4.5.9 The sporadic presence of hydrocarbons was recorded in the Made Ground. This included DRO in 1998, which was assessed by SWK using two guidance documents (now withdrawn[1,2]) and indicated 'Slight Contamination'.

4.5.10 There are no modern GAC values for DRO as hydrocarbons are now tested in accordance with the Total Petroleum Hydrocarbons Criteria Working Group (TPH CWG) which speciates hydrocarbons dependent on the number of carbon atoms. DRO hydrocarbons (C10 – C28) are included within four TPH CWG speciated bands: C10 – C12, C12 – C16, C16 – C21 and C21 – C35.

4.5.11 Samples from 2022 were tested in accordance with TPH CWG, with results being compared S4UL GAC. TPH exceedances when compared to a residential GAC with plant uptake (Soil Organic Matter (SOM): 2.5%) were encountered in 2022 within three locations ranging in depth between 2.10 and 6.80 m bgl. The speciated bands these exceedances were identified in were Aromatic C16 – 21 and C21 – C35. These hydrocarbon results are consistent with the DRO results identified in 1998 and represent localised exceedances in TPH from below 1.20 m bgl within the landfill area. Although the concentrations of TPH are considered exceedances when compared to stringent residential GACs for residential end use with plant uptake the concentrations are not exceedances when compared to Public Open Space (POS) GAC values, and so, for context, no mitigation measures would be required if the landfill material was placed at the surface of the site in POS areas near residential housing. For the residential areas a cover system of certified clean soils forms the main approach to mitigation and is recommended for all gardens. In fact, the same approach will also be used for public open space in the landfill area, and is considered more than sufficient to provide the mitigation required to form a barrier to the localised TPH at depths below 1.2 m, which will effectively break any potential pollutant linkages that could affect future site users.

4.5.12 9 samples of Made Ground were identified to have exceedances of PAH compounds ranging in depth between 0.80 and 6.80 m bgl when compared to S4UL residential GAC with plant uptake (2.5% SOM). Benzo[b]fluoranthene, Benzo(a)pyrene and Dibenz(a,h)Anthracene were identified in these 9 samples. The exceedances were identified in material which was noted to contain an organic, solvent/paint or hydrocarbon odour. Additionally, exceedances of Benzo[a]anthracene and Chrysene were also identified within three deeper samples from CP02, ranging between 5.75 and 6.80 m bgl. The relevant pathways are not considered to be present for this development given the depth of the contaminants recorded. However, the proposed use of a 600 mm thick clean cover system will provide further assurance that future site users will not come

[1] Interim Guidance on the Disposal of Contaminated Soils (2nd Edition, 1997) by the Environment Agency - Withdrawn
[2] Protection of Workers and the General Public during the Development of Contaminated Land (1991) by the Health and Safety Executive - Withdrawn

into contact with the contaminants; which in turn eliminates the risk to human health.

4.5.13 Additionally, in samples from both CP02 and CP03 concentrations of 2-Methylnaphthalene, Dibenzofuran and Carbazole were identified between depths of 5.75 and 6.35 m bgl. These compounds have no regularly used GAC values to compare against. These determinands have been identified at a significant depth and so it is it is not considered that they will present a risk to future site users. This will be further mitigated by the installation of the recommended clean cover system.

4.5.14 The main pathway for contaminants for human health is ingestion, dermal contact or inhalation of contaminants. This can by through direct contact with contaminated material or by eating produce grown in contaminated soils that contain high concentrations of bioavailable determinands.

4.5.15 Therefore, as discussed above, a 600 mm clean cover system is proposed and is an appropriate method of mitigation that will break any pollutant linkage and stop direct contact with contaminated soils for future site users of the proposed development. This will be required in both private gardens and areas of soft landscaping or public open space. The clean cover system will also provide a clean suitable growing medium for produce grown in private gardens.

4.5.16 A clean cover system should be installed in all areas underlain by Made Ground. This is an industry standard method[3,4,5] of mitigating contact with potentially contaminated soils and is observed across many brownfield sites including as a mitigation method within the case studies referenced in Sections 5.2.

Verification of the clean cover system will need to be undertaken in accordance with the below guidance document:

- Verification Requirements for Cover Systems Technical Guidance for Developers, Landowners and Consultants, by YALPAG. Dated June 2021, Version 4.1.

4.5.17 Further testing of the existing topsoil and the underlying capping layer may be required to determine the suitability of re-use in the clean cover system. However, this does not impact the appropriateness of the mitigation

[3] Cover systems for land regeneration – thickness of cover systems for contaminated land, by the Building Research Establishment. Ref: BRE465, dated March 2004.
[4] Development on Land Affected by Contamination Technical Guidance for Developers, Landowners and Consultants, by YALPAG. Dated June 2020, Version 11.2.
[5] A Regulator's Guide to Cover Systems and their Verification, by the National Contaminated Land Officers Group. Dated 2024.

recommended. In the event that material is not deemed suitable, material may be transferred from elsewhere on site to form the clean cover system. Similarly, any topsoil from the landfill area that is deemed unsuitable for gardens may still be suitable for public open space. Re-use of materials will need to be undertaken using a Materials Management Plan in accordance with the Definition of Waste: Code of Practice (DoWCoP). It is very unlikely that creating the cover layer will require the importation of material, but that option is always a fall back.

4.5.18 In summary, localised exceedances of heavy metals, PAH and TPH have been identified within the Made Ground in the landfill area. However, these exceedances are below a depth that would present a risk to human health via direct contact, ingestion or inhalation. Additionally, the use of a clean cover system in areas of the site underlain by Made Ground further reduces the risk of future site users coming into contact with potentially contaminated material.

4.5.19 In the unlikely event that construction workers come into contact with contaminated material through activities such as excavations, drainage installation or piling, this will be mitigated through standard construction practices such as maintenance of hygiene, adequate welfare and dust suppression techniques.

4.5.20 At present it is anticipated that the maximum depth of drainage runs will generally be 1.50 m below the proposed road level. The drainage beneath the access point from Newark Road will be installed 2.70m depth below existing ground level. Whilst excavations are likely to be advanced into Made Ground, the drainage will be installed in trenches with clean imported material used for bedding and surround.

4.5.21 Furthermore, the presence of the existing capping layer, which investigation has shown comprises uncontaminated reworked material, will provide an additional barrier for areas of the landfill.

4.5.22 Where earthworks are planned, the made ground may be exposed in cut areas, including to the north of the site where levels will need reducing to connect to the existing Newark Road. This exposure will only be temporary as these areas will subsequently be surfaced with either a structure, hardstanding or a clean cover system addressing the risk of exposure by breaking the pollutant linkage.

4.5.23 The implementation of a Construction Environmental Management Plan (CEMP) will address the likelihood of construction activities either further contaminating the site or mobilising existing contaminants through construction activities.

4.6 Risk to Groundwater

4.6.1 The site is predominantly underlain by an unconfined Principal Aquifer, the Lenton Sandstone Formation, a part of a larger SPZIII – Total Catchment Area.

4.6.2 No groundwater risk is presented by the natural topsoil, superficial deposits and weathered bedrock material across the south of the site.

4.6.3 Made Ground within the landfill area has been recorded to directly overlie either weathered bedrock material comprising clayey sand with sandstone lithorelics or to directly overlie unweathered sandstone. No natural or anthropogenic aquitard, such as a clay lining at the base of the Made Ground, has been identified in any of the four ground investigations undertaken since 1998.

4.6.4 Despite the localised and slightly elevated concentrations of contaminants outlined above, no exceedances of adopted GACs have been identified in the natural material underlying the landfill; hence indicating that contaminants from the Made Ground are not leaching into underlying sandstone.

4.6.5 No leachate was encountered across any of the previous four ground investigations. Leachate is defined as substance formed when "soluble components are dissolved (leached) out of a solid material by percolating water[6]". For the formation of leachate to occur, a sustained amount of percolating water is required to act as a dissolving medium for potentially leachable compounds within the soil mass. As identified within the ground investigations no sustained shallow groundwater body has been identified within the landfill.

4.6.6 At present, rainwater has the potential to infiltrate into the Made Ground and risk mobilising contaminants. However, the proposed surface drainage strategy of the development of the site indicates that infiltration of surface water will be significantly reduced by approximately 33% in the landfill area when the development is complete, based upon the current calculations of hardstanding from the surface drainage design and the use of attenuation basins in accordance with The SuDS Manual[7]. No attenuation basins need to be located within the landfill area, removing the risk of attenuated water infiltrating into underlying Made Ground.

4.6.7 As such, there is no indication that the former landfill is causing any concerns to groundwater now and with development in place the prospect of that occurring will be significantly reduced. Moreover, if contaminants were to theoretically enter the underlying Principal Aquifer (SPZIII) they would have a negligible impact

[6] Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water by the Environment Agency. Ref: LFTGN02, dated February 2003
[7] The SuDS Manual, by CIRIA. Ref: C753F, dated December 2015.

on the closest SPZI – Inner Protection Zone located approximately 8.70 km southeast of the site, through dilution within the larger groundwater body.

4.6.8 The Environment Agency have, however, suggested a planning condition that would necessitate the submission and approval of a Piling Risk Assessment in advance of any piling. Contrary to concerns raised by residents, this condition does not prohibit piling, but is a standard EA condition to ensure that the method of piling is properly assessed, if it is to be the chosen way of creating foundations.

4.6.9 ECE produced a Hydrogeological Review and Groundwater Piling Assessment, concluding that the Made Ground being piled through is expected to seal itself around the piles where driven piles are to be used, as these will displace the soil outwards, generally densifying it around the piles. In the event that pre-boring is required due to obstructions, there will be a temporary opening; however the pathway will be sealed once the pile has been cast. It is therefore considered that piled foundations will not create a preferential pathway. Moreover, given the absence of a permeable lining at the base of the landfill, any theoretical pathway would not worsen the situation.

4.6.10 Driven piling can also present a risk of pushing material downwards, causing Made Ground to be mobilised into the underlying natural bedrock. However, any piles are only expected to extend 2 to 3 m into natural bedrock beneath the landfill which would not be problematic, and could be further reduced by using a conical tip on the pile. The risk is expected to be negligible and unlikely to present a significant risk to groundwater. Alternative foundation solutions can be discussed with the Environment Agency if required.

4.6.11 Based upon the above, further remedial measures are not considered to be required in relation to the protection of controlled groundwater.

4.7 Risk to Surface Water

4.7.1 Surface water from rainfall events has the potential to infiltrate into Made Ground and mobilise contaminants. That is the case now, though there is no indication of this causing an issue. As part of the proposed development, infiltration will be interrupted through the construction of roads, hardstanding and buildings. This will redirect surface water into the designed positive drainage system. This will reduce the prospect for surface water infiltration to create a pathway. No attenuation basins need to be located within the landfill area of the site, meaning infiltration of stored water into Made Ground is prevented.

4.7.2 The appended Drainage Statement provides further detail on the proposed surface water system, but the key aspects to highlight with respect to land contamination are as follows:

- A fully sealed piped system will be installed to remove any pathway for contaminants.
- Pipework will be chosen to suit the ground conditions, to prevent any possible degradation.
- Potable water pipework will be installed in accordance with UK Water Industry Research's (UKWIR) Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites (2011).

4.8 Ground Gas Risk Assessment

4.8.1 Guidance for the determination of the ground gas risk beneath a site is provided by the following documents:

- Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings by The British Standards Institution. Ref: BS8485:2015+A1:2019, dated 2015, updated in 2019.
- Assessing risks posed by hazardous ground gas to buildings by CIRIA. Ref: C665, dated 2007.

4.8.2 BS8485 also presents the required ground gas protection measures needed for the determined ground gas regime of a site.

4.8.3 Two phases of ground gas monitoring have been undertaken which were concentrated within the landfill area of the site. The first phase comprised of six rounds from 27/04/2017 to 19/07/2017 on 10 monitoring well locations. The second phase comprised an additional six rounds from 14/02/2018 to 11/05/2018 on 16 locations including eight of the original locations and eight new locations. The monitoring undertaken is deemed to be in accordance with the recommendations set out in C665.

4.8.4 C665 also states that readings of the 'worst case conditions' should be done on at least two rounds of monitoring, this includes both low (<1000 mb) and falling atmospheric conditions. Of the 12 ground gas monitoring rounds four were undertaken in periods of trending falling atmospheric pressure and eight were undertaken in periods where the atmospheric pressure was below 1000 mb, with the lowest atmospheric pressure on-site recorded at 976 mb. It is therefore considered that monitoring during worst-case atmospheric conditions was undertaken.

4.8.5 In accordance with the above guidance documents, Gas Screening Values (GSVs) are utilised to determine the Characteristic Situation (CS) of the site and therefore the necessary protection measures required. GSVs are calculated using the flow rate of gas encountered and the concentrations of carbon dioxide and methane.

Separate GSVs are produced for both carbon dioxide and methane. Whilst GSVs can be calculated for each monitoring location during each monitoring round, BS8485 recommends that a worst-case check is undertaken by taking the highest flow encountered from any monitoring well and the highest concentration of gas from any monitoring well, and using these to produce a 'worst-case' GSV which will inform the ground gas regime of the site. I confirm that this approach has been adopted.

4.8.6 Below is a table indicating how GSVs relate to a CS of a site based upon Table 2 within BS8485.

Characteristic Situation (CS)	Gas Screening Value (GSV)
CS1	<0.07
CS2*	0.07 to <0.7
CS3	0.7 - <3.5
CS4	3.5 - <15
CS5	15 - <70
CS6	>70

*BS8485 (Table 2) states that if the concentration of methane in a location is identified to exceed 1% v/v and/ or the concentration of carbon dioxide is identified to exceed 5% v/v then consideration should be given to increase the ground gas regime to CS2.

4.8.7 The maximum flow rate detected was 0.4 l/h, although a negative flow of -2.0 l/h was also recorded. This was used as a positive result to represent a worst-case.

4.8.8 The maximum concentration of carbon dioxide was 13.9% v/v and the maximum concentration of methane encountered was 3.4% v/v. This led to GSVs of 0.068 for Methane and 0.278 for Carbon Dioxide. As per the table above, this results in Characteristic Situation 2 for dwellings in the landfill area.

4.8.9 BS8485 sets out the required ground gas protection measures for the ground gas regime and proposed development. In accordance with BS8485 the proposed development comprises of Type A buildings which are small, usually privately owned dwellings with generally small rooms. A CS2 ground gas regime for Type A buildings requires a minimum gas protection score of 3.5 points. This can be achieved by applying the following:

- A passive subfloor dispersal layer such as a minimum 150 mm ventilated void: 1.5 to 2.5 points.
- A ground gas membrane: 2 points

4.8.10 To provide additional reassurance, ECE also recommend extending the gas protection measures to dwelling within 30 m of the landfill area. It should be noted that ECE determined ground gas risk utilising a 'traffic light system' outlined in C665 which classifies the site as having an 'Amber 1' and 'Amber 2' ground gas regime. As of April 2024, it was announced by the NHBC that they will no longer accept the 'traffic light system' of ground gas protection for projects beyond July 2025. The classification system set out in BS8485 must therefore be adopted; which would classify both the Amber 1 and Amber 2 areas of the site as having a CS2 ground gas regime, as discussed above.

4.9 Summary of risk assessment and mitigation

4.9.1 The table overleaf provides a brief summary of the risks presented by the site and the recommended mitigation measures.

Contamination Risk	Proposed Mitigation
Risk to Human Health presented by sporadic and modest exceedances of contaminants, when compared to S4UL GACs, identified within Made Ground from the landfill area.	All exceedances in the made ground have been identified below a depth that would present a risk to human health via direct contact, ingestion or inhalation; hence there is considered to be a low risk to human health. Nevertheless, the use of a 600 mm thick certified clean cover system will be placed to provide a barrier to stop future site user coming into contact with the underlying Made Ground; therefore providing additional reassurance. Standard health and safety practices, such as use of PPE and maintenance of hygiene, will mitigate the risk to construction workers.
Risk to Groundwater as a results of potential mobilisation of the sporadic presence of contaminants in the Made Ground.	No shallow groundwater body or evidence of a perched water body have been encountered during the investigations. No significant concentrations of contaminants have been encountered that indicate a risk to groundwater. No contamination was found in the ground beneath the landfill now. However as a result of the proposed development, the volume of rainwater with the potential to infiltrate is reduced by 33% compared to the existing situation. It is therefore considered that the low risk to groundwater will only be reduced as a result of the development. No further mitigation is deemed necessary.
Risk to Surface Water in the land fill area.	All rainwater incident on buildings and hard surfacing will be actively drained through the surface water drainage system, therefore preventing rainwater entering the made ground in these areas. There is no need for the suds basins to be located in the former landfill area. There is not considered to be any mechanism by which rainwater can migrate through made ground material beneath soft landscaped areas and re-emerge to impact surface water. As such, no further mitigation measures are considered to be required.
Risk to future structures and site users from ground gas or vapours.	Ground gas protection measures are to be adopted for dwellings in the landfill and within a 30m buffer zone. These protection measures are standard and well tried and tested. They will comprise a ventilated subfloor void and gas membrane resistant to carbon dioxide and methane.

4.9.2 The council have shared the ECE Site Investigation and the ECE Hydrogeological Review and Groundwater Piling Assessment with statutory consultees in response to the council's opinion that there was an insufficiency of data.

4.9.3 As discussed further in Section 6, the ADC Contaminated Land Officer responded on 29th November 2024 to confirm approval of these documents.

4.9.4 A remediation strategy will need to be developed and agreed with the regulators; which will be secured by condition.

5 Case Studies

5.1 Glen Parva, Leicester – Blaby District Council

5.1.1 The outline planning application (Ref: 15/0176/OUT) for 165 dwellings on Land to the South West of Cork Lane was submitted in 2015. Almost the entirety of the site is registered as a historic landfill by the Environment Agency which was listed to accept inert, household, commercial and industrial waste between 1974 and 1994. Ground investigations identified a maximum thickness of Made Ground to be 15.00 m comprising a clayey sand or gravel with ash, brick, concrete rubble and wood fragments.

5.1.2 A Preliminary Geo-environmental Site Investigation, dated January 2015, was submitted for outline planning by RSK summarising the potential contamination risk identified on-site based upon desktop information and two previous investigations from 2001 and 2013. Within the 2001 investigation, PAH and elevated concentrations of arsenic and phytotoxic metals were identified in Made Ground. Ground gas generation of methane was also identified and referenced in the 2015 Site Investigation. The Environment Agency and Environmental Health Officer (EHO) of the Local Planning Authority responded to the submission of the Site Investigation Report on the 10th and 12th March 2015 respectively. No objection to the proposed development was raised subject to the implementation of appropriate contaminated land conditions. Outline planning permission was granted in August 2016 with standard contaminated land conditions attached.

5.1.3 A second application for the discharge of reserved matters was then submitted (Ref: 19/0813/RM) in 2019. Following the submission of additional ground investigation data and risk assessments, produced with discussion with the EA, the EA and the EHO concluded that appropriate characterisation of the risks had been undertaken to quantify the mitigation measures required, particularly regarding ground gas protection to dwellings. However, the reserved matters application was rejected by the LPA for failing to demonstrate that the proposed layout could enable remediation and mitigation works regarding contamination, despite approval from their technical consultees.

5.1.4 An appeal was lodged and the Inspectorate concluded that the appeal should be allowed (CD 7.30), stating that *"the proposal would not have an unacceptable effect on the public health of the future occupiers of the proposal and the occupiers of nearby residential properties by way of land contamination"*, and so approved the reserved matters application on the 4th January 2023. Mitigation measures for the proposed development included ground gas protection measures, however, as the existing capping soils on site were found to be free from contaminants no

additional clean cover was deemed to be necessary to break potential pollutant linkages.

5.2 Bourne Street, Coseley – Dudley Metropolitan Borough Council

5.2.1 The outline planning application (Ref: P17/0184) for 100 dwellings on Land off Bourne Street and Cedar Avenue was submitted in 2016. The entirety of the site is registered as a historic landfill by the Environment Agency which was listed to accept inert, commercial, industrial and special waste between 1979 and 1986. The landfill utilises a former opencast colliery site with the thickness of Made Ground identified on site to a maximum depth of 25.00 m, comprising ashy sand with clinker and coal ash; and a clayey cobbly sand of gravel with brick, concrete, shale, wood, clinker, masonry and other construction waste.

5.2.2 A Phase 1 Desk Study Report (September 2016) and a Report on Ground Investigations (January 2017) were submitted for outline planning by Johnson, Poole & Bloomer. The Desk Study summarises an additional seven ground investigations undertaken on the site between 1987 and 2009. These investigations identified asbestos fibres, heavy metals and PAH within the Made Ground. Significant ground gas generation of carbon dioxide and methane was also identified. The EA responded to the submission on the 12th April 2017 stating no objection to the proposed development subject to the implementation of conditions. No record of a response from the EHO related to contaminated land is listed with the planning application. Outline planning was rejected on 19th October 2017 with contaminated land being cited as one of the two reasons for rejection, despite approval from the EA. Specifically, the LPA stated that the proposed development could have a negative impact on neighbouring residents and future site users due to contamination and that "insufficiently detailed mitigation proposals have been provided".

5.2.3 A planning appeal was lodged and the Inspectorate concluded that this should be allowed (CD 7.29), stating that the remediation approach proposed *"is based upon widely used technical guidance and involves isolating the contamination from the proposed development and causing minimal disruption to the existing ground… such measures have been used successfully to remediate a similar site on Middlepark Road in Dudley and other similar site is Wolverhampton, Walsall and further afield."* These proposed mitigation measures included the use of a clean cover system and ground gas protection measures. The outline planning application was approved on the 13th March 2019.

5.2.4 Following additional ground investigation and discussion with the EHO, mitigation measures were agreed to comprise CS2 gas protection measures and a 600 mm clean cover system as part of the full planning permission application (for a reduced number of dwellings), which was accepted 19th August 2021. Based

upon Google Street View imaging the site appears to be under development from August 2022 onwards.

5.3 Heathside School, Walton-on-Thames

5.3.1 A full planning application (Ref: 2019/2157) for a new 900 pupil secondary school was submitted to Elmbridge Borough Council in August 2019. The site is located northeast of Waterside Drive. Following widespread excavation of gravel in the 1960s, the entire site was landfilled with Inert waste between 1975 and 1986. Ground investigations have confirmed the depth of landfill to be generally up to 8m and the Made Ground was reported to comprise sandy and clayey fill with brick, concrete, wood, glass, ceramic, plastic and ash. Elevated concentrations of heavy metals and PAHs were recorded, as well as the presence of asbestos.

5.3.2 A Preliminary Risk Assessment, dated September 2019, was submitted alongside a "reduced scope" ground investigation report, dated June 2019. Both the Environment Agency and the Environmental Health Officer confirmed that they had no objection to the development, subject to the imposition of standard land contamination conditions. Planning permission was subsequently granted in July 2020.

5.3.3 The contaminated land conditions were duly discharged during the remainder of 2020 and 2021, following the submission of a Land Contamination Assessment, Remediation Strategy, Remediation Implementation Plan and Piling Risk Assessment.

5.3.4 Mitigation measures included a 300mm thick clean cover system and gas protection measures comprising sub-slab ventilation with a gas membrane.

6 The Officers of the Council

6.1 Officer Committee Report - Dated 31/07/2024 (CD 3.1)

6.1.1 This document relates to an Outline Application for a residential development of up to 300 dwellings with associated infrastructure and landscaping (Reference Number: V/2022/0629). Ground Contamination is listed as one of the Main Material Considerations for the planning applications.

6.1.2 The statutory consultee responses to the application state the following in relation to land contamination:

- Environment Agency – No objection subject to condition
- ADC Environmental Protection (Contamination) – No objection subject to condition

6.1.3 The report further states that "the Environmental Protection Team (EPT) and Environment Agency have confirmed that they have no objections subject to conditions requiring ground contamination remediation scheme to be submitted and implemented, and controls over piling and drainage systems for the infiltration of surface water to the ground".

6.1.4 The officer's report concludes that "subject to the attached conditions the proposal would be acceptable in respect to risks from ground contamination."

6.2 Planning Committee Minutes - Dated 31/07/2024 (CD 3.3)

6.2.1 The planning committee meeting was held on Wednesday 31st July 2024, where it was agreed that "the application be deferred until the next meeting to enable further discussions to take place between Planning Officers and the Applicant is respect of the following:

- Members sought clarification and reassurance with regard to the proposed drainage and contamination strategies which might give rise to the potential for contamination of the watercourse from previous landfill and or provided conflicting strategies."

6.2.2 As discussed in Section 7.1 below, Rodgers Leask issued a letter, dated 16th September 2024, to confirm that the drainage proposals shall not pose an unacceptable risk from potential contamination.

6.2.3 On the 29th September 2024 the ADC Contaminated Land Officer confirmed no objection to the proposals, subject to contaminated land conditions. (CD 2.24)

6.3 Updated Officer Committee Report – Dated 23/10/2024 (CD 3.2)

6.3.1 This Planning Committee Report confirmed that the application was now the subject of a Planning Appeal against non-determination.

6.3.2 The officers report reiterates position of the ADC Contaminated Land Officer, insofar as recommending a full contaminated condition be appended to any permit issued for this development.

6.4 Council's Statement of Case (CD 9.2)

6.4.1 The Council's Statement of Case confirms that it will pursue five reasons for refusal. Reason 4 relates to contaminated land:

- "Insufficient information has been provided to demonstrate that the development proposed would be suitable to provide a residential use talking account of ground conditions and risks arising from contamination. The development is therefore contrary to paragraphs 180c) and 189 of the National Planning Policy Frameworks (2023)."

6.4.2 The Council sets out the proposed evidence it will provide to demonstrate that the land is unsuitable for residential development. This appears to be focused on the risk to water and drainage from contamination cannot be adequately mitigated based upon the current ground investigation data.

6.5 Statement of Common Ground (CD 9.1)

6.5.1 A Statement of Common Ground between Ashfield District Council and Pegasus Group on behalf of Hallam Land was signed and issued on 28th November 2024.

6.5.2 It was agreed that, subject to the imposition of planning conditions that are acceptable, no technical objections were received in relation to land contamination matters on the basis of the submitted 2022 RLL Phase 1 Desk Study.

6.5.3 A matter not agreed is "whether the proposed residential use would be suitable taking account of ground conditions and risks arising from potential contamination."

6.5.4 As discussed below in Section 7.1.8, the ADC Contaminated Land Officer has commented again on 29/11/2024 (CD 2.32) following submission of the ECE reports. The CLO has accepted the ECE reports and confirmed that their position remains one of no objection subject to conditions. However, somewhat confusingly, in that latest response the CLO suggested that they were planning to ask for more information, which contradicts their previous responses.

6.5.5 Putting aside the direct contradiction discussed above, it is now evident that the CLO has confirmed approval of the ECE site investigation and their assessment; thereby indicating that the CLO is in agreement that **the proposed residential development is <u>suitable</u>**.

7 Consultation with regulators and third party representations

7.1 Summary of Regulatory Correspondence

EA correspondence to ADC. Ref: LT/2022/127177/01-L01. Dated 12/09/22. (Appendix B, CD 2.26)

7.1.1 Correspondence confirming the EA had reviewed the RLL Phase 1 Desk Study (2022) in relation to the current planning application, Ref: V/2022/0629.

7.1.2 The EA confirmed that planning permission could be granted for the proposed development, subject to planning conditions. The EA attached standard contaminated land conditions including a condition for a Piling Risk Assessment to be submitted and approved by the Local Planning Authority (LPA).

Email from ADC CLO to ADC Planning Officer. Dated 21/01/24. (Appendix C, CD 2.31)

7.1.3 Correspondence confirming the ADC Contaminated Land Officer (CLO) had reviewed the RLL Phase 1 Desk Study (2022) and had no objection to the proposed development.

7.1.4 The CLO recommended standard contaminated land conditions.

Letter from RLL to Pegasus, passed on to ADC. Dated 16/09/24. (Appendix D, CD 13.4)

7.1.5 A letter was sent to the ADC Planning Officer by Pegasus Group enclosing the RLL letter of 18 September 2024 to respond to the matters raised in the July 2024 committee meeting minutes to confirm that proposed attenuation features will not affect the mobilisation of underlying contamination in the landfill area.

Email from ADC CLO to ADC Planning Officer. Dated 29/09/2024. (Appendix E, CD 2.24)

7.1.6 Email confirming the CLO has received the letter from RLL. Whilst they commented that no asbestos testing has been undertaken, I note that this would not usually be undertaken as part of a desk study or ground gas monitoring, as had been submitted at this stage.

7.1.7 The CLO confirmed no objection to the proposals, subject to contaminated land conditions, and attached the conditions from the 21/01/24 correspondence.

Email from ADC CLO to ADC Planning Officer. Dated 29/11/24. (Appendix F, CD 2.32)

7.1.8 On the 14/11/24 the following reports were issued to ADC:

- Geotechnical and Geo-Environmental Site Investigation by Eastwood Consulting Engineers (ECE). Ref: KE/ACR/46924-002, dated May 2022.
- Hydrogeological Review and Groundwater Piling Assessment by ECE. Ref: KE/DN/46924-004, dated July 2022.

7.1.9 These documents were uploaded to the ADC planning portal on 28/11/24.

7.1.10 Following a review of the above documents, the CLO confirmed no objection to the development subject to the installation of mitigation measures set out within the ECE report and referenced within Sections 4.5 – 4.8 of this statement.

7.1.11 The CLO proposed a standard set of contaminated land planning conditions.

7.1.12 It is noted, however, that the CLO states that they were in the process of requesting the submission of an intrusive site investigation prior to a decision being made, but the two ECE reports were submitted before a formal request was made. Whilst this directly contradicts earlier correspondence indicating that the desk study was sufficient to grant planning permission, the CLO has nevertheless confirmed approval of the ECE site investigation.

Summary

7.1.13 In summary, the both the EA and the ADC CLO were consulted on the planning application and both confirmed that they had no objection to the proposed development, subject to the imposition of standard contaminated land conditions.

7.1.14 Following matters raised in the July 2024 committee meeting, a supplementary letter was prepared by RLL; following which the ADC CLO again confirmed no objection to the scheme, but reiterated the planning conditions.

7.1.15 Following receipt of the ECE site investigation report and hydrogeological review, the CLO then claimed that they had intended to request additional investigation; which contradicts their earlier correspondence.

7.1.16 Nevertheless, the CLO did also confirm in their latest response that they accepted the findings of the ECE site investigation.

7.2 Interested Parties

7.2.1 Four Interested Parties have been listed during the appeal process: Graham Mayhew, Rex and Cynthia Foster, Elizabeth Collins and David and Ann George.

7.2.2 The comments from Graham Mayhew, Rex and Cynthia Foster and Elizabeth Collins do not reference contaminated land concerns and so are not discussed here.

7.2.3 David and Ann George (referred to as the Interested Party hereafter) claim that the landfill is a "very contaminated area" stating a "detailed survey" was undertaken identifying "toxic materials". The survey being referred to is believed to be the SWK investigation undertaken in 1998. Given the profile of contaminants identified in 1998, the comments made demonstrate a misunderstanding of the contamination risk assessment process. Section 4.5 of this statement has demonstrated that the risk of contamination affecting human health is considered to be low and will, nevertheless, be mitigated through the installation of a certified clean cover system.

7.2.4 The Interested Party also references a letter from the EA (Ref: LT/2017/122789/01-L01) and claim the letter states that piling should not be undertaken on site. The EA letter was a consultation on the previous application; the wording of which was repeated in 2022 for the current application. The Interested Party has misinterpreted the document, as the document clearly states that piling should not be undertaken until a Piling Risk Assessment has been submitted as part of the planning process; which is to say that the EA wish to approve the piling methodology rather than stating it cannot be done. A Piling Risk Assessment has been produced by ECE and is discussed as part of Section 4.6.

7.2.5 The Interested Party further suggests that the excavation of attenuation basins will produce a pathway through the Made Ground. This has been addressed in Section 4.7. I do not accept that there would be a risk with appropriate mitigation but in accordance with the latest alternative masterplan, it is clear that no attenuation basins need to be located within the landfill area anyway.

7.2.6 The Interested Party states that disturbing contaminated material will present a risk a public health. As referenced in Section 4.5, the appropriate use of Construction Environmental Management Plan will mitigate the risk of contaminants affecting neighbouring properties or members of the public.

7.3 Public Comments

7.3.1 As part of the planning application 113 comments have been submitted to the application from 77 people. 54 of these comments reference contaminated land

to some extent. 23 comments reference the presence of springs or a high groundwater table on site. All these comments have been reviewed and the common themes of the comments have been addressed below.

The nature and composition of the landfill material

7.3.2 Multiple comments from the public have disputed that either not enough information about the composition of the landfill is known, or that the landfill was "uncontrolled" and was subject to "illegal dumping".

7.3.3 As referenced in Section 2.5.2 the license allowed the deposition of construction and demolition waste.

7.3.4 By reference to the ECE site investigation report, it can be seen that a total of 90 intrusive locations have been undertaken within the landfill area; the results of which (Section 4.4.5) corroborate the license issued.

7.3.5 Section 4.5 confirms that the sporadic elevated concentrations of contaminations is not deemed to be a risk to human health, subject to the proposed mitigation measures.

The potential risks relating to 'landfill gas' being present

7.3.6 Comments have mentioned the risk of 'landfill gas', particularly methane, coming from the landfill and being disrupted by the development works. As discussed in Section 4.8, the ground gas regime of the site has been assessed in accordance with the appropriate British Standard and determined that there is very little gas generation occurring. Nevertheless, ground gas protection measures will be installed for the dwellings above the landfill. In summary, the risk is considered to be low, but will be properly mitigated in accordance with industry guidance.

The potential mobilisation of contaminants due to groundwater / surface water

7.3.7 Multiple comments claim the presence of natural springs on site that will mobilise contamination present in the landfill area of the site. Firstly, no shallow groundwater body has been identified across 6 months of the monitoring, including winter months. The highest water level recorded in a borehole was 1.85 m bgl, recorded on a single occasion, and is considered to be perched water resulting from the variable presence of low permeability material. There are no springs on this site, nor do the geological conditions present any possibility of this. It is therefore believed that the comments related to the possible presence of sub-surface water re-emerging at surface once the ground is saturated in particularly wet weather conditions. In any case, this is not deemed to present a risk of contaminant mobilisation.

7.3.8 The potential risks to both groundwater and surface water have been addressed in detail in Section 4.

The potential disturbance of contaminants as a result of the proposed construction works.

7.3.9 As discussed in Section 4.5, the potential risks associated with disturbance of the Made Ground will be mitigated through standard construction practices such as maintenance of hygiene, adequate welfare and dust suppression techniques.

7.3.10 As per Section 4.6, the ECE Hydrogeological and Groundwater Piling Assessment sets out the proposed methods to mitigate disturbance of potential contaminants during piling operations.

8 Summary and Conclusions

8.1.1 An outline planning application reference V/2022/0629 was submitted on behalf of the appellant to the Local Planning Authority (LPA) Ashfield District Council in August 2022.

8.1.2 Much of the northern end of the site is registered as a Historic Landfill Site by the Environment Agency (EA) under the name 'Disused Sand Quarry', registered for the disposal of inert waste.

8.1.3 A Phase 1 Geo-Environmental Desk Study, together with appended technical notes, was produced by Rodgers Leask and submitted in support of the planning applications. Both the ADC Contaminated Land Officer and the Environment Agency were consulted on this application and confirmed that they have no objections to the scheme subject to conditions.

8.1.4 The Local Planning Authority did not issue a formal decision notice but the authority's Planning Committee resolved on 23 October 2024 that it would have been minded to refuse the application on 5 grounds. Putative Reason for Refusal (RfR) 4 related to land contamination, stating that insufficient information has been provided to demonstrate that the development proposed would be suitable to provide a residential use taking account of ground conditions and risks arising from contamination.

8.1.5 Additional site investigation and assessment has been undertaken and provided to the council for their review in determining whether the site is suitable for residential development, after the Council had indicated its reasons for refusal.

8.1.6 Beneath topsoil and a reworked capping layer, the investigations identified Made Ground to a maximum depth of 13 m bgl in the landfill area. The Made Ground has predominantly been recorded as a clayey sandy gravel including sandstone, limestone, quartzite, brick and concrete, together with a variety of minor constituents. No Asbestos Containing Materials (ACM), domestic waste or putrescible materials were identified within the Made Ground. No visual evidence of significant contamination was identified in any of the ground investigations.

8.1.7 Sporadic elevated concentrations of contaminations were identified, when compared to adopted S4UL GAC values, but these were all noted to be at a depth that would present a low risk to human health. Nevertheless, a clean cover system will be installed to mitigate the risk.

8.1.8 No significant concentrations of contaminants have been encountered that indicate a risk to groundwater. Moreover, the proposed development will provide betterment in this regard due to a 33% reduction in rainwater infiltration. It is

therefore considered that the low risk to groundwater will only be reduced as a result of the development. No further mitigation is deemed necessary.

8.1.9 There is not considered to be any mechanism by which rainwater can migrate through made ground material and re-emerge to impact surface water.

8.1.10 The risk of ground gas has been investigated and assessed in accordance with technical guidance. Ground gas protection measures are to be adopted for dwellings in the landfill and within a 30m buffer zone. These protection measures will comprise a ventilated subfloor void and gas membrane resistant to carbon dioxide and methane.

8.1.11 It is considered that the assessments and investigations for this site have been undertaken in accordance with the Environment Agency Land Contamination Risk Management (LCRM) guidance.

8.1.12 It is understood that the council have shared the ECE Site Investigation and the ECE Hydrogeological Review and Groundwater Piling Assessment with statutory consultees in response to the councillors opinion that there was an insufficiency of data. The Contaminated Land Officer responded on 29th November 2024 to confirm approval of these assessments.

8.1.13 The proposed mitigation measures will be set out in a remediation strategy and can be controlled through condition, as suggested by both the ADC Contaminated Land Officer and the Environment Agency.

8.1.14 In producing this proof of evidence, I have reviewed the submitted documents, alongside national and local policy and relevant technical guidance relating to land contamination risks and the redevelopment of brownfield sites.

8.1.15 I have also reviewed consultation responses to the planning application provided by the relevant statutory consultees, the case officer's committee report, the Statement of Case, the Statement of Common Ground and representations from third parties relating to land contamination.

8.1.16 I note that no statutory consultees objected to the proposals on grounds of land contamination, subject to appropriate planning conditions being imposed.

8.1.17 With regard to third party representations, I consider that measures are already proposed to address the concerns raised in an appropriate manner.

8.1.18 It is my opinion that the application accords with the NPPF and the relevant statutory and regulatory requirements relating to land contamination, and that there is there is no justification for the application to be refused on the basis of land contamination risk.

Appendices

Land Contamination Proof of Evidence

Appendix A: Illustrative Masterplan (drg no EMS.2254_120 01 Rev D)

B6022 Newark Road

Newark Road

Searby Road

Searby Road

Sotherby Avenue

Harby Avenue

B6139 Coxmoor Road

John Whetton Park
Play area and recreation field

CENTRAL GREEN

LEAP

Key

- **Site Boundary**
- **Public Open Space**
  Existing contours, 1m increments
- **Development Area**
  10.32Ha - Up to 300 dwellings
- **Primary Street**
  Illustrative location dependent on RM application
- **Secondary Street**
  Illustrative location dependent on RM application
- **Street & Lanes**
  Illustrative location dependent on RM application
- **Shared Private Drive**
  Illustrative location dependent on RM application
- **Existing Trees & Vegetation**
- **Proposed Buffer Planting**
- **Proposed Street Trees**
- **Drainage Areas**
- **Swales**
- **LEAP**
  Play Space with 20m buffer
- **Pedestrian Connectivity**
- **Pedestrian links**
  Pedestrian/Cycle Movement Strategy is illustrative and requires holistic design with streets and housing at detailed design stage.
- **Segregated Pedestrian & Cycle links**
  Pedestrian/Cycle Movement Strategy is illustrative and requires holistic design with streets and housing at detailed design stage.
- **Public right of way**
- **Potential Wildlife Pond**
- **Public Transport Turning Area**
- **Pedestrian/Cycle Priority Crossing**

N

0 50 100 m

Newark Road, Sutton-in-Ashfield, Nottinghamshire - **Illustrative Masterplan (Drainage Option)**

I Drawn by: JF I Approved by: GL I Date: 11/12/24 I Scale: 1:2,500 @ A2 I DRG: EMS2254_120 Sheet No: 01 Rev: D I Client: Hallam Land Management I

Pegasus Group

Land Contamination Proof of Evidence

Appendix B: EA correspondence to ADC. Dated 12/09/22.

Mr Sam Muir
Development Advice & Control
Ashfield District Council
Urban Road
Kirkby-in-Ashfield
Nottingham
NG17 8DA

Our ref: LT/2022/127177/01-L01
Your ref: V/2022/0629

Date: 12 September 2022

Dear Mr Muir

OUTLINE WITH RESERVED MATTERS - ACCESS - RESIDENTIAL DEVELOPMENT OF UP TO 300 DWELLINGS

LAND AT JUNCTION OF NEWARK ROAD, COXMOOR ROAD, SUTTON IN ASHFIELD, NOTTINGHAMSHIRE

Thank you for consulting us on the above application.

Environment Agency position
We have reviewed the "Phase 1 Geo-Environmental Desk Study" report produced by Rodgers Leask, dated February 2022 (ref: P22-070), which has been submitted in support of this application.
We are aware that previous Desk Study reports have been produced by Rogers Leask for the site to support planning applications in 2017. In these previous Desk Study reports, recommendations for groundwater monitoring were made, and there was an acknowledgement that chemical analysis of groundwater may be necessary.
Whilst this more recent Desk Study report recommends an intrusive investigation to help further assess controlled waters risks (amongst other risks), it is less descriptive about whether groundwater monitoring or analysis will be undertaken.
Given the historic landfill on site and the sensitivity of the groundwater in this location (principal aquifer and within a Source Protection Zone), we would be expecting groundwater analysis to inform future assessments of risks posed to controlled waters at this site.

Please note that in making our response, the Groundwater and Contaminated Land Team of the Environment Agency has considered risks posed to controlled waters only. The Local Environmental Health Officer must be contacted with regards to other risks, such as those posed to human health (for example from the migration of landfill gas). We believe that it is critical for early liaison with the Local Authority Environmental Health Department given the presence of the historic landfill on the site, and the proximity of an authorised landfill site to the proposed development.

We consider that planning permission could be granted to the proposed development as submitted if the following planning conditions are included as set out below. Without these conditions, the proposed development on this site poses an unacceptable risk to the environment and we would object to the application.

Contamination

Condition
No development approved by this planning permission shall commence until a remediation strategy to deal with the risks associated with contamination of the site in respect of the development hereby permitted, has been submitted to, and approved in writing by, the Local Planning Authority. This strategy will include the following components:
1. A preliminary risk assessment which has identified:
• all previous uses
• potential contaminants associated with those uses
• a conceptual model of the site indicating sources, pathways and receptors
• potentially unacceptable risks arising from contamination at the site
2. A site investigation scheme, based on (1) to provide information for a detailed assessment of the risk to all receptors that may be affected, including those off-site.
3. The results of the site investigation and the detailed risk assessment referred to in (2) and, based on these, an options appraisal and remediation strategy giving full details of the remediation measures required and how they are to be undertaken.
4. A verification plan providing details of the data that will be collected in order to demonstrate that the works set out in the remediation strategy in (3) are complete and identifying any requirements for longer-term monitoring of pollutant linkages, maintenance and arrangements for contingency action.
Any changes to these components require the written consent of the local planning authority. The scheme shall be implemented as approved.

Reasons
To ensure that the development does not contribute to, and is not put at unacceptable risk from or adversely affected by, unacceptable levels of water pollution in line with paragraph 174 of the National Planning Policy Framework (NPPF).
Note: Part 1 of this condition has been satisfied by the submission of the Phase 1 Desk Study Report produced by Rogers Leask. Further action is required under the remaining parts of the condition.

Condition
Prior to any part of the permitted development being brought into use, a verification report demonstrating the completion of works set out in the approved remediation strategy and the effectiveness of the remediation shall be submitted to, and approved in writing, by the Local Planning Authority. The report shall include results of sampling and monitoring carried out in accordance with the approved verification plan to demonstrate that the site remediation criteria have been met.

Reasons
To ensure that the site does not pose any further risk to the water environment by demonstrating that the requirements of the approved verification plan have been met and that remediation of the site is complete. This is in line with paragraph 174 of the Nation Planning Policy Framework.

Condition
If, during development, contamination not previously identified is found to be present at the site then no further development (unless otherwise agreed in writing with the Local Planning Authority) shall be carried out until a remediation strategy detailing how this contamination will be dealt with has been submitted to, and approved in writing by, the Local Planning Authority. The remediation strategy shall be implemented as approved.

Cont/d..

Reasons
To ensure that the development does not contribute to, and is not put at unacceptable risk from or adversely affected by, unacceptable levels of water pollution from previously unidentified contamination sources at the development site. This is in line with paragraph 174 of the National Planning Policy Framework.

Condition
Piling or any other foundation designs using penetrative methods shall not be permitted other than with the express written consent of the Local Planning Authority, which may be given for those parts of the site where it has been demonstrated that there is no resultant unacceptable risk to groundwater. The development shall be carried out in accordance with the approved details.

Reasons
Piling can result in risks to groundwater quality from, for example, mobilising contamination, drilling through different aquifers and creating preferential pathways. Thus it should be demonstrated that any proposed piling will not result in contamination of groundwater.
If Piling is proposed, a Piling Risk Assessment must be submitted, written in accordance with Environment Agency guidance document “Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention. National Groundwater & Contaminated Land Centre report NC/99/73”.

Drainage
The information submitted in support of the application indicates that foul drainage will discharge to mains foul sewer. We have no objection to this proposal.
We understand that the infiltration capacity of the soil is not sufficient to utilise infiltration drainage techniques at this site. In the event that the drainage strategy changes to incorporate infiltration techniques, the condition outlined below should be attached to any permission granted.
We also note that an attenuation pond is proposed in the location of the historic landfill, and we believe it is necessary for further design details to be provided for this pond to ensure that leakages will not occur. Leakage of this pond into landfill materials could pose contamination risks to controlled waters, and also promote the generation of landfill gas.

Condition
No drainage systems for the infiltration of surface water to the ground are permitted other than with the written consent of the Local Planning Authority. Any proposals for such systems must be supported by an assessment of the risks to controlled waters. The development shall be carried out in accordance with the approved details.

Reasons
To ensure that the development does not contribute to, and is not put at unacceptable risk from or adversely affected by, unacceptable levels of water pollution caused by mobilised contaminants. This is in line with paragraph 174 of the National Planning Policy Framework.

Informatives

Waste to be taken off site
Contaminated soil that is, or must be, disposed of is waste. Therefore, its handling,