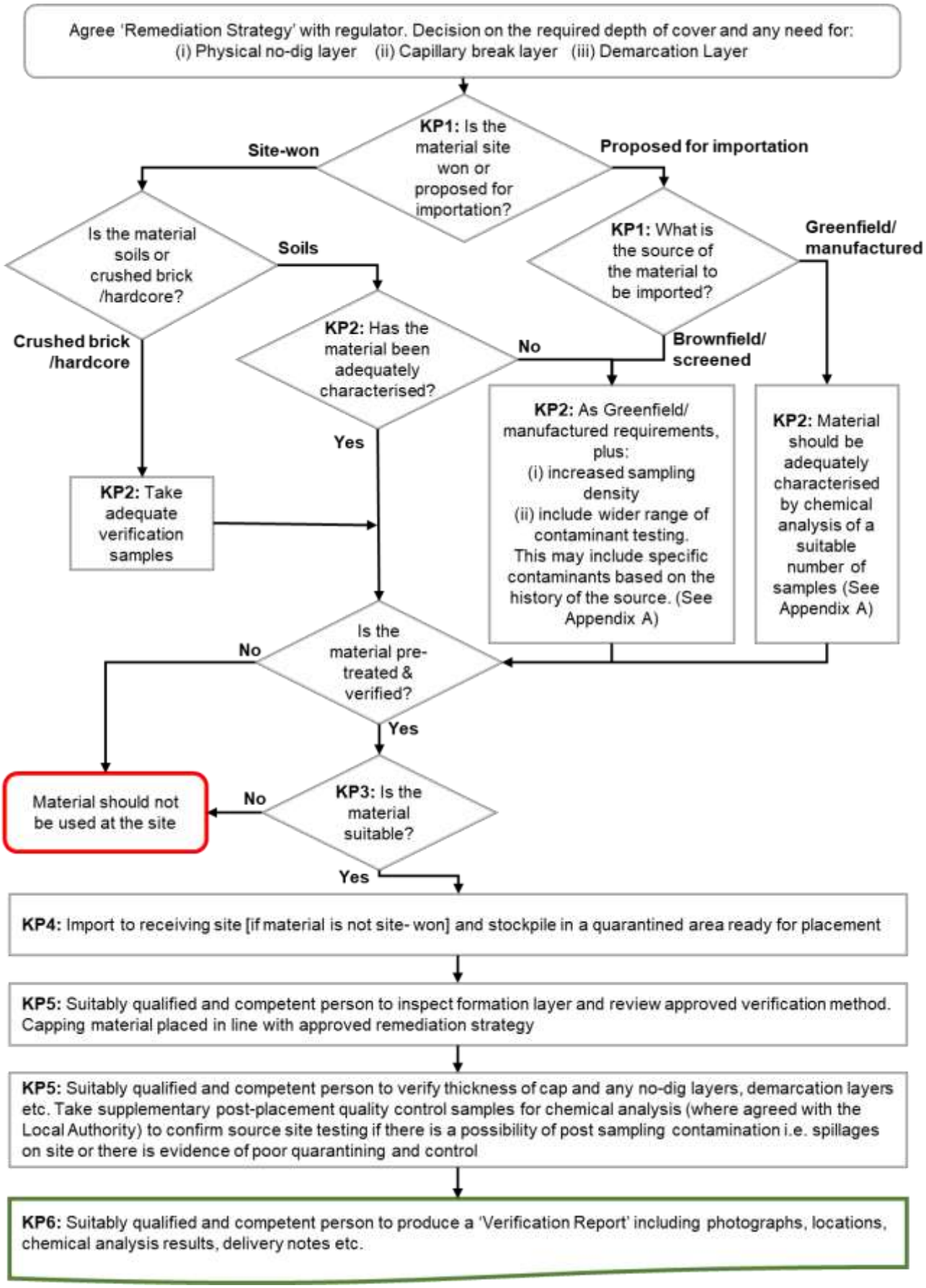
For cover and containment systems, verification will normally depend upon the provision of defensible measurements, observations and records. Critical factors to be considered are:

- What should be measured?
- When should they be measured?
- Where measurements need to be taken, what is the appropriate monitoring regime i.e. number and frequency of samples?
- Statistical constraints on sampling.

National Planning Policy Framework (NPPF) states that “planning policies and decisions should ensure that after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990”. The Verification Report is a key document to demonstrate compliance with NPPF, and the responsibility rests with the developer/applicant to submit the required Verification Report to complete the remediation and to discharge any planning conditions.

[1] Land Contamination Risk Management, Environment Agency, Oct 2020
[2] Verification of Remediation of Land Contamination. Environment Agency, Feb 2010

Overview Flowchart



Key Points

KP1: Source of Material

Material can be sourced from site won material i.e. crushed brick/hardcore or site-won soils from existing open or landscaped areas. In the interest of sustainability, Local Authorities promote the use of such site-won material providing that they are suitable for the intended end use of the site.

Alternatively, material can be sourced from other developments and commercial companies. Dependent on the source of the material it can be classified as either from a 'Greenfield/Manufactured' or 'Brownfield/Screened' source.

Broadly speaking material can be classified as follows:

Greenfield – Where documentary evidence is provided confirming that the source site has not been developed and that no past contaminative uses have occurred. Should evidence not be provided or approved by the Local Authority, please note that the source would be expected to be assessed as though it were a brownfield source.

Manufactured – from a commercial company who manufacture material by mixing or blending mineral soils (subsoil or sand) with an organic amendment (compost). If other soil component sources are used, documentary evidence should be provided confirming that the source site has not been developed and that no past contaminative uses have occurred. Should documentary evidence not be provided or approved by the Local Authority, please note that the source would be expected to be assessed as though it were a brownfield source.

Brownfield – material from a donor site that has previously been developed

Screened – material from a company who deal with skip/demolition waste which is screened for unsuitable material i.e. bricks, wood, plastic etc.

KP2: Characterisation of Material

It is essential that material is suitable for its intended use. Documentary evidence of the source of the material should be provided to the Local Authority. This may include desk study or site investigation reports. A defensible method is required to ensure the verification proposals are site specific and that the level of sampling reflects the need to ensure that imported material are suitable for their intended use.

Due to the diminishing supply of suitable Greenfield topsoil sources it has been found that the chemical quality of Greenfield sources is less reliable in certain areas. As a result the recommended analytical rate for the intended use of the development may vary between Local Authorities [see **Appendix 1a**].

When should this be done?

Sampling of material should be undertaken as early as possible i.e. prior to placement [for site won material] and prior to importation [for imported material]. This is to avoid the costly exercise of re-excavating unsuitable material and the possibility of cross contamination. Where the assessor has confidence that the material is of sufficient quality (i.e. tested by supplier, used previously) it is acceptable to test the material on site. Although, if it is deemed unsuitable it would have to be either removed off site or pre-treated at the cost and time of the developer. It is recommended that some verification samples are also taken once this material has been delivered to site to confirm suitability for use. Soils can become contaminated during transportation or when stockpiled on site.

What about certificates from commercial suppliers?

Where the material is provided by a commercial company, certificates or other industry Quality Protocol compliance i.e. WRAP, DoWCoP, will normally be accepted. This is on the proviso that it: (i) relates to the actual material being imported to the site and the type and amount of analysis is in line with what is prescribed in Appendix 1a; and, (ii) the certificates are less than two months old.

It is recommended that some additional verification samples are taken once this material has been delivered to site. Soils can become contaminated during transportation or when stockpiled on site.

Extreme caution should be given to importing material that has been recycled from demolition or skip waste as they could easily be contaminated e.g. asbestos containing materials. Please refer to "questions you should be asking your supplier" in **Appendix 1b** and include the responses in your report.

British Standard

Imported soils should be as specified in BS 3882:2015 for topsoil and BS8601:2013 for subsoil as 'suitable for their intended purpose'. Both British Standards relate mostly to nutrient content of topsoil and phytotoxic contamination and they do not consider contaminants that pose a risk specifically to human health. Soils should be tested for contaminants that are considered to pose a risk to human health in addition to those specified in the relevant British Standards to ensure that they are suitable for their intended use.

Initial screening

A visual / olfactory inspection of the material should be carried out by a suitably qualified and competent person to ensure that:

- It is a suitable growing medium;
- It is free from obvious contamination i.e. staining/free product etc.;
- It has not come from areas where Japanese Knotweed or other invasive or injurious plants, as specified by the Environment Agency, are suspected to have been growing;
- It is not odorous (could be considered a statutory nuisance);
- It is free from unsuitable material i.e. bricks, brick ties, timber and glass etc.); and,
- There are no visible signs of asbestos containing material (ACMs).

Testing schedule & number of samples

Chemical testing will normally be required on any materials that are to be used as cover material, even where this includes first generation quarried material. This should be carried out by a suitably qualified and competent person.

Appendix 1a explains in detail the sampling and testing requirements for a typical residential development. These are only guidelines and it may be necessary to deviate away from them depending on local and site-specific factors. It is recommended that the developer discusses any deviation with the Local Authority.

The following criteria sets out the requirements for sampling and testing:

- **Virgin Quarried Material** sampling needs to be 1 or 2 samples depending on the type of stone utilised, to confirm the inert nature of the material. Testing to include standard metals/metalloids (should include as a minimum As, Cd, Cr, CrVI, Cu, Hg, Ni, Pb, Se, Zn).

- **Crushed Hardcore, Stone, Brick (excluding asphalt)** a minimum of 1 sample per 500m^3. Testing to include standard metals/metalloids (as above), PAH (16 USEPA speciation), asbestos, total TPH. Any additional analysis dependant on the history of the donor site (e.g. phenol, total cyanide, BTEX, MTBE).

- **Greenfield/ Manufactured Soils** a minimum of 3 samples or, dependent on source and receptor, between 1 per 50m^3 and 1 per 250m^3. Testing to include standard metals/metalloids (as above), PAH (16 USEPA speciation), asbestos, pH and soil organic matter (SOM) (or calculated from total organic carbon (TOC)).

- **Brownfield/ Screened Soils** a minimum of 6 samples or dependent on source and receptor, between 1 per 50m^3 and 1 per 100m^3. Standard metals/ metalloids (as above), PAH (16 USEPA speciation), TPH (CWG banded), asbestos, pH and SOM (or calculated from TOC). Any additional analysis dependant on the history of the donor site (e.g. phenol, total cyanide, BTEX, MTBE).

The assessment criteria need to be UK based, e.g. LQM S4ULs, Defra C4SLs or other similarly derived GACs.

KP3: Suitability of Material

Based on the characterisation of material above, the material should be either deemed suitable or unsuitable. Obviously unsuitable material should not be used (unless it is treated to reduce levels of contaminants below agreed target levels i.e. bioremediation – this would have to be agreed and included within the Remediation Strategy) and an alternative source of material should be sought by the developer. If the material is considered suitable it can be imported (if not site won) and stockpiled in a suitably quarantined area [refer to **KP4**].

KP4: Stockpiling & Quarantining of Material

It is essential that the 'suitable' material is either placed in its intended area straight away i.e. soft/landscaped areas or stockpiled in a suitable quarantine area to prevent on-site contamination.

In the event that an assessor finds material has been stored in an unsuitable area, samples should be taken to confirm that no cross contamination has occurred (including a visual/olfactory check of the material). The material should then be suitably quarantined or placed at its intended location immediately.

KP5: Verification of Required Depth

In line with the agreed Remediation Strategy, it is important to establish that the required depth has been achieved and is consistent across the site. There are two main ways to achieve this:

Depth testing in situ – small trial pit excavated to allow measurement of its depth by standardised tape measure or measuring staff.

Topographical surveys – accurate survey of the base and final formation layer height to establish the depth of cover.

Specific Local Authority Policy

Please check with the local Contaminated Land Officer to establish:

- Which type of method for testing depth is accepted; and,
- The number of verification areas per property, plot, landscaped area or garden area (some Local Authorities recommend at least 2 per plot for residential developments).

Important Note: Where demarcation, physical no-dig and capillary break layers exist they should be verified for their thickness and presence during the time of their installation. Details of the demarcation layer should be agreed with the Contaminated Land Officer prior to placement. This will include the design, type and strength of the geotextile separator or visual warning membrane. The verification of depth and confirmation of such layers should be carried out by a suitably qualified and competent person.

KP6: Reporting

The purpose of verification documentation is to provide transparent reasoning why the remediation was required, a methodology about how it was to be undertaken and proof that the specified works have been undertaken and to provide confirmation that the site is "suitable for its intended use".

The document is utilised not only to satisfy conditions of planning permissions but also is to be kept on record by the Local Authority should queries be raised during the lifetime of the development and to confirm to future purchasers that the site is suitable for use.

National Planning Policy Framework (NPPF) states that "planning policies and decisions should ensure that after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990". The Verification Report is a key document to demonstrate compliance with NPPF, and the responsibility rests with the developer/applicant to submit the required Verification Report to complete the remediation and to discharge any planning conditions.

It is also essential that other supporting documentation is included within a report carried out by a suitably qualified and competent person e.g. laboratory analysis results, delivery tickets for material, certificates for imported material (or if unavailable, documented evidence of the source of the Greenfield material), trial pit logs etc. A checklist has been included in **Appendix 2** to give an idea on what information should be recorded.

Additionally, any reporting should include details of any measures required to maintain the cover system integrity in the future e.g. successive construction phases (management plans) and longer term (restrictive covenants on title deeds).

Photographic evidence for validating the depth of cover

The Local Authority ideally would recommend the following programme of photographs to be taken of the placement of inert cover:

- Photographs of any stockpiles and quarantine areas
- Proof that the depth of inert cover has been installed
- Proof of the quality of the material to be used as inert cover
- Proof there is a geotextile separator and visual warning membranes if used between the underlying material and suitable for use soils.
- Proof of the method of placement and different layers if appropriate
- Proof of the completed project
- Inclusion of background features which will aid locating the photograph
- Inclusion of site identification boards within the photos which show the date, position taken i.e. corner of plot 3 and the site name.
- Inclusion of photographs of site stockpiles and quarantine areas.

The presence of good quality photographs is essential to prove beyond doubt that the remediation has been done as specified both by method and position, and that the images have been taken from the specific area stated.

Refer to **Appendix 3** for examples of good photographic evidence.

Appendix 1a – Sampling & Testing Matrix

Type	Number of Samples	Testing Schedule	Assessment Criteria
	Please note that these guidelines apply to a typical residential development, and relaxation of the guidelines or more stringent requirements may apply dependent on local and site specific factors. Therefore, <u>all parameters need to be agreed with the Local Authority</u>.		
Virgin Quarried Material	1 or 2 depending on the type of stone utilised, to confirm the inert nature of the material.	Standard metals/metalloids (should include as a minimum As, Cd, Cr, CrVI, Cu, Hg, Ni, Pb, Se, Zn)	The assessment criteria need to be UK based, e.g. LQM S4ULs, Defra C4SLs or other similarly derived GACs.
Crushed Hardcore, Stone, Brick (excluding asphalt)	Minimum 1 per 500m^3	Standard metals/metalloids (as above), PAH (16 USEPA speciation), asbestos, total TPH. Any additional analysis dependant on the history of the donor site (e.g. phenol, total cyanide, BTEX, MTBE).	
Greenfield/ Manufactured Soils	Minimum 3 Dependent on source and receptor, between 1 per 50m^3 and 1 per 250m^3	Standard metals/metalloids (as above), PAH (16 USEPA speciation), asbestos, pH and soil organic matter (SOM) (or calculated from total organic carbon (TOC)).	
Brownfield/ Screened Soils	Minimum 6 Dependent on source and receptor, between 1 per 50m^3 and 1 per 100m^3	Standard metals/ metalloids (as above), PAH (16 USEPA speciation), TPH (CWG banded), asbestos, pH and SOM (or calculated from TOC). Any additional analysis dependant on the history of the donor site (e.g. phenol, total cyanide, BTEX, MTBE).	

Appendix 1b – Questions to Ask Your Soil Supplier Relating to Soil Quality

- What is the source of the material (refer to KP1)? If the source is Greenfield, can they provide evidence of this?
- Will all of the material be coming from the same source?
- Are you satisfied that the material is a suitable growing medium for the proposed end use?
- Has the supplier used an appropriate sampling protocol to ensure a representative sample is analysed? What volume of soil is represented by the analysis and does it comply with Appendix 1a?
- Does the testing include analysis of contaminants identified in Appendix 1a?
- Does the laboratory conducting the analysis have UKAS and MCERTS accreditation for the tests they are carrying out?
- Does the material comply with relevant waste regulations?
- Can I have a copy of the whole analysts report and does it include an interpretive section?
- Will the provided certificate be dated within the last 2 months?

Appendix 2 – Checklist for Verification Reports

Example only. Not to be considered as typical minimum requirements. Additional information should be included for non-cover systems aspects of the remediation i.e. gas protection measures etc.

Site Details	
Site Name / location	
Developer name	
Development use	
Plot No / description of landscaped area (inc plan of inspection areas)	
National Grid Reference	
Inspection visit date	
Supporting Evidence	
Description of remediation (as per agreed Remediation Method Statement 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)	
Recommendations	
Pass/fail	
If material fails, how will this be managed i.e. removed, treated	
Detail any further remedial works and/or inspection	
Signed off	

Failure to provide any of the above information may prevent planning conditions from being discharged.

Appendix 3 – Examples of Good Quality Photographs



© Coopers Consulting Engineers

Photograph 1:
Depth check of inert cover within area of public open space. Physical break layer and topsoil visible.



© WSP

Photograph 2:
Depth check of inert cover with Site & Location Information Board.



© Coopers Consulting Engineers

Photograph 3:
Depth check of inert cover within areas of front gardens.



© Coopers Consulting Engineers

Photograph 4:
Depth check of inert cover within areas of front gardens.



© Coopers Consulting Engineers

Photograph 5:
Depth check of inert cover within rear gardens. Taut string line spans across excavation.



© Coopers Consulting Engineers

Photograph 6: Depth check of inert cover within rear gardens. Taut string line spans across excavation.



© Coopers Consulting Engineers

Photograph 7: Shows the spatial location of the verification pit.



© Coopers Consulting Engineers

Photograph 8: Excavation within public open space and verification pit showing the presence of a remediation break layer at the base, a crushed sandstone inert fill overlain by topsoil.



© Coopers Consulting Engineers

Photograph 9: Inert crushed sandstone being delivered. The spatial area of the remediation can be observed from these photographs (old terrace housing).



© Coopers Consulting Engineers

Photograph 10: Inert crushed sandstone being delivered with visible remediation break layer. The spatial area of the remediation can be observed from these photographs (traffic lights).



© Coopers Consulting Engineers

Photograph 11:
Shows the remediation of the rear garden, with a significant depth (1.0m) of inert cover. This photograph has been stitched to form a panoramic photograph and hence there is slight distortion



© Coopers Consulting Engineers

Photograph 12:
Shows the remediation of the rear garden, with a significant depth (1.0m) of inert cover. Remediation break layer visible at the base of the excavation.

APPENDIX 6

ACCEPTABILITY CRITERIA AND EXAMPLE OF CORRECT COVER SYSTEM INSTALLATION

CLEAN COVER SYSTEM ACCEPTABILITY CRITERIA

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Soils intended for use in private gardens, public open space, and soft landscaping must be tested at the rates outlined above and compared to the following acceptability criteria, to confirm their suitability for use:

Suite	Determinand (mg/kg unless stated)	Acceptability Criteria for:			
		Private Gardens	Public Open Space (residential)	Soft Landscaping or Public Open Space (Park)	General Fill
A	Asbestos (%)	ND	ND	ND	<0.001 – 0.01%
B	pH	>6 - <8[3]	>6 - <8[3]	>6 - <8[3]	>5 - <10[3]
	Total Cyanide	0.5[3]	0.5[3]	0.5[3]	0.5[3]
	Free Cyanide	0.5[3]	0.5[3]	0.5[3]	0.5[3]
	Soluble Sulphate (mg/l)	500[3]	500[3]	500[3]	500[3]
C	Arsenic	37	79	170	640
	Beryllium	1.7	2.2	63	12
	Boron	290	21000	46000	240000
	Cadmium	11	120	560	190
	Chromium (III)	910	1500	33000	8600
	Chromium (VI)	6	7.7	220	33
	Copper	2400	12000	44000	68000
	Lead	200[1]	630[1]	1300	2330[1]
	Inorganic Mercury	40	120	240	1100
	Nickel	130	230	800	980
	Selenium	250	1100	1800	12000
	Vanadium	410	2000	5000	9000
	Zinc	3700	81000	170000	730000
D	Naphthalene	2.3	4900	1200	
	Acenaphthylene	170	15000	29000	
	Acenaphthene	210	15000	29000	
	Fluorene	170	9900	20000	
	Phenanthrene	95	3100	6200	
	Anthracene	2400	74000	150000	
	Fluoranthene	280	3100	6300	
	Pyrene	620	7400	15000	
	Benzo(a)anthracene	7.2	29	49	
	Chrysene	15	57	93	
	Benzo(b)fluoranthene	2.6	7.1	13	
	Benzo(k)fluoranthene	77	190	370	
	Benzo(a)pyrene	2.2	5.7	11	
	Indeno(1,2,3-cd)pyrene	27	82	150	
	Dibenz(a,h)anthracene	0.24	0.57	1.1	
	Benzo(ghi)perylene	320	640	1400	
E	Total PAHs				1000[4]
F	TPH-CWG - Aliphatic >EC5 - EC6	42	570000	95000	
	TPH-CWG - Aliphatic >EC6 - EC8	100	600000	150000	
	TPH-CWG - Aliphatic >EC8 - EC10	27	13000	14000	
	TPH-CWG - Aliphatic >EC10 - EC12	130	13000	21000	
	TPH-CWG - Aliphatic >EC12 - EC16	1100	13000	25000	
	TPH-CWG - Aliphatic >EC16 - EC21	65000	250000	450000	

	TPH-CWG - Aliphatic >EC21 - EC35				
	TPH-CWG - Aliphatic > EC35 - EC44	65000	250000	450000	
	TPH-CWG - Aromatic >EC5 - EC7	70	56000	76000	
	TPH-CWG - Aromatic >EC7 - EC8	130	56000	87000	
	TPH-CWG - Aromatic >EC8 - EC10	34	5000	7200	
	TPH-CWG - Aromatic >EC10 - EC12	74	5000	9200	
	TPH-CWG - Aromatic >EC12 - EC16	140	5100	10000	
	TPH-CWG - Aromatic >EC16 - EC21	260	3800	7600	
	TPH-CWG - Aromatic >EC21 - EC35	1100	3800	7800	
	TPH-CWG - Aromatic > EC35 - EC44	1100	3800	7800	
G	TPH > EC6 - EC40				5000[4]
H	Benzene	0.087	72	90	
	Toluene	130	56000	87000*	
	Ethylbenzene	47	24000	17000*	
	p & m-xylene	56	41000	17000*&**	
	o-xylene	60	41000	17000*	
	MTBE (Methyl Tertiary Butyl Ether)	LOD[3]	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*

EXAMPLE INSTALLATION OF CLEAN COVER SYSTEM

The following example shows the clean cover system installation in line with the following requirements:

- A 600mm clean cover system comprising:
    - A minimum of 150mm topsoil, underlain by
    - 300mm subsoil, underlain by
    - 150mm gravel break layer
    - A hi-viz geotextile marker

It should be noted that most cover systems require **either** a gravel break layer **or** a hi-viz geotextile marker, but the below example uses both:

Figure 1: First, the gardens are dug out to 600mm below FFL and lined with a hi-viz geotextile marker:



Figure 2: The geotextile is overlain by a 150mm clean stone break layer.



Figure 3: The break layer is overlain by 300mm sub-soil, seen here before spreading across the garden:



Figure 4: The sub-soil is overlain by 150mm topsoil to FFL:



Figure 5: The gardens are finished with turf. The overall cover system depth is 600mm:



EXAMPLE CLEAN COVER SYSTEM VALIDATION

The following example shows validation of a clean cover system in line with the following requirements:

- A 600mm clean cover system comprising:
    - A minimum of 150mm topsoil, underlain by
    - 450mm subsoil

Best practice requires three photos as follows:







Photograph 1 – Identifies the plot number and shows the validation dig location in relation to the plot.

Photograph 2 – Shows the validation depth clearly, using a staff and a marker which crosses the hole. Shows the topsoil and subsoil, and the base of the hole.

Photograph 3 – Shows the validation hole in context. The plot being validated can be seen, along with nearby plots.

The validation should be written up into a Verification Log, shown below:

Bartle House, Manchester, M2 3WQ
email: contact@igeconsulting.co.uk
web: www.igeconsulting.co.uk

Verification Log

Project Name:	
Project Number:	
Location:	
Client:	

Remediation Requirements:

Validation Requirements:

Plot Number:	
Grid reference:	
Inspection date:	
Engineer:	

Photographs:

Photographs shows

This plot has PASSED / FAILED* verification (*delete as appropriate*)

*Proposed further remedial works (if FAILED):

An additional inspection IS / IS NOT required for this plot (*delete as appropriate*)

APPENDIX 7

DISCOVERY STRATEGY

DISCOVERY STRATEGY

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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.

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.



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