Crossfield CONSULTING
GEOTECHNICAL ENVIRONMENTAL

CHURCHILL RETIREMENT LIVING

LAND AT ROUNDSTONE CARAVAN PARK, WORTHING ROAD SOUTHWATER, RH13 9JF

REMEDIATION STRATEGY

(REVISION 1)

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May 2024 (R1-July 2024)
Report No. CCL03455.CU48-R1

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Revision History		
Version Number	**Date of Issue**	**Revision Notes**
Original Issue	10 May 2024	n/a
Revision 1 (R1 appended to report number)	1 July 2024	Updated in accordance with comments received from Horsham District Council.

1. PROJECT BACKGROUND

1.1 Introduction

Churchill Retirement Living Ltd proposes to redevelop a site at Roundstone Caravan Park, Worthing Road, Southwater, with a two-storey block of apartments and one-and-a-half storey cottages with associated car parking, managed landscaping areas and private gardens. The development is for residents of retirement age.

The location of the site is shown on Figure 1. A pre-development site plan is presented as Figure 2. A proposed development layout of the site is illustrated on Figure 3.

Crossfield Consulting Limited has previously undertaken a Desk Study Appraisal in July 2021, a Ground Investigation in August 2021, and a follow-on post-demolition supplementary investigation in April 2024, which was revised and reissued in June 2024, and the findings of the investigation were provided in reports, as referenced.

The initial Ground Investigation in August 2021 concluded that there were no pollutants or asbestos above screening values. However, it suggested that investigations may be prudent below the structures post their demolition. The follow-on supplementary investigation found elevated levels of arsenic and certain polyaromatic hydrocarbons recorded under the former buildings and other parts of the site. Whilst the tested soils were negative for asbestos, fragments of cement-bound asbestos were discovered at one location in the ground during demolition/enabling works.

The Supplementary Ground Investigation Report recommended that the Cottages with private gardens should have a geotextile layer marking the boundary of the Made Ground followed by a 600 mm thick capping layer of suitable topsoil/subsoil. For the managed soft landscaping areas around the apartment block, a 450 mm thick capping layer of suitable topsoil/subsoil is required in planted landscaped areas and a 300 mm thick capping layer within the grassed areas. As a precaution, proprietary multi-layer barrier pipes for portable water supply were also recommended.

This Remediation Strategy, which has been devised in accordance with guidance within the Environment Agency Document Land Contamination Risk Management (LCRM) (2023) and NHBC/Environment Agency R&D Publication 66 (2008), identifies the remediation methods to be used and the verification testing to be undertaken.

This document has been reviewed by a Chartered Geologist and Specialist in Land Condition (SiLC). The Strategy has taken into account relevant planning consultation responses under Planning Application DC/22/0096 and Planning Condition 4 (Parts c and d) in the Decision Notice for that Application.

1.2 Site Description

This site description is based on observations made during a supplementary ground investigation undertaken in April 2024. A site plan and topographical survey (prior to demolition of former structures) is presented as Figure 2.

The site is an irregularly shaped parcel of land with an approximate area of 0.56 ha. The site is bisected by an access road running east to west and secured by fencing along the western boundary and each side of the road to minimise public access. The area north of the access road is disused and unsurfaced, with two container units present in the west. A stockpile, understood to be of asbestos-containing cemented materials, is present in the

northeast of the site and is covered with plastic sheeting. A telegraph pole is also present in the northeast of the site with two overhead wires connected and running off site to the south and southeast.

The area of the site south of the access road comprises a tarmac surfaced area, currently in use as a car park, with rough vegetation along the southern boundary and grass surfacing around the northern, eastern, and western perimeter. Two temporary cabins are present in the southeast of the site and a third is present in the southwest. A telegraph pole is present in the southeast corner of the site with a connected overhead wire running east to west along the southern boundary.

The site is flat and level with a slight overall fall to the south. However, most of the area north of the access road, excluding the northeast corner, is approximately 1 m lower than the access road and southern area of the site.

A mature oak tree is located at the current site entrance on Worthing Road. Trees are also present along the northern boundary and within the southeast corner.

2. SUMMARY OF GROUND CONDITIONS

The phased ground investigations have identified Made Ground across the site comprising a brown clayey sandy gravel or soft gravelly sandy clay with concrete, brick, and ashy fragments to depths of between 0.1 m to 0.8 m below ground level with an average depth of 0.3 m.

Beneath this, the Made Ground comprises reworked natural materials, which were proven to depths of between 0.2 m and 1.8 m below ground level with an average depth of 1.0 m. Typically, these materials consist of a firm to stiff yellowish brown gravelly sandy silty clay with anthropogenic inclusions such as brick, polystyrene, and ashy fragments, mudstone fragments and occasional sand pockets.

Beneath the reworked soils, Horsham Stone Member strata are present and consist of a firm to stiff brown and grey sandy clay with lithorelicts to a depth of at least 2.45 m, the maximum depth investigated.

Groundwater has been recorded across the site at between 0.6 m and 2.45 m depths during the intrusive investigations in eleven of the twenty-two exploratory holes progressed at the site. Typically, the shallowest groundwater inflows have been noted in the area to the south of the main access road.

3. REMEDIATION OBJECTIVES

3.1 Proposed Remediation Works

The remediation objectives for this site are such that, on completion of the works:

1) there will be no unacceptable risks to the health of end users of the site,

2) there will be no unacceptable environmental risks relating to off-site migration and effects on surface water or groundwater resources, and

3) structures and services will not be adversely affected by ground conditions.

The design of the remediation works has been based on a risk assessment using the information obtained from relevant ground investigation data. The proposed works will deal with the presence of unacceptable (defined based on risk assessments presented in the *S*upplementary Ground Investigation Report*)* soil contamination and its influence on end users, controlled waters, foundations, drainage, and services, as applicable.

Table 1 presents a revised copy of the Conceptual Site Model, originally prepared during desk study phase, and revised based on ground investigation information, for the site. As can be seen in the Revised Site Model, a number of valid contaminant linkages are present at the site and the works detailed in this Implementation Plan will, on successful completion, remove, mitigate, or manage the risks to the identified receptors.

The remediation works will be supervised and/or inspected, as appropriate, by suitably experienced geo-environmental staff from Crossfield Consulting and a completion report will be prepared confirming the works undertaken, including details of the inspections and verification testing.

The proposed remediation works relate to the known ground conditions at the site. It is possible that, during the groundworks phase of construction, ground or groundwater conditions not previously identified may be encountered and there may be associated potential contaminated land issues. If such ground conditions are encountered by groundworkers, the Site Manager will inform Crossfield Consulting and a suitably qualified geoenvironmental engineer will attend site to assess the ground, recover samples, if necessary, and issue an assessment, including the requirement for any additional remedial works. This is addressed by the procedure presented in the Discovery Strategy, as included in Appendix I.

To prevent fugitive dust becoming airborne and migrating to neighbouring properties, Made Ground materials will be kept damp during groundworks and earth moving operations. This will mitigate the possibility of airborne dust migration. In respect of asbestos, it is considered that this procedure is compatible with the only localised and limited asbestos materials identified to date in the ground (and instances where increased quantities of asbestos are identified or suspected in the ground should be reviewed and assessed under the Discovery Strategy).

Although the risks to construction workers are considered to be negligible based on the known ground conditions, it is recommended that appropriate personal protective equipment be worn by site operatives to minimise exposure to potential contaminants in the shallow soils.

4. REMEDIATION WORKS: CONSTRUCTION PHASE

4.1 Capping Material Placement in Soft Landscaping and Private Gardens

Due to ground conditions (certain PAHs, arsenic and very localised asbestos-containing cemented materials) identified locally across the site at levels above human health site specific assessment criteria (SSAC),, allowance is made in this Remediation Strategy for remediation work, to consist of a topsoil/subsoil capping layer, in proposed soft landscaping areas and proposed private gardens. Due to the relatively limited exceedances above the SSAC, it is considered that a simple cover system/capping layer (i.e. topsoil and, if applicable, subsoil), as defined in BRE Document BR 465 (2004), is appropriate as mitigation for the identified risks to human health. It is also recommended that a geotextile be placed below the capping layer in private gardens as a ‘marker’.

4.1.1 Proposed Soft Landscaping in the Apartment Development

Residents of the apartment development will not have rights to dig or cultivate the proposed soft landscaping areas and, therefore, the capping layer to be provided does not need to consider mitigating exposure risks

relating to digging. Due to the simple root system of grass, the potential for contaminants to be returned to the surface in areas of lawn is limited to the actions of worm activity. Based on evidence referenced in BRE Document BR 465 (2004), such activity is typically confined to the top 300 mm of soil. Therefore, a 300 mm thickness of imported topsoil/subsoil is considered to be justified beneath lawns. Plant roots typically remain within those materials that contain the highest concentrations of nutrients and, therefore, a 450 mm thickness of imported topsoil/subsoil is considered appropriate for landscaping containing typical plantings. The existing ground will have construction plant tracking across it such that, by the time topsoil/subsoil is to be placed, the ground will be well compacted. It is considered that roots will have difficulty penetrating the existing ground following placement of the topsoil/subsoil and, therefore, roots should remain within the capping layer.

4.1.2 Proposed Private Gardens in the Cottages Development

Residents of the cottages will have the right to dig and cultivate private garden areas and, therefore, in addition to root mixing and soil organism activity, the capping layer in private gardens will need to consider mitigating exposure risks associated with end user digging. Based on evidence referenced in BRE Document BR 465 (2004), typical garden digging activities equate to two spade depths and, therefore, a 600 mm thickness of imported topsoil/subsoil should be placed within private garden areas. The existing ground should be formally compacted prior to placing the 'marker' geotextile layer and topsoil/subsoil such that the compacted ground will be difficult to dig by end users and will act as an additional deterrent against digging through the capping layer.

4.1.3 Criteria and Testing Requirements for Imported Topsoil/Subsoil

If topsoil or subsoil is sourced from a brownfield site or a recycling facility, then a suite of testing that is compatible with the acceptability criteria in Table 2 should be provided by the supplier. Topsoil from a manufacturing facility should be imported in accordance with Environment Agency guidance Document RPS 190 Use of Manufactured Topsoil (2017). To minimise delays and to ensure that appropriate materials are brought to site in accordance with the necessary import protocols, material sources will be identified at an early stage and documentation provided by the supplier will be reviewed by Crossfield Consulting so that the source can be confirmed as appropriate (or rejected) and advice can be given on any requirements for compliance with EA RPS 190. Imported topsoil should also be compliant with BS 3882:2015 Specification for Topsoil and the supplier should provide a Declaration of Analysis to demonstrate compliance with BS 3882:2015 (and the required criteria are given in Table 3). Haulier delivery notes will be kept for each load of topsoil/subsoil brought to site to confirm that the materials have been sourced from the correct facility.

In addition to documentation supplied by the source facility, Crossfield Consulting will also sample the topsoil and, if applicable, subsoil materials after they have been imported to site to confirm that the correct materials have been provided by the supplier and that there has been no cross-contamination during transit. The testing will be compliant with Table 2 (modified as necessary based on the nature of the source site).

It is understood that Horsham District Council requires the following testing frequency for imported soils:

Intended End-Use	SOURCE/ORIGIN OF FILL MATERIAL			
	GREENFIELD	REMEDIATED	BROWNFIELD	UNKNOWN
GARDENS	1:200m^3	1:100m^3	1:50m^3	1:50m^3
SOFT-LANDSCAPING	1:200m^3	1:150m^3	1:150m^3	1:150m^3
OTHER	1:200m^3	1:200m^3	1:200m^3	1:200m^3

It is estimated that approximately 600 cubic metres of topsoil/subsoil will require to be imported in managed soft landscaping areas and approximately 300 cubic metres will require to be imported in private garden areas. It Is estimated, therefore, that between 5 No. and 10 No. samples of imported soils will require to be tested, depending on the provenance of the imported materials, to meet the Horsham District Council requirements. In addition to the indicated testing frequency, if materials are imported from multiple sources, then a minimum of three samples per material, per source will be tested.

Once the materials have been placed in soft landscaping and private garden areas, a geoenvironmental engineer from Crossfield Consulting will visit site to provide independent verification of the thickness of the materials that have been placed. A plan showing proposed verification locations is presented as Figure 4.

In addition to acting as a capping layer, the works described above will also provide a healthy growing medium for proposed plantings.

It should be noted that the acceptance criteria provided in Table 2 do not represent an upper limit of acceptable risk to human health. Therefore, if, at any stage of the testing, determinands are identified that exceed the values given in Table 2, additional risk assessment, including consideration of alternative or site specific acceptance criteria, may be appropriate to confirm that imported materials are not an unacceptable risk to end users of the development.

4.1.4 Verification of Landscape Material Placement

To demonstrate that the remediation works have been successfully completed, the following information will, as a minimum, be collected and presented in a Remediation Works Verification Report:

- Documentation provided by the topsoil/subsoil supplier to demonstrate imported soil suitability (including analytical laboratory test reports that demonstrate compliance with Table 2, if applicable).
- Delivery tickets for capping layer materials imported to site.
- Details of soil samples taken after material import to site.
- Results of analytical laboratory testing on samples taken after material import to site (demonstrating compliance with Table 2
- Specification sheets for the geotextile product used
- Photographs of soil inspections and confirmation that a sufficient thickness of topsoil/subsoil materials has been placed in soft landscaping and private garden areas.
- A plan showing the locations of soil inspections
- Based on the above information, confirmation that works have been undertaken in accordance with the Remediation Strategy.

4.2 Potable Water Pipes

With reference to UKWIR (2010), it is considered that the site would be classified as a “brownfield site”. Therefore, it is recommended that allowance be made for the use of multi-layer barrier pipe for potable water supply. Note that, a requirement for these remedial works will be dependent on the water supply company’s policies and it may not be necessary to undertake these works.

4.2.1 Verification of Potable Water Supply Pipe Installation

The installation of potable water supply pipes requires to be inspected and approved by the local water company once the company is satisfied that the pipe materials used are suitable and that the pipe has been correctly installed. On this basis, water company approval of the installation will be considered to act as

verification that appropriate water supply pipe materials have been used to be sufficiently protective of end-user health.

5. UNFORESEEN GROUND CONDITIONS

Given the ground investigation works that have been undertaken at the property, together with the site history, it is considered that risks to human health, the wider environment and construction materials have been adequately assessed. Hence, it is considered very unlikely that potential contamination would be encountered during development that had not previously been considered. However, a discovery strategy has been produced that outlines the procedure to be followed by site operatives should unexpected (and potentially "contaminated") ground conditions be encountered during development. This procedure is presented in Appendix I.

6. VERIFICATION AND REPORTING

On completion of the work indicated in this Remediation Strategy, a Remediation Verification Report will be prepared that will comply with the requirements of the local planning authority and NHBC. The report will provide the following information:

- Confirmation that Made Ground materials were kept damp during ground works.
- A record of the imported topsoil/subsoil materials and confirmation that their placement is compatible with the requirements of the simple cover system (including a geotextile marker in private garden areas).
- Confirmation that potable water supply pipes have been installed to the satisfaction of the local water supply company
- Confirmation that no unforeseen ground conditions were encountered, or details of the assessment and remediation work undertaken if such conditions were encountered.
- An updated Site Model to reflect conditions following development and completion of remediation.
- Confirmation that works have been completed in accordance with the Remediation Strategy

REFERENCES

Site Specific References

Crossfield Consulting Limited (July 2021) *Land at Roundstone Caravan Park, Worthing Road, Southwater, RH13 9JF, Desk Study Appraisal* Report No. CCL03455.CN89

Crossfield Consulting Limited (August 2021) *Land at Roundstone Caravan Park, Worthing Road, Southwater, RH13 9JF, Ground Investigation Report* No. CCL03455.CO03

Crossfield Consulting Limited (April 2024, R1: June 2024) *Land at Roundstone Caravan Park, Worthing Road, Southwater, RH13 9JF, Supplementary Ground Investigation Report* No. CCL03455.CU35-R1

Technical References

BRE (2004) BR465 – *Cover Systems for Land Regeneration* Building Research Establishment

BSI (2013) *BS 10175:2011+A2:2017 Code of Practice for Investigation of Potentially Contaminated Sites* British Standards Institution

BSI (2015) *BS 3882:2015 Specification for topsoil and requirements for use* British Standards Institution

BSI (2020) *BS EN ISO 21365:2020 Soil Quality – Conceptual Site Models for Potentially Contaminated Sites British Standards Institution*

CIRIA (2001) *CIRIA C552 – Contaminated Land Risk Assessment: A Guide to Good Practice* Construction Industry Research Association

Environment Agency (October 2020, Updated July 2023) *Land Contamination Risk Management (LCRM)* EA

Environment Agency (2010) *Guiding Principles for Land Contamination – GPLC1 to 3* EA

Environment Agency (2017) *RPS 190 Use of Manufactured Topsoil* EA

HSE (1991) *Protection of Workers and the General Public During the Development of Contaminated Land* Health and Safety Executive

Ministry of Housing, Communities and Local Government (2023) *National Planning Policy Framework*

NHBC and Environment Agency (2008) *Guidance for the Safe Development of Housing on Land Affected by Contamination R&D Publication 66: 2008*

UKWIR (2010) *Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites Report Ref. No. 10/WM/03/21 UK Water Industry Research*

TABLES

TABLE 1

CONCEPTUAL SITE MODEL

	Potential Contaminant Source	Potential Contaminants	Potential Pathway	Receptors and Assessed Contaminant Linkage
On-Site Solid	Small scale storage of lubricating oils and chemicals may be present within the former caravan workshop area of the site but no large-scale storage of such materials. Workshop floor and hard surfacing across site would prevent potential contaminants entering the ground. Demolition of historical buildings Imported coarse-grained materials to create level platforms may have included demolition-derived or ashy materials	Petroleum Hydrocarbons Polyaromatic Hydrocarbons (PAHs) Asbestos fibres/ACM Asbestos fibres/ACM Toxic and phytotoxic metals Polyaromatic Hydrocarbons (PAHs)	Dermal and oral exposure pathways (including air-borne migration) are present during construction phase but will generally not be present following development due to building and hardstanding effective barriers. Limited garden and landscaping areas after development represent possible dermal, oral and dust exposure pathways. ***Release into Liquid Phase*** n/a – no source ***Release into Vapour Phase*** n/a – no source	**Human Health** *End Users:* Possible contaminant linkage *Groundworkers:* Possible contaminant linkage *Neighbouring Properties/General Public:* Possible contaminant linkage [Above contaminated linkages mitigated by remediation works included in this Remediation Strategy, as applicable] ***Buried Structures & Services*** *Buried concrete:* No contaminant linkage *Potable water pipes:* Possible contaminant linkage *Other buried structures:* No contaminant linkage [Above contaminated linkage mitigated by remediation works included in this Remediation Strategy, as applicable] **Landscape and Garden Areas** Possible contaminant linkage [Above contaminated linkage mitigated by remediation works included in this Remediation Strategy, as applicable]
Off-Site Solid	No evidence of potential source	n/a		
On-Site Liquid	No evidence of potential source	n/a	n/a – no source ***Release into Vapour Phase*** n/a – no source	
Off-Site Liquid	No evidence of potential source	n/a		
On Site Liquid	No evidence of potential source	n/a	n/a – no source	**Controlled Waters** *Groundwater:* Secondary A aquifer strata, no groundwater source protection zone: No contaminant linkage *Surface Water*: Drain along western site boundary: No contaminant linkage
Ground Gases	No historical/active landfills Site not located in a radon affected area	n/a n/a	n/a – no source	**Human Health** *End Users:* No contaminant linkage

NOTES

1. The above conceptual model is based on CIRIA C552 (2001) and BS 10175:2011+A2:2017, BS EN ISO 21365:2020 and Environment Agency Land Contamination Risk Management (LCRM) (2020).
2. The Conceptual Site Model is prepared from available desk study information. Where a site walkover or ground investigation identifies information that was not known at the desk study stage, such information is used to modify the Model.
3. Applicable commentary, based on the Investigation Reports assessment, is provided as blue text in square brackets to confirm the indicated contaminant linkage as valid or not.

ACCEPTANCE CRITERIA FOR IMPORTED SOILS

Parameter	Acceptance Criteria Concentration not to Exceed (mg/kg)		
	1% to <2.5% Soil Organic Matter	2.5% to <6% Soil Organic Matter	6% or Greater Soil Organic Matter
Arsenic	37 [2]	37 [2]	37 [2]
Cadmium	11 [2]	11 [2]	11 [2]
Chromium (III)	910 [2]	910 [2]	910 [2]
Chromium (VI)	6 [2]	6 [2]	6 [2]
Lead	200 [3]	200 [3]	200 [3]
Inorganic Mercury	40 [2]	40 [2]	40 [2]
Selenium	250 [2]	250 [2]	250 [2]
Petroleum Hydrocarbons (TOTAL)	500 [4]	500 [4]	500 [4]
Aliphatics $C_5 – C_6$	42 [2]	78 [2]	160 [2]
Aliphatics $C_6 – C_8$	100 [2]	230 [2]	- [5]
Aliphatics $C_8 – C_{10}$	27 [2]	65 [2]	150 [2]
Aliphatics $C_{10} – C_{12}$	130 [2]	330 [2]	- [5]
Aromatics $C_6 – C_7$	70 [2]	230 [2]	300 [2]
Aromatics $C_8 – C_{10}$	34 [2]	83 [2]	190 [2]
Aromatics $C_{10} – C_{12}$	75 [2]	180 [2]	380 [2]
Polyaromatic Hydrocarbons (TOTAL)	100 [4]	100 [4]	100 [4]
Naphthalene	2.3 [2]	5.6 [2]	13 [2]
Benz(a)anthracene	7.2 [2]	11 [2]	13 [2]
Chrysene	15 [2]	22 [2]	27 [2]
Benzo(b)fluoranthene	2.6 [2]	3.3 [2]	3.7 [2]
Benzo(a)pyrene	2.2 [2]	2.7 [2]	3.0 [2]
Indeno(123cd)pyrene	27 [2]	36 [2]	41 [2]
Dibenzo(ah)anthracene	0.24 [2]	0.28 [2]	0.3 [2]
Asbestos	Absent [8]	Absent [8]	Absent [8]

NOTES

1. Provided that documentation (such as a desk study information) is available that demonstrates that soil material is from a source that is not associated with past industrial use or waste disposal then analytical tests may not be necessary. Conversely, if documentation indicates that the source site is associated with past industrial use or waste disposal, it may be necessary to extend the testing indicated above depending on the details provided in the documentation.
2. Suitable for Use Level (S4UL) published by LQM/CIEH, 2015 – Residential With Plant Uptake land use. S4UL assumptions comprise soil organic matter as indicated in the above Table, soil pH of 7 and sandy loam soil type. S4ULs are copyright © Land Quality Management Limited reproduced with permission; Publication Number S4UL3133.
3. Category 4 Screening Level (C4SL) Residential With Plant Uptake, Department for Environment Food and Rural Affairs (March 2014)
4. Upper bound limit of inert waste concentration (criteria intended as a limiting value for aesthetic reasons for imported materials that may be placed at the surface or at near surface depths; individual determinand criteria are intended to be protective of human health)
5. TPH-CWG fractions that are not presented in this Table would have acceptability criteria greater than the value presented for total petroleum hydrocarbons (TPH). Therefore, any soil meeting the TPH criteria of 500 mg/kg would also meet the acceptability criteria for the non-presented fractions by default. Polyaromatic hydrocarbon (PAH) species that are not presented would have acceptability criteria greater than the total PAH value specified.
6. The above parameters relate to soil materials (including topsoil/subsoil) imported to site that may be obtained from a brownfield source. The above criteria may not apply to soils obtained from a greenfield source and do not apply to materials obtained as aggregates from a source such as a quarry.
7. This Table generally uses generic values as assessment criteria. If laboratory tests relating to imported materials identify determinands at concentrations above those indicated in the above Table, it may be appropriate to calculate site specific acceptability criteria for individual determinands or consider the suitability of alternative assessment criteria rather than rejecting a particular source material (particularly for imported materials used as general fill).
8. Asbestos fibres recorded as not detected or detected at concentrations below the laboratory reporting limit (maximum acceptable method reporting limit of 0.001%) will be deemed to meet the criteria. Visible asbestos containing materials (ACM), if present, will not be acceptable and is to be hand-picked and removed.

SOIL QUALITY REQUIREMENTS FOR IMPORTED TOPSOIL

Parameter	Acceptance Criteria – For Multipurpose Grade Topsoil		
Soil Texture	To comply with permitted soil texture classes on Figure 1 in BS 3882:2015		
Stone content			
> 2mm	30% (maximum)		
> 20 mm	10% (maximum)		
> 50 mm	0% (maximum)		
pH Value	5.5 to 8.5		
Loss on Ignition			
Clay 5% to 20%	3 to 20%		
Clay 20% to 35%	5 to 20%		
Nutrient Content			
P (extractable)	16 to 140 mg/l		
K (extractable)	121 to 1500 mg/l		
Mg (extractable)	51 to 600 mg/l		
N (total)	>0.15%		
Electrical conductivity	3300 µS/cm (maximum)		
Phytotoxic Contaminants	**Soil pH <6**	**Soil pH 6 to 7**	**Soil pH >7**
Zinc	<200 mg/kg	<200 mg/kg	<300 mg/kg
Copper	<100 mg/kg	<135 mg/kg	<200 mg/kg
Nickel	<60 mg/kg	<75 mg/kg	<110 mg/kg
Visible Contaminants	<0.5%		
of which are plastics	<0.25%		
Sharps	Zero in 1 kg of air dried soil		

NOTES:

1. It should be appreciated that topsoil quality generally deteriorates with storage in large stockpiles. Therefore, topsoil should be handled and stored on site in accordance with BS 3882:2015 to maintain topsoil quality.

2. The above parameters relate to the topsoil/growing medium only and not to subsoil or other imported soils.

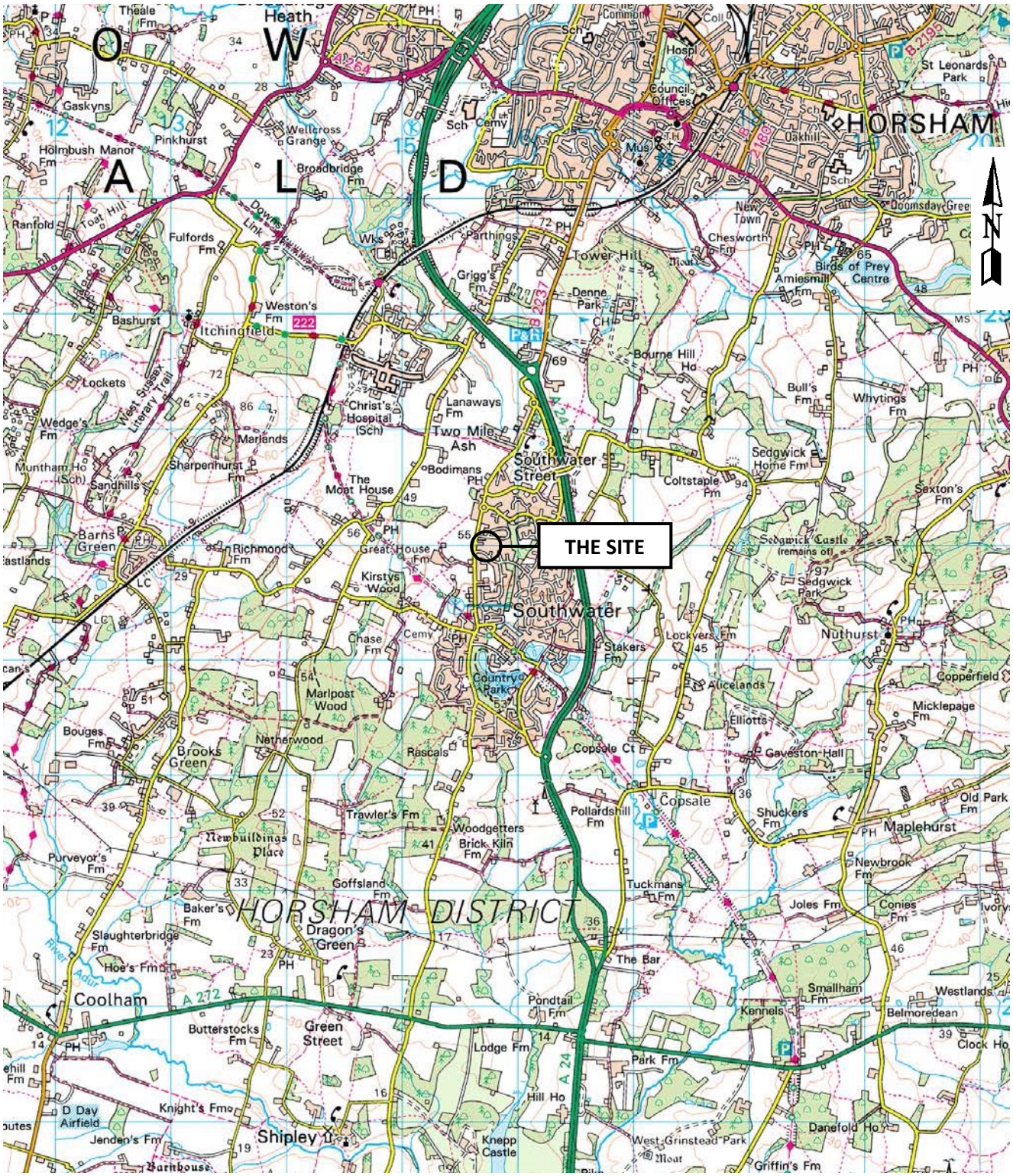
3. All tests to be undertaken in accordance with BS 3882:2015 Specification for Topsoil.

4. The topsoil supplier should complete a Supplier's Declaration of Analysis (including analysis certificate and details of the sampling protocol), confirming compliance with BS 3882:2015 Specification for Topsoil

5. If it is proposed to import topsoil to site then the landscaping specialist responsible for the proposed planting schedule should confirm that imported topsoil is suitable for the proposed plantings. Alternative topsoil grades to multipurpose may be applicable depending on the planting schedule. Non-compliance with the above Table is not applicable in relation to a contaminated land risk assessment and the landscaping specialist should determine if the source material should be accepted or rejected.

FIGURES

FIGURE 1

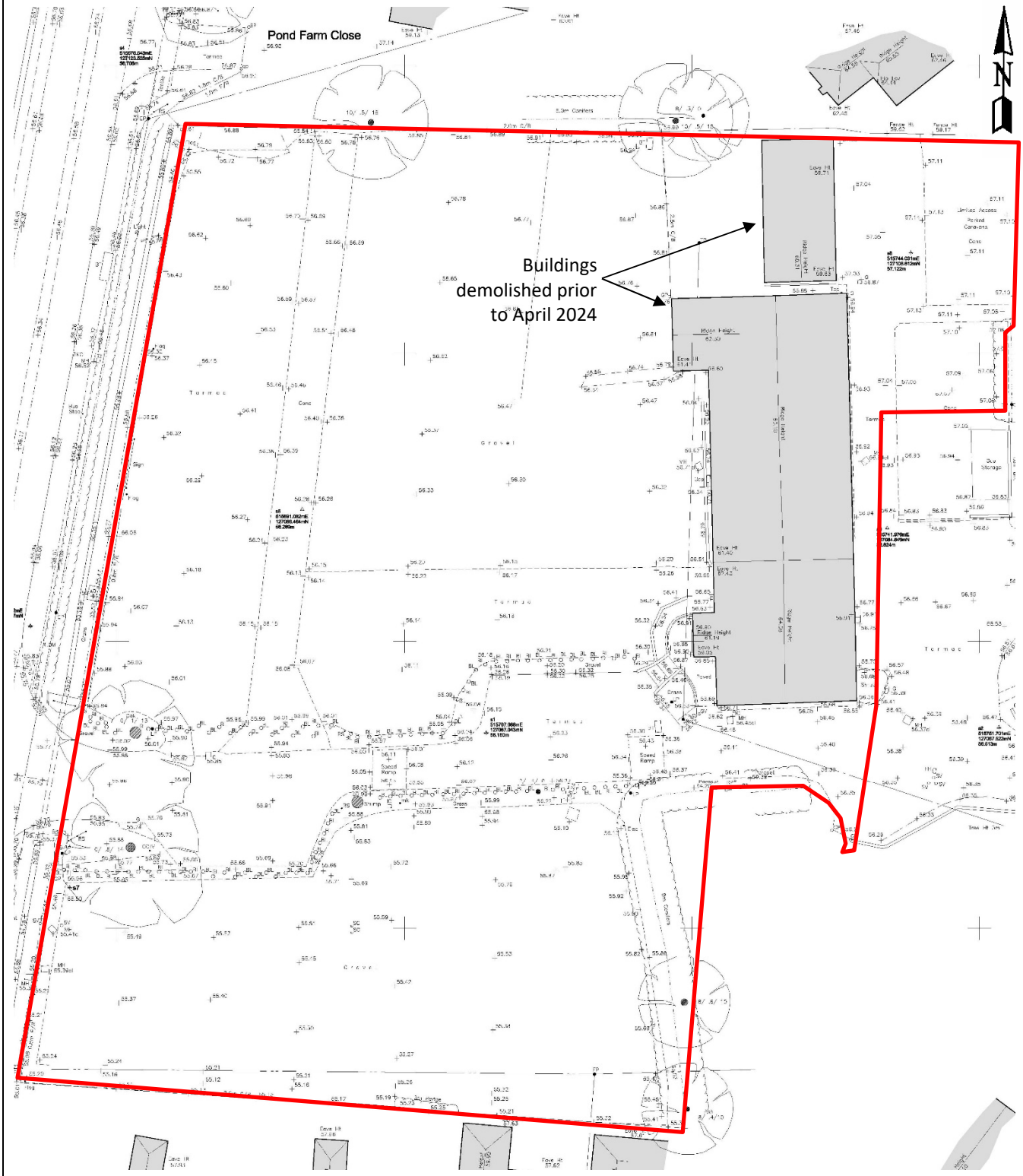


SITE LOCATION PLAN

Scale 1: 50,000

Reproduced from the 2013 1:50,000 Ordnance Survey map with the permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office, © Crown copyright. Licence No.100014660

FIGURE 2



PRE-DEVELOPMENT SITE PLAN AND TOPOGRAPHICAL SURVEY

Scale 1: 500

Reproduced from the topographical survey – D&H Surveys, July 2021

FIGURE 3



PROPOSED DEVELOPMENT PLAN

Scale 1: 500

Reproduced from Dwg No. 20083SW_PL_002 Rev. P3 by Planning Issues

FIGURE 4



PROPOSED VERIFICATION LOCATION PLAN

Scale 1: 500

Reproduced from Dwg No. 20083SW_PL_002 Rev. P3 by Planning Issues

APPENDIX I

APPENDIX I – DISCOVERY STRATEGY FOR POTENTIALLY CONTAMINATED MATERIALS ENCOUNTERED DURING CONSTRUCTION WORKS

Planning Condition Requirements

This Strategy defines the process to be undertaken on site in the event that potentially contaminated ground or suspicious objects are encountered during development that had not previously been identified at the site. It is intended that this Strategy should be understood and followed by all on-site workers and for all new site workers to be made aware of the procedure. A copy of this Strategy should be prominently displayed at all times during construction, such that it is readily accessible to all site operatives. This Strategy, and any work undertaken in accordance with it, is intended to fulfil the requirements of the local planning authority.

Identifying Potentially Contaminated Material

Materials or conditions that may be encountered at the site and that could indicate the presence of contamination include, but are not limited to:

- Unrecorded tanks
- Soils that are oily or have a strong fuel odour
- Solvent-type odours
- Certain man-made objects such as paint cans, oil drums, car parts etc.
- Fragments of asbestos

If any other material is encountered that causes doubt, advice should be sought.

Procedure

On discovery of any suspicious materials within the ground during development, the following procedure should be followed:

- Site personnel to inform the designated Site Manager immediately. Site personnel should not investigate the materials encountered.
- The Site Manager should determine whether this is potential contamination that has not previously been assessed by referring to available information in the reports detailed below. The Site Manager will then inform Crossfield Consulting Limited. The relevant area will be cordoned off and work will cease in this area.
- Crossfield Consulting Limited will attend site to inspect the ground and recover samples for analytical laboratory testing and undertake additional risk assessment, as appropriate. Crossfield Consulting Limited will then inform the local authority and, in due course, forward a copy of any assessment, factual information and, where necessary, remediation strategy. Any proposed remediation works will be agreed with the Council prior to undertaking such work.

Contact Details

- Crossfield Consulting Limited – Tel: 01926 815678 Email: mail@crossfield-consulting.co.uk

Relevant Reports by Crossfield Consulting Limited

- Ground Investigation Report No. CCL03455.CO03 – August 2021
- Supplementary Ground Investigation Report No. CCL03455.CU35-R1 – April 2024 (R1: June 2024)
- Remediation Strategy – Report No. CCL03455.CU48-R1 – May 2024 (R1: July 2024)