BOROUGH OF WELWYN HATFIELD

LOCAL PLAN EXAMINATION

BIRCHALL GARDEN SUBURB – COLE GREEN SITE WELWYN GARDEN CITY

Environmental Health Officer Position statement

24 October 2017

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Executive Summary

Lafarage Tarmac (referred to throughout this report as Tarmac) are promoting a site called “Birchall Garden Suburb” in Welwyn Garden City, Hertfordshire, which is identified as WGC5 in the Core Strategy plan. The proposed site would contain 1,220 dwellings, a primary school and district shopping. The proposal also extends into East Herts District, although that part of the development is not covered in this report. The proposed residential development is to be located on land promoted by the developer as “virgin farm land”. It is surrounded on two side by a historic landfill site which is proposed as a country park.

Concerns have been raised by several organisations concerning the potential health risks and pollution matters which may be associated with landfill sites. In particular the risk of landfill gases, ground water contamination and soil contamination migrating to the residential areas and suitability of the historic landfill site as a country park. Welwyn Garden City Society (WGCS) submitted their own report “What lies beneath” which raises a number of these concerns.

Objectors are also concerned about the nature and extent of the historic landfill site.

Tarmac have submitted two contaminated land reports and a significant quantity of additional material aimed at addressing the concerns raised about the development.

Welwyn Hatfield Borough Council (WHBC) have commissioned an independent contaminated land expert to undertake a peer review of the material submitted by Tarmac. WHBC have also assessed the report submitted by WGCS.

The Cole Green Former Mineral Workings and Cole Green Site do contain contamination. However the assessment and surveys which have already been carried out have not identified contamination at levels which are likely to prohibit the relevant developments from taking place. However this is subject to the developer undertaking suitable and sufficient risk assessments during the planning process and ensuring robust mitigation strategies are implemented.

Contents

Figures

1. Master Plan of whole area
2. Copy of the public register from EA website

Appendices

1. Technical Contaminated Land reports submitted on behalf of Tarmac, by Royal Haskoning DHV – Cole Green Site Characterisation and Generic Quantitative Risk Assessment dated 6 October 2014, (submitted separately due to the size of the folder).
2. Technical Contaminated Land report submitted on behalf of Tarmac, by royal Haskoning DHV – Cole Green Former Mineral workings Soil Survey and Generic Quantitative Risk Assessment dated 6 October 2014, (submitted separately due to the size of the folder).
3. Questions and answers submitted by Tarmac dated August 2017.
4. Non-technical report submitted by Welwyn Garden City society dated November 2016.
5. Communications between EA and WHBC
6. Communications between Hertfordshire County Council and WHBC
7. Additional data submitted by Tarmac dated September 2017 following the liaison meeting with the EHO
8. Historic records showing the extent of landfill workings and virgin farm land.
9. Peer review by third party consultant, [of contaminated reports submitted on behalf of Tarmac], Land Quality Management (LQM)) (**Draft**) dated 11 October 2017.

Glossary

Acronym	Definitions	Explanation
EHO	Environmental Health Officer	A qualified officer who is authorised to investigate contaminated land sites identified under Part 11A Environmental Protection Act 1990
WHBC	Welwyn Hatfield Borough Council	Council for the administration of the district of Welwyn and Hatfield
CLC	Contaminated Land Consultant	Professionally qualified Contaminated Land Consultants
EA	Environment Agency	National Environmental Regulatory Body
WGCS	Welwyn Garden City Society	The Local Society for the town of Welwyn Garden City and surrounding areas

1. Introduction

1.1 Background

1.1.1 In May 2017 WHBC's Public Health and Protection department was asked by the Planning department to formerly submit a position statement concerning the suitability/viability of land at Cole Green Lane, (known as the proposed Birchall Garden Suburb), to the Local Plan Examination hearing. The site concerned is covered by both WHBC and East Hertfordshire District Council. This submission only relates to that area covered by WHBC.

1.1.2 This particular site has been earmarked as land designated for the expansion of Welwyn Garden City as a residential/mixed commercial development.

1.1.3 The Planning Department has received submissions from the developer, (Tarmac) and a local interest group Welwyn Garden City Society, (WGCS).

1.2 Key Objectives

1.2.1 To describe the extent and nature of the site concerned.

1.2.2 To compare and contrast the available material on historic data.

1.2.3 To provide a non-technical summary review of the third party consultant technical peer review undertaken on behalf of WHBC and of the two contaminated reports submitted on behalf of Tarmac.

1.2.4 To provide a non-technical summary review of the report submitted by WGCS.

1.2.5 To provide an opinion as to the suitability and viability of the site for housing and mixed use development in respect to contaminated land. (Note the report does not consider noise and air quality impacts as these can be mitigated at the planning application stage.)

1.2.6 To identify risk and uncertainty where highlighted.

1.3 Report Format

1.3.1 Section 3 considers submissions which have been made by both Tarmac and WGCS. Throughout the report are references to figures which are contained at the end of the report. In addition to the main report I have also submitted a number of appendices to which I refer in the main body of the submission statement. Section 6 provides a peer review commissioned by WHBC to assess the CLC reports submitted on behalf of Tarmac.

2. Site description and proposed development

2.1 Relationship to Local Plan

2.1.1 In the local plan the site is identified as WGC5. Tarmac is actively promoting a site as “Birchall Garden Suburb”. It is an area of approximately 260 hectares and spans across both WHBC and East Hertfordshire District Council land. This submission only relates to land within WHBC’s district.

2.1.2 The site is located South East of the town of Welwyn Garden City on land known as Cole Green. The site has the A414 to the South, B195 Birchall Lane to the East, Cole Green Lane to the North and Holwell Hyde Lane to the West. The developers have submitted a master plan which details the proposed development, (Figure 1).

2.1.3 The proposal includes:

- A total of 1,220 dwellings, (with a construction period 2020/2025 subject to planning).
- One primary school
- One local shopping centre
- Large area for parkland, open space and water features
- Infrastructure improvements, (i.e. national cycle route improvements)

2.2 Historical Usage

2.2.1 The history of the site is the very reason that this submission has been made. The site has been called in for review by the planning inspectorate as its suitability has been called in question by the WGCS

2.2.2 It is accepted by all submissions that part(s) of the site was historically used as landfill. The debate and argument largely relates to both the extent and nature of the landfill and to any potential exposures that could cause hazards to health. Tarmac and WGCS have both submitted reports, (technical and non-technical) and these are discussed in the next section.

3. First Stage Review of material submitted

3.1 Preliminary Risk Assessment

3.1.1. A desk top based assessment, review and site reconnaissance, (site walk over and review of available historic data).

- **Soil Survey** – Scope of the physical investigation works and findings of the intrusive ground investigation.
- **Ground Gas Assessment** – Considered the consequence and probability associated with potential contaminants of concern.
- Ground Investigation – Scope of the physical investigation works and findings of the intrusive ground investigation.
- Risk Estimation – Findings of the human health, controlled waters and gas risk assessments.
- Risk Evaluation – Considered the consequences and probability associated with a particular pollutant linkage.

These findings were submitted to the local authority for comment and review.

3.2 Cole Green Site Characterisation: Royal Haskoning DHV

3.2.1 "Cole Green Site Characterisation and Generic Quantitative Risk Assessment" dated 6 October 2014. Submitted by Royal Haskoning DHV on behalf of Tarmac. This report can be found in Appendix 1. (Due to the size of the file this appendix is submitted separately.)

3.2.2 In respect to the Cole Green area, the Executive summary of appendix 1 states that

> *'The extent of the land being promoted for mixed use development at Cole Green has no history of mineral extraction or filling'.*

It is on the basis that the intrusive sampling, (bore holes and trenches), controlled waters sampling, ground water risk assessment and ground gas risk assessment took place.

3.2.3 The report was reviewed in detail by a third party CLC and this is considered in section 6.

3.3 Cole Green Former Mineral Workings Soil Survey: Royal Haskoning DHV

3.3.1 "Cole Green Former Mineral Workings Soil Survey and Generic Quantitative Risk Assessment" dated 6 October 2014. Submitted by Royal Haskoning DHV on behalf of Tarmac. This report can be found in Appendix 2. (Due to the size of the file this appendix is submitted separately.)

3.3.2 In respect to the former Mineral Extraction Workings, the executive summary of appendix 2 states that:

> *'The extent of the land being promoted was restored to current landform by landfilling which ended in the early 1980's'.*

It is on the basis that the hand auger exploratory holes were undertaken, soil samples analysed and ground gas risk assessment produced.

3.3.3 As with the aforementioned report from Royal Haskoning DHV, this report was reviewed in detail by a third party CLC and this is considered in section 6.

3.3.4 After initial analysis of both reports, WHBC's EHO submitted a set of questions to Tarmac and these answers are provided in appendix 3. These answers were subsequently discussed in more detail at a site meeting with Tarmac in August 2017 and additional data was consequently produced. This is discussed in section 6.

3.4 WGCS Non Technical Report: "What lies beneath: potential contamination of land with WGC5'.

3.4.1 The report contained in appendix 4 submitted by WGCS contains a series of photographic and historic data which has been submitted in a non-technical format. The report tracks the likely source of much of the waste deposited in the former Mineral Works from London and the South East. WGCS comments that it is not possible to know the nature and content of the landfill given the lack of regulation in the early to mid-part of the 20 Century when most of the infilling took place. WGCS further elaborates that the extent and area of the historic landfill extends into that area being promoted as residential development.

3.4.2 WGCS's report further comments on the differences in information held between the developer and the EA. The report is particularly concerned about the potential exposure to residents and people using the proposed Parkland, (which is where the known landfill is located).

3.4.3 The extent of the EA map does differ to the applicant master plan. The map shown on page 4 of appendix 4 details the public register obtained from the EA website overlaid with the photographs submitted by WGCS.

3.4.4 The EA public register of former landfill sites database is discussed in section 4. The EA have not been able to confirm how the exact boundaries of their public registers were obtained.

3.4.5 WGCS report does state on page 13 that *"It appears that the area earmarked for most of the new housing now was not by this point being worked as landfill".* Although the EA map does designate it as historic landfill, so presumably this took place.

3.5 WHBC Observations

3.5.1 A number of additional historical sources of data (see Section 6), have been submitted by Tarmac and reviewed by WHBC at a meeting. None of them identifies the land earmarked for housing as being landfill.

3.5.2 In respect to the use of the surrounding land for residential dwellings the report comments on the number of existing bore holes which are monitoring landfill gas. Page 17 states;

> *"it seems possible that more extensive ground gas venting may be needed to prevent risk to a new development"*.

It is certainly the case that additional monitoring bore holes were required at the time of this report being submitted. Tarmac and its CLC have stated in their CL reports that additional continuous monitoring for landfill gas would be required and that this would be fed into the risk assessment.

3.5.3 The report comment on the production of methane at vents in Holwell Hyde. Page 24 states;

"Methane readings of up to 58.5% do not seem to equate to the description of 'generally low'".

Tarmac have submitted some additional data on the production rates of methane in these boreholes. This has been reviewed by WHBC's third party consultant, who has commented upon the data. See section 6

3.5.4 In respect to the use of the Former Landfill for Open Park Land on page 19 the report states,

"The Country Park area especially would seem to need more investigation to understand what risk to health maybe present".

Tarmac have provided additional information into the use of the Country Park and this is detailed in Section 6.

3.5.5 On page 23 the report states

"not going deeper than one meter in depth, many going a lot less".

Tarmac have produced data which shows that whilst top soil may not be present at 5cm throughout the site, that made inert ground, (a capping layer of clay), was found in the remaining areas. Tarmac agree that not all exploratory holes were up to a meter deep, (due to access conditions), they submit that the samples obtained are sufficiently representative of the site.

4. Historic review of alternative available material and sources of information

4.1 Welwyn Hatfield Contaminated Land records

4.1.1 WHBC keeps a record of known contaminated land sites throughout the borough. The 'Cole Green Lane Landfill' files contain records which are numerous but essentially contain copies of previous investigations undertaken by the developer and some historical information which is duplicated by those held at Hertfordshire County Council. WHBC records therefore do not provide any additional information.

4.2 Environment Agency Public Register

4.2.1 The EA public register contains overlay maps which show records of historical landfill sites. Figure 2 is a copy of the public register from the EA website which shows the extent of areas the EA believes has had some workings. However the author of this report has not been able ascertain how the EA resolved to the extent of the site. The EA officers locally were not able to provide specific answers. It maybe that the map is simply indicative of suspected landfill or 'made land' but this has not been confirmed.

4.2.2 The EA were consulted on this site and submitted comments to WHBC planning department in February 2016. See this as appendix 5.

4.2.3 The majority of the EA's comments relate to Flood Risk and risk of contamination to Groundwater for which they are the primary regulators. The author of this report does not intend to comment on these matters. In respect to landfill matters, the EA have stated that "The historic mixed waste landfill on the site is to be utilised as open space….your Environmental Health and Building Control departments should ensure that any threats from landfill gas have been adequately addressed."

4.2.4 The EA have been contacted by WHBC for additional advice but the EA are unable to provide any additional technical resource.

4.3 Hertfordshire County Council (HCC)

4.3.1 HCC's Development Management Team have provide some useful historical records in relation to the site. Chay Dempster wrote "From our planning records it appears that domestic and commercial waste was deposited at the site during the 1960's and 1970's…in 1994 Redland Aggregates {the then owners} approached the County Council regarding a proposal to import inert waste to raise the levels of the land by an average of 1.5m to redress the uneven settlement across the site. However no planning application was submitted. At that time it was unclear whether there were still problems with landfill gas/leachate". This is seen in appendix 6.

4.3.2 HCC also advised that the EA should be consulted for additional advice.

5. Site visits and meetings

5.1 Site Visit with WGCS

5.1.1 On the 4th August 2017 WHBC's Public Health and Protection (PHP) Officers Tim Croot and Chris Beech accompanied representatives of WGCS on a site visit. Due to access matters, access was restricted to public rights of way only.

5.1.2 The purpose of the site visit was to provide WGCS the opportunity to try to accurately demonstrate where photographs in their report were taken and for them to discuss their concerns with the PHP officers. It was also an opportunity for PHP officers to raise questions about WGCS report.

5.1.3 WGCS were particularly focused on the following:

- Numbers of monitoring bore holes on the north west of the site (adjacent to Holwell Hyde Lane) which had apparently not been accessed or assessed for landfill gas
- Reports of an incident of pollution in the fishing lake where dead fish had been sighted.
- Concerns in respect to groundwater contamination (WHBC advised that this was an EA regulatory function)
- Soil contamination on the proposed residential areas of the site
- Risk of exposure to contaminates by users of the proposed park
- Reports of 'missing' vent stacks on the top of the centre of the site
- A pond to the south of the landfill which shows contamination in the developers CLC report but appears to be kept in the master plan with access to public
- Differences in the extent of potential landfill shown in the master plan compare to the EA public register
- Concern about the extent of the hand dug Auger exploratory holes across the landfill site

5.1.4 Each of these matters (apart from groundwater matters) were subsequently raised with the developers and their CLC who have provided supplementary information. See Appendix 7 and Appendix 8.

5.1.5 WHBC PHP Officers put several questions to the representatives of WGCS in particular:

- On what basis did WGCS conclude that the areas identified as 1-5 in their plan on page 4 of their report (Appendix 4) were likely to be landfill? Their report states on the bottom of page 4:

  > *"we certainly cannot be certain they are entirely accurately placed but to the best of our knowledge the areas shown in red above are reasonably accurate."*

  WHBC Comments: WGCS could not provide any records to demonstrate that the areas identified 1-5 on their plan has been landfill, other than a couple of photos which may or may not show an out fall in this location. (This is shown on page 8 of appendix 4). It is not possible to draw any significant conclusions from these photographs. However the developer has been asked to provide additional evidence that this location has not been used as a landfill site. This additional evidence is provided in appendix 8.

- What evidence does the WGCS have in respect to the alleged pollution incident at the fishing lake including dead fish?

  WHBC Comments: No dates or records were provided to PHP officers and neither were witness details given.

5.2 Initial Fact Finding Meeting with Tarmac

5.2.1 An initial fact finding meeting took place at WHBC offices on the 8 August 2017. The purpose of this meeting was to discuss in more detail the questions and answers originally submitted by Tarmac which are identified as appendix 7.

5.2.2 The meeting was voice-recorded and a copy is available at the request of the planning inspectorate.

5.2.3 Tarmac were able to address the majority of those concerns at the meeting and subsequently provided additional data in respect to the gas monitoring bore holes at the north west of the site. They also subsequently provided additional information with respect to the small pond at the south of the site.

5.2.4 Tarmac advised that two bore holes had been recently been installed with continuous ground gas monitoring. This was one of the recommendations given in the original Royal Haskoning DHV report of October 2014.

WHBC comments: It's somewhat disappointing that these continuous ground gas monitoring points had not been installed earlier. Although intermittent attended monitoring took place, it is no replacement for 'live' data which provides more accurate patterns particular during atmosphere changes. Tarmac were asked to provide up to date data from these newly installed monitoring points at the next meeting. However these would be of limited value with only two summer months of data. Further little explanation has been afforded as to the decision and location of the two bore holes.

As a result of this meeting Tarmac were requested to submit additional data in respect to the other bore holes located across the site. In particular historic data from the bore holes located on the North West corner of the site.

5.2.5 Tarmac were also asked to provide details as to the proposed mitigation and control for any leachate from the landfill. The CLC produced a plan which showed the position of existing and proposed "landfill collection drainage which would form part of the mitigation strategy. The additional infrastructure would be located on the south and west of the site between the boundary or the landfill and residential development areas. 'Run off' – wastewater from the site, would be piped to the existing out fall pumping station on the west side of the site.

As part of the mitigation the existing pools to the south of the site would be retained as a water feature if this is possible. These are currently contaminated and require monitoring during a phased de-contamination process. The process may be either intrusive (material removed), natural filtration or a combination.

WHBC comments: The developer has not finalised on the decision of the water features to the south of the site. They need to undertake additional monitoring (soil and water sampling) to determine the most appropriate course of action.

5.2.6 Tarmac provided additional information in respect to the proposed Parklands. No final decisions have been made for the exact usage of the open space on top of the landfill, but they believe the parkland is suitable for use by members of the public.

5.2.7 They have provided additional responses in respect to the exposure to potential contaminants (eg. Asbestos) and these are given in appendix 7 and discussed in section 6.3

5.3 Secondary Meeting and Site Visit with Tarmac

5.3.1 On 8 September 2017 a second fact finding meeting and site visit was undertaken by WHBC PHP officers. The meeting took place at offices of Tarmac.

5.3.2 Representatives of Tarmac's CLC provided additional raw data and numerous drawings which show historic drilling on the proposed residential and mixed use areas of the site.

5.3.3 Much of the data shows historic drilling which was undertaken for ground mineral surveys. This was to assess if the sub-surface matrix contained suitable mineral reserves. These investigations and documents were supplementary to the intrusive investigations undertaken by Tarmacs' CLC.

5.3.4 Tarmac hold the view that these documents and plans contain sufficient evidence to show that the proposed residential/mixed use development will be built on virgin land which has no history of mineral extraction or infilling.

5.3.5 Tarmac also supplied additional data on gas vents and bore hole locations to the North West of the site (near Thistle Grove). They acknowledge that some of this data was incomplete for the previous 10 years to access difficulties. This is shown in appendix 8.

5.3.6 A site visit also took place on the same day. Tarmac representatives and CLC for Tarmac escorted WHBC PHP officers across the whole of the site. The visit included:

- Viewing the existing gas vents and bore holes to the North West of the site
- Observations of the two new continuously ground gas monitoring bore holes
- Access to the existing pumping station and water sampling monitoring point
- Access to the ponds to the south of the site
- Walk over the landfill top and locating 'missing bore holes' (which are later identified as back filling depth measurement pipes).
- Walk over of proposed landfill leachate pipework areas

5.3.7 **WHBC comments:** The data presented by Tarmac is largely in the 'raw data' format with little or no interpretation provided. The applicant must undertake further sampling in respect to the existing ponds to the south of the site and undertake suitable and robust risk assessment as to exposure by the public of any contaminants in both the surface water and soil.

5.3.8 The developer must resubmit the raw data in a report format where analysis, interpretation of the risks and conclusion are presented. This must be done at the planning stage.

6. Second stage review of material submitted

WHBC commissioned a third party contaminated land consultant Land Quality Management (LQM) to undertake a peer review of the two original reports and additional raw data submitted by Tarmac. The **draft** peer review is given in appendix 9 attached.

Peer review by third party consultant appointed by WHBC of the CL reports submitted by Royal Haskoning DHV on behalf of Tarmac

LQM have assessed both reports submitted by Tarmac. Here are the significant findings:

6.1 Cole Green Former Mineral Workings

6.1.1 The report is intended to inform the master planning process and are not intended to be definitive assessments in support of the proposed end use. Any planning application should be accompanied with suitably robust risk assessments

6.1.2 Based on the limited sampling and human health risk assessment and the lower sensitivity of the proposed land use and assuming that the GACs adopted are appropriate that any health risks posed by contaminants in soil are unlikely to represent a major constrain of this area as a country park

6.1.3 Landfill gas risks are unlikely to pose any significant constraint on redeveloping the area as a country park. Current available gas monitoring data is insufficient to provide a robust assessment of the risks posed by ground gasses to existing properties or those proposed on adjacent sites as part of the Birchall Garden Suburb

6.1.4 The available data does confirm significant concentrations of gas within the landfill mass but the absence of gas flow rates for the majority of the locations means that gas specific flow rates cannot be calculated

6.1.5 Any subsequent gas risk assessment should demonstrate the effectiveness of the current passive venting system in protecting nearby residents in the vicinity of Holwell Hyde Lane and also assess the potential future risks to the Birchall Garden Suburb via off-site migration of gases

6.2 Cole Green Site

6.2.1 The report is intended to inform the master planning process and is not intended to be a definitive assessment in support of the proposed end use.

6.2.2 Based on the limited sampling and human health risk assessment and assuming that the GAC's adopted are appropriate that any health risks posed by contaminants in soil are unlikely to represent a major constraint to redevelopment as residential/mixed use. However further sampling and assessment will be needed to confirm this prior to any development.

6.2.3 The ground gas risk assessment appears to suggest that risks from gases generated beneath are low or require minimal gas protection measures to be installed. but the CLC for Tarmac did recommend that additional monitoring was required.

6.2.4 What extent the potential migration of gases from the adjacent landfill have been considered in the risk assessment.

6.2.5 Any future risk assessment should consider variations in the gas monitoring data that may indicate that gases are migrating from the landfill to the residential/mixed use development.

6.2.6 It should be possible to mitigate any gas risks sufficiently so as to permit the proposed development.

6.2.7 Based on the limited sampling and controlled waters risk assessment and assuming that the GAC's adopted are appropriate that any soils within the residential development/mixed use area are unlikely to pose any substantial risks to controlled waters and do not represent a major constrain to the redevelopment of this area for the intended use

6.2.8 The report does suggest that contamination is present within the secondary A aquifer and so additional leachablity data may be needed in order to determine the source of this contamination and assess any risks to controlled waters.

6.3 Controlled Waters

6.3.1 The third party consultant has also made comments with respect to controlled waters:

- Secondary A aquifer and on-site and potentially off-site, surface water quality impacts from contaminant's associated with landfill leachate
- The report does not seem to be clear about the possibility of landfill leachate migration within the perched water and Secondary A aquifer and that this could be impacting on surface water
- The matters are unlikely to pose an obstacle to mixed use development as long as adequate risk assessments do not suggest that significant gas or vapour risks are posed to future residents
- Further discussion and agreement must be reached with the EA

7. Discussion and Recommendations

7.1 Assessment of the suitability of the site for inclusion in the local plan

7.1.1 The two contaminated land reports submitted by Tarmac are only intended to inform the master planning process.

7.1.2 WHBC and its third party consultant have reviewed these along with the additional information submitted by Tarmac. Much of the raw data cannot be readily interpreted and as such it is difficult to comment upon them. Tarmac would need to resubmit the raw data in a report format where analysis, interpretation of the risks and conclusion are presented. This must be done at a future planning stage.

7.1.3 Tarmac have submitted sufficient evidence as to the extent of the historic landfill site and WHBC can have confidence that this matter has been resolved.

7.1.4 The intrusive sampling and monitoring already undertaken has not identified risks to public or the environment so significant to prohibit the proposed development from proceeding.

7.2 Uncertainties and Risk

7.2.1 Significant short comings in the sampling and monitoring phases remain and these must be addressed through a detailed risk assessment.

7.2.2 Particular attention must be made to those matters highlighted by the third party consultant appointed by WHBC.

7.2.3 The developer must ensure a robust, achievable mitigation strategy. The developer must factor the cost of construction and maintaining any infrastructure associated with the mitigation strategy and consider the risk of unplanned mitigation measures which may become necessary during the development process.

8. Conclusion and position statement

The Cole Green Former Mineral Workings and Cole Green Site do contain contamination. However the assessment and surveys which have already been carried out have not identified contamination at levels which are likely to prohibit the relevant developments uses from taking place. However this is subject to the developer undertaking suitable and sufficient risk assessments during the planning process and ensuring robust mitigation strategies are implemented.

Position statement

WHBC PHP are of the opinion that the Cole Green Site is suitable for the inclusion in the Local Plan as an area designated WGC5 as residential/mixed use development. This is subject to the developer undertaking suitable and sufficient contaminated land risk assessments and implementing a robust mitigation strategy which has been costed and evaluated for risk.