



LAND OFF SAPCOTE ROAD, BURBAGE

REMEDIAL METHOD STATEMENT FOR MORRO PARTNERSHIPS LTD & EMH HOUSING & REGENERATION LTD

Project No:

GML21138

Report Ref:

GML23150/3/1

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Revision – 0

REMEDIAL METHOD STATEMENT FOR LAND OFF SAPCOTE ROAD, BURBAGE

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1.0 INTRODUCTION

Geo-Matters Ltd have been instructed by Morro Partnerships Ltd & EMH Housing & Regeneration Ltd (hereafter referred to as 'the Client') to prepare a Remedial Method Statement (RMS) for the proposed residential redevelopment at Land off Sapcote Road, Burbage ('the site') to address identified localised contaminant hotspots. The site is roughly centred at National Grid Reference 444170, 293350, as shown on plans within Appendix I.

1.1 Sources and Conditions

This RMS is based on the findings of the following reports for the site, as summarised below:

- Geo-Risk: Phase I Desk Study, Tollgate Works (Ref: 20102/1 dated May 2020);
- Geo-Matters Ltd: GML23150 Phase II Geo-Environmental Investigation Land off Sapcote Road (Ref: GML23150/2/1) dated Nov 2023);
- Staniforth Architects: Proposed Site Plan (Ref: 1525 P2-03 Rev D dated July 2021).

It is assumed that the Regulators have seen and commented upon the above reports (from a contaminated land perspective) and that they have approved the works and recommendations made thus far. If this is not the case, it is recommended that the reports are submitted to the regulators for comment.

The above reports must be read in conjunction with the above, which should not be referred to in isolation as the above reports will contain information not reiterated within this document.

Should the development proposals alter (e.g. type or foundation option), 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.

This RMS has been prepared on the understanding that the site will be redeveloped for a residential end-use including associated infrastructure, private gardens and POS areas. If the development proposals change then the recommendations in this RMS may require amendment.

This report has been prepared for the sole use and reliance of Morro Partnerships Ltd & EMH Housing & Regeneration Ltd and is presented to propose an outline scope for remedial works, where required.

All recommendations within this RMS are subject to the formal approval of the Regulatory Authorities (i.e., EHO, EA and NHBC). It is recommended that this report be submitted to them by the Client in advance of any irrecoverable works on site.

The currently accepted Tier 1 Screening Values for the UK (i.e., C4SLs and similar screening values) are always being re-assessed and refined in response to advances in risk assessment and changes in policy / regulation(s). The newest accepted values have been utilised within this document. Other values may be released or approved by regulators / third parties which may be adopted for this site prior to the completion of the project.

1.2 General Considerations

The possibility of significant variation in ground conditions existing between sampling locations cannot be discounted and this report only comments on the findings within the previous reports. Groundwater conditions are based on observations made at the time of the investigation and may be subject to significant variation due to seasonal or other effects.

It is assumed that the Client and their selected redevelopment contractors will adhere to all relevant regulations in connection with health and safety and demolition works (including, but not limited to, Construction (Design and Management) Regulations 2015).

This document relates only to remedial works in connections with soils, groundwater and gas. All remaining considerations (i.e. structural considerations, utility diversions etc.) should be addressed to the suitable specialist engineers / consultants as appropriate by the Client.

1.3 Supervision of Remedial Works

The Client will need to appoint a suitable third-party environmental consultancy (i.e., Geo-Matters Ltd) to supervise and validate all remedial works. However, the appointed remedial / earthworks contractor(s) will be responsible for the provision of suitable and sufficient personnel to undertake and complete the works recommended within this document.

2.0 SUMMARY CONCEPTUAL SITE MODEL

Full details relating to the site setting and ground conditions encountered are presented within the previous reports (as referenced in Section 1.1). The following presents a summary conceptual site model as background information to put the proposals presented within this RMS into perspective.

2.1 Site Setting

Brief Site Description

The full site features are presented in the above referenced report although main points have been reiterated for completeness:

- The site covers an approximate area of 0.5ha and is occupied by brick buildings where a former double glazing window supplier, e-cigarette company, a former hand car-wash and a former musical instrument suppliers were housed. Two electricity substations are observed to the west of the buildings.

Geology / Hydrology

The underlying geological information states that the site is underlain by Glacial Till Deposits of the Wolston Sand & Gravel ('Secondary A' aquifer status) above the Oadby Member ('Secondary Undifferentiated' aquifer status) and the Mercia Mudstone Group ('Secondary B' aquifer status) of medium vulnerability. Secondary aquifers are generally aquifers formerly classified as minor aquifers. No groundwater / surface abstraction licenses are recorded within a 200m radius of the site and the site is not set within an Environment Agency 'Source Protection Zone'.

Potential Sources of Contamination

Made ground associated with excavations at the site, TPH associated with former car wash / garaging & ground gas associated with the made ground.

2.2 Ground Conditions

Geo-Matters Ltd previous report Nov 2023 comprised the advancement of 7 No. boreholes to a maximum depth of 5.00m below existing ground level (begl).

Made ground

Made ground comprising concrete, sub-base or tarmac, ashy clinker, reworked clays with brick was encountered in in most of the exploratory locations to maximum depth of 1.80m.

Natural Strata

The made ground was underlain by loose - medium dense clayey silty SAND / firm sandy clayey SILT. Organic / putrescible materials were not identified within any of the exploratory locations completed during the recent investigation.

Visual and Olfactory Evidence of Contamination

During the recent ground investigation, **no** olfactory evidence of any potential contamination was noted within the exploratory locations advanced at the site.

Groundwater

No groundwater was encountered during this investigation, therefore will not be considered further within this RMS.

2.3 Sources (Contamination)

Identified Contaminant Areas

The chemical analysis undertaken by Geo-Matters Ltd in 2023 indicated that localised soil concentrations in the MADE GROUND in parts of the site were above the respective assessment criteria based on a proposed residential end use with private gardens therefore these locations of elevated soils will need to be made suitable for reuse within the development.

Benzo(a)Pyrene (Site Specific Target of 2.2mg/kg)

Of the 8 no. samples analysed for PAH's (Benzo(a)Pyrene), 2 no. of the samples recorded exceedances of the respective Tier 1 screening values as follows:

- WS1 at 0.90m begl (made ground – reworked natural with ashy clinker noted) of 3.91mg/kg exceeds the T1SV of 2.2mg/kg;
- WS4 at 0.10m begl (made ground – thin layer of loose tarmac chippings) of 3.64mg/kg exceeds the T1SV of 2.2mg/kg;

All contaminated materials were encountered within MADE GROUND in these areas. Within WS1 the ashy clinker material was only noted from 0.80m – 1.80m begl and no evidence of this material was noted within shallower soils. Within WS4 the material of loose tarmac chippings were only noted from surface to 0.20m begl it has been proven that natural soils have not identified any significant contamination to date, therefore the natural soils at the site are suitable for re-use within a residential setting.

Ground Gas

A ground gas assessment exercise was undertaken at the site and reported in Geo-Matters Ltd report (ref: ML/GML23150/2/1) dated Nov 2023. The monitoring comprised 6 No. visits through Oct and Nov 2023 from 3 no. monitoring standpipes during varying atmospheric pressures.

Significant Methane was not detected in any of the monitoring locations. Carbon dioxide was detected at a maximum concentration of 8.1% v/v. The maximum volumetric flow rate recorded across the site for carbon dioxide was therefore calculated at 0.016 l/hr. Reference should be made to the Nov 2023 report for further information.

Radon

The property is in low probability radon area (<1% of homes are estimated to be at or above the Action Level). The Environmental Data Report; presented within the 3rd Party Phase I Report; states that **NO** radon protective measures are necessary in the construction of new dwellings at the site, subject to Local Authority approval.

2.4 Receptors

The site is to be redeveloped for a residential end use. Therefore, Tier one screening values for a residential end use with plant uptake were used in the recent delineation report as these are the most stringent scenario with regards to contaminant screening values. The main receptors which have been considered within this RMS comprise future residential end users.

Groundworkers have not been considered as receptors within this document as it is anticipated that the company / companies undertaking such works will implement their own health and safety protocols with due reference to the findings contained within this report and those listed above, and shall therefore not be considered any further within this assessment.

2.5 Source / Pathway / Receptor Linkage

Based on the findings of our previous assessments / investigations, it is considered that potential pollutant linkages are present associated with the identified contamination and future residential site users. These include the following:

- Direct ingestion of soil and dust;
- Ingestion of home-grown vegetables etc.;
- Dermal contact with soil and dust;
- Inhalation of CO₂ vapour.

Remedial works are therefore required to break the identified linkages, including the delineation and removal of impacted soils should they remain *in situ* and be present at shallow depths within soft gardens / landscaped areas.

3.0 REMEDIATION STATEMENT

3.1 Remediation Rationale

It is considered that the remedial works outlined herein should be sufficient to break all identified pollutant linkages to human health receptors for the contaminated soils and ground gas encountered. The remedial works identified herein would be limited to the removal / capping of these contaminated materials from each area of concern and include ground gas precautions to plots as presented within Appendix I, thereby breaking the pollutant linkages for the identified receptors. All hotspots are contained within the made ground soils encountered at the site, the natural soils have been proven clean.

Where contaminated materials are covered by permanent hardstanding / structures as part of final layouts then this would be considered to suitably break the pathways identified thus far, meaning that further remedial works would not be required, unless otherwise mentioned.

The hotspot made ground arisings at the site (WS1 & WS4); **within areas of soft landscaping / gardens only**; will need remediating. Remedial works should comprise one of the following:

- The removal of made ground contaminated materials Plots 1 - 6 of the proposed development, followed by their disposal to an appropriate off-site facility i.e. landfill etc.
- The capping of any made ground materials (600mm 'clean' soils) should they remain *in situ* and in main garden areas, and 300mm in other soft landscaping;
- Encapsulation of any made ground materials by permanent hardstanding / structures.

3.1.3 Ground Gas

As shown on the Ground Gas Plan presented in Appendix I, proposed structures across the site would require protection measures consistent with a 'CS2' classification (equivalent to NHBC Amber 1 Traffic Light, if the floor slabs are to utilised a sub-floor void of at least 150mm) where ground gas protection measures are considered necessary in new buildings constructed at the site, subject to regulatory approval.

The property is not located in a Radon Affected Area therefore **no** radon protection measures are required subject to regulatory Authority approval.

3.1.2 Other Contamination / Related Issues

Should significant suspected additional / previously unidentified contamination be encountered within soils during future redevelopment, works should cease immediately and Geo-Matters Ltd should be informed without delay. An inspection of these soils by an Engineer from Geo-Matters Ltd will be necessary in order to determine requirements for further remedial works, if required on an ad-hoc basis as outlined in Section 4.0.

Additional / previously unidentified contamination should be dealt with on an *ad hoc* basis as outlined in Section 4.0. All movement(s) of soils and other arisings must be undertaken under the appropriate regulatory authority licensing / exemption procedures.

Any importation works must be undertaken in full compliance with all regulatory licensing procedures, and validation of the soils prior to importation will be required, subject to the approval of the Local Authority.

Extensive natural topsoil was not encountered during the recent site works. There should therefore be a requirement to import additional topsoil onto the site, and it is reiterated that all such works must be undertaken in full compliance with all regulatory licensing procedures, and validation of the soils prior to importation will be required, subject to the approval of the Local Authority.

All movement(s) of soils and other arisings must be undertaken under the appropriate regulatory authority licensing / exemption procedures.

4.0 REMEDIATION SPECIFICATION

4.1 Capping Specification

As outlined in Sections 2 and 3, feasible pollutant linkages have been identified at the site associated with localised PAH's in made ground soils (WS1 and WS4). The ground gas assessment for the site recommends that it should be classified as CS2 or as NHBC Amber 1 where specific ground gas protection measures are considered necessary in new buildings constructed at the site.

Remedial measures are required around hotspot soils in WS1 and WS4; if the materials are to be left *in situ*; in order to break the identified pollutant linkages. In such instances, the capping of private main gardens with 600mm of suitable capping material is considered to be an appropriate approach to break these pollutant linkages. A lesser thickness of capping may be applied to other soft landscaped areas (suggested 300mm thickness), subject to regulatory authority approval.

Alternatively, in instances where all contaminated ground is removed (e.g. for offsite disposal or for placement beneath structures / hardstanding or placement beneath areas of public open space etc.), then capping would **not** be required, with the exception of NHBC standard cover thicknesses for aesthetic purposes. This would need to comprise the removal of all significant made ground, and would require subsequent inspection / supervision by an engineer from Geo-Matters Ltd. The regulatory authorities will also require validation testing of natural underlying soils (base and sides) should this option be considered. This scenario may be applicable if, for example, significant topographical modifications are undertaken which expose deeper soils.

4.2 Capping Materials

Issues relating to the validation of capping soils following their placement are detailed in Section 5.

4.2.1 Capping Thicknesses

The following table of capping thicknesses to protect human health are proposed where contaminated made ground remains *in situ*, subject to regulatory review of this RMS.

Table 4.0: Summary of Recommended Capping Rationale[^]

Location	Recommended Capping Thickness	Rationale	Minimum Capping Make-up
WS1 & WS4 – Private Main Gardens	600mm*	PAH's	150mm Topsoil 450mm Subsoil
WS1 & WS4 - Soft Landscaping*	300mm*	PAH's	150mm Topsoil, 150mm Subsoil
Any Uncontaminated Areas	NHBC Standard Cover	-	N/A

* Capping only required if contamination remains *in situ*.

[^] Subject to regulatory approval.

Appropriate inspection(s) and analyses will be necessary should classification of topsoil material be required against standards such as BS3882: 2015 'Specification for Topsoil'.

Any soils imported to the site will need to be proven chemically suitable for the residential end-use (to the satisfaction of the regulators) and have the appropriate licencing in place.

4.3 Excavation of Contaminated Materials

At this stage; due to the limited hotspots of contamination; it is recommended that materials should be removed or relocated as required under the following circumstances:

- Contaminated materials are present within 600mm of final main garden levels;
- Contaminated materials are present within 300mm of other soft landscaped areas;
- Contaminated materials are exposed as part of topographical modification works; or
- Gross or significantly elevated contamination is present within a potential influencing distance of final surface levels.

Where materials are to be removed then an initial excavation area of 3m x 3m should be considered, followed by laboratory validation of base and sides and if results still highlight an issue then the remedial excavation is to be extended and the process continued over until results prove clear.

4.4 Utilities

It is recommended that utilities providers should be contacted (prior to the completion of any irrecoverable works) for confirmation that utility construction materials which have been selected by the Client meet with their approval.

4.5 Ground Gas and Radon

As outlined in Section 2.0, the ground gas assessment for the site recommends that it should be classified as CS2 or as NHBC Amber 1 where specific ground gas protection measures are considered necessary in new buildings or extensions constructed at the site.

The site does **not** lie in an area where properties are above the Radon HPA Action Level in accordance with the site-specific environmental data report (included in the Phase I Desk Study). Radon precautions are therefore not likely to be required for new dwellings / structures at the site, subject to Local Authority approval.

4.6 Additional Contamination

Should significant suspected additional / previously unidentified contamination be encountered within soils during future redevelopment, works should cease immediately and Geo-Matters Ltd should be informed without delay. An inspection of these soils by an Engineer from Geo-Matters Ltd will be necessary in order to determine requirements for further remedial works, if required.

Where contamination is suspected / identified then we should be contacted immediately and the soils must be removed/remediated under engineer's supervision. Validation sampling should be undertaken as described in Section 5.0. Excavated soils should be removed from site under appropriate waste management guidelines or retained on site and treated in accordance with the general remedial approach prescribed above. Cross contamination with 'clean' site soils, and the absence of run-off managements systems (i.e. contaminated fluids from excavated soils) must be avoided by site staff.

5.0 VALIDATION

The validation of completed remedial works will be required to provide the Regulatory Authorities with sufficient information to permit their approval for the works undertaken and outlined within this report. The following section outlines the necessary validation works associated with each phase of remedial works. All validation records should be presented to the relevant Regulatory Authorities for approval as necessary and should also be retained for inclusion within an overall completion report for the site.

The exact nature of the validation requirements will be dependent on the works completed and recommendations are provided within the following sub-sections.

All recommendations are subject to the approval of the relevant Regulatory Authorities.

All soil samples must be retrieved by an Engineer, and be analysed at a UKAS / MCERTS accredited laboratory.

5.1 Excavation of Contaminated Soils

Where contaminated soils etc. are excavated, an engineer from Geo-Matters Limited may need to be present to record the works. An initial area of 3m x 3m should be considered, followed by laboratory validation of base and sides of the resultant excavations and if results still highlight and issue then the remedial excavation is to be extended and the process continued until results prove clear to the approval of the regulatory authorities.

5.2 Importation of Capping Soils

As outlined in Section 4.1, capping soils may be required to provide a barrier to break exposure pathways for identified contaminated soils. It is recommended that soils; if imported or site won; are approved for use by the relevant Regulatory Authority and that the correct EA licence (or CL:AIRE MMP) is approved and in place prior to importation subject to Local Authority / NHBC Approval.

A list of Proposed Imported Capping Screening Values relating to soils for a residential end-use (with gardens) is presented within Appendix II.

5.3 Placement of Capping Soils

Capping Soils

Capping soils will need to be validated following their placement to confirm that appropriate thicknesses of soil have been applied in the designated area.

Validation is likely to include confirmation that an appropriate thickness of soils is present. An inspection ratio of 1No. validation point per 4no. consecutive plot in the proposed capping area is considered sufficient, subject to the approval of the relevant Regulatory Authority. All works in connection with the validation of capping soils should be undertaken by an Engineer from Geo-Matters Ltd.

The validation reports produced as part of these works will include a description of the validation(s) and their findings, suitable photographic records and any other relevant information.

All findings should be presented to the relevant Regulatory Authority / NHBC for approval and signed off following completion of each set of validation works where appropriate.

5.4 Ground Gas

Based upon the categorisation of the proposed development (private residential dwellings, as described in Table 4 of BS8485:2015), a 'Type A' building type has been established. Based upon Table 4 of BS8485:2015, this would require a 'gas protection score' of 3.5 points, requiring the following measures:

Gas Protection Score Matrix of 3.5

Feature	Design Notes*	Score (from BS8485:2015)	Comments
Floor Design	Floor Slab	0	Precast suspended segmental subfloor
Ventilation Type	Passive Sub-Floor Void (assumed to be clear of obstructions and min. thickness 200mm)	1.5 - 2.5	Ranged based upon performance, clear void with adequate venting beneath / through cavity should be at the upper end of the range shown.
Membrane	Meeting Min. Standards of BS8485:2015~	2.0 [#]	Min. 0.4mm thickness (equivalent to 370g/m ² for polyethylene reinforced membrane (virgin polymer).
Overall Design	Based on all above Design Notes	4.5	<u>Total score.</u>

* Based on the assumed design, subject to Client confirmation and submission of design detail drawings to appropriate regulators.

~ As outlined in BS 8485:2015, the performance of membranes is heavily dependent on the quality and design of the installation, resistance to damage after installation and integrity of joints.

If a membrane is installed that does not meet all the criteria in column 1 of Table 7 of BS8485:2015 then the score is **zero**.

If the Client's proposed design with respect to ground gas protection measures adheres to / corresponds with the details listed in the table above, then no addition measures should be required (subject to the considerations below and subject to regulatory / NHBC approval).

In addition to the above (and / or for clarification) this would therefore provisionally require the following for the site, subject to Regulatory Authority / NHBC approval:

General Precautions CS1:

- Suitable, unobstructed and correctly installed adequate external venting to be present (i.e. in accordance with relevant guidance), such as 'periscope' venting;
- All joints and penetrations sealed and with either;
- Reinforced concrete cast *in situ* floor slab (suspended, non-suspended or raft) with suitable membrane and underfloor venting; or
- Beam and block or pre-cast concrete floor with suitable membrane and underfloor venting.

Or;

NHBC Traffic Light System – **Amber 1:**

- All joints and penetrations sealed;
- Ventilation – subfloor venting to achieve at least one air exchange per day (minimum 150mm void height; 1500mm²/m air vent opening or 500mm²/m² floor area spaced at not more than 2m centres on at least two opposing sides);
- Membrane – must be suitable for purpose;
- Membrane Installation/Design - to achieve complete integrity across entire building footprint.

Verification Requirements

In accordance with the latest NHBC guidance, BS 8485:2015 and CIRIA C735, appropriate verification should be undertaken to ensure that the required ground gas protection measures have been correctly installed and maintained (i.e. to prevent damage etc.) for all required structures at the site. It is recommended that site staff develop, maintain and update an appropriate installation and verification plan in accordance with the aforementioned guidance documents to complement this.

For a CS2 classification, in accordance with C735 (assuming that the gas protection measures and most importantly the membrane were installed by a qualified and experienced installer) the following is recommended:

- Verifier (consultant or third party qualified and experienced installer) to conduct a thorough visual verification inspection prior to 25% - 50% of concrete pours (min. one visit, installer to supply sign-off sheets (verification evidence) including photographs to independent verifier for other pours.

With respect to the NHBC's 'Amber 1' classification, the following would be considered by them as minimum verification / information requirements (assuming that the gas protection measures and most importantly the membrane were installed by a qualified and experienced installer):

- Verifier (consultant or third party qualified and experienced installer) to conduct thorough verification (visual) inspection of first plot and after placement of reinforcement if no protection provided. Subsequent inspections carried out at approx. frequency of 1 in 20 plots. Contractor to supply sign off sheets (verification evidence) including photographs for all other plots. Consideration given to need for / scope of integrity testing if concerns identified by visual inspections.
- Additional Verification (Construction Drawings) – showing position of membrane; sealing details and ventilation points to be provided.
- Additional Verification (Membrane Specification) – technical data sheet(s) for gas membrane (including gas permeability data) to be provided.
- Additional Verification (Installation) – photographic evidence of installed membrane may be requested.

5.5 Management of Materials on Site

As the remediation works may involve the movement of soils and other materials around the subject site, it is considered prudent to recommend control measures in order to ensure that cross-contamination and / or loss of materials is prevented.

Where contaminated materials are excavated from the ground for off-site disposal, they should be either directly loaded into waiting wagon to restrict infiltration, run-off or placed in temporary stockpiles awaiting removal.

Geo-Matters Ltd should be present on site to inspect the removal, relocation and placement of all limited contaminated hotspots and other sensitive materials. Testing suites should be sufficient to enable the characterisation of the materials inspected.

6.0 CONTACTS

Presented below are the relevant Local Authority and Environment Agency details for reference:

Local Authority

Lesley Keal – Compliance & Monitoring Officer

Hinckley & Bosworth Borough Council

Hinckley Hub

Rugby Road

Hinckley

Leics

LE10 0FR

Email: Lesley.keal@hinckley-bosworth.gov.uk

7.0 DEVELOPER RESPONSIBILITIES

The following section provides an outline summary of the responsibilities of the developer for forthcoming works at the subject site for the sake of clarity.

7.1 Utilities / Supply Pipes

The developer will be responsible for all liaison and agreement with the appropriate water utility provider to ensure the correct grade of piping etc. are selected and utilised at the site, although as all contaminated material will be removed from likely planned service runs then standard supply pipes should be sufficient; subject to their approval.

7.2 Earthworks and Capping Soils

The developer will ensure the correct and appropriate construction of final development platforms including the provision and placement of clean capping soils. The developer should ensure that all necessary licenses, permits and exemptions (as applicable) are correctly in place prior to the commencement of site redevelopment works.

7.3 Environmental Safeguards

Consideration should be given to the protection of receptors (including human health receptors and controlled waters receptors) during any temporary *ex situ* storage of materials at the site.

The site staff should ensure that all appropriate environmental controls are implemented prior to, and during, all remedial works. With regards to the storage of contaminated soils, this should comprise the placement of all such soils upon either impermeable hardstanding or suitable barrier membranes. These areas may need to be surrounded by a bund which will prevent run-off from contaminated materials from impacting other areas of the site or off-site receptors. In addition, stockpiles must be covered during periods of rainfall so that additional contaminated leachate run-off is not generated.

The contractor responsible for the remedial works should ensure that an appropriate area is designated for the completion of these works.

APPENDIX I

Site Plans



DO NOT SCALE

NOTES:



Approx Exploratory Locations



Well Installations

GEO MATTERS
consulting engineers

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info@geo-matters.com

CLIENT:

Morro Partnerships Ltd & EMH
Housing & Regeneration Ltd

PROJECT:

Sapcote Road, Burbage

TITLE:

Exploratory Hole Layout Plan

SCALE@SIZE :

NTS

ISSUE:

Final

DESIGN/DRAWN :

ML

DATE:

Nov. 2023

PROJECT No:

GML23150

DRAWING No:

001

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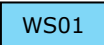


DO NOT SCALE

NOTES:

 Approx Exploratory Locations

 Well Installations

 Location of Exceedance of PAH's

GEOMATTERS
consulting engineers

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CLIENT:

Morro Partnerships Ltd & EMH
Housing & Regeneration Ltd

PROJECT:

Sapcote Road, Burbage

TITLE:

Soil Exceedances against
Layout Plan

SCALE@SIZE :

NTS

ISSUE:

Final

DESIGN/DRAWN :

ML

DATE:

Nov. 2023

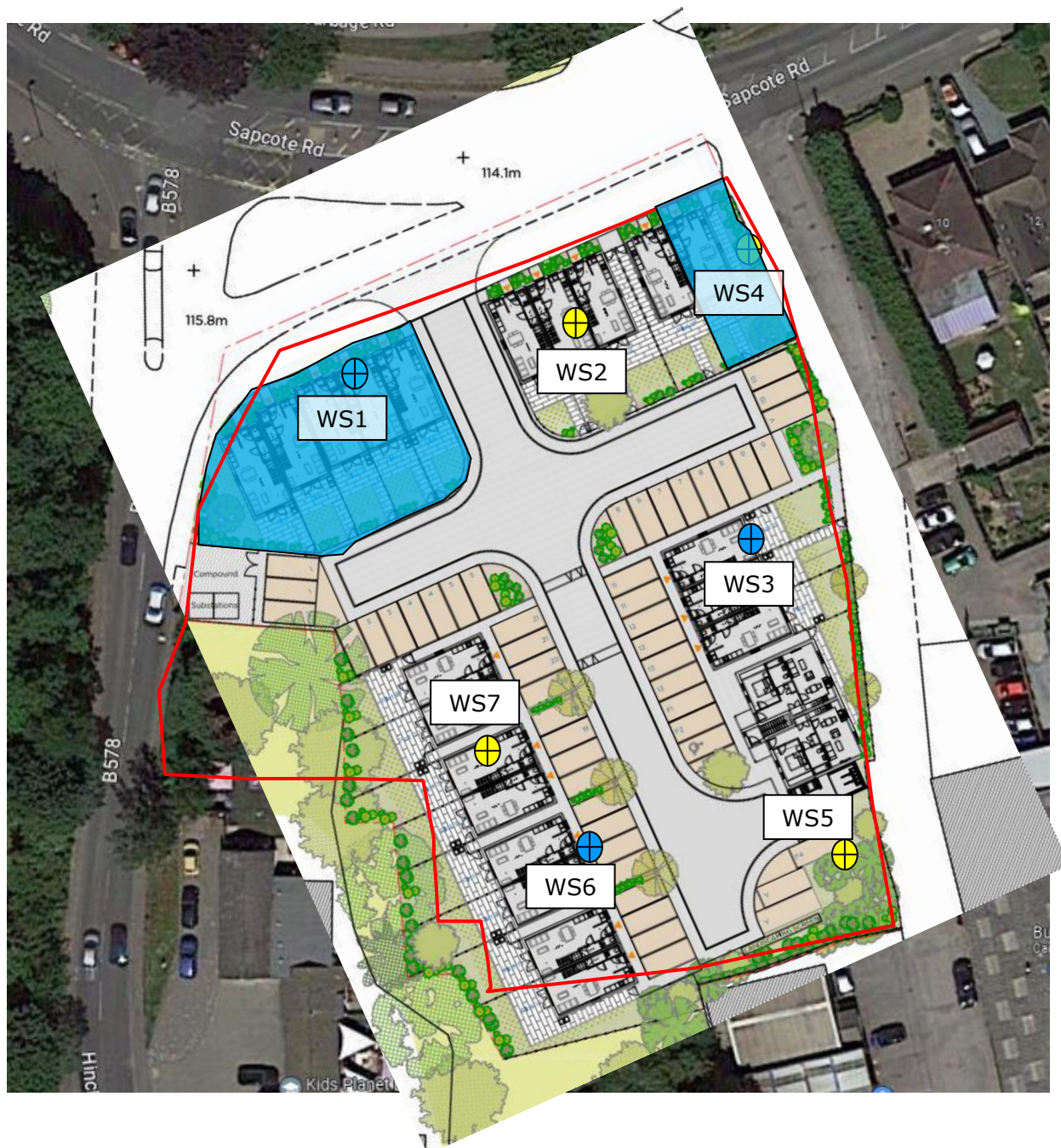
PROJECT No:

GML23150

DRAWING No:

002

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NOTES:



Approx Exploratory
Locations



Well Installations



Areas to be
remediated

GEO MATTERS
consulting engineers



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CLIENT:

Morro Partnerships Ltd & EMH
Housing & Regeneration Ltd

PROJECT:

Sapcote Road, Burbage

TITLE:

Soil Remediation Plan

SCALE@SIZE :

NTS

ISSUE:

Final

DESIGN/DRAWN:

ML

DATE:

Nov. 2023

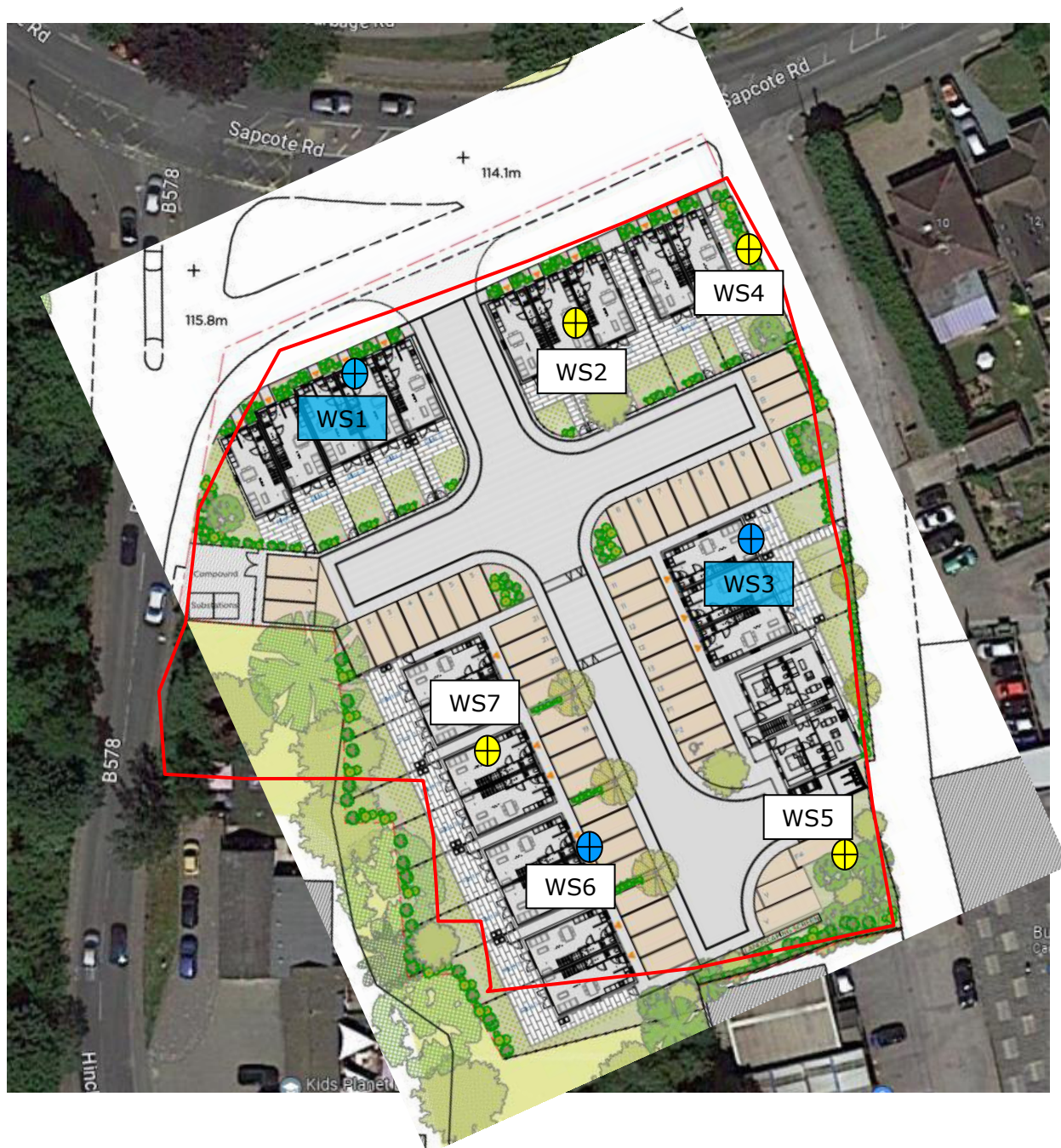
PROJECT No:

GML23150

DRAWING No:

003

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DO NOT SCALE



NOTES:



Approx Exploratory Locations



Well Installations

WS01

Location of Exceedance of PAH's

GEO MATTERS
consulting engineers

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CLIENT:

Morro Partnerships Ltd & EMH
Housing & Regeneration Ltd

PROJECT:

Sapcote Road, Burbage

TITLE:

Gas Exceedances against
Layout Plan

SCALE@SIZE :

NTS

ISSUE:

Final

DESIGN/DRAWN :

ML

DATE:

Nov. 2023

PROJECT No:

GML23150

DRAWING No:

004

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DO NOT SCALE



NOTES:



Approx Exploratory Locations



Well Installations



Areas to be remediated - All

GEO MATTERS
consulting engineers



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CLIENT:

Morro Partnerships Ltd & EMH
Housing & Regeneration Ltd

PROJECT:

Sapcote Road, Burbage

TITLE:

Gas Remediation Plan

SCALE@SIZE :

NTS

ISSUE:

Final

DESIGN/DRAWN:

ML

DATE:

Nov. 2023

PROJECT No:

GML23150

DRAWING No:

005

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APPENDIX II

Generic Import Screening Values

Geo-Matters Limited

Threshold Concentrations for Import Material

Determinand	Tier 1 Screening Values (mg/kg)
Metal / Metalloids	
Arsenic	37
Cadmium	11
Chromium (VI)	6
Lead	200
Selenium	250
Nickel	130
Copper	2400
Zinc	3700
Mercury	40
Inorganics	
Water Soluble Sulphate	0.5g/l
Asbestos	ND ^c (<0.001%)
Organics	
Benzo(a)pyrene	2.2
TPH	
Aliphatic & Aromatic C ₆₋₁₀	27
Aliphatic & Aromatic C ₁₀₋₂₅	75
Aliphatic & Aromatic C ₂₅₋₄₀	1100
Phenols	280

^a DEFRA pC4SL values at 1% SOM for a residential with plant uptake end use ^b LQM 'S4UL' values at 1% SOM for a residential with plant uptake end use

^c GML general screening level

ND = Not Detected