Land Quality Management Ltd

For

London Borough of Havering

Part 2A Risk Assessment, Arnold's Field, Launders Lane, London Borough of Havering

LQM Report Number: **1582**

Issue Number: **2**

Status: **Final**

Date: **17/07/2025**

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Client:	**London Borough of Havering** **Town Hall** **Main Road** **Romford RM1 3BB**
Report Title:	**Part 2A Risk Assessment,** **Arnold's Field, Launders Lane, London Borough of Havering**
LQM Report Number:	**1582**
Issue Number:	**2**
Status:	**Final**
Date:	**17/07/2025**
File Location:	**G:\Shared drives\P drive\1582 Havering\LQM work**

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Document Revision Record

Issue number	Date	Revision Details
1	**6/29/2025**	
2	**17/07/2025**	Amended following LB Havering comments

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1 INTRODUCTION

1.1 Terms of Reference

(1) Further to our Proposal and Quotation dated 13 February 2025, the London Borough of Havering (LBH) commissioned Land Quality Management Ltd. (LQM), through a signed Order Confirmation letter received on 22 February 2025, to undertake work in relation to the aim and objectives below.

1.2 The Site

(2) The site history was summarised by TRL in their report (Background, TRL 2025) as follows:

> "**Waste has been deposited in Arnolds Field** on Launders Lane without the appropriate authorisation; **since 2000**, there have been approximately 2,016 cases of significant volumes of waste being deposited at the site. No information on waste depth is available, however it is known that it can be **up to 5 metres deep in places**. There are no clear records of the specific type of waste that has been deposited at the site; however, it is known to **include household, commercial / industrial (including wood, paper, glass, plastic, mattresses, furniture, cables, and fabric materials) and construction waste deposits**.
>
> In 2012 a limited site investigation identified elevated levels of lead and benzo[a]pyrene in the soil. Lead is a metal and a persistent contaminant, which can remain in the environment because of historical usage related to old lead-based paint dust and contaminated soil for example. Benzo[a]pyrene is a type of polycyclic aromatic hydrocarbon that are formed when organic materials (such as coal, oil, tobacco, and wood) are burned. The decomposition of organic waste combined with the presence of combustible types of waste, like plastic and overgrown grass, is thought to have contributed to fires over the last 6 years".

1.3 Background

(3) LB Havering write "as a result of the illegal infilling of waste above an historic landfill at Arnolds Field, Launders Lane fires have been occurring. A contaminated land phase II investigation was completed at the landfill site and the site was not designated [sic] as contaminated land using established contaminated land methodology. This decision was the subject of a judicial review in part exploring the council's decision not to consider smoke as a pollutant linkage." The judgment in that judicial review was handed down by Mrs Justice Lieven on 17 June 2025.

(4) LQM's Paul Nathanail carried out a drive past the Arnolds Field site and its vicnity on 2 March 2025. This familiarised him with the terrain and the location of some of the off site air quality monitoring points reported in the documents reviewed below. The site was not accessed.

(5) The information reviewed shows that this is a site:

- that repeatedly requires the London Fire Brigade (LFB) to attend to deal with fires (most recently on 4 July 2025).

- where the landowner made a submission to the recent judicial review that "there are alternative solutions before designation".

- where it is a matter of public record that the LB Havering's Simon Thelwell's sworn and attested evidence to the High Court states that:

  "11. The Interested Party [the landowner] has been in discussions with the Defendant [LB Havering] as local planning authority in relation to possible future plans for the Site, including the provision of pre-application advice. No planning application has yet been received however. None of the discussions to date involve leaving the Site in its current condition and would involve remediation of the site including removal of material."

  12. My conclusions on the current use of the Site are based on fact and knowledge – that is that the site is not open, public access is not possible and there is no informal use of the site by the public. The owner of the site does not use it for any purpose. The 2000 Permission does not give a right for the public to use the land – there is no planning condition or associated legal agreement with the effect to require public access. The description of the 2000 Permission includes the inclusion of "community woodland" and so informal use by the public would not be unlawful in planning terms, however, the 2000 Permission could only be implemented in accordance with that permission, as required by the 2004 Enforcement Notice, which requires the removal of significant volumes of material from the Site. Therefore, any foreseeable future use by the public, or anyone else, would be on a Site which has a markedly different landform and condition to what it is now."

- where LB Havering understands that the LFB, when responding to an incident on site, do squeeze through where the new fence meets the old fence rather than wait for the landowner to open the gate allowing vehicular. However, the landowner has recently agreed to put a pedestrian gate there (with an FB lock) so firefighters can get walk-in access. However, LB Havering considers that even under current circumstances (LFB squeezing through) the site remains secure/inaccessible because the fence "looks inaccessible" and no members of the public have any motivation to try to get in.

- where LB Havering, in justifying its Community Protection Warning (CPW), was satisfied that "Regular fires, particularly in the summer months, are causing an unreasonable burden on the London Fire brigade".

- for which LB Havering, as a matter of public record in sworn and attested evidence, has stated that discussions with the landowner do not involve leaving the Site in its current condition and would involve removal of material.

- where the landowner has not taken voluntary action to stop the fires.

1.4 Materials for review

(6) The following documents were provided by LB Havering to review:

a. TRL Limited. March 2025. Final Report entitled "Launders Lane Air Quality Monitoring report May 2023 – September 2024" Prepared for: Havering Borough Council [previously supplied as Draft Final dated December 2024]

b. LB Havering . Undated. Review of Asbestos Monitoring at Arnolds Field, Launders Lane by Mike Richardson, Senior Public Protection Officer

c. Dedacted. A-10106 Letter Report for Air Monitoring - Launder's Lane Rv2 Redacted 30 September 2024.

d. Geo Environmental. 21 December 2023. Report (v2.0) entitled: "Ground investigation report for the land at Arnold's Field, Launders Lane, Rainham, RM13 9FL" on behalf of London Borough of Havering Council

e. Environment Agency sampling of the "RODING / INGREBOURNE CATCHMENT RIVER N.C.R.S, March 2025

f. LB Havering, "The Effect of Arnold's Field Fires on the Respiratory Health of the Surrounding Population" – Full Technical Report, November 2024 (FTR)

g. LB Havering, "The Effect of Arnold's Field Fires on the Respiratory Health of the Surrounding Population" – Short Report, November 2024

h. LB Havering, "The Possible Health Impact of Fires at Launders Lane: Havering Cancer Incidence", (undated but possibly 16 August 2024[1])

1.5 Aim

(7) To advise LB Havering on the status of smoke related issues arising from fires at Arnolds Field, Launders Lane under Part 2A of the Environmental Protection Act 1990 (as amended).

1.6 Objectives

(8) The following objectives need to be completed to achieve the above aim:

- Establish the status of "smoke" under Part 2A
- Evaluate air quality monitoring data (PAHs, PCBs, Lead, Mercury, VOCs) in order to risk assess smoke originating from an historic landfill, 2 monitoring station sites and 7 tube sites measuring VOCs.
- Carry out a generic quantitative risk assessment by comparing available data against appropriate generic assessment criteria

[1] https://issuu.com/haveringcouncil/docs/health_impact_report_-_cancer_incidence

- Assign each pollutant linkage into one of the risk categories under Part 2A introduced by the Statutory Guidance

- Document the above, in accordance with the Statuory Guidance, in the form of EITHER risk summaries for each significant pollutant linkage OR a statement explaining why the land does not meet the definition of contaminated land under Part 2A [Not covered in this document].

1.7 Legal Context

(9) The legal context is Part 2A of the Environmental Protection Act 1990 (As Amended) (Part 2A). Part 2A is supported by the Contaminated Land Statutory Guidance issued by Defra in 2012 (Statutory Guidance).

1.7.1 Contaminated land

(10) Part 2A states that

> " 'Contaminated land' is any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of **substances in, on or under the land,** that—
> (a) significant harm is being caused or there is a significant possibility of such harm being caused; or
> **[** (b) significant pollution of controlled waters is being caused or there is a significant possibility of such pollution being caused;**]**

(11) The Statutory Guidance Section 1.4 spells out the objectives of government policy as:

> 1.4 The overarching objectives of the Government's policy on contaminated land and the Part 2A regime are:
> (a) To identify and remove unacceptable risks to human health and the environment.
> (b) To seek to ensure that contaminated land is made suitable for its current use.
> (c) To ensure that the burdens faced by individuals, companies and society as a whole are proportionate, manageable and compatible with the principles of sustainable development.

1.7.2 Deciding whether a possibility of significant harm is significant (human health)

(12) The Statutory Guidance paragraph 4.16 points out that "The decision on whether the possibility of significant harm being caused is significant is a regulatory decision to be taken by the relevant local authority."

(13) Local authorities are advised in paragraph 4.17 that "In deciding whether or not land is contaminated land on grounds of significant possibility of significant harm to human health, the local authority should use the categorisations described in paragraphs 4.19 – 4.30 below. Categories 1 and 2 would encompass land which is capable of being determined as contaminated land on grounds of significant possibility of significant harm to human health. Categories 3 and 4 would encompass land which is not capable of being determined on such grounds."

(14) In addition, paragraph 4.18 requires that "the local authority should consider the number of people who might be exposed to the risk in question and/or the number of people it estimates would be

likely to suffer harm. In some cases, the authority may decide that this is not a particularly relevant consideration: it is quite possible that land could be determined as contaminated land on the basis of a significant possibility of significant harm to an individual or a small number of people. However in other cases the authority may consider that the number of people affected is an important consideration, for example if the number of people at risk substantially alters the authority's view of the likelihood of significant harm or the scale and seriousness of such harm if it did occur".

(15) Land in categories 1 and 2 meet the definition of contaminated land whereas land in categories 3 and 4 do not meet the definition.

1.7.3 Category 1: Human Health

(16) The Statutory Guidance advises that

> 4.19 The local authority should assume that a significant possibility of significant harm exists in any case where it considers there is an unacceptably high probability, supported by robust science-based evidence, that significant harm would occur if no action is taken to stop it. For the purposes of this Guidance, these are referred to as "Category 1: Human Health" cases. Land should be deemed to be a Category 1: Human Health case where:
>
> > (a) the authority is aware that similar land or situations are known, or are strongly suspected on the basis of robust evidence, to have caused such harm before in the United Kingdom or elsewhere; or
> >
> > (b) the authority is aware that similar degrees of exposure (via any medium) to the contaminant(s) in question are known, or strongly suspected on the basis of robust evidence, to have caused such harm before in the United Kingdom or elsewhere;
> >
> > (c) the authority considers that significant harm may already have been caused by contaminants in, on or under the land, and that there is an unacceptable risk that it might continue or occur again if no action is taken. Among other things, the authority may decide to determine the land on these grounds if it considers that it is likely that significant harm is being caused, but it considers either: (i) that there is insufficient evidence to be sure of meeting the "balance of probability" test for demonstrating that significant harm is being caused; or (ii) that the time needed to demonstrate such a level of probability would cause unreasonable delay, cost, or disruption and stress to affected people particularly in cases involving residential properties.

1.7.4 Category 4: Human Health

(17) The Statutory Guidance advises that:

4.20 The local authority should not assume that land poses a significant possibility of significant harm if it considers that there is no risk or that the level of risk posed is low. For the purposes of this Guidance, such land is referred to as a "Category 4: Human Health" case. The authority may decide that the land is a Category 4: Human Health case as soon as it considers it has evidence to this effect, and this may happen at any stage during risk assessment including the early stages.

4.21 The local authority should consider that the following types of land should be placed into Category 4: Human Health:

(a) Land where **no relevant contaminant linkage** has been established.
(b) Land where **there are only normal levels of contaminants in soil**, as explained in Section 3 of this Guidance.
(c) Land that has been excluded from the need for further inspection and assessment because **contaminant levels do not exceed relevant generic assessment criteria** in accordance with Section 3 of this Guidance, or relevant technical tools or advice that may be developed in accordance with paragraph 3.30 of this Guidance.
(d) Land where estimated levels of **exposure to contaminants in soil are likely to form only a small proportion of what a receptor might be exposed to anyway** through other sources of environmental exposure (e.g. in relation to average estimated national levels of exposure to substances commonly found in the environment, to which receptors are likely to be exposed in the normal course of their lives).

4.22 The local authority may consider that land other than the types described in paragraph 4.21 should be placed into Category 4: Human Health if following a detailed quantitative risk assessment it is satisfied that the level of risk posed is sufficiently low.

4.23 Local authorities may decide that particular land apparently matching the descriptions of paragraph 4.21 (b) or (d) immediately above poses sufficient risk to human health to fall into Categories other than Category 4. However, such cases are likely to be very unusual and the authority should take particular care to explain why the decision has been taken, and to ensure that it is supported by robust evidence.

1.7.5 Categories 2 and 3: Human Health

(18) Categories 2 and 3: Human Health are differentiated as follows:

4.24 For land that cannot be placed into Categories 1 or 4, the local authority should decide whether the land should be placed into either: (a) Category 2: Human Health, in which case the land would be capable of being determined as contaminated land on grounds of significant possibility of significant harm to human health; or (b) Category 3: Human Health, in which case the land would not be capable of being determined on such grounds.

4.25 The local authority should consider this decision in the context of the broad objectives of the regime and of the Government's policy as set out in Section 1. It should also be mindful of the fact that the decision is a positive legal test, meaning that the starting assumption should be that land does not pose a significant possibility of significant harm unless there is reason to consider otherwise. The authority should then, in accordance with paragraphs 4.26 to 4.29 below, decide which of the following two categories the land falls into:

(a) **Category 2: Human Health**. Land should be placed into Category 2 if the authority concludes, on the basis that there is a **strong case** for considering that the risks from the land are of **sufficient concern**, that the land poses a significant possibility of significant harm, with all that this might involve and having regard to Section 1. Category 2 may include land where there is **little or no direct evidence that similar land, situations or levels of exposure have caused harm before**, but nonetheless the authority considers

on the basis of the **available evidence, including expert opinion, that there is a strong case for taking action under Part 2A** on a precautionary basis.
(b) **Category 3: Human Health**. Land should be placed into Category 3 if the authority concludes that **the strong case described in 4.25(a) does not exist**, and therefore the legal test for significant possibility of significant harm is not met. Category 3 may include land where the **risks are not low**, but nonetheless the authority considers that regulatory intervention under Part 2A is not warranted. This recognises that placing land in Category 3 would not stop others, such as the owner or occupier of the land, from taking action to reduce risks outside of the Part 2A regime if they choose. The authority should consider making available the results of its inspection and risk assessment to the owners/occupiers of Category 3 land."

1.7.6 Substance

(19) Part 2A of the Environmental Protection Act 1990 (as amended) states "'substance' means any natural or artificial substance, whether in solid or liquid form or in the form of a gas or vapour." (Section 78A (9).

(20) The Statutory Guidance (Defra 2014) points out that "The terms "contaminant", "pollutant" and "substance" as used in this Guidance have the same meaning" (Paragraph 6). Paragraph 3.8 explains that "for the purposes of this guidance"

(a) A "contaminant" is a substance which is in, on or under the land and which has the potential to cause significant harm to a relevant receptor, or to cause significant pollution of controlled waters.
(b) A "receptor" is something that could be adversely affected by a contaminant, for example a person, an organism, an ecosystem, property, or controlled waters. The various types of receptors that are relevant under the Part 2A regime are explained in later sections.
(c) A "pathway" is a route by which a receptor is or might be affected by a contaminant.

(21) In the Statutory Guidance Section 4.1: Significant harm to human health "serious injury" is expanded in footnote 4 that reads

"Physical injury in relation to significant harm would include injury caused by chemical and biochemical properties of substances, such as **injury resulting from explosive or asphyxiating properties of gases**. It would not extend to injury caused by only physical properties of substances, such as injury caused by falling onto sharp or hard objects made of relevant substances."

1.7.7 Mixtures

(22) Paragraph 3.10 deals with mixtures and advises that

"3.10 In some cases the local authority may encounter land where risks are presented by **groups of substances** which are likely to behave in the same manner, or a substantially very similar manner, in relation to the risks they may present (e.g. as may be the case with organic substances found in oils). For the purposes of identifying and assessing contaminant linkages and taking regulatory decisions in relation to such linkages, the local authority may **treat such groups of contaminants as being in effect a single contaminant** and multiple contaminant linkages as being in effect a single contaminant linkage. The authority should only do this if there is a scientifically robust reason for doing so, and it should **state clearly why this approach has been taken** in relevant documentation (including the risk summary discussed later in this Section) if the land is later determined as contaminated land."

1.7.8 Risk assessment

(23) Risk assessment is underpinned by the contaminant-pathway-receptor framework and for a risk to exist all three elements of the framework must be present. The relationship between the contaminant, pathway and receptor is often called the "pollutant linkage". The site conceptual model represents the risk assessor's understanding of the site and potential pollutant linkages present, including the identification of uncertainties, limitations and assumptions associated with the model. The site conceptual model may be subject to review and change should further information be collected.

1.7.9 Land is not contaminated land unless there is reason to consider otherwise

(24) The Statutory Guidance makes it clear in Section 1.3:

> 1.3 Part 2A provides a means of dealing with unacceptable risks posed by land contamination to human health and the environment, and enforcing authorities should seek to find and deal with such land. Under Part 2A the starting point should be that land is not contaminated land unless there is reason to consider otherwise. Only land where unacceptable risks are clearly identified, after a risk assessment has been undertaken in accordance with this Guidance, should be considered as meeting the Part 2A definition of contaminated land.

(25) Local authorities are given considerable leeway on what they could consider to be significant harm beyond what is listed in paragraph 4.5:

> 4.6 Other health effects may be considered by the local authority to constitute significant harm. For example, a wide range of conditions may or may not constitute significant harm (alone or in combination) including: physical injury; gastrointestinal disturbances; respiratory tract effects; cardio-vascular effects; central nervous system effects; skin ailments; effects on organs such as the liver or kidneys; or a wide range of other health impacts. In deciding whether or not a particular form of harm is significant harm, the local authority should consider the seriousness of the harm in question: including the impact on the health, and quality of life, of any person suffering the harm; and the scale of the harm. The authority should only conclude that harm is significant if it considers that treating the land as contaminated land would be in accordance with the broad objectives of the regime as described in Section 1.

1.7.10 Use of Part 2A where no appropriate alternative solution exists

(26) The Statutory Guidance in sections 1.5 and 1.6 provides overarching advice to local authorities:

> 1.5 Enforcing authorities should seek to use Part 2A only where no appropriate alternative solution exists. The Part 2A regime is one of several ways in which land contamination can be addressed. For example, land contamination can be addressed when land is developed (or redeveloped) under the planning system, during the building control process, or where action is taken independently by landowners. Other legislative regimes may also provide a means of dealing with land contamination issues, such as building regulations; the regimes for waste, water, and environmental permitting; and the Environmental Damage (Prevention and Remediation) Regulations 2009.
>
> 1.6 Under Part 2A , the enforcing authority may need to decide whether and how to act in situations where such decisions are not straightforward, and where there may be unavoidable uncertainty underlying some of the facts of each case. In so doing, the authority should use its judgement to strike a reasonable balance between: (a) dealing with risks raised by contaminants in land and the benefits of remediating land to remove or reduce those risks; and (b) the

> potential impacts of regulatory intervention including financial costs to whoever will pay for remediation (including the taxpayer where relevant), health and environmental impacts of taking action, property blight, and burdens on affected people. The authority should take a precautionary approach to the risks raised by contamination, whilst avoiding a disproportionate approach given the circumstances of each case. The aim should be to consider the various benefits and costs of taking action, with a view to ensuring that the regime produces net benefits, taking account of local circumstances.

(27) LB Havering have made efforts to secure voluntary remediation of the site and Mrs Justice Lieven has said that the landowner asserts "there are alternative solutions before designation [sic]." The term designation is used in the judgment to refer to the decision to identify land as contaminated land. However, there is no evidence of any such voluntary action taking place. Since the context of the judicial review is Part 2A and the above quote, taken from the final paragraph of Mrs Justice Lieven's judgment in an entirely Part 2A context:

> 107. It would however not be appropriate for me to determine that the land is contaminated and make any declaration to that effect. That is not a matter for the Court and is a decision for the LA on the up to date material. Therefore the IP's submissions that there are alternative solutions before designation is not a matter for the Court, but rather the LA.

(28) The Statutory Guidance states that:

> 2.6 The local authority should include in its strategy:
> …
> (f) Broadly, how the authority will seek to minimise unnecessary burdens on the taxpayer, businesses and individuals; for example by encouraging voluntary action to deal with land contamination issues as far as it considers reasonable and practicable.

(29) In carrying its duties under Part 2A, the LB Havering Contaminated Land Inspection Strategy says (Section 1.2.2 Roles and Responsibilities) that where land is determined as being contaminated land the Council will:

> "Establish who should bear responsibility for the remediation of land;
> Establish what remediation is required;
> Ensure that such remediation takes place, either through agreement with the appropriate person, by serving a remediation notice or, in certain circumstances, through carrying out the work themselves.
> Undertake urgent remediation action where there is imminent danger of serious harm.
> Determine who may be liable for remediation and apportion costs
> Ensure that appropriate remediation takes place, either through voluntary action, or by serving a remediation notice on those responsible and take further action if remediation is not achieved".

(30) In the context of para 5.15 of the Statutory Guidance, to date the landowner has not taken any action to mitigate the fires on site. This should be taken into account when deciding whether to postpone a determination of contaminated land.

> 5.15 The local authority may postpone determination of contaminated land if the land owner or some other person undertakes to deal with the problem without determination, and the authority is satisfied that the remediation will happen to an appropriate standard and timescale. If the authority chooses to do this, any agreement it enters into should not affect its ability to determine the land in future (e.g. if the person fails to carry out the remediation as agreed).

2 STATUS OF SMOKE

(31) This section explores whether smoke is a substance that could form part of a potentially significant source-pathway-receptor pollutant linkage under Part 2A.

(32) Smoke is a colloidal solution of solid in gas - an aerosol in which the dispersion medium is gas (air, other gases, vapours) and the dispersed phase is solid particles of non, partly or completely combusted materials. Smoke is not mentioned specifically in either Part 2A or the Statutory Guidance. However, since it is a colloid of solid particles dispersed in a gas medium, it falls within the definition of substance in Part 2A.

(33) In this case, the smoke is the result of the combustion of landfilled waste in the presence of air rather than by the introduction of subsequent substance(s) (Statutory Guidance Para 7.52 in the section on liability[2]). As such there is no "later substance" but the chemical reactions resulting from combustion do not stop the original waste being a substance that was then changed into smoke – I will deal with whether the smoke became part of a significant linkage later.

(34) So, the original material deposited in an historic landfill that caught fire and the resulting smoke fall within the definition of substance in the context of Part 2A.

(35) Below I examine whether exposure to this combusting material or resulting smoke on the landfill site or away from it can result in a significant possibility of significant harm (SPOSH).

[2] "(a) The substance forming part of the significant contaminant linkage in question is present, or has **become a significant contaminant**, only as the **result of a chemical reaction**, biological process, radioactive decay or other change (the "intervening change") involving: (i) both a substance (the "earlier substance") which would not have formed part of the significant contaminant linkage if the intervening change had not occurred; and (ii) one or more other substances (the **"later substances"**).
(b) The intervening change would not have occurred in the absence of the later substances;
(c) A person (the "first person") is a member of the liability group because he/she caused or knowingly permitted the presence in, on or under the land of the earlier substance, but he/she did not cause or knowingly permit the presence of any of the later substances.
(d) One or more other persons are members of the liability group because they caused or knowingly permitted the later substances to be in, on or under the land.
(e) Before the date when the later substances started to be introduced in, on or under the land, the first person: (i) could not reasonably have foreseen that the later substances would be introduced onto the land; (ii) could not reasonably have foreseen that, if they were, the intervening change would be likely to happen; or (iii) took what, at that date, were reasonable precautions to prevent the introduction of the later substances or the occurrence of the intervening change, even though those precautions have, in the event, proved to be inadequate.
(f) After that date, the first person did not: (i) cause or knowingly permit any more of the earlier substance to be in, on or under the land in question; (ii) do anything which has contributed to the conditions that brought about the intervening change; or (iii) fail to do something which he could reasonably have been expected to do to prevent the intervening change happening."

3 HUMAN HEALTH RISK ASSESSMENT FOR ON SITE SOILS BASED ON GEO ENVIRONMENTAL SERVICES LIMITED (21 DECEMBER 2023) REPORT (V2.0)

(36) Geo Environmental Services Limited (GESL) carried out an intrusive site investigation at the site on behalf of London Borough of Havering Council. GESL say "At the point of reporting, agreement of investigation works on site was obtained from the Landowner on a voluntary basis with a view to mitigating the fires occurring on the site".

(37) The Geo Environmental Services Limited (GESL) report was dated November 2023 and entitled: "Ground investigation report for the land at Arnold's Field, Launders Lane, Rainham, RM13 9FL." It "Comprised a review of desk study information, an assessment of the Source Pathway Receptor Linkages (PRA) and development of a site Conceptual Model (CSM) for the current land use. The assessment included a review of third party reports if/where made available) and intrusive investigations including 13No. machine excavated trial pits to depths of between 3.00m and 3.40m bgl (TP101 to TP113); 18No. dynamic sampler boreholes to depths of up to 5.00m bgl (WS101 to WS106, WS106a, WS107, WS107a—c, WS108, WS108a-b, WS109, WS109a-b and WS110) with gas/groundwater installations and return spot gas and groundwater monitoring of standpipes on six occasions.

(38) Geochemical laboratory testing was undertaken on encountered soils and waters to support a contamination assessment and preliminary waste assessment for the site."

(39) The GESL report includes a preliminary risk assessment and a quantitative risk assessment but not in terms that are anchored into Part 2A. I note that their Table 3.1 Risk ratings matrix uses language that does not reflect the language of Part 2A or the narrative definitions of Categories 1-4 in the statutory guidance.

(40) They also report that the work The London Borough of Havering commissioned Geo-Environmental to carry out included "Undertaking of the intrusive investigation and subsequent risk assessment based on the intrusive investigation".

(41) Their contaminant analyses (Section 7.2) show large exceedances of generic assessment criteria but GESL do not consider whether that indicates SPOSH. An exceedance of a GAC does not constitute SPOSH – and the statutory guidance makes that clear at paragraph 3.29(b).

Table 1 Summary of Screening Criteria Exceedances (From Table 7.4 of GESL 2023)

Contaminant	Public Open Space (Park) Criteria (mg/kg)	Samples exceeding criteria	Maximum Value (mg/kg)	Ratio Maximum to Criterion	Exceedance locations on site
Arsenic	170	TP110 3.40m bgl	830	4.9	Southern Area (Lower elevation)
Lead	1300	TP106 2.20m bgl	4400	3.4	Northern Area (Higher elevation)
Benzo(b)fluoranthene	13	TP103 0.75m bgl WS107c 2.30m bgl	28	2.2	Northern Area (Higher elevation) Western Area (Lower elevation)
Benzo(a)pyrene	11	TP103 0.75m bgl WS107c 2.30m bgl	22	2	Northern Area (Higher elevation) Western Area (Lower elevation)
Dibenzo(ah)anthracene	1.1	TP103 0.75m bgl WS107c 2.30m bgl	2.1	1.9	Northern Area (Higher elevation) Western Area (Lower elevation)

(42) The screening values are based on a public open space park land use (CLAIRE 2014; Nathanail et al. 2015). They assume an exposure frequency of 170 days.year-1 for age classes 2-18 and 85 days.year-1 for age class 1 (age 0-1 years). They assume 2 hours.day-1 spent in the park. From this it can be seen that the exposure assumptions are much higher than those likely to apply at Launders Lane.

(43) Among their recommended further actions was “Secure the site to prevent unauthorised access”.

(44) They conclude that “further consideration is required in relation to the SPR linkages associated with the fires on the site, both during fires and of any impacts following fires” (page 57).

4 CONTROLLED WATERS ASSESSMENT BASED ON ENVIRONMENT AGENCY SAMPLING OF THE "RODING / INGREBOURNE CATCHMENT RIVER N.C.R.S"

(45) The Environment Agency took samples of surface water upstream and downstream of the Site on 7 March 2025 (Table 2). These are presented below and considered under Part 2A in terms of whether or not they indicate a significant possibility of significant pollution of controlled waters.

(46) The results show the water chemistry upstream and downstream of the Site are very similar and, if anything, the water quality downstream is slightly better than it is upstream. This evidence does not indicate a significant possibility of significant pollution of controlled waters associated with the Site.

Table 2 Results of Environment Agency analyses of surface water upstream and downstream of Old Landfill in Arnolds Field

Status	Det. Code	Det. Name	Meth. Code	Upstream Result	Downstream Result	Unit
E	0061	pH	26	8.04	7.79	PHUNITS
E	0076	Temperature of Water	26	8.4	8.05	CEL
E	0077	Conductivity at 25 C	26	1419	1354	uS/cm
A	0085	BOD : 5 Day ATU	21			mg/l
E	0111	Ammoniacal Nitrogen as N	21	0.068	0.049	mg/l
E	0116	Nitrogen, Total Oxidised as N	21	7.5	7.6	mg/l
E	0119	Ammonia un-ionised as N	25	0.0011	0.00048	mg/l
E	0172	Chloride	21	160	140	mg/l
E	0180	Orthophosphate, reactive as P	21	0.034	0.058	mg/l
E	0664	Visible oil or grease, significant trace: Present/Not found (1/0)	26	Not found	Not found	
A	3106	GCMS Screen : Semi-Volatile Screen: Semi Quantitative	21			UNITLESS
A	6396	Turbidity	21			NTU
E	7434	National Grid Reference : Whole : Field report	26	TQ5452382315	TQ5392181893	UNITLESS
E	7608	Salinity : In Situ	26	0.71	0.68	ppt
E	9901	Oxygen, Dissolved, % Saturation	26	93.5	96.8	%

5 EVALUATE AIR QUALITY MONITORING DATA (PAHS, PCBS, LEAD, MERCURY, VOCS)

5.1 TRL Limited. March 2025. Final Report entitled "Launders Lane Air Quality Monitoring report May 2023 – September 2024" Prepared for: Havering Borough Council

(47) This report's executive summary reads:

> "This report summarises the air quality monitoring undertaken by TRL Limited around the Launders Lane site in Havering, covering **May 2023 to the end of September 2024**. The aim of this project is to understand the **potential levels of airborne pollution** associated with the **uncontrolled burning of materials at Launders Lane**, and to **get an idea of the ambient levels of airborne pollution without any fires** for comparison. The pollutants being monitored have been **Volatile Organic Compounds (VOCs), Poly Aromatic Hydrocarbons (PAHs), Polychlorinated Biphenyls (PCBs) and Heavy Metals (Mercury and Lead).** Wind speed and direction have also been recorded.
> The findings of this report demonstrate that, based on annual averages there are **no exceedances of UK or World Health Organisation (WHO) thresholds, (where they are available).** For the compounds with no thresholds, comparisons have been made with similar historical data sets, again, showing much lower levels.
> Due to the **consistently low measured levels through two summers**, it is our recommendation that **no further monitoring of these compounds is required**."

(48) TRL report fires that required attendance by the London Fire Brigade (LFB) occurred at Arnolds Field, Launders Lane on 107 days from 2018-2024 (TRL 2025, Table 1). There have been more fires since then, including three very recent incidents that required the LFB to attend on 4, 11 and 12 June 20253. TRL carried out air monitoring at nine locations around Arnolds Field (Figure 1) over the period Jun 2023 to September 2024 (TRL 2025, Table 3). Monitoring at LA2 started in September 2023. TRL concluded:

> "As of the end of September 2024, most measurements recorded at the TRL Launders Lane air quality monitoring locations are below any available national and WHO annual objectives. For some pollutants, several short term (monthly) readings do exceed objectives, discussed above. To demonstrate an exceedance, these values would have to average above the objective line over a 12-month period. By extending the monitoring period to include two summers and providing a full set of data for more than 12 months, it is seen that no exceedances of objectives have occurred.
> Some short term raised levels of pollutants do correlate to known fires at the Launders Lane site. The wind direction at the period also indicates that the fires are likely to be the source of the raised levels. As above these short periods do not exceed any national or WHO objectives once averaged out over a 12-month period.
> From the monitoring carried out and summarised in this report, it is likely that the emissions of some pollutants do increase during fires at the Launders Lane site. However, the increased levels do not exceed any National or WHO objectives, and therefore the risk of adverse health effects is low.
> Due to the findings outlined above we do not recommend the need for any further monitoring of these pollutants".

[3] https://www.london-fire.gov.uk/incidents/?initialLoad=False&borough=&type=4605

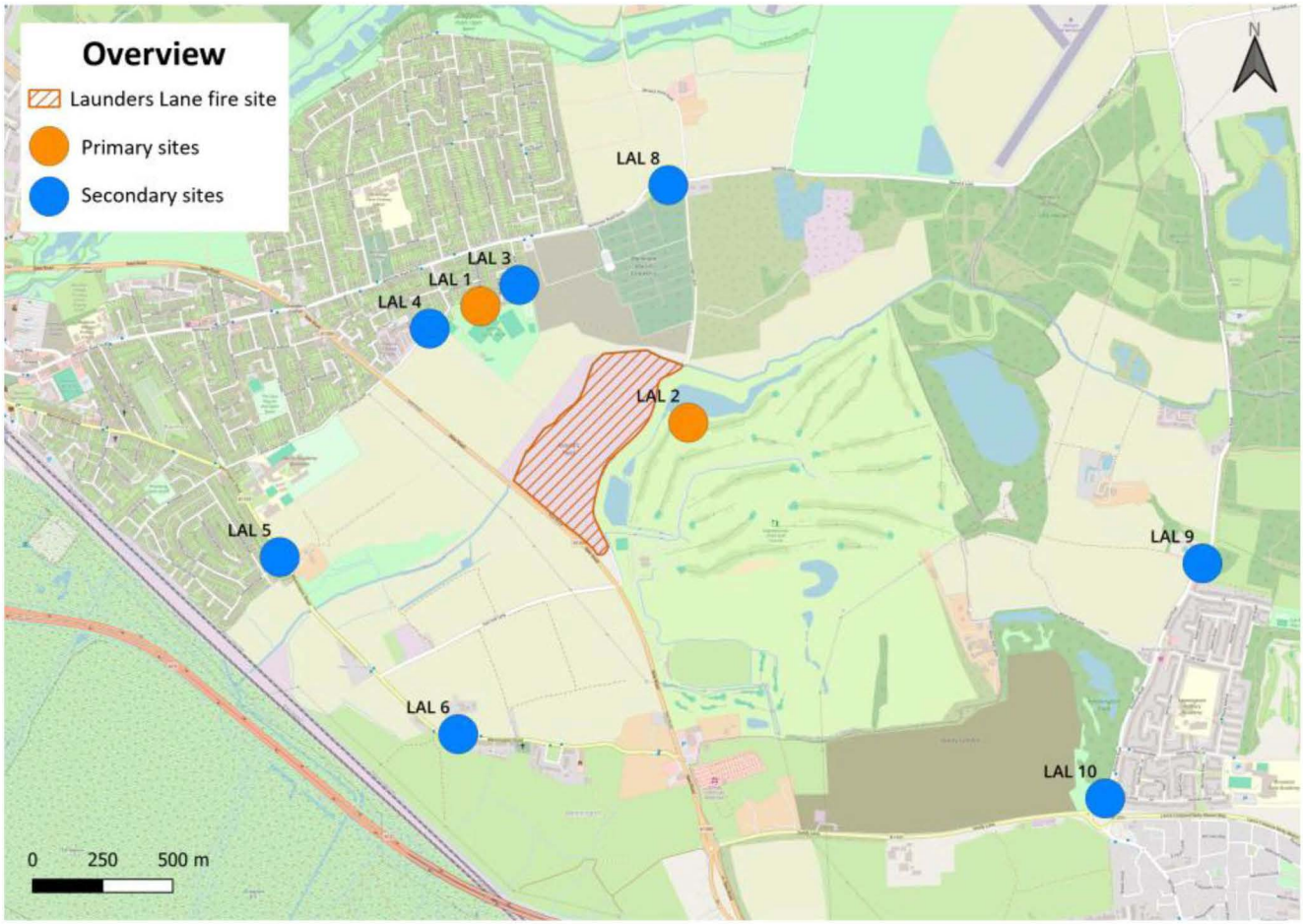

Figure 1 Location map of the 9 chosen monitoring locations around the Launders Lane (LAL) fire site (TRL 2025 Figure 2). LAL1 and LAL2 were primary sites while LA3 – LA10 were secondary sites.

5.1.1 PAH (BaP)

(49) TRL considers that "the levels of B[a]P measured have not been influenced by the presence of a fire" and that "Launders Lane data is consistently lower than the urban site and largely comparable to the countryside site". They also note that "readings [were taken] from October 2023 through to September 2024" and "the average readings for the period are around 10% of the UK Objective level of 0.25ng/[m]3."

5.1.2 Volatile Organic Compounds (VOC)

(50) Non-Methane Volatile Organic Compounds (NMVOCs) or more simply VOC were measured at nine locations on a monthly basis from October 2023 to September 2024, although no measurements were able to be made in November 2023. The monthly measurements were used to calculate annual average concentrations for each VOC and each monitoring station and then compared against the UK annual mean objective (Table 3). Benzene, Toluene, Ethylbenzene and Xylenes "act as indicators" for the other VOC.

(51) TRL note that for those VOC with an annual mean health-based objective:

- "Benzene levels are below annual mean objective.

- Toluene - There are eight measured monthly values above the annual average objective at LAL1, 2, 6 and 9 across the monitoring period. These do not coincide with any recorded fires attended by LFB. While individually these measurements are above the annual objective figure, once compared on an annual average basis they are well below the objective levels.
- Ethylbenzene - There are five measured monthly values above annual average objective; LAL9 in July 2023, LAL4 in August 2023, LAL 6 in February 2024 and LAL10 in October 2023 and April 2024. While some of these do coincide with fires attended by LFB, others do not. The annual average figure does not exceed the UK objective.
- Xylenes - There are three measured monthly values above annual average objective; LAL9 in July 2023 and LAL8 and LAL6 in February 2024. While the July 2023 readings do coincide with a fire attended by LFB, the annual figure does not exceed the UK objective.
- For all compounds, it is worth noting that there were periods of smouldering/burning at the site when the LFB were not in attendance and would not have been reported. Some of the higher values were measured in the winter when fires are less likely to occur at the site, and so these readings may be associated with other localised burning. All these factors need to be considered when assessing any plausible links between fires at the site and compounds being measured".

Table 3 VOC annual mean objectives (From TRL 2025)

Compound	Annual mean Objective (µg/m3)
Benzene (C6H6)	5 – UK / EU
Toluene (C7H8)	10 - EU
Ethylbenzene (C8H10)	5 - EU
Xylenes (C8H10)	10 - EU

(52) Occasional monthly exceedances of the annual objectives are reported and some of those monthly exceedances coincide with fires attended by the LFB. There are no monthly objectives. The monthly average values (reported as ug.m-3) are much lower than workplace exposure limits (reported as mg.m-3) based on 8 hour and 15 minute averaging periods published by the HSE (2021). The WEL are for protecting worker safety so not directly relevant to protecting the general public but nevertheless provide a line of evidence that the monthly average values do not indicate SPOSH. The relevant WEL are:

- Benzene Long-term exposure limit (8-hr TWA reference period) 3.25 mg.m-3
- Toluene maximum monthly value of ca 70 ug.m-3 (April 2024); cf Long-term exposure limit (8-hr TWA reference period) 191 mg.m-3 and Short-term exposure limit (15 minute TWA reference period) 384 mg.m-3
- Ethylbenzene maximum monthly value of ca 23 ug.m-3 (April 2024); cf Long-term exposure limit (8-hr TWA reference period) 441 mg.m-3and Short-term exposure limit (15 minute TWA reference period) 552 mg.m-3
- Xylenes maximum monthly value of ca 92 ug.m-3 (April 2024); cf Long-term exposure limit (8-hr TWA reference period) 220 mg.m-3and Short-term exposure limit (15 minute TWA reference period) 441 mg.m-3.

5.1.3 Heavy metals

(53) TRL report that the UK annual mean objective for lead in the air of 0.25µg/m3 (Defra 2022) was not exceeded at either LA1 or LA2.

(54) The World Health Organization (WHO) established a health-based air quality guideline for Europe for mercury of 1µg/m3 as an annual average (WHO 2000). There are currently no UK objectives for airborne mercury, however the Environment Agency (2025) published updated Environmental Assessment Levels (EAL) for mercury and its inorganic compounds in 2023 providing an EAL of 0.06µg/m3 averaged over a 24-hour period and of 0.06µg/m3 averaged over a 1-hour period. TRL report that the WHO and the two EAL limits were not exceeded at either LA1 or LA2.

5.1.4 PCB

(55) TRL report that the Environment Agency and others confirm that there is no current routine monitoring of PCBs in the UK. The annual average for the measurements from Launders Lane for October 2023 to September 2024 has been compared to an annual average for other UK sites (2018 data) and provides an indication of potential comparison between the two data sets. Due to the differences in time periods the conclusions should be treated as an indication and weighted as such.

- All but one of the LAL1 and LAL2 results are below the 2018 TOMPS report London average. High PCB levels measured at LAL2 (golf course) in July/August 2024 correlate with fires at the Arnolds Field site, but are not seen at LAL1 (Spring Farm Park).
- The average wind direction is from the West / South-West, which align directly with Arnolds Field. Combined with the lack of measured values at LAL1 point to the potential source of the chemicals being the fires.
- Looking at the data for individual PCBs, Figure 7 PCB BZ#114 indicates much higher levels at LAL1 and LAL2. Following investigation into the original 2018 data, the lowest limit of detection in 2018 was 0.02pg/m3, as the values measured historically were below this they were documented as 0. The limit of detection has since been reduced providing more accurate readings.
- The data recorded for the remaining seven PCBs (Figure 6 and Figure 8 to Figure 13) is consistently lower than the comparison sites in the 2018 TOMPS report.
- Reviewing the fire information in Table 1 and Table 3 together with Figure 5 suggests that Elevated PCB levels in September 2023 and July/August 2024 coincide with recorded fires at Arnolds Field but do not constitute an exceedance of the annual average when calculated.

(56) The TRL report makes no mention of Part 2A and instead considers air quality.

5.2 A-10106 Letter Report for Air Monitoring - Launder's Lane Rv2 (Redacted 30 September 2024)

(57) This document was supplied as a PDF with all details of the organisation and individual who prepared it redacted. In its “Review of Asbestos Monitoring at Arnolds Field, Launders Lane”, LB Havering explains that “This report discusses the findings this study, undertaken on behalf of the Council in August 2024 by a UKAS accredited consultant, which indicated that no asbestos fibres

were being released across the boundary of the site. It should be noted that as part of their terms and conditions, the consultant has required that their details be omitted from any publically available report".

(58) The report says that:

> *"Background and Personal air monitoring around the perimeter of the former waste site [was undertaken] to determine the potential spread of asbestos fibres to the surrounding areas during a fire event. Air Monitoring was undertaken within Spring Farm Park on 1st August [2024] and along New Road and Launder's Lane on 29th August.*
> *On 1st August the site was smouldering, and the plume was heading to the south-west at time of air monitoring. On 29th August the site was smouldering, and the plume was heading to the south-east at time of air monitoring."*
> *"The results of the air samples collected indicated an airborne fibre concentration below 0.010 f/ml, the lowest level of detection for the method used and below the clearance indicator level.*
> *SEM [scanning electron microscopy] certificates noted 'No asbestos fibres were detected during the analysis of any of these samples.'"*

(59) These results indicate that the levels of airborne asbestos at the boundary of Spring Farm Park and Arnold's Field at a time when the Arnold's Field site was smouldering are sufficiently low not to pose a significant possibility of significant harm. It should be noted that the clearance limit is not a risk-based assessment criterion as described in LCRM.

(60) The results from scanning electron microscopy (SEM) examination of the samples along New Road and Launder's Lane on 29th August also did not detect any asbestos fibres.

(61) CIRIA's guidance on asbestos[4] comments on the clearance indicator threshold: "Furthermore, the ACOP for CAR 2012 (HSE, 2013) clearly states that the clearance indicator threshold "should be taken only as a transient indication of site cleanliness … and not as an acceptable, permanent environmental level."" Nevertheless, the analyses indicate that the samples contain no asbestos (SEM results) or no detectable asbestos.

(62) As such the available evidence indicates that asbestos does not form part of a significant contaminant linkage.

[4] Nathanail, C P, Jones, A, Ogden, R, Robertson, A. 2014. *Asbestos in soil and made ground: a guide to understanding and managing risks*. CIRIA C733 RP961 ISBN: 978-0-86017-737-1

5.3 The Effect of Arnold's Field Fires on the Respiratory Health of the Surrounding Population

(63) LB Havering produced two documents in November 2024: a Full Technical Report and a Short Report on "The Effect of Arnold's Field Fires on the Respiratory Health of the Surrounding Population".

5.3.1 Fire days

(64) The regular attendance of the London Fire Brigade as recorded on their website[5] reduces the escape of substances from the site so reducing the exposure to contaminants by people outside the site. This exposure has been mitigated by the LFB's repeated actions over several years.

(65) The Full Technical Report (FTR) and Short Report define "fire days" as being when the London Fire Brigade attended the Site whilst acknowledging that smouldering could occur on days the LFB did not attend and that fires resulting in LFB attendance could have started days earlier. A total of 99 fire days were recorded from 01 January 2018 until 30 September 2023 (2028 days). Fire days – as defined above - accounted for 4.7% of days in this period but fires or smouldering would have occurred for more days.

(66) Fire incidents attended by the London Fire Brigade were the main exposure variable whereas attendances related to respiratory illness at General Practices (GP) and at Accident and Emergency (A&E), GP prescriptions and hospital admissions were the health outcomes of interest. To adjust for potential confounding factors the following variables were included: the daily average levels of NO2, wind speed, humidity, temperature, day of the week and COVID-19 lockdown dates.

(67) As such the use of health care services by local residents may be higher outside "fire days" and the two reports may therefore underestimate the risks from fire. However, the reports considered GP attendances during the three- and seven-day periods after "fire days". In addition to capturing late presentations following adverse effects on fire days themselves and the fact that patients may not be able to secure same-day appointments, this may have allowed the assessment to capture the impact of post-"fire day" smouldering.

(68) "No statistically significant increased risk of GP visits found amongst the general population…. on the day of the fire as well as the cumulative three- and seven-day periods following a fire event". In addition, "No statistically significant impact of "fire days" on prescriptions issued for the treatment of respiratory conditions, A&E attendance or hospital admissions for respiratory illness/symptoms was

[5] https://www.london-fire.gov.uk/incidents/

found amongst the local population. This was the case on the day of the fire as well as the cumulative three and seven day periods following a fire event."

(69) However, a "statistically significant association of fires attended by London Fire Brigade at Arnold's Field, Launders Lane with an increased risk of GP attendance by those with existing long-term respiratory conditions (such as asthma or COPD) on the day of a fire" was established. This risk was estimated to be "equivalent to one extra GP appointment every five fire days, compared to days without a fire (or 0.2 extra appointments per day), amongst the local resident population of 23,656 people".

(70) "Overall, out of 1,231 respiratory [long term conditions] LTC GP attendances recorded between January 2018 and September 2023, approximately 20 could be attributed to the impact of reported fire incidents." (FTR page 5) "We did not find a statistically significant association between fire incidents and GP attendances with general respiratory symptoms, A&E attendances and hospital admissions with respiratory conditions. We also did not find a statistically significant association between daily average PM2.5 levels and any of the outcome variables." While the reports do not shed light on whether the 20 additional GP attendances are associated with adverse effects that would constitute significant harm, the 3.5% increase in GP prescriptions on fire-days compared to non-fire days was deemed not statistically significant after adjustment for other exposure variables.

(71) Overall, these reports indicate public concern, but the evidence indicates no significant harm associated with "fire days" was suffered.

5.3.2 PM2.5

(72) Particulate matter (PM) is everything in the air that is not a gas[6]. Particulates smaller than 2.5 micrometres in diameter are referred to as PM2.5. The Environment Agency "use both the terms particulate matter (PM) and dust in this document as they are generally interchangeable."[7]

(73) The HSE[8] notes that "The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m-3 8-hour TWA of inhalable dust or 4 mg.m-3 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed to dust above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limits". "Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore

[6] https://www.gov.uk/government/statistics/air-quality-statistics/concentrations-of-particulate-matter-pm10-and-pm25

[7] https://www.gov.uk/guidance/monitoring-ambient-air-particulate-matter

[8] EH40/2005 Workplace exposure limits Containing the list of workplace exposure limits for use with the Control of Substances Hazardous to Health Regulations 2002 (as amended) London: TSO EH40/2005 (Fourth Edition 2020) https://www.hse.gov.uk/pubns/priced/eh40.pdf

available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung." The average daily levels of fine particulate matter (PM2.5) are approximately three orders of magnitude lower than the 8-hour and over two orders of magnitude lower than the 4-hour time weighted average concentrations.

Table 4 Average levels of fine particulate matter (PM2.5) on days with and without fires at Arnold's Field attended by the London Fire Brigade. [Modified from Table 3 of Full Technical Report (FTR)] (FTR, November 2024)

Year	Fire days	Fire days Average PM2.5	Non-fire days Average PM2.5	Days	Fraction fire days	Fraction non-fire days	Average PM2.5
		µg/m³, (SD)	µg/m³, (SD)				µg/m³
2018	1	22	10.9 (7.4)	365	0.003	0.997	10.93041
2019	14	11.4 (9.5)	11.0 (8.9)	365	0.038	0.962	11.01534
2020	17	14.8 (6.9)	8.2 (6.7)	366	0.046	0.954	8.506557
2021	16	13.5(3.9)	8.7 (6.0)	365	0.044	0.956	8.910411
2022	36	10.1 (5.2)	10.2 (7.8)	365	0.099	0.901	10.19014
2023	15	4.8 (2.1)	8.4 (6.4)	365	0.041	0.959	8.252055
Total	**99**	**10.7 (6.7)**	**9.7 (7.4)**	2191	0.045	0.955	9.745185

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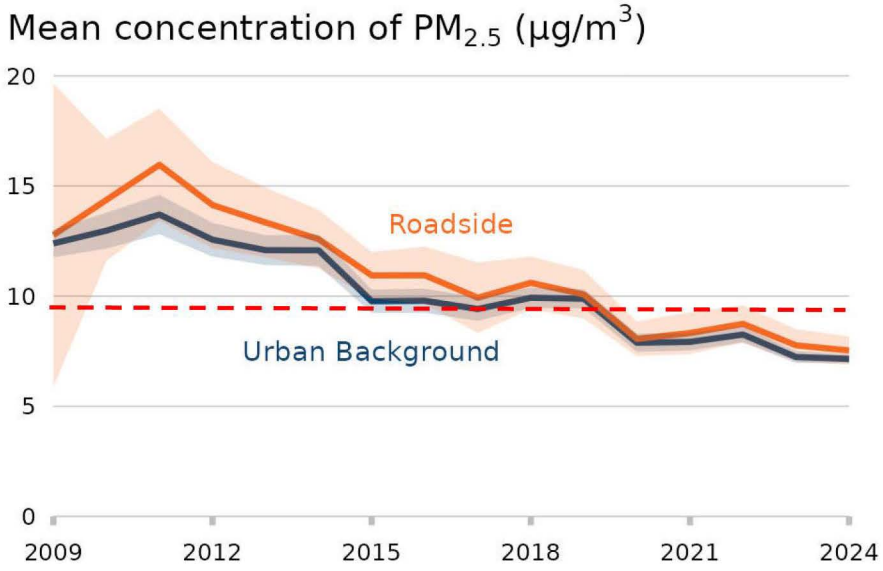

Figure 2 Annual concentrations of PM2.5 in the UK, 2009 to 2024; Arnold's Field annual average PM2.5 for 2018-2023 shows as dashed red line (From Defra 2025[9])

(74) The annual average PM2.5 values have been compared against Government limits. Over the period 2018-2024 the annual average PM2.5 levels around Arnold's Lane have been above the urban background level for 2024 (Figure 2). Defra provides guidance on particulate matter[10]. The Air Quality Standards Regulations (2010) require that concentrations of PM in the UK must not exceed:

[9] Figure 6 in Defra, 2025 Particulate matter (PM10/PM2.5) - GOV.UK (Updated 26 June 2025)

[10] Accredited official statistics **Particulate matter (PM10/PM2.5)** Updated 26 June 2025https://www.gov.uk/government/statistics/air-quality-statistics/concentrations-of-particulate-matter-pm10-and-pm25

- An annual average of 40 µg/m3 for PM10;
- A 24-hour average of 50 µg/m3 more than 35 times in a single year for PM10;
- An annual average of 20 µg/m3 for PM2.5.

(75) The data in Table 4 do not indicate that these limits are exceeded – whilst the 24-hour average values (the second criterion) are not available, these relate to PM10, not PM2.5. The only relevant standard from the 2010 Regulations specifically for PM2.5 is the annual average.

(76) The Environmental Targets (Fine Particulate Matter) (England) Regulations (2023) require that in England by the end of 2040:

- An annual average of 10 µg/m3 for PM2.5 is not exceeded at any monitoring station (the Annual Mean Concentration Target or AMCT).
- Population exposure to PM2.5 is at least 35 per cent less than in 2018 (the Population Exposure Reduction Target or PERT).

(77) The data in Table 4 indicate that these annual average targets would have been exceeded in 2018, 2019 and 2022 had they been in place. It should also be noted that the WHO target for PM2.5 was updated in 2021 to 5 µg/m3 (from 10 µg/m3)[11]. The Committee on the Medical Effects of Air Pollutants (COMEAP), in its "Advice on health evidence relevant to setting PM2.5 targets – update"[12] noted that "available studies have not indicated a threshold of effect below which there is no harm". The COMEAP notes "that PM2.5 pollution can have harmful effects on people's health at lower concentrations than had been studied previously [and]… that reducing concentrations to 5 µg/m3 would have public health benefits" leading COMEAP to "strongly support a reduction of PM2.5 concentrations, ideally to (or below) the WHO guideline value of 5 µg/m3". COMEAP "acknowledged that the Government needs to balance the health benefits of policies and interventions against their costs, and recognised that cost-benefit assessments may play a role in defining targets." This suggests the target levels are pitched at something approaching a minimal level of risk rather than the much higher level of risk required to pose a SPOSH. Hence the levels reported in Table 2 are not considered to be consistent with a determination of land as contaminated land.

(78) Population exposure as assessed for the PERT refers to the average concentration someone in England is exposed to and is based on urban, or in some case suburban background measurements, which are located to be representative of the type of environment most people live and work.

(79) The Environmental Improvement Plan 2023 for England set interim targets that by January 2028:

- An annual average of 12 µg/m3 for PM2.5 is not exceeded at any monitoring station.
- Population exposure to PM2.5 is at least 22 per cent less than in 2018.

[11] https://uk-air.defra.gov.uk/pm25targets/targets-development

[12] https://www.gov.uk/government/publications/comeap-statement-response-to-who-air-quality-guidelines-2021

(80) By 2022 the average concentration was 11% lower than in 2018. The interim target was not exceeded in any year.

(81) Overall, the Havering reports do not indicate that currently in force target levels have been exceeded and do not indicate that annual average PM2.5 levels indicate SPOSH.

(82) Hourly PM2.5 data are available from nine current and closed air quality monitoring stations. Two stations are near the southeast corner of the site. Two are to the north of the site. Five are to the northwest of the site within the urban area. This information is being dealt with by LB Havering in their devolved report and is not considered here.

5.4 Possible Health Impact of Fires at Launders Lane: Havering Cancer Incidence

(83) An undated report entitled "The Possible Health Impact of Fires at Launders Lane: Havering Cancer Incidence", written by LB Havering's Samantha Westrop, one of several looking at the possible health impacts of recurrent fires at Launders Lane, explored and interpreted cancer incidence data from the National Disease Registration Service NHS England for the ten years 2011 – 2020 to identify any differences between residents living around the Launders Lane site compared with the rest of Havering and England as a whole.

(84) The report concluded that

- The incidence of lung cancer, brain cancer, haematological cancer (e.g. leukaemias) and mesothelioma in those residents near to the Launders Lane site were similar to rates in Havering as a whole.
- The incidence of lung, brain and haematological cancers in Havering were similar to England. Havering as a whole has a higher incidence of mesothelioma than England.
- No differences in incidence of haematological or brain cancers (the two most common childhood cancers) were seen amongst young people (aged 0-25) resident near to the Launders Lane site compared to Havering as a whole, or England.

6 INJURY FROM LANDFILL FIRE

(85) The Guardian reported an incident that took place on Arnold's lane landfill[13] (Box 1).

Box 1 The Rainham volcano: a waste dump is constantly on fire in east London. Why will no one stop it? *William Ralston* 4 March 2025

Under Arnolds Field, tonnes of illegally dumped waste have been burning for years, spewing pollution over the area. Locals fear for their health – and despair that no one seems willing to help

"One afternoon in **July 2011**, an 11-year-old boy named William Knowlden was out cycling with friends when he came upon Arnolds Field, an expanse of green land in Havering, east London. The site spans about 17 hectares, or 24 football pitches, and around its perimeter runs a wooden fence, with two access points through which vehicles can pass. Arnolds Field rises much higher than the surrounding land. Its surface is lumpy and undulating, like a blanket thrown over a heap of cuddly toys. The land is overgrown. It has been decades since animals grazed there, and **few people have set foot on it in recent years**. **But every so often, it is mistaken for a safe place to explore**.

As Knowlden descended a hill, he lost control and was thrown over the handlebars. When he came to, he was **lying in a small crater** and his **feet were covered in a powdery residue that resembled ash.** He **felt a sharp pain in his left foot**. When Knowlden's friends arrived, they removed his shoes and peeled back his socks. **One foot was pink and swollen, the skin blistered and shiny; the other was blackened and charred**. **Patches of skin hung off, revealing layers of fatty tissue**. "It looked like it had been eaten by maggots," Knowlden recalled. "Like pure, pure flesh." In hospital, **doctors informed Knowlden that he'd suffered third-degree burns in his right foot**. They were baffled. **With thermal burns, there should be an identifiable source of heat**, like an open flame, but Knowlden and his friends hadn't seen anything like that."

https://www.theguardian.com/environment/2025/mar/04/the-rainham-volcano-arnolds-field-toxic-fires-waste-dump

(86) The London Fire Brigade on 20 September 2024 reported on a Landfill fire near Launders Lane (Box 2).

Box 2 "Landfill fire - Launders Lane", London Fire Brigade

https://www.london-fire.gov.uk/incidents/2024/september/landfill-fire-launders-lane-1/

"Four fire engines and around 25 firefighters tackled a fire near Launders Lane in Rainham. **Local residents were advised to keep their windows and doors closed due to smoke in the area.**

Approximately two hectares of wasteland was impacted, with firefighters attacking multiple hotspots. One of the Brigade's 32-metre turntable ladders was used as a water tower to help fight the fire from above.

The Brigade's Control Officers were called about the fire at 1930, and firefighters had the incident under control by. (sic) Crews from Wennington, Dagenham, Hornchurch, Barking and Greenwich fire stations are at the scene."

(87) The Geo Environmental report (Page 42) notes a "High Risk" of direct contact with fires and comments that "Current users may to come into direct contact fires where present on site. There also remain the potential for explosion associated with any fires/ignition sources. In terms of reducing risk, by reducing number of people with access to site the (given the nature of the land being privately owned), and preventing unauthorised access, this could be achieved via securing the site. It is understood that firefighting on site is now undertaken from outside the boundary of the site, in order to reduce the risk to the firefighters."

(88) The Statutory Guidance notes that "4.5 The following health effects should always be considered to constitute significant harm to human health: death; life threatening diseases (e.g. cancers); other

[13] https://www.theguardian.com/environment/2025/mar/04/the-rainham-volcano-arnolds-field-toxic-fires-waste-dump

diseases likely to have serious impacts on health; serious injury; birth defects; and impairment of reproductive functions."

(89) In its footnote number 4, the guidance expands on what is a serious injury: "Physical injury in relation to significant harm would include injury caused by chemical and biochemical properties of substances, such as injury resulting from explosive or asphyxiating properties of gases. It would not extend to injury caused by only physical properties of substances, such as injury caused by falling onto sharp or hard objects made of relevant substances." As such, the third-degree burns William Knowlden suffered would constitute a serious injury and hence significant harm.

(90) The Statutory Guidance notes that "4.8 In cases where the local authority considers that: (i) significant harm may be being caused, or is likely to have been caused in the past; and (ii) there is a significant possibility that it may happen again, the authority may choose to consider whether to determine the land on grounds of significant possibility of significant harm (as an alternative to consideration that significant harm is being caused)." This would require land to meet the criteria for Category 1 or Category 2 with respect to human health.

> **"Category 1: Human Health**
> 4.19 The local authority should assume that a significant possibility of significant harm exists in any case where it considers there is an unacceptably high probability, supported by robust science-based evidence, that **significant harm would occur if no action is taken to stop it**. For the purposes of this Guidance, these are referred to as "Category 1: Human Health" cases. Land should be deemed to be a Category 1: Human Health case where:
>
> (a) the authority is aware that similar land or situations are known, or are strongly suspected on the basis of robust evidence, to have caused such harm before in the United Kingdom or elsewhere; or
> (b) the authority is aware that similar degrees of exposure (via any medium) to the contaminant(s) in question are known, or strongly suspected on the basis of robust evidence, to have caused such harm before in the United Kingdom or elsewhere;
> (c) the authority considers that **significant harm may already have been caused by contaminants in, on or under the land, and that there is an unacceptable risk that it might continue or occur again if no action is taken"**.

(91) The conditions that caused the third degree burns remain in place in the form of both fires resulting in the call out of the London Fire Brigade and smouldering of subsurface materials.

(92) Should members of the public access the land at Arnold's Field – with or without permission – the significant harm reported in March 2025 to have taken place in 2011 could recur.

(93) Since the source of combusting materials remains and the pathway of a trespasser or other person falling into such material is reasonable, the question as to whether or not there is SPOSH depends on the likelihood of members of the public accessing the land, in the light of the current use of the land (paragraphs 3.5-3.6 of the Statutory Guidance). As explained at paragraph 4.11 of the Statutory Guidance, the LB of Havering needs to consider "The estimated likelihood that significant harm might

occur to an identified receptor, taking account of the current use of the land in question" and decide, in the language of Category 1(a) whether there is an "unacceptable risk" of the harm reoccuring. LB of Havering will in particular need to consider how if at all accessibility to the land has changed since July 2011.

(94) If the judgement is reached that there is such an unacceptable risk, the contaminant linkage of substances under the land at Arnold's Field combusting (with or without a flame) and causing serious injury to someone on the land constitutes a significant contaminant linkage – in other words the land meets the definition of contaminated land under Part 2A of the Environmental Protection Act 1990 (as amended).

(95) If there is not a SPOSH, because there is no or little possibility of public access given the site's current use, then the land would fall Category 4 ("level of risk posed is sufficiently low") depending on the level of that likelihood and therefore not within the definition of contaminated land.

(96) Mr Thelwell's evidence at the Judicial Review demonstrates that LB Havering consider that the site is sufficiently secure to render it effectively inaccessible to members of the public. LB Havering still considers that even though LFB responders squeeze through a gap in the fence to access the site the site remains inaccessible because the fence "looks inaccessible" and no members of the public have any motivation to try to get in.

7 RISK EVALUATION

(97) The Statutory Guidance notes in para 1.6 that

> 1.6 Under Part 2A , the enforcing authority may need to decide whether and how to act in situations where such decisions are not straightforward, and where there may be unavoidable uncertainty underlying some of the facts of each case. In so doing, the authority should use its judgement to strike a reasonable balance between: (a) dealing with risks raised by contaminants in land and the benefits of remediating land to remove or reduce those risks; and (b) the potential impacts of regulatory intervention including financial costs to whoever will pay for remediation (including the taxpayer where relevant), health and environmental impacts of taking action, property blight, and burdens on affected people. The authority should take a precautionary approach to the risks raised by contamination, whilst avoiding a disproportionate approach given the circumstances of each case. The aim should be to consider the various benefits and costs of taking action, with a view to ensuring that the regime produces net benefits, taking account of local circumstances.

(98) The decision on whether to determine the site as contaminated land does not appear to be a straightforward decision. In seeking to strike a reasonable balance between: (a) dealing with the risks raised by contaminants in land and the benefits of remediating land to remove or reduce those risks; and (b) the potential impacts of regulatory intervention, LB Havering needs to reflect on the continued burden on the LFB and the continued impact on the surrounding population that would be worse but for the repeated intervention of the LFB and on the dependence on the continued integrity of measures to prevent public access to the site. In particular, LB Havering should revisit, and consider reaffirming, their assessment reported in the CPW dated 25 April 2024 that "2) Regular fires, particularly in the summer months, are causing an unreasonable burden on the London Fire brigade."

(99) The site has been shown to be affected by contamination and given its current condition these could reach people onsite and offsite.

(100) Significant harm in the form of third degree burns has been reported in 2025 as having already been caused by substances under the land in 2011. LB Havering needs to form a view as to the likelihood of any member of the public gaining access to the site and coming into contact with smouldering substances, considering the site's current use and state, and any changes in accessibility of the site (such as gates and fencing) since 2011. If it is reasonably likely that public access could take place then there is an unacceptable risk of significant harm being caused by this source-pathway-receptor linkage and the land should be placed into Category 1 – contaminated land that poses a significant possibility of significant harm , and that there is an unacceptable risk that this might occur again if no action is taken. If LB Havering's judgement is that it is not reasonably likely that public access could take place then there is not an unacceptable risk and the land should be placed into Category 4, for this linkage, since there is no receptor and the risks would therefore be "low".

(101) As summarised below, the risks posed by other linkages have been evaluated and found not to meet the definition of contaminated land:

- Exposure to contaminant(s) in the form of smoke by nearby residents – the evidence is that although there are increased GP attendances and a not significant increase in prescriptions after "fire days", the test for SPOSH is not met and the land should fall into Category 3.
- The monitoring results do not indicate that exposure to contaminant in the form of PM2.5 attributed to the Site and associated with fires is causing significant harm however there is clear evidence of lower levels of adverse effects so the land should fall into Category 3.
- Exposure to contaminants in the form of PAH, PCB, metals, asbestos and VOC in air does not indicate a significant possibility of significant harm to people off site however some monthly measurements of individual VOC do exceed the annual levels so the land should fall into Category 3.
- Exposure to soil contaminants assessed against a public open space (park) land use indicates that some generic assessment criteria are exceeded but that those exceedances do not constitute a significant possibility of significant harm given the way the land is being used at this time. The land should fall into Category 3 given the disparity between the current use of the land and its historic and permitted uses.
- The evidence does not show that there is a significant possibility of significant pollution of controlled waters so the land should be placed into Category 4 with respect to controlled waters.

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