

Pickwick Association



The Planning Inspectorate
Room 3/C Eagle Wing, Temple Quay House
2 The Square
Bristol
BS1 6PN
For the attention of Mr Sean Ernsting
Your reference APP/Y3940/W/18/3204107

Town and Country Planning Act 1990
Appeal by Gladman Developments Ltd
Site Address: Land North of Bath Road, Corsham, Wiltshire, SN13 0QL

Dear Mr Ernsting

The Pickwick Association strenuously opposes the appeal by Gladman Developments against the Wiltshire Council's refusal to permit the variation of Condition 22 of Planning Inspectorate Decision of 27 May 2015, reference APP/Y3940/A/14/2222641

Background

The Pickwick Association is a residents' group whose role is to represent the interests of the residents of Pickwick, Corsham.

We were a Part 6 party to the Public Inquiry held in early 2015 under the auspices of Planning Inspector David Prentis and took a full part in the proceedings.

With mounting alarm we have for five years carefully observed the activities of Gladman (contractually "The Promoter" of this scheme), as they have nudged away at the very limits of law to convince the Local Planning Authority ("LPA"), local residents and undoubtedly Redrow (the perhaps unfortunate contractual "Developer" of the scheme) that delivery of their, Gladman's, opportunistic development proposal is inevitable and that they will steam-roller their way to clearing the last remaining contractual, regulatory problem. Resolving the last remaining matters is, of course, necessary before Redrow (the at-risk Developer) can start any works on the site before the outline consent granted on 25 May 2015 by the Inspector lapses (via Condition 3) on 8 September 2018.

This submission is in four parts:-

- The genesis of Condition 22;

- The off-site tests and Gladman's attempts to discharge Conditions 22 and 23; and their several attempts to vary the wording of Condition 22
- Conclusions
- Appendices []

It should be read in conjunction with the GWP Report of June 2017¹, Ruth Allington's letter to C Marsh dated 13th July 2017², and our submission dated 16 April 2018 to Wiltshire Council objecting to Gladman's application to vary C22, which are included as Appendices 1 and 2 respectively.

Yours sincerely

David Taylor
Chairman, Pickwick Association

Tony Clark
Vice Chairman, Pickwick Association

¹ *Land North of Corsham, Wiltshire, SN13 0QL: The relationship between current and future stone mine workings and the development site.* GWP Consultants LLP, June 2017, for Pickwick Association

² Concerning rebuttal of criticism of the June 2017 GWP report and significance of stability and mining issues to the discharge of REMs

Origins of Condition 22

1 The appellant's case is to a large extent predicated on his contention that he will shortly be able to prove conclusively that he can design foundations to mitigate noise and vibration from underground mining to no more than the levels required in Condition 23. We examine in detail the background to that – and the directly related - Condition 22.

The genesis of C22 and C23.

2.1 As a precursor to the Public Inquiry following Wiltshire Council's rejection of Gladman Developments' original planning application, PINS issued a Statement of Common Ground. That Statement, dated 18 September 2014, indicated³ that a principal point of disagreement between the Appellant and Wiltshire Council was "Whether the consented mineral workings beneath the site could result in the loss of residential amenity to future occupants".

2.2 The same Statement included a list of documents provided with the original application. Those documents included:-

- Site stability Investigation report (Opus Ltd); and
- Noise Assessment Report (Wardell Armstrong).

2.3 It also notified that a '*Supplementary Noise Assessment Report – April 2014*' had been submitted to the Council during the determination of the application.

2.4 In considering the consented mineral workings, the Officer's Report had noted:-

The Council has also had regard to the extant consent for mineral extraction beneath the application site in association with the Hartham Mine operation and relating potentially to almost its full extent. To date, the consented mineral workings have progressed in a south-westerly direction from the oldest part of the mine, away from the application site. However the consent runs until 2042 and, with the majority of its southwest portion now exploited, it is entirely probable that at some point within that time a substantial quantity of its northeast component will be worked.

Noise and vibration complaints have been received by the Council's Environmental Health team in relation to the active mining works in the area, with certain activities causing amenity issues for occupants of certain properties. These complaints have not, however, lead to the identification of a statutory nuisance under the terms of the Environmental Protection Act 1990. Subsequent to the Council's raising concern in respect of the paucity of information in relation to the likely impact of consented mineral works, the applicant has produced further information (Wardell Armstrong, February 2014) in relation to this point.

Having consulted the Council's spatial planning manager in relation to the issue, it is confirmed that the Council has no minerals safeguarding objections to the proposal. It is apparent from the reports submitted that due consideration has been given to the NPPG guidance on assessing stability issues (replacing former PPG14) and by extension the relationship between the former / current underground mining operations and the surface of the application site. The recommendations set out in the report in relation to the structural implications of mining activity beneath (or in the vicinity of) the proposed housing are of course circumspect; however, for obvious reasons, this is to be expected. From a purely geotechnical perspective, it is found that the submitted reports appear to provide sufficient information upon which to reconcile site stability with the principle of development, in accordance with paragraph 121 of the NPPF.

³ at '*Point of disagreement no. 5*'

2.5 We can find nothing in any published data which confirms the Officer's conclusions as regards stability of the site during or following the completion of mineral extraction. The site stability investigation report by Opus noted, at para 4.1.1 that its objectives were, inter alia:-

- [to] Provide advice on the effect of both existing workings and any future workings in relation to the proposed development.

Yet neither the Opus report, nor that of Wardell Armstrong, give any advice which the Officer could have drawn on in support of his conclusions regarding site stability. Indeed, Opus do not even acknowledge the extant mineral consent and give no advice as to the stability of future workings. We appreciate that the subject of this appeal is 'noise and vibration' but it would be remiss of us not to mention the associated risk of site stability which was apparently not considered at all in submissions to the LPA. There is further reference to this in the report of our Engineering Geologist⁴ appended as annexed to this submission (Appendix 1) – which notes that:

In relation to Bath Stone mines generally, Forster et al (1985)²² stated that "A sound roof bed is required, and a minimum thickness of overburden to the mined stone is necessary to prevent surface subsidence. **At present a minimum of 17 m is considered appropriate** at Westwood Mine, near Bradford-on-Avon". Room and pillar mine workings are designed to stay open for many years, certainly during the operational life of the mine, and Mine Regulations impose a legal obligation on closure of the mine to leave it in a safe condition.

The risk of pillar failure in modern room and pillar workings in Bath Stone is negligible both during the operation of the mine and following closure. Roof failure is, however, a possibility in any stone mine and that is why the roof is bolted as part of the mining cycle described in Section 3.1.3, to ensure that the roof does not collapse whilst active mining is taking place and before the workings are backfilled with waste rock. However, whilst roof bolts have a relatively long design life (perhaps 50-70 years), they cannot be guaranteed (and are not intended) to provide support to the roof of the mine in perpetuity.

2.6 It should be noted – as we make clear elsewhere in this submission – that mining at the development site may well occur at significantly shallower depths beneath the development site than the 17m considered appropriate. Not only does this have implications on stability, but also on the propagation of noise and vibration to structures on the ground surface above and adjacent to the mine workings. The noise element is recognised by Mr Walton (director of Wardell Armstrong) who expressly mentions that a noise assessment was required in the event that *'on the proposed development site ... at some point in the future, after the development goes ahead, mining activity takes place directly under the site'* [written evidence to the Public Inquiry December 2014]. He went on to say:-

1.16 To assess the noise and vibration impact on land directly above current Bath Stone extraction operations, required the assistance and co-operation of the mine operator and local land owner. Hanson confirmed that they would assist in an assessment of mining activity at their current extraction location which was under a greenfield location off Bath Road, Corsham. **Hanson confirmed that geological conditions between the current mine location and proposed development site were likely to be very similar** (ie that the depth of stone extraction should be similar) and their current method of mining is a standard one and was likely to be employed in the future, if they were to ever extract stone from beneath the development site. **A Wardell Armstrong Technical Director and Engineering Geologist has reviewed available geological information and concluded in a Briefing Note (Appendix 1), that the geological positions at the noise monitoring area and the proposed development site are similar in terms of thickness of weathered bedrock and the thickness of rock cover beneath the existing workings at the noise monitoring area and the cover thicknesses beneath the proposed development site.**

1.19 In the situation where there are no active mine workings beneath the application site, the comparable case study method employed is considered to be entirely appropriate and the best method available of assessing the

⁴ Page 9 of report: *Land North of Corsham, Wiltshire, SN13 0QL: The relationship between current and future stone mine workings and the development site*. GWP Consultants LLP, June 2017, for Pickwick Association

issue of likely future noise and vibration effects. Moreover, the mining company advise that the current depth of stone extraction is likely to be similar in the area of the proposed development, if mining were to continue to the area of the proposed development. Current extraction methods are well established and likely to continue in the future. Whilst there are no legislative restrictions, mining operational hours at Hartham Mine have historically been during the normal working day only (7 am – 4 pm) and are not likely to change significantly in the future. **The Wardell Armstrong geological briefing note describes the geology (depth of extractable rock) as similar between the survey location and proposed development site.**

1.25 It is technically practicable to incorporate standard noise/vibration isolation in the foundation design within the proposed development which would remove any possibility of direct noise and vibration transmission from mining activity in the underlying rock from entering future dwellings. **A commitment to developing a suitable design could be incorporated into a planning condition**

2.7 Further written evidence was provided to PINS in advance of the Inquiry – **firstly** by the Council's Environmental Health Officer Mr Steven Hunt – who commented:-

It is my professional opinion that the application has not satisfied that the development will not cause loss of amenity as the impact from unknown variables detailed within the noise report are exactly that, unknown. The developers have offered up no suggestions as to how the design scheme of their development will look to mitigate and design out the impact of noise from current underground mining activities and this is something that I would have expected to see in support of the application. If the development were to proceed it would from my experience create a conflict in uses of the land between the mineral owner whose permission to mine extends until 2042 and the future residents and workers of the proposed development.

It is noteworthy that the presence of this written evidence – ref LPA/SH - was apparently not known by the author of the Statement of Case who comments at the very end of para 3.2.4 that nothing further had been seen from the EHO.

Secondly, by Jane McDermott on behalf of the Pickwick Association, who introduced the evidence supplied to the Association via the Mineral Rights Owner by Dr. Paul Cockcroft of noise consultants Walter Beak Mason which outlined flaws in the Wardell Armstrong's case. He opined:-

The final conclusion is "*Wardell Armstrong therefore considers there to be a very low risk of future mining noise and vibration impact at the proposed development site.*" I have direct experience of effects of the current mine workings and have undertaken some research and I believe this is an unsafe conclusion

Dr. Cockcroft's opinion was appended to the Pickwick Association's written evidence.

2.8 The outcome was that experts from Gladman and the LPA met in the margins of the Inquiry and agreed the Statement of Common Ground appended to the appellant's Statement of Case as Appendix 6.

2.9 In reporting this agreed position to the Planning Inspector at the Public Inquiry, Mr Walton reported as follows:-

Agreed position relating to amenity (Noise and vibration)

Following the exchange of evidence, discussions have taken place between Malcolm Walton (Wardell Armstrong LLP on behalf of Gladman Developments Ltd) and Richard Francis of Wiltshire Council and their appointed noise consultant. Wardell Armstrong described the involvement of Total Vibration Solutions Ltd (TVS), a specialist in noise and vibration control who will provide foundation isolation designs for the development.

It was agreed that further noise/vibration measurement **at the site** is necessary in order to fully quantify the potential for future noise/vibration transmission through the ground under the site. This would then inform the detailed design of foundations which will incorporate anti-vibration material to prevent the transfer of vibration which could re-radiate as noise within buildings.

Details of the further testing to be carried out as described in a letter from TVS dated 4th February 2015 and the noise/vibration criteria to be achieved was discussed with Wiltshire Council and is specified in the planning conditions contained within the agreed Statement of Common Ground.

2.10 It is abundantly clear from this that the understanding of the parties at the date of agreement – 26 January 2015 - was that further testing in line with draft Planning Conditions (which ultimately became Conditions 22 and 23) should take place **on the development site**. This gave Gladman some 4 months before the PINS Decision was made to set up all preliminary work for the testing to be carried out. It appears that Gladman did nothing during this time – and spent much of the subsequent four months trying to wriggle out of testing on site in favour of the their preferred location above Hanson (who by then had been given 12 months’ notice, expiring in January 2016, to quit). This tactic proved successful only on 15 December 2015 when the LPA caved in to Gladman’s QC whose opinion was that the actual wording of the condition did not preclude testing elsewhere provided an alternative site was ‘appropriate’.

2.11 In publishing his Decision on 27 May 2015, the Planning Inspector incorporated the agreed terms of the Statement of Common Ground between representatives of Gladman Developments and Wiltshire Council as Conditions 22 and 23. In explaining those conditions, the Planning Inspector said (in the body of his report):-

147. The Council’s 4th reason for refusal related to potential harm to the living conditions of future occupiers from noise and vibration resulting from underground mineral workings beneath the site. Additional technical information was produced during the Inquiry and it was ultimately agreed by the Council and the appellant that this matter could be addressed by conditions. The conditions would require a foundation investigation plan to be submitted for the approval of the Council, having regard to the results of vibration tests. A further condition would establish criteria for noise and vibration. The Pickwick Association expressed doubts that these measures would be effective. However, the suggested conditions reflect technical advice about foundation isolation systems which has been accepted by the respective noise experts for the Council and the appellant. In my view the conditions would be effective in protecting the living conditions of future occupiers. In addition they would address a concern, expressed by some parties, that the scheme could have the effect of sterilising minerals under the site.

169. Condition 22 requires the submission of a Foundation Investigation Plan and condition 23 sets the noise and vibration criteria that the design of foundations would have to achieve. These conditions are needed to protect the living conditions of future residents of the appeal site in the event that an extant consent for underground mineral working were to be implemented in the future.

It should be pointed out [as confirmed on the penultimate day of the Public Inquiry] that, even at this late stage, Gladman had made no contact whatsoever with the mineral rights owner, so the question of possible sterilisation of the on-site minerals was clearly a serious concern of the Inspector when he came to drafting para 147 of his decision.

2.12 Let’s move on to the Hanson site where Gladman actually carried out their ‘tests’ on 16 December 2015, the day following the LPA’s eventual agreement with Gladman’s QC’s interpretation of an “appropriate location”.

The off-site tests and Gladman’s first attempt to discharge Conditions 22 and 23

3.1 We have shown that by the conclusion of the Public Inquiry (on Friday 13 March 2015) that Gladman and the Council had agreed that the testing required should be **on the development site itself**. There is no alternative reading which could be deduced from the text of Mr Walton’s note ‘Agreed position relating to noise and amenity (noise and vibration)’ which was made available at the Public Inquiry on, we understand, the day the Inquiry re-convened (12 March 2015):-

It was agreed that further noise/vibration measurement at the site is necessary in order to fully quantify the potential for future noise/vibration transmission through the ground under the site.

That was certainly the understanding of the Council whose position then was that testing may only take place on site. See Chris Marsh's email dated 15 September 2015 which reads:-

To date, we have only relayed the legal opinion we received from our Solicitors – to the effect that the relevant condition only allows for noise and vibration testing to be undertaken on/beneath the site itself – to the applicant.

3.2 By 3 November 2015 the position had changed. Chris Marsh advised us:-

We have recently received Counsel Opinion in response to an Opinion provided by Paul Tucker QC on behalf of Gladman. The specific question asked in both cases was whether the *wording* of the relevant condition allowed in principle for noise and vibration testing to be undertaken off-site (that is to say, that such locations could theoretically also be 'appropriate'). The view we received was that the formulation of the condition does allow for such an approach and accordingly we have accepted this view and very recently communicated this to the applicant.

Mr Walton confirms in his statement that Chris Marsh (Planning Officer) had formally advised him of this on 16 October 2015 '*subject to identifying suitable locations with appropriate supporting documentation*'. On behalf of Gladman, Wardell Armstrong had on 10 April 2014 already made initial noise tests above a disused section of the Hanson mine several hundred metres distant from the development site. Hanson had assured Wardell Armstrong that geological conditions were likely to be very similar at both sites and that the depths of mining and hours of operation would be likewise. [Para 1.16 of Mr Malcolm Walton's evidence to the Planning Inspectorate dated December 2014].

3.3 We commissioned GWP Consultants to review, inter alia, the geological conditions at the two sites. The report of their engineering geologist, Ruth Allington, is appended to this submission (Appendix 1). On page 3 of the covering letter summarising her conclusions, she makes the key point that:-

The author of the Opus Condition 7 report may also have relied upon Wardell Armstrong's 2014 report on noise and vibration tests at a location in the mine said to be geologically similar to the development site and to have a cover thickness of 21m. However, as explained in Section 3 of my report, the range of estimated depths to the mine roof at the development site will be between 11 and 17m (potentially 2-3m less than this if upper beds are extracted). Furthermore, whilst the area of the mine where the vibration and noise testing was carried out is beneath agricultural land, where there are old workings beneath built development¹², the estimated depth to the mine roof is between 22 and 25m. Thus, I have shown that the development site is not 'geologically similar' either to the (Condition 22) investigation site or to areas where there are mine workings beneath existing built development; all the future workings beneath the development site will be **shallower than any of the old mine workings** to the west and south-west of the site which are beneath buildings.

In other words, the site chosen by Gladman was not similar at all to the development site and not, therefore, an 'appropriate location' in the context of C22. Neither the Council nor Gladman apparently sought specialist geological or mining advice. Mr Walton, acting for the developer, has no experience and expertise in these areas. The absence of any geological and mining model is astonishing in submissions purporting to demonstrate the 'appropriateness' of the off-site location, given that 'appropriateness' depends entirely on the thickness of cover above the current and future mining horizons and the nature of that cover; matters which can only be assessed based on an understanding of the stratigraphy and structure of the rock mass. We can only assume that the Council accepted Gladman's contention as to the 'appropriateness' of the test site at face value without referring it to a suitably qualified person for checking, and we can only hope that the Council has now appreciated (having read Ms Allington's report) that this was an entirely unsafe conclusion to reach.

3.4 C22 requires that, prior to vibration testing, a method statement for the testing proposed should be submitted to **and approved by** the LPA. Even though Gladman had weeks (if not months) in which to prepare their method statement, it was not submitted to the LPA until 11 December 2015. On 15 December the LPA advised that that it would not be possible to assess the method statement shortly. The following day, Gladman carried out its tests. That is to say in contravention of C22.

3.5 What of these ‘tests’? We are aware that the activities monitored bore no relationship to genuine mining activity. We are in possession (as we believe is the LPA) of a statement from the operator of the mining equipment used. He has certified as follows:-

“On the 16th of December 2016 I was an employee of Hanson Bath and Portland working at Hartham Park Underground quarry operating a mini excavator with a hydraulic hammer.

In order that vibration and noise testing could be conducted I was instructed to use the hydraulic hammer in an old redundant part of the mine. For approximately one hour I used the hydraulic hammer on the sides of supporting pillars and on the floor.

This operation is very different and not representative of how I normally use a hydraulic hammer when in production.

I normally use the hydraulic hammer for several different processes when in production which includes:

- 1) Scaling the roof – the hammer is used to bring down any large and unstable pieces of stone from the roof of the mine
- 2) Breaking out the beds of stone – once the stone has been sawn the hydraulic hammer is used to break the beds out, and also break beds off from the roof which maybe hung up. When this happens the roof bed collapses very heavily onto the floor.
- 3) Breaking up waste, the hammer is used for breaking waste rock to make it easier to move

None of the above were happening on the 16th of December as there was no actual production taking place in the area of the test. There was no sawing, no drilling, no braking out of stone and mucking out of headings, when the testing took place.”

In other words, not only was the ‘test’ site entirely inappropriate, but the activities performed failed to replicate either the typical case or a worst case of future mining required by C22.

3.6 It was a further eight and a half months before Gladman had the nerve to submit the results of their ‘testing’ to the Council (Total Vibration Solutions ‘Vibration Survey and Assessment’ dated 24 August 2016). That report concluded:-

Based on the outlined mitigation being implemented, predicted re-radiated noise and tactile vibration levels will be compliant with the imposed planning conditions. The predicted levels have been based upon the absolute worst-case conditions (breaking out works occurring for a continuous eight hour period, 10m directly below a property, with the property being built directly on the rockhead). With a < 20Hz isolation system, the predicted re-radiated noise levels and tactile vibration levels are significantly below the Local Authority criteria level.

Even though the LPA was probably not aware of the shortcomings of Gladman’s tests at the time, it honestly reviewed the results in fine detail (taking advice from a recognised expert in noise and vibration) and sought additional information before refusing it on 28 February 2017.

Gladman’s second attempt to discharge Conditions 22 and 23 **Their first attempt to vary C22**

4.1 The new mine operator broke through to the old mine workings on 4 November 2016, thus facilitating on-site testing by creating an ‘appropriate’ setting in terms of active mining beneath the development site itself. Gladman, clearly sensing that that they would fail to discharge C22, had on 16 February 2017 applied to vary C22 with the aim of allowing development to start even if – as they

suspected by then - they were unable to demonstrate that they could meet the required noise and vibration standards set out in C23. This application was withdrawn by Gladman on 27 April 2017, after being advised by Chris Marsh (Planning Officer) on 24 April that it would otherwise be refused:-

If at this stage you would prefer to withdraw the application, I would be very grateful if you could let me know prior to the end of this week. Otherwise, pending the instruction of the local Councillor, the likelihood is that a refusal notice will be issued early next week under delegated powers.

4.2 Getting back to the off-site 'tests', we must theorise that Gladman were possibly not aware that the test location was totally unsuitable. They may have believed the assurances put about by their advising specialist consultants Hanson/Wardell Armstrong.

4.3 But it is beyond belief that someone within the company did not know of the token mining 'tests'. Nonetheless, they continued with further analysis of the (now discredited) results of testing in an inappropriate location and continued the charade with the LPA by seeking once again on 12 May 2017 to discharge C22/23. As Mr Walton notes at para 3.15 of his statement dated 30 May 2018, the conclusion reached following this analysis was that 'both groundborne noise levels and vibration levels will remain below the set criteria, utilising the identified mitigation measures, and therefore Planning Condition 23 can be discharged'.

4.4 Another presumptive statement which the LPA discussed in some detail with their own consultant and Gladman over the following few weeks. This culminated in Chris Marsh advising Gladman on 1 September 2017 that their application to discharge C22 had failed:-

Condition 22 cannot be discharged due to insufficient certainty to 'ensure' compliance with the condition(s) due to variables arising from:

- a) Changing working practices since time of original survey testing;
- b) Restrictions of original testing, including transducer spec and lack of roof impact testing; and
- c) Lack of robust lab-testing of specified foundation isolation product.

As before, it appears that the issue is the degree of variability and fine margins that we are considering here, creating an unacceptable degree of uncertainty when read in the context of the conditions' wording. The outcome of the exercise also perhaps reverts back to the tests of what constitutes an 'appropriate location' for the purposes of testing, as discussed some considerable time ago.

4.5 With active mining having been taking place under the development site since early 2017 and the mineral rights owner and the mine operator having offered as early as June 2016 to assist in on-site testing, it was eventually agreed in December 2017 to start afresh and undertake new tests on site.

4.6 These tests were carried out under proper mining conditions, as Mr Walton says, on 22 March 2018. Oddly, they did not produce the required results and were re-run, again as Mr Walton says (and again in proper mining conditions) on 18 April 2018.

4.7 Gladman's consultants, Accon, have since submitted a series of papers seeking to discharge C22/23. These papers have been examined by both the LPA's experts and acoustic consultants appointed by the Pickwick Association and been found wanting by both.

4.8 Let us recall that C22 requires testing to be carried out '*to replicate both a typical case and a **worst case** of future mining both within the mine and at foundation and bedrock level*'.

4.9 Let us also recall that C23 requires that "*foundations shall be designed to **ensure** that noise and vibration from underground mining activities shall not give rise to a noise level within **any** dwelling or noise sensitive building*" to specified requirements.

4.10 **Our first concern** is that the depth of mining in the historic mine tunnel may actually be deeper than is suggested by Accon – and hence the noise and vibration levels assumed for any genuine ‘worst case’ are likely to be more muted than actual 10m deep mining. We say this because the mine operator’s record shows that the roof level of the old mine at this location is 104.24m above sea level. The contour at the surface is 118.5m (according to Wardell Armstrong’s drawing LE11761-004 of 1 July 2015). So the depth of the ‘historic mine tunnel’ is possibly nearer 14 m than the 10m quoted – hence noise and vibration levels from genuine 10m workings will be that much worse. In support of this observation, the Inspector’s attention is drawn to Drawing No. PICKWICK1705-2 in Ms Allington’s report which shows inferred isopachytes of cover thickness above the mining horizons derived from her geological and mining model. This clearly shows that the actual cover thicknesses (based on underground and surface surveys) above the old mine heading range from 14.5 to 16m, and also that the **thickest** cover (*i.e.* the greatest depths) are at the western side of the site – as mine working proceed to the east, cover depths will decrease.

4.11 **Our second concern** is that even if the ‘10m’ depth can be proven, in seeking to discharge Conditions 22 and 23, Gladman appear not to have taken into account the fact that the mine operator is permitted to extract the upper beds and these beds may be as shallow as 5m to 6m below the surface. Absolutely no attempt appears to have been made to extrapolate the results from the claimed ‘10m’ depth or to assess the worst case conditions in every dwelling or noise-sensitive building, especially in those areas of the site where Ms Allington has demonstrated that future mining will be shallower. That is to say that no genuine ‘worst case’ seems to have been evaluated at all. This is contrary to C22.

4.12 Not, apparently, having yet given any thought to this crucial matter belies the claim in Gladman’s Statement of Case that an ‘imminent’ solution is just around the corner. It is clearly pie-in-the-sky hyperbole.

4.13 No wonder that on 23 August the Council formally advised Gladman that:-

the Council cannot yet discharge condition 22 of the above planning permission.

Their second attempt to vary C22

5.1 On 7 March 2018, Gladman lodged with the LPA – in identical terms to their previous submission - their second attempt to vary C22. The application drew considerable adverse public response and was rejected by the Council on 16 May 2018. It is the Council’s rejection of this application which is subject of the present appeal.

5.2 Perhaps in anticipation of the their failure to secure the discharge of C22/23 (para 4.13 above), Gladman has – in a document dated ‘May 2018’ but submitted only on 15 August 2018– appealed to the Planning Inspectorate against the refusal of their application to vary C22 in order to allow work to start on the development site prior to being able to show that the rigorous noise and vibration requirements can be met.

Given the failures noted above, and particularly the geometry of the situation beneath the development site, allowing more time to comply with C22/C23 is entirely futile – the mining and geological setting will not change with time and, as the consented mining operation moves to the east, the cover thicknesses will progressively reduce, thus increasing the loss of amenity for later phases of the development.

Conclusions

6.1 The Pickwick Association strenuously opposes the appeal by Gladman Developments against the Wiltshire Council's refusal to permit the variation of Condition 22 of the Planning Inspectorate's Decision of 27 May 2015, reference APP/Y3940/A/14/2222641.

6.2 This Decision was made after an exhaustive 8-day hearing at which Gladman Developments specifically agreed, in writing, the precise terms that became Conditions 22 and 23 of the Planning Inspectorate's decision.

6.3 In accordance with the terms of the original consent they – Gladman, Promoter – have to demonstrate to the satisfaction of the LPA that their foundation designs (to be delivered and paid for by Redrow):-

(a) are based on data obtained by procedures specified in the wording of C22 and

(b) satisfy the understandably exacting demands defined in the directly related, dependant, C23.

Gladman have had over four years to deliver on this challenging but perfectly reasonable condition. Having made a number of token attempts to satisfy C22 & 23, and foreseeing a timing deadline, already having made two attempts – and failed on both occasions – to alter the way the rules were defined there can now be no circumstances in which the Promoter can at this stage be allowed to by-pass the consequences of those repeated failures; it is becoming clear that, contrary to the developer's belief, it may be impossible to protect the amenity of the occupiers of dwellings on the site given the significance of the impacts and the length of time for which mining will legitimately continue beneath the site.

6.4 We note that at the Public Inquiry, Gladman's Planning Director advised the Planning Inspectorate that due diligence as regards minerals could resolve any problems.

6.5 We further note that Gladman Developments have had 45 months since the agreement was signed – or 41 months from publication of the Planning Inspectorate Decision to prove that the noise and vibration limits specified in Condition 23 can be met. That's longer than it took to build and fit out the Titanic.

6.6 In particular terms we say:-

- Gladman's case is devoid of merit;
- The constant repetition of claims that a solution is imminent is inconsistent with the facts of the case. Gladman first claimed to have actually solved the problem in August 2016 having carried out tests at a location we have proved to be inappropriate using activities which bear no relationship to actual mining;
- They have subsequently again claimed to have solved the problem in their submissions, via their consultants, Accon of 11 May and 31 May 2018;
- Each and every one of these claims have been found wanting by the LPA following advice from specialist consultants. The Pickwick Association has employed our own acoustic consultant who has confirmed that Gladman's submissions fail to meet the requirements of the Planning Conditions;
- The time allowed for the discharge of these conditions is perfectly adequate – in total as much as 12 months have been frittered away by Gladman. Take for example the 8 months

between the original (though faulty) 'tests' in December 2015 and the submission of results to the Council in August 2016;

- Lack of due diligence led to Gladman failing to understand or prefer not to acknowledge – and hence deal with – the issues presented by mineral extraction beneath the site ;
- No detailed geological investigation was carried out by either Gladman or the LPA. The Pickwick Association had to commission its own independent engineering geologist who has reported that Gladman's work and claims on this matter were crucially faulty: it was assumed (following careless or faulty analysis) that the depth of mining at the development site would be similar to the depths of mining which would be carried out beneath the development site. Our engineering geologist's detailed professional survey work demonstrated that mining on the development site would be far shallower – as little as 6m deep compared with rock cover of 21m above the old Hanson mine workings;
- Hence not only was testing at the Hanson mine totally inappropriate but also the need for land stability testing on land which would be shallowly undermined was totally discounted – this has huge implications for noise and vibration transmission and potential future land subsidence;
- No amount of due diligence can change the geological and mining setting of this site, which renders built development and the consented mining operation entirely incompatible with each other both in terms of noise and vibration but also in respect of the potential for mining subsidence;
- The imposition of Conditions 22 and 23 was agreed - by the LPA, Gladman and Inspector Prentis – to be essential to protect the living conditions of future residents on the site. Gladman's reference to the most recent guidance on the matter suggests that only *essential* (our emphasis) conditions should be set before development may proceed and that written agreement should be sought. There can be no doubt that these conditions are 'essential' – the Planning Inspectorate will, no doubt, see evidence from those who have already been exposed to noise and vibration from beneath this very site;
- We note that Gladman both in their response to the PINS questionnaire and their Statement of Case have misled the Planning Inspectorate in at least four places. For example they claim:
 1. that the site is not adjacent to or likely to affect an internationally designated wildlife site; wrong – it is next to a bats special area of conservation;
 2. that there will be no closure or diversion of a PROW; wrong – Redrow have already applied for both;
 3. that no protected species are likely to be affected; wrong – both bats and great crested newts use the site;
 4. they say that the southern boundary is a stone wall; wrong – Redrow have already demolished most of the wall.

6.7 We respectfully ask the Planning Inspectorate to refuse this appeal.

Pickwick Association
4 September 2018

APPENDIX 1

GWP report:

LAND NORTH OF BATH ROAD, CORSHAM, WILTSHIRE, SN13 0QL
The relationship between current and future stone mine workings
and the development site
and
covering letter dated 7th June 2017



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GWP Report No: 170607

Our ref: DT_TC 060617.let.docx

07 June 2017

FAO Messrs David Taylor and Tony Clark

By email only: taylordj.home@gmail.com, tony.clark88@btinternet.com

Dear David and Tony

Land North of Bath Road, Corsham, Wiltshire, SN13 0QL

The relationship between current and future stone mine workings and the development site

I am writing to provide you with the findings of my investigation to establish the relationship between the current and future Bath stone mine workings and the ground surface at the development site north of Bath Road/west of Academy Drive¹.

You initially asked me to comment on the implications of an application to vary Condition 22² in order to inform a formal objection to the application being prepared by the Pickwick Association.

In particular, in relation to 22(ii)³, you asked me to consider the following questions:

- what would constitute "appropriate locations to" [carry out trial mining tests to] "replicate both a typical case and a worst case of future mining"?
- what would constitute an acceptable "trial mining test" in an "appropriate location"?
- are any such "appropriate locations" currently available beneath or close to the site either to demonstrate "a typical case" [or] "a worst case of future mining"?
- if not, will any "appropriate locations" be available within the time allowed for commencing the development set out in Condition 3⁴?

¹ Planning appeal decision APP/Y3940/A/14/2222641 for the development of up to 150 dwellings, offices and landscaped areas at Bath Road, Corsham.

² 17/01539/VAR

³ 22 ii) *Vibration testing which shall take place during a trial mining test at appropriate locations to replicate both a typical case and a worst case of future mining both within the mine and at foundation level and bedrock level. The results of the test are then to be used by the foundation design engineer to ensure that noise and vibration levels of the foundations are at or below the criteria specified in condition 23. The vibration testing shall be carried out in accordance with a method statement which shall first have been submitted to and approved in writing by the local planning authority.*

⁴ 3) *The development hereby permitted shall begin not later than two years from the date of this permission or one year from the date of approval of the last of the reserved matters to be approved, whichever is the later.*

You have also asked me to consider whether (and, if so, how) my findings are relevant to the determination of the reserved matters referred to in Condition 1 of the outline planning permission (appearance, landscaping, layout and scale).

Condition 22

Although the application to vary Condition 22 was withdrawn on 27th April 2017, the questions I set out above remain relevant to the assessment of future submissions by or on behalf of the promoter of the development⁵ seeking to discharge the requirements of Condition 22 and, indeed, to an assessment of whether the scheme is deliverable at all. You therefore asked me to continue the investigations I was making and report the findings.

Condition 7

In the course of carrying out this work, I have reviewed the technical submission made by the promoter's consultants⁶ seeking discharge of Condition 7⁷, because the geological and mining information in that submission is relevant to addressing the questions I have been asked in relation to Condition 22(ii). I understand that the local planning authority accepted the June 2016 submission and discharged Condition 7 in August 2016.

The discharge of Condition 7 on the basis of the submitted documentation is of concern because the submission on behalf of the promoter is incomplete. It fails to identify (let alone *assess*, even to rule out) the principal "*land stability risk*" issue at this site which, in this setting, is the potential impact on the ground surface (and structures built upon it) of collapse of existing or future⁸ mine workings during the operational life of the mine or following closure, and the likelihood of any such occurrence. Instead, the submission specifically only considers the potential impacts of the development on the stability of existing old workings beneath the western part of the site, in relation to mitigation of impact on bat habitats⁹. In short, the principal "Land Stability Risk" was not considered at all in the submissions made to the Local Planning Authority.

Absent any explanation as to why the principal "Land Stability Risk" has not been considered at all, I believe it is possible that the author of the report that has led to the discharge of Condition 7⁶ may have relied on a Wardell Armstrong report produced for the promoter¹⁰ in August 2016 in which it is stated that any future underground mine workings beneath the site will be "*significantly deeper than the level of the old exploration tunnel currently beneath the development site*". However, my investigations and analysis supporting my responses to the questions you have posed in relation to Condition 22 demonstrate that the statement in the Wardell Armstrong 2016 document is actually completely incorrect. In fact, as I explain in Section 3 of my report, any future mine workings beneath the site and to the east of the existing underground roadway will be at the same depth as, or **shallower** than, this existing roadway.

5 Gladman Developments Ltd

6 Letter dated 21st June 2016 from P Taylor of Opus International Consultants (UK) Ltd to C Marsh (Senior Planning Officer (North), Wiltshire Council) and appendices.

7 7) *The reserved matters submitted pursuant to Condition 1 shall be accompanied by a Land Stability Risk Assessment which shall be submitted to and approved in writing by the local planning authority. The Land Stability Risk Assessment shall include details of intrusive site investigations, an assessment of land stability risks and mitigation measures to protect any underground workings from damage during the construction and operational phases of the development hereby approved.*

8 An extant planning permission for the underground mining of Bath Stone in Hartham Park Quarry, (which is currently active and valid until 2042) extends across the whole development site (see Drawing No. PICKWICK1705-1)

9 Paragraph 8.1 of Condition 7 submission: "*.....we feel that sufficient investigation has been undertaken to satisfy condition 7 in relation to the effect of the proposed development on the existing workings with respect to any effect on roosting bats*".

10 Page 3, paragraph 4 of document: "*Vibration Testing Method Statement and Foundation Investigation Plan submission for Planning Condition 22 of Planning Appeal Decision APP/Y3940/A/14/2222641 for the development of 150 dwellings, offices and landscaped areas at Bath Road, Wiltshire. SN13 0QL*". By Malcolm Walton of Wardell Armstrong.

The author of the Opus Condition 7 report may also have relied upon Wardell Armstrong's 2014 report on noise and vibration tests at a location in the mine said to be geologically similar to the development site and to have a cover thickness of 21m¹¹. However, as explained in Section 3 of my report, the range of estimated depths to the mine roof at the development site will be between 11 and 17m (potentially 2-3m less than this if upper beds are extracted). Furthermore, whilst the area of the mine where the vibration and noise testing was carried out is beneath agricultural land, where there are old workings beneath built development¹², the estimated depth to the mine roof is between 22 and 25m. Thus, I have shown that the development site is not 'geologically similar' either to the (Condition 22) investigation site or to areas where there are mine workings beneath existing built development; all the future workings beneath the development site will be shallower than any of the old mine workings to the west and south-west of the site which are beneath buildings.

If the author of the Opus Condition 7 report and/or the local planning authority relied on WA's assertions regarding the depth of future mine workings beneath the development site, it may have been decided effectively to 'scope out' mining subsidence risk (and the related subject of mineral safeguarding) as a relevant matter. However this is only an assumption, it is not specifically stated.

Whatever the reason for the omission of an assessment of subsidence risk in a "*Land Risk Assessment*" relating to a site that will be undermined in the future, my findings relating to the probable shallower depth of future workings beneath the site than appears so far to have been assumed by all parties raises serious questions regarding the deliverability of this development. This is because the thicknesses of rock cover above the future workings may not be sufficient to prevent surface subsidence if, many years following mine closure, roof collapse were to occur. These long term liabilities do not arise to such an extent elsewhere in the old mine workings to the west and south-west of the site, where cover thicknesses beneath buildings are significantly greater, and probably sufficient to arrest the upward migration of any void arising from roof collapse before it reaches the ground surface.

Structure of the attached report

The report that follows this covering letter is presented in 3 sections following a short introduction:

- In **Section 2** I provide a summary of the investigations I have carried out and the information upon which I have relied.
- In **Section 3** I present my findings, in particular my interpretation of the mining and geological setting of the development site.
- In **Section 4** I present my conclusions on the three matters you have asked me to consider:
 - 4.1** Responses to the questions you have asked me to consider in relation to Condition 22.
 - 4.2** Assessment of the significance of the failure to undertake a land stability risk assessment as required by Condition 7.
 - 4.3** My assessment of whether (and if so how) my findings are relevant to the determination of the reserved matters (appearance, landscaping, layout and scale).

Summary of conclusions

Condition 22

- The 2016 mining trial and associated monitoring and analysis seeking to discharge Condition 22(ii) was carried out at a location which represented neither the 'worst' nor a 'typical' case with respect to the thickness of rock and overburden at the development site. Thus, even if there had been no technical reasons for refusing to discharge Condition 22(ii), this was not an appropriate location.
- There are no "appropriate locations" currently available beneath or close to the development site where a trial mining test could be carried out that would replicate a 'worst case' or a 'typical case' of future mining. The currently active workings beneath the western side of the site represent an opportunity to

¹¹ Paragraph 3.2.3 of "Supplementary Noise Report", Wardell Armstrong, April 2014

¹² These areas are the triangular area between Bath Road and Bradford Road and the light industrial development north of Bath Road and west of the development site.

monitor noise and vibration emanating from the actual mining operation at foundation level, within the mine, and at rockhead level. However, they are at a depth which represents a 'best case' situation (i.e. the thickest rock cover likely to exist beneath the development site).

- I do not believe that there are any other areas of the old mine workings where suitable conditions currently exist to carry out appropriate mining trials and monitoring to satisfy the requirements of Condition 22(ii). In fact, my geological investigations and modelling show that the thickness of cover over future mine workings beneath the development site will be significantly less than that over old mine workings to the south-west and west of the site.
- I am not able to say whether mathematical adjustments could be made to the results of monitoring noise and vibration from the currently active mine workings beneath the site to predict accurately the impact of a reduced thickness of rock cover to the east of these workings. However, I would be surprised if tests conducted in the currently active workings, where cover thicknesses are in the range 17-18m, could be said to be relevant to areas of the development site where cover thicknesses could be as low as 8m on the eastern side of the site if upper beds of stone are extracted.
- Based on my geological/mining interpretation, there is no possibility that there will be an "appropriate location" available beneath the development site within the time allowed for commencing the development as set out in Condition 3. The thinnest cover above future mine workings within Lovell Stone Group's lease area will be near the northern site boundary approximately half way across the site at a location where total cover is expected to be between 11.5 and 12m. I have estimated that it would take between 7 and 14 years for the mine to reach this area if developed from west to east as intended.

Condition 7

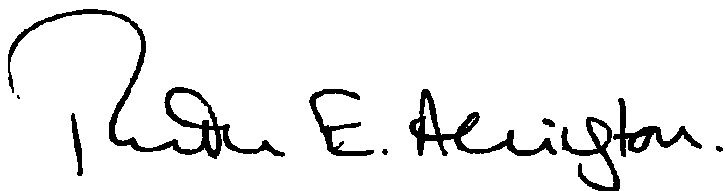
- The failure to undertake a "land stability risk assessment" based on relevant site investigations and geological/mining modelling (and the acceptance by the local planning authority of a report seeking to discharge Condition 7 without such an assessment) appears to stem from the incorrect assumptions that the depth of the mine workings and the character of the overlying strata at the development site would be similar to that at the investigation site, and that surface subsidence after mine closure would not be a risk requiring consideration.
- My findings relating to the probable shallower depth of future workings beneath the site than has so far been assumed by all parties raises serious questions regarding the deliverability of this development. This is because the thicknesses of rock cover above the future workings may not be sufficient to prevent surface subsidence if, many years following mine closure, roof collapse were to occur and lead to void migration causing surface subsidence.
- It will be necessary to undertake further intrusive site investigation at the site to establish the nature and actual thickness of all the strata above the future mine workings, not just the rocks near the ground surface. Only with such site specific information could an adequate "land stability risk assessment" be carried out in relation to subsidence risk.
- There is no reason to doubt that the future mine workings beneath the development site will be competently operated and left in a safe condition at mine closure, in accordance with good practice and legal requirements. However, for the reasons set out in Section 3.3.6 of my report, a mine operator/mineral owner could never guarantee surface support in perpetuity in a setting where it is kinematically possible for voids from roof collapse to reach the ground surface, unless specifically required to backfill the mining voids in a manner that would provide permanent surface support. The provision of permanent support would require engineering solutions such as grouting of the backfill, which would be likely to render the mining operation impractical and uneconomic. This is why built development is not normally permitted on land that has been or will in the future be undermined at depths from which voids could migrate to the ground surface.
- The potential for long term liabilities relating to surface support do not arise to such an extent elsewhere in the old mine workings to the west and south-west of the development site, where cover thicknesses beneath buildings are significantly greater, and probably sufficient to arrest the upward migration of any void arising from roof collapse before it reaches the ground surface, even if those workings are not completely backfilled.

Relevance of findings to the determination of reserved matters

- It is apparent that there will be no appropriate locations to undertake the tests required by Condition 22(ii) to reflect either the 'typical' or 'worst' cases of mining relevant to the whole development site before the period for implementing the planning permission expires. As no development can take place until Condition 22 has been fully discharged, it follows that the development scheme covering the whole site cannot be deliverable.
- It might be possible to reduce the scale of the development by confining it to an area at the western end of the site that acoustics and vibration experts were able to agree on the extent, if any, to which the results of mining trials in current workings beneath total thicknesses of 17-18m (rock cover thicknesses of 15-17m) could confidently be extrapolated to areas with smaller cover thicknesses, and what that smaller cover thickness should be. However, I would be surprised if the results of such tests could be said to be relevant to the eastern half of the development site where total cover thicknesses could be as low as 8m if upper beds are extracted (and it remains to be seen whether effective mitigation of noise and vibration would even be possible with such limited cover thicknesses).
- The boundary of a reduced development (*i.e.* the layout of the development) would need to be defined by minimum cover levels represented by noise and vibration monitoring above current mine workings. Such a boundary would have to be based on a programme of intrusive site investigation to prove the levels at the top of the Great Oolite so as to allow reliable prediction of the 'worst case' (*i.e.* highest future roof levels and therefore smallest cover depths).
- Given uncertainty over the footprint of the development (both because of the difficulties associated with discharging Condition 22 and because of the uncertainty over surface support in the long term) determining such matters as appearance, landscaping, layout and scale at this time would appear to be premature.

Please let me know if you have any questions or would like any aspect of the report clarified in any way.

Yours sincerely



Ruth Allington

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**LAND NORTH OF BATH ROAD, CORSHAM, WILTSHIRE,
SN13 0QL**

**THE RELATIONSHIP BETWEEN CURRENT AND FUTURE
STONE MINE WORKINGS AND THE DEVELOPMENT SITE**

For

PICKWICK ASSOCIATION

June 2017


Report Title: Land North of Bath Road, Corsham, Wiltshire, SN13 0QL
The relationship between current and future stone mine workings and the development site

Client: Pickwick Association

Job: PICKWICK
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Approved by: Alan E Cobb Date: 07/06/17

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LAND NORTH OF BATH ROAD, CORSHAM, WILTSHIRE, SN13 0QL

THE RELATIONSHIP BETWEEN CURRENT AND FUTURE STONE MINE WORKINGS AND THE DEVELOPMENT SITE

1. INTRODUCTION

This report has been prepared by Ruth Allington, Joint Senior Partner of GWP Consultants LLP, on instructions from the Pickwick Association. The background to its preparation is set out in the covering letter dated 7th June 2017 from Ruth Allington to the Pickwick Association to which this report is attached.

2. INVESTIGATIONS

My investigations have comprised the following:

- Downloading and reviewing of documents (including plans) posted on Wiltshire County Council's website associated with outline planning permission reference 13/05188/OUT¹ and application to vary Condition 22 (17/01539/VAR). References to the particular documents I have relied upon are given in footnotes to the text of this report.
- Review of the planning conditions for Hartham Park Quarry (N.98.1945), determined in November 1998 in accordance with Section 96 and Paragraph 9 of Schedule 13 to the Environment Act 1995.
- Review of the information supporting a January 2015 planning application to construct a new mine entrance and ancillary surface facilities at Hartham Bath Stone Mine, Corsham².
- Review of published and publicly available information about geology and mining in the vicinity of the site, notably:
 - 1:50,000 British Geological Survey map sheet 265 (Bath);
 - Scans of borehole records available from the British Geological Survey website (<http://www.bgs.ac.uk/geoindex/home.html>).
- Reference to published and unpublished authorities on mining subsidence.
- Visit to Hartham Park Quarry on 4th May 2017 (operated by Lovell Stone Group Ltd ("LSG")).
- Examination of a recent survey of the mine workings beneath part of the subject site provided on a 'commercial in confidence' basis by LSG.
- Interpretation of available geological, topographic and mining information within 1-2km of the site boundary to produce inferred structure contours at the top of the Great Oolite, postulate a likely range of mine roof levels in areas of the development site that are not so far undermined and estimate ranges for the thickness of rock and overburden above current and future mine workings.

3. FINDINGS

Based on my investigations, I have made an interpretation of the geological and mining setting of the development site and this is illustrated on Drawing Nos PICKWICK1705-1 and 2 attached to this report.

My findings are set out below.

¹ Documents available include: those associated with the planning application, objection letters, reports and correspondence; evidence presented on appeal and the Inspector's Decision; and documents relating to discharge of conditions applications.

² Application No. 15/00712/WCM. Permitted with conditions, 29th January 2016 (development to commence no later than 3 years from the date of the permission).

3.1 **Current and future mining beneath the development site**

3.1.1 ***Planning permission for mining and active workings***

The development site is within the boundary of an extant planning permission for the underground mining of Bath Stone. This permission³ is valid until 2042 and extends across the whole development site (see Drawing No. PICKWICK1705-1).

The current operator of the Hartham Park Quarry, Lovell Stone Group Limited (LSG), is presently mining beneath the south-western portion of the development site, between the western site boundary and the old heading⁴ known to run approximately north to south beneath the western part of the site (see Figure 1). The new mine workings are advancing generally to the north at present but LSG's lease allows it to advance in an easterly direction to a line roughly halfway across the site (see Drawing No. PICKWICK1705-2⁵). A plan showing how the mine workings will develop beneath the development site was attached to a letter of objection from LSG dated 9th June 2016. This shows the workings developing in three phases, worked from west to east. In the letter it is stated that, *"depending on ground conditions this [mine development] may take several years, however stone extraction will commence in this area in a matter of months."*

As far as I know, the stone beneath the eastern half of the site, whilst covered by the same planning permission, is in different ownership from that leased to LSG and I am not aware of any short or medium term plans to exploit this part of the reserve.

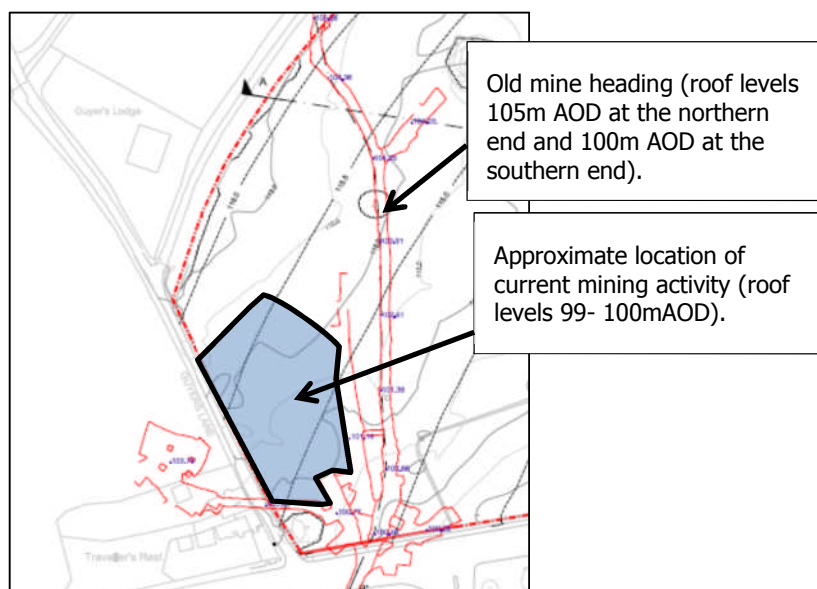


Figure 1: Extract from Wardell Armstrong drawing No. LE11761-004 showing historic mining activity beneath the development site and approximate location of current mining activity

³ Planning Permission N.98.1945.

⁴ Underground roadway.

⁵ Limit shown on plan attached to letter dated 9th June 2016 from S Hart of Lovell Stone Group to C Marsh, County Planning Officer.

3.1.2 Mine layout and geometry

The mine is a room and pillar operation; stone is removed from roadways that are set out in a square pattern, leaving pillars which support the roof (see Figure 2). The roadways in the currently active workings are 6m wide, and the pillars are 6 x 6m square in section, giving an extraction ratio⁶ of 75% as permitted by the mining consent⁷. The height of the pillars (distance between roof and floor) is between 3.5 and 4m. The pillar height might increase in future if beds above the current mining horizon are extracted, as they have been in the Traveller's Rest Mine workings immediately to the west of the area of current mining. I understand that, where "upper beds" have been extracted, roof levels typically extend 2-3m above the primary mining horizon. No decision has been taken by the current operator as to whether to mine these upper beds when the workings are extended further to the east beneath the development site⁸.

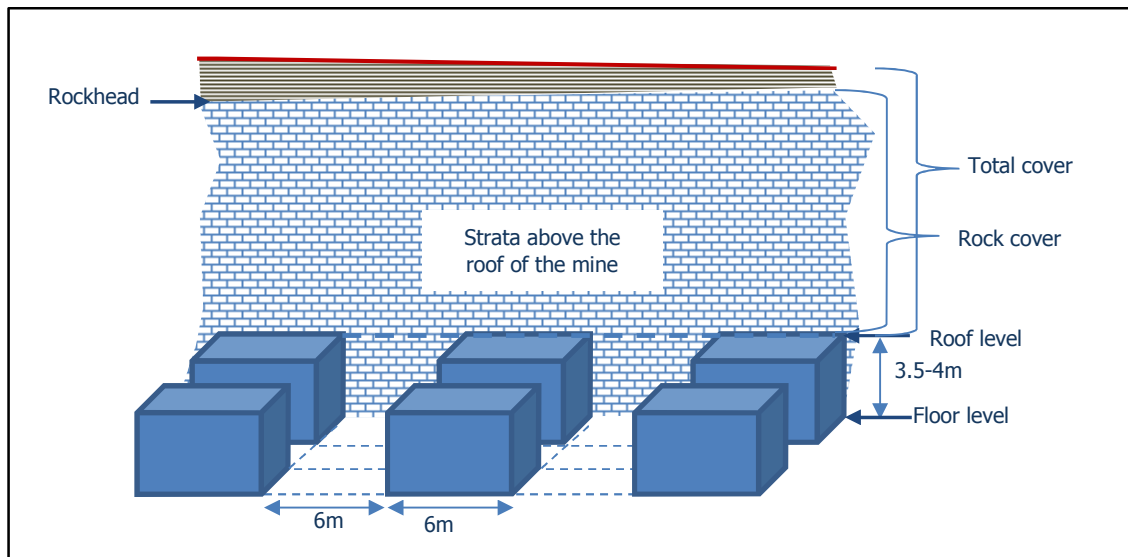


Figure 2: Sketch illustrating the geometry of room and pillar mine workings

3.1.3 Mining method

The sequence of mining is as follows:

- The face is cleaned and scaled to provide a smooth 'wall' of rock with no loose rocks or asperities. The machine used to clean the face is a hydraulic rock breaker.
- A Fantini chainsaw makes two or three horizontal cuts in the cleaned face (and sometimes one at roof level); these cuts extend approximately 1.8m behind the face. Vertical cuts are then made with the chain saw to divide the face into blocks that are roughly cubic.
- Hydrobags are introduced into the saw cuts, and filled with water to snap each block off at the back.
- A 'scoop tram' is used to lift the blocks out of the face. If any blocks do not snap off cleanly at the back, the rock breaker is used to release them.
- After all the blocks have been removed, the mine roof is bolted to provide support before the cycle begins again.

One complete mining cycle would normally be completed in the course of one day.

Blocks extracted as described above are trimmed underground in a suitable location on the mine floor using the rock breaker before being taken to the bottom of the shaft and raised to the

⁶ Ratio of the mined volumes to the total volumes.

⁷ Condition 3(i) of N.98.1945.

⁸ Page 3 of letter dated 9th June 2016 from S Hart to C Marsh also refers.

surface. Any blocks that contain fractures or obvious flaws may be rejected and broken up underground without being hauled to the surface. Where they are not needed for long term access and/or ventilation, Waste stone is packed into the worked out mining voids.

3.1.4 Annual extraction rate

In my experience, the yield of blocks suitable for cutting and shaping from a stone mine such as this would be between 20 and 30% of the *in situ* volume of rock extracted. There is therefore a considerable quantity of waste stone produced (e.g. reject blocks (on grounds of colour, size, presence of fractures, shape, or texture), and material trimmed from extracted blocks).

The current rate of production of blocks from the mine is between 2,500m³ and 3,000m³ per year, which equates to an *in situ* volume of stone of between 8,300 and 15,000m³ that must be extracted each year to maintain the production rate if the yield of suitable blocks is between 20% and 30%. At an extraction ratio of 75%, and assuming continuation of the current production rate and range of pillar heights indicated, it would take between 10 and 20 years for the mine to reach the eastern limit of the LSG lease area, and between 7 and 14 years to work through Phases 1 and 2.

3.1.5 Thickness of cover above current mine workings

In the currently active workings beneath the development site, the roof levels are at approximately 100mAOD and ground levels are between 117 and 119mAOD, giving a total thickness of cover⁹ above the mine roof in this area of between 17 and 19m.

To the east of the current area of working is the old mine roadway linking the mine entrance with the old Pickwick Mine workings which lie to the north-east of the development site¹⁰. Beneath the development site, roof levels in this heading fall fairly steadily from north to south, being just over 105mAOD where it crosses the northern site boundary to just over 100mAOD, where it passes beneath the southern site boundary (an overall gradient of 1:43.7 (1.3° from the horizontal)).

I understand, from LSG, that the roof levels in the old heading beneath the western part of the site are at the top of the bed of stone historically extracted over much of the mine area, and that the upper beds were not extracted in this location. It is therefore reasonable to assume that future mine workings to the east of this heading will be contiguous with it.

3.2 Geological setting of the development site

The mine workings at Hartham Park Quarry are within the Great Oolite, which is overlain at the development site by younger rocks of the Forest Marble Formation. Regionally, these strata are gently inclined in a generally south-easterly direction.

Borehole C, drilled in connection with a 2015 planning application for a new mine entrance (granted but not yet implemented), is close to the north-west end of the location within the mine where tests intended to discharge the requirements of Condition 22 were carried out in 2016¹¹ (for location in relation to the development site, see Drawing No. PICKWICK1705-1). Comparing the level at the top of the Great Oolite in Borehole C with the roof levels in the mine at the testing site, Location A, indicates that the top of the beds that are normally exploited in that part of the mine are some 8m below the top of the Great Oolite.

In the report letter produced on 21st June 2016 by Opus International Consultants Ltd, seeking to discharge Condition 7, details of intrusive site investigations (boreholes and trial pits) at the development site are given¹². None of the 27 No. boreholes and trial pits extends through the

⁹ 'thickness of cover' refers to the vertical distance between the ground surface and the roof of the mine workings. The total cover comprises comprising intact rock overlain by weathered rock and soil just beneath the ground surface.

¹⁰ See Drawing No DO J-D1078.00403 "Underground Mining Constraints Plan" in the Opus report "Phase 1 (Desk Study) Investigation Report" (March 2013).

¹¹ Wardell Armstrong Drawing No. LE11761-005, *Preliminary Ground Investigation Southwest of Site*, 24/11/15.

¹² Drawing No. DO J-D1078.00 and Appendix A attached to Letter dated 21st June 2016 from P Taylor of Opus International Consultants (UK) Ltd to C Marsh (Senior Planning Officer (North)), Wiltshire Council.

Forest Marble Formation to the top of the Great Oolite; the average depth to which these holes extended was 1.9m (maximum 5m, minimum 1m). The purpose of these boreholes and trial pits appears to have been to establish the nature and thickness of soil and weathered rock above rockhead¹³ so as to assess the foundation conditions for the proposed houses and other structures, but not to investigate the depth of the Great Oolite so as to infer the depth at which mining would take place in future.

Absent any relevant intrusive geological investigations at the development site, it is necessary to use available published and publicly available geological information as well as survey and other available information about the mine to determine the depth at which future mining is likely to take place beneath the development site. On this basis, I have developed the geological and mining model depicted on Drawing No. PICKWICK1705-1.

The results of my analysis indicate that the direction of maximum strata dip (inclination of the strata) beneath the development site will be towards the south-south-east (consistent with the regional dip) at about 1(h):47(v) (1.22° from the horizontal). Assuming that the top of the Bath Stone horizon that is normally worked in this mine is 8m below the top of the Great Oolite, I infer that the roof levels in future mine workings beneath the development site are likely to be between 100mAOD (along the Bath Road boundary) and 105mAOD (along the northern boundary). If the upper beds are extracted (as they have been at Traveller's Rest Quarry and elsewhere in the mine), the roof levels could be between 2 and 3m higher than this.

Neither of the Promoter's consultants (Opus International or Wardell Armstrong) produces a geological or mining model of any kind, although Wardell Armstrong provide a description of their interpretation in their 2014 supplementary noise report¹⁴ and their Condition 22 method statement¹⁵

3.3 Inferred cover thickness above future mine workings beneath the development site

3.3.1 *Inferred cover thickness above future mine workings at the development site asserted by the Promoter's consultants*

In a section entitled "*Comparison between the Investigation Site and the Development Site*", the Wardell Armstrong (WA) Condition 22 method statement states (at Paragraph 4 on Page 3) that future mine workings at the site will be "significantly deeper than the level of the old exploration tunnel currently beneath the development site". The same paragraph starts by stating that "*rock cover thickness beneath the development site is of the order of 20m*" and at the end of the paragraph it is stated that "*the top of mine level beneath the western part of the development site is likely to be at approximately 95mAOD*". It goes on to state that, "*should this be the case, rock cover in this area would be approximately 17.5m*" (but it is not clear which area is being referred to here).

No conclusion is explicitly stated in the section of the WA Condition 22 method statement comparing the ground conditions at the investigation and development sites. It appears that the conclusion that the reader is invited to reach is that the rock cover at the development site is everywhere of a thickness that is similar to or greater than that at the investigation site, and therefore that the area of the mine in which the Condition 22 tests were carried out was appropriate to represent a 'typical' and/or 'worst' case of mining at the development site.

Paragraph 3.2.3 of WA's 2014 report, confirms that the promoter's consultants have assumed that conditions in the area of the mine where the noise and vibration studies were carried out are similar in terms of geology and depth to future mine workings at the development site:

"in the current case, where there are no active workings beneath the application site, it is considered that this "comparable case study" approach is entirely appropriate and the best method available of assessing the issue of likely noise and vibration effects. Moreover,

¹³ The top of intact rock/base of superficial material (soil and weathered rock).

¹⁴ "Supplementary Noise Report", Wardell Armstrong, April 2014

¹⁵ "*Vibration testing method statement and foundation investigation plan submission for Planning Condition 22 of Planning Appeal Decision APP/Y3940/A/14/2222641 for the development of 150 dwellings, offices and landscaped areas at Bath Road, Wiltshire, SN13 0QL (by Malcolm Walton of Wardell Armstrong)*".

Hanson advise that the current depth of stone extraction (approximately 21m) is likely to be similar, if continued in the area of the proposed development."

3.3.2 My interpretation of inferred cover thickness

Drawing No. PICKWICK1705-2 depicts isopachytes¹⁶ for the thickness of total cover above mine workings with their assumed roof levels 8m below the inferred top of the Great Oolite, and Table 1 below summarises the results of estimates of bedrock and total cover derived from my geological/mining model in combination with surface and rockhead contours provided by the promoter's consultants. It is predicted that the total depth from the ground surface to the mine roof within the development site will be between a minimum of 11m (in the eastern half of the site) and a maximum of 17m (near the old air shaft).

Area		Overburden cover (soil and weathered rock)	Bedrock cover above predicted mine roof levels	Total cover above predicted mine roof levels
Western side of site (LSG lease area)	Plan area (m ²)	55,890	55,890	55,890
	Volume (m ³)	132,683	633,800	766,484
	Average thickness (m)	2.37	11.34	13.71
	Max thickness (m)	3.67	13.95	16.86
	Min thickness (m)	1.03	9.05	11.46
Eastern side of site (outside LSG lease area)	Plan area (m ²)	43,777	43,778	43,778
	Volume (m ³)	90,570	428,675	519,248
	Average thickness (m)	2.07	9.79	11.86
	Max thickness (m)	4.45	11.73	13.68
	Min thickness (m)	1.19	8.25	11.02
Total development site	Plan area (m ²)	99,667	99,668	99,668
	Volume (m ³)	223,254	1,062,476	1,285,731
	Average thickness (m)	2.24	10.66	12.90
	Max thickness (m)	4.45	13.95	16.86
	Min thickness (m)	1.03	8.25	11.02

Table 1: Bedrock and total cover thicknesses derived from the geological/mining modelling (see also Drawing No. PICKWICK1705-2)

Using the rockhead contours shown on WA Drawing No. LE11761-004¹⁷, I calculate that the maximum intact rock thickness ("rock cover") above the mine roof would be 14m in the western part of the site and **not** "*approximately 17.5m*" or "*of the order of 20m*" as asserted in the Wardell Armstrong method statement. Beneath the eastern part of the site, my analysis shows that the minimum thickness of intact rock cover is 8.25m. If the mine operator were also to extract the upper beds (as he is perfectly entitled to do), the rock cover beneath the development site would further reduce to a maximum of between 11m and 12m on the western side of the site and to between 5.25m and 6.25m in the east.

As can be seen from Drawing No. PICKWICK1705-2, Table 1 and the summary above, my interpretation of the available geological and mining evidence reaches an entirely different interpretation from that set out by WA in the 2016 Condition 22 method statement, and leads to the following observations:

¹⁶ Contours of equal thickness

¹⁷ Existing survey and cross sections (01/07/15)

- The depth to the roof of the current and future mine workings beneath the development site will be significantly less than the depth to the mine roof at the investigation site (21m);
- Whilst future mine workings will be at a similar range of levels to the existing mine heading beneath the development site (not at a significantly lower level as asserted by WA), the thickness of cover (depth from ground surface to the mine roof) will reduce from west to east. This is because the ground surface falls from the highest point on the north-western boundary to the lowest point in the south-east corner.

Furthermore, by reference to Drawing No. PICKWICK1705-1 and the contours on the published 1:25,000 Ordnance Survey map sheet¹⁸ I estimate that the depth to the mine roof in old workings that lie beneath buildings in the triangular area between Bath Road and Bradford Road and in the light industrial development north of Bath Road and west of the development site is between 22 and 25m.

It should be noted that, in the south-western part of the mine¹⁹, which I believe is the most modern part of the old workings that pre-exist LSG's leasehold, a substantial support pillar has been left *in situ* beneath an electricity pylon at the surface (total cover approximately 24m), and that the buildings that are undermined or partially undermined in this part of the mine appear (on Google Earth) to be agricultural buildings or domestic outbuildings. At the development site, the entire site will be undermined if the planning permission for mining is fully implemented.

3.3.3 Reason for the discrepancy between interpretations of cover thicknesses at the development site

In light of the very significant discrepancy between my interpretation and that reported by WA, I have considered carefully how that has arisen. It is apparent that the reason for the discrepancy between my interpretation and that of the author of the WA method statement is that there is a significant error in the geological/mining interpretation by WA and this has led the author of the report to draw incorrect conclusions concerning the expected depth of cover at the development site, which I explain below.

On page 3, paragraph 4 of the WA method statement, the following is stated:

"A detailed investigation of the mine survey provided by the current mine operator indicates that the top of mine levels decrease in an east-north-easterly direction towards the development site. Roof levels decrease from 114mAOD in the south west of the mine to 97mAOD in the north east (beneath the residential area, just south west of where Bath Road and Bradford Road meet). The level decreases as the mine follows the better quality limestone rock and is likely to continue to decrease beneath the development site. This means that the depth of mining will be significantly deeper than the level of the old exploration tunnel currently beneath the development site, shown in Drawing No. LE11761-004."

The writer of the report states that mine roof levels "*just south west of where the Bath Road and Bradford Road meet*" are lower than those in the south-western part of the old mine workings. I have not seen a copy of the relevant mine survey but this is probably correct, and is certainly consistent with my geological and mining interpretation. However, in the course of undertaking the "*detailed investigation of the mine survey*" he appears to have overlooked the presence of a fault between the south-western part of the mine and the mine workings in this location (which is close to the southern boundary of the development site). The inferred position and orientation of this fault, with a displacement downwards ("downthrow") to the north-east, is shown on Drawing No. PICKWICK1705-1. Its inferred location and orientation is based on the mine survey information and evidence from boreholes A, B, and C attached to the 2015 application for a new mine entrance (also shown on Drawing No. PICKWICK1705-1).

The interpretation described by the author of the method statement implies that the dip (inclination) of the strata is to the east or north-east, whereas general geological knowledge and a

¹⁸ Explorer 156

¹⁹ Wardell Armstrong Drawing No. LE11761-005 (24th November 2015) *Preliminary ground investigation southwest of site* showing the site of the Condition 22 tests

cursory look at the published geological map at 1:50,000 would have revealed that the regional dip is to the south-east.

The paragraph goes on to state that *"Although speculative, the top of mine level beneath the western part of the development site is likely to be at approximately 95mAOD. Should this be the case, rock cover in this area would be approximately 17.5 m."* I believe there is a typographical error in this statement and that the author is actually referring to the eastern side of the development site. This is because, given the ground levels on the western side (117-119mAOD) a roof level of 95mAOD in this location would give rise to total cover of between 22 and 24m (rock cover of around 21-23m depending on overburden thickness).

3.3.4 Mining subsidence and the significance of the thickness of rock cover

In room and pillar workings, if a section of roof collapses, the resultant void will migrate upwards as material falls down into it. The upward migration of the void will be arrested by choking due to bulked roof debris, as long as the rock cover is sufficiently thick for this choking to be complete before the void reaches rockhead level. Void migration may also be arrested by the presence of competent layers of rock that 'bridge' the void or by natural arching processes. However, if such a void does reach rockhead level, it is likely to give rise to a crater or 'crown hole' at the ground surface as shown at the right hand side of Figure 3.

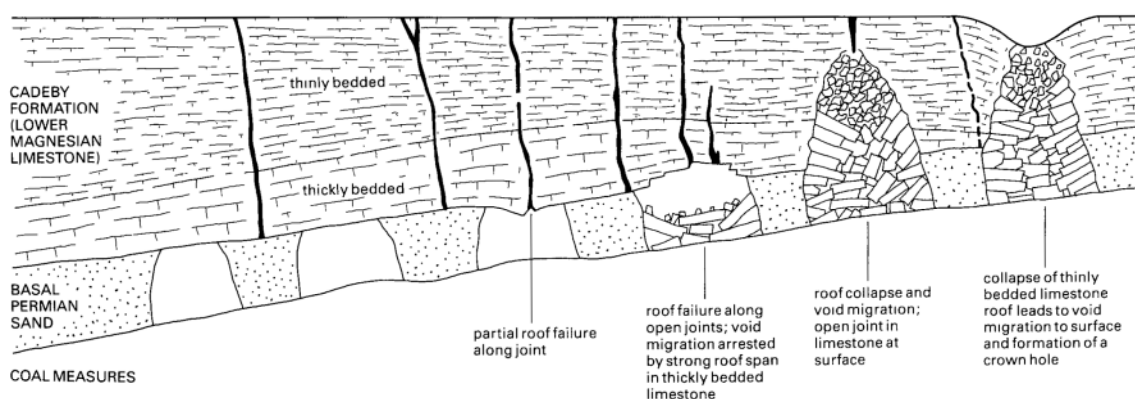


Figure 3: *Sketch illustrating the consequences of roof failure in a stone mine (from Barclay, W. J. et al, 1990²⁰)*

As can be seen from Figure 3, collapse of the roof in room and pillar workings does not always give rise to a surface effect. Walton and Cobb (1984)²¹ list the constraints to void migration as:

- Widths and heights of mine openings,
- Character and thickness of overlying bedrock strata, including any roof beam of remaining material,
- Character and thickness of overlying superficial deposits.

Clearly these are the matters that should be investigated to support an assessment of "land stability risks" at a site that is or will be undermined, and for which the consequences of ground subsidence would be serious. A crown hole appearing in an agricultural field is readily remediated, simply by backfilling it. However, if there are buildings or items of infrastructure (roads, pipes, power lines, for example) at the ground surface above mine workings, the appearance of a crown hole would be very serious and expensive to remediate.

²⁰ W J Barclay, R A Ellison and K J Northmore, 1990, *A geological basis for land-use planning: Garforth-Castleford- Pontefract*, British Geological Survey, Keyworth

²¹ Walton, G and A. E. Cobb, 1984, *Mining Subsidence*, Chapter 7 of *Ground Movements and their effects on structures*, Edited by P. B. Attewell and R. K. Taylor, Surrey University Press.

Therefore, even if roof collapse is extremely unlikely to occur, for a site that is or will be undermined, an assessment of "land stability risks" should consider whether the thickness of rock cover above the mine roof will be sufficient to arrest the upward migration of a void resulting from roof collapse if that were to occur.

3.3.5 Thickness of rock cover needed to avoid surface subsidence

Walton and Cobb state that the upper limits of void migration in bedrock with a flat or gently inclined seam may be up to 10 times the extracted thickness, although an upper limit of 8 times is "more reasonable, and that it is unusual to find many collapses reaching more than 6 times the room height. For mine workings 3.5-4m high, that would indicate a minimum rock cover requirement of between 21 and 24m. The required thickness might be reduced if the voids are backfilled with waste rock because that would reduce the effective extracted thickness, but this material is likely to settle over time, especially if the mine becomes wet or flooded following closure.

In relation to Bath Stone mines generally, Forster *et al* (1985)²² stated that *"A sound roof bed is required, and a minimum thickness of overburden to the mined stone is necessary to prevent surface subsidence. At present a minimum of 17 m is considered appropriate at Westwood Mine, near Bradford-on-Avon"*.

As is shown on Drawing No. PICKWICK1705-2 and described in Section 3.1.5 above, thicknesses of rock cover in future mine workings beneath the development site are expected to be below 17m, whereas old workings south of the Bath Road appear to have rock cover thicknesses that are more consistent with the 6x multiplier.

3.3.6 The stability of Bath Stone mine workings

Room and pillar mine workings are designed to stay open for many years, certainly during the operational life of the mine, and Mine Regulations impose a legal obligation on closure of the mine to leave it in a safe condition.

The risk of pillar failure in modern room and pillar workings in Bath Stone is negligible both during the operation of the mine and following closure. Roof failure is, however, a possibility in any stone mine and that is why the roof is bolted as part of the mining cycle described in Section 3.1.3, to ensure that the roof does not collapse whilst active mining is taking place and before the workings are backfilled with waste rock. However, whilst roof bolts have a relatively long design life (perhaps 50-70 years), they cannot be guaranteed (and are not intended) to provide support to the roof of the mine in perpetuity.

Backfilling worked out mining voids with waste rock serves two purposes:

- it provides a repository for the large amount of waste rock that arises from stone mining; and
- it reduces the height of the mining voids into which a collapsing roof could fall and so voids 'choke' more quickly and are much less likely to reach the ground surface.

However, whilst it renders the possibility of voids migrating to the surface less likely in the manner described above, backfill in mining voids does not provide roof support; it can settle over long periods so that it is no longer in contact with the mine roof, particularly if the mine becomes wet or flooded following closure. There is also no certainty that all the galleries that are not adjacent to the main roadways will be backfilled.

²² Section 3.1.4, page 40 of FORSTER; A., HOBBS, P.R.B., MONKHOUSE. R.A. and WYATT, R.J. (1985) *"Environmental Geology Study: Parts of West Wiltshire and South-east Avon"* (Keyworth: British Geology Survey).

4. **CONCLUSIONS**

4.1 **Responses to questions relevant to the future discharge of Condition 22.**

What would constitute "appropriate locations to" [carry out trial mining tests to] "replicate both a typical case and a worst case of future mining"?

The requirement of Condition 22(ii) is that trial mining tests are carried out, during which noise and vibration are measured within the mine, at the rockhead (bedrock level) and foundation level. The monitoring results arising from these tests are intended to allow the noise and vibration impacts of mining at rockhead and the ground surface within the development site to be predicted, and to inform the design of foundations incorporating mitigation measures that will be effective to limit these impacts when mining actually takes place beneath residential properties and other sensitive structures.

Appropriate locations for such trials and associated monitoring should have the following attributes:

- Locations in the mine at which the rock cover above the mine roof is representative of a 'typical case' (average thickness) and a 'worst case' (smallest thickness) of future mining beneath the development site (see Section 3.1.5).
- Sufficient locations (at least 2 – one 'typical' and one 'worst' case) to allow a site specific relationship to be established between mining depth and impact at rockhead and foundation level.
- Underground locations accessible for mining equipment.
- Vibration and noise will be propagated at all directions within the rock, not just vertically upwards. Therefore the ground surface at test locations should be suitable (in terms of access) for the establishment of a sufficient network of monitoring locations at rockhead and at foundation level to allow noise and vibration to be measured not only vertically above the working face but also to either side, in front of the face and behind the face.

I understand that, in an e-mail from Chris Marsh (Planning Officer) to the promoter on 15 December 2015 that 'appropriate locations' for mining trials would not necessarily need to be beneath the development site itself. However, as noted by WA in their August 2016 Method statement, this was on the basis that it would need to be established that *"ground conditions overlying the mine in this field are similar to the ground conditions on the development site"*.

It is apparent from my investigations and analysis that, whilst the similarity of the ground conditions at the two sites has been asserted by the promoter's consultants, the total cover above the mine workings at the 2016 investigation site is actually significantly thicker than the total cover will be anywhere beneath the development site. Similarly, rock cover at the investigation site is significantly thicker than rock cover anywhere at the development site. The significance of this in relation to Condition 22(ii) is that, at the investigation site, there was a greater thickness of rock above the mine workings to attenuate noise and vibration emanating from the mine workings than there will be at the development site.

Therefore, it is my opinion that the 2016 mining trial and associated monitoring and analysis seeking to discharge Condition 22(ii) was carried out at a location which represented neither the worst nor a typical case with respect to the thickness of rock and overburden at the development site. Thus, even if there had been no technical reasons for refusing to discharge Condition 22(ii) (on which I make no comment because they are not within my area of expertise) this was not an appropriate location.

What would constitute an acceptable "trial mining test" in an "appropriate location"?

The trial mining test would only be acceptable if it involved operating the entire mining cycle at full scale using the equipment normally deployed (as described in Section 3.1.3).

I would say that the method statement should allow for:

- Short term monitoring to establish the impact of each stage of the extraction cycle – sawing, breaking off blocks and lifting them out, using the rock pecker to trim the face and the blocks, and roof bolting.

- In addition to the short term monitoring to isolate the impact of particular machines doing particular duties, monitoring of noise and vibration at foundation level and rockhead level should also take place over a prolonged period so that the whole mining cycle is monitored and the attenuation of noise and vibration effects beyond the working face itself can be established.

Are any such "appropriate locations" currently available beneath or close to the development site either to demonstrate "a typical case" [or] "a worst case of future mining"?

No, there are no "appropriate locations" currently available beneath or close to the development site.

Current mine workings beneath the western side of the development site represent an opportunity to monitor noise and vibration emanating from the actual mining operation at foundation level, within the mine, and at rockhead level as required by the Condition 22(ii). However, the currently active workings are at a depth which represents a 'best case' situation (*i.e.* the thickest rock cover likely to exist beneath the development site – see Drawing No. PICKWICK1705-2). There are currently no available locations beneath the development site that would demonstrate a 'worst case' or a 'typical case' of future mining. I do not believe that there are any other areas of the old mine workings where suitable conditions currently exist. In fact my geological investigations and modelling show that the thickness of cover above future mine workings beneath the development site will be significantly less than that over existing mine workings covered by the same planning permission, to the south-west and west.

I am not able to say whether mathematical adjustments could be made to monitoring results to predict accurately the impact of a reduced thickness of rock cover to the east of these workings. A method statement would clearly have to be submitted before the trial took place and scrutinised by someone with relevant expertise, but I would be surprised if tests conducted where cover thicknesses are in the range 17-18m could be said to be relevant to eastern areas of the development site where cover thicknesses could be as low as 8m if upper beds are extracted.

If not, will any "appropriate locations" be available within the time allowed for commencing the development set out in Condition 3²³?

No, based on my geological/mining interpretation, there is no possibility that there will be an "appropriate location" available beneath the development site within the time allowed for commencing the development as set out in Condition 3.

As is shown on Drawing No. PICKWICK1705-2, the thinnest cover above future mine workings within LSG's lease area will be in the northern third of Phase 3, where total cover is expected to be between 11.5 and 12m. I have estimated (see Section 3.1.4 above) that it will take between 7 and 14 years to work through Phases 1 and 2.

4.2

Significance of the omissions from the submission leading to discharge of Condition 7.

Condition 7 requires a "Land Stability Risk Assessment" to be "submitted to and approved in writing by the local planning authority". This is required to include:

- details of intrusive site investigations;
- an assessment of land stability risks; and
- mitigation measures to protect any underground workings from damage during the construction and operational phases of the development.

As I describe in the letter covering this report, the submission on behalf of the promoter fails to identify (let alone assess, even to rule out) the principal "*land stability risk*" at this site which is the potential impact on the ground surface (and structures built upon it) of collapse of current or future mine workings during the operational life of the mine or following closure, and the likelihood of any such occurrence.

²³ 3) *The development hereby permitted shall begin not later than two years from the date of this permission or one year from the date of approval of the last of the reserved matters to be approved, whichever is the later.*

Section 3.3.4 lists the matters that should be considered in an assessment of land stability risk at a site that is or will be undermined:

- i. Widths and heights of mine openings,
- ii. Character and thickness of overlying bedrock strata, including any roof beam of remaining material,
- iii. Character and thickness of overlying superficial deposits.

Items ii. and iii. clearly require intrusive site investigation. However, the only intrusive site investigations that have been carried out at the development site were intended to establish the character and thickness of superficial deposits (particularly with respect to foundation conditions for the proposed buildings). There has been no attempt to establish the actual depth to the top of the Great Oolite and, from that to infer the strata dip within the site and the 'worst case' levels of the roof in future mine workings.

The failure to undertake a "land stability risk assessment" based on relevant site investigations and geological/mining modelling (and the acceptance by the local planning authority of a report seeking to discharge Condition 7 without such an assessment) appears to stem from the incorrect assumptions that the depth of the mine workings and the character of the overlying strata at the development site would be similar to that at the investigation site, and that surface subsidence after mine closure would not be a risk requiring consideration.

Whatever the reason for the omission of an assessment of subsidence risk in a "Land Risk Assessment" relating to a site that will be undermined in the future, my findings relating to the probable shallower depth of future workings beneath the site than has so far been assumed by all parties raises serious questions regarding the deliverability of this development. This is because the thicknesses of rock cover above the future workings may not be sufficient to prevent surface subsidence if, many years following mine closure, roof collapse were to occur.

It will be necessary to undertake further intrusive site investigation at the site to establish the nature and actual thickness of all the strata above the future mine workings, not just the rocks near the ground surface. Only with such site specific information could an adequate "land stability risk assessment" be carried out in relation to subsidence risk.

There is no reason to doubt that the future mine workings beneath the development site will be competently operated and left in a safe condition at mine closure, in accordance with good practice and legal requirements (see Section 3.3.6). However, for the reasons set out in Section 3.3.6, a mine operator/mineral owner could never guarantee surface support in perpetuity, unless specifically required to backfill the mining voids in a manner that would provide permanent surface support. The provision of permanent surface support would require engineering solutions such as grouting of the backfill, which would be likely to render the mining operation impractical and uneconomic. This is why built development is not normally permitted on land that has been or will in the future be undermined at depths from which voids could migrate to the ground surface.

The potential for long term liabilities relating to surface support do not arise to such an extent elsewhere in the current mine workings, where cover thicknesses beneath buildings are significantly greater, and probably sufficient to arrest the upward migration of any void arising from roof collapse before it reaches the ground surface.

4.3 Relevance of my findings to the determination of the reserved matters (appearance, landscaping, layout and scale).

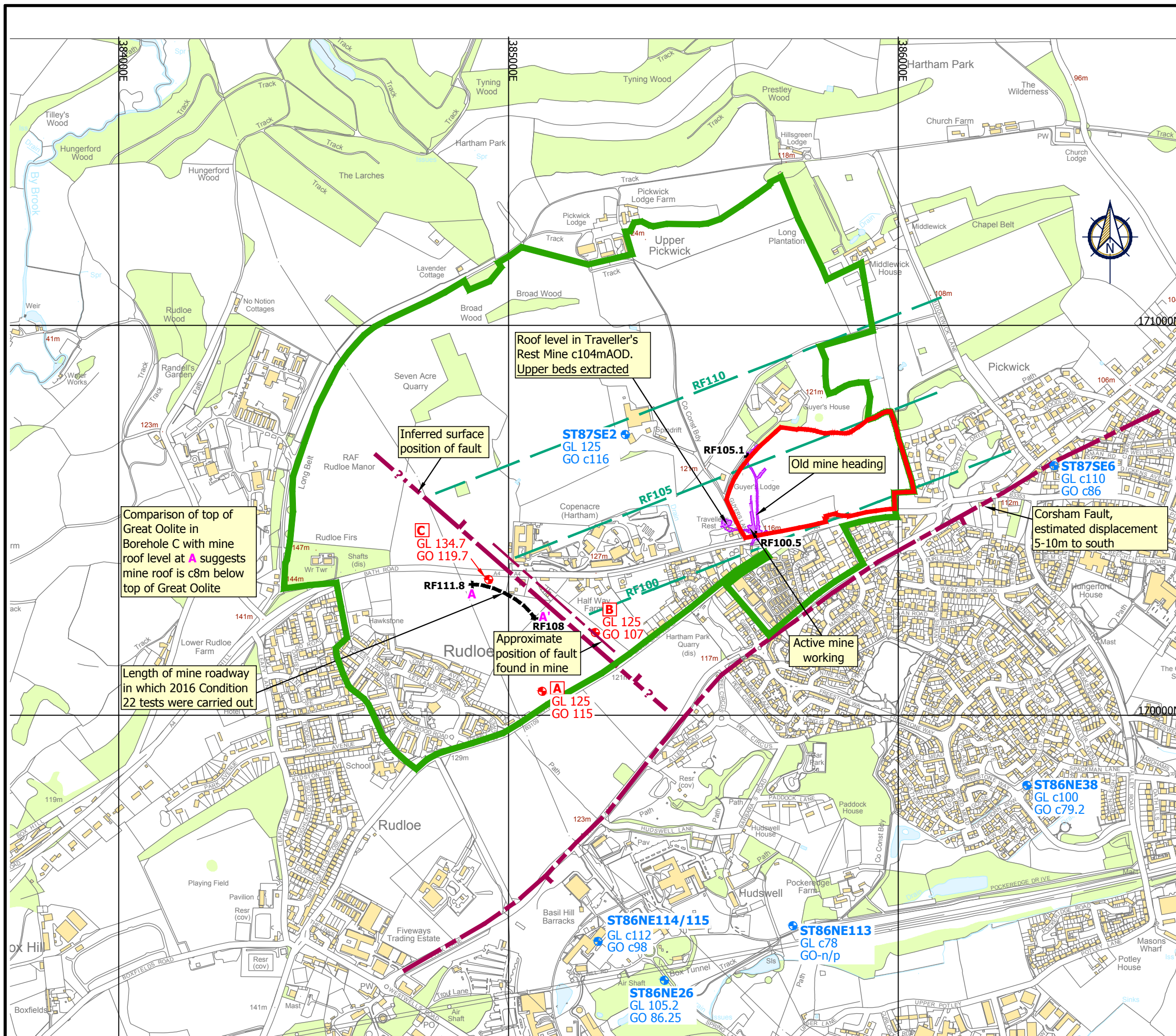
It is apparent that there will be no appropriate locations to undertake the tests required by Condition 22(ii) to reflect either the 'typical' or 'worst' cases of mining relevant to the whole development site before the period for implementing the planning permission expires. As no development can take place until Condition 22 has been fully discharged, it follows that the development scheme covering the whole site cannot be deliverable.

It might be possible to reduce the **scale** of the development by confining it to an area at the western end of the site if acoustics and vibration experts were able to agree on the extent, if any, to which the results of mining trials in current workings beneath total thicknesses of 17-18m (rock cover thicknesses of 15-16m) could confidently be extrapolated to areas with smaller cover thicknesses, and what that smaller cover thickness should be. However, I would be surprised if the

results of such tests could be said to be relevant to the eastern half of the development site where total cover thicknesses could be as low as 8m if upper beds are extracted (and it remains to be seen whether effective mitigation of noise and vibration would even be possible with such limited cover thicknesses).

Given uncertainty over the footprint of the development (both because of the difficulties associated with discharging Condition 22 and because of the uncertainty over surface support in the long term) determining such matters as **appearance, landscaping, layout** and **scale** at this time would appear to be premature.

GWP CONSULTANTS
JUNE 2017



LEGEND

- Site area
- Permitted Mine area N.98.1945
- ST86NE38**
GL c100
GO 79.2
BGS borehole record available with Ground level mAO
Level at top of Great Oolite mAO
- B**
GL 125
GO 107
Borehole from 2015 Application for new mine entrance
Ground level mAO
Level at top of Great Oolite mAO
- RF105.1**
Surveyed roof levels in existing workings
- Fault
- RF110**
Inferred contours of roof levels assuming that the top of the principal bed extracted is 8m below the top of the Great Oolite. (Note: Roof levels would be higher than this if upper beds are taken out)

Version	Revision and compilation notes	Date
A	Draft	30.05.2017
B	Draft	02.06.2017
C	Final issued with report	07.06.2017

Client
The Pickwick Association

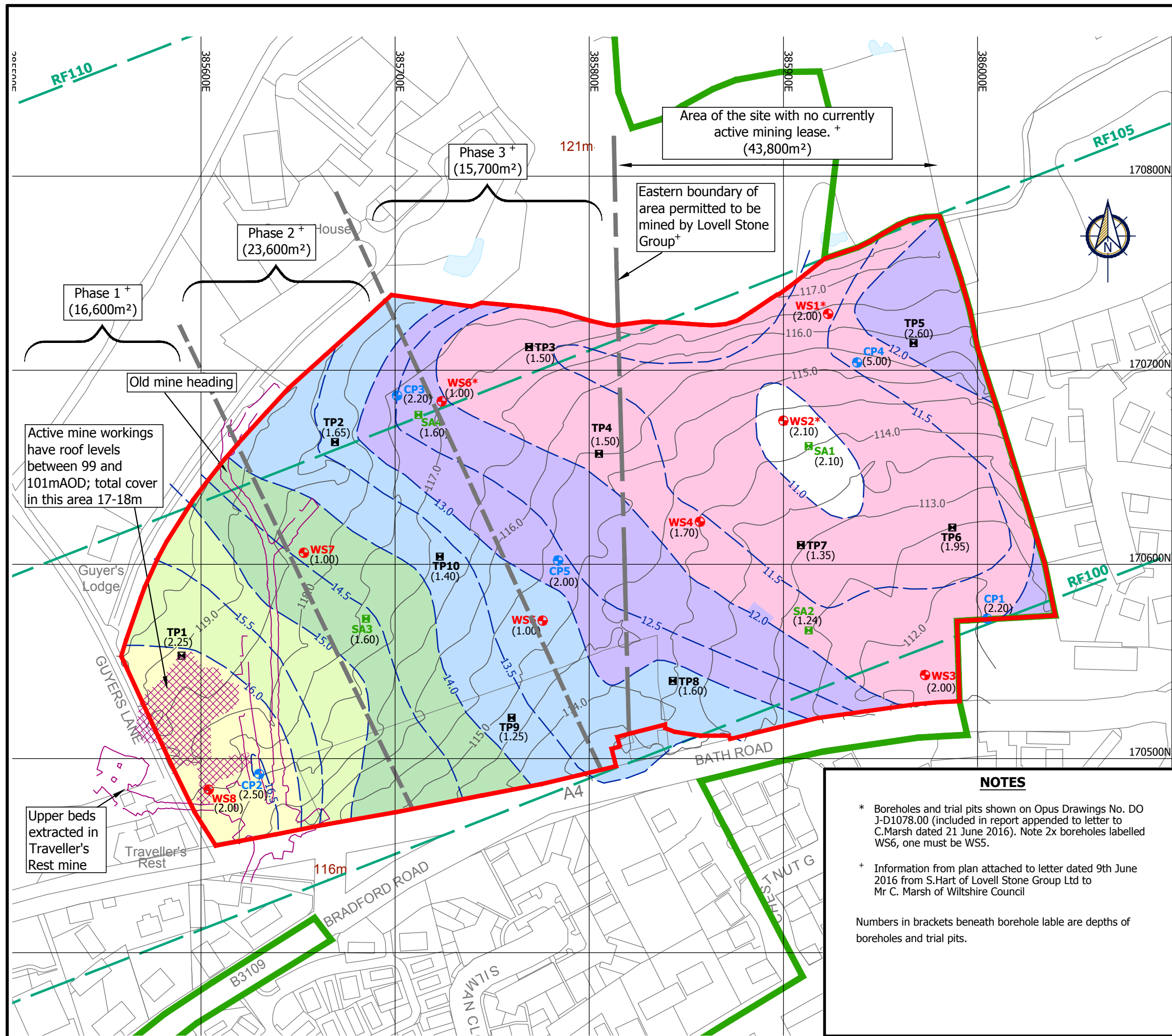
Project
Land off Bath Road, Corsham. Geological amd mining review of submitted information

Inferred geological and mining setting of the site

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Date 07.06.2017	Drawn RA/EMB	Checked AEC	Scale 1:10,000 at A3
Drawing Ref PICKWICK1705	Drawing No 1	Version C	



LEGEND

- Site area
- Permitted Mine area N.98.1945
- Existing ground contour (taken from WA Plan No. LE11761-004 'Existing survey and cross sections' (0.5m intervals))
- Inferred contours of mine roof levels assuming that the top of the principal bed extracted is 8m below the top of the Great Oolite. (Note: Roof levels would be higher than this if upper beds are taken out)
- Inferred isopachytes of total cover thickness (m) assuming mine roof levels are 8m below top of Great Oolite (0.5m intervals)
- Estimated total cover thickness (m)
- Boreholes and trial pits*
- Window sample with gas wells installed
- Window sample
- Cable percussive borehole
- Trial pit
- Soakaway test

NOTES

* Boreholes and trial pits shown on Opus Drawings No. DO J-D1078.00 (included in report appended to letter to C.Marsh dated 21 June 2016). Note 2x boreholes labelled WS6, one must be WS5.

* Information from plan attached to letter dated 9th June 2016 from S.Hart of Lovell Stone Group Ltd to Mr C. Marsh of Wiltshire Council

Numbers in brackets beneath borehole label are depths of boreholes and trial pits.

Version	Revision and compilation notes	Date
A	Draft	30.05.2017
B	Draft	02.06.2017
C	Final issued with report	07.06.2017

Client
The Pickwick Association

Project
Land off Bath Road, Corsham. Geological and mining review of submitted information

Inferred isopachytes of total cover thickness above current and future mine workings

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APPENDIX 2

Letter dated 13th July 2017 from R Allington to C Marsh concerning mine stability aspects of REMs applications and rebuttal of adverse comments on RA's June report



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Our ref: RA letter 13July REMs applications

**FOR THE ATTENTION OF MR C MARSH,
PLANNING OFFICER**

By email only: Chris.Marsh@wiltshire.gov.uk

Your refs 16/03721/REM and 16/04544/REM

13 July 2017

Dear Sirs

REMs applications

On behalf of my clients The Pickwick Association, I have reviewed two recent submissions made to the Council by Wardell Armstrong ("WA"):

- Document dated 12th May 2017 submitted to the Council under cover of a completed form *"Application for approval of details reserved by condition"* dated 15th May 2017: *"Submission to discharge Planning Condition 22 of Planning Appeal Decision APP/Y3940/A/14/2222641 for the development of 150 dwellings, offices and landscaped areas at Bath Road, Wiltshire. SN13 0QL"*, and
- Technical Note ("TN") dated 23 June 2017 commissioned by Gladman and referred to in the letter dated 27th June 2017 from Redrow's planning agent, Lichfields (not attached to Lichfields letter but supplied later by the Council). This June 2017 TN comprises a rebuttal to the GWP report of 7th June 2017 relating to the discharge of Conditions 7 and 22.

The Lichfields letter and the WA June 2017 TN have been added to the REM files on the County Council website in relation to those Reserved Matters applications due to go before committee on 9 August 2017. Self-evidently, it can only have been added to the REM files because the document is regarded as relevant to the Reserved Matters and it therefore follows that site stability (Condition 7) and the ability to discharge Conditions 22 and 23 (the matters covered in the TN) are also be relevant to Reserved Matters. I am sending this letter now for consideration as part of the committee's consideration of the Reserved Matters application because:

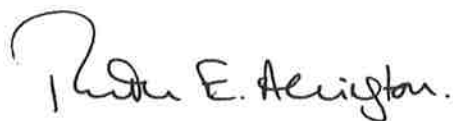
- site stability is, plainly, a material consideration in discharge of the REM applications relating to Layout and Scale (if there are areas of the site where long term stability cannot be guaranteed and/or predictions of vibration and noise from mining operations are open to question, this would clearly affect the layout and scale of the development); and
- the discharge of condition 7 relating to site stability did not in fact address site stability concerns for residential dwellings over an operative mine even though this is clearly a material consideration.

I have made both these points in my previous report dated 7th June 2017 and, having considered the WA response to that report in the June 2017 TN, I entirely refute the criticisms of my report therein. I can provide a point by point rebuttal of the points made if you wish, and some of the points are expanded upon later in this letter. The important point to make now is that, as a result of reviewing the WA further submission to discharge Condition 22 and the June 2017 TN, I remain of the opinion that the Condition 22 mining trials and associated monitoring were unreliable and fundamentally flawed, and I have not changed my professional opinion that there remains a very direct link between condition 22 vibration and noise, site stability and the site Layout and Scale.

My detailed comments on the WA 12th May 2017 submission supporting the application to discharge Condition 22 are set out in the attached document.

These comments are submitted now for consideration as part of the determination of the Reserved Matters Application and this is the letter referred to in Buxton's letter of today's date. They may be supplemented with further comments submitted specifically in relation to the application to discharge conditions 22 and 23 when that application is finally complete and a timetable for consideration of that application to discharge these conditions has been confirmed (I am told that further information has been requested by the planning officer Chris Marsh but not yet received).

Yours faithfully

A handwritten signature in black ink, appearing to read 'Ruth E. Allington'.

Ruth Allington
MSc, MBA, FIMMM, CEng, FGS, CGeol, EurGeol, MAE

Comments on 12th May 2017 Submission by Wardell Armstrong: "Submission to discharge Planning Condition 22 of Planning Appeal Decision APP/Y3940/A/14/2222641....."

The May 2017 WA document submitted in support of the application to discharge Condition 22 is an updated version of the "Method Statement" submitted to the Council in August 2016 (*"Vibration Testing Method Statement and Foundation Investigation Plan to discharge Planning Condition 22 of Planning Appeal Decision APP/Y3940/A/14/2222641 for the development of 150 dwellings, offices and landscaped areas at Bath Road, Wiltshire. SN13 0QL"*).

Comparison between the August 2016 and May 2016 Condition 22 submissions by WA

1. Surprisingly, very little has changed in this new document, other than the title, the attachment of a new report by ACCON UK, a new final paragraph referring to the ACCON report, and some minor amendments to and deletions from the text. The text on pages 1 and 2 and to half way down page 3 is identical in the August 2016 and May 2017 versions. From the section headed "vibration prediction methodology" on page 3 to the end of page 6, there are some deletions and some minor adjustments to the text, principally to amend tenses from future to past (not consistently done throughout).
2. The principal reason I say that the lack of substantive revision is surprising, is because a significant change has occurred in the mining setting between August 2016 and May 2017 that is not even acknowledged or referred to in the first part of the submission. It seems to have escaped the notice of the author that the mine is once again active; Lovell Stone commenced operations in early 2016 and workings have been taking place north of Bath Road and beneath the western part of the site since November 2016. Clearly, this provides an opportunity for real time monitoring of actual mining activities beneath the site, which (as I point out in my 7th June report) must be a more appropriate approach than the 2015 investigation that was carried out in an old part of the mine to the south west of the development site. Despite this, the ACCON report refers vaguely to the future possibility of mining beneath the development site.
3. The ACCON report describes finite element modelling and analysis to investigate the way that noise and vibration at the levels predicted from data collected during the 2015 "mining trials" will be propagated within a building constructed above the mine workings. This modelling is said to be directed towards design of mitigation measures to satisfy the requirements of Condition 23 and not, as the WA document implies, a reinterpretation of the vibration and noise data collected during the 2015 trial. There have, in fact, been no further mining trials or associated monitoring nor (apparently) reprocessing of the data collected during those mining trials, despite the criticisms made of this part of the work by Rupert Thorneley-Taylor in his letter to the Council dated 5th October 2016. The ACCON report makes it clear that the 2015 monitoring information provides the source model for its finite element analysis to determine building response¹; *i.e.* it has been used as input information to the modelling of impacts on the houses without, apparently, addressing the "errors, inconsistencies and shortcomings" in the August 2016 submission identified by Thorneley-Taylor. This is despite Thorneley-Taylor's recommendation that "the authors should be requested to address the points raised in this letter before resubmitting the reports". Perhaps finite element analysis does address some of these points but those concerning the shortcomings of the mining trials and associated monitoring raised by me and by Thorneley-Taylor are certainly not addressed.

Detailed comments on the May 2017 submission

4. It is stated (**Introduction** - Paragraph 3) that Condition 22(ii) requires "the submission of a Foundation Investigation Plan/Vibration Test Methodology. In fact, it requires three things:

¹ ACCON report, page 10

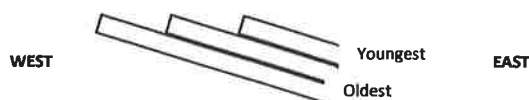
4.1 Source model

In this particular case, the source is the underground mining activity. In the scope of prior investigations, vibration measurements have already been performed and vibration levels caused by the mining activity are available. D25 International has based its evaluation on those measurements.

- a. Vibration testing to take place *"during a mining trial at appropriate locations to replicate both a typical and worst case of future mining"*, undertaken in accordance with
- b. A *"method statement"* which *"shall first have been submitted and approved in writing by the local planning authority"*;
- c. And the results of the tests to be used by the foundation engineer to ensure That noise and vibration levels of the foundations are at or below the criteria specified in condition 23"

A "method statement" is more than just a "methodology" and no mention is made here of the need for this to be submitted and approved before the testing is carried out. As noted in 1 above, the title of the document has changed. It is now said to be a document to discharge the condition whereas it was previously implied to be a methodology/method statement (even though in fact the testing was presented as a *fait accompli*).

5. WA claim (**Introduction** – paragraph 4) that *"...access to this area of the mine was not possible due to the age of the tunnel and associated health and safety concerns"*. While this may have been factually accurate at the time this was first written, it is no longer accurate – there are active mine workings west of this old mine gallery in which mining equipment is now deployed on a daily basis. These mine workings have been active since early 2016 and broke through into old workings north of Bath Road on 4th November 2016. There are numerous references to Lovell Stone's plans and their active operations in objections and other correspondence on the public record. It was therefore surprising that the original version of this document (August 2016) did not refer to Lovell Stone's mining operation, active by that time and clearly heading for the development site providing the prospect of a more suitable location. It is astonishing that, in this updated version of the document dated May 2017, the presence of mine workings beneath the site is still not mentioned and that (future) mining in this and the ACCON document is referred to as a distant future possibility
6. It is stated (**Introduction** - last paragraph) that *"....confirmation that ground conditions overlying the mine in this field are similar to the ground conditions on the development site needs to be established...."* Clearly it was important to establish that the ground conditions in both places are similar in order to justify the agreement of the planning authority that the SW area of the mine was an appropriate location for the mining trial and associated monitoring. Indeed, it would appear that the LPA's agreement to the location proposed was conditional upon this being demonstrated. As the GWP report demonstrates however, the LPA were misled (as a result of inadequate/incorrect geological interpretation) into believing that the ground conditions are similar whereas they are NOT. The workings are significantly deeper in the investigation site.
7. WA state (**Published Geological Mapping**, para 3) that *"West of this stratigraphical boundary the bedrock geology is younger and is conjectured to comprise limestones of the Forest Marble Formation"* This is complete incorrect. In a sequence that dips from NW to SE, the rocks that outcrop to the west are OLDER than those to the east- see sketch below:



8. Under the heading **"Ground Conditions at the Development Site"** (first para) it is stated that *"A few boreholes indicate rock head depth of over 5 mbgl"* This claim is not justified - only one of the 17 boreholes extended to a depth of 5m. The maximum depth of the other boreholes (CP2) is 2.5m (with rock head at 2.4m). One borehole is not "a few" on any analysis.
9. Under the same heading, second paragraph, WA quote Opus's work that *"indicates that the rock cover above the historical underground mine tunnel is predicted to range from approximately 11.15m in the north eastern area of the development site to 14.12m within the south eastern area of the development site"*. However, the old mine tunnel is on the western side of the site and therefore does not provide information about the depth of cover in the north eastern or south eastern areas of the site. Perhaps the author is in a muddle over compass directions?

10. In the section headed **"Comparison between the Investigation Site and the Development Site"** a number of claims are made by WA; I comment on several inaccurate or misleading assertions here

- Para 2 *"Rock head of the limestone appear to be at similar depths"*: 11 of the 27 boreholes and trial pits at the investigation site were not deep enough to intersect rockhead.
- Para 4 *"Rock cover thickness beneath the development site is in the order of 20m"*: See report – this is an unsubstantiated statement that is in fact wholly incorrect.
- Para 4 *"The level decreases as the mine follows better quality limestone rock and is likely to continue to decrease beneath the development site."*: See RA report Dwg No PICKWICK1705-1 and Section 3.3.3 on pages 7 and 8.
- Para 4 *"Although speculative the top of the mine level beneath the western part of the development site is likely to be at approximately 95mAOD. Should this be the case, rock cover in this area would be approximately 17.5m"*: Why has the August 2016 speculation not been replaced in May 2017 given that it is now known that there are active mine workings beneath the western part of the site (i.e. there is now no need for speculation).

11. The section headed **Proposed Vibration Testing Trial Pads** contains further inaccurate or misleading statements:

- *"It is considered that vibration monitoring at rockhead will represent worst case scenario and vibrations will be propagated directly into the foundation without benefiting from the dampening effect of the overlying weathered limestone"*: This seems to be an incorrect reading of the condition as to what the requirement is. It is clear that *"worst case"* in 22(ii) relates to the location of the mining trial and not whether the monitoring location is at rockhead or within the superficial materials – in fact the condition itself requires monitoring at foundation level and rockhead level. Thus, the *"trial mining test"* must be *"at appropriate locations to replicate both a typical case and a worst case of future mining"*, not to replicate a best and worst case of foundation level in relation to rockhead.
- *"The trial pads aim to replicate the base of house foundation. Vibration monitoring testing equipment was placed on a concrete slab measuring 600x225x1000mm using DS-1, AC-1 class concrete as recommended in the OPUS ground investigation report."*: Rupert ThornelyTaylor says (para 2, letter of 5th October 2016 to R Francis, Senior EHO) that *"The intention is to replicate the base of the house foundation, although the mass and the eigen frequencies of the house structure are not present in the slab. In accordance with the submission, the slab was used in the TVS work, and is further commented on below"*. He later says *"since the block was not subject to the loads and dynamic behaviour of a building, its frequency response did not replicate that of a building foundation"*. It is surprising that, in this May 2017 version of the submission, this paragraph has not been expanded to respond to RT-T's criticisms.
- *"One concrete pad was placed on rockhead at the base of the trial pad, to represent worst case scenario, and another pad placed within the weathered limestone to determine the dampening effect if foundations are placed within the superficial deposits. This process will be repeated on two further concrete pads at a second location, again at the rockhead and within the weathered limestone."*

"Due to the difference in ground conditions between the investigation site and the development site, the isolation design for all proposed properties on the development site has therefore been designed for this worst-case scenario of being built directly on the rockhead. This is in the knowledge that should the foundations of a dwelling on the proposed development site actually be supported in the weathered limestone, the material damping would attenuate the amplitude of vibration and the resultant levels that would be present at the foundations would be lower."

See above for comments regarding the misunderstanding of the intention of the condition regarding the need for the worst case scenario for mining to be assessed, and not the worst case scenario for the depth of the foundation

12. Section headed **Vibration Monitoring Method Statement**: *"Due to mine access and mine operational restrictions, site vibration measurements had to take place during the week commencing*

14th December 2015. Details of the vibration survey and initial assessment are contained in the Total Vibration Solutions (TVS) report dated August 2016 (attached).⁴

These words were written in August 2016 and have been repeated in the May 2017 submission. Since August 2016 the application to discharge Condition 22 has been refused, hence the new application. The situation in the mine is now entirely different; there is an extant mining operation going on under the western end of the development site and therefore it is entirely possible to monitor at rockhead and foundation level above actual mine workings. I understand that Lovell Stone has not been approached to seek cooperation over such tests, but it is known that they were highly critical of the tests that were carried out and said that they were not representative of the mining operation. The new circumstances have not been reflected in the current submission and the continued reliance on data gathered when circumstances were entirely different has not been justified or explained.

13. **Vibration Monitoring Survey Results** : *"The TVS vibration survey and assessment report describes the detailed methodology used during the survey and interpretation of results. The measurements replicated a scenario where rock breakout using a hydraulic breaker took place during measurements on test foundations directly above and was replicated at a second location. Whilst tactile vibration levels measured were predicted to be imperceptible within future buildings, predicted re-radiated noise was calculated to exceed the criteria specified in Condition 23".* I have been shown a statement by the man who operated the breaker during the 2015 mining trial that throws doubt on the validity of the 'mining trial' carried out using the breaker. In his letter of 5th October 2016, RT-T states: *"there is no objective analysis of the range of possible activities and explanation of why it is regarded as worst case" and "the breaker does not appear to have been used on the roof of the mine, which would cause the highest level of vibration and in that respect the activity measured was not worst case".*
14. **Further detailed prediction and assessment works**: *"During discussions with Wiltshire Council and their specialist advisor (Rupert Thornley-Taylor) further detailed work was requested to provide confidence in the predicted outcome":* On the public record, there is only a letter from Rupert Thornley-Taylor dated 6th October 2016 in which a number of *"errors, inconsistencies and shortcomings"* are identified in the submitted material, *"which mean that it cannot be accepted in its present form. The authors should be requested to address the points raised in this letter before resubmitting the reports"*. It may be that the amendments to the WA May 2017 submission (deletion of equations said to be incorrect) and the submission of the new material by ACCON are intended to address the analytical errors, inconsistencies and shortcomings that RT-T was referring to. However, this WA document fails to address explicitly (or even mention) ANY of the errors, inconsistencies and shortcomings identified in RT-T's letter, particularly those relating to the collection of the data itself (*i.e.* whether the use of test pads was valid and whether the use of a rock breaker on the floor of the workings represented a worst (or even typical) case of mining).

"To that end, Accon UK commissioned D2S International to carry out detailed Finite Element Analysis (FEA) monitoring and analysis": Applying FEA to flawed data is hardly likely to give a reliable prediction and it looks as though the predicted levels of noise and vibration impact from the new work are much higher than the original work! What would they be if they had measured real mining activity at a relevant depth to provide realistic input information to the FEA??

"This exercise is described in the Accon UK report dated 12th May 2017 (also attached to this submission)". The ACCON report states that *"WC, as advised by Rupert Thornley-Taylor of Rupert Taylor Limited, have indicated that in order to provide confidence with respect to the proposed vibration measures and the discharge of Condition 23, that they require a detailed Finite Element Analysis (FEA) modelling exercise and associated reporting. An alternative method was proposed of building a test house on site and carrying out detailed noise and vibration and groundborne noise measurements although for obvious reasons this route to discharging Condition 23 has not been pursued."*

From this, it appears that, despite RT-T's comments and the statements from the breaker operator and the current mine operator, regarding the tests themselves, WC, WA and ACCON have decided to take as read that appropriate mining trials in appropriate locations were carried out in 2015 and simply been instructed to undertake additional analysis on the data.

In general, it is worth noting that the current mine workings passed beneath existing houses in late 2016/early 2017 and caused complaints about noise and vibration. Surely the new mine workings provide an opportunity to instrument those houses and carry out a realistic trial beneath them to provide really accurate data without relying on extrapolation of data collected in an inappropriate location using an unrepresentative mining method.

APPENDIX 3

**Pickwick Association comments on Application No: 18/02373/VAR
16th April 2018**

THE PICKWICK ASSOCIATION



Pickwick Association comments on Application No: 18/02373/VAR

**The Pickwick Association objects to any variation to Condition 22.
The particulars of our objections are below.**

Background

This is Gladman's second cynical attempt to by-pass the requirements of Condition 22. Their first attempt one year ago (planning application reference 17/01539/VAR) was withdrawn once they had been advised by the Case Officer that

'.. having considered the proposals in detail my recommendation is for refusal.

The principle reason for this is that the pre-commencement trigger is inextricably linked to the bespoke conditions imposed by the Inspector with regards to submission of reserved matters and implementation following approval of reserved matters; the assumption being that the site is immediately available and deliverable. Conceding that this may not be the case through the variation of the condition to allow the further scrutiny of what was held at Inquiry to be an easily-resolvable issue would, in my view, partially undermine the Inspector's original judgement and give rise to an amended condition wording potentially failing the six tests.

If at this stage you would prefer to withdraw the application, I would be very grateful if you could let me know prior to the end of this week. Otherwise, pending the instruction of the local Councillor, the likelihood is that a refusal notice will be issued early next week under delegated powers.'

The applicant's stated justification on this occasion is almost exactly the same as his previous application. The actual form is identical apart from the date and the status of the signatory; the covering letter is the same, save that two paragraphs have been updated (or deleted) and one additional paragraph referring to a recent Government consultation (entirely irrelevant for reasons indicated below) has been added.

This submission that should be read in conjunction with our earlier submission on 17/01539/VAR sets out clearly why we **OBJECT** to the application and urge the Planning Authority to **REFUSE** it.

The grounds for our objections

- The opening words of Condition 22 are "No development shall take place until a Foundation Investigation Plan.....has been approved in writing....". The aim of Conditions 22 and 23 is to

“ensure (our emphasis) that noise and vibration from underground mining activity shall not give rise to a noise level within any dwelling or noise sensitive building in excess of [specified criteria]”. That says with considerable clarity that there must be **absolute certainty, before development starts**, that houses can be built on this site with no potential for harm to the living conditions of future occupiers from noise and vibration resulting from underground mineral workings. Without that certainty, the development cannot proceed. Allowing development to start before the vital safeguards of the Conditions as written by the Inspector have been met involves a degree of risk that the Planning Authority should find completely unacceptable;

- At the time of the Inspector’s Report Wiltshire Council had accepted without question Gladman’s assertion that, if any future mining was ever to take place beneath the site, rock cover thickness would be similar to or deeper than that at the location at which their now discredited 2015 “test” took place (20m). Mining is now underway immediately beneath the Northern and Western fringes of the site, and reliable third party geological Information has since been provided to Wiltshire Council [GWP report 7 June 2017] making it quite clear that in some areas of the site mining rock cover thickness will be as little as 8.25 metres. Indeed, if the mine operator were to extract the upper beds (as he is perfectly entitled to) the minimum rock cover could be as little as 5.25metres. The existence, validity and significance of this information has been and continues to be consistently ignored by the Planning Authority.
- Approval would imply to the applicant that the Planning Authority is absolutely certain that development on this site is deliverable and be an explicit acceptance of Gladman’s claim to be *“committed and confident that condition 22 will be discharged in due course”*. Such assurance cannot possibly be justified until Condition 22, exactly as written by the Inspector, has been properly discharged ;
- The Inspector distinguished very carefully between conditions that were before development commenced and those that were before houses were occupied. Foundation design was to be approved before development commenced;
- Despite their being *“committed and confident that condition 22 will be discharged in due course”* Gladman have already had over 3 years since the appeal decision, been granted several extensions of time and still have failed to prove compliance. The planning condition is not overly restrictive - it is a perfectly sensible protection drafted by themselves, agreed and subsequently laid down by a Government Inspector. They have already had more than adequate time to sort it out - the delay is thus entirely of their own making not the local authority's. There is no reason why the condition should be varied to accommodate their inability to satisfy its requirements. Indeed, in view of the now greater knowledge regarding the geology beneath the site (see above) there is every reason why it should not;
- The reason not to start development is that the disruption that any development causes for the community must be minimised, especially without the certainty that foundations that meet the stringent requirements of Conditions 22 and 23 are both technically capable of design and economically viable;
- The content of those conditions was mutually agreed in writing between Gladman and Wiltshire Council in January 2015. Gladman have been perfectly aware of the requirement since that date, have failed to satisfy them and thus their obligations to the Council and to the community at large; and
- Given the propensity of undermined ground to collapse (the Council has a copy of our engineering geologist’s report GWP 170607 dated 7 June 2017 and will note that a minimum overburden of 17 metres is considered appropriate in some locations) any work on access

(as the applicant seeks) should be preceded in any event by a land stability risk assessment and we call on the Local Planning Authority to see that this work is commissioned and is completed before any preparatory or enabling work takes place.

What do Conditions 22 and 23 seek to achieve?

The Planning Inspector was quite methodical in his examination of this. His view was that the statement of common ground on noise and vibration (ref GLD/LPA/09) agreed between Gladman and the Council and which he (the Inspector) translated word-for-word into Conditions 22 and 23 would be effective '*in protecting the living conditions of future occupiers*' and addressing concerns '*that the scheme could have the effect of sterilising minerals under the site*'.

Hence the objective of the Conditions is to:-

- to satisfy the local authority, with absolute certainty, prior to development, that there will be no harm to the living conditions of future occupiers from noise and vibration resulting from underground mineral workings beneath the site;
- to assure the local authority prior to the start of any work that the site is actually capable of development as proposed;
- to protect the developer and, vicariously, the local authority, from damaging or otherwise interfering with mines or materials in third party ownership leading to possible claims of trespass, compensation, liability for damages and consequent injunctions to stop work on the site.

The variation proposed entirely fails to achieve those objectives, as did the previous attempt in 2017. It is no more than a repeat of an audacious attempt simply to brush aside all of the carefully constructed and perfectly reasonable objectives of Conditions 22 & 23.

The application should be REJECTED.

**The Pickwick Association
16 April 2018**

APPENDIX – SUPPLEMENTARY INFORMATION to the submission by The Pickwick Association dated 16 April 2018 objecting to application 18/04323/VAR

1. Particulars of case

Location: Land North of Bath Road, Corsham, Wiltshire, SN13 0QL

Proposal: Variation of Condition 22 of 13/05188/OUT relating to the Foundation Investigation Plan.

2. Relevant Planning History

2.1 Application 13/05188/OUT, 18 October 2013 Outline planning application to Wiltshire Council, Refused consent.

2.2 Appeal Ref: APP/Y3940/A/14/2222641. Outline planning permission granted for erection of up to 150 dwellings, up to 1,394 sqm B1 offices, access, parking, public open space with play facilities and landscaping at Land North of Bath Road, Corsham, Wiltshire SN13 0QL in accordance with the terms of the application, Ref 13/05188/OUT, dated 18 October 2013, and the plans submitted with it subject to the conditions set out in the attached schedule.”

2.3 Application 17/01539/VAR 17 February 2017 requests to amend the preamble to Condition 22 which presently reads:

22) No development shall take place until a Foundation Investigation Plan has been submitted to and approved in writing by the local planning authority. The Foundation Investigation Plan shall include:

To either:

22) Prior to the commencement of any dwelling or noise sensitive building on site, a Foundation Investigation Plan must be submitted to and approved in writing by the local planning authority. The Foundation Investigation Plan shall include:

Or:

22) No development shall take place, other than the permitted site access in general accordance with drawing no. 4746/01/01 dated October 2013, until a Foundation Investigation Plan has been submitted to and approved in writing by the local planning authority. The Foundation Investigation Plan shall include:

(Pickwick Association note:- Sterling Maynard’s plan ‘4746/01/01 A’ entitled “Preliminary Junctions Layout (30 mph)” indicates a similar, but not identical layout to that put forward by Redrow in the context of its Reserved matters Application.)

Gladman suggests that the amendment “would allow Redrow, subject to the successful outcome of the reserved matters application submitted and the discharge of any remaining pre-commencement conditions, to lawfully implement the development whilst working towards the successful resolution of the substance of the condition.”

Application withdrawn 27 April 2017 - Gladman having been notified that it would be refused.

2.4. Application 18/02373/VAR – 9 March 2018 requests to amend the preamble to Condition 22 in **exactly** similar terms as above.

3. The origins of Condition 22

From the outset, the Wiltshire Council has recognised that the co-existence of residential buildings above a working mine was of concern. Indeed it was one of the reasons for the Council's refusal of the original application. In his Decision dated 27 May 2015, following a lengthy Public Inquiry the Planning Inspector noted:-

147. The Council's 4th reason for refusal related to potential harm to the living conditions of future occupiers from noise and vibration resulting from underground mineral workings beneath the site. Additional technical information was produced during the Inquiry and it was ultimately agreed by the Council and the appellant that this matter could be addressed by conditions. The conditions would require a foundation investigation plan to be submitted for the approval of the Council, having regard to the results of vibration tests. A further condition would establish criteria for noise and vibration. The Pickwick Association expressed doubts that these measures would be effective. However, the suggested conditions reflect technical advice about foundation isolation systems which has been accepted by the respective noise experts for the Council and the appellant. In my view the conditions would be effective in protecting the living conditions of future occupiers. In addition they would address a concern, expressed by some parties, that the scheme could have the effect of sterilising minerals under the site.

On 27 January 2015, the Planning Inquiry was advised that the parties to the Inquiry had agreed on the terms of what was to become Condition 22.

Gladman have had more than three years to work on the discharge of Condition 22. They applied to do this through submission of documents in August 2016. These documents proved unsatisfactory to the Council and despite the Council agreeing to several extensions of time for Gladman to provide acceptable evidence that they could indeed fulfil that condition they failed to do so. The Council formally rejected their application on 28 February 2017. Knowing this, Gladman now attempts to pre-empt the situation by seeking to vary the terms of the Condition.

Importantly, to allow the variation proposed by Gladman would leave the local authority open to action should it subsequently be found that foundations to meet the requirements of Condition 23 cannot be technically or economically designed the site would prove to be incapable of development;

4. Comments on Gladman's covering letter

- The applicant suggests that the aim of the existing condition is to *"to protect the eventual occupiers of the buildings on the site from future noise/vibrations from the extant mineral consent pursuant to which underground mining (the extraction of Bath stone) could occur below the site"* as though mineral extraction was a vague possibility rather than a fact. Mining is presently being conducted directly beneath the site. The applicant is fully aware of this since he has very recently attempted appropriate vibration testing there in accordance with an agreed method statement. It is understood that, for reasons currently undisclosed, these tests yielded completely meaningless data and will have to be repeated

- The applicant claims that he is ‘committed and confident that Condition 22 will be discharged in due course’. He was, of course committed and confident that he could ignore the requirement for pre-approval of his original method statement and that his wholly flawed original application to discharge Condition 22 would be approved. It was formally refused by the local planning authority on 28 February 2017. We believe that his confidence is sorely misplaced and that he will be unable to discharge the Condition;
- The applicant refers selectively to recently published documents including the 2017 White Paper on housing and the Ministry of Housing, Communities and Local Government consultation document of January 2018. As regards the former, he refers in particular to the proposal to end ‘unnecessary delays caused by planning conditions’. ***Conditions 22 and its related Condition 23 are anything but frivolous or unnecessary; they relate to the fundamental ability for the site to be proven capable of development for residential purposes before any such development takes place on site.*** In this regard it is instructive to note that the White Paper makes a point of noting that “neighbourhood plans (are) being undermined, by leaving them vulnerable to speculative applications where the local planning authority does not have a five-year housing land supply”. As regards the more recent consultation document, that document suggests the prohibition of pre-commencement conditions save where those conditions are agreed in writing by the applicant. Gladman are party to the written agreement contained in document GLD/LPA 09;
- Similarly, the applicant states that “The Government recognised ...that planning conditions are an important function in achieving sustainable development” but that too many were overly restrictive. It would be difficult to think of a more important and reasonable condition than that a 150 house development should be sustainable directly over an active working stone mine. It is plain that the Inspector saw the importance of this in imposing Condition 22. So did Gladman since their representative expressly agreed to it. **It would be impossible to call this condition overly restrictive;**
- Similarly, should the council be minded to accommodate Gladman, then reliance on plan 4647/01/01 as envisaged by Gladman is not acceptable. That plan is not consistent with the site plan submitted in Redrow’s Reserved Matters Application neither does it provide for the required environmental mitigation matters which **must** be in place prior to **any** development starting. Indeed, an additional condition should be imposed requiring the construction of the buffer zone around the air shaft and the landscape/ecological corridors prior to the start of any development;

5. Protection for Planning Authority in case of Gladman’s failure to discharge Conditions within stipulated timescale.

In the event should the Council determine that the variation be approved and the applicant subsequently unable to satisfy Condition 22, then the applicant should be required, by condition, to restore the site to its original status as at the date of the lodging of Application 13/05188/OUT within a specified period. We propose that this period should not exceed 6 months and that the applicant should lodge a bond with the Council in the sum of, say, £10 million to enable the Council to undertake the restoration work in the event of a default by the applicant.

ENDS

16 April 2018