

Technical Note

Site:	Land South of Mortimers Lane, Fair Oak	Ref:	GE22375-FG-TN01-250205
Client:	Bloor Homes Southern	Date:	February 5, 2025
To:	Yacklin Panza – Eastleigh Borough Council	Cc:	Rebecca Fenn-Tripp – Bloor Homes Nina Lloyd - Turley

RE: Response to queries raised by Local Authority

This technical note provides a response to the queries raised by Yacklin Panza Pollution Control Specialist at Eastleigh Borough Council, following the submission of the Desk Study Report (ref GE21215/DSRv1.1/NOV24) and the Ground Investigation Report (ref GE21215/GIRv2.1/NOV24) in support of the planning application O/24/98610, in relation to land south of Mortimers Lane, Fair Oak.

The following queries were raised by the Local Authority:

- Could you confirm the radon potential for the site and provide clarity on whether radon protection measures are necessary? The discrepancy between the Envirocheck report and the UK radon map.
- Could you elaborate on the decision not to undertake dissolved gas testing? Given the presence of groundwater above the response zone, understanding whether dissolved gases are present would provide a more comprehensive assessment of potential risks.

Radon

With regards to radon potential for the site, Geo-Environmental contacted Landmark, which produces the Envirocheck reports, to clarify that the most up to date radon data was utilised and to confirm what mapping scale is used as part of the report. Whilst the UK Radon maps are based on data on a 1km grid square, Landmark has confirmed that the radon data utilised within the Envirocheck reports is based on a 25m grid square. As such, the Envirocheck data is more site specific than the UK Radon data maps. In addition, Landmark also confirmed that the Radon data within the Envirocheck for this site was the most up to date, i.e. it utilised data that had been updated on 1st December 2022. An email correspondence chain from January 2023 between Geo-Environmental and Landmark is appended that documents the above. Therefore, the Radon risk stated within the Envirocheck report and the Desk Study for the site is the most up to date and site specific and is therefore considered suitable and relevant.

Dissolved gas

With reference to the query regarding why the sampling of dissolved gases was not considered necessary, four nearby offsite former landfill sites were identified as potential sources that may impact the site due to the types of wastes deposited. The nearest of these four landfill sites is Fair Oak Landfill which lies approximately 50m from the subject site with an area of land used for a combination of open storage and woodland lying between the subject site and Fair Oak Landfill. In addition to this c.50m offset a stream/ditch and pond also lies between the subject site and the adjacent storage and woodland land, providing further separation from the Fair Oak Landfill site.

As no sources of ground gas have been identified on the subject site, gases would have to migrate onto the site in order to be considered a risk to the proposed development. With regards to Fair Oak Landfill site, any lateral migration at shallow depth would have to travel across the site immediately adjacent to the landfill and would then

Geo-Environmental Services Ltd
Unit 7 Danworth Farm, Cuckfield Road, Hurstpierpoint, West Sussex BN6 9GL
+44(0)1273 832972 www.gesl.net

Environmental Consultants | Geotechnical Engineers | Site Investigations



be intercepted by the shallow stream/ditch running along the southern boundary of the site and thus ground gas could ventilate to atmosphere prior to reaching the subject site. As such shallow lateral migration is not considered a plausible pathway for dissolved gases to migrate to the subject site.

The four former landfill sites are assumed to be located within the geology of the Whitecliff Sand Formation, based on the Fair Oak Landfill study undertaken by Card on behalf of Eastleigh Borough Council in April 2012. The Whitecliff Sand Formation is a lenticular deposit and thus, by definition, tapers out. Mapping indicates such a tapering on, or proximal to the site, i.e. this stratum is not necessarily laterally extensive. Geo-Environmental has undertaken two phases of intrusive investigation works across the subject site, including on a grid pattern within an area of the site where BGS mapping indicated that Whitecliff Sand soils may be present. The intrusive works undertaken have only established the presence of clay soils of the London Clay Formation. No soils representative of the Whitecliff Sand Formation were encountered, and based on the location of the exploratory holes, it is considered unlikely that soils of the Whitecliff Sand are present on site. The soils encountered across the site during the intrusive investigations are considered relatively impermeable, therefore it is considered that preferential pathways via Whitecliff Sand are absent.

The migration of gases is likely to occur through more permeable strata, to date only soils of the London Clay Formation have been identified on the subject site, therefore gases are more likely to migrate through permeable soils of the Whitecliff Sand Member, which are understood to underlie (won out from) the former landfill sites and areas to the south and west of the subject site. Groundwater flow is also understood to run in a southern westerly direction, i.e. from the subject site towards the Fair Oak Landfill site. Therefore, gas flow is likely to following these preferential pathways and be in a south westerly direction and so not towards the subject site.

Although groundwater has been noted as being present at shallow depth across the site, the waters encountered are considered to be representative of perched waters as opposed to a continuous groundwater body. This is due to the low permeability of the encountered soils underlying the site and the classification of the Environment Agency of soils of the London Clay Formation as unproductive strata. As these waters represent perched waters, they are not considered a pathway for dissolved gases from the nearby landfill sites to the subject site.

As outlined above migration pathways have not been established as being present in order to allow for the migration of gases from the nearby landfill sites to the subject site. As such it was not deemed necessary to undertake sampling of dissolved gases on the subject site.

In addition, gas monitoring, in the form of spot monitoring, was undertaken across the subject site on 12No. occasions between December 2022 and August 2023. This monitoring did not record the presence of elevated concentrations of either methane, carbon dioxide or VOC's with the headspace of the monitoring wells, that would indicate that the sampling of dissolved gases would be required.

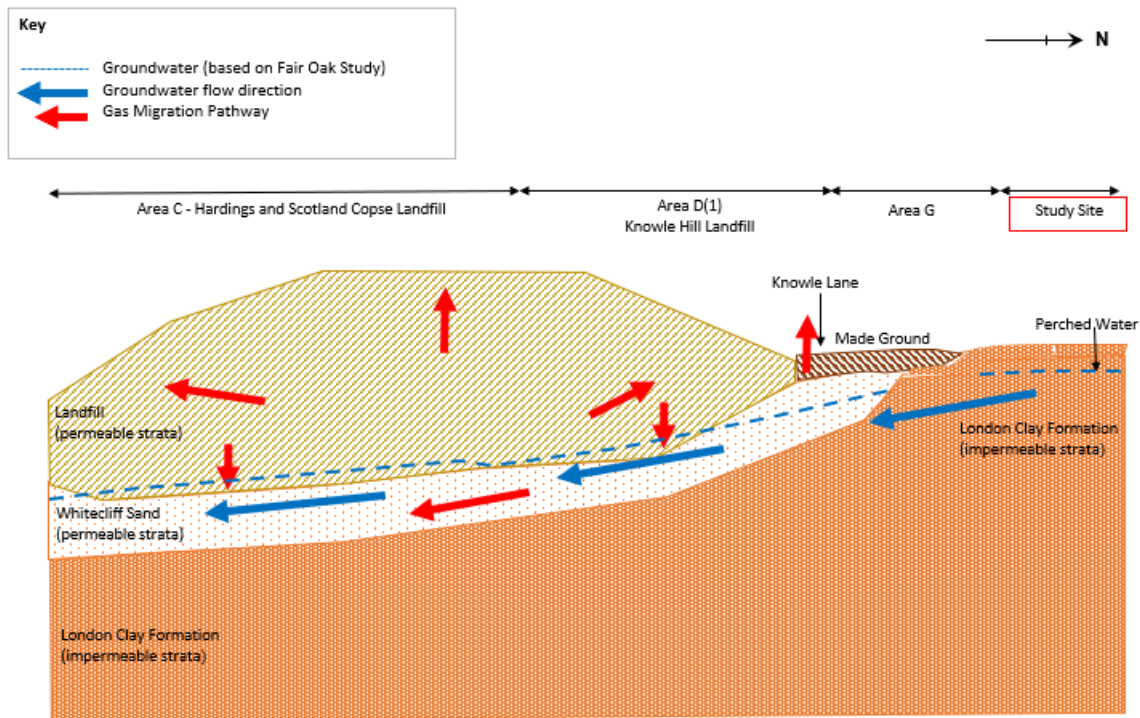
An updated conceptual site model (CSM) with regards to ground gas and migration pathways is presented below. This updated CSM demonstrates that migration pathways are not considered to be present onto the subject site.

Geo-Environmental Services Ltd
Unit 7 Danworth Farm, Cuckfield Road, Hurstpierpoint, West Sussex BN6 9GL
+44(0)1273 832972 www.gesl.net

Environmental Consultants | Geotechnical Engineers | Site Investigations

Geo-Environmental Services Ltd incorporated in England number 3214980 VAT number 679544479





For and on Behalf of Geo-Environmental

F Goode

FIONA GOODE BSc (Hons), MSc, FGS, MIEEnvSc, RSoBRA
Senior Consultant Engineer
fiona.goode@gesl.net

Geo-Environmental Services Ltd
Unit 7 Danworth Farm, Cuckfield Road, Hurstpierpoint, West Sussex BN6 9GL
+44(0)1273 832972 www.gesl.net

Environmental Consultants | Geotechnical Engineers | Site Investigations

Geo-Environmental Services Ltd incorporated in England number 3214980 VAT number 679544479



From: [Geodata](#)
To: [Laura Legate](#)
Cc: [Fiona Goode](#)
Subject: RE: FW: Revision of Radon Dataset
Date: 27 January 2023 11:59:42

Good morning Laura,

Thank you for your email.

In regards to the below, all of our radon data is provided within a 25m grid to ensure the most accurate information is provided.

Therefore, there may be slight discrepancies within the data you can see due to this smaller sizing.

I do hope this resolves your query however if you do have any further queries please do not hesitate to contact us.

Kind Regards,

Emily Brooks
Customer Services Advisor

Landmark Geodata
Landmark Information Group

Mapping – 03300 366 611
Environment – 03300 366 618
Imperium, Imperial Way Reading, Berkshire RG2 0TD



[landmark.co.uk](https://www.landmark.co.uk)



----- Original Message -----

From: Laura Legate [laura.legate@gesl.net]
Sent: 27/01/2023, 10:25
To: geodata@landmark.co.uk
Cc: fiona.goode@gesl.net
Subject: FW: Revision of Radon Dataset

Good Morning Emily,

Further to your email to Fiona on the 12th January can you please confirm what grid size the radon data you are providing in the Envirocheck Reports is based on. Is it the 1km grid spacing or smaller?

As we have now identified a number of sites where we have obtained a Envirocheck report and we have discrepancies with the radon data provided in your reports when compared to the radon website (<https://www.ukradon.org/information/ukmaps>). With your reports reporting lower radon values than we are seeing on the UK Radon website. As such we need to understand what grid spacing the data in the Envirocheck reports is based on.

Would appreciate if you could come back to me asap on this please.

Kind Regards

Laura

Laura Legate

CGeol, CSci, BSc (Hons), MSc, FGS
Environmental Director

From: Geodata <geodata@landmark.co.uk>
Sent: 12 January 2023 12:14
To: Fiona Goode <Fiona.Goode@gesl.net>
Subject: RE: Revision of Radon Dataset

Good afternoon Fiona,

Thank you for your email.

In regards to the below, The BGS map update coincides with the Radon Potential update in December. This was a large update for Radon (the first one in 6 years or so), thus BGS sent us the data ahead of the release on the 1st of December so we could process it and make tweaks on our end. Therefore the radon data is up to date, and is compatible with the new map update.

I do hope the above resolves your query however if you do have any further queries please do not hesitate to contact us.

Kind Regards,

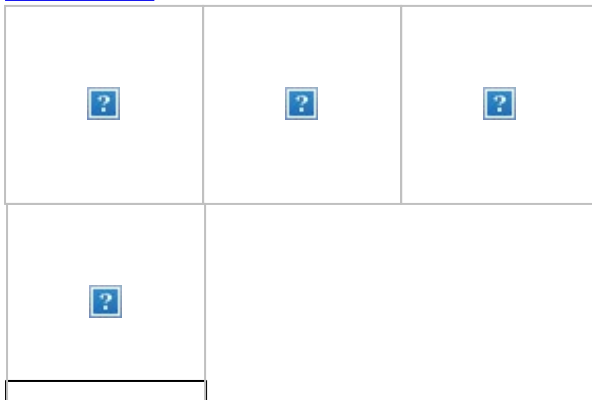
Emily Brooks
Customer Services Advisor

Landmark Geodata
Landmark Information Group

Mapping – 03300 366 611
Environment – 03300 366 618
Imperium, Imperial Way Reading, Berkshire RG2 0TD



landmark.co.uk



----- Original Message -----

From: Fiona Goode [fiona.goode@gesl.net]

Sent: 12/01/2023, 10:49

To: customerservice@envirocheck.co.uk

Subject: Revision of Radon Dataset

Hi,

Following the recent revision (1st December 2022) by the British Geological Society (BGS) of their Radon dataset, please can you confirm the date when the Enviro-check reports began utilising this updated dataset?

I have an Enviro-Check report date 7th December 2022 which states that the site lies within a <1% radon area, however following a review of the BGS Radon map the site appears to be located within a 3-5% radon area.

I wanted to confirm whether the data reported with the Enviro-check report (order No. 304784389_1_1) was based on the updated Radon dataset or not to try and understand this possible discrepancy.

Many Thanks,

Fiona Goode?

MSc, BSc (Hons), FGS, RSoBRA

Senior Consultant Engineer

T: [07703 036394](tel:07703036394) M: [07703036394](tel:07703036394)

W: www.gesl.net

Head office: Unit 7, Danworth Farm, Cuckfield Rd, Hurstpierpoint, West Sussex, BN6 9GL, UK

Hatfield Peverel Office: Office 4 Wheelwrights Yard The Street, Hatfield Peverel, Essex CM3 2EA

Bristol Office: Bristol Broad Quay, Broad Quay House, Prince Street, Bristol, BS1 4DJ

Birmingham Office: Birmingham Fort Dunlop, Fort Dunlop, Fort Parkway, Birmingham, B24 9FEL



Geo?Environmental Services Limited has ISO9001, ISO14001 and ISO45001 accreditation.
The Company Registration No. is 3214980 and the VAT Registration No. is 679544479.

Registered Office: 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY. Registered Number 2892803
Registered in England and Wales. The information contained in this e-mail is confidential and may be subject to legal privilege. If you are not the intended recipient, you must not use, copy, distribute or disclose the e-mail or any part of its contents or take any action in reliance on it. If you have received this e-mail in error, please e-mail the sender by replying to this message. All reasonable precautions have been taken to ensure no viruses are present in this e-mail. Landmark Information Group Limited cannot accept responsibility for loss or damage arising from the use of this e-mail or



attachments and recommend that you subject these to your virus checking procedures prior to use.

Registered Office: 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY.
Registered Number 2892803 Registered in England and Wales. The information contained in this e-mail is confidential and may be subject to legal privilege. If you are not the intended recipient, you must not use, copy, distribute or disclose the e-mail or any part of its contents or take any action in reliance on it. If you have received this e-mail in error, please e-mail the sender by replying to this message. All reasonable precautions have been taken to ensure no viruses are present in this e-mail. Landmark Information Group Limited cannot accept responsibility for loss or damage arising from the use of this e-mail or attachments and recommend that you subject these to your virus checking procedures prior to use.

