



**WARWICK DISTRICT COUNCIL
VILLAGE HOUSING OPTIONS AND
SETTLEMENT BOUNDARIES
CONSULTATION**

LAND AT BAGINTON

**ON BEHALF OF
LENCO INVESTMENTS**

20 January 2014

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1 INTRODUCTION

- 1.1 RPS is been retained by Lenco Investments to represent its interests in the Warwick District Council Local Plan. This statement presents Lenco Investment's overarching response to the '*Village Housing Options and Settlement Boundaries Consultation*' document published in November 2013. The format of the response provides a commentary on a number of objections to the plan and its preparation and sets out RPS proposals for local development at Baginton Village.
- 1.2 Lenco Investment's interest comprises land to the south of Coventry at Baginton both within the strategic and local context of the emerging development plan. As officers will be aware, RPS has submitted duly made representations to all stages of the emerging Local Plan, and the now superseded Core Strategy since 2007. During this process RPS has also met with Philip Clarke and Dave Barber on occasions over the course of promoting the site. The most recent meeting being on 26 September with Dave Barber prior to the current consultation.
- 1.3 RPS has also engaged in the Strategy Housing Land Availability Assessment (SHLAA) consultation process for Warwick District Council and has made representations to the Coventry City Development Plan process in respect of cross boundary housing need.
- 1.4 The site's strategic context is illustrated in Appendix 1. The land is a logical location, on the periphery of Coventry City and to the south of Baginton Village. In responding to this consultation RPS is aware that the Council is seeking a response to local allocations and not strategic sites and RPS has responded accordingly. However in light of the substance of the representation, it is important to provide a commentary on the strategic context and the concerns RPS has on behalf of Lenco Investments to this, and how it affects the decisions locally at Baginton Village.
- 1.5 RPS is willing to continue to meet with Council Officers to discuss Lenco Investment's previous submissions on the emerging plan and the representations made here.
- 1.6 The following sections of this report are structured as below:
- Section 2 sets out that the Council has failed to comply with the Strategic Environmental Assessment Directive and has inappropriately excluded Land at Baginton to date, along with a chronological record of evidence submissions to demonstrate the this;
 - Section 3 sets out RPS's commentary on the Council's preferred approach to the expansion of Baginton Village and its proposals for a sound Green Belt boundary;
 - Section 4 sets out RPS's objections to the housing need of Baginton Village being limited to 35 dwellings and contains justification for higher requirements;
 - Section 5 concludes that Baginton Village can provide for at least 90 dwellings on land owned by Lenco Investments and that this should be included in the next stage of the plan.

2 FAILURE TO COMPLY WITH THE STRATEGIC ENVIRONMENTAL ASSESSMENT DIRECTIVE

- 2.7 RPS has made comments to all stages of the Warwick District Local Plan and previous versions of the now discontinued Core Strategy. Representations have consistently supported the inclusion of Land at Baginton within the development plan as a sustainable location to accommodate both the housing needs of Warwick District, and also any cross boundary needs associated with Coventry City.
- 2.8 While it is understood that the Council is currently consulting on its preferred location for small scale village expansion sites, and not strategic land allocations, RPS is of the opinion that the selection of the preferred site at Baginton Village for expansion of the settlement and the consideration of potential alternatives within the current consultation document is predicated on inaccurate and limited evidence from the strategic assessment of the larger site at Baginton, particularly the 2012 Strategic Housing Land Availability Assessment (SHLAA). **The process to date can therefore be demonstrated to have inappropriately excluded from the evaluation process not only a suitable site for a strategic allocation, but also the potential of the land promoted by RPS to provide a more appropriate and sustainable local extension to the village of Baginton.**
- 2.9 This section sets out a chronology of the failings of the process to date that has led to the exclusion of the land promoted by RPS from appropriate evaluation and how this is now again repeated within the Village Housing Options and Settlement Boundaries Consultation document.
- 2.10 The following provides a chronological outline of information supplied to the Council in respect of the evidence required to appropriately evaluate the site for both strategic and local allocation purposes, parts of which have not been acknowledged or used by the Council to date. **This has resulted in the land owned by Lenco Investments being absent from both strategic and local allocation appraisal processes to date. This is an error for which the liability lies entirely with the Council.**

Strategic Environmental Assessment requirements

- 2.11 When preparing its development plan the Council is statutorily required to consider reasonable alternatives under the Strategic Environmental Assessment (SEA) Directive (2001) and the Environmental Assessment of Plans and Programmes Regulation (2004). In this context, a number of pertinent legal judgements have provided clarity on the application of both pieces of legislation.
- 2.12 From these judgements it is clarified that the authority should evaluate all reasonable alternatives taking into account the objectives and geographical scope of the plan¹ and that where reasonable alternatives exist they should be evaluated to an equitable level by **fair** and **public**

¹ Article 5.1 of the Strategic Environmental Assessment Directive

analysis². Furthermore, the authority should ensure that its option appraisal process and the Sustainability Appraisal (SA) evaluation process are based upon the most up to date evidence. In respect of this, and while it is open to an authority to reject alternatives at an early stage of the process and decide not to revisit them, the proviso for this is that there is no change of circumstance to warrant revisiting options³.

- 2.13 It is demonstrated below that the authority has not considered all reasonable alternatives within the geographic scope of the plan, has not evaluated or subject the alternatives to the same level of fair public analysis and has continued to reject a site as being suitable despite significant changes of circumstance early in the plan process. It has therefore failed to comply with the above statutes as clarified by recent case law.

Land at Baginton as a reasonable alternative

Core Strategy Issues Paper 2007 (now superseded)

- 2.14 In November 2007 the Council published an Issues Paper and RPS responded accordingly. The Issues Paper did not, however, consult on site based options.

Core Strategy Options Paper June 2008 (now superseded)

- 2.15 RPS has been promoting the Land at Baginton to the authority as a strategic site from as early as 2008. During 2008 RPS met with Council Planning Officers to establish the evidence that the Council would specifically require to consider the site. Following this meeting, appropriate representations were made to the Council's Core Strategy Issues and Options in June 2008 supporting the broad direction of growth option south of Coventry at Baginton Village.

Core Strategy Preferred Option 2009 (now superseded)

- 2.16 In 2009 the Council published a Core Strategy Preferred Options document but this did not include Land at Baginton as a potential suitable option. This was understood to be on the basis that the 2009 SHLAA evaluated the site and identified it as unsuitable for development. The principal environmental constraints cited were landscape, noise and odour.

- 2.17 In respect of these alleged constraints, RPS had already engaged with the Council's Environmental Health Officers (EHO) at the outset of the site's promotion. The Council's EHO officers concluded that with appropriate mitigation measures the presence of the sewage works to the west of the site would not preclude residential development of the site. **Council officers had therefore already concluded that odour was not a preventative constraint** to development on the land promoted by RPS.

² Judgement Case CO/3983/2011, Mr Justice Ouseley, Paragraph 71, (Heard versus Broadland District Council, South Norfolk Council and Norwich City).

³ Judgement Case CO/6882/2010, Mr Justice Collins, paragraph 16 (Save Historic Newport Ltd and others versus Forest Heath Council and others)

- 2.18 RPS made the Council's Planning Officers aware of the above discussions and the conclusions of its EHOs in its duly made representation to the Preferred Option in 2009. RPS also submitted a promotional document to the Council in February 2009 that specifically addressed the landscape and noise constraints to the strategic site.
- 2.19 In the 2009 duly made representations, RPS also responded specifically to Question 10 of the consultation document. This question asked whether the Council had identified all the reasonable options. In response to this question, RPS specifically commented on the 2009 SHLAA assessment in respect of noise, odour and landscape, setting out that these issues had been resolved and were no longer constraints. **In the representations RPS also referred to the communication with the Council's EHO confirming this.**
- 2.20 Given that during the consultation of a development plan consultees are invited to respond to both the consultation document and the evidence upon which it is founded, RPS used the Preferred Option consultation as the conduit to reconfirm that the constraints in the 2009 SHLAA were not present. RPS also confirmed that it **had already provided** the Council with the evidence to address the 2009 SHLAA position prior to the Preferred Option consultation.
- 2.21 The 2009 representations therefore reconfirmed the information already submitted and set out that the site was suitable, particularly in respect of **odour as already concluded by the Council's own EHO**. As such, the site should have been included in the Preferred Option document as a reasonable alternative for consultation and SA/SEA given that it was promoted to the Council early enough along with supporting evidence.
- 2.22 RPS is therefore on record as providing a duly made representation to both the Council's development plan process and the evidence base upon which it was based, in particular its SHLAA process in 2009 to the effect that the constraints in the SHLAA do not preclude development on the site.
- Alternative Sites 2010*
- 2.23 Following the Preferred Option consultation, the Council consulted on alternative strategic sites in 2010. This was to allow sites that had been promoted to it from the Preferred Option to be presented for public consultation.
- 2.24 Within this document the Council published Alternative Site 6 at Baginton. This was promoted by Sworders and was an area of almost 400ha around the south of Coventry Airport, north of Baginton and stretching westward to include the golf course. Due to the scale and extent of Alternative Site 6 promoted by Sworders, it encompassed the area of land promoted by RPS.
- 2.25 The site, however, did not represent Lenco Investment's interests, which is only 50ha of land, nor did the consultation distinguish the land delineated by the RPS's representations as an alternative in its own right. Alternative Site 6 was therefore by scale, nature and submission not representative of the land RPS was promoting, or that of the discussions being held between RPS and the Council officers. It did also by scale, prejudice the proper consideration of a smaller strategic site of only 50ha of land. Representations to a consultation of some 400ha of land covering an extensive area of south Coventry could not therefore relate to a site of a smaller scale where environmental evidence provided by RPS for the 50ha extent deemed it suitable.

- 2.26 Furthermore, RPS is also concerned that despite promoting the site since 2008 to the Council, and the authority ruling the site out in the 2009 SHLAA, the Council chose to publish a consultation document in 2010 that did not contain the site promoted to it by RPS because of the findings of the 2009 SHLAA, but did publish a far more extensive area of land for consultation when that land had not even been assessed via SHLAA. RPS is of the opinion that the land promoted by RPS has **not been fairly and equitably subject to public analysis**.
- 2.27 In response to this Alternative Sites consultation RPS submitted representations to the Council including the resubmission of a promotional document already submitted to the Council in February 2009. In the representation RPS also categorically set out that the Land at Baginton was being promoted by RPS independently and separately from that of Alternative Site 6 (Sworders), and should be considered as such.
- 2.28 The representations made in 2010 by RPS also repeated the detailed response made to the 2009 SHLAA to the effect that the conclusions that were considered to deem the site unsuitable were incorrect, and not founded on robust evidence. Specifically, the representation **reiterated the response made in respect of the 2009 SHLAA regarding odour, noise and landscape**.

Summary

- 2.29 RPS is therefore of the opinion that the Council has within its discontinued Core Strategy process:
- unjustifiably dismissed Land at Baginton worthy of public consultation as a realistic alternative in the 2009 consultation document based upon its status as unsuitable in SHLAA;
 - not included the Land at Baginton promoted by RPS again for public consultation in 2010, despite RPS addressing the 2009 noise, landscape and odour SHLAA issues specifically on two previous occasions, including through duly made representations; and
 - despite discounting the land promoted by RPS for consultation based upon its 2009 SHLAA assessment, in 2010 the Council consulted on a significantly wider area of South of Coventry (Alternative site 6) of almost 400ha that had not been subject to any SHLAA assessment or constraint consideration. This was inconsistent to the approach for the Land at Baginton.
- 2.30 It is therefore the position that up to 2010, the Land at Baginton had been prejudiced from being subject to public consultation and SEA/SA evaluation by the Council, despite RPS's constant representations and submission of evidence. Furthermore, alternative sites including the wider area of Alternative Site 6 had been subject to public consultation by the Council with little or no supporting evidence submitted, and no assessment within SHLAA. The publicly fair and equitable evaluation of Land at Baginton had failed.

Local Plan

The new Local Plan 2011

- 2.31 With the transition to the Local Plan process in 2011 (rather than the continuation of the Core Strategy), the Council published the '*Local Plan, Helping Shape the District*' consultation in

March 2011. This considered a number of strategic options. In response to this (July 2011) RPS again made specific representations relating to the need for the Council to appropriately consider Land at Baginton and confirmed that the issues relating to the site's suitability had already been addressed and forwarded to the Council.

Preferred Options Local Plan 2012

2.32 Following the 2011 consultation the Council published its Preferred Options document in May 2012 along with the accompanying Sustainability Appraisal Report. This document contains the preferred approach for delivering growth around the south of Coventry City. This was the identification of 880 dwellings at Westwood Heath. No other alternatives were presented, and again Land at Baginton did not feature as a reasonable alternative. This is now understood to be on the basis that the 2009 SHLAA had been updated and the Land at Baginton was still deemed to be still unsuitable, with principally **odour** and **noise** remaining the constraining factors to the site's suitability.

2.33 As such Land at Baginton was again excluded from being subject to public consultation or assessment within the Councils SEA/SA process. This is hard to understand given RPS's engagement in the Councils Local Plan and Core Strategy development plan processes to date which had included:

- Confirmation from the Council's own EHO that noise and odour were **not** overriding constraints to development and could be mitigated;
- RPS providing confirmation of the above discussion and evidence of this and other environmental issues through duly made representations in 2008, 2009, 2010 and 2011.

2.34 RPS therefore responded to the Council's consultation again in 2012, stating that the Land at Baginton was entirely suitable and should have formed part of the Council's appraisal process. More specifically the representations again stated that RPS had already provided the Council with the necessary information to address the SHLAA constraints on **noise, odour and landscape**.

Revised Development Strategy

2.35 In 2013, the Council published its Revised Development Strategy. This document contained no strategic sites for the peripheral area of Coventry City and sought to establish a development strategy for the District in the absence of evidence of unmet need from Coventry City. RPS again submitted representations to the Council's consultation to the effect that Coventry City's needs are most likely to be required to be met in part by Warwick District, and that Land at Baginton should be considered appropriately within this debate.

2.36 The Revised Development Strategy was also accompanied by a Final Interim SA Report. In this it sets out the sites that have been considered, including the preferred sites and those that have been discounted along with the reasons for each. Table 4.1 provides this information in the context of the requirements of the SEA Directive. However, Land at Baginton does not appear within this table at all. This is particularly concerning as Table 4.1 includes other sites where the SHLAA assessment deemed them unsuitable, as has been the case with the Land at Baginton.

2.37 It is therefore clear that the land promoted by RPS, where evidence has been provided since 2008/09, has never been subject to public consultation **nor has it been considered within the Council's SA/SEA process**. This clearly demonstrates that the site has not had a fair, equitable and public analysis⁴. **As such RPS is of the opinion that the emerging plan is unlawful.**

Emerging Pre-Submission Plan

2.38 Following the representations to the Council in 2013, RPS met with a representative of the Council's planning team on 26 September 2013 to discuss the site and its consideration within the Council's development plan process. A key component of the meeting was that despite evidence being provided to the Council by RPS as far back as 2009, the 2012 SHLAA assessment was identical to the 2009 document in content and conclusion.

2.39 The outcome of the meeting was that the Council officers were to advise RPS on what elements of the evidence base they felt were still outstanding. The response from the Council was received on the 31 October 2013, as below.

"When the site was first assessed we consulted Environmental Health colleagues on the physical constraints and environmental conditions. Their view was that there was the potential for future residents of the site to experience noise from Coventry Airport and airborne pollution from the sewage works. The impact of both was uncertain [RPS emphasis] and hence the ability to deal with them through mitigation was also uncertain. They also had concerns that in the event that housing uses were introduced to the area this could restrict operations on these adjoining sites.

The site was not included as a preferred strategic site in the Core Strategy Preferred Options which was the subject of consultation in Summer 2009. RPS objected to the omission of the site on the grounds that the constraints highlighted in the SHLAA could be resolved through mitigation measures. However, although some work had been carried out on issues such as transport and landscape, no work had been carried out in respect of the impact of noise from the airport (in terms of levels and timing) or smells (in terms of sources, levels and areas affected).

When the Council reviewed the SHLAA in 2012, letters were sent to all site promoters asking if any changes to site details needed to be included. As far as I am aware, no further details were received about this site. There was no reason, therefore to alter the original assessment".

2.40 In respect of the points raised above, RPS would refer the Council to the chronology set out above and specifically:

⁴ Judgement Case CO/3983/2011, Mr Justice Ouseley, Paragraph 71, (Heard versus Broadland District Council, South Norfolk Council and Norwich City).

- It is noted that in the response from the Council's own internal consultation with Environmental Health colleagues was inconclusive and the potential impact was '*uncertain*'. It therefore appears that the site was discounted as a reasonable alternative on odour and noise within the 2009 SHLAA, based upon **no** firm evidence and only '*uncertain*' effects. RPS contests that this is an appropriate manner in which to exclude a site in the first instance. Also in updating its SHLAA, the Council should have ensured that its evidence was robust and decisions justified, particularly in respect of paragraph 158 of the NPPF of using proportional evidence. It is fully appreciated by RPS that the authority needs to consider the evidence and the proportional relevance of evidence collected, but this must also be proportional to the decision being made. In this context, when making strategic decisions to exclude a significant site from public consultation and SEA/SA process the Council should ensure that its evidence is robust enough to stand scrutiny at examination. In this instance it is clear that the evidence to exclude the land base upon noise and odour was far from robust originally and that the Council Planning Officers should have liaised with their own internal EHOs to ensure that the position had not changed in 2012 since 2009. If they had, as RPS has done, then the conclusions would have been as RPS has found;
- the evidence presented to the Council in 2009 and 2010 by RPS (through the development plan consultations) set out specifically that the Council's EHO concluded that odour **did not preclude development** from the site and could be mitigated;
- In respect of the second paragraph of the Council's response above, representations were made in 2009 and 2010 that addressed both noise and air quality. Specifically, air quality discussions had been held with the Council's own EHO and the conclusions provided based upon this dialogue and engagement. In respect to noise, the masterplan had considered and accommodated this into the design from noise contour evidence and was submitted alongside representations to that effect in 2009 and 2010. It is therefore incorrect to state that no work had been carried out on both.
- In respect of the last paragraph, RPS is not aware of a letter received in 2012, although it did receive a letter in 2011. However, representations had already been made to the Council in 2009 and 2010 in respect of the SHLAA assessment with the 2010 representations **specifically addressing the SHLAA odour and noise position**. RPS therefore directs the Council to the duly made representations to the development plan already sent and while the Council can seek additional information from all promoters of land to SHLAA via separate correspondence, RPS can evidence that the Council was already in receipt of the additional evidence from RPS in respect of noise and odour. This was provided through ongoing engagement within the development plan process since 2008. **Therefore the liability for the site's exclusion from the 2012 consultation document lies entirely with the Council and it has been erroneous in not taking into account duly made representations that specifically addressed SHLAA evidence requests.** It has therefore failed to update its own outdated understanding of the site with the information provided by RPS.

2.41 It can be observed that the Council's understanding of what evidence it holds itself is misplaced and resulted in prejudicing the site.

Village Housing Options and Settlement Boundaries Consultation 2013

- 2.42 RPS notes that within the consultation document in 2013 for accommodating development in the villages, a preferred site is included at Baginton Village. This is a small part of the site promoted by RPS on behalf of Lenco Investments. In the consultation document, it is noted that the Council still retains the opinion that noise and odour are a constraining issue on its preferred option site. However, the site is now contained within the plan as a preferred allocation. It appears therefore that despite any further work being undertaken by the Council to properly evaluate noise and odour of the site or wider area, it has concluded that the smaller parcel of land is suitable for development and yet still retains that the remaining area of the land promoted by RPS, including the land adjacent to the preferred site as unsuitable on noise and odour. There is no explanation or justification for this rationale or decision making.
- 2.43 Furthermore, the Council included the wider area of land now promoted by RPS for a sustainable extension to the village of Baginton as a sustainable area for residential living in its latest Gypsy and Traveller consultation document. It therefore considers the area of land entirely suitable for habitation in respect of odour and noise for the purpose of accommodating Gypsy and Traveller accommodation options but fails to acknowledge that the same circumstances exist for the purposes of dwellings. **This is nothing less than prejudicial.**
- 2.44 RPS therefore objects to the selective and inconsistent approach that the Council has taken where it continues discount parcels of Land at Baginton on no evidence (despite it being presented to the Council on many occasions) and yet at the same time inconsistently include other parcels of land adjacent to land owned by Lenco Investments as a preferred housing allocation and suitable for development.
- 2.45 The Council cannot selectively choose to discount or include sites in exactly the same geographical area and adjacent to each other based upon no evidence to support either conclusion. RPS is of the opinion that the Council does not have the evidence available to it to enable it to distinguish between the suitability of two sites adjacent to each other and arrive at different conclusions for each site in respect of noise and odour.
- 2.46 Again, the land at Baginton in the ownership of Lenco Investments has been prejudiced in the development plan process and not featured within the Council's public consultation to allow fair, equitable and public analysis and scrutiny. **RPS is of the opinion that the current development plan approach remains unlawful.**

Evidence Base

- 2.47 Given the Council has failed to acknowledge the representations and evidence made by RPS to the development plan and SHLAA that illustrates that the Land at Baginton is entirely suitable, Lenco Investments has had to undertake further detailed evidence on both odour and noise. A Noise Assessment and Odour Assessment have been prepared and are submitted to the Council alongside this representation in Appendices 3 and 4 respectively. These have both been prepared in liaison with the **Council's EHO, Environment Agency, Coventry Airport and Severn Trent**, and substantiate the responses submitted to the Council by RPS in 2009, 2010, 2011 and 2013 that **noise and odour are not constraining factors to development.**
- 2.48 RPS is of the opinion that despite evidence being presented to the Council to the effect that the Council's assumptions on these matters is incorrect and inconsistent with more recent advice

from its own EHOs, the **further** evidence forwarded now in 2014 provides conclusive evidence that the site is entirely suitable for development and that it should be appraised as such from the outset. The conclusion from both the 2014 noise and odour reports is that the site is entirely suitable for development. RPS is aware that no credible evidence is held by the Council to the contrary.

Conclusion

- 2.49 From the above it can be evidenced that the Council has not only discounted the strategic site Land at Baginton at the early stages of the plan process on no clear evidence, it has persistently failed to take into account the evidence and representations made to it in respect of said site, that not only addresses the lack of evidence, but substantiates the position that the evidence was ill founded in the first place. RPS now submits further evidence in 2014 on this matter that clarifies the statements made in 2009, 2010, 2011 and 2013 by RPS are correct and the site is entirely suitable. This applies equally to local village allocation considerations.
- 2.50 **In respect of the SEA/SA legislation and case law arising from both, it is clear that the Council has failed its statutory duty to fairly, equitably and by public analysis evaluate Land at Baginton as a strategic or local reasonable alternative.** As such it has prejudiced the site's consideration in the development plan process by not taking into account RPS's representations to all stages of the plan. RPS has considerable evidence to this effect and will demonstrate that this is the case at examination.
- 2.51 On the basis of the above, and the emerging evidence that Coventry City will not be able to accommodate all of its need and Warwick will need to meet in part unmet need of Coventry City, Green Belt sites will need to be considered on the periphery of Coventry City in Warwick District. Land at Baginton will therefore need to be considered as a reasonable alternative in that debate and RPS expects this to occur without prejudice and by full public analysis before any Local Plan can be submitted for examination. In this context, the preferred approach for development at Baginton of just small scale village expansion cannot be predicated on the assumption that peripheral growth for Coventry City's need will occur elsewhere, without fair and equitable consideration of the strategic context.
- 2.52 Should the fair and equitable strategic assessment process, however, deem that the preferred approach at Baginton Village is one of localised housing need only, as is currently being pursued, then RPS has illustrated that the emerging preferred option at Baginton Village has also unjustifiably excluded Lenco Investment's site from the appraisal process based upon noise and odour issues. More concerning however, the Council has included a site as its preferred option adjacent to the land owned by Lenco Investments and not drawn the same conclusions on noise and odour, or explained how that decision has been made.
- 2.53 On the basis of the above, the current preferred option for Baginton Village is not only premature but ill founded. As such, it is unjustified and unsound, but more pertinently unlawful.

3 BAGINTON VILLAGE SITE OPTIONS

- 3.1 RPS has set out its concerns for the selection of alternative sites for Warwick District's strategic needs and while it does not repeat those here, it has equal concerns over the selection of sites to meet local needs in Baginton Village.
- 3.2 The consultation document sets out that 8 sites were initially considered leading to the discounting of some and then onto a preferred option, and 3 further discounted options. It is not clear, however, how this relates to the SA/SEA process and an explanation of the full range of options that were considered and discounted, or the reasons for discounting. It is a key requirement from the SEA Directive to fully explain for public comment what alternatives have been considered and the reasons for their discounting. It appears from the documentation that not all of this information is available, nor subject to public scrutiny.
- 3.3 RPS is therefore of the opinion that the full range of sites have not been thoroughly considered in the selection of the preferred option, nor has sufficient due regard been had to the needs of Baginton Village as identified later in Section 4 of this report in the selection of the preferred approach. This is particularly in light of no formal statement being made by the Council in respect of the development strategy, which is requires between 70 and 90 dwellings at Baginton⁵.
- 3.4 RPS is of the opinion that, should it be deemed through an appropriate fair, equitable and public evaluation of reasonable strategic alternatives within the Local Plan that the needs of Coventry City should not be met at Baginton Village, then the authority should meet the full needs of Baginton Village as set out in the Revised Strategy Document. This should include extending the area of the preferred site contained within the existing consultation document to that set out in Appendix 2. This would provide for the needs of the village appropriately both in terms of overall need as set out in the following section, and provide a far higher quality of development proposal as discussed below.

Consultation Document Preferred Option Site

- 3.5 While RPS supports the principle of extending Baginton Village southwards with good links to the existing village, the current approach is not sufficient to provide enough housing required for the village as set out in Section 4 of this report, nor does it provide a sensitive well designed development for this location. It is also contrary to the consultation and findings of the most recent Baginton Parish Plan, the design principles of the Local Plan Revised Development Strategy or the adopted Residential Design Guide for Warwick District. RPS has set out below its objections to the current preferred approach and sets out the justification for an extended allocation as contained in Appendix 2.

⁵ Page 18 of the Revised Development Strategy 2013

Landscape

- 3.6 The work undertaken by Lenco Investments includes a comprehensive Landscape and Visual Impact Assessment (LVIA). This has already been submitted to the Council as set out in the chronology above. This considered the local landscape character and in summary concluded that:
- the land to the south of Baginton Village has seen changes to the use of and management of land that has resulted in the loss of trees and the deterioration of hedgerows;
 - the landscape has witnessed a deterioration of the quality of landscape character due to the loss of characteristic landscape features (especially hedgerows and single oaks), leading to the loss of characteristic field patterns;
 - The landscape features are poor with notably the outgrown, gappy hedges and single field trees; and
 - There is poor integration of the landscape with the Baginton Conservation Area to the north.
- 3.7 In the context of the above, the LVIA concluded that there is significant potential through sensitive development in the area to:
- improve the landscape character by the restoration of neglected/lost landscape features
 - provide mitigation to respect the exiting settlement edge of Baginton Conservation Area;
 - help retain the distinctiveness of Baginton Village;
 - appropriately define the settlement boundary; and
 - increase the connectivity between the urban and rural landscape.
- 3.8 RPS would therefore expect the Council in defining the boundary of the allocation to have due regard to the sensitive nature of this location and ensure that it provides the most appropriate development boundary for the site that maximises the environmental benefits of the land. RPS would expect this to include consideration of how the site can be provide a high degree of environmental buffering and landscaping on the approach to the village and restore lost features. It is evident, however, that this has not been undertaken to date.
- 3.9 The current boundary of the allocation does not have regard to the sensitive landscape, the current visual aspect of the land, nor the need to ensure that the development positively contributes to the local environs. As such, the allocation does not have a logical landscape boundary, nor does it contain sufficient land within the allocation to provide environmental enhancement and landscaping on the approach to the village. Instead the allocation boundary follows an ownership boundary around two plots of land. The resultant impact of this is that the edge of the development plot will have a hard residential landscape edge to it rather than a natural landscape buffer that allows the development to interface with both the Conservation

Area to the north and the wider landscape to the south and west. Appendix 2 illustrates how the proposed extension of the allocation can achieve this on land owned by Lenco Investments.

- 3.10 By restricting the extent of the site to non-landscape artificial boundaries, the proposal will result in a development that is over developed at this location and unable to provide appropriate mitigation and landscaping.
- 3.11 Conversely, the strategic proposal promoted by RPS originally contained a phased approach to the development where Phase 1 was located on the land currently proposed as the Council's preferred approach, but extending southwest to cover the area broadly set out in Appendix 2. The key purpose of Phase 1 was to ensure that the development was sensitively located within the landscape so that it provided significant landscaping improvements to the wider environs as well as restoration of lost and deteriorating landscape features.
- 3.12 This can, however, only be achieved by a development that has sufficient land within the development site boundary to provide these features. Under the Council's current proposal, none of this is achievable and the development will result in a pocket of housing on the edge of the settlement that is uncharacteristic to both the location and its environs.
- 3.13 By extending the boundary as set out in Appendix 2, the allocation will provide significant environmental enhancements in respect of landscape and visual receptors. This will ensure that the development fits within its local environs and doesn't result in an artificial and out of place hard development edge to the settlement.

Site capacity and local design considerations

- 3.14 The Revised Development Strategy for the Local Plan sets out a clear policy approach for new development in the villages. This includes a statement⁶ which sets out that the Council will, among other factors, need to:
- ensure acceptable design, layout and scale has been established through a collaborative approach to design and development, involving Parish Councils, Neighbourhood Plan teams and local residents;
 - Carefully consider the quality of the development and how this relates to the local housing vernaculars; and
 - Ensure landscaping will be used positively to contribute to and protect the quality of place

- 3.15 Paragraph 4.4.4 goes on to state that:

"It is important that rural housing projects respond positively to the uniqueness and quality of the local environment and should be located within or on the edge of

⁶ Revised Development Strategy, paragraph 4.4.3

established settlements, so as to avoid the development of isolated, individual or groups of dwellings which are detached from or peripheral to the main villages”.

- 3.16 In light of the above, the current preferred option of delivering 35 dwellings on a site of 1.22ha net on the edge of a village that has existing local densities which are considerably lower than proposed in the draft allocation will not lead to a sensitive development that respects both the nature of the village or its setting. The density of the proposed allocation will be out of character with the existing local environs and as such will appear as an isolated tightly constrained and consolidated expansion of the village with hard landscaping edges, rather than a natural and sensitively landscape interfacing with the settlement, landscape and Conservation Area. This would be more in-keeping with the existing village.
- 3.17 Delivering a development on a small site which includes an access road and off street parking at such a density on the rural fringe of a village, where limited scope for environmental enhancement and landscaping exists on site, is not the most appropriate manner to deliver sustainable development. The current consultation document sets out the significance of landscaping at this location on page 34 that states *“The site [the preferred option site] will require a high degree of environmental screening but would help reinforce or clearly define the entrance to the village”*. RPS contest that this can be achieved.
- 3.18 It can be observed, therefore that the Councils current preferred approach does not conform to the requirement as set out in paragraphs 4.4.3 and 4.4.4 of the Revised Development Strategy. It does not ensure that landscaping will be used to positively project the quality of place, nor does it respond positively to the uniqueness and quality of the local environment on the edge of the settlement. More pertinently, however, the current approach of consolidating a development into a small site will enforce the uncharacteristic nature of the development.
- 3.19 RPS therefore contest that this is the most appropriate manner in which to expand Baginton Village and that a more collaborative approach should be undertaken that looks at more sustainable and higher quality design options appropriate to this location. This would also comply with the Council’s adopted Residential Design Guide which advocates a more design led approach that respects the local natural environs. Furthermore, it is also noted that the Parish Council supports development that is in keeping with the existing village and RPS’s view is that this opinion should be embraced in looking at options for the expansion of Baginton Village.

Green Belt Boundary and Safeguarded Land

- 3.1 The proposed preferred option sets out a proposed amendment to the Green Belt at Baginton to accommodate the preferred option site. This redefines the Green Belt boundary tightly around the village and preferred option site as illustrated in the consultation document.
- 3.2 The extension of the Green Belt at this location to the south of the village is welcomed and supported by RPS, but in the context of a wider extension that allows the village to meet its needs, both now and in the long term.

- 3.3 The NPPF requires local planning authorities when redefining the Green Belt boundaries to have regard to the essential characteristics of Green Belts and their intended permanence beyond the plan period. In this context, when preparing the Green Belt boundary at Baginton Village the authority is required under the NPPF⁷ to have regard to the long term permanence of the boundary proposed during this plan period and beyond.
- 3.4 In this context, and while the boundary amendments are being proposed in this document for non-strategic and local need only, that does not negate the requirement to meet paragraph 83 of the NPPF with regard to the local need for Baginton to expand beyond this plan period. At present the plan does not contain such provision and therefore is not soundly based against the requirements of the NPPF.
- 3.5 To accommodate this requirement the NPPF makes provision⁸ for the authority to identify '*areas of safeguarded land between the urban area and the Green Belt, in order to meet the longer-term development needs stretching well beyond the plan period*'. RPS contests that not only is the current boundary amendment insufficient to address the needs of the village during this plan period, it is also insufficient to accommodate the needs of the village beyond the plan period, including the additional need that will be generated given its expansion during this plan period.
- 3.6 RPS has set out in Appendix 2 the extent of the boundary that should be defined within the Local Plan to accommodate the needs of this plan period and to ensure that the boundaries have a degree of permanence into the next.

Proposed alteration to the preferred option site boundary (see Appendix 2)

- 3.7 For a village location such as this, bordering a Conservation Area and on the approach to a village where low density development is typical of the location, RPS would expect a design led approach to be informing both the capacity of the site and the identification of allocation boundaries. RPS would also expect the boundary of the Green Belt to be defined in the context of paragraphs 83 and 85 of the NPPF where it can enjoy a degree of permanence in this plan and the next, with the provision of safeguarded land as a tool to ensure this occurs.
- 3.8 It appears, however, that this is not the case and that the boundary has been identified based upon land ownership and with little regard to the landscape character or the need for permanent Green Belt boundaries.
- 3.9 Therefore to meet the needs of Baginton Village with appropriate landscaping and screening, the boundary would need to be extended, else the development will look uncharacteristically out of place.
- 3.10 RPS is of the opinion that the Preferred Option site should be extended to include the land as illustrated in Appendix 2. This would provide the right circumstances to deliver a sensitively

⁷ Paragraph 83 of the NPPF

⁸ Paragraph 85 of the NPPF

located development rather than having a development of 30dph abutting the conservation area boundary and a hard residential landscape edge to the settlement from the south and west.

3.11 Specifically and not exclusively, this would allow a development to be provided in Baginton Village that provides:

- sufficient land to deliver at least 90 dwellings to meet the needs of the emerging development strategy for Baginton Village;
- additional much needed affordable housing within the village;
- an appropriate density for this location that reflects that of the local environs, the requirement of paragraph 47(5) of the NPPF and not lead to over development of the site;
- a higher quality development that integrates the natural environment and landscaping reflective of the character of the adjacent Conservation Area and local environs;
- appropriate landscaping and screening of the development on the periphery of the site, including land that is beyond the boundary included in Appendix 2 in the control of Lenco Investments;
- additional areas of recreation, and possible allotment land which has been identified by the Parish Council as needed in the local area;
- a greater range and type of dwellings to meet local need;
- sufficient land to be safeguarded within the Green Belt to meet the future needs of the village without needing to review Green Belt boundary; and
- by extending the side westwards it enable the site to be linked more directly to the central village northwards further increasing the sustainable merits of the site.

3.12 As can also be observed that from the Noise Assessment Report contained in Appendix 3 the area proposed for development is outside of the glazing and ventilation noise condition area, further demonstrating the suitability of the site.

3.13 It can be observed therefore that in seeking to provide a high quality development and environment at Baginton Village, the extent of the preferred option site should be extended as indicated in Appendix 2.

Conclusion

3.14 In conclusion RPS supports the extension of Baginton Village to the south as a sustainable direction of growth for the area to meet local need. However, RPS is concerned that the current preferred approach is overly restrictive and will result in a development that does not provide for local need, does not respect the local environs, nor does it have the capacity to mitigate its own impact appropriately. It will also result in an allocation that is over developed for its location and result in a hard residential landscape edge to the settlement.

-
- 3.15 Alternatively RPS has presented that by extending the allocation as indicated in Appendix 2 the Council will be able to provide an allocation that will allow development to take a landscape led approach and interface with the local environs, provide substantial environmental / landscape mitigation and enhancement, and result in a development that is sensitive in its density and layout.
- 3.16 RPS has set out in Appendix 2 a revised boundary for the Green Belt, including land that can be safeguarded for a future plan period to provide permanence to the Green Belt boundary.
- 3.17 RPS can also confirm that while the land illustrated in Appendix 2 is within two land ownerships, there is agreement between the land owners on the joint promotion of the site to provide a comprehensive solution to the meeting Baginton Village's needs.

4 BAGINTON VILLAGE HOUSING NEED

4.18 RPS has set out that the selection of sites and establishment of the preferred approach at Baginton Village is premature in light of the strategic needs of Coventry City not yet being agreed and the fair, equitable and public analysis of reasonable alternatives to address this. This will need to include Land at Baginton. RPS therefore does not repeat those previous points in this section.

4.19 In respect of the need for Baginton Village and its own local expansion to support this, RPS welcomes the acknowledgement that the most sustainable location for the expansion of the village is to the south rather than through infilling. Lenco Investments believes that this is the most appropriate manner in which to expand the existing settlement. In this context RPS, on behalf of Lenco Investments, supports the principle of extending Baginton southwards in the draft allocation document, however, objects to the current approach being limited to 35 dwellings.

Need for development at Baginton

Consistency with the Revised Development Strategy document

4.20 The Council has set out in its Revised Development Strategy that Baginton Village, as a Secondary Village, should accommodate between 70 to 90 dwellings. However, it is observed that the preferred option site in the current consultation only provides for 35 dwellings in the village. This is not consistent with the emerging Development Strategy for Baginton and is short by up to 55 dwellings.

4.21 RPS notes that in the Revised Development Strategy the 70 to 90 dwellings figure *'will be subject to review as the plan process progresses and that this will be informed by Green Belt review, ecology, landscape and site options'*. RPS presumes that the Council has undertaken this appraisal work to derive that 35 dwellings at Baginton is appropriate in light of environmental constraints. However, from RPS's review of work undertaken, and the in the context of the information set out above this does not appear to have included the potential of the land owned by Lenco Investments to contribute to meeting the need of 70 to 90 dwellings, or the 55 dwelling shortfall.

4.22 The Council has instead chosen a preferred option site of only 35 dwellings and yet there exists the potential for this site to be expanded to provide the full range of 70 to 90 dwellings. It does not appear that the full potential of this location has been appropriately explored or evaluated.

4.23 RPS has provided the Council with site specific information that outlines that there are no Green Belt, landscape, ecology or other physical constraints that distinguish why the preferred option should be constrained to 35 dwellings based upon such considerations. Indeed the converse is true in that the preferred approach would be more sustainable and environmentally beneficial for the development to be extended over the adjoining land to provide a more comprehensive approach to development with significant landscape and environmental benefit.

4.24 Therefore if the Council has reduced the housing need from 70 to 90 dwellings from the Revised Development Strategy on the basis of site appraisal options in the village, it can be

demonstrated by RPS that this process has failed to consider the land owned by Lenco Investments and the potential of this land to contribute to not only meeting the full Revised Development Strategy needs, but also the positive environmental benefits that this site can bring.

- 4.25 RPS puts to the Council that the Revised Development Strategy need of up to 90 dwellings can be sustainable provided for using the land owned by Lenco Investments. This will allow Baginton Village to meet its needs rather than restricting it to 35 dwellings, which will fail to meet local need.

Housing Needs Assessment

- 4.26 It is noted that the Council refers to a 2008 based Housing Needs Assessment that illustrates that only 17 dwellings are required in Baginton. RPS has reviewed the document and while it is a relative indication of need as it arose in 2008, not only is it substantially out of date to be used now in 2013/14 it only part reports on local housing need.

- 4.27 The Housing Needs Study was prepared by Warwickshire Rural Community Council and is understood by RPS to be based upon a survey response of 138, from 350 forms circulated. It is observed that the survey was relatively comprehensive and established a range of elements of housing need concluding the 17 new dwellings were required. The background evidence published by the Council indicates that of the 17 dwellings, 12 were preferred as rented and 5 shared ownership. However, from reviewing the actual 2008 Needs Assessment, it is understood to recommend that 5 of the dwellings were preferred for owner occupiers, leaving 9 for rented and 3 for shared ownership. This indicates that there is in fact latent demand within the village for a wider variety of tenures than indicated in the Council's documentation, and a significant proportion of which favours open market owner occupied dwellings. The Council's replication of this information is therefore incorrect.

- 4.28 Furthermore, the 17 dwelling need was based upon a survey return of 138 forms from some 350 circulated and while a reasonable return rate was achieved, to base the results on only 138 is not proportionally representative of the village as a whole. RPS would expect that the responses received from the 138 returned forms to be aggregated up to 350 to give a comprehensive full village profile. This would indicate that based upon old 2008 latent demand in the village, at least 45 dwellings could be required, comprising a mix of open market, rented and shared ownership.

- 4.29 Given that this study is some 6 years out of date and in excess of the length for which Housing Needs Assessments have a shelf life for, the assumption that only 17 dwellings are required in Baginton Village is considerably out of date and not robust. It is most likely that the demand has indeed increased for housing in Baginton since the survey was undertaken and is closer to the need identified in the Revised Development Strategy of between 70 and 90 dwellings.

Parish Plan

- 4.30 In considering the need for new dwellings and the outdated 2008 Housing Needs Study, RPS has examined the Baginton Parish Council "Your Village, Your Future, Your Say" survey of 2011. This considered local opinion on the need for new homes in the village as part of the preparation of the Baginton Village Parish Plan. The findings of which are more supportive of development in-line with the numbers identified in the Revised Development Strategy rather than the 35 currently being proposed. It is noted, however, that despite the full results from this survey, the

Parish Council only supports up to an additional 20 dwellings in the village. When read as a whole, however, the survey results indicate that a higher number is more appropriate and justified.

4.31 The survey indicates that:

- Approximately 100 respondents stated that they *may* anticipate moving house in the next 5 years with 25 respondents confirming that they *do* intend on moving. Furthermore 12% of all respondents identified indicated that they have *already* experienced family members moving away from the village to secure appropriate accommodation. In response the Parish Council identifies that it recognises this and supports having additional housing in the village for indigenous residents to be able to remain in the village;
- In terms of the type of accommodation required, it was supported that this should be of a type for local people. The survey indicated that this was a mix of housing from provision for young people to larger family housing;
- It was also supported by the survey and the Parish Council that new housing should be in-keeping with the surrounding houses and be eco-friendly, plus have off-street parking.

4.32 From this more up to date information it is clear that there is a requirement to provide additional housing in the village and at more than 20 dwellings advocated by the Parish Council, which would only be approximately 1 dwelling per annum over the plan period, and indeed more than the 35 currently identified by the Council. It is also evident that the survey indicated that development should be in keeping with the surrounding houses which are of lower density than being proposed.

4.33 Therefore, notwithstanding the principal objection to the prematurity of establishing the preferred strategy for Baginton Village in advance of the strategic needs for Coventry City being established, should the Council determine through a full and public appraisal of strategic alternative growth scenarios that growth at Baginton Village should be limited to small scale expansion to reflect local needs, considerably more dwellings are required in the village than currently indicated on the preferred site in the current consultation. This would be in-line with the Revised Development Strategy requirement of at least 70 to 90 dwellings.

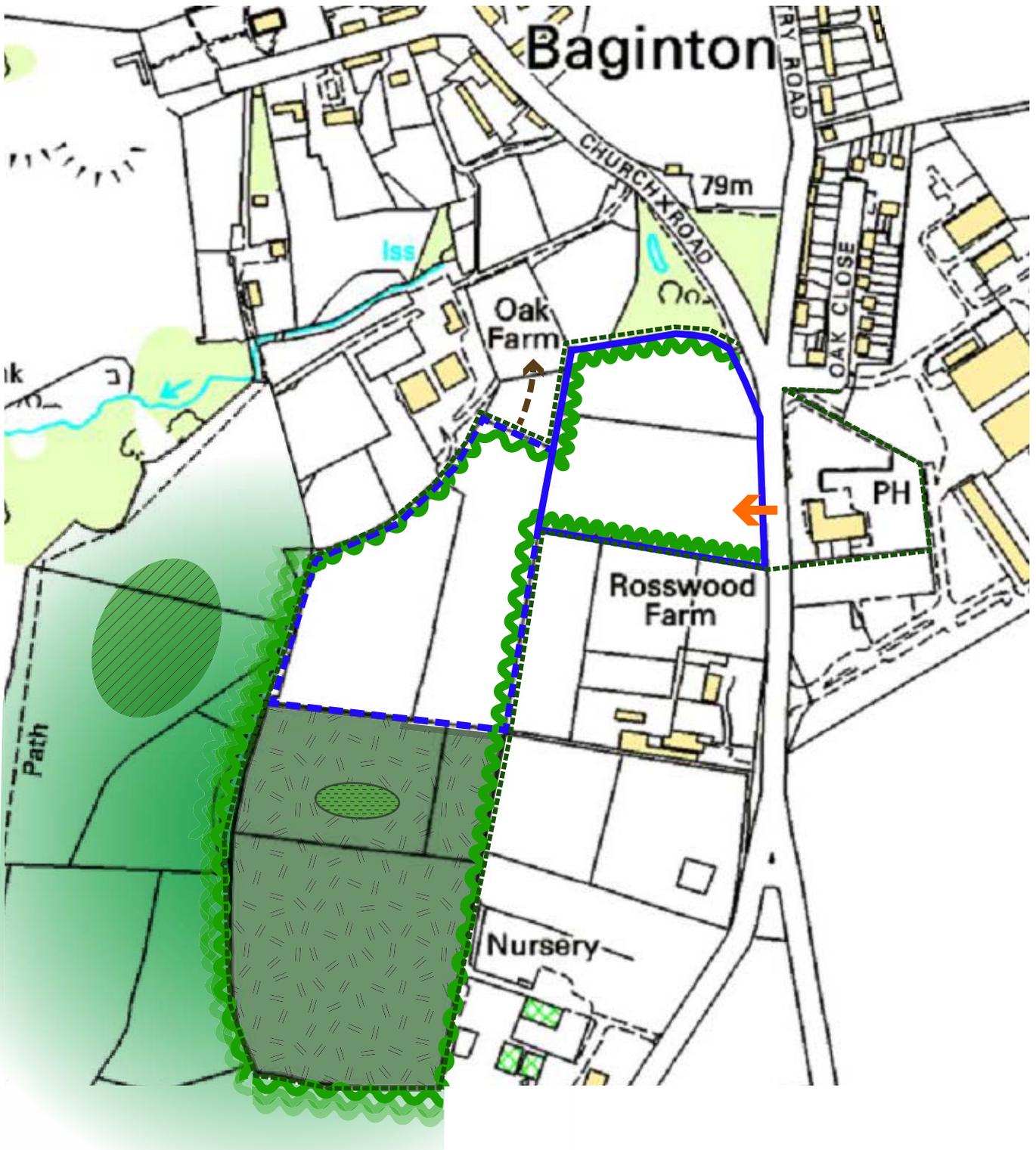
5 CONCLUSION

- 5.1 RPS has set out in this representation that the Council is premature in establishing a development strategy for Baginton Village in the absence of the strategic needs for the District, including the cross boundary need for Coventry City being established. In this context, a comprehensive, fair, equitable and public analysis of strategic options needs to be undertaken of options to meet the needs of Coventry City must be undertaken before the planning context at Baginton Village can be confirmed.
- 5.2 Within this assessment, the Council is required to consider all reasonable alternatives and make decisions based upon the evidence available to it. RPS has confirmed that the Council holds an inaccurate stance in respect of the Land at Baginton and on this basis maintains that the land is unsuitable for housing on noise and odour issues. RPS has confirmed that the Council actually already holds information to the contrary and that this has been provided by RPS through duly made representations to the development plan process on a number of occasions and records are available to evidence this. The Council has also confirmed that its stance on the Land at Baginton is also based upon unknown impacts and '*uncertain*' effects. RPS contests that decisions to exclude sites based upon '*uncertain*' evidence is not justified or robust.
- 5.3 The Council has therefore not only relied upon little if no evidence on noise and odour to exclude the site from the development plan process to date, but also failed to update its own evidence from internal colleagues and take into account updated information provided to it by RPS in respect of both of these matters since 2009, and still continues to do so.
- 5.4 RPS has set out in this representation a chronology of the submission of evidence in respect of the land to clarify to the Council at what stages the relevant information has been submitted and for its record to demonstrate that the current 2012 SHLAA stance is still inaccurate. To further substantiate information already provided to the Council on matters such as noise and odour, RPS has prepared site specific noise and odour surveys which confirm the position RPS has consistently reported to the Council. Both of these studies confirm that **odour and noise are not constraints to development on the site and cannot deem the site unsuitable**.
- 5.5 The liability for both the requirement to ensure that its evidence base is up to date, and the inaccurate stance on this land therefore rests entirely with the Council. The Land at Baginton has therefore been prejudiced from fair, equitable and public appraisal.
- 5.6 While the Council continues to inaccurately rule out of contention the strategic potential of the Land at Baginton on noise and odour issues, it has included part of the site for a small scale extension to the village for 35 dwellings. In doing so it has inconsistently applied its own understanding of the local area in that it now considers that this smaller allocation is suitable in the context of noise and odour and yet still excludes land owned by Leco Investments from strategic and local consideration, despite the land being adjacent to the preferred site.
- 5.7 The Council has provided no justification for this decision or the inclusion of its preferred site to that of considering the adjacent land owned by Lenco Investments as a reasonable alternative at any stage of the process. The Council has therefore adopted an inconsistent and prejudicial approach to the appraisal of Land at Baginton for a local allocation by not evaluating the adjacent land fairly, equitably and through public analysis.

- 5.8 RPS also concludes that while it supports the expansion of the village to the south, the preferred approach for the village of Baginton prejudicially limits the potential capacity of the local area to provide for the needs of the village as identified in the Revised Development Strategy. RPS has set out that there are no constraints to extending the preferred option site to fulfil the full Revised Development Strategy requirements of 90 dwellings. Therefore limiting it to 35 on the basis of the site appraisal work undertaken to date is unsound.
- 5.9 RPS has set out in this representation that the needs of Baginton Village are best met through an extended allocation that includes land owned by Lenco Investments that can provide a more sensitive development in keeping with the local environment and provide an appropriate rural settlement edge. It also has the ability to provide enhancement and restoration of the wider landscape that has deteriorated and declined, contribute positively to the edge of the Conservation Area to the north as well as provide local areas of recreational use.
- 5.10 The proposal by RPS also provides the authority with a defensible Green Belt boundary that has the potential to provide the degree of permanence that is required of Green Belt boundary amendments for the plan period and beyond by including an area of safeguarded land within the land owned by Lenco Investments. This will provide the security of future expansion of the village beyond the plan period, without need for further Green Belt review.
- 5.11 RPS has set out in Appendix 2 the boundary to the allocation that it believes is soundly based and should be included within the local plan.

Appendix 1: Strategic Land at Baginton Location Plan

Appendix 2: Proposed Allocation and Green Belt Boundary



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<ul style="list-style-type: none"> — Council's existing preferred site boundary - - - RPS proposed site boundary RPS proposed safeguarded land ~ Landscaping buffer ● Additional landscaping opportunities (on land in control of Lenco Investments) 	<ul style="list-style-type: none"> Possible Recreation/Play Area Possible Allotments Location ← Access - - - RPS proposed Green Belt boundary ➔ Pedestrian Access
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SCALE: NTS

REF: JBB7597 CLIENT: Lenco Investments DATE: January 2014 STATUS: Final	CHECKED BY: TW DATE CHECKED: 17/01/14 REVISION: 04 PREPARED BY: JP	 Highfield House, 5 Ridgeway, Quinton Business Park, Birmingham, B32 1AF T: 0121 213 5500 F: 0121 213 5502 W: www.rpsgroup.com
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Appendix 3: Noise Assessment



**PROPOSED RESIDENTIAL
DEVELOPMENT, BAGINTON,
WARWICKSHIRE**

**ACOUSTICS REPORT ON
ENVIRONMENTAL NOISE FOR A
PROPOSED RESIDENTIAL
DEVELOPMENT**

Date: 13th December 2013
Our Ref: B7350/ENV/P1
Client: RPS Planning & Development.

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QUALITY MANAGEMENT

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1 INTRODUCTION

- 1.1 RPS (Acoustics) has been commissioned by RPS (Planning & Development) to carry out an assessment of noise levels affecting the site of a proposed residential development in Baginton, Warwickshire.
- 1.2 It is understood that the Local Planning Authority have raised significant concerns over the suitability of the site due to its proximity to Coventry Airport. These concerns were first raised in 2009 at which point a full assessment of baseline noise levels had not been carried out.
- 1.3 The purpose of this assessment is to therefore evaluate the existing noise impact at the site and, if required, provide recommendations for mitigation measures in order to achieve a comfortable internal and external acoustic environment, in line with the relevant British Standards and Local and National Planning Policy.
- 1.4 The scope of the assessment has been discussed and agreed with Michael Jenkins, Environmental Health Officer at Warwick District Council, on Thursday 5th December 2013, and is based on good practice techniques and extensive previous experience of similar projects.

2 DESIGN CRITERIA

2.1 This report is to be primarily based on the following standards:

- The National Planning Policy Framework (2012)
- The Noise Policy Statement for England (2010)
- BS 8233:1999, 'Sound Insulation and Noise Reduction for Buildings – Code of Practice'

a) **English Planning Policy on Noise Impact – The NPPF and NPSE**

2.2 The NPPF is the over-arching planning policy document that applies to all new developments in England. The guidance and assessment criteria given (or referred to) in this document can therefore be applied to all other standards in terms of assessing the suitability of granting Planning permission with respect to noise impact.

2.3 The NPPF states that Planning policies and decisions should aim to:

- avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;
- mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;
- recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established; and
- identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

2.4 With specific reference to noise impact, the NPPF document refers to the Noise Policy Statement for England (NPSE)¹. The NPSE provides guidance which enables decisions to be made regarding the acceptable noise burden to place on society, using three key phrases – the No Observed Effect Level (NOEL), the Lowest Observed Adverse Effect Level (LOAEL) and the Significant Observed Adverse Effect Level (SOAEL).

2.5 In order to provide a consistent frame of reference (and to allow a view to be taken on the suitability of the application with reference to the relevant Planning guidance), the levels or criteria given in other relevant documents used in assessment will be re-framed in terms of the following:

No Observed Effect Level (NOEL)

2.6 The NOEL is the level of noise impact below which no effect can be detected, and there would be no discernible negative effect on health or quality of life.

¹ Ref. Section 123, page 29

Lowest Observed Adverse Effect Level (LOAEL)

- 2.7 The LOAEL is the lowest level of noise impact above which adverse effects on health or quality of life can be detected.
- 2.8 Designing noise impacts to be equal-to-or-less-than the LOAEL should see that any adverse effects on health or quality of life are negligible.

Significant Observed Adverse Effect Level (SOAEL)

- 2.9 The SOAEL is the level above which significant adverse effects on health and quality of life occur.
- 2.10 Designs should always seek to avoid a noise impact which would be categorised as a SOAEL.

b) Noise Levels within Residential Buildings and External Amenity Areas – BS 8233 / W.H.O

- 2.11 Table 2.1 shows recommended internal noise levels, as prescribed in BS 8233:1999:

Table 2.1 : BS 8233:1999 Internal Noise Levels

Area	BS 8233: 1999 level
Living Rooms	30 – 40 dB(A)
Bedrooms	30 – 35 dB(A)

- 2.12 It is recommended that in order to provide a comfortable environment within habitable rooms, specifically bedrooms, the external building fabric be designed to achieve the lower internal night-time noise level of 30 dB(A) and daytime level of 35 dB(A).
- 2.13 The figures given above would be considered the LOAEL, and levels below the figures above would be considered the NOEL. Levels significantly greater than the figures given above would be considered the SOAEL, and should be avoided.
- 2.14 For a reasonable standard in bedrooms, BS 8233:1999 also recommends that individual noise events should not normally exceed L_{AFmax} 45 dB(A) at night (ref. Footnote 'a', Table 5, p 19).
- 2.15 BS 8233 does not define the term 'normally' in relation to the number of exceedances per night. However, the World Health Organisation's 'Guidelines for Community Noise' references a study by Vallet & Vernet, 1991, which concluded that "For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45 dB L_{Amax} more that 10-15 times per night."
- 2.16 For the purposes of assessment, less than 10 exceedances per night would be considered the NOEL, with 15 exceedences considered the LOAEL. Numbers significantly in excess of this would be considered the SOAEL.
- 2.17 BS 8233 also states that it is desirable that the steady noise level in external amenity areas (such as gardens or outdoor living areas) should "not exceed 50 dB(A) $L_{Aeq,T}$ and 55 dB(A) $L_{Aeq,T}$ should be regarded as the upper limit." This is in line with recommendations given in the WHO Guidelines for community noise.
- 2.18 For the purposes of assessment, levels lower than 50 dB(A) will be considered the NOEL, with a level of 55 dB(A) considered the LOAEL. Levels significantly greater than this would be considered the SOAEL.

c) **Local Authority Noise Policy**

2.19 Michael Jenkins of Warwick District Council confirmed that the following design criteria should be adhered to for new residential planning applications:

- *Internal noise levels within bedrooms shall not exceed the BS 8233 'good' internal target noise level of 30dB $L_{Aeq,8hr}$, with the maximum instantaneous noise level not normally exceeding 45dB $L_{Amax,fast}$.*
- *Internal noise levels within living rooms shall not exceed the BS 8233 'good' internal target noise level of 30dB $L_{Aeq,16hr}$.*
- *Daytime external noise levels in amenity areas shall not exceed 50dB $L_{Aeq,T}$ with reference to World Health Organisation Guidelines.*

2.20 The targets listed above will be used to form the basis of recommendations made within this report. Where targets are not considered achievable, reference will be made to NPSE definitions and guidance.

3 SITE

- 3.1 The proposed development site is split into a southern and northern section. The southern section is located to the west of Stoneleigh Road and the northern section sits to the west of Coventry Road. At present, both sections of the site comprise of disused open land.
- 3.2 Both the Coventry and Stoneleigh Roads are considered to be the dominant noise sources affecting the eastern part of both sections of the site. Both roads are moderately busy single-lane carriageways which provide access to the major road network (A45, A46, A444) and Coventry City Centre to the north.
- 3.3 Other land adjacent to the sites are moderately benign from a noise perspective. To the immediate west is a farm and nursery, further to the west lie a sewage works and the Coventry Golf Club, and to the south lies farmland.
- 3.4 An existing site plan is given in Appendix 1.

a) Coventry Airport

- 3.5 Coventry Airport sits to the north east of both sections of the site. The runway alignment is such that incoming and outgoing flights travel directly above both sections of the site, although specific flight paths are dictated by wind direction. Witnessed take-off and landing paths are shown on a plan in Appendix 1.
- 3.6 It is understood that movements in and out of the airport have significantly reduced since initial noise concerns were raised by the Local Authority in 2009. Current movements in and out of the airport are largely made up of commercial teaching flights in small propeller based aircraft. It is understood from discussions with Michael Jenkins of WDC that night-time flights are restricted to two per night.
- 3.7 Whilst there is the possibility that the airport will expand in the future, there is currently very little information available to quantify any increase in noise associated with this. This report therefore considers noise associated with existing airport operations.

b) Coventry and Warwickshire Gateway

- 3.8 The Coventry and Warwickshire Gateway development is a large industrial development which, if permitted, will sit directly adjacent to Coventry Airport. The following description has been taken directly from the Design and Access Statement which accompanied the planning application:

'The proposals include for the comprehensive redevelopment of land to the north and south of the A45 between the Stonebridge and Tollbar Island junctions of the A45 and A46 and land to the north, west and south of Coventry Airport comprising demolition of existing structures and the erection of new buildings to accommodate offices, research and development facilities and light industrial uses (Use Class B1), general industrial uses (Use Class B2), storage and distribution (Use Class B8), hotel accommodation (Use Class C1), car showroom accommodation, replacement airport buildings, small scale retail and catering establishments (Use Classes A1, A3, A4 and/or A5), new countryside park, ground modelling works including the construction of landscaped mounding, construction of new roads/footpaths/cycle routes, remodelling of junctions on the existing highway network, associated parking, servicing and landscaping.'

-
- 3.9 It is worth noting that the planning application had not been approved at the time of writing this report, and permission will ultimately be decided by the Secretary of State in 2015. However, it is considered unlikely that the operation of the Gateway, if permitted, would increase noise levels affecting the proposed residential site at Baginton. From perusal of the submitted Masterplan it can be seen that existing residential properties lie directly adjacent to the western boundary of the Gateway site. Buffer zones and acoustic bunds and barriers are proposed to limit operational noise affecting nearby existing properties. These mitigation measures would also protect proposed residences at Baginton, if both schemes were permitted and built.
- 3.10 Furthermore, current Gateway proposals include for improved road links to the eastern end of Coventry Airport. It is understood from discussions with Michael Jenkins of WDC that this will reduce road traffic flows past the proposed Baginton residential sites.

4 ENVIRONMENTAL NOISE

- 4.1 Measurements were taken to assess the levels of environmental noise affecting the site in accordance with agreements made with the Local Authority. Table 4.1 gives details of the duration of the noise surveys carried out:

Table 4.1 : Survey Periods

Date	Time	Monitoring Positions Surveyed
22 nd Nov – 2 nd Dec 2013	11 Days	1 (Position 1)
25 th Nov- 2 nd Dec 2013	8 Days	2 (Position 2 +3)

- 4.2 Three measurement positions were selected for the surveys as described in Table 4.2. The equipment was set up at the positions so as to be representative of the most exposed facades of proposed residential dwellings to the existing dominant noise sources.

Table 4.2 : Measurement Locations

Measurement Position	Location Description
Position 1	Indicative of noise levels to the south of the site.
Position 2	Indicative of noise levels to the north-west of the site.
Position 3	Indicative of noise levels to the north of the site.

- 4.3 A site plan showing the approximate location of the measurement positions can be found in Appendix 1.
- 4.4 Table 4.3 below details weather conditions observed during the survey:

Table 4.3 : Survey Weather Conditions

Date	Highest Temperature	Lowest Temperature	Wind speed	Conditions	Cloud Coverage
22 nd November	5°C	-1°C	< 5.2ms ⁻¹	Dry	0-75%
23 rd November	5°C	5°C	< 5.8ms ⁻¹	Dry	0-50%
24 th November	8°C	5°C	< 5.8ms ⁻¹	Dry	0-50%
25 th November	7°C	0°C	< 4.4ms ⁻¹	Dry	0-50%
26 th November	4°C	-5°C	< 3.0ms ⁻¹	Dry	0-75%
27 th November	11°C	4°C	< 6.7ms ⁻¹	Dry	0-75%
28 th November	9°C	5°C	< 3.1ms ⁻¹	Dry	0-75%
29 th November	10°C	7°C	< 8.1ms ⁻¹	Light Showers	0-75%
30 th November	11°C	4°C	< 3.9ms ⁻¹	Dry	0-50%

Date	Highest Temperature	Lowest Temperature	Wind speed	Conditions	Cloud Coverage
1 st December	11°C	3°C	< 3.9ms ⁻¹	Dry	0-50%
2 nd December	8°C	6°C	< 2.2ms ⁻¹	Dry	0-75%

- 4.5 Noise measurements were made using three Rion NL 31 sound level meters (serial numbers: Position 1 – 00203726, Position 2 – 00203727, Position 3 – 01141927), generally in accordance with BS EN 60651:1994 and BS 7445:1993. The meters were calibrated before and after use with a 01dB Cal 21 calibrator (serial number 7491). No significant drift was witnessed. Calibration certificates for all equipment are available upon request.
- 4.6 Subjective notes taken by the engineer while on site describe the noise environment as being generally moderate. Audible noise sources included local road traffic noise and from Stoneleigh Road and occasional air traffic.
- 4.7 A summary of the average daytime and night-time ambient noise levels recorded are detailed within Tables 4.4 – 4.9 below. The values are the logarithmically averaged $L_{Aeq,T}$, the lowest $L_{A90,T}$ results and the highest $L_{AF,max}$ dB(A) values measured. A graphical representation of the full noise data set is provided in Appendix 2. All values are in dB(A)

Table 4.4 : Summary of Noise Monitoring Results - Position 1 - Daytime

Date	$L_{Aeq,T}$	$L_{AF,max}$	$L_{A90,T}$	Direction of Aircraft
22-Nov	65.0	93.4	40.9	Landing
23-Nov	64.0	89.4	39.1	Landing
24-Nov	62.8	97.1	39.0	Landing
25-Nov	64.8	90.5	42.0	Landing
26-Nov	59.1	85.9	36.6	Take off
27-Nov	65.1	87.2	40.4	Landing
28-Nov	65.0	91.9	35.9	Take off
29-Nov	65.1	91.6	44.9	Mixed
30-Nov	63.9	90.4	42.6	Landing
01-Dec	63.4	86.0	34.9	Landing
02-Dec	66.8	88.6	35.4	Take off

Table 4.5 : Summary of Noise Monitoring Results - Position 2 - Daytime

Date	$L_{Aeq,T}$	$L_{AF,max}$	$L_{A90,T}$	Direction of Aircraft
25-Nov	52.1	77.8	45.0	Landing
26-Nov	52.4	77.9	43.4	Take off

Date	L _{Aeq,T}	L _{AF,max}	L _{A90,T}	Direction of Aircraft
27-Nov	51.0	77.6	41.4	Landing
28-Nov	50.0	77.2	39.8	Take off
29-Nov	52.2	76.1	44.5	Mixed
30-Nov	50.1	79.6	43.8	Landing
01-Dec	51.0	74.1	41.0	Landing
02-Dec	52.3	79.6	38.1	Take off

Table 4.6 : Summary of Noise Monitoring Results - Position 3 - Daytime

Date	L _{Aeq,T}	L _{AF,max}	L _{A90,T}	Direction of Aircraft
25-Nov	56.0	83.8	47.3	Landing
26-Nov	57.2	91.3	47.1	Take off
27-Nov	53.1	80.2	44.6	Landing
28-Nov	52.5	72.3	40.3	Take off
29-Nov	53.4	76.0	47.7	Mixed
30-Nov	53.3	85.7	46.5	Landing
01-Dec	55.1	82.0	43.6	Landing
02-Dec	54.9	80.6	40.4	Take off

Table 4.7 : Summary of Noise Monitoring Results - Position 1 – Night-time

Date	L _{Aeq,T}	L _{AF,max}	L _{A90,T}
22-Nov	55.4	84.5	36.2
23-Nov	54.3	85.0	33.4
24-Nov	56.8	85.0	33.4
25-Nov	57.7	87.8	39.3
26-Nov	56.7	84.3	36.6
27-Nov	57.4	88.7	33.9
28-Nov	56.8	84.9	35.4
29-Nov	55.6	86.3	38.6
30-Nov	53.0	84.2	32.9
01-Dec	56.3	86.0	31.1

Table 4.8 : Summary of Noise Monitoring Results - Position 2 – Night-time

Date	L _{Aeq,T}	L _{AF,max}	L _{A90,T}
25-Nov	51.3	80.9	40.1
26-Nov	46.4	71.4	38.5
27-Nov	46.2	76.5	35.8
28-Nov	44.5	74.7	37.2
29-Nov	45.4	73.8	39.0
30-Nov	42.2	62.1	34.1
01-Dec	43.6	62.8	35.2

Table 4.9 : Summary of Noise Monitoring Results - Position 3 – Night-time

Date	L _{Aeq,T}	L _{AF,max}	L _{A90,T}
25-Nov	54.2	83.6	42.0
26-Nov	49.5	73.4	39.9
27-Nov	49.0	74.1	37.5
28-Nov	47.5	75.4	38.8
29-Nov	47.6	76.1	40.8
30-Nov	46.1	62.4	35.8
01-Dec	46.5	60.1	37.7

- 4.8 It can be seen from the results in the tables above that noise levels throughout the daytime and night-time periods are moderate to low, with the highest noise levels monitored at Position 1. From attended monitoring carried out on site, it was noted that these elevated noise levels were dictated by noise from Stoneleigh Road, and not from air traffic movements in and out of Coventry Airport.
- 4.9 Noise levels affecting residential properties to the east of both sections of the proposed site will be elevated and will require a specific scheme of glazing and ventilation mitigation measures in order to achieve Local Authority internal noise criteria.

5 GLAZING AND VENTILATION

a) Residential Dwellings

- 5.1 Based on guidance provided by Michael Jenkins of WDC, it is proposed that the external building fabric for residential dwellings be designed such that a maximum internal daytime and night-time noise level of 30 dB(A) can be achieved.
- 5.2 For a reasonable standard in bedrooms, WDC also recommends that individual noise events should not normally exceed $L_{AF,max}$ 45 dB(A) at night, based upon guidance given in BS 8233:1999.
- 5.3 It is generally accepted that glazing and ventilation openings within external façades will be the weakest elements acoustically.
- 5.4 It is considered that suitable glazing and ventilation attenuation can be provided to habitable rooms, such that internal average noise levels would be within acceptable limits, as per WDC and BS 8233 guidance.
- 5.5 Calculations below are based upon the averaged $L_{Aeq,T}$ values. It is anticipated that if the recommended glazing and ventilation specification are installed as set out herein, internal average noise levels would be within acceptable limits.

b) Building Envelope Requirements

- 5.6 The glass rating $R_w + C_{tr}$ is generally used to define attenuation against road traffic noise, based upon typical road traffic spectra. Calculation procedures are as follows:

$$R_w + C_{tr} = \text{External } dB(A) - \text{Internal } dB(A)$$

- 5.7 In order to see that any provision for ventilation does not compromise the attenuating performance of the glazing, it is necessary that any ventilators (when considered in the fully open position), have a sound insulation performance at least equal to that of the windows, expressed as a weighted, normalised element level difference, $D_{ne,w} + C_{tr}$.
- 5.8 Based on the varying noise impact, it is suggested that three 'conditions' are specified, with a corresponding level of building envelope attenuation.

i. Condition 1

- 5.9 Condition 1 applies to living rooms and bedrooms fronting onto Stoneleigh and Coventry Road.

ii. Condition 2

- 5.10 Condition 2 applies to living rooms in the northern section of the site with a direct line of site to Coventry Road.

iii. Condition 3

- 5.11 Condition 3 applies to all other habitable rooms not specified within 'Conditions 1 & 2'.
- 5.12 A marked-up plan showing 'Condition' locations is given in Appendix 3

5.13 Table 5.1 below shows the logarithmically averaged $L_{Aeq,T}$ levels affecting the site, the recommended internal noise levels, and the corresponding required attenuation of glazing and ventilation.

Table 5.1 – Attenuation Requirements

Location	Period	Maximum Noise Impact dB	Recommended Internal Noise Criteria dB	Glazing Attenuation Requirement $R_w + C_{tr}$ dB	Ventilation Attenuation Requirement $D_{ne,w} + C_{tr}$ dB
1	Daytime	$L_{Aeq,T}$ 65.1*	$L_{Aeq,T}$ 30	35	35
	Night-time	$L_{Aeq,T}$ 57.7	$L_{Aeq,T}$ 30	28	28
2	Daytime	$L_{Aeq,T}$ 52.4	$L_{Aeq,T}$ 30	23	23
	Night-time	$L_{Aeq,T}$ 51.3	$L_{Aeq,T}$ 30	22	22
3	Daytime	$L_{Aeq,T}$ 57.2	$L_{Aeq,T}$ 30	27	27
	Night-time	$L_{Aeq,T}$ 54.2	$L_{Aeq,T}$ 30	24	24

*Note – this is the highest daytime $L_{Aeq,16hour}$ measurement recorded at Position 1. An increased measurement of $L_{Aeq,T}$ 66.8dB was recorded on 2nd December 2013, however this was averaged between the busy hours of 0700 and 1100.

c) Glazing and Ventilation to Residential – Condition 1

5.14 Calculations show that the maximum required level of attenuation on Condition 1 façades is $R_w + C_{tr}$ 35 dB. This level of attenuation could be achieved by using the following double glazing specification:

- 8 mm pane
- 12 mm air gap
- 8.8 mm SCC Stadip Silence laminated pane

5.15 This construction is rated by Saint Gobain at $R_w + C_{tr}$ 35 dB.

5.16 It is necessary for the ventilation attenuation performance to match or exceed that of the glazing. An appropriate product would be an acoustic trickle or through wall vent, rated by the manufacturer at $\geq D_{ne,w} + C_{tr}$ 35 dB.

5.17 An example of a suitable product capable of providing this level of sound attenuation would be the Titon Acoustic Airliner TAL4CWL. Such vents should be capable of providing the background ventilation rates given in Part F of the Building Regulations.

5.18 Opening windows should not be necessary in order to provide ventilation – the vents must provide sufficient airflow in order to meet the minimum requirements under Parts F & L of the Building Regulations.

5.19 The ventilation opening and free area of the unit should therefore be checked by a mechanical services engineer before installation. Should the equivalent open area be insufficient to meet the minimum requirements of either Part F or L, it may be necessary to provide more than one unit per habitable room. Alternatively, a mechanical supply / extract system could be provided to façades in Condition 1.

d) Glazing and Ventilation to Residential - Condition 2

5.20 Calculations show that the maximum required level of attenuation on Condition 2 façades is $R_w + C_{tr}$ 27 dB. This level of attenuation could be achieved by using the following double glazing specification:

- 6 mm pane
- 12 mm air gap
- 6.4 mm laminated pane

This construction is rated by Pilkington at $R_w + C_{tr}$ 27 dB.

5.21 It is necessary for the ventilation attenuation performance to match or exceed that of the glazing. An appropriate product would be an acoustic trickle or through wall vent, rated by the manufacturer at $\geq D_{ne,w} + C_{tr}$ 27 dB.

5.22 An example of a suitable product capable of providing this level of sound attenuation would be the Titon Trimvent Select Xtra S16 4600 vent & XHD16 grille. Such trickle vents should be capable of providing the background ventilation rates given in Part F of the Building Regulations.

5.23 Opening windows should not be necessary in order to provide ventilation – the trickle vents must provide sufficient airflow in order to meet the minimum requirements under Parts F & L of the Building Regulations.

5.24 The ventilation opening and free area of the unit should therefore be checked by a mechanical services engineer before installation. Should the equivalent open area be insufficient to meet the minimum requirements of either Part F or L, it may be necessary to provide more than one unit per habitable room.

e) Glazing and Ventilation to Residential - Condition 3

5.25 Calculations show that the maximum required level of attenuation on Condition 3 façades is $R_w + C_{tr}$ 25 dB. This level of attenuation could be achieved by using the following 'standard thermal' double glazing specification:

- 4 mm pane
- 16 mm air gap
- 4 mm pane

This construction is rated by Pilkington at $R_w + C_{tr}$ 25 dB.

5.26 The above specification would also be suitable for non-habitable rooms on any façade.

5.27 Ventilation on Condition 3 façades could be met by means of non-acoustic trickle vents set within window heads.

d) Night-Time $L_{AF,max}$ Exposure

5.28 As stated above, for a reasonable standard in bedrooms, BS 8233: 1999 also recommends that individual noise events should not normally exceed $L_{AF,max}$ 45 dB at night. World Health Organisation Community Noise Guidelines 1999 interprets this as no more than 10 - 15 times.

5.29 It can be seen from the results in Table 4.7 that the highest night-time $L_{AF,max}$ recorded to the east of the site was 88.7 dB(A). On the assumption that any proposed residential façades will be situated at least 10m from the edge of either Coventry or Stoneleigh Road, and based upon the Condition 1 glazing specification recommended above, it is considered that the internal night-time $L_{AF,max}$ 45dB criteria will not be exceeded more than 15 times during the night-time period.

c) General glazing notes

5.30 All windows should be well sealed when closed. It is imperative that the frame does not compromise the performance of the glazing. It is therefore recommended that the frames be of uPVC, hardwood or aluminium constructions and be well sealed into the apertures.

5.31 Softwood windows could also be used, providing guarantees are given by the manufacturer that acoustic properties will be maintained for the life of the windows.

5.32 No gaps should be visible around the frame from the exterior.

5.33 All glazing should meet with minimum requirements under Part L of Building Regulations

6 OUTDOOR AMENITY SPACES

- 6.1 Guidance given in BS 8233 and the WHO Guidelines for Community Noise states that it is desirable for the steady noise level in external amenity areas (such as gardens or outdoor living areas) to be less than 50 dB $L_{Aeq,T}$ with 55 dB $L_{Aeq,T}$ regarded as an upper limit.
- 6.2 Whilst average existing daytime levels of around 65dB(A) have been recorded on the most exposed part of site, it is anticipated that the construction of site buildings and the inclusion of 1.8m high close-boarded garden fences will significantly reduce noise levels in outdoor amenity spaces.
- 6.3 It is therefore anticipated that noise levels within gardens closest to Stoneleigh and Coventry Road will be between 55-60 dB(A) when averaged over the daytime period. This would be considered to fall somewhere between the LOAEL and SOAEL with reference to the NPSE.
- 6.4 Noise levels in gardens further into the site are likely to be 50-55 dB(A) which would be considered to fall somewhere between the NOEL and LOAEL with reference to the NPSE.

7 CONCLUSIONS

a) Assessment

- 7.1 Prevailing noise levels at a proposed residential development site have been measured, and an assessment of the site has been made. Measurements have been made at the most exposed proposed residential locations i.e. at locations considered to represent the worst case noise climate on site.
- 7.2 Survey measurements and witnessed conditions have indicated that the dominant noise source affecting both parts of the site are the adjacent Stoneleigh and Coventry Road. Whilst noise from the nearby Coventry Airport is audible on site, flights are currently infrequent and generally restricted to the daytime period.
- 7.3 The level of noise affecting the site is elevated to the east. Residential plots situated directly adjacent to the road network will require acoustic mitigation, in the form of suitably selected glazing and ventilation, in order to meet Local Authority criteria. However, noise levels affecting the site are not deemed to restrict the suitability of the site for residential purposes.

b) Proposed Residential Dwellings

- 7.4 By providing the appropriate glazing and ventilation constructions to the proposed façades, calculations indicate that internal ambient noise levels within proposed dwellings would be less than 30 dB(A) for daytime and night-time.
- 7.5 The in-situ noise levels would therefore be considered the NOEL, and noise due to environmental sources should have no perceptible adverse effect on health or quality of life providing that the design guidance given in this report is followed.

c) Outdoor Amenity Space

- 7.6 An assessment of expected noise levels within outdoor amenity spaces (such as gardens) has concluded that the level of noise impact in the most exposed outdoor amenity spaces would generally be considered to fall somewhere between the LOAEL and SOAEL with reference to the NPSE.

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APPENDIX 1 – SITE PLAN AND MEASUREMENT POSITION



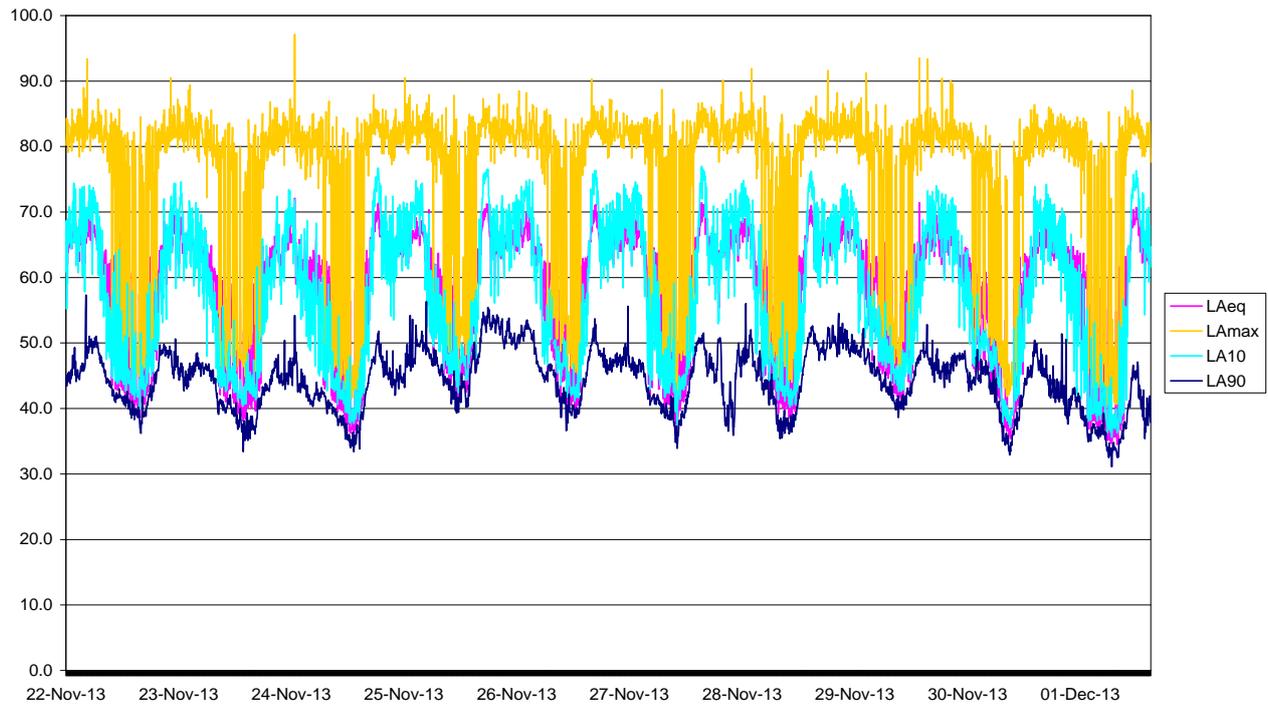
Key:

-  Aircraft take-off path
-  Aircraft landing path
-  Site Boundary

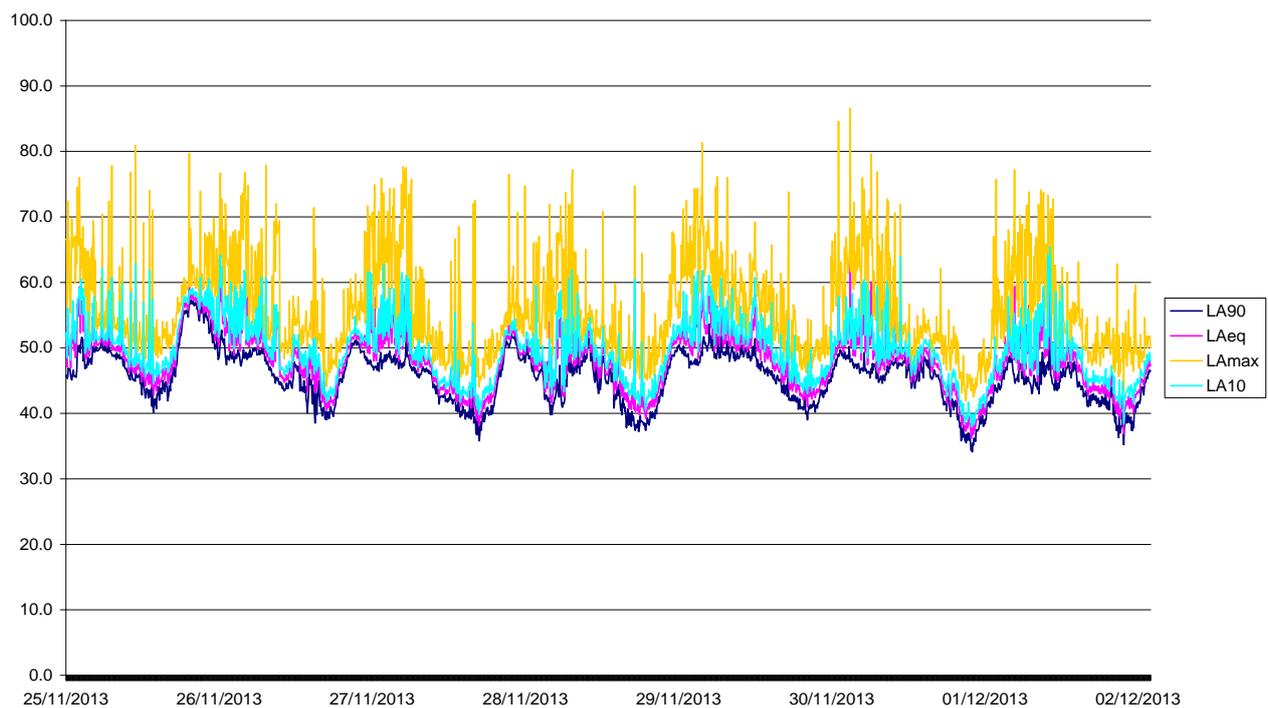
APPENDIX 2 – MEASUREMENT RESULTS

All measurements are in dB(A). The measurement period, T, was set to 5 minutes.

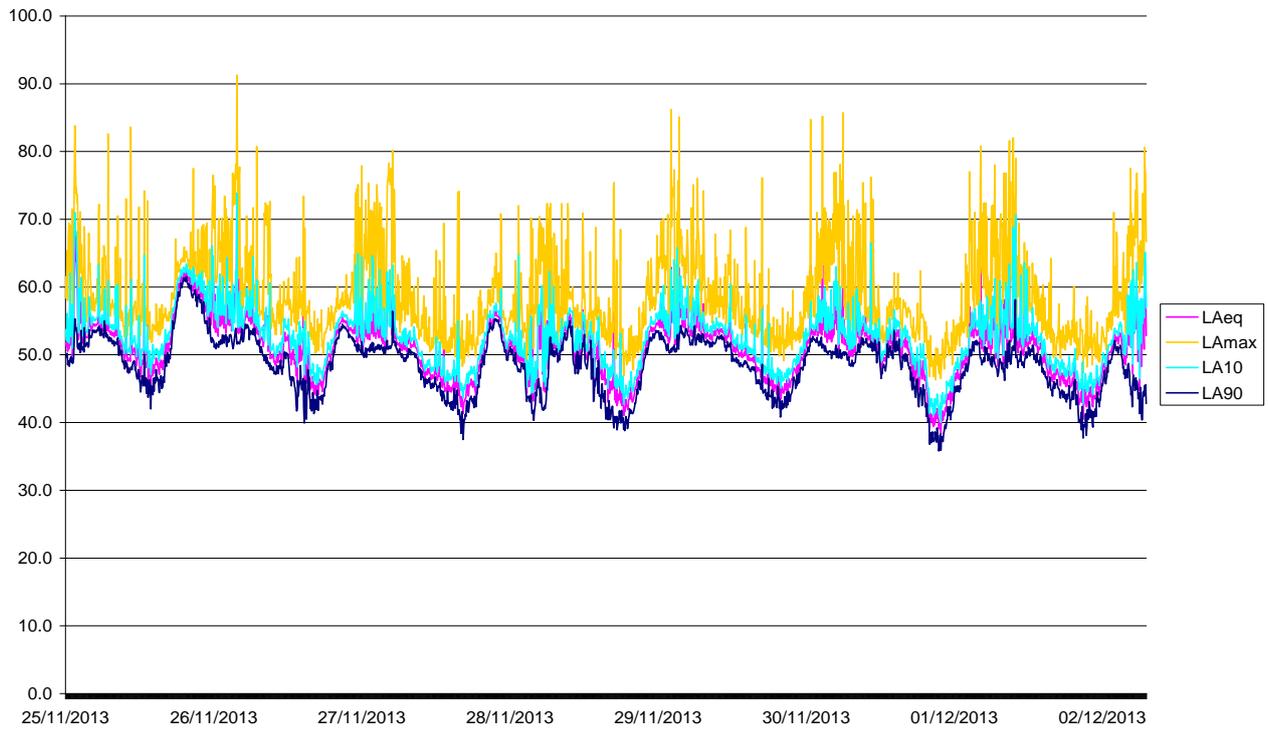
Position 1 Results 22nd November – 2nd December 2013



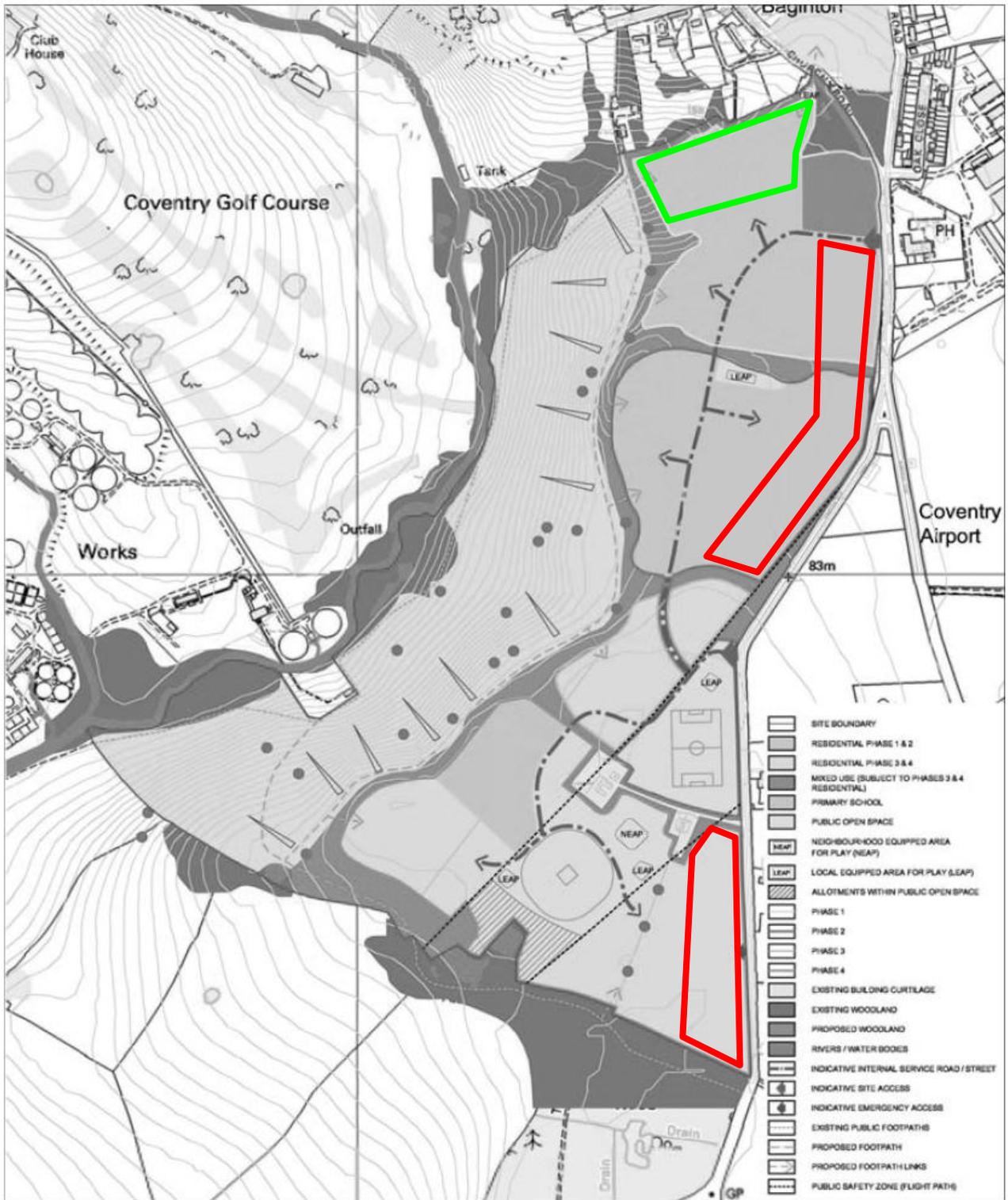
Position 2 Results 25th November – 2nd December 2013



Position 3 Results 25th November – 2nd December 2013



APPENDIX 3 – GLAZING & VENTILATION REQUIREMENTS



Key:

	Condition 1		Condition 2	<i>unmarked</i>	Condition 3
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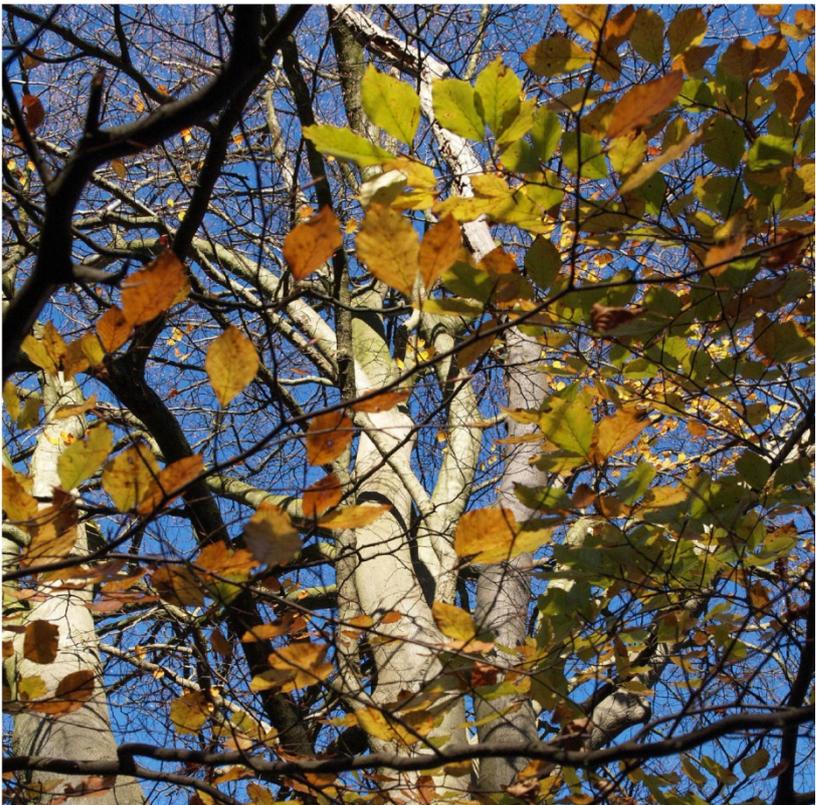
Appendix 4: Odour Assessment



Land South of Baginton, Warwickshire

Odour Assessment

For Lenco Investments

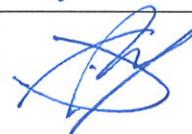




Land South of Baginton, Warwickshire

Odour Assessment

For Lenco Investments

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Quality Management

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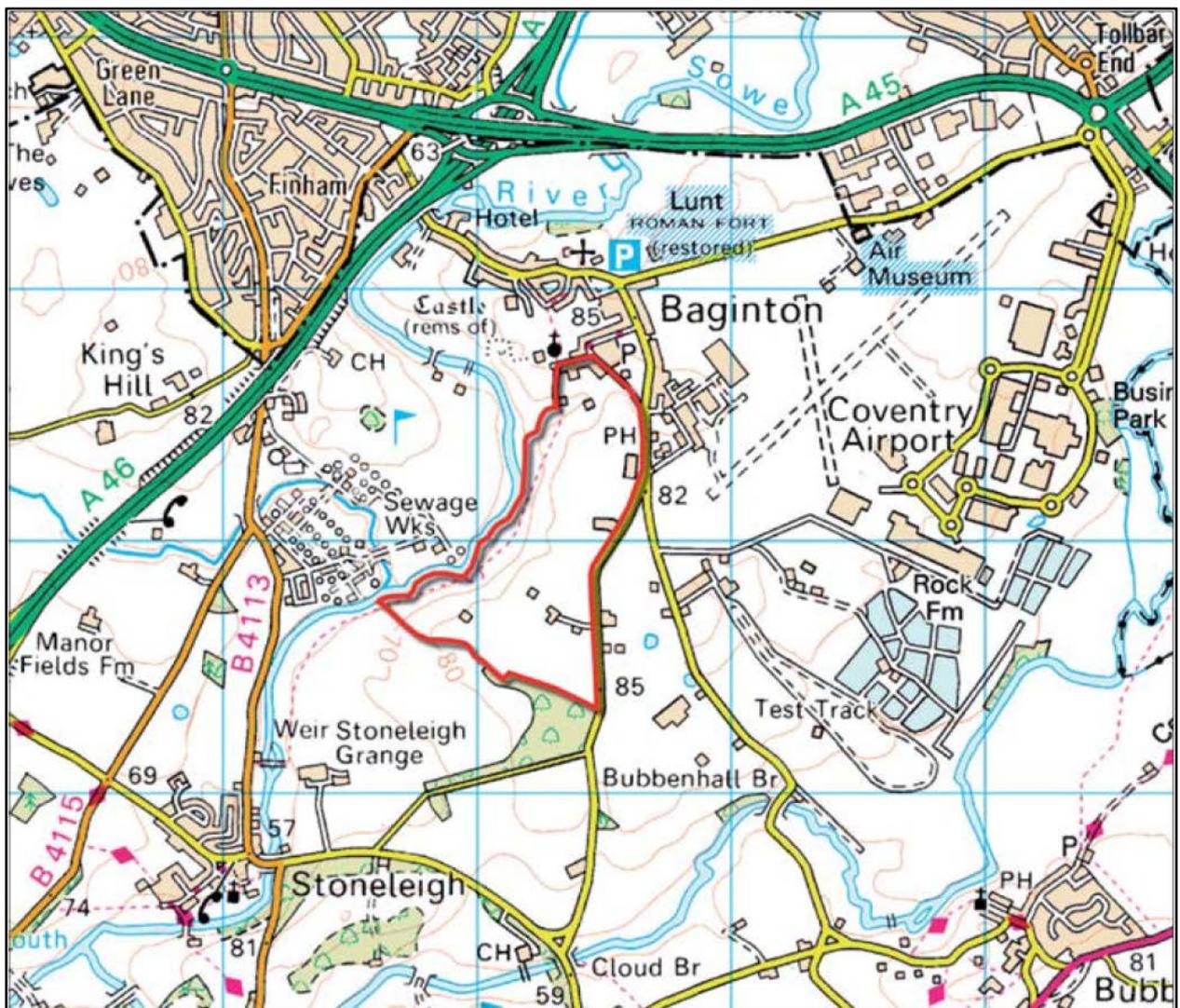
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1 Introduction

- 1.1 RPS was commissioned by Lenco Investments to undertake an odour assessment for an area of land to the south of Baginton in Warwickshire. The land covers an area of approximately 50 hectares and is proposed to be included in the Local Plan as designated for residential use. Figure 1, reproduced from the November 2009 report promoting the site as a sustainable urban development [1], shows the location of the site.

Figure 1 Location of Site



Source: RPS Planning and Development (2009) [1]

- 1.2 The site is currently in agricultural use and is bordered by the village of Baginton to the north, Coventry Airport to the north-east, Coventry Golf Club to the west and agricultural land to the south and east.
- 1.3 The Finham Sewage Treatment Works (STW) is located to the south-west of the site, with the closest point being approximately 100 m from the area of the site that would be developed. This

odour assessment has been carried out to consider the potential for odour issues at the site due to the proximity to the STW, which may affect its suitability for residential use.

- 1.4 This report begins by setting out the legislative context for odour impacts. A review of publicly available data on odour concentrations around Finham STW is then presented. The methods and results for the sniff testing surveys are then described. Results of the odour complaints data analysis are presented. A conclusion has then been drawn on the suitability of the site, in odour terms, for its proposed use.

2 Legislative and Regulatory Framework

2.1 The relevant planning framework and guidance is summarised below.

National Planning Policy Framework

2.2 In March 2012, the National Planning Policy Framework (NPPF) [2] was published. The document provides a framework within which plans will be produced at a local level to reflect the individual needs and priorities of separate communities. The NPPF constitutes guidance and is a material consideration for local planning authorities and decision-takers in determining applications. At the heart of the NPPF is a presumption in favour of sustainable development. For determining planning applications, this means approving development proposals if they accord with the local development plan, unless material considerations indicate otherwise. If the development plan is absent, silent or the policies are out of date, then planning permission should be granted unless any adverse impacts would significantly outweigh the benefits, or specific policies in the NPPF indicate development should be restricted.

2.3 The NPPF states that sustainable development has economic, social and environmental dimensions. In the environmental dimension, the planning system contributes to *“protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy.”* (Paragraph 7)

2.4 Within the overarching roles, the NPPF sets out 12 core land-use planning principles. The relevant core principle in the context of this assessment is that planning should “contribute to conserving and enhancing the natural environment and reducing pollution” (Paragraph 17), as set out below.

2.5 As stated in the NPPF, pollution is *“anything that affects the quality of land, air, water or soils, which might lead to an adverse impact on human health, the natural environment or general amenity. Pollution can arise from a range of emissions, including smoke, fumes, gases, dust, steam, odour, noise and light.”* The term ‘pollution’ can therefore be seen to include odour.

2.6 Under the heading ‘Conserving and Enhancing the Natural Environment’, the NPPF states:

“The planning system should contribute to and enhance the natural and local environment by:

- ...
- *preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability...”* (Paragraph 109)

“To prevent unacceptable risks from pollution and land instability, planning policies and decisions should ensure that new development is appropriate for its location. The effects (including cumulative effects) of pollution on health, the natural environment or general amenity, and the

potential sensitivity of the area or proposed development to adverse effects from pollution, should be taken into account.” (Paragraph 120)

“In doing so, local planning authorities should focus on whether the development itself is an acceptable use of the land, and the impact of the use, rather than the control of processes or emissions themselves where these are subject to approval under pollution control regimes. Local planning authorities should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.” (Paragraph 122)

Nuisance Provisions

- 2.7 Part III of the Environmental Protection Act 1990 defines a number of statutory nuisances and includes: *“any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance”*. The Act places a duty on local authorities to investigate the likely occurrence of statutory nuisance and to take reasonable steps to investigate local complaints. Where a local authority is satisfied of the existence or recurrence of statutory nuisance it must generally serve an abatement notice requiring the execution of such works and other steps necessary to rectify the nuisance. If ignored, this can result in proceedings in the Magistrates Court and imposition of an order to prevent the nuisance and a fine. The Act provides a defence for the operator to demonstrate that the Best Practicable Means (BPM) have been used to control potential nuisance. For a nuisance action to succeed the offence also has to be a cause of material harm or to be persistent or likely to recur.
- 2.8 It is important to note that there is no numerical odour concentration limit that can indicate unequivocally whether a statutory (or other) nuisance is being caused and it is ultimately only the Court that can decide at what point it becomes “prejudicial to health or a nuisance” and whether a statutory nuisance is occurring.

Local Planning Policy

- 2.9 The Warwick District Council Local Plan [3] was adopted in 2007 and sets out policies for the district. A new local plan is being developed to replace the Local Plan, and this is currently being consulted on.
- 2.10 The policy in the Warwick District Council Local Plan relevant to this assessment is as follows:
- “DP2 Amenity*
- Development will not be permitted which has an unacceptable adverse impact on the amenity of nearby uses and residents and/or does not provide acceptable standards of amenity for future users/occupiers of the development.”*
- 2.11 This indicates that, if an acceptable standard of amenity is not provided for future users, development on the site would not be permitted.

3 Odour around Finham Sewage Treatment Works

Background

- 3.1 Most odours are mixtures of many chemicals that interact to produce what we detect as a smell. Odour-free air contains no odorous chemicals, whilst fresh air is usually perceived as being air that contains no chemicals or contaminants that are unpleasant (i.e. air that smells 'clean'). Fresh air may contain odorous chemicals, but these odours will usually be pleasant in character, such as freshly-mown grass or sea spray. Perceptions of an odour - whether we find it acceptable, objectionable or offensive - are partly innate and hard-wired, and partly determined through life experiences and hence can be subjective to the individual.
- 3.2 Before annoyance or nuisance can occur, there must be odour exposure. For odour exposure to occur all three links in the source-pathway-receptor chain must be present.
- a) An emission **source** – a means for the odour to get into the atmosphere.
 - b) A **pathway** – for the odour to travel through the air to locations off site, noting that:
 - i. anything that increases dilution and dispersion of an odorous pollutant plume as it travels from source to receptor will reduce the concentration at the receptor, and hence reduce exposure.
 - ii. dilution and dispersion increase as the length of the pathway increases.
 - iii. increasing the length of the pathway (e.g. by releasing the emissions from a high stack) will – all other things being equal – increase the dilution and dispersion.
 - c) The presence of **receptors** (people) that could experience an adverse effect, noting that different people vary in their sensitivities to odour.
- 3.3 By convention, we restrict the term odour impact to the negative appraisal by a human receptor of the odour exposure. This appraisal, occurring over a matter of seconds or minutes, involves many complex psychological and socio-economic factors. Once exposure to odour has occurred, the process can lead to annoyance, nuisance and possibly complaints.
- 3.4 Both, or either, annoyance and nuisance can lead to complaint action. However, a lack of complaints does not necessarily prove there is no annoyance or nuisance. On the other hand, there needs to be an underlying level of annoyance before complaints are generated. The responses of annoyance and nuisance can change over time.

Sources, Pathways and Receptors at the Proposed Site

- 3.5 The closest area of the site that would be developed lies approximately 100 m from the closest point of the Finham STW. The Finham STW site covers a large area, measuring approximately 650 m north to south and 750 m east to west. The site proposed for inclusion in the Local Plan

measures approximately 1.3 km north to south and 900 m east to west. Therefore, parts of the site are located a considerable distance from the STW.

- 3.6 There are plans to upgrade the sludge handling operations at Finham STW. As part of the planning application for these works, an odour assessment was carried out to determine what impact there would be on odour concentrations around the STW as a result of the proposed works. This section of the report considers the findings of the odour assessment for the STW [4] to determine the likely odour levels at the proposed site.
- 3.7 The proposed works at the STW was granted planning permission [5] and the works are due to take place over the next two years (from March 2013) [6].

Finham STW Odour Assessment

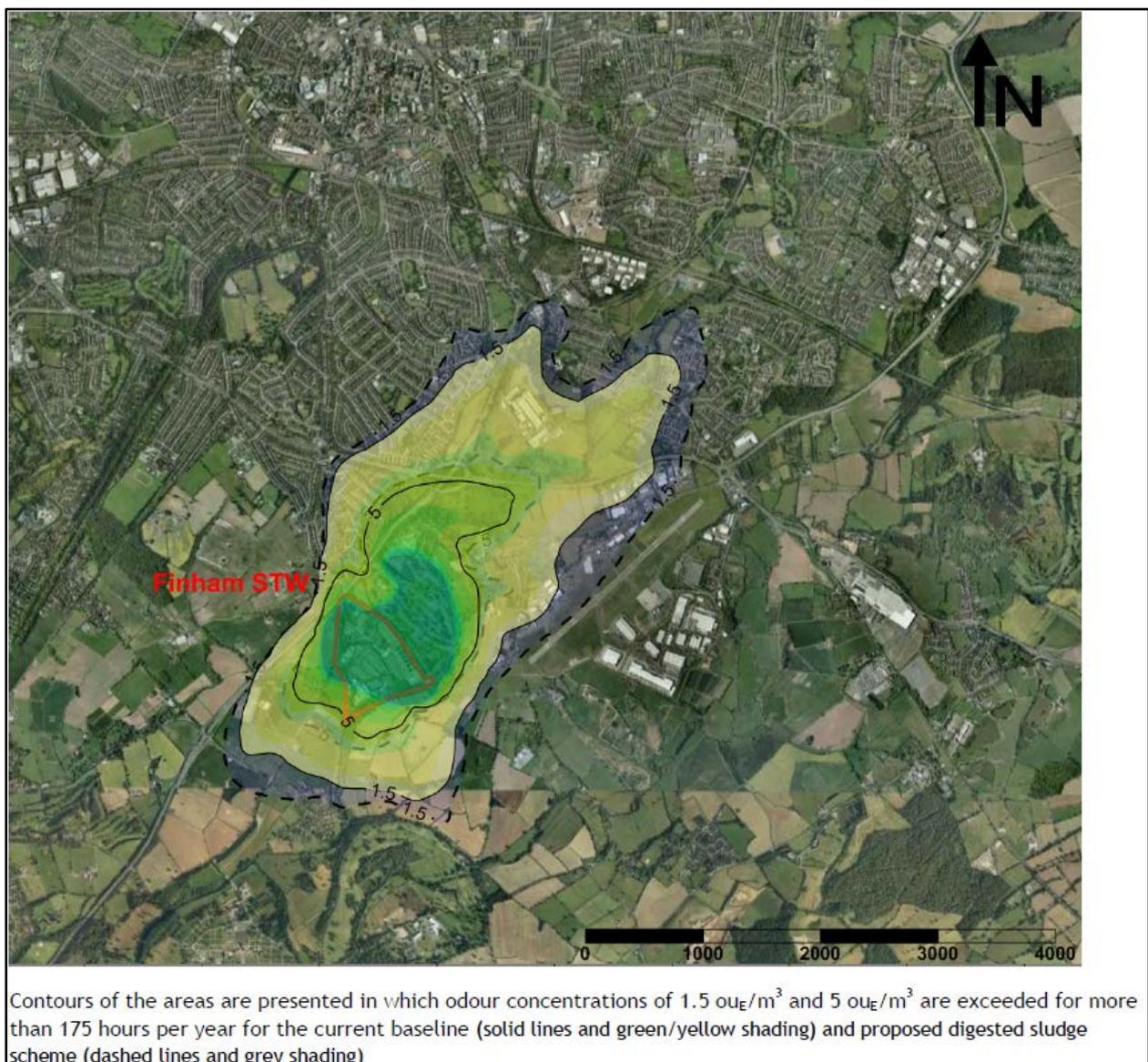
- 3.8 An odour assessment was carried out in 2012 that included monitoring of odour releases and modelling of the dispersion of odour from Finham STW [4]. The report concluded that odour levels may increase slightly as a result of the proposed works to upgrade the sludge handling operations. Figure 2, reproduced from the odour assessment for the STW [4], shows the contour plots of the 98th percentile of hourly mean odour concentrations around Finham STW. The contours represent the 5 $\text{ou}_E\cdot\text{m}^{-3}$ and 1.5 $\text{ou}_E\cdot\text{m}^{-3}$ odour concentration contours for the existing situation (yellow and green shading with solid contour lines) and for the future situation with the proposed works completed (grey shading with dashed contour lines).
- 3.9 During a Public Inquiry into a planning application by Northumbrian Water for the upgrading of Newbiggin-by-the-Sea STW, an odour criterion of 5 ou/m^3 , as a 98th percentile of hourly means over a calendar year was proposed by the applicant and accepted by the Inquiry Inspector [7]: *“There are no guidelines against which to assess odour emissions. However, the technique (olfactometry) defines a “faint odour” as one lying within the range of 5 – 10 ou m^{-3} . While a particularly sensitive person could detect an emission level as low as 2 ou m^{-3} , it seems to me that adoption of a level of 5 ou m^{-3} for the appeal site proposals is both reasonable and cautious”.*
- 3.10 In 2007, Defra published its Code of Practice on odour from STWs [8], which provides both general and specific advice to local authorities and STW operators for the avoidance of odour nuisance. It does not, however, provide any guidance as to what are acceptable odour annoyance criteria, in terms of odour concentrations.
- 3.11 The Chartered Institution of Water and Environmental Management (CIWEM) produced guidance for application to wastewater treatment sites [9]. CIWEM's position on odour impact criteria is summarised in the document as follows: *“CIWEM considers that the following framework is the most reliable that can be defined on the basis of the limited research undertaken in the UK at the time of writing:*
- *C_{98} , 1-hour $>10 \text{ ou}_E/\text{m}^3$ - complaints are highly likely and odour exposure at these levels represents an actionable nuisance;*
 - *C_{98} , 1-hour $>5 \text{ ou}_E/\text{m}^3$ - complaints may occur and depending on the sensitivity of the locality and nature of the odour this level may constitute a nuisance; and*

- C_{98} , 1-hour $<3 \text{ ou}_E/\text{m}^3$ - complaints are unlikely to occur and exposure below this level are unlikely to constitute significant pollution or significant detriment to amenity unless the locality is highly sensitive or the odour highly unpleasant in nature.”

3.12 Odours arising from the wastewater treatment sector have been studied over the last 20 years in the UK and have been the subject of public inquiries and a notable High Court case. Accordingly, it may be considered that the criteria proposed in the CIWEM position policy statement are underpinned by a substantial body of practical experience and evidence.

3.13 Based on these criteria, it is unlikely that there would be a significant odour issue where the 98th percentile of hourly mean odour levels were below $5 \text{ ou}_E/\text{m}^3$.

Figure 2 Odour Contour Plots for Finham STW



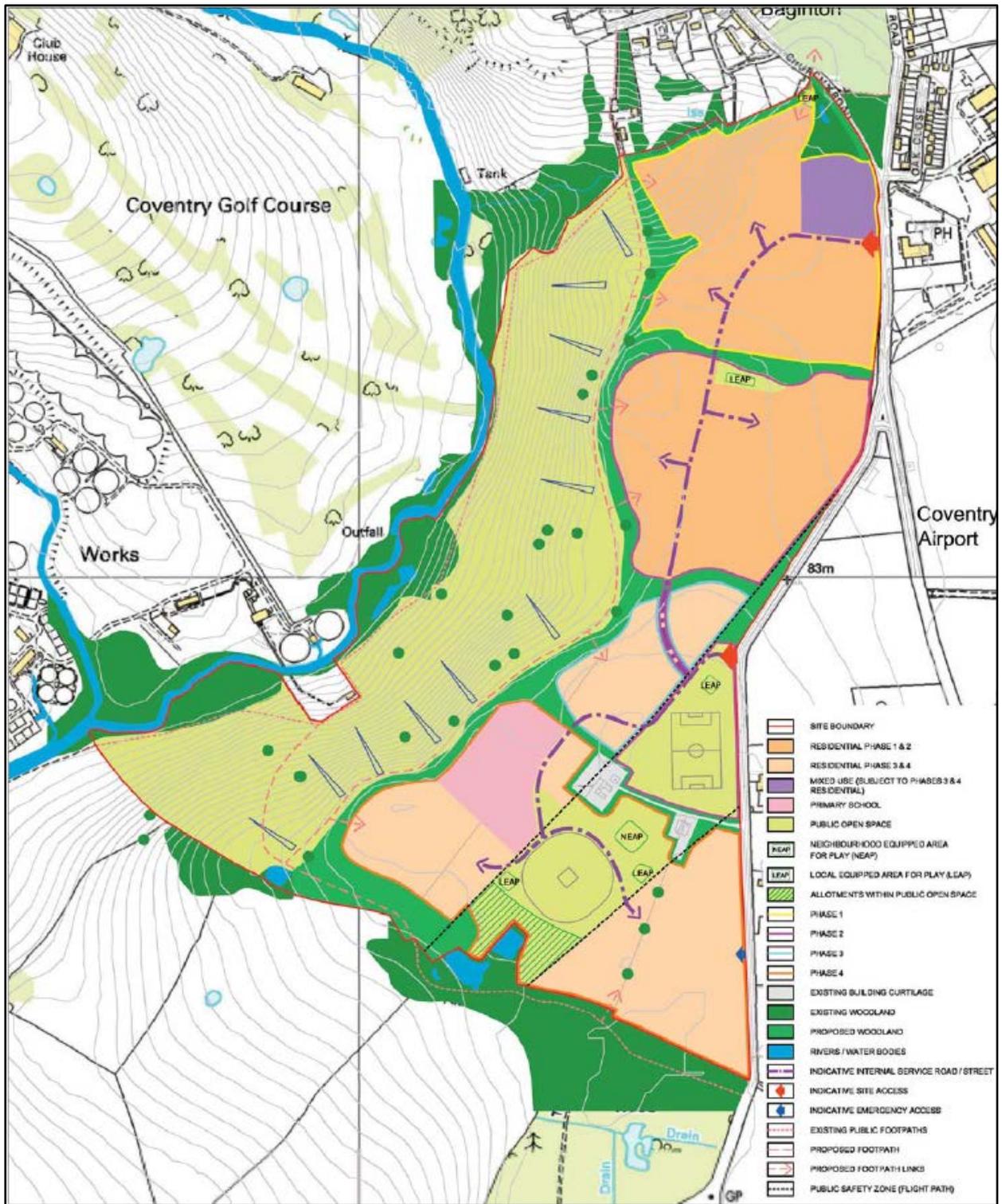
Source: Odournet (2012) [4]

3.14 The contour plots show that odour is more likely to be experienced by receptors to the north of the STW, rather than to the east, where the site proposed for inclusion in the Local Plan for

residential use is located. This is consistent with the wind rose in the Finham STW odour assessment report [4], which shows the prevailing wind direction in the area is south-westerly, approximately parallel with the orientation of the proposed site.

- 3.15 The side of the proposed site that is closest to the STW slopes down noticeably towards the works, and is not proposed for residential use due to this terrain feature. The current outline of proposed land uses from the illustrative concept masterplan for the site is shown in Figure 3. The orange areas on the map represent proposed residential areas (darker orange for Phase 1, lighter orange for Phase 2), the purple area represents a mixed-use area, the pink area represents a primary school and the light green areas represent public open space.

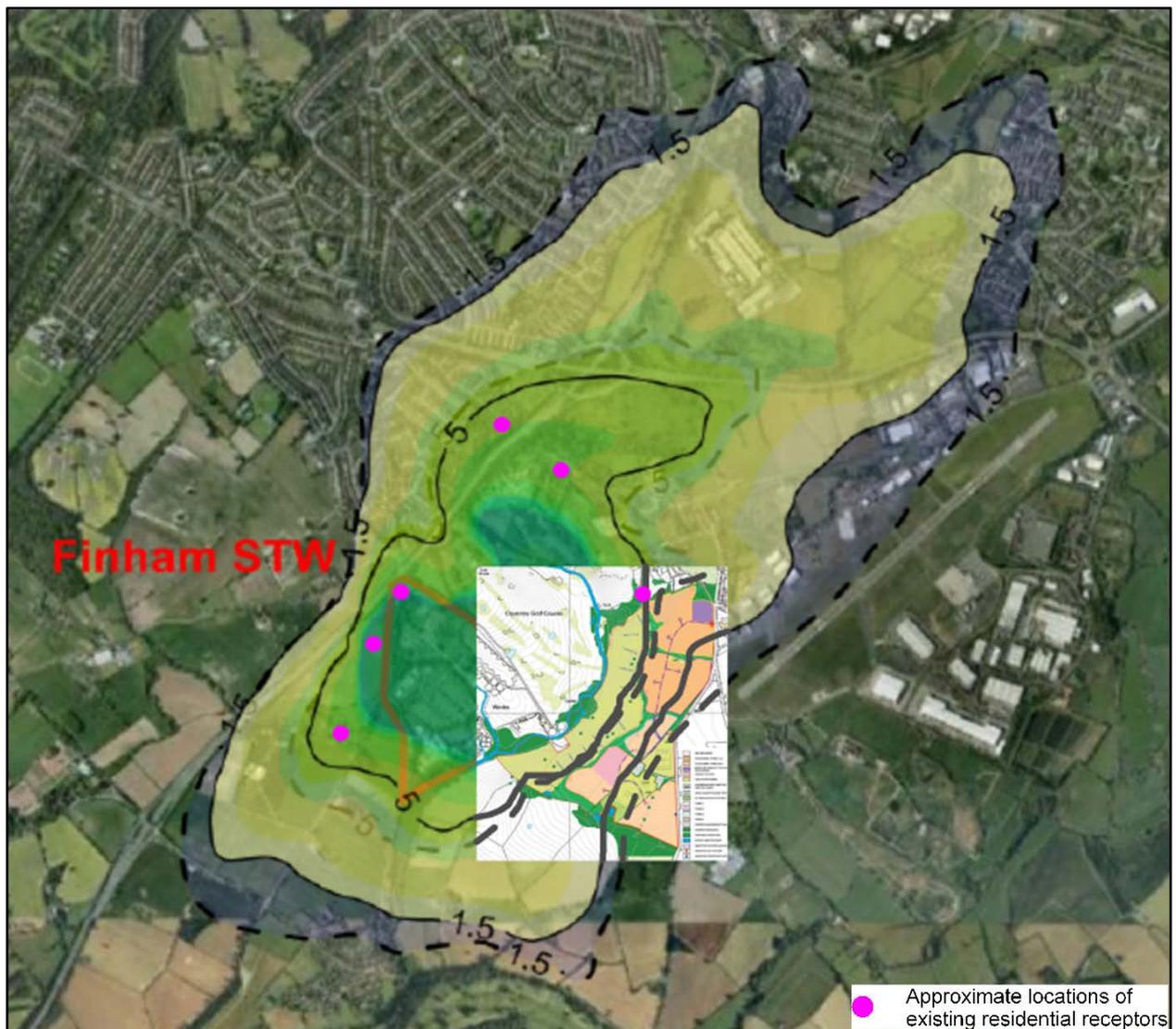
Figure 3 Illustrative Concept Masterplan for the Site



Source: RPS Planning and Development (2009) [1]

3.16 The illustrative concept masterplan has been superimposed on the figure with the odour contours to indicate the likely odour concentrations at the site. This is shown in Figure 4.

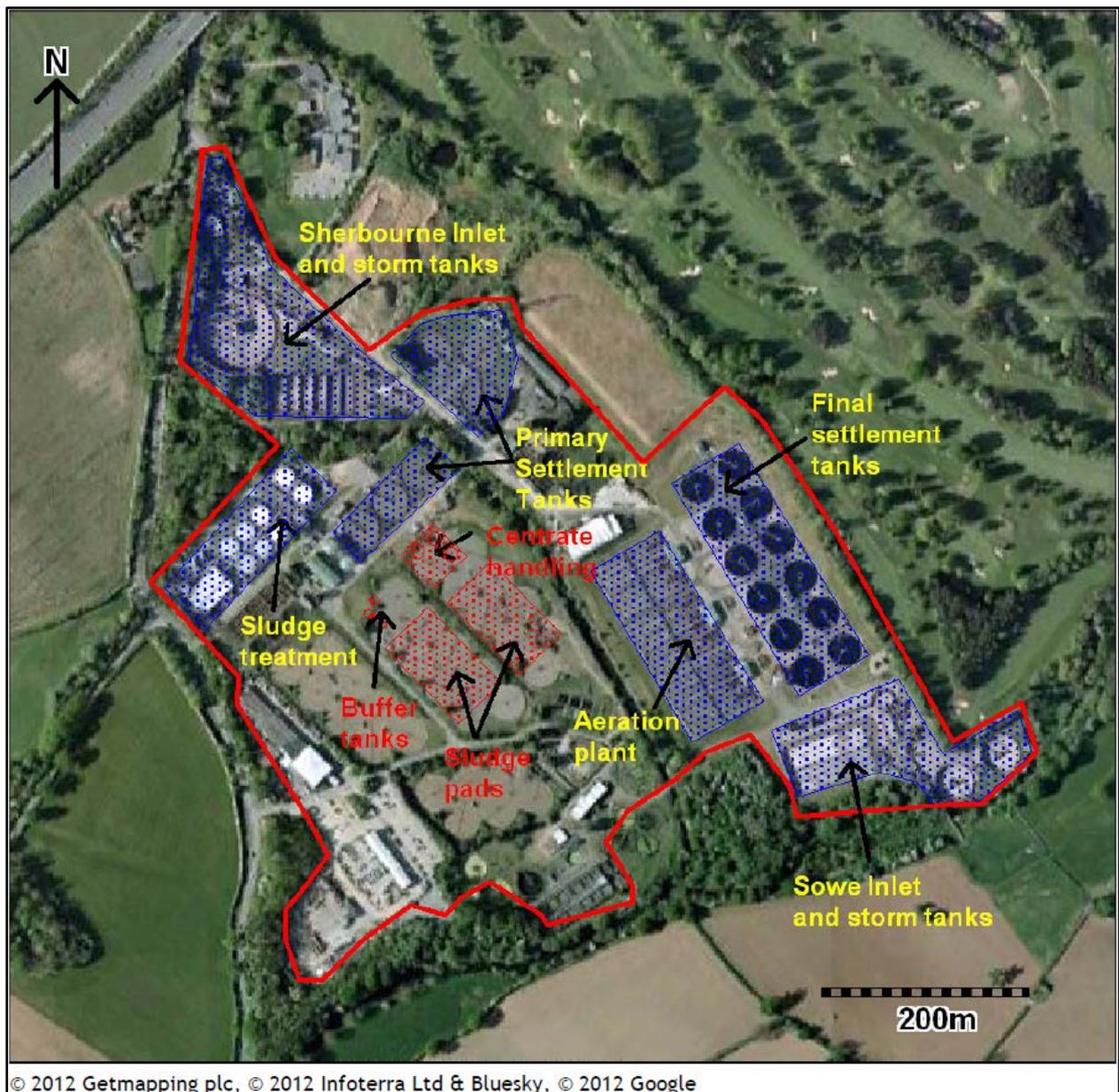
Figure 4 Odour Contours with Illustrative Concept Masterplan for the Site



Sources: RPS Planning and Development (2009) [1]; Odournet (2012) [4]

- 3.17 Figure 4 shows that, of the developed, residential areas proposed for the site in the illustrative concept masterplan, only a very small area in the north-west would fall within the $5 \text{ ou}_{\text{E}} \cdot \text{m}^{-3}$ odour contour. The residential area in the south-east of the site would fall outside of even the $1.5 \text{ ou}_{\text{E}} \cdot \text{m}^{-3}$ contour.
- 3.18 Figure 4 has also been annotated with the locations of some existing residential receptors around Finham STW. Many of these lie well within the $5 \text{ ou}_{\text{E}} \cdot \text{m}^{-3}$ contour, in particular the residential settlements on Mill Hill and Coventry Road and in Finham to the north of the STW, and individual properties on the B4113 St. Martin's Road to the west of the STW. The areas of the site proposed for inclusion in the Local Plan for residential use are predicted to experience lower odour concentrations than at these existing residential areas.
- 3.19 The Finham STW odour assessment provided a layout plan of the STW with the proposed upgrade to the sludge handling operations in place; reproduced in Figure 5.

Figure 5 Proposed Site Layout for Finham STW

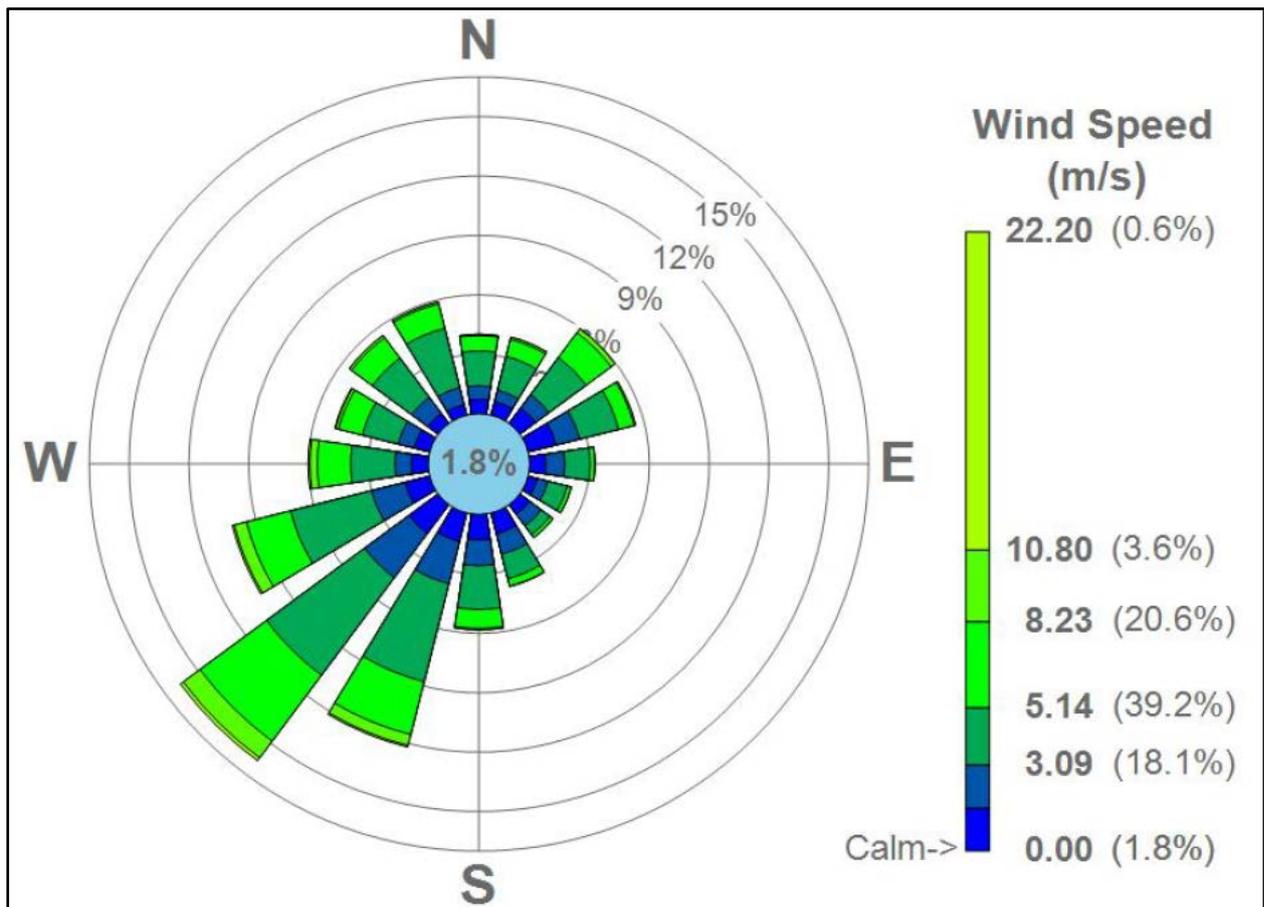


Source: Odournet (2012) [4]

3.20 Table 5 in the Finham STW odour assessment report [4] indicates that around 15% of odour emitted from the STW would originate from the plant at the eastern side of the STW site (the final settlement tanks, aeration plant and Sowe inlet and storm tanks), closest to the site proposed for inclusion in the Local Plan for residential use. Around 85% of odour emitted from the STW would originate from the plant and equipment to the west of the STW facility, farther from the site. The biggest emitters of odour from the STW are the primary settlement tanks, which are located around 700-800 m from the areas on the site proposed for residential use in the illustrative concept masterplan.

3.21 The wind rose from the Finham STW odour assessment report is reproduced in Figure 6.

Figure 6 Wind Rose for Coventry Airport Meteorological Station, 2005-2007



Source: Odournet (2012) [4]

- 3.22 Figure 4 shows that the site would be downwind of the STW when the wind is westerly or north-westerly. As can be seen in Figure 6, westerly, west-north-westerly and north-westerly winds occur relatively infrequently, typically for 6% of the time or less for each direction. Therefore, the site would likely be downwind of the STW less than 18% of the time. Most of the time, with the prevailing wind direction from the south-west, odours from the STW would be expected to be carried to the north-east, parallel to the site (as evidenced in the odour contour plots in Figure 2 and Figure 4).
- 3.23 In summary, while some odour from Finham STW may be detectable in parts of the site, only a small portion of the residential areas of the site is predicted to experience 98th percentile of hourly mean odours exceeding $5 \text{ ou}_E \cdot \text{m}^{-3}$ and the odour levels on the site are predicted to be lower than those experienced at existing residential receptors in the area. In addition, the most odorous parts of the STW are located on the far side of the STW facility from the site and, under the prevailing wind direction, odours would not be expected to be carried towards the site from the STW.

4 Sniff Testing Methodology and Results

Methodology for Odour Monitoring by Sensory Testing

- 4.1 Sensory testing of odours ('sniff testing') was carried out on three separate occasions, to sample existing odour levels at the site. This section describes the sniff testing methodology and results.
- 4.2 Odour assessment in the field using subjective, sensory testing is a tool whereby a trained odour assessor records the attributes of the odour that determine its impact, namely the Frequency, Intensity, Duration, Offensiveness and Location (the so-called FIDOL factors). This procedure describes how these attributes of the odour can be measured in ambient air so that the impact of the odour can be assessed for a given location.
- 4.3 The assessment is "sensory" in that the human nose is used as the detector – a sound approach considering that (currently at least) no analytical instrument can give a unified measure of a complex mixture of compounds that quantifies it as a whole in the same way that a human experiences odour.

Measurement Method

- 4.4 Sensory testing was carried out by trained and qualified odour assessors, using RPS' documented procedure, which is a development of the Environment Agency's H4 Sniff Test Protocol [10] and the German national VDI standard [11], allowing the odour impact to be estimated from the FIDOL factors in a semi-quantitative manner (negligible, slight, moderate, substantial or very substantial adverse), using well established risk-ranking principles. The sniff tests allow the character of the odour to be assessed, which is essential where there may be a number of alternative odour sources.
- 4.5 The main principles of the sensory assessment are:
- Step 1 – The 'sniff-test' technique is used to gather information on odour intensity (refer to Table 4.1), character, unpleasantness, frequency and duration at different test locations upwind and downwind of the odour source. Box 1 summarises the procedure.
 - Step 2 – The Odour Exposure at each test location at the time of sampling is estimated, taking into account the average odour intensity over the sniff testing period (I_{mean}) and the percentage of the time where the odour intensity level was greater than or equal to 4 ($t_{\geq 4}$) (refer to Table 4.2). The Odour Exposure experienced at each location will be dependent on the frequency, intensity, duration and unpleasantness of the odour and different combinations of the FIDOL factors can result in different exposures: for example, odours may occur frequently in short bursts ('acute' exposures), or for longer periods ('chronic' exposures).
 - Step 3 – The Odour Effect is assessed based on the Odour Exposure combined with the Receptor Sensitivity of the location (refer to Table 4.3). As the site is proposed for residential use, Receptor Sensitivity has been assumed to be 'high'.

- 4.6 The sniff testing technique can measure odour exposure at a particular place and time, but the frequency of odour occurrence at that place is also important. If many sniff testing samples are taken that represent a wide range of weather conditions and source variations, the results of the sniff testing can be considered to represent the overall odour exposure at a particular receptor location. However, if fewer tests are carried out, professional judgement would be required to conclude how the snapshot(s) relate to the overall odour exposure at a receptor location. The Overall Odour Exposure and Receptor Sensitivity determine the overall Odour Effect (Table 4.3).

Box 1 Sniff Test Sampling Procedure

The sensory test is carried out at each test location over a standard observation time, typically 5 minutes. Testing should start from locations affected by the least-intense odours, to avoid olfactory fatigue. For each test location, the start time of the observation period and the attributes of the odour over the observation period are recorded as follows:

- i) The assessor breathes normally, inhaling ambient air samples through the nose at regular intervals (say, every 10 seconds, to give 30 samples over typically a 5 minute observation period). However, where the odour levels are either constant or intense then the odour assessor should avoid olfactory fatigue/desensitisation by alternating each sample sniff of ambient air with a sniff of odour-free air from an ori-nasal face mask fitted with carbon filters.
- ii) For each sample, the odour intensity (VDI scale, 0-6) is recorded.
- iii) At the end of the observation period at the test location, the odour unpleasantness is noted down by classifying it as unpleasant, neutral (neither pleasant nor unpleasant) or pleasant. This assumes that at least some of the 30 samples were of intensity 3 or more (i.e. the odour is at least barely recognisable).
- iv) The odour descriptor should also be noted: odours can be objectively described using standardised categories and reference vocabulary. It is useful to provide odour assessors with standard descriptor terms, which are organised with similar terms in categories and groups either as a list or as an "odour wheel".
- v) Next the pervasiveness/extent of the odour at this test location is assessed. This can be calculated as the percentage odour time, $t_{\geq 4}$, which is the number of samples where odour was recognisable divided by the total number of samples (i.e. 30). Note that "recognisable odour" is where the odour strength exceeds the recognition threshold and is definitely recognisable by the assessor, i.e. the assessor is capable of definitely identifying its quality/character, which corresponds to VDI intensity of 4 or more.
- vi) The average odour intensity, I_{mean} , over the test period is calculated and the maximum intensity observed is noted.

The above procedure is then repeated at the next test location, remembering that the character of an odour mixture can change over distance, as the particular components may become diluted below their individual detection thresholds at different distances.

A record should be kept of the meteorological conditions at the time of testing (including wind strength and direction, atmospheric stability category, barometric pressure, rainfall, temperature and humidity), together with information relating to the operations and activities being undertaken on site and in the surrounding area.

Table 4.1 Odour Intensity Categories

Odour Strength	Intensity Level	Comments
No odour/not perceptible	0	No odour when compared to the clean site
<i>The Odour Detection Threshold (ODT) of $1 \text{ ou}_E \cdot \text{m}^{-3}$ is somewhere between 0 and 1</i>		
Slight/very weak	1	There is probably some doubt as to whether the odour is actually present
Slight/weak	2	The odour is present but cannot be described using precise words or terms
Distinct	3	The odour character is barely recognisable
<i>VDI 3940 says that the recognition threshold intensity is generally 3-10 times higher than the ODT (i.e. $3-10 \text{ ou}_E \cdot \text{m}^{-3}$)</i>		
Strong	4	The odour character is easily recognisable
Very strong	5	The odour is offensive. Exposure to this level would be considered undesirable
Extremely strong	6	The odour is offensive. An instinctive reaction would be to mitigate against further exposure

Table 4.2 RPS Matrix to Assess the Odour Exposure (neutral and unpleasant odours) at Time and Place of Sampling

Average Intensity (I_{mean})	6	<i>Large</i>	<i>Very Large</i>	<i>Very Large</i>	<i>Very Large</i>	<i>Very Large</i>
	5	<i>Medium</i>	<i>Large</i>	<i>Large</i>	<i>Very Large</i>	<i>Very Large</i>
	4	<i>Small</i>	<i>Medium</i>	<i>Medium</i>	<i>Large</i>	<i>Large</i>
	3	<i>Small</i>	<i>Medium</i>	<i>Medium</i>	<i>Medium</i>	<i>Medium</i>
	2	<i>Small</i>	<i>Small</i>	<i>Medium</i>	<i>Medium</i>	<i>Medium</i>
	1	<i>Small</i>	<i>Small</i>	<i>Small</i>	<i>N/A</i>	<i>N/A</i>
		≤10%	11 – 20%	21 – 30%	31 – 40%	≥41%
Percent odour time ($t_{\geq 4}$) during the test						

I_{mean} Should be rounded to the nearest whole number

Note - the following overriding considerations affect the scoring of the odour annoyance impact:

if $I_{\text{mean}} = 0$, then the odour effect can for practical purposes be considered negligible; and

if $I_{\text{mean}} = 1$ but $t_{\geq 4} = 0\%$, then the odour effect can for practical purposes be considered negligible.

Table 4.3 RPS Matrix to Assess the Odour Effect at Individual Receptors

		Receptor Sensitivity		
		Low	Medium	High
Overall Odour Exposure	Very Large	<i>Substantial adverse</i>	<i>Substantial adverse</i>	<i>Very substantial adverse</i>
	Large	<i>Moderate adverse</i>	<i>Moderate adverse</i>	<i>Substantial adverse</i>
	Medium	<i>Slight adverse</i>	<i>Slight adverse</i>	<i>Moderate adverse</i>
	Small	<i>Negligible</i>	<i>Negligible</i>	<i>Slight adverse</i>

4.7 Although a snapshot might be good enough to confirm an adverse impact, numerous repeat surveys will usually be required to show with a reasonable degree of certainty that there is an absence of adverse impact. In general, the greater the number of surveys carried out, the higher the confidence in the conclusion drawn.

4.8 Sniff testing was undertaken on three separate occasions for this assessment, which would allow reasonably good confidence in the conclusions drawn.

QA/QC

4.9 In order to provide confidence in the quality of the results, the sensory tests were carried out by suitably qualified and trained odour assessors. The assessors' olfactory sensitivity has been certified using the American Society for Testing and Materials (ASTM) method.

4.10 The work undertaken has been designed and managed by RPS, which has ISO9001 and ISO14001 certifications for its Quality Management System and Environmental Management System, respectively.

Results of Sensory Field Assessments

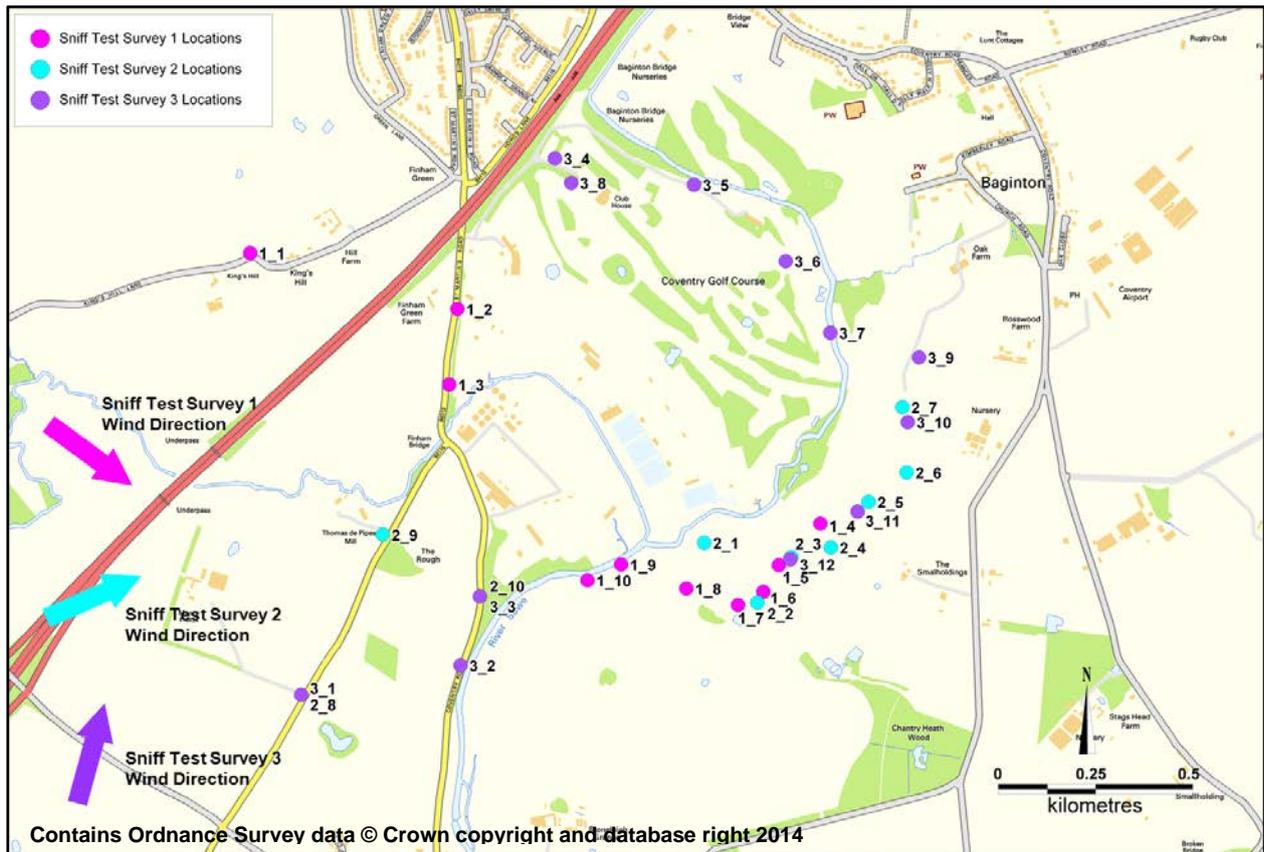
4.11 Visits were made to the proposed development site and local area on the 29th of November and on the 9th and 10th of December 2013. During the site visits, sensory field assessments (sniff tests) were conducted at upwind and downwind of Finham STW and at on-site locations. The locations of the sensory tests are given in Table 4.4 and shown in [Figure 7](#).

4.12 The on-site sniff test survey locations focussed on the area marked as being for residential use in the illustrative concept masterplan ([Figure 3](#)), with survey locations mainly selected on the edge of the proposed residential area closest to the STW.

Table 4.4 Sniff Test Locations

Sniff Test Location		Grid Reference	
ID	Location relative to STW and if on-site	X	Y
Sniff Test Survey 1 (29th November 2013)			
1_1	Upwind	432639	274561
1_2	Upwind	433172	274416
1_3	Downwind, on-site	433151	274220
1_4	Downwind, on-site	434106	273859
1_5	Downwind, on-site	433999	273751
1_6	Downwind, on-site	433959	273682
1_7	Downwind, on-site	433894	273648
1_8	Downwind	433761	273691
1_9	Downwind	433593	273753
1_10	Downwind	433507	273712
Sniff Test Survey 2 (9th December 2013)			
2_1	Downwind	433807	273809
2_2	On-site	433944	273654
2_3	On-site	434031	273772
2_4	On-site	434133	273797
2_5	Downwind, on-site	434230	273915
2_6	Downwind, on-site	434328	273992
2_7	Downwind, on-site	434317	274161
2_8	Upwind	432770	273415
2_9	Upwind	432980	273830
2_10	Upwind	433230	273670
Sniff Test Survey 3 (10th December 2013)			
3_1	Upwind	432770	273415
3_2	Upwind	433180	273491
3_3	Upwind	433230	273670
3_4	Downwind	433423	274806
3_5	Downwind	433781	274738
3_6	Downwind	434017	274540
3_7	Downwind	434132	274354
3_8	Downwind	433465	274743
3_9	On-site	434360	274290
3_10	On-site	434331	274122
3_11	On-site	434202	273890
3_12	On-site	434028	273766

Figure 7 Sniff Test Survey Locations



4.13 The meteorological conditions were noted on the site survey occasions and are summarised in Table 4.5. Conditions were generally dry and cloudy. The wind was breezy on the first sniff test survey day, but wind speeds during the second and third visits were lower. Wind direction was westerly on the first visit, south-westerly on the second visit and southerly on the third visit.

Table 4.5 Meteorological Conditions

Meteorological Parameter	Sniff Test Survey 1 29/11/2013	Sniff Test Survey 2 09/12/2013	Sniff Test Survey 3 10/12/2013
Temperature (°C)	10	10	7
Bar. Pressure (mbar)	1009	1027	1029
Precipitation	Light rain	None	None
Ground Condition	Damp	Damp	Damp
Relative Humidity (%)	79	87	87
Cloud Cover	Overcast	Mostly cloudy	Mostly cloudy
General Air Stability Category	Neutral	Neutral	Neutral
Average Wind speed and direction	12 – 31 mph, westerly	1 – 4 mph, south-westerly	1 – 4 mph, southerly

- 4.14 Meteorological conditions on each day correlated most closely with Atmospheric Stability Category D (Neutral), which is the most prevalent category (45-60% of the time in a year) and leads to moderate dispersion of contaminants.
- 4.15 As stated in the methodology, a snapshot might be good enough to confirm an adverse impact, but numerous repeat surveys will usually be required to show with a reasonable degree of certainty that there is an absence of adverse impact. In general, the greater the number of surveys carried out, the higher the confidence in the conclusion drawn.

Table 4.6 Summary of Sensory Field Assessments

Location	Average Intensity (VDI Scale 0-6)	Maximum Intensity (VDI Scale 0-6)	% Time Odour Intensity Level ≥ 4 ($t_{\geq 4}$) during test	Odour Descriptor*	Unpleasantness*	Odour Exposure	Receptor Sensitivity	Odour Effect
Sniff Test Survey 1 (29th November 2013)								
1_1, Upwind	3	3	0	Fresh/damp earth	Pleasant	N/A	High	-
1_2, Upwind	2	3	0	Rotting Leaves	Neutral	Small		Slight Adverse
1_3, Downwind, on-site	2	3	0	Damp	Neutral	Small		Slight Adverse
1_4, Downwind, on-site	2	2	0	-	-	-		-
1_5, Downwind, on-site	1	3	0	Slight sewage smell	Unpleasant	Small		Negligible
1_6, Downwind, on-site	1	4	7	Sewage	Unpleasant	Small		Slight Adverse
1_7, Downwind, on-site	1	3	0	Slight sewage smell	Unpleasant	Small		Negligible
1_8, Downwind	2	3	0	Slight sewage smell	Unpleasant	Small		Slight Adverse
1_9, Downwind	2	3	0	Very slight sewage smell	Unpleasant	Small		Slight Adverse
1_10, Downwind	2	2	0	-	-	-		-
Sniff Test Survey 2 (9th December 2013)								
2_1, Downwind	1	2	0	-	-	-	High	-
2_2, On-site	1	2	0	-	-	-		-
2_3, On-site	3	3	0	Sewage	Unpleasant	Small		Slight Adverse
2_4, On-site	2	3	0	Sewage	Unpleasant	Small		Slight Adverse
2_5, Downwind, on-site	2	3	0	Sewage	Unpleasant	Small		Slight Adverse
2_6, Downwind, on-site	2	3	0	Sewage	Unpleasant	Small		Slight Adverse
2_7, Downwind, on-site	1	2	0	-	-	-		-
2_8, Upwind	0	1	0	-	-	-		-
2_9, Upwind	1	1	0	-	-	-		-
2_10, Upwind	0	1	0	-	-	-		-

Location	Average Intensity (VDI Scale 0-6)	Maximum Intensity (VDI Scale 0-6)	% Time Odour Intensity Level ≥ 4 ($t_{\geq 4}$) during test	Odour Descriptor*	Unpleasantness*	Odour Exposure	Receptor Sensitivity	Odour Effect
Sniff Test Survey 3 (10th December 2013)								
3_1, Upwind	0	1	0	-	-	-	High	-
3_2, Upwind	2	3	0	Sewage, dirt	Unpleasant	Small		Slight Adverse
3_3, Upwind	2	3	0	Sewage	Unpleasant	Small		Slight Adverse
3_4, Downwind	3	4	17	Sewage	Unpleasant	Medium		Moderate Adverse
3_5, Downwind	2	3	0	Grass, sewage	Neutral	Small		Slight Adverse
3_6, Downwind	2	3	0	Sewage, dirt	Neutral	Small		Slight Adverse
3_7, Downwind	2	3	0	Sewage, grass	Neutral	Small		Slight Adverse
3_8, Downwind	3	4	27	Waste, sewage	Unpleasant	Medium		Moderate Adverse
3_9, On-site	3	4	3	Sewage	Unpleasant	Small		Slight Adverse
3_10, On-site	2	3	0	Sewage	Unpleasant	Small		Slight Adverse
3_11, On-site	2	3	0	Sewage	Neutral	Small		Slight Adverse
3_12, On-site	3	4	37	Sewage	Unpleasant	Medium		Moderate Adverse

* The odour descriptor and relative unpleasantness can only be reported when at least some of the sniff test samples in the run were of intensity 3 or more.

- 4.16 The strongest odours occurring for the longest periods during the sniff testing were detectable at receptors 3_4, 3_8 and 3_12, downwind of Finham STW on the golf course and at one point on the site.
- 4.17 The Odour Intensity Level exceeded 3 (the level at which odour character is barely recognisable; Table 4.1) at only 5 of the 32 sniff test locations; at two of these locations, the level exceeded 3 for less than 10% of the sampling period.
- 4.18 Twelve of the 32 sampling locations had no or negligible odour effect, over half of which were downwind of the STW and/or on-site. Seventeen of the 32 sampling locations had a 'slight adverse' odour effect; three of these were upwind of the STW.
- 4.19 Based on the results of the sniff testing surveys, there is likely to be an overall 'slight adverse' odour effect at the site. The most recent draft version of the Institute of Air Quality Management (IAQM) odour guidance, due to be released for consultation in early 2014 [12], notes that, where the overall effect is greater than slight adverse, the effect is likely to be significant. The corollary is that slight adverse or lower effects are unlikely to be significant.

5 Odour Complaints Data Analysis

- 5.1 Warwick District Council stated that there has been only one complaint relating to Finham STW within the last five years [13]. This complaint was made on the 15th of July 2013 by a resident on St. Martin's Road in Stoneleigh. Weather records indicate that the temperature was around 26°C on that day; the hot weather possibly being the reason for the odour issue [14].
- 5.2 Information was requested from the EA with regards to the odour complaints history for Finham STW. The EA's response dated 27^h December 2013 [15] indicated that there have been no odour complaints relating to the Finham STW in the last five years.
- 5.3 The results of the complaints analysis indicate that the Finham STW is currently not causing odour issues, with only one complaint relating to the STW in the last five years.

6 Conclusions

- 6.1 RPS was commissioned by Lenco Investments to undertake an odour assessment for an area of land to the south of Baginton in Warwickshire. The land covers an area of approximately 50 hectares and is proposed to be included in the Local Plan to be designated for residential use.
- 6.2 The Finham Sewage Treatment Works (STW) is located to the south-west of the site, with the closest point being approximately 100 m from the area of the site that would be developed. This odour assessment has been carried out to address concerns over the potential for odour issues at the site due to the proximity to the STW, which may affect its suitability for residential use.
- 6.3 In order to assess what the odour levels at the site would be, information on odour concentrations around Finham STW was reviewed, sniff testing surveys were undertaken and odour complaints data were analysed.
- 6.4 A review was carried out of the odour assessment accompanying the planning application for the proposed upgrade to the sludge handling operations at Finham STW. The most odorous parts of the STW are located at the far side of the STW facility from the site, and the results of atmospheric dispersion modelling indicated that new residential receptors on the site would experience lower odour levels than existing residential areas. Furthermore, the modelling study indicated that while some odour from Finham STW may be detectable on parts of the site, only a small portion of the proposed residential areas of the site is predicted to experience 98th percentile of hourly mean odours exceeding $5 \text{ ou}_E \cdot \text{m}^{-3}$. As discussed in Section 3, it is considered unlikely for significant odour issues to occur at odour levels below this benchmark.
- 6.5 The dispersion modelling results show how odour levels vary over the course of a full year. The modelling was complemented by a subjective odour monitoring survey, to corroborate (or otherwise) the predictions. Sniff tests were carried out to obtain snapshots of the of the actual odour levels prevailing at the site on three days (29th November and 9th and 10th December 2013). Odours from the STW were detectable, but most were at an Odour Intensity Level of 3 or lower (level 3 being the level at which odour character is barely recognisable). At many of the sniff testing survey locations, there was no measureable odour effect. Using the draft IAQM classification scheme, the overall Odour Effect as measured on the survey dates was 'slight adverse', which is consistent with the modelling results.
- 6.6 An analysis of historical complaints levels was undertaken. Warwick District Council was consulted and confirmed that there had been only one odour complaint relating to Finham STW within the last five years. Information on the odour complaints history of Finham STW was also requested from the Environment Agency; the records indicated that there were no complaints relating to Finham STW in the last five years. It would therefore appear that the STW is not causing a significant odour problem to existing residential receptors in the area.
- 6.7 The local planning policy (Warwick District Council Local Plan) indicates that the site would be suitable for use if it provides future users with an acceptable level of amenity. Complaints

analysis indicated that the STW is not currently causing any significant odour issues at existing sensitive residential receptors, whilst dispersion modelling predictions and sniff test surveys indicated that odour from the STW is unlikely to cause a significant adverse effect at the locations of proposed residential properties on the development site. It is therefore concluded that the site is suitable for residential use from an odour perspective.

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