



Elemental GI Ltd

REPORT: PHASE 2 ENVIRONMENTAL INVESTIGATION
FOR LAND NORTH OF BARRIER BANK,
COWBIT

CLIENT: EAST ANGLIAN CIVILS LTD

PHASE 2 ENVIRONMENTAL INVESTIGATION: LAND NORTH OF BARRIER BANK, COWBIT

CONTENTS

SEMI-TECHNICAL SUMMARY

- 1.0 INTRODUCTION**
 - 1.1 Report Status
 - 1.2 Previous Reports
 - 1.3 The Site
- 2.0 SCOPE OF PHASE II INVESTIGATION**
 - 2.1 Potential Areas of Concern
 - 2.2 Site Investigation Layout
- 3.0 SITE INVESTIGATION WORKS**
 - 3.1 Completion of Works
 - 3.2 Site Investigation Details
 - 3.3 *In Situ* Soakaway Testing
- 4.0 GEOTECHNICAL ASSESSMENT**
 - 4.1 General Ground Conditions
 - 4.2 Geotechnical Laboratory Testing
 - 4.3 *In Situ* Testing
 - 4.4 Geotechnical Considerations
 - 4.5 Foundation Recommendations
- 5.0 ENVIRONMENTAL ASSESSMENT**
 - 5.1 Selection of Screening Values
 - 5.2 Environmental Laboratory Testing
 - 5.3 Sulphate Classification
 - 5.4 Statistical Assessment
 - 5.5 Radon and Ground Gas
- 6.0 UPDATED CONCEPTUAL SITE MODEL**
 - 6.1 Human Health CSM
 - 6.2 Potential Pollutant Linkages
 - 6.3 Controlled Waters Summary
 - 6.4 Model Status and Uncertainty
- 7.0 RECOMMENDATIONS**
 - 7.1 Foundations and Enabling Works
 - 7.2 Groundwater
 - 7.3 Road Construction
 - 7.4 Drainage
 - 7.5 Radon and Ground Gas
 - 7.6 Excavations
 - 7.7 Contamination
 - 7.8 Remediation
 - 7.9 Topsoil
 - 7.10 Mining
 - 7.11 Further Works

APPENDICES

- I PROPOSED SITE LAYOUT PLAN**
- II SITE LOCATION PLAN**
- III SITE FEATURES PLAN**
- IV GENERAL PHOTOGRAPHIC RECORD**
- V SITE INVESTIGATION PLAN**
- VI EXPLORATORY HOLE LOGS**
- VII LABORATORY TESTING DATA**

Semi-Technical Summary

The reader is referred to the terms and conditions which accompany this report, and which are presented at the end of this document. Please refer to the terms and conditions shown at the end of this report for an important list of exclusions / assumptions etc.

This semi-technical summary provides a brief overview of the main conditions which have been noted on site. These features / factors (alongside others) are explained fully in the following report and the following should therefore not be referred to in isolation. **No reliance should be placed on the following summary until the whole report has been read in full.**

Ground Conditions / Foundations	The site is underlain by made ground and subsequently by natural predominantly cohesive soils. It is understood that the Client has already selected a piled foundation solution for the site.
Contamination	Elevated concentrations of heavy metals, TPH and PAHs have been recorded (variably) in made ground at the site. We have discussed the findings of this investigation with our Client, who has confirmed that site levels shall be raised as part of proposed development layouts / construction designs. It is understood that the final garden levels will be at least 600mm above the current elevations, which should provide a sufficient 'cap' which would break the pollutant linkages identified within this report. On this basis additional remedial works are not considered necessary at this stage and a remedial method statement (RMS) would therefore not be required, subject to Regulatory Authority / NHBC (or similar) approval. It has been conservatively recommended that ground gas protection measures corresponding to a 'CS2' classification should be integrated into future structures.
Recommendations	▪ Submission of this report to the regulators (as necessary) by the Client; ▪ Verification of appropriate utility construction materials with the relevant providers; and ▪ Where soils are to be removed from site for disposal it is recommended that these are fully characterised (i.e. to confirm material types and disposal options you're your preferred contractors and that advice is sought from the appointed contractors to determine any requirements for specific testing etc.

1.0 INTRODUCTION

1.1 Report Status

A Phase I Geo-Environmental Assessment has been undertaken for the site by Elemental GI Ltd. Please see section 1.2 below for further information.

Elemental GI Ltd were appointed by East Anglian Civils Ltd (hereafter referred to as 'the Client') to undertake a Phase I Environmental Assessment for the land north of Barrier Bank, Cowbit (hereafter referred to as 'the site').

This report has been prepared on the understanding that the site is to undergo redevelopment to support residential housing. We have been supplied with a copy of the proposed layout REF: BB/res / BR / 05 and extracts of this plan are presented in the Proposed Site Layout Plan (Drawing 001) in Appendix I.

This report has been prepared in accordance with our notes concerning the terms and conditions of these works and of our engagement, which are presented at the end of this report. Please refer to these terms and conditions for an important list of exclusions / assumptions etc.

Should the development proposals alter, then the recommendations in this report may be subject to change. Whilst it may be utilised by others for reference purposes at the Client's discretion, it has not been prepared for any other purposes (e.g. waste classification etc.) and therefore additional works may be required by third parties dependent upon their own requirements / works.

Users of any / all of our reports, letters etc. must always ensure that they are reading the latest version / revision before undertaking any works and / or making any assessments, designs, decisions or related ventures. Please stop and check that this is the latest version for this site / project before proceeding any further.

1.2 Previous Reports

Elemental GI Ltd have prepared the following report which relates to the subject site:

- Elemental GI Ltd: Phase 1 Geo-Environmental Assessment for Land North of Barrier Bank, Cowbit (Ref. E23169/1/0 dated Oct. 2023)

The above referenced document has not been reproduced herein and it should be referred to in full alongside this report.

1.2.1 Summary of Previous Report

Environmental database, historic mapping and hydro-geological information was reviewed for the site, which included the following:

- The site is recorded to be underlain by Tidal Flat Deposits (clay, silt and sand) overlying Oxford Clay Formation (mudstone);
- The drift deposits recorded beneath the site are classified as an 'Unproductive Aquifer'. The bedrock geology recorded beneath the site is classified as an 'Unproductive Aquifer';
- No entries relating to abstractions are recorded within a 250m radius of the site;
- No entries relating to potable abstractions are recorded within a 2000m radius of the site;
- The site is not recorded to be within an Environment Agency source protection zone for the total catchment;
- 21 No. entries relating to water networks are recorded within a 250m radius of the site relating to New River (Drain) from 81m south of the site and small watercourses around the site;
- 7 No. entries relating to surface water features are recorded within a 250m radius of the site relating to small watercourses around the site;
- 4 No. entries are identified within a 250m radius of the site. This includes a nursery 20m east of the site, a garage 225m east of the site and a smithy 238m south-east of the site;
- No records of waste entries identified within a 250m radius of the site;
- 1 No. entry for recent industrial land uses is identified within a 250m radius of the site relating to a vehicle repair and servicing business 16m south-east of the site;
- No entries relating to petrol stations are identified within a 250m radius of the site;
- No discharge consents are identified within a 250m radius of the site;
- No pollution incidents are identified within a 250m radius of the site; and
- The site is recorded to be set within a SSSI impact risk zone and a nitrate vulnerable zone is recorded 27m south-west of the site.

1.3 The Site

The site is situated to the north of Barrier Bank, Cowbit. The site is roughly centred at National Grid Reference 525573, 318170.

1.3.1 Site:

- The site forms a broadly rectangular shaped parcel of land mainly covered by gravel. Gravel areas are covered by grass in southern area of the site. Bricks and tarmac are found alongside the western boundary of the site;

- Tree lined boundaries are found alongside the site's southern and western boundaries. The site's eastern boundary is shown to be along the site's gravel driveway;
- The site currently supports an open yard with part of an adjacent single storey brick-built office encroaching onto the site's northern boundary. This structure includes potential asbestos containing materials (roof, gutters, etc.). This structure also supports a garage/workshop in its northern extents although these features are not within the subject site's boundary. Ordered piles of construction material are found alongside the site's southern boundary including wooden pallets, concrete slabs, bricks and an empty plastic storage container;
- The site is shown to slope at a slight downward gradient from the road;
- The site is set within a mixed residential / agricultural / commercial area;
- Land to the north of the site supports 2 No. brick structures housing offices and a servicing garage beyond which a builder's yard and agricultural fields are found;
- Land to the east of the site supports residential housing and open fields with an overhead transformer found south-east of the site;
- Land to the south of the site supports an access road, Barrier Bank, New River Drove and agricultural fields;
- Land to the west of the site supports residential housing beyond which agricultural fields are found; and
- Land in the wider area surrounding the site supports a residential area with a number of small businesses which are surrounded by farmland and open fields.

The appendices contained in this report include a Site Location Plan (Drawing 002), Site Features Plan (Drawing 003) and a General Photographic Record (Drawing 004). A Site Investigation Plan is also presented (Drawing 005).

The description of the site provided above is taken following a relatively brief visit and should not be taken as a full and thorough description of all of the site's features, some of which may also have been obscured during our visit in inaccessible areas, hidden by vegetation etc.

2.0 SCOPE OF PHASE II INVESTIGATION

2.1 Potential Areas of Concern

The Phase I Report identified the following potential areas of concern at the site which would merit further inspection / investigation:

- Made Ground (if present);
- Historic storage sheds and possible fuel storage in eastern corner (contaminants including hydrocarbons in soils);
- Historic chicken sheds;
- Potential asbestos containing fabrics; and
- Barrier Bank roadway (off-site; unknown construction materials).

Elemental GI Ltd still consider that the potential sources / contaminants listed above are reasonable and should remain unchanged.

2.2 Site Investigation Layout

The following exploratory holes have been positioned at the site:

Table 2.1: Site Investigation Layout

Potential Source / Issue	Exploratory Holes
General Site Coverage	ALL HOLES
Made Ground	ALL HOLES
Historic Chicken Sheds	TP04, TP05
Historic Storage She	TP03
Potential Asbestos Building Fabrics	TP01, TP02, TP03
Barrier Bank	TP04, TP05

Whilst all reasonable efforts will be made to ensure sufficient coverage of the site / potential areas of concern, it should be noted that ground conditions may vary between exploratory positions. The reader is referred to the terms, conditions and notes which are presented at the end of this report in relation to its potential limitations.

All arisings shall be inspected following completion of each exploratory hole, and samples will be selected for analysis on the basis of their appearance (including visual or olfactory evidence of contamination). Elemental GI Ltd shall arrange for samples to be delivered to a suitably accredited laboratory for subsequent testing.

Samples shall be tested for a general range of contaminants (in accordance with NHBC Standards Chapter 4.1 'Land Quality - managing ground conditions' and CLR 8 'Potential Contaminants for the Assessment of Land' (withdrawn but used for reference purposes where applicable)). Where appropriate they shall also be analysed for specific / targeted analyses, and at the subject site this shall include:

- Heavy metals;
- Polycyclic aromatic hydrocarbons (PAHs);
- Phenols;
- pH;
- Total petroleum hydrocarbons (TPH);
- Asbestos; and
- Pathogenic bacteria.

3.0 SITE INVESTIGATION WORKS

3.1 Completion of Works

The recent site investigation works were completed by Elemental GI Ltd in general accordance with BS 5930:2015+A1: 2020.

Underground services are present running along the access road in the east of the site. A temporary easement was therefore imposed upon all works within the immediate vicinity of these features (where detected / recorded) as a precautionary measure. The construction materials on site also prevented full access to some areas of the site for plant etc. Exploratory holes which were proposed in the vicinity of these were re-positioned to alternative locations nearby.

3.2 Site Investigation Details

The exploratory holes were completed by Elemental GI Ltd at the site as listed in Table 2.1 (above). These were completed to a maximum total depth of 1.35 m below existing ground level (begl). Table 3.1 (below) presents a summary of the works completed:

Table 3.1: Site Investigation Summary

Exploratory Hole(s) ID	Maximum Final Depth (m)	Notes
TP01 to TP05	1.35	Trial Pits

A copy of the exploratory hole records from these works is presented in Appendix VI.

3.3 *In Situ* Soakaway Testing

With reference to our Phase 1 report, the underlying soils were considered likely to be cohesive and therefore not potentially suitable for *in situ* soakaway tests. Our recent investigation works confirmed this to be the case, with predominantly cohesive natural soils encountered in all areas.

4.0 GEOTECHNICAL ASSESSMENT

4.1 General Ground Conditions

4.1.1 Made Ground

Made ground was encountered in all areas of the site to a maximum total depth of 0.55m below existing ground level (begl). This generally comprised granular materials including brick fragments and limestone fragments. In some locations remnant bands of tarmac were also present and at location TP01 rare metal strips, clinker and glass fragments were also noted.

A plan showing the depth of made ground at each of the exploratory positions completed across the site as part of the recent works is presented in Appendix V.

4.1.2 Topsoil

Topsoil was not encountered in any of the exploratory holes completed during the recent investigation.

4.1.3 Natural Soils / Bedrock

The natural soils at the subject typically comprised sandy clay / silt soils.

4.1.4 Groundwater and Stability

Water was not recorded in any of the trial pits during our recent works. However, it should be noted that these works were undertaken to relatively shallow depths, and during a period of 'dry' weather.

Based on the above, it may be prudent to expect that dewatering or other forms of water management are likely to be required for shallow short term excavations at the site.

In general, the exploratory holes which were recently completed as part of our investigation remained stable for the short time which they were left 'open'. However, stability should always be considered carefully in the context of health and safety and trench support as part of all future construction works as soils / made ground can often behave variable when excavated and / or saturated (see Exploratory Hole records presented in Appendix VI for further information).

4.2 Geotechnical Laboratory Testing

Geotechnical laboratory testing is beyond the remit of the works discussed in this report.

4.3 *In Situ* Testing

In situ testing is beyond the remit of the works discussed in this report.

4.4 Geotechnical Considerations

Comment etc. on geotechnical issues is beyond the remit of the works discussed in this report.

4.5 Foundation Recommendations

It is understood that the Client has already established a piled foundation solution for the subject site.

5.0 ENVIRONMENTAL ASSESSMENT

5.1 Selection of Screening Values

The current UK screening values for the comparison of soil test data are presented by DEFRA within their 'Category 4 Screening Levels' (C4SLs). This includes screening values for a selected range of end-uses for 6 No. determinands, and is supplemented by the CL:AIRE 'Phase 2 C4SLs', which provide screening values for a further 3 No. determinands. These screening values have been derived using an LLTC and are used as the primary comparison for risks from determinands within soil samples from the site. Where appropriate we have also reviewed and utilised screening values from other authoritative parties (e.g. LQM, CIEH etc.) who have calculated further screening values for additional determinands, although it is noted that these providers typically generate screening values which are based upon health criteria values (HCVs; as opposed to LLTCs) which represent a lower (minimal) risk level and are therefore more conservative.

At this stage screening values which assess the concentrations of determinands in comparison to a residential with plant uptake end-use have been adopted, which is considered to be appropriate for the proposed end-use at the site. However, alternative screening values (e.g. Public Open Space 1 or 2) may also be used where appropriate.

5.2 Environmental Laboratory Testing

Soil samples from the site were retrieved and submitted for laboratory analysis in accordance with Section 2.2 and Table 2.1 of this report.

Laboratory testing certificates are presented in Appendix VII, with Table 5.1 (overleaf) presenting a summary of the test data.

Table 5.1: Laboratory Analysis of Soil Samples

Analyte	Concentrations Detected (mg/kg)	Screening Values (mg/kg)	No. of Samples	No. of Exceedances
Arsenic	12.0 - 19.0	37.0 ^b	4	0
Cadmium	<0.20*	11.0 ^b	4	0
Chromium (Total)	19.0 - 28.0	910.0 ^b	4	0
Chromium VI	1.8 - 6.8	6.0 ^b	4	1
Lead	17.0 - 2,200.0	200.0 ^a	4	1
Selenium	<1.0*	250.0 ^b	4	0
Nickel	11.0 - 25.0	130.0 ^b	4	0
Copper	17.0 - 160.0	2400.0 ^b	4	0
Zinc	76.0 - 930.0	3700.0 ^b	4	0
Mercury	<0.3*	1.2 ^b	4	0
Benzo(a)pyrene	0.17 - 19.0	2.2 ^b	4	1
Dibenzo(a,h)anthracene	0.05 - 2.10	0.24 ^b	4	1
TPH Aliphatic EC ₅ -EC ₆	<0.1*	42.0 ^b	1	0
TPH Aliphatic EC ₆ -EC ₈	<0.1*	100.0 ^b	1	0
TPH Aliphatic EC ₈ -EC ₁₀	<0.1*	27.0 ^b	1	0
TPH Aliphatic EC ₁₀ -EC ₁₂	1.7	130.0 ^b	1	0
TPH Aliphatic EC ₁₂ -EC ₁₆	47.0	1100.0 ^b	1	0
TPH Aliphatic EC ₁₆ -EC ₃₅	202.0	65000.0 ^b	1	0
TPH Aromatic EC ₅ -EC ₇	<0.1*	70.0 ^b	1	0
TPH Aromatic EC ₇ -EC ₈	<0.1*	130.0 ^b	1	0
TPH Aromatic EC ₈ -EC ₁₀	<0.1*	34.0 ^b	1	0
TPH Aromatic EC ₁₀ -EC ₁₂	<1.0*	74.0 ^b	1	0
TPH Aromatic EC ₁₂ -EC ₁₆	30.0	140.0 ^b	1	0
TPH Aromatic EC ₁₆ -EC ₂₁	91.0	260.0 ^b	1	0
TPH Aromatic EC ₂₁ -EC ₃₅	43.0	1100.0 ^b	1	0
TPH EC ₆ -EC ₁₀	<0.1*	27.0 ^b	1	0
TPH EC ₁₀ -EC ₂₅	260.0	74.0 ^b	1	1
TPH EC ₂₅ -EC ₄₀	160.0	1100.0 ^b	1	0
Benzene	<0.05*	0.087 ^b	1	0
Toluene	<0.05*	130.0 ^b	1	0
Ethylbenzene	<0.05*	47.0 ^b	1	0
Xylenes (sum of isomers)	<0.05*	56.0 ^b	1	0
pH	8.3 - 9.1	N/A	4	N/A
Asbestos	ND	D ^c	2	0

^a DEFRA C4SL values for a Residential end-use with gardens;

^b Third party UK screening values e.g. CIEH, CL:AIRE, Elemental GI Ltd and LQM 'S4UL' values for a residential end-use with private gardens (licence S4UL3849);

^c Elemental GI Ltd general screening level; ^d See discussion in later sections; * Contaminants all recorded below laboratory limits of detection; DL = Detection Limits, N/A = Not Applicable, ND = Not Detected, D = Detected.

Table 5.1 has identified the following exceedances in relation to the selected screening values (residential with private gardens):

- 1 No. exceedance of hexavalent chromium:
 - Samples from TP01 of made ground at 0.1m begl;
- 1 No. exceedance of lead:
 - Samples from TP01 of made ground at 0.1m begl;
- 1 No. exceedance of benzo(a)pyrene:
 - Samples from TP04 of made ground at 0.1m begl;
- 1 No. exceedance of dibenzo(a,h)anthracene:
 - Samples from TP04 of made ground at 0.1m begl;
- 1 No. exceedance of TPH C10-C25:
 - Samples from TP04 of made ground at 0.1m begl.

It is noted that the exceedances summarised above were all within samples retrieved from made ground materials. No exceedances from samples retrieved from the underlying natural soils were encountered.

Given the site's history it is possible that currently unidentified areas of contamination or potentially contaminative features may be present which will be encountered during redevelopment. Please contact us for further advice immediately if this happens.

It is noted that visual / olfactory evidence of potential hydrocarbon contamination was noted in exploratory hole TP03 at 0.80m begl surrounding a small metal pipe. Anecdotal evidence from the site owner indicated that this was in the vicinity of the historic fuel storage shed. Soils immediately adjacent to the pipe were therefore immediately sampled and submitted for 'fully speciated' petroleum hydrocarbon analysis (TPH CWG). Testing indicates that the concentrations of petroleum hydrocarbons from this area were not in excess of the selected screening values. The elevated TPH (C10-C25) recorded at location TP04 is considered likely to be associated with clinker etc. in the shallow made ground around this area of the site and is not considered to be related to the visual / olfactory evidence of contamination which was noted at exploratory hole TP03.

Microbiological Analysis

1 No. sample was submitted for analysis for pathogenic bacteria based on our Phase 1 report which noted historic chicken sheds on site.

Samples from TP05 at 0.2m begl were submitted for testing. Results of 2,900 MPN/100ml were recorded for total coliforms, and 0 (zero) MPN/100ml for *E. coli*.

Screening values for pathogenic bacteria in soils are not commonly available, although it is commonly accepted that *E. coli*. may be used as an ‘indicator’ for potential associated risks (e.g. Food Standards Agency Factsheet 13/10 “Monitoring microbial food safety of fresh produce” (Monaghan *et al*) 2010, Govt. of Western Australia “Assessment Levels for Soil, Sediment and Water” 2010 etc.). On this basis it is considered that risks from pathogenic bacteria are not present at this stage within the samples tested, subject to Local Authority approval.

5.3 Sulphate Classification

The classification of test samples to determine sulphate classification is beyond the remit of this report. However, the chemical testing certificates present in Appendix VII contain testing results relating to pH and water soluble sulphate and it is strongly recommended that these should be reviewed by your appointed Structural Engineer in accordance with BRE Guidance Special Digest 1 (2005). Minimum concrete specification should be in accordance with NHBC Standards, Section 3.1. Please contact us if you require further information or assistance with these classifications.

5.4 Statistical Assessment

Statistical assessment of soil test data is only appropriate where a sufficient sample population is present. This requires a minimum number of soil samples from the same averaging zone. The data currently available for the subject site is not considered to be suitable for statistical assessment as the results may not prove reliable. As a conservative alternative the direct comparison of soil test data to the selected screening values (as outlined in the sections above) shall be adopted at this stage.

5.5 Radon and Ground Gas

The site is in an area where less than 1% of homes are estimated to be at or above the Action Level. Therefore, radon protective measures are not required, subject to regulatory approval.

The site’s CSM indicated that potential risks were present from ground gas sources comprising made ground and organic gas generating materials beneath / around nearby drains.

In accordance with the site’s ground gas CSM, these potential risks were inspected and assessed during the recent investigation works. The following observations were noted:

- The made ground which was encountered was not significantly deep / thick;
- The made ground did not contain any potentially putrescible materials (e.g. plant materials, vegetation etc.);
- The natural soils were predominantly cohesive, which would be likely to significantly limit (or even fully negate) the migration of ground gas.

Based on the above, a re-assessment of the site's ground gas CSM indicated that feasible sources were not present on site, and feasible pathways were not present (i.e. soils which may permit lateral migration of ground gas from off-site sources). Based on this re-assessment, ground gas risks were therefore not identified at the site and shall not be considered as feasible pollutant linkages going forward.

6.0 UPDATED CONCEPTUAL SITE MODEL

The initial CSM was formed to set a basis for the assessment and investigation across the subject site. This has been used to provide focus and direction for certain parts of the site investigation works, and the data gathered from these works (including laboratory analyses and visual / olfactory observations) can now be used to update the CSM.

6.1 Human Health CSM

The site was shown to support open ground with a single structure in the 1800's and was developed further in the 1900's to further support another structure in the north-western corner of the site encroaching onto the site's boundary (this was no longer shown from 1951 on historic mapping). Further development was shown in the 1960's and the site was shown to support part of a large structure encroaching onto the site's northern boundary. It currently supports an open gravel-covered 'yard' with part of an adjacent building encroaching across the northern boundary.

The site is underlain by predominantly granular made ground overlying predominantly cohesive natural soils. Groundwater was not recorded beneath the site during the recent shallow ground investigation.

The laboratory testing of soil samples indicated that the following exceedances are present in relation to the chosen initial screening values:

- 1 No. exceedance of hexavalent chromium:
 - Samples from TP01 of made ground at 0.1m begl;
- 1 No. exceedance of lead:
 - Samples from TP01 of made ground at 0.1m begl;
- 1 No. exceedance of benzo(a)pyrene:
 - Samples from TP04 of made ground at 0.1m begl;
- 1 No. exceedance of dibenzo(a,h)anthracene:
 - Samples from TP04 of made ground at 0.1m begl;
- 1 No. exceedance of TPH C10-C25:
 - Samples from TP04 of made ground at 0.1m begl.

In accordance with our standard risk assessment methodology (presented at the end of this report), the following sources, pathways and receptors have been identified at the subject site at this stage:

Table 6.1: Updated Human Health CSM

<i>Investigated Onsite Sources</i>	Pathways	Receptors	Comment / Risk Rating [#]
Made Ground	• Migration in Soils • Groundwater • Ground Gas Migration • Direct Contact • Plant Uptake • Dust Inhalation • Ingestion	• End Users • Groundwater	LOW / MODERATE Exceedances of heavy metals, PAHs and TPH recorded locally at some locations
Historic Chicken Shed	• Migration in Soils • Groundwater • Direct Contact • Plant Uptake • Dust Inhalation • Ingestion	• End Users • Groundwater	Risks ABSENT Testing of samples records e. coli to be absent
Historic Storage Shed / Fuel Storage	• Migration in Soils • Groundwater • Ground Gas Migration • Direct Contact • Plant Uptake • Dust Inhalation • Ingestion	• End Users • Groundwater	Risks ABSENT Testing of samples records TPH to be absent <u>in area</u>
Potential Asbestos Building Fabrics	• Dust Inhalation	• End Users • Groundwater	Risks ABSENT Testing of samples records asbestos to be absent
<i>Investigated Offsite Sources</i>			
Barrier Bank (Construction Materials)	• Migration in Soils • Groundwater	• End Users • Groundwater	Risks ABSENT Inspection of soils indicates that contaminating / deleterious materials are not present in boundary areas.

[#] Risk ratings are described in Table A1 within the 'Standard Risk Assessment - Considerations and Methodology' section at the end of this report.

6.2 Potential Pollutant Linkages:

For an identified / confirmed pollutant linkage to be present, potential sources, pathways and receptors must be present. With reference to the proposed residential end use, feasible potential pollutant linkages have been identified at the site as outlined in table 6.1 above. Remediation works are therefore considered necessary to break these linkages to the satisfaction of the Client and regulatory authorities (and other parties, as appropriate e.g. NHBC).

6.3 Controlled Waters Summary

The site is situated on superficial deposits and on bedrock which are classified as an 'Unproductive Aquifer'. The site is not recorded to be within a Source Protection Zone. There are no entries relating to abstractions within a 500m radius of the site. Abstractions for potable water are not recorded locally. 21 No. entries relating to water networks are

recorded within a 250m radius of site relating to New River (Drain) and small watercourses. 7 No. entries relating to surface water features are recorded within a 250m radius of site relating to small watercourses around the site.

The site appears to be situated within an area of low sensitivity in relation to controlled waters.

As summarised in section 6.1, exceedances have been recorded within soils at the site although no potentially mobile contamination and / or gross contamination (i.e. 'free product' neat fuel / oil etc.) has been recorded.

Whilst exceedances of the human health screening values have been recorded at the site, concentrations considered likely to impact controlled waters are not considered to have been encountered. Given the low sensitivity of the site with respect to controlled waters, no significant risks are considered to be present at this stage, subject to regulatory approval.

6.4 Model Status and Uncertainty

The potential significant linkages discussed in this section are based on available data reviewed to date.

7.0 RECOMMENDATIONS

A review of the available site information (as discussed herein) has been undertaken to inform the following conclusions and recommendations. However, this report should be submitted to the appropriate regulators (and other stakeholders, as necessary) by the Client prior to the start of any irrecoverable works associated with the site.

7.1 Foundations and Enabling Works

Comment etc. on geotechnical issues is beyond the remit of the works discussed in this report. It is understood that the Client has already established a piled foundation solution for the subject site.

7.2 Groundwater

Water ingress was not encountered during the recent site works, although it may be prudent to allow for dewatering (or similar) for excavations across the subject site during construction.

7.3 Road Construction

Literature sources typically suggest that CBR values of less than 2% can be anticipated in the made ground and topsoil and values between 2% and 5% can be anticipated in the underlying natural soils subject to *in situ* testing. All road construction proposals should be agreed with the Local Authority prior to finalising designs.

7.4 Drainage

The site is underlain by cohesive soils. Infiltration rates would be assumed to be poor / low within these soils and therefore *in situ* soakaway testing would not be considered to be worthwhile at this stage. All drainage proposals should be reviewed by suitably qualified engineers and by the appropriate drainage regulator(s).

7.5 Radon and Ground Gas

The site is not set within an area which is known to be at risk from radon gas and therefore no precautions are necessary, subject to regulatory approval.

The site's ground gas conceptual site model (CSM) has been re-assessed during this investigation, which indicates that sources and pathways are both considered to be absent. However, because a piled foundation option has been selected by the Client it is recommended that designs / construction generally in accordance with a 'CS2' classification (i.e. use of a gas membrane extended through cavity and sealing of all service penetrations etc.) should be installed to compliment the vented sub-floor voids and provide a high level of protection to future structures / residents.

7.6 Excavations

In general, the exploratory holes which were recently completed as part of our investigation remained stable for the short time which they were left 'open'. However, stability should be considered carefully in the context of health and safety and trench support as part of all future construction works (see Exploratory Hole records presented in Appendix VI for further information). All future excavations should therefore be assumed to be unstable as a conservative and risk-averse measure. The Client and / or site operators should assess risks associated with entry into excavations based upon these observations and should apply suitably safe working practices / support measures (in accordance with current best practice / guidance) to avoid risks to site workers / construction activities.

7.7 Contamination

The Phase II Conceptual Model and the Qualitative Risk Assessment outlined herein indicate that feasible pollutant linkages have been identified. This relates to elevated concentrations of heavy metals, TPH and PAH compounds variably / locally in made ground.

7.8 Remediation

We have discussed the findings of this investigation with our Client, who has confirmed that site levels shall be raised as part of proposed development layouts / construction designs. It is understood that the final garden levels will be at least 600mm above the current elevations, which should provide a sufficient 'cap' which would break the pollutant linkages identified within this report. On this basis additional remedial works are not considered necessary at this stage and a remedial method statement (RMS) would therefore not be required, subject to Regulatory Authority / NHBC (or similar) approval.

However, notwithstanding the above we have recommended to the Client that any remnant pipes etc. beneath the redevelopment area (including gardens) should be suitably decommissioned and removed from the ground. Made ground materials which are excavated during the redevelopment works will not be considered suitable for re-use within 600mm of final levels.

7.9 Topsoil / Management of Materials

Topsoil was not encountered during the recent investigation, and importation of additional topsoil is therefore considered likely to be necessary.

As with all schemes / sites, all movements of soils (including their re-use on site, importation and exportation) must be undertaken in full compliance with all relevant licenses / permits / exemptions etc. as applicable (i.e. U1, MMP etc) and with all necessary regulatory permissions. We would particularly draw your attention to the recently released Environment Agency guidance "*Excavated waste from utilities installation and repair: RPS 211 Updated*"

28 April 2023". Retrospective implementation of all such applications may not be permitted and therefore this should be established by the Client prior to the start of construction works.

Any soils which are brought onto site should be suitably tested and approved by the Local Authority in advance (this may include classification of 'topsoil' against standards such as BS3882: 2015 'Specification for Topsoil').

7.10 Mining

No coal mining issues have been identified at the site at this stage, subject to regulatory authority approval.

7.11 Further Works

Further works have been recommended in this report, including the following main recommendations:

- Submission of this report to the regulators (as necessary) by the Client;
- Verification of appropriate utility construction materials with the relevant providers; and
- Where soils are to be removed from site for disposal it is recommended that these are fully characterised (i.e. to confirm material types and disposal options you're your preferred contractors and that advice is sought from the appointed contractors to determine any requirements for specific testing etc.

Terms and Conditions

Consideration of factors such as desiccation, settlement and related matters may need to be undertaken separately once this information is known / provided and this has not been assessed unless stated otherwise as it is assumed that your appointed Structural Engineers have made sufficient allowances etc. and / or have assessed such factors directly.

We have obtained and reviewed information relating to the site, but this may not be complete, and liability cannot be accepted for information not available to Elemental GI Ltd at the time of writing this report. This report has been written in consideration of construction / development proposals (or similar) as described in Section 1.0 of this report. If any of these proposals change (e.g. layout), then this report may be subject to change.

This report has been prepared for the sole use and reliance of the Client. No other third party may rely upon or reproduce the content of this report without our prior written approval. If any unauthorised third party comes into possession of this report, they rely upon it entirely at their own risk and the authors do not owe them any warranty, duty of care or skill.

Our report, including the conclusions and recommendations, are considered reasonable based on the findings of the Phase I assessment. However, these cannot be guaranteed to gain regulatory approval and therefore the Client should submit it to them (as necessary) for their comments and approval prior to undertaking any irrecoverable works associated with the subject site.

The findings and recommendations made in this report are based on published information (as presented in the accompanying appendices). Elemental GI Ltd cannot accept responsibility for the reliability and authenticity of published information or reports prepared by third parties. Whilst we have endeavoured to assess and investigate the site in accordance with the scope of these works, it always remains possible that ground conditions will vary between and beneath locations. This may include ground type, strength and groundwater conditions. There may therefore be conditions prevailing on site which have not been revealed by this assessment and which have not been taken into account by this report. Responsibility cannot be accepted for any conditions not revealed by this investigation and assessment. It should be noted that groundwater levels etc. may vary due to seasonal and other effects. Whilst it may be utilised by others for reference purposes at the Client's discretion, it has not been prepared for any other purposes (e.g. waste classification, drainage excavations etc.) and therefore additional works may be required by third parties dependent upon their own requirements / works. Any works which are proposed at greater depths than reported herein may require confirmatory investigation works as necessary.

The conclusions and recommendations presented herein are considered reasonable based on the assessments of the site undertaken by Elemental GI Ltd. However, these cannot be guaranteed to gain regulatory approval and therefore copies of this report should be sent to the appropriate regulatory authorities and / or other organisations (as appropriate) by the Client for their comments and approval prior to undertaking any irrecoverable works associated with the site.

The possibility of significant variation in ground conditions existing between / beneath test locations / depths cannot be discounted and must be considered within the design proposals for the subject site. All soakaway designs should be approved by the relevant statutory authority prior to implementation and must adhere to the standard design and ground setting requirements, upon which your appointed drainage design engineers should advise you. Where comments / recommendations have been made relating to specific depths it cannot be guaranteed that ground conditions shall be similar at surrounding / underlying depths, which should be taken into consideration as necessary by other.

With respect to the document to which this sheet is appended, the warranty provided with our works / reports etc. shall only apply once all invoices that we have sent in relation to the same site / project discussed herein (i.e. the site discussed within this document) have been paid by the Client.

Elemental GI Ltd - Our Standard Risk Assessment Approach

We have used various guidelines and current legislation in the preparation of this report. This includes (but is not limited to) the following:

- DEFRA / EA document 'Contaminated Land Report 11 (CLR11) Model Procedures for the Management of Land Contamination' (2004) [*withdrawn but used for general reference purposes*];
- NHBC / EA / CIEH document 'Guidance for the Safe Development of Housing on Land Affected by Contamination' (2008);
- DEFRA 'Environmental Protection Act 1990: Part 2A - Contaminated Land Statutory Guidance (2012); and
- Environment Agency 'Land contamination risk management (LCRM)' (2020, last updated April 2021) held at:
 - <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>

Construction of Conceptual Site Model

Elemental GI Ltd have based our standard risk assessment methodology upon current legislation and prevailing best practice and available guidance. This includes the assessment of potentially contaminated land in terms of 'significant pollutants' and 'pollutant linkages', using SOURCE-PATHWAY-RECEPTOR scenarios for the site. For a pollutant linkage to exist all three of these elements must be present. These have been clearly defined in the guidance as follows:

- potential source as 'a contaminant which is in, or under the land and which has the potential to cause significant harm or to cause pollution of controlled waters'.
- potential pathway as 'one or more routes or means by, or through, which a receptor is being exposed to, or affected by a contaminant, or could be so exposed or affected'.
- potential receptor as 'a living organism, a group of living organisms, an ecological system or a piece of property which is being or could be, harmed by a contaminant or controlled waters which are being, or could be, polluted by a contaminant'.

Within this report, common pathways including (but not limited to) the following have been considered (amended on a site-specific basis):

- Ingestion of soil;
- Ingestion of site-grown vegetables;
- Ingestion of site-reared livestock / fish;
- Dermal contact with soils;
- Inhalation of vapours;
- Inhalation of soil-derived dust.

Receptors will be considered on a site-specific basis, but will usually include the current / future users of the site itself as well as users of surrounding sites. Other receptors including controlled waters will also be considered and assessed.

Risk Assessment Methodology

Our risk assessment methodology is based upon a phased approach which is created through the construction of the sites conceptual site model, and which takes the following steps (taken from LCRM Guidance):

1. *Identify the hazard - establish contaminant sources.*
2. *Assess the hazard - use a source-pathway-receptor (S-P-R) linkage approach to find out if there is the potential for unacceptable risk.*
3. *Estimate the risk - predict what degree of harm or pollution might result and how likely it is to occur by using the tiered approach to risk assessment.*
4. *Evaluate the risk - decide whether a risk is unacceptable.*

The meaning of the terms are:

- *hazard - a property or situation that in particular circumstances could lead to harm or pollution;*
- *risk - a combination of the probability, or frequency of occurrence of a defined hazard and the magnitude of the consequences of the occurrence;*
- *risk assessment - the formal process of identifying, assessing and evaluating the health and environmental risks that may be associated with a hazard;*
- *risk management - the formal process to identify, assess and determine the risks, and to select and take action to mitigate them.*

Our definitions and classification matrix for risk descriptions have been taken from the NHBC document “Guidance for the Safe Development of Housing on Land Affected by Contamination” (Ref. R&D P66, dated 2008)

Table A1: Risk Categorisation (Adapted from Table 1.8 of NHBC, R&D P66 (2008))

Probability (Likelihood)		Consequence			
		Severe	Medium	Mild	Minor
	High Likelihood	Very High Risk	High Risk	Moderate Risk	Moderate / Low Risk
	Likely	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk
	Not likely	Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk

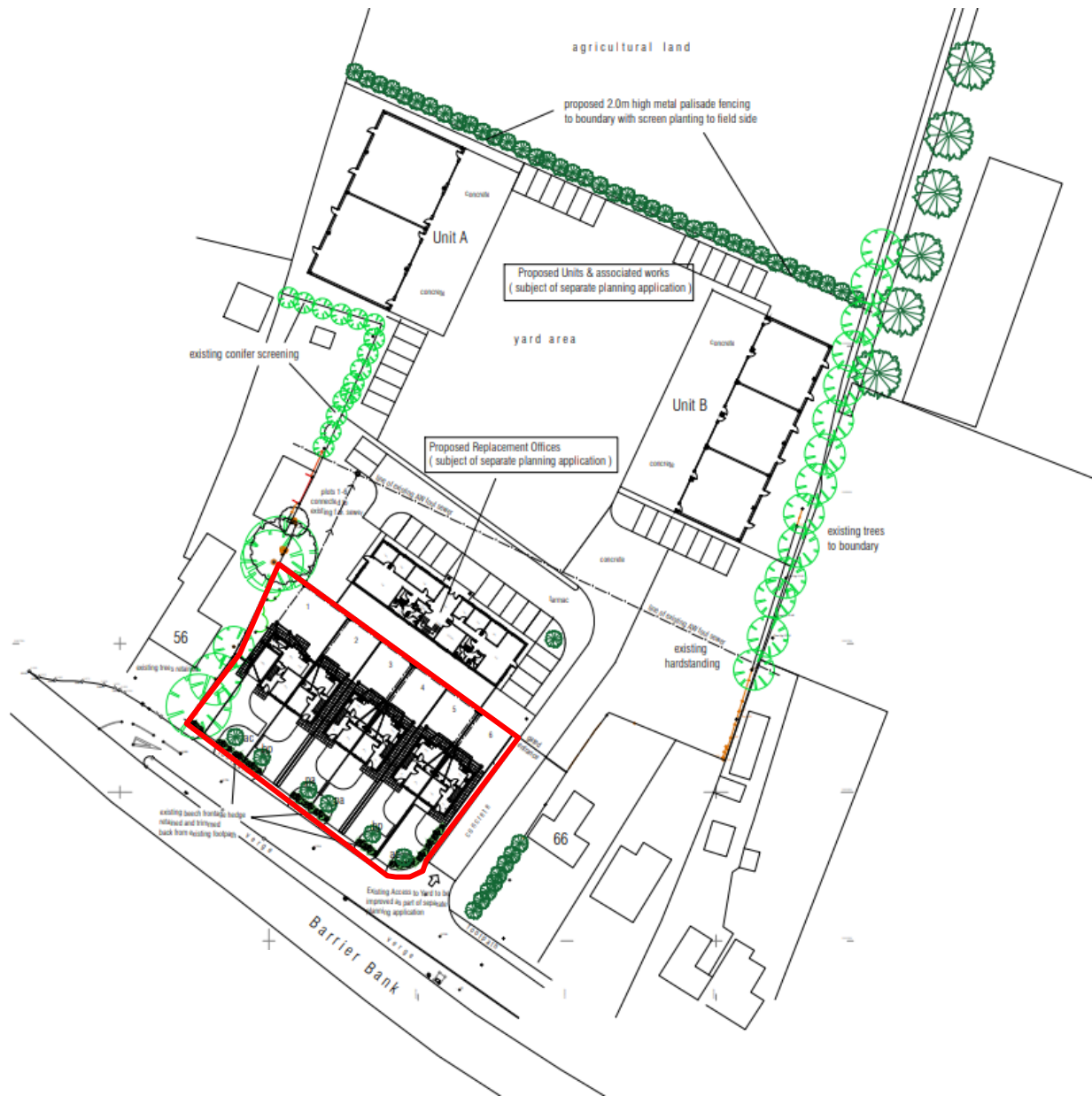
The R&D P66 document goes on to provide further descriptions of these risk levels, which are also reproduced below:

Table A2: Risk Level Descriptions (Adapted from Table 1.9 of NHBC, R&D P66 (2008))

Term	Description
Very High Risk	A high probability exists that severe / significant harm could arise to someone or something from the hazard which has been identified. Remedial action is required.
High Risk	Harm is likely to arise to someone or something from the hazard which has been identified. Remedial action is usually required.
Moderate Risk	Harm could potentially arise to someone or something from the hazard which has been identified without remedial action, although it is considered to be relatively <u>unlikely</u> that such harm would be severe.
Low Risk	Harm could theoretically arise to someone or something from the hazard which has been identified without remedial action, although it is considered that any effects would be mild.
Very Low Risk	Harm is not likely to arise to someone or something from the hazard which has been identified.

APPENDIX I

Proposed Site Layout Plan



CLIENT:



**EAST ANGLIAN
CIVILS LTD**

Commercial & Domestic Building & Groundworks

TITLE:

Proposed Site Layout Plan

DATE:

Sept. 2023

DRAWING No:

E23169_001

SCALE@SIZE:

NOT TO SCALE

DESIGN/DRAWN:

JR

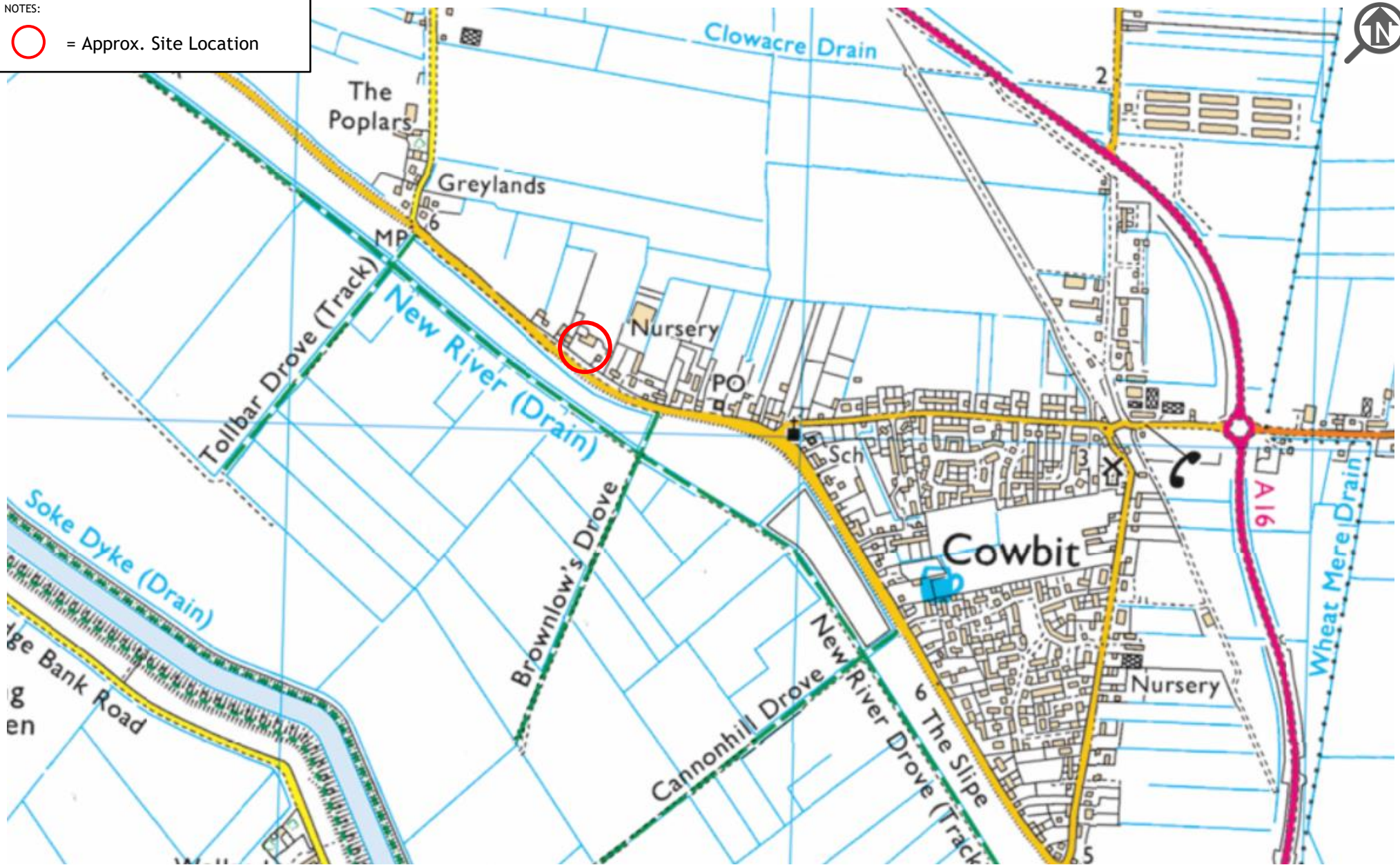
Elemental GI Ltd

APPENDIX II

Site Location Plan

NOTES:

 = Approx. Site Location



CLIENT:



TITLE:

Site Location Plan

DATE:

Oct. 2023

DRAWING No:

E23169_002

SCALE@SIZE:

NOT TO SCALE

DESIGN/DRAWN:

JR

Elemental GI Ltd

APPENDIX III

Site Features Plan



CLIENT:

**EAST ANGLIAN
CIVILS LTD**
Commercial & Domestic Building & Groundworks

TITLE:

Site Features Plan

DATE:

Sept. 2023

DRAWING No:

E23169_003

SCALE@SIZE:

NOT TO SCALE

DESIGN/DRAWN:

JR

Elemental GI Ltd

APPENDIX IV

General Photographic Record



Photo 1 - View of Site / Shed Footprint from North-East



Photo 2 - View of Site Access Point



Photo 3 - View of Site from South-East



Photo 4 - South-Western Corner of Site

CLIENT:

EAC
EAST ANGLIAN
CIVILS LTD
Commercial & Domestic Building & Groundworks

TITLE:

General Site Photographs

DATE:

Sept. 2023

DRAWING No:

E23169_004a

SCALE@SIZE:

NOT TO SCALE

DESIGN/DRAWN:

JR

Elemental GI Ltd



Photo 5 - Excavation of TP01



Photo 6 - Excavation of TP03 (nr. Concrete Pad)



Photo 7 - Excavation of TP04



Photo 8 - Excavation of TP05

CLIENT:

EAC
EAST ANGLIAN
CIVILS LTD
Commercial & Domestic Building & Groundworks

TITLE:

General Site Photographs

DATE:

Sept. 2023

DRAWING No:

E23169_004b

SCALE@SIZE:

NOT TO SCALE

DESIGN/DRAWN:

JR

Elemental GI Ltd

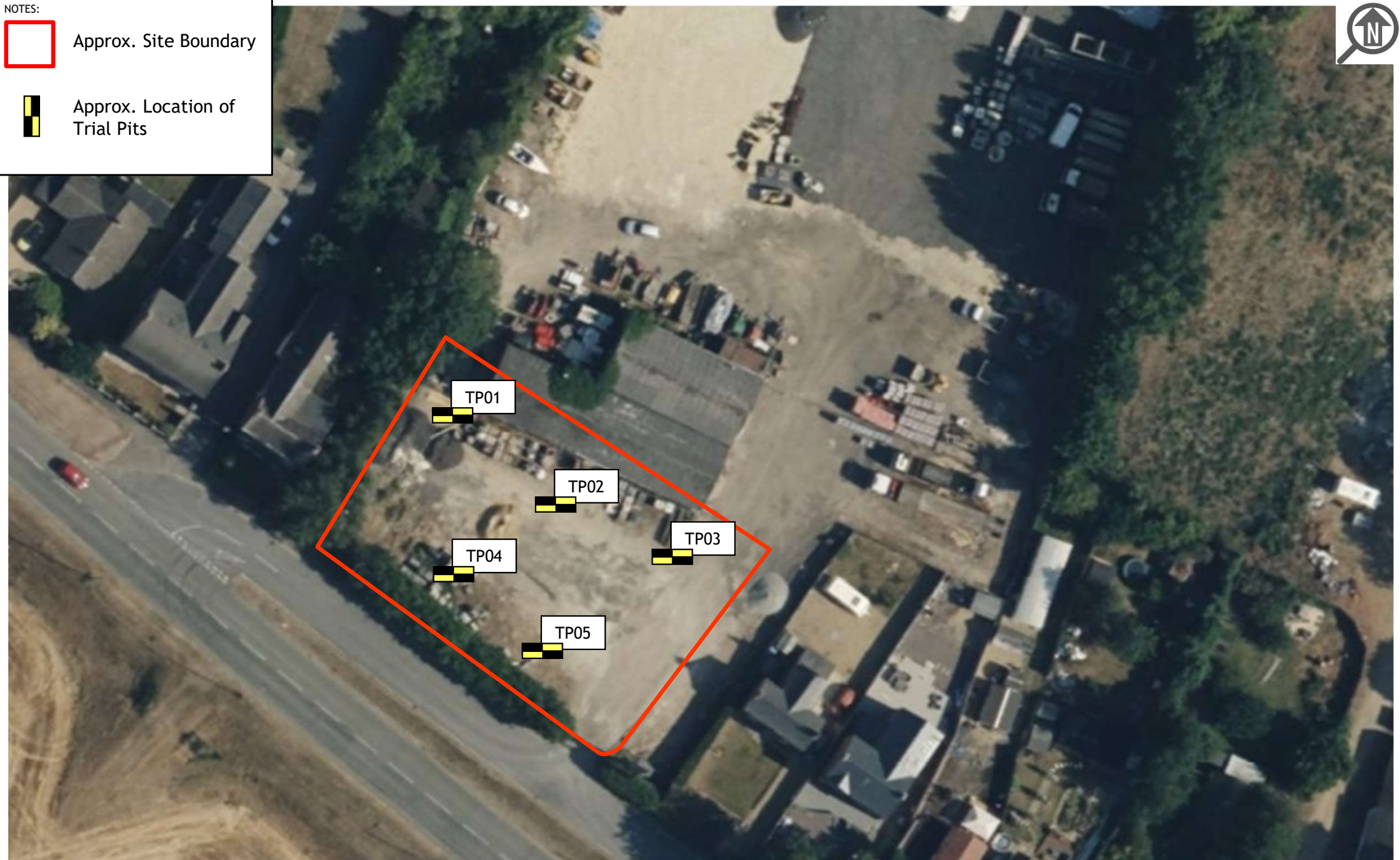
APPENDIX V

Site Investigation Plan

NOTES:

Approx. Site Boundary

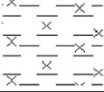
Approx. Location of Trial Pits

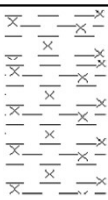


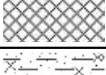
EAC EAST ANGLIAN CIVILS LTD Commercial & Domestic Building & Groundworks	TITLE: Exploratory Hole Layout Plan	DATE: Oct. 2023	SCALE@SIZE: NOT TO SCALE	Elemental GI Ltd
		DRAWING No: E23169_005	DESIGN/DRAWN: JR	

APPENDIX VI

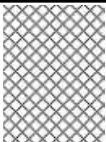
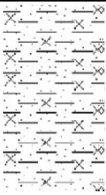
Exploratory Hole Logs

Site:	Land North of Barrier Bank, Cowbit			Elemental GI Ltd	
Client:	East Anglian Civils Ltd				
Contractor: East Anglian Civils Ltd			Project No: E23169	Sheet: 1 of 1	TP01
Equipment: JCB 3CX			Logged by: JR	Date: 6th September 2023	
Field Monitoring and Sampling				Strata	Legend
Depth	Type	Result	Depth	Description	
(m)		(HSV/PP)	(m)		
0.10	JVT			MADE GROUND (Comprising light brown silty sandy subangular fine to coarse gravel and cobbles of brick, concrete and clinker with rare metal strips and glass fragments also present).	
			0.40	Soft dark brown CLAY/SILT.	
			1m	... becoming light brown from 0.90m depth.	
			1.20	Trial pit completed at 1.20m depth.	
			2m		
			3m		
			4m		
			5m		
Water Observations: No water encountered during excavation.					
Remarks: 1) Trial pit terminated on completion of testing at 1.20m depth.					
Where unaccompanied by in situ tests, strength descriptions of soils are based on Engineer's field description(s) and must not be relied upon. HSV = Hand Shear Vane (kPa), PP = Pocket Penetrometer (daN/cm ²)					

Site:	Land North of Barrier Bank, Cowbit			Elemental GI Ltd	
Client:	East Anglian Civils Ltd				
Contractor: East Anglian Civils Ltd			Project No: E23169	Sheet: 1 of 1	TP02
Equipment: JCB 3CX			Logged by: JR	Date: 6th September 2023	
Field Monitoring and Sampling				Strata	Legend
Depth	Type	Result	Depth	Description	
(m)		(HSV/PP)	(m)		
0.30	JVT		0.15	MADE GROUND (Comprising light brown/grey slightly silty very sandy subangular to subrounded fine to coarse gravel of mixed lithology including limestone, flint and brick).	
			0.20		
0.80	JVT			MADE GROUND (Comprising tarmac).	
			0.55	MADE GROUND (Comprising brown slightly sandy gravelly silt. Gravel is subangular medium to coarse of brick).	
				Soft dark brown CLAY/SILT.	
			1m		
			1.35		
				Trial pit completed at 1.35m depth.	
			2m		
			3m		
			4m		
			5m		
Water Observations: No water encountered during excavation.					
Remarks: 1) Trial pit terminated on completion of testing at 1.35m depth.					
Where unaccompanied by in situ tests, strength descriptions of soils are based on Engineer's field description(s) and must not be relied upon. HSV = Hand Shear Vane (kPa), PP = Pocket Penetrometer (daN/cm ²)					

Site:	Land North of Barrier Bank, Cowbit			Elemental GI Ltd	
Client:	East Anglian Civils Ltd				
Contractor: East Anglian Civils Ltd			Project No: E23169	Sheet: 1 of 1	TP03
Equipment: JCB 3CX			Logged by: JR	Date: 6th September 2023	
Field Monitoring and Sampling				Strata	Legend
Depth	Type	Result	Depth	Description	
(m)		(HSV/PP)	(m)		
0.00	JVT		0.10	MADE GROUND (Comprising light brown/grey slightly silty very sandy subangular to subrounded fine to coarse gravel of mixed lithology including limestone, flint and brick).	
			0.45	MADE GROUND (Comprising dark brown slightly silty very sandy subangular to subrounded fine to coarse gravel and cobbles of limestone and brick). ... with pockets of tarmac present between 0.10m and 0.15m depth.	
0.85	JT		0.90	Soft grey and greyish brown mottled very sandy SILT. ... with a slight/moderate hydrocarbon odour and black staining present surrounding a metal pipe encountered at 0.80m depth.	
			1m	Trial pit completed at 0.90m depth.	
			2m		
			3m		
			4m		
			5m		
Water Observations: No water encountered during excavation.					
Remarks: 1) Trial pit terminated on completion of testing at 0.90m depth.					
Where unaccompanied by in situ tests, strength descriptions of soils are based on Engineer's field description(s) and must not be relied upon. HSV = Hand Shear Vane (kPa), PP = Pocket Penetrometer (daN/cm ²)					

Site:	Land North of Barrier Bank, Cowbit			Elemental GI Ltd	
Client:	East Anglian Civils Ltd				
Contractor: East Anglian Civils Ltd			Project No: E23169	Sheet: 1 of 1	TP04
Equipment: JCB 3CX			Logged by: JR	Date: 6th September 2023	
Field Monitoring and Sampling				Strata	Legend
Depth	Type	Result	Depth	Description	
(m)		(HSV/PP)	(m)		
0.10	JVT		0.05	MADE GROUND (Comprising grey subangular fine to medium decorative gravel).	
				MADE GROUND (Comprising brown very silty very sandy subangular coarse gravel and cobbles of limestone and brick).	
			0.35	... with a band of clinker fragments at rear of pit.	
			0.55	Soft brown CLAY/SILT.	
				Trial pit completed at 0.55m depth.	
			1m		
			2m		
			3m		
			4m		
			5m		
Water Observations: No water encountered during excavation.					
Remarks: 1) Trial pit terminated on completion of testing at 0.55m depth.					
Where unaccompanied by in situ tests, strength descriptions of soils are based on Engineer's field description(s) and must not be relied upon. HSV = Hand Shear Vane (kPa), PP = Pocket Penetrometer (daN/cm ²)					

Site:	Land North of Barrier Bank, Cowbit			Elemental GI Ltd	
Client:	East Anglian Civils Ltd				
Contractor: East Anglian Civils Ltd			Project No: E23169	Sheet: 1 of 1	TP05
Equipment: JCB 3CX			Logged by: JR	Date: 6th September 2023	
Field Monitoring and Sampling				Strata	Legend
Depth	Type	Result	Depth	Description	
(m)		(HSV/PP)	(m)		
0.20	JVT			MADE GROUND (Comprising light yellowish brown subangular to subrounded coarse gravel and cobbles of limestone in a sandy matrix with rare whole brick and brick fragments present).	
			0.55		
			1m	Soft brown very sandy SILT.	
			1.35		
			2m		
			3m		
			4m		
			5m		
Trial pit completed at 1.35m depth.					
Water Observations: No water encountered during excavation.					
Remarks: 1) Trial pit terminated on completion of testing at 1.35m depth.					
Where unaccompanied by in situ tests, strength descriptions of soils are based on Engineer's field description(s) and must not be relied upon. HSV = Hand Shear Vane (kPa), PP = Pocket Penetrometer (daN/cm ²)					

APPENDIX VII

Laboratory Testing Data

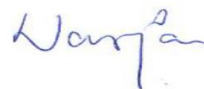
i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 23-55327

Replaces Analytical Report Number: 23-55327, issue no. 1
Client sampling date amended.
Sample dates added as per client's request.

Project / Site name:	Site Off Barrier Bank Cowbit	Samples received on:	07/09/2023
Your job number:	E23169	Samples instructed on/ Analysis started on:	07/09/2023
Your order number:	E23169	Analysis completed by:	15/09/2023
Report Issue Number:	2	Report issued on:	08/10/2023
Samples Analysed:	6 soil samples		



Signed:

Dominika Warjan
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 23-55327
Project / Site name: Site Off Barrier Bank Cowbit
Your Order No: E23169

Lab Sample Number				2804802	2804803	2804804	2804805	2804806
Sample Reference				TP01	TP02	TP03	TP03	TP04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.80	0.00	0.85	0.10
Date Sampled				06/09/2023	06/09/2023	06/09/2023	06/09/2023	06/09/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	9.1	16	1.1	32	5.7
Total mass of sample received	kg	0.001	NONE	0.9	0.8	0.8	0.2	0.9

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	Not-detected	-	-
Asbestos Analyst ID	N/A	N/A	N/A	SCA	N/A	SCA	N/A	N/A

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.1	8.4	8.8	-	8.3
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	4200	500	120	-	550
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	2.08	0.252	0.0594	-	0.274
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	2080	252	59.4	-	274
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.8	1.2	2.9	-	1.9

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	< 1.0
----------------------------	-------	---	--------	-------	-------	-------	---	-------

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	0.23
Acenaphthylene	mg/kg	0.05	MCERTS	0.08	< 0.05	< 0.05	-	1.1
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	0.42
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	1
Phenanthrene	mg/kg	0.05	MCERTS	0.24	0.13	0.46	-	16
Anthracene	mg/kg	0.05	MCERTS	0.09	< 0.05	0.15	-	4.2
Fluoranthene	mg/kg	0.05	MCERTS	0.76	0.27	1.2	-	33
Pyrene	mg/kg	0.05	MCERTS	0.67	0.24	1.1	-	28
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.5	0.17	0.7	-	19
Chrysene	mg/kg	0.05	MCERTS	0.47	0.15	0.67	-	16
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.87	0.19	1.1	-	23
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.26	0.09	0.42	-	7.3
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.76	0.17	0.75	-	19
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.46	0.1	0.64	-	9.7
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.08	< 0.05	0.22	-	2.1
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.56	0.12	1.1	-	9.9

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	5.8	1.63	8.46	-	189
-----------------------------	-------	-----	-----------	-----	------	------	---	-----

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	17	19	12	-	14
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	-	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	6.8	< 1.8	< 1.8	-	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	28	22	-	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	160	17	38	-	27
Lead (aqua regia extractable)	mg/kg	1	MCERTS	2200	22	17	-	99
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	13	25	11	-	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	930	76	83	-	260

Analytical Report Number: 23-55327
 Project / Site name: Site Off Barrier Bank Cowbit
 Your Order No: E23169

Lab Sample Number	2804802	2804803	2804804	2804805	2804806
Sample Reference	TP01	TP02	TP03	TP03	TP04
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.10	0.80	0.00	0.85	0.10
Date Sampled	06/09/2023	06/09/2023	06/09/2023	06/09/2023	06/09/2023
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Monoaromatics & Oxygenates

Benzene	µg/kg	5	MCERTS	-	-	-	< 5.0	-
Toluene	µg/kg	5	MCERTS	-	-	-	< 5.0	-
Ethylbenzene	µg/kg	5	MCERTS	-	-	-	< 5.0	-
p & m-xylene	µg/kg	5	MCERTS	-	-	-	< 5.0	-
o-xylene	µg/kg	5	MCERTS	-	-	-	< 5.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	-	-	-	< 5.0	-

Petroleum Hydrocarbons

Petroleum Range Organics (C6 - C10) HS_1D_TOTAL	mg/kg	0.1	NONE	-	-	-	-	< 0.1
--	-------	-----	------	---	---	---	---	-------

TPH-CWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.1	NONE	-	-	-	< 0.10	-
TPH-CWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.1	NONE	-	-	-	< 0.10	-
TPH-CWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.1	NONE	-	-	-	< 0.10	-
TPH-CWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	-	-	-	1.7	-
TPH-CWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	-	-	-	47	-
TPH-CWG - Aliphatic >EC16 - EC21 EH_CU_1D_AL	mg/kg	8	MCERTS	-	-	-	160	-
TPH-CWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	-	-	-	62	-
TPH-CWG - Aliphatic >EC35 - EC40 EH_CU_1D_AL	mg/kg	10	NONE	-	-	-	< 10	-

TPH-CWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.1	NONE	-	-	-	< 0.10	-
TPH-CWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.1	NONE	-	-	-	< 0.10	-
TPH-CWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.1	NONE	-	-	-	< 0.10	-
TPH-CWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	-	-	-	< 1.0	-
TPH-CWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	-	-	-	30	-
TPH-CWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	-	-	-	91	-
TPH-CWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	-	-	-	43	-
TPH-CWG - Aromatic >EC35 - EC40 EH_CU_1D_AR	mg/kg	10	NONE	-	-	-	< 10	-
TPH Total C5 - C40 EH_CU+HS_1D_TOTAL	mg/kg	10	NONE	-	-	-	440	-

TPH (C10 - C25) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	-	-	-	-	260
TPH (C25 - C40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	-	-	-	-	160

Microbiological (Subcontracted)

Total Coliforms	mpn/g	N/A	NONE	-	-	-	-	-
E. Coli	mpn/g	1	NONE	-	-	-	-	-
Faecal Streptococci	cfu/g	N/A	NONE	-	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 23-55327
 Project / Site name: Site Off Barrier Bank Cowbit
 Your Order No: E23169

Lab Sample Number				2804807
Sample Reference				TP05
Sample Number				None Supplied
Depth (m)				0.20
Date Sampled				06/09/2023
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	-
Moisture Content	%	0.01	NONE	-
Total mass of sample received	kg	0.001	NONE	-

Asbestos in Soil	Type	N/A	ISO 17025	-
Asbestos Analyst ID	N/A	N/A	N/A	N/A

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-
----------------------------	-------	---	--------	---

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-
Acenaphthylene	mg/kg	0.05	MCERTS	-
Acenaphthene	mg/kg	0.05	MCERTS	-
Fluorene	mg/kg	0.05	MCERTS	-
Phenanthrene	mg/kg	0.05	MCERTS	-
Anthracene	mg/kg	0.05	MCERTS	-
Fluoranthene	mg/kg	0.05	MCERTS	-
Pyrene	mg/kg	0.05	MCERTS	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-
Chrysene	mg/kg	0.05	MCERTS	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-
-----------------------------	-------	-----	-----------	---

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-
Chromium (hexavalent)	mg/kg	1.8	MCERTS	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-

Analytical Report Number: 23-55327
 Project / Site name: Site Off Barrier Bank Cowbit
 Your Order No: E23169

Lab Sample Number				2804807
Sample Reference				TP05
Sample Number				None Supplied
Depth (m)				0.20
Date Sampled				06/09/2023
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Monoaromatics & Oxygenates				
Benzene	µg/kg	5	MCERTS	-
Toluene	µg/kg	5	MCERTS	-
Ethylbenzene	µg/kg	5	MCERTS	-
p & m-xylene	µg/kg	5	MCERTS	-
o-xylene	µg/kg	5	MCERTS	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	-

Petroleum Hydrocarbons

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	0.1	NONE	-
--	-------	-----	------	---

TPH-CWG - Aliphatic >EC5 - EC6 HS_ID_AL	mg/kg	0.1	NONE	-
TPH-CWG - Aliphatic >EC6 - EC8 HS_ID_AL	mg/kg	0.1	NONE	-
TPH-CWG - Aliphatic >EC8 - EC10 HS_ID_AL	mg/kg	0.1	NONE	-
TPH-CWG - Aliphatic >EC10 - EC12 EH_CU_ID_AL	mg/kg	1	MCERTS	-
TPH-CWG - Aliphatic >EC12 - EC16 EH_CU_ID_AL	mg/kg	2	MCERTS	-
TPH-CWG - Aliphatic >EC16 - EC21 EH_CU_ID_AL	mg/kg	8	MCERTS	-
TPH-CWG - Aliphatic >EC21 - EC35 EH_CU_ID_AL	mg/kg	8	MCERTS	-
TPH-CWG - Aliphatic >EC35 - EC40 EH_CU_ID_AL	mg/kg	10	NONE	-

TPH-CWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.1	NONE	-
TPH-CWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.1	NONE	-
TPH-CWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.1	NONE	-
TPH-CWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	-
TPH-CWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	-
TPH-CWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	-
TPH-CWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	-
TPH-CWG - Aromatic >EC35 - EC40 EH_CU_ID_AR	mg/kg	10	NONE	-
TPH Total C5 - C40 EH_CU+HS_ID_TOTAL	mg/kg	10	NONE	-

TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	-
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	-

Microbiological (Subcontracted)

Total Coliforms	mpn/g	N/A	NONE	See Attached
E. Coli	mpn/g	1	NONE	See Attached
Faecal Streptococci	cfu/g	N/A	NONE	See Attached

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 23-55327

Project / Site name: Site Off Barrier Bank Cowbit

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2804802	TP01	None Supplied	0.1	Brown clay and sand with gravel.
2804803	TP02	None Supplied	0.8	Brown clay and sand with gravel.
2804804	TP03	None Supplied	0	Brown clay and sand with gravel.
2804805	TP03	None Supplied	0.85	Brown clay and sand with gravel and oil / petroleum.
2804806	TP04	None Supplied	0.1	Brown clay and sand with gravel and brick.

Analytical Report Number : 23-55327
Project / Site name: Site Off Barrier Bank Cowbit

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
E. Coli in soil Subcon	E.Coli in Soil - Subcontracted Analysis	Subcontracted Analysis - See Attached Subcon Report.		W	NONE
Faecal Streptococci in soil Subcon	Faecal Streptococci in Soil - Subcontracted Analysis	Subcontracted Analysis - See Attached Subcon Report.		W	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards. Refer to CoA for analyte specific accreditation.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
PRO (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-PL	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Total Coliforms Biology in soil Subcon	Total Coliforms in Soil - Subcontracted Analysis	Subcontracted Analysis - See Attached Subcon Report.		W	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation	L073B-PL	W	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
TPH Oils (Soils)	Determination of extractable hydrocarbons in soil by GC-MS/FID.	In-house method with silica gel split/clean up.	L076-PL	D	MCERTS

Analytical Report Number : 23-55327
Project / Site name: Site Off Barrier Bank Cowbit

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
DRO (Soil)	Determination of extractable hydrocarbons in soil by GC-MS/FID.	In-house method with silica gel split/clean up.	L076-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID. Refer to CoA for band specific accreditation.	In-house method with silica gel split/clean up.	L088/76-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

BACTERIOLOGICAL TEST REPORT



Client: i2 Analytical LTD
#Address: 7 Woodshots Meadow
 Croxley Green Business Park
 Croxley Green
 Hertfordshire
 WD18 8YS
#Site: 23-55327
#FAO: Trevor Hill
#Order No: PO_S_C6486

Job Number: M/182/121329

Report No.: 133643.1

#Date Tak'n: Wed, 6th Sep 2023 00:00

Date Rec'd: Tue, 12th Sep 2023



2266

Stansted Laboratories LTD
 Unit 9-10, Riverside Industrial Estate
 27 Thames Road
 Barking, Essex
 IG11 0ND
 Tel: +44 (0)20 8594 5104
 Fax: +44 (0)20 8591 8762
 sales@stanstedlabs.co.uk
 www.stanstedlabs.co.uk

Items Marked □ are not included in the UKAS Schedule

Sample ID	#Description & Temperatures	Analysis	Result	Tested	Notes / Species
SL538183 <i>Soil</i>	2804807 - TP05 0.2m	Coliforms □	2900 MPN/100ml	12/09/2023	
	Init Temp □ Temp > 1 Min □ Temp > 2 Min □	E.Coli □	0 MPN/100ml	12/09/2023	
		Enterococci □	0 cfu/100ml	12/09/2023	

Method Codes

SLM/B312/M - Coliforms and Escherichia coli
 SLM/B370/M - Enterococci

Legend & Footnotes

cfu = Colony Forming Units

mpn = Most Probable Number

TNTC = Too Numerous to Count

#Information supplied by the customer and can affect the validity of results.

Sampling is not included in our UKAS Schedule.

All Samples Analysed as received.

Test report authorised by :

Theepa Supikaran

Quality Manager

Date: 15/09/2023 11:57:06

Test Report checked by : Anusala Tavarasa

15/09/2023 11:47:16

Disclaimer

Results relate to samples tested and should not be reproduced except in full, without the written approval of the laboratory. Interpretations and opinions are not included in our UKAS schedule.

00:00 means time not declared.

----- END OF REPORT -----