



BARTON ROAD, BARLESTONE

REMEDIATION METHOD STATEMENT
FOR
MYPAD 2020 LTD.

Project Ref:
EAL.288.22

Date:
December 2024

Prepared for:
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MyPad 2020 Limited
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NG9 2NH

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Date:	December 2024	
Version:	1.0	

GENERAL REFERENCE DETAILS	
SITE:	Land at Barton Road, Barlestone
CLIENT:	Mr Tom Botterill - MyPad 2020 Limited
DATE:	December 2024
REFERENCE:	EAL.288.22
DEVELOPEMNT PROPOSAL:	Eighty-four residential dwellings with associated driveway access, private gardens and public open space.
COMMENTS:	None.

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1.0 INTRODUCTION

1.1 PREAMBLE

Erda Associates Ltd have been instructed by MyPad Ltd (hereafter referred to as 'the client') to prepare a Remediation Method Statement (RMS) for a proposed residential redevelopment at their site known as *Land at Barton Road, Barlestone*. Site location and proposed development plans are included in **Appendix A**.

The client intends to develop the site with eighty-four residential dwellings with associated driveways, private gardens and public open space.

The Client (or any successive developer) should read through the contents of this report prior to the commencement of any works on the Site. A copy of this report should be made available to and read by the Site manager to ensure works are conducted in accordance with this RMS and, where specialist input is required, undertaken by appropriately qualified and experienced persons

1.2 PREVIOUS REPORTS

This Remediation Method Statement is based on the findings of the following previous reports undertaken for the site;

- Erda Associates Ltd, Land at Barton Road, Barlestone, Phase II Geo-Environmental Assessment for MyPad 2020 Ltd. (Reference EAL.288.22 and dated July 2023).
- Erda Associates Ltd, Land at Barton Road, Barlestone, Gas Addendum Letter for MyPad 2020 Ltd. (Reference EAL.288.22 and dated August 2023).

Copies of the above reports have not been included, but are available upon request. The following RMS should not be referred to in isolation and should be read in conjunction with the above referenced reports.

1.3 LIMITATIONS

This report has been produced in accordance with industry best practice at the time of writing.

In the production of this report, Erda Associates Ltd., have relied upon information provided by third parties. Erda Associates Ltd cannot accept responsibility for the reliability and authenticity of this information. Erda Associates Ltd. will not be responsible for any opinions which it has expressed, or conclusions which it has drawn, in reliance upon information which is subsequently proven to be inaccurate.

This report has been prepared for the sole use of the client and shall not be relied upon or transferred to third parties without the express written consent of Erda Associates Ltd. Unauthorised third parties rely upon the information contained within this report at their own risk.

1.4 DATA REFERENCES

- BS8485: 2015+A1:2019 Code of Practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings.
- CL:AIRE, 2024. Register of GPVS Assessors. [Online]
Available at: <https://claire.co.uk/projects-and-initiatives/gpvs/112-scheme-framework/1421-register-of-gpvs-assessors>
- Environment Agency, 2023. LCRM: Before You Start. [Online]
Available at: <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm/lcrm-before-you-start#competent>
- National Contaminated Land Officers Group, 2024. A Regulator's Guide to Cover Systems and their Verification, NCLOG.

- UK Water Industry Research, 2010. Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites (Ref 10/W/M/03/21), London: UK Water Industry Research Limited.
- Yorkshire and Lincolnshire Pollution Advisory Group (YALPAG), 2016. Verification Requirements for Gas Protection Systems (Version 3.3), YALPAG.
- Yorkshire and Lincolnshire Pollution Advisory Group (YALPAG), 2021. Verification Requirements for Cover Systems (Version 4.1), YALPAG.

The above reference list is not exhaustive.

2.0 SUMMARY CONCEPTUAL SITE MODEL

Full details relating to the site setting and ground conditions encountered at the subject site are presented within the previous reports (as referenced in Section 1.2). The following section presents a summary conceptual site model as background information to put the proposals presented in the RMS into perspective.

2.1 SOURCE

The previous ground investigation undertaken by Erda Associated Ltd identified that none of the samples exceeded the respective GAC for residential end use with produce. Therefore, remediation to protect future end users of the site is not considered to be required.

No visual or olfactory evidence of TPH contamination was identified in any of the exploratory holes. Therefore, the risk of this contamination is considered to be very low and no further assessment or remediation will be required.

Selected shallow samples were screened for asbestos as a precautionary measure. In summary asbestos was not detected in any of the samples and the risk is considered to be very low. Therefore, no further assessment or remediation is considered to be required.

Selected shallow samples were screened for pesticides/herbicides as a precautionary measure. In summary no significantly elevated concentrations were detected in any of the samples and the risk is considered to be very low. Therefore, no further assessment or remediation is considered to be required.

A ground gas assessment undertaken by Erda Associates Ltd., has concluded that the site is classified within a Characteristic Situation 2 scenario due to elevated carbon dioxide recorded at the site and that ground gas protection measures will be required to protect future end users of the site.

Standard water pipes for water supply were recommended at the site as no elevated concentrations of contaminants were recorded at the site.

No other significant contamination sources were identified from the previous investigations.

2.2 PATHWAY

The identified pathways for the elevated carbon dioxide include the inhalation of ground gas.

2.3 RECEPTORS

The previously identified receptors include occupants of the completed development (residents) and construction workers.

2.4 CONCLUSION

Remediation in the form of gas protection measures are required to protect future end users and construction workers on site.

3.0 REMEDIAL SCHEME

3.1 GROUND GAS

Ground gas protection measures are required for a Characteristic Situation 2 (CS-2) 'low risk' scenario. The soil gases of principal concern are ground gases (i.e. carbon dioxide and methane). Based on the guidance contained in *BS8485: 2015+A1:2019 Code of Practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings*, the proposed dwellings are considered to fall within Type A Buildings. Therefore, a minimum gas protection score of 3.5 points will be required. The following specification is recommended for CS2:

- Passively ventilated sub-floor void. (1.5 Points).
- Installation of a proprietary gas membrane to prevent any significant passage of identified ground gases (e.g. carbon dioxide, methane, etc) – membrane to be sufficiently durable to remain serviceable for the anticipated life of the building, sufficiently strong to withstand the installation process and following trades until covered and sufficiently able to withstand in service stresses (e.g. settlement if placed below a floor slab). (2 Points)
- Laps and joints bonded as per manufacturers details.
- All service entries sealed.

To achieve the 3.5 points outlined under the British Standard, the membrane must be installed in accordance with manufacturer's instructions by suitably qualified and experienced personnel.

The membrane should be installed atop a suitably prepared suspended floor slab. It is the contractor's responsibility to check that the floor slab is smooth and free of any sharp objects prior to the installation of the gas membrane. If the floor slab is not suitably smooth and risks puncturing the membrane, a protective layer should be installed by the contractor prior to the installation of the membrane. DPCs and gas membranes interrupting masonry bed joints are required to be bedded above and below with mortar.

The membranes should be overlapped and care should be taken to ensure a seal between each joint.

The gas membranes may be installed by the general builder/groundworker or by a suitable qualified applicator (e.g. specialist gas membrane installers with NVQ level 2 in Gas Membrane Installation). The gas membrane to be used shall be Juta GP-1 (a specification sheet for the Juta membrane is included in **Appendix B**).

The installation of the gas membranes, including joint integrity testing and confirmation of the condition of the membrane (i.e. any signs of damage), must be verified by a suitably qualified third party. The frequency of verification testing is dependent on the persons undertaking the installation. One inspection for every 4 plots is considered suitable for installations undertaken by an NVQ Level 2 installer while one inspection per plot is required for membranes installed by the general builder/groundworker.

Any changes to the proposed gas protection system and installation specifications should be agreed with the local planning authority prior to installation.

The above measures with regard to ground gas are considered sufficient to reduce the contamination risks to acceptable levels for future end users of the proposed development.

3.2 UNFORSEEN CONTAMINATION

Should further, unforeseen contamination be identified during the site works, a qualified environmental specialist and the Local Planning Authority should be notified immediately. The appointed contaminated land specialist should be consulted to assess the risk posed to end

users and the environment. This may include scheduling of additional samples for chemical screening and modification of this Remediation Strategy accordingly.

If at any point during intrusive groundworks at a site, evidence of unforeseen contamination is encountered in the form of significant noxious odours, discolouration, or instability within soils or sheen/ discolouration in groundwater, the following actions should be taken:

- Intrusive works in the immediate area of the impacted ground will be suspended.
- The developer will contact the supervising contaminated land consultant in order that they can appropriately assess the situation and make arrangements to determine what action may be necessary. This may require revision of the existing remediation strategy.
- The supervising contaminated land consultant should assess whether it is necessary for them to attend the site to undertake visual inspection and obtain samples for field and/or laboratory analysis.
- Where a significant risk is identified, the relevant regulating bodies (e.g. Local Authority and/or Environment Agency) shall be informed of the situation and the action being taken.
- Once appropriate action has been agreed and undertaken, a written summary will be produced by the supervising contaminated land consultant for submission to the Local Authority, (and where relevant, the Environment Agency) in accordance with planning requirements. The submission will include details of work undertaken, analytical results of investigative and validation samples obtained and conclusions and recommendations for any further actions considered necessary.
- In all cases, works on site should only recommence when the supervising contaminated land consultant considers it safe to do so within the context of the site-specific health & safety plan.
- Where regulatory bodies have been involved, site works should only recommence following their agreement.

4.0 VERIFICATION REPORTING

Ground Gas

The installation of the gas membranes, including joint integrity testing and confirmation of the condition of the membrane (i.e. any signs of damage), must be verified by a suitably qualified third party. The frequency of verification testing is dependent on the persons undertaking the installation. One inspection for every 4 plots is considered suitable for installations undertaken by an NVQ Level 2 installer while one inspection per plot is required for membranes installed by the general builder/groundworker.

Any changes to the proposed gas protection system and installation specifications should be agreed with the local planning authority prior to installation.

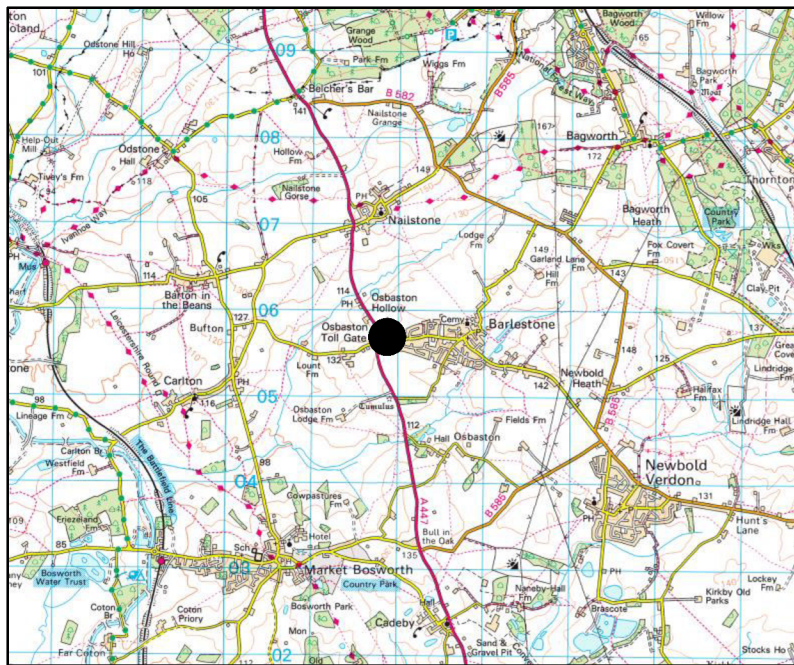
The above measures with regard to ground gas are considered sufficient to reduce the contamination risks to acceptable levels for future end users of the proposed development.

4.1 ADDITIONAL INVESTIGATION

Should further suspected contamination be identified during the site works, a qualified environmental specialist should be consulted to assess the risk posed to end users and the environment. This may include scheduling of additional samples for chemical screening and modification of this Remediation Method Statement accordingly.

Appendix A

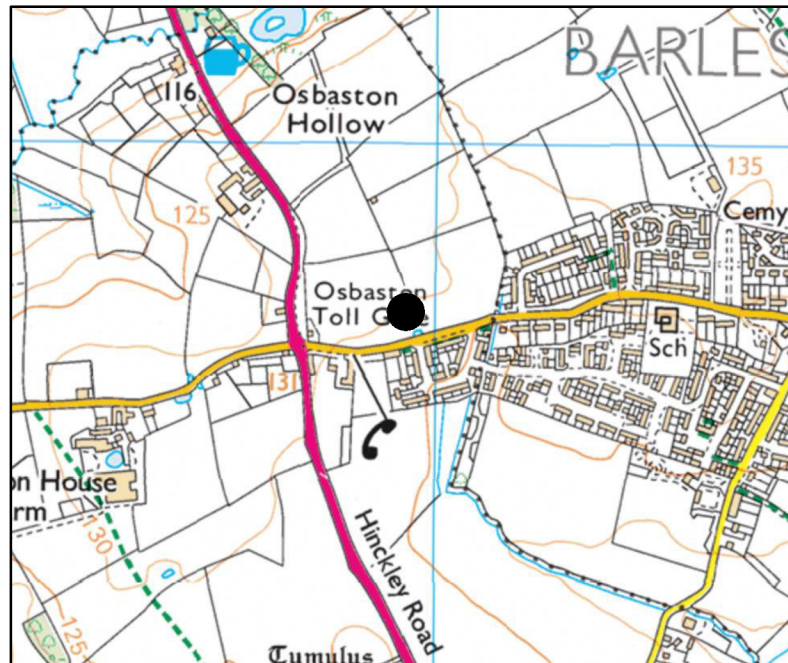




KEY:

● Approximate Site Location

DO NOT SCALE



TITLE:

Site Location Plan

PROJECT:

Barton Road, Barlestone

PROJECT No:

EAL.288.22

DATE:

12/2024

SCALE:

NTS

DRAWN:

PD

DWG No:

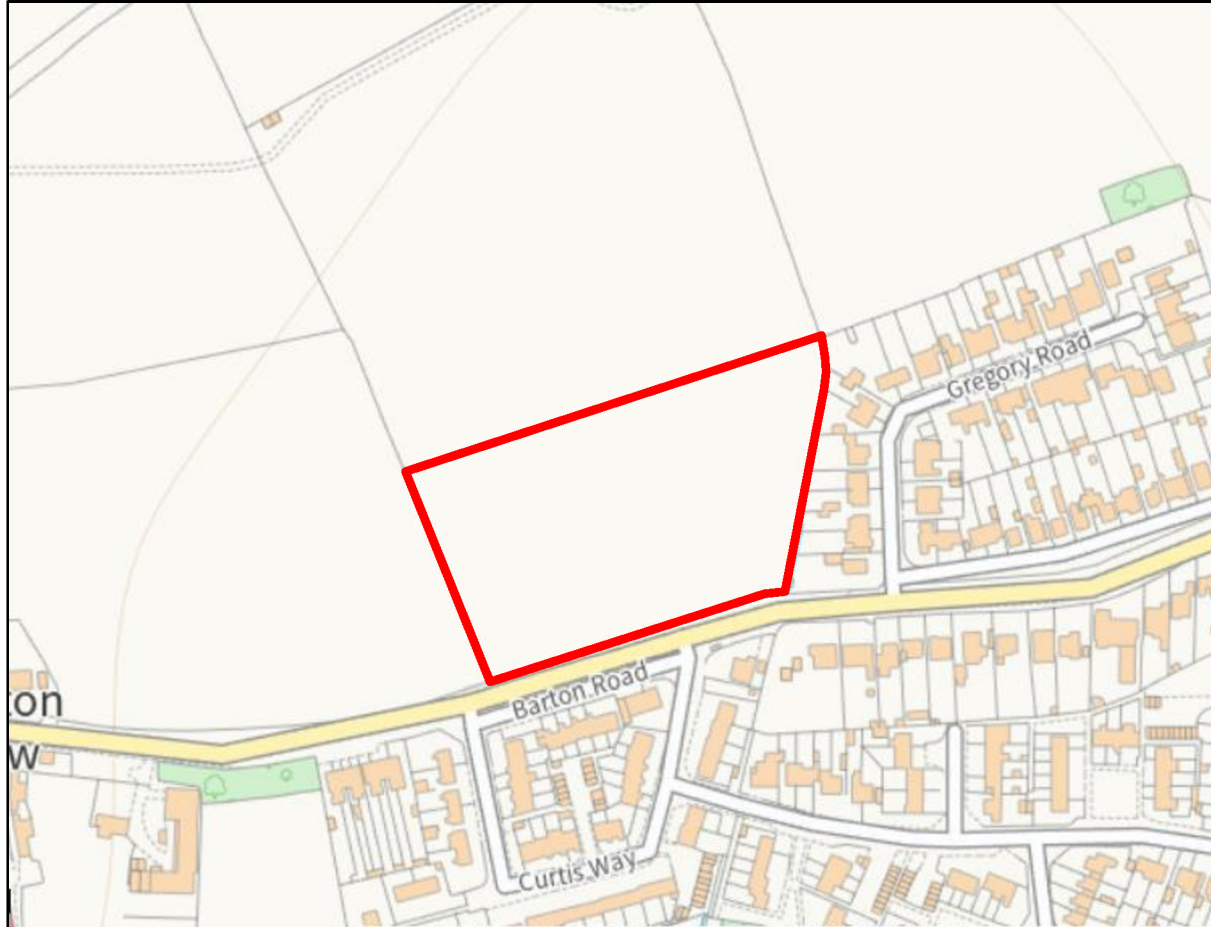
Figure 1



KEY:



Site Boundary



DO NOT SCALE



TITLE:

Site Layout

PROJECT:

Barton Road, Barlestone

PROJECT No:

EAL.288.22

DATE:

12/2024

SCALE :

NTS

DRAWN :

PD

DWG No:

Figure 2



Erda
Associates Ltd

Development Proposal

Barton Road, Barlestone

EAL.288.22

12/2024

NTS

PD

Figure 3

Appendix B





GP[®]1 proprietary gas resistant damp proof membrane (DPM) is a multi-layer, low density polyethylene membrane, reinforced with a polypropylene reinforcing grid with an integral aluminium foil. GP[®]1 is specifically designed and manufactured to perform as a methane, carbon dioxide, radon, ground gas, air & moisture protection system.

Thickness	0.6 mm
Width	Various m
Length	Various m
Weight	370 g/m ²

TITANTECH[®]

For developers of brownfield and contaminated sites the TITANTECH[®] family of products represent a major step forward in safeguarding projects against gaseous and chemical contamination.

Handling

Roll weights can be in excess of 20 kg and hence appropriate care and equipment is required for unloading and handling.

Storage

Rolls of GP[®]1 should be stored on stable/level ground and stacked not more than five rolls high, with no other material stacked on top. The rolls can be stored outdoors when packaged, but should be protected from exposure to UV.

Installation

GP[®]1 should be installed in accordance with the product installation guidelines, and in accordance with BS 8485:2015.

Certifications



Please
Scan



Rev 2024



Feature	Characteristics	Test Method	GP [®] 1
Physical Properties	Thickness	EN 1849-2	0.6 mm
	Thickness - between Scrim	BS EN ISO 9863-1:2016	0.4 mm
	Width	EN 1849-2	Various m
	Length	EN 1849-2	Various m
	Weight	EN 1849-2	370 g/m ²
Hydraulic Press	Water Column	EN 20811	> 300
	Resistance to Water Penetration	EN 13967, EN 1928	Pass
	Water Tightness	EN 11296, EN 1367, EN 1928	Pass
Mechanical Properties	Resistance to Static Load	EN 12730-B	20 kg
	Tensile Strength (MD)	EN 12311-1	600 N/50mm
	Tensile Strength (CMD)	EN 12311-1	480 N/50mm
	Tensile Elongation (MD)	EN 12310-1	20%
	Tensile Elongation (CMD)	EN 12310-1	20%
	Puncture Resistance	EN 12236	1.25 kN
	Resistance to Tearing (Nail Shank) MD	EN 12310-1	330 N
	Resistance to Tearing (Nail Shank) CMD	EN 12310-1	400 N
Durability and Chemical Resistance	Transmission Rate of Volatile Liquids - Diesel	ISO 6179:2010 (B)	0.246 g/m ² /h
	Transmission Rate of Volatile Liquids - Xylene	ISO 6179:2010 (B)	0.571 g/m ² /h
	Transmission Rate of Volatile Liquids - Toluene	ISO 6179:2010 (B)	0.583 g/m ² /h
	Transmission Rate of Volatile Liquids - Petrol	ISO 6179:2010 (B)	0.135 g/m ² /h
Gas Permeability	Methane Permeability	BS EN ISO 15105-1	< 0.09 ml/m ² /day/atm
	Carbon Dioxide Permeability	BS EN ISO 15105-1	< 0.09 ml/m ² /day/atm
	Radon Permeability	K124/02/95	8.0 x 10 ⁻¹⁵ m ² /s
	Hydrogen Sulphide Permeability	BS EN ISO 15105-1	< 0.1 ml/m ² /day/atm
Compliance and Certification	CE Mark - EN13967:2012 (A1 2017)		
	NHBC Standards Compliant		
	Conforms to BS 8485:2015 + A1 2019		
	BBA Certified - Certificate No. 20/5728		

JUTA UK

Please contact JUTA
UK Directly for more
information on GP[®]1

Jointing and Sealing

It is recommended GP[®]1 be heat welded where possible, with welding carried out by competent personnel with suitable qualifications in accordance with best practice, and guidance contained within BS 8485:2015.

Accessory Products

- GP[®]1 Starter Band
- GP[®] Tape
- GP[®] Self Adhesive Membrane
- GP[®] Primer
- GP[®] Top Hats and Preformed Corners
- GP[®] Protection Fleece
- GP[®] Void Vent (24/40mm)